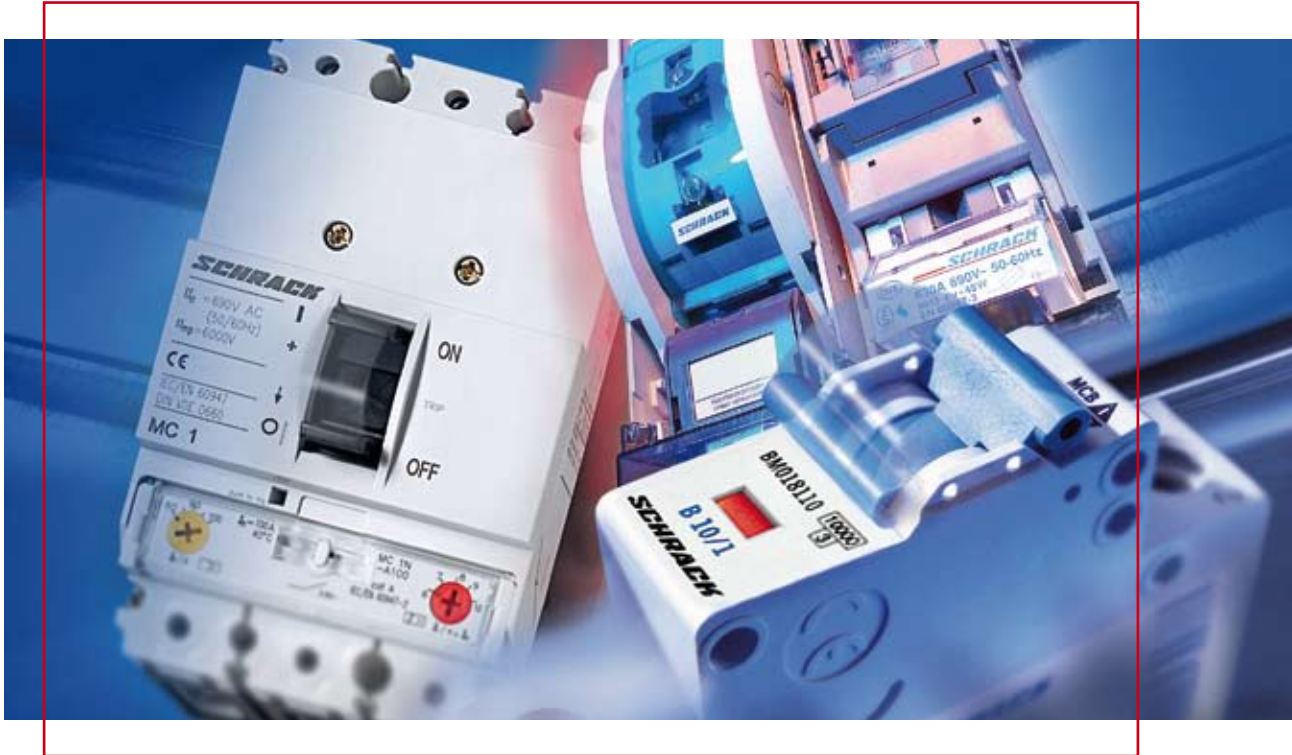




MAIN CATALOGUE – INTERNATIONAL

WELCOME TO SCHRACK TECHNIK



We are a leading, sales-oriented brand company from Austria specialising in the areas of energy, data and lighting systems. Our activities focus on products and solutions for energy optimisation, safety, data transfer and comfort. High-quality products, technical expertise and one-to-one customer service are at the fore of what we do.

SCHRACK PRODUCT QUALITY

We offer our customers a well sorted product range offering the highest levels of product availability. Our aim is ultra-efficiency when it comes to customerspecific solutions. This is possible thanks to standardized work processes, modularisation and the use of software aids.

SCHRACK ISO-CERTIFIZED

In recent times, testing procedures for ISO certification have shifted their focus very strongly on how organisations deal with customers, and the associated customer processes. Some of the major areas which are inspected include:

- General customer communication
- Dealing with offers and tenders in a structured manner
- Transparency in all areas of the company in direct or indirect contact with customers
- The above is required in all tiers of management

ISO certification is by no means the norm. Our ISO certification 9001:2000 is both a reward as well as an obligation. The obligation we have in accepting this certification is to ensure the documentation of our work processes and to continuously improve such processes.

GENERAL INFORMATION

- All **dimensioned drawings** are displayed within the confines of available space on the page and are only intended as a guide.
- All **circuit diagrams** are schematic wiring diagrams which are intended to allow better understanding of the function, and will need to be edited/added to during the course of project planning.
- All **images** represent samples of the product and are intended for information purposes only.

Unless otherwise stipulated, the current version of the General Terms of Delivery issued by The Association of the Austrian Electrical and Electronics Industries "FEEL" shall apply. No liability for errors in text, type or images; we reserve the right to make changes to technical specifications of the product range. The user information contained in this catalog reflect the opinion of the company at the time of writing. The information contained in it was assembled on the basis of published norms, specialist industry presentations, specialist literature and in-house expertise. The content is for informational purposes only and has no validity in law.

■ GENERAL INFORMATION	Page	I–XXII
■ ENCLOSURES	Page	1–31
■ PROTECTIVE DEVICES	Page	33–57
■ MODULAR DEVICES, MODULAR TIME AND MEASURING RELAYS	Page	59–93
■ SURGE VOLTAGE PROTECTION	Page	95–113
■ SWITCHES & CONTROLS	Page	115–137
■ FUSE MATERIAL	Page	139–163
■ CONNECTION AND INSTALLATION SYSTEM	Page	165–189
■ MOTOR PROTECTION SWITCHES, CONTACTORS, OVERLOAD RELAYS	Page	191–221
■ RELAYS	Page	223–237
■ CIRCUIT BREAKERS	Page	239–333
■ COUNTERS & METERS	Page	335–351
■ TRANSFORMERS, INDUCTORS, POWER SUPPLY UNITS	Page	353–360

INDEX

1			
100 mm and 185 mm busbar system	161	BCFO 10 kA RCCB	46
1-phase voltage monitoring relay	86	BCFO 6 kA RCCB	46
3		Bell	69
3-phase active and reactive power meter	345	Bell transformer	69
3-phase meters	345	BM On-off switch	61
3-phase Voltage monitoring relay	87	BMS0 10 kA	38
6		BMS4 4,5 kA	34
60 mm busbar system	153	BMS6 6 kA	36
A		BOLF 10 kA RCBO	43
Ac coils	232	BOLF 6 kA RCBO	43
Accessories for analogue measuring instruments	344	BR 10 kA	41
Accessories for AS/KS	20	BR 15 kA	42
Accessories for fan with filter	25	Brace terminals	155
Accessories for flush-mounted and hollow wall enclosures	5	Branch enclosures	26
Accessories for loadbreak disconnectors	150	Breakers with Isolating capacity	41
Accessories for MCB, RCBO, LS-DI, RCCB, MP	47	Bridge cover	187
Accessories for Modul 160 compact	8	British standard	27
Accessories for neozed	143	British Standard distribution boards	27
Accessories for new RCCB/MCB/RCBO	47	BS Distribution Boards	27
Accessories for screw-type terminals	180	Busbar assembly	153
Acoustic indicator	119	Buttons with LED	62
Add-on block	45	Buzzer	69
Adjusting sleeves	143	C	
Air circuit breakers	307	Cabinet heating systems	23
Ammeter	341	Cam switches	132
Ammeter switches	136	Capacity switching contactors	204
Analogue controller	215	Central remote switch	64
Analogue measuring instruments	340	Changeover switch	132
AS modular enclosures	15	Class B surge arresters	106
AS/KS Accessories	20	Class B/C surge arresters	104
AS/KS modul enclosures	15	Class C surge arresters	109
Astro time switches	73	Class D surge arresters	112
Auxiliary contact for control purposes for RCCB	47	Clear low door	7
Auxiliary contactors	205	Colored partition	184
Auxiliary Switch Type	47	Combtec surge arresters	105
B		Communication center	66
BB Series add-on block	45	Compact busbar	49
		Compact indicator light	127
		Conductor	154
		Connection kit for AS enclosure	17
		Connection terminals	155
		Consumer enclosures	2

Consumer enclosures DIN	4	Foot and palm switches	125
Consumer units	2	Frequency meter	343
Contactor relays	198	FSA Type	56
Control units	116	Full standard door	7
Control units	116	Fuse base	150
Coupling unit	122	Fuse disconnectors	140
Cross connections	185	Fuse loadbreak disconnectors	145
Cross connections for spring terminals	185		
Cuponal	161	G	
Current monitoring relay	92	Glazed door	7
Cylindrical fuse links	141		
		H	
D		High current terminals	175
DC coils	232	High door, zylinder lock "Ronis"	7
D surge arrester	112	High-current miniature circuit breakers	41
DC Miniature circuit breakers	40	Hour meter	351
Depth section for plinth	20	HRC fuse elements	147
Digital din-rail time switches	73	Humidistats	24
DIN rail mounted housing	6		
Distribution boards	27	I	
Distribution boards without incomer and		Illuminated pushbuttons	120
outgoing mccb's	31	Impulse relay	65
Duo-function relay	79	Impulse relay for installation in wall boxes	65
		Incoming spreader box	30
E		Indicator light	63
Earth leakage devices	46	Indicator lights	127
Earth terminals	177	Insertable protection module	113
Earth terminal blocks	173	Installation contactors	74
Emergency stop buttons	118	Isolator	60
Emergency-stop main switches	130		
Empty enclosure	124	K	
Enclosure accessories	20	KS Floor-mounted enclosures	18
Enclosure components	24		
End bracket	183	L	
End section for Modul 160 compact	8	Label	126
Eques motorcontroller	158	Level monitoring relay	90
Extension box	30	Lightning arrester	106
		Lights for equipment cabinets	24
F		Loadbreak disconnecter	144
Fan with filter, quick-fastening	25	Low voltage network monitor	336
Feed-through terminal	169	Low-current transformers	346
Flush-mounting and hollow wall	4	LS-DI/PT 6 kA RCBO	44
Flush-mounting enclosures	3		

M

Main load-break switch	60
Main switches	131
Mains analysers	336
Marking tags	180
MC moulded case circuit breaker	240
MCB	34
MCB for the industry	41
MCB-E 4,5 kA	41
MCCB incomer box	30
Mechanical Time switches	70
Metal Consumer Units	27
Mini contactors	198
Miniature circuit breakers	34
Miniature relays, type PT	224
MO air circuit breaker series	307
Modul – Connect	51
Modul 160 compact	7
Modul 4000TT – Type Tested enclosure	21
Modular contactors	221
Modular devices	59
Modular impulse relay	64
Modular low-current transformers	346
Modular switch with led	62
Modular switch with signal lamp	62
Modular switch without signal lamp	61
Modular service box	30
Monitoring relay	85
Motor contactor	216
Motor protection accessories	196
Motor protection devices	53
Motor protection switch	192
Motor safety switch	54
Moulded case circuit breakers	240
Mounting plates with separating plates	7
MP Series	54
Multifunctional relay	78
Multimode relays, type MT	228
Mushroom pushbutton	118

N

N/PE lightning arrester	107
Neozed accessories 300	143

Neozed melt fuses/inserts	143
Neutral bracket	150
Neutral conductor duct	48
Neutral conductor rail	167

O

On-off switch	132
Open enclosures	7
Overload relays	208

P

Pan assemblies	30
Panel-mounting fuse base	142
PCB relays, type RT	234
Pencil	184
Permanent cross connection	185
Phase monitoring relay	93
Pig tail RCBO	44
Pin and fork busbars	49
Plastic Consumer Units	2
Plug sockets – insertable protection module	113
Plug-in partition	184
Plug-in surge arrester	109
Plug-in time relay	84
Pocket for A4 circuit diagrams	25
Potential equalization rail	167
Potentiometer	126
Power Contactors	198
Pre-assembled bridges	185
Probes for level monitoring	90
Protec surge arresters	104
Protective cap IP 20 for series BS	47
Push-button	117
Push-button switch	62
Push-through transformers	347

R

RCCB	46
Relays	223
Relays, type RM	231
Remote release	47
Remote switch	64
Remote Switching unit	57

Remote Testing Module	57	Switch with signal lamp modular	62
Residual current add-on block	45	Switch without signal lamp modular	61
Residual current circuit breaker	46		
Restart lock	146		
		T	
S		Terminal boxes	26
Safety transformers	354	Terminals	166
Screw-type terminals	169	Terminals on three levels	174
Selectivity for MC/MO	240	Testing Module	57
Semiconductor contactors	212	Thermal overload relays	208
Series BB	45	Thermistor monitoring relay	88
Service relay	82	Thermostats and humidistats	24
Servicebox D0	143	Time switches	70
Side panels for AS enclosures	19	Timer flashing	80
SI-E MCB	41	Timers VOWA	67
Single-function relay	79	Transformers	354
Single-phase DC supply	357	Twilight switch with external sensor	72
Slim PCB relays, type SNR	236	Two-pin fuse	145
Small – Connect	51	Type FSA	56
Small heaters	23	Type Tested enclosure	21
Snap-on partition	184	Tytan	145
SNR socket without relay	236		
Socket outlet	69	U	
Soft starters	218	Undervoltage release	48
Spark gap based surge arresters	106	Unstabilised single-phase DC supply	357
Special terminals	178		
Spring clamp terminal	176	V	
Spring-type terminals	176	Vartec surge arresters	109
Stabilised power supplies	357	VDK Wiring duct type	188
Stabilised single-phase DC supply	357	Viewing doors	12
Staircase lighting	66	Voltage monitoring relay	85
Star-delta relay	81	Voltmeter	342
Star-delta switch	133	Voltmeter switch	136
Step switch	134		
Supply units	357	W	
Support insulators	152	Wall mounted open enclosures	7
Surface enclosure	124	Wall-mounting enclosures	9
Surge arrester	97	Width section for plinth	20
Surge voltage protection	96	Wiring duct type	188
Switch disconnectors	128	WSM wall enclosures	9
Switch element	123		
Switch element for front mounting	123	Y	
Switch with led modular	62	Year time switch	74

LIST OF ARTICLES

ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE
A		ASSOB101	20	BB024403	45	BC004110	46	BC604230	46	BE400213	54
AS181040	16	ASSOB102	20	BB044203	45	BC004130	46	BC606103	46	BE400301	54
AS181042	17	ASSOB121	20	BB044230	45	BC004203	46	BC606110	46	BE400302	54
AS181050	16	ASSOB122	20	BB044403	45	BC004210	46	BC606130	46	BE400303	54
AS181052	17	ASSOT031	20	BB044430	45	BC004230	46	BC606203	46	BE400304	54
AS181060	16	ASSOT032	20	BB046203	45	BC006103	46	BC606210	46	BE400305	54
AS181062	17	ASSOT041	20	BB046230	45	BC006110	46	BC606230	46	BE400306	54
AS181242	17	ASSOT042	20	BB046403	45	BC006130	46	BC652103	46	BE400307	54
AS181252	17	ASSOT051	20	BB046430	45	BC006203	46	BC652110	46	BE400308	54
AS181262	17	ASSOT052	20	BB047200	45	BC006210	46	BC652130	46	BE400309	54
AS186040	16	ASSOT061	20	BB047203	45	BC006230	46	BC652203	46	BE400310	54
AS186050	16	ASSOT062	20	BB047230	45	BC008103	46	BC652210	46	BE400311	54
AS186060	16	ASSOT081	20	BB047250	45	BC008110	46	BC652230	46	BE400312	54
AS188040	16	ASSOT082	20	BB047400	45	BC008130	46	BC654103	46	BE400313	54
AS188050	16	ASSW1804	17	BB047403	45	BC008203	46	BC654110	46	BES00016	194
AS188060	16	ASSW1805	17	BB047430	45	BC050103	46	BC654130	46	BES00020	194
AS201040	16	ASSW1806	17	BB047450	45	BC050110	46	BC654203	46	BES00025	194
AS201042	17	ASSW2004	17	BB048200	45	BC050130	46	BC654210	46	BES00032	194
AS201050	16	ASSW2005	17	BB048203	45	BC052103	46	BC654230	46	BES00040	194
AS201052	17	ASSW2006	17	BB048230	45	BC052110	46	BC656103	46	BES00050	194
AS201060	16	ASSW2008	17	BB048250	45	BC052130	46	BC656110	46	BES00063	194
AS201062	17	ASSW2206	17	BB048400	45	BC052203	46	BC656130	46	BES00080	194
AS201242	17	ASSW2208	17	BB048403	45	BC052210	46	BC656203	46	BES00100	194
AS201252	17	B		BB048430	45	BC052230	46	BC656210	46	BES00125	194
AS201262	17	BB004203	45	BB048450	45	BC054103	46	BC656230	46	BES00160	194
AS201642	17	BB004230	45	BB066400	45	BC054110	46	BD900002	47	BES00200	194
AS206040	16	BB004403	45	BB066430	45	BC054130	46	BD900006	47	BES00250	194
AS206050	16	BB004430	45	BB067400	45	BC054203	46	BD900022	47	BES00320	194
AS206060	16	BB006203	45	BB067430	45	BC054210	46	BD900022	54	BES00400	194
AS208040	16	BB006230	45	BB067450	45	BC054230	46	BD900902	57	BES00500	194
AS208050	16	BB006403	45	BB068400	45	BC056103	46	BD900903	57	BES00630	194
AS208060	16	BB006430	45	BB068430	45	BC056110	46	BD900904	57	BES00800	194
AS208080	16	BB007200	45	BB068450	45	BC056130	46	BD900907	56	BES01000	194
AS221060	16	BB007203	45	BB074230	45	BC056203	46	BD900908	57	BES01200	194
AS221062	17	BB007230	45	BB074430	45	BC056230	46	BE400001	55	BES01600	194
AS221262	17	BB007250	45	BB076230	45	BC058103	46	BE400002	55	BES02000	194
AS226060	16	BB007400	45	BB076400	45	BC058110	46	BE400003	55	BES02200	194
AS228060	16	BB007403	45	BB076430	45	BC058130	46	BE400201	54	BES02500	194
AS228080	16	BB007430	45	BC000103	46	BC602103	46	BE400202	54	BES22500	195
ASCC1060	17	BB007450	45	BC000110	46	BC602110	46	BE400203	54	BES23200	195
ASCCJ120	17	BB008200	45	BC000130	46	BC602130	46	BE400204	54	BES24000	195
ASCCM040	17	BB008203	45	BC000203	46	BC602203	46	BE400205	54	BES24500	195
ASDRA400	25	BB008230	45	BC002103	46	BC602210	46	BE400206	54	BES25000	195
ASSOB041	20	BB008250	45	BC002110	46	BC602230	46	BE400207	54	BES36300	195
ASSOB042	20	BB008400	45	BC002130	46	BC604103	46	BE400208	54	BES37500	195
ASSOB061	20	BB008403	45	BC002203	46	BC604110	46	BE400209	54	BES39000	195
ASSOB062	20	BB008430	45	BC002210	46	BC604130	46	BE400210	54	BES39999	195
ASSOB081	20	BB008450	45	BC002230	46	BC604203	46	BE400211	54	BESD0016	193
ASSOB082	20	BB024203	45	BC004103	46	BC604210	46	BE400212	54	BESD0020	193

LIST OF ARTICLES

ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE
BESD0025	193	BI557516ME	44	BK077004	5	BM015225	41	BM017302ME	39	BM017816	39
BESD0032	193	BI557520ME	44	BK077005	5	BM015232	41	BM017304	39	BM017816ME	39
BESD0040	193	BI557525ME	44	BK080000	3	BM015240	41	BM017304ME	39	BM017820	39
BESD0050	193	BI557532ME	44	BK080001	3	BM015250	41	BM017306	39	BM017820ME	39
BESD0063	193	BI557540ME	44	BK080002	3	BM017102	38	BM017306ME	39	BM017825	39
BESD0080	193	BI657506	44	BK080003	3	BM017102ME	38	BM017310	39	BM017825ME	39
BESD0100	193	BI657510	44	BK080050	3	BM017104	38	BM017310ME	39	BM017832	39
BESD0125	193	BI657516	44	BK080051	3	BM017104ME	38	BM017316	39	BM017832ME	39
BESD0160	193	BI657520	44	BK080052	3	BM017106	38	BM017316ME	39	BM017840	39
BESD0200	193	BI657525	44	BK080053	3	BM017106ME	38	BM017320	39	BM017840ME	39
BESD0250	193	BI657532	44	BK080098	3	BM017110	38	BM017320ME	39	BM017850	39
BESD0320	193	BI657540	44	BK080100	2	BM017110ME	38	BM017325	39	BM017850ME	39
BESD0400	193	BI658506	44	BK080101	2	BM017116	38	BM017325ME	39	BM017863	39
BESD0500	193	BI658510	44	BK080102	2	BM017116ME	38	BM017332	39	BM017863ME	39
BESD0630	193	BI658516	44	BK080103	2	BM017120	38	BM017332ME	39	BM018106	38
BESD0800	193	BI658520	44	BK0801501	2	BM017120ME	38	BM017340	39	BM018110	38
BESD1000	193	BI658525	44	BK080151	2	BM017125	38	BM017340ME	39	BM018116	38
BESD1200	193	BI658532	44	BK080152	2	BM017125ME	38	BM017350	39	BM018120	38
BEZ00001	196	BI658540	44	BK080153	2	BM017132	38	BM017350ME	39	BM018125	38
BEZ00002	196	BI757506ME	44	BKCU0204	27	BM017132ME	38	BM017363	39	BM018132	38
BEZ00003	196	BI757510ME	44	BKCU0206	27	BM017140	38	BM017363ME	39	BM018140	38
BEZ00004	196	BI757516ME	44	BKCU0210	27	BM017140ME	38	BM017406	39	BM018150	38
BEZ00005	196	BI757520ME	44	BKCU0606	27	BM017150	38	BM017410	39	BM018163	38
BEZ00006	196	BI757525ME	44	BKCU0610	27	BM017150ME	38	BM017416	39	BM018206	39
BEZ00007	196	BI757532ME	44	BKCU0816	27	BM017163	38	BM017420	39	BM018210	39
BEZ00008	196	BI757540ME	44	BKCU0818	27	BM017163ME	38	BM017425	39	BM018216	39
BEZ00009	196	BK003001	2	BKCU1008	27	BM017202	39	BM017432	39	BM018220	39
BEZ00010	196	BK003002	2	BKCU1010	27	BM017202ME	39	BM017440	39	BM018225	39
BEZ00011	196	BK003003	2	BKCU1016	27	BM017204	39	BM017450	39	BM018232	39
BEZ00012	196	BK003004	2	BKCU1018	27	BM017204ME	39	BM017463	39	BM018240	39
BEZ00013	196	BK003021	2	BKCU1208	27	BM017206	39	BM017602	38	BM018250	39
BEZ00014	196	BK003022	2	BKCU1210	27	BM017206ME	39	BM017604	38	BM018263	39
BEZ00016	196	BK003023	2	BKCU1618	27	BM017210	39	BM017606	38	BM018306	39
BEZ00017	196	BK003024	2	BKCU1808	27	BM017210ME	39	BM017610	38	BM018310	39
BEZ00018	196	BK004100	5	BKCU1810	27	BM017216	39	BM017616	38	BM018316	39
BEZ00019	196	BK004405	166	BM015102	41	BM017216ME	39	BM017620	38	BM018320	39
BEZ00020	196	BK070001	4	BM015106	41	BM017220	39	BM017625	38	BM018325	39
BEZ00021	196	BK070001-A	4	BM015110	41	BM017220ME	39	BM017632	38	BM018332	39
BEZ00112	196	BK070002	4	BM015116	41	BM017225	39	BM017640	38	BM018340	39
BEZ00113	196	BK070002-A	4	BM015120	41	BM017225ME	39	BM017650	38	BM018350	39
BEZ00116	196	BK070003	4	BM015125	41	BM017232	39	BM017663	38	BM018363	39
BEZ00212	196	BK070003-A	4	BM015132	41	BM017232ME	39	BM017802	39	BM018602	38
BEZ00213	196	BK070004	4	BM015140	41	BM017240	39	BM017802ME	39	BM018604	38
BEZ00216	196	BK070004-A	4	BM015150	41	BM017240ME	39	BM017804	39	BM018606	38
BEZ00217	196	BK070101	4	BM015202	41	BM017250	39	BM017804ME	39	BM018610	38
BEZ00218	196	BK070102	4	BM015206	41	BM017250ME	39	BM017806	39	BM018616	38
BEZ00219	196	BK070103	4	BM015210	41	BM017263	39	BM017806ME	39	BM018620	38
BI557506ME	44	BK070104	4	BM015216	41	BM017263ME	39	BM017810	39	BM018625	38
BI557510ME	44	BK077002	5	BM015220	41	BM017302	39	BM017810ME	39	BM018632	38

LIST OF ARTICLES

ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE
BM018640	38	BM019810	39	BM417332ME	35	BM418332	35	BM617220ME	37	BM617620	36
BM018650	38	BM019816	39	BM417340	35	BM418340	35	BM617225	37	BM617625	36
BM018663	38	BM019820	39	BM417340ME	35	BM418606	34	BM617225ME	37	BM617632	36
BM018806	39	BM019825	39	BM417350	35	BM418610	34	BM617232	37	BM617640	36
BM018810	39	BM019832	39	BM417363	35	BM418616	34	BM617232ME	37	BM617650	36
BM018816	39	BM019840	39	BM417606	34	BM418620	34	BM617240	37	BM617663	36
BM018820	39	BM417106	34	BM417610	34	BM418625	34	BM617240ME	37	BM617802	37
BM018825	39	BM417106ME	34	BM417616	34	BM418632	34	BM617250	37	BM617802ME	37
BM018832	39	BM417110	34	BM417620	34	BM418640	34	BM617250ME	37	BM617804	37
BM018840	39	BM417110ME	34	BM417625	34	BM418806	35	BM617263	37	BM617804ME	37
BM018850	39	BM417116	34	BM417632	34	BM418810	35	BM617263ME	37	BM617806	37
BM018863	39	BM417116ME	34	BM417640	34	BM418816	35	BM617302	37	BM617806ME	37
BM019102	38	BM417120	34	BM417650	34	BM418820	35	BM617302ME	37	BM617810	37
BM019104	38	BM417120ME	34	BM417663	34	BM418825	35	BM617304	37	BM617810ME	37
BM019106	38	BM417125	34	BM417806	35	BM418832	35	BM617304ME	37	BM617816	37
BM019110	38	BM417125ME	34	BM417806ME	35	BM418840	35	BM617306	37	BM617816ME	37
BM019116	38	BM417132	34	BM417810	35	BM617102	36	BM617306ME	37	BM617820	37
BM019120	38	BM417132ME	34	BM417810ME	35	BM617102ME	36	BM617310	37	BM617820ME	37
BM019125	38	BM417140	34	BM417816	35	BM617104	36	BM617310ME	37	BM617825	37
BM019132	38	BM417140ME	34	BM417816ME	35	BM617104ME	36	BM617316	37	BM617825ME	37
BM019140	38	BM417150	34	BM417820	35	BM617106	36	BM617316ME	37	BM617832	37
BM019202	39	BM417163	34	BM417820ME	35	BM617106ME	36	BM617320	37	BM617832ME	37
BM019204	39	BM417206	35	BM417825	35	BM617110	36	BM617320ME	37	BM617840	37
BM019206	39	BM417206ME	35	BM417825ME	35	BM617110ME	36	BM617325	37	BM617840ME	37
BM019210	39	BM417210	35	BM417832	35	BM617116	36	BM617325ME	37	BM617850	37
BM019216	39	BM417210ME	35	BM417832ME	35	BM617116ME	36	BM617332	37	BM617850ME	37
BM019220	39	BM417216	35	BM417840	35	BM617120	36	BM617332ME	37	BM617863	37
BM019225	39	BM417216ME	35	BM417840ME	35	BM617120ME	36	BM617340	37	BM617863ME	37
BM019232	39	BM417220	35	BM417850	35	BM617125	36	BM617340ME	37	BM618106	36
BM019240	39	BM417220ME	35	BM417863	35	BM617125ME	36	BM617350	37	BM618110	36
BM019302	39	BM417225	35	BM418106	34	BM617132	36	BM617350ME	37	BM618116	36
BM019304	39	BM417225ME	35	BM418110	34	BM617132ME	36	BM617363	37	BM618120	36
BM019306	39	BM417232	35	BM418116	34	BM617140	36	BM617363ME	37	BM618125	36
BM019310	39	BM417232ME	35	BM418120	34	BM617140ME	36	BM617402	37	BM618132	36
BM019316	39	BM417240	35	BM418125	34	BM617150	36	BM617404	37	BM618140	36
BM019320	39	BM417240ME	35	BM418132	34	BM617150ME	36	BM617406	37	BM618150	36
BM019325	39	BM417250	35	BM418140	34	BM617163	36	BM617410	37	BM618163	36
BM019332	39	BM417263	35	BM418206	35	BM617163ME	36	BM617416	37	BM618206	37
BM019340	39	BM417306	35	BM418210	35	BM617202	37	BM617420	37	BM618210	37
BM019406	39	BM417306ME	35	BM418216	35	BM617202ME	37	BM617425	37	BM618216	37
BM019410	39	BM417310	35	BM418220	35	BM617204	37	BM617432	37	BM618220	37
BM019416	39	BM417310ME	35	BM418225	35	BM617204ME	37	BM617440	37	BM618225	37
BM019420	39	BM417316	35	BM418232	35	BM617206	37	BM617450	37	BM618232	37
BM019425	39	BM417316ME	35	BM418240	35	BM617206ME	37	BM617463	37	BM618240	37
BM019432	39	BM417320	35	BM418306	35	BM617210	37	BM617602	36	BM618250	37
BM019440	39	BM417320ME	35	BM418310	35	BM617210ME	37	BM617604	36	BM618263	37
BM019802	39	BM417325	35	BM418316	35	BM617216	37	BM617606	36	BM618306	37
BM019804	39	BM417325ME	35	BM418320	35	BM617216ME	37	BM617610	36	BM618310	37
BM019806	39	BM417332	35	BM418325	35	BM617220	37	BM617616	36	BM618316	37

LIST OF ARTICLES

ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE
BM618320	37	BO617625	43	BO717532	43	BR572800	41	BR598500	42	BS418532	40
BM618325	37	BO617632	43	BO717540	43	BR572910	41	BR598630	42	BS418540	40
BM618332	37	BO617640	43	BO717610	43	BR572912	41	BR598800	42	BS900004	48
BM618340	37	BO618506	43	BO717616	43	BR573200	42	BR598910	42	BS900007	48
BM618350	37	BO618510	43	BO717620	43	BR573250	42	BR900003	47	BS900007	54
BM618363	37	BO618516	43	BO718506	43	BR573320	42	BR900004	47	BS900008	48
BM618606	36	BO618520	43	BO718510	43	BR573400	42	BR900005	47	BS900008	54
BM618610	36	BO618525	43	BO718516	43	BR573500	42	BR971800	42	BS900009	48
BM618616	36	BO618532	43	BO718610	43	BR573630	42	BR971910	42	BS900009	54
BM618620	36	BO618540	43	BO718616	43	BR573800	42	BR971912	42	BS900010	48
BM618625	36	BO618606	43	BO718620	43	BR573910	42	BR972800	42	BS900024	48
BM618632	36	BO618610	43	BO817506	43	BR573912	42	BR972910	42	BS900026	48
BM618640	36	BO618616	43	BO817510	43	BR578200	42	BR972912	42	BS900030	47
BM618806	37	BO618620	43	BO817516	43	BR578250	42	BR973800	42	BS900116	49
BM618810	37	BO618625	43	BO817520	43	BR578320	42	BR973910	42	BS900116	52
BM618816	37	BO618632	43	BO817525	43	BR578400	42	BR973912	42	BS900120	49
BM618820	37	BO618640	43	BO817532	43	BR578500	42	BR978800	42	BS900133	143
BM618825	37	BO667506	43	BO817540	43	BR578630	42	BR978910	42	BS900134	146
BM618832	37	BO667510	43	BO817606	43	BR578800	42	BR978912	42	BS900143	146
BM618840	37	BO667516	43	BO817610	43	BR578910	42	BS017502	40	BS900170	50
BM618850	37	BO667520	43	BO817616	43	BR578912	42	BS017504	40	BS900171	50
BM618863	37	BO667525	43	BO817620	43	BR591200	41	BS017506	40	BS900172	50
BM900001	47	BO667532	43	BO817625	43	BR591250	41	BS017510	40	BS900173	50
BM900001	54	BO667540	43	BO817632	43	BR591320	41	BS017516	40	BS900174	50
BM900005	47	BO667606	43	BO817640	43	BR591400	41	BS017520	40	BS900175	50
BM900005	54	BO667610	43	BO818506	43	BR591500	41	BS017525	40	BS900176	50
BM900006	47	BO667616	43	BO818510	43	BR591630	41	BS017532	40	BS900177	50
BM900006	54	BO667620	43	BO818606	43	BR591800	41	BS017540	40	BS900178	50
BM900011	61	BO667625	43	BO818610	43	BR591910	41	BS018506	40	BS900179	50
BM900012	61	BO667632	43	BO818616	43	BR592200	41	BS018510	40	BS900187	49
BM900013	61	BO667640	43	BO818620	43	BR592250	41	BS018516	40	BS900199	50
BM900014	61	BO668506	43	BO818625	43	BR592320	41	BS018520	40	BS900200	167
BM900015	61	BO668510	43	BO818632	43	BR592400	41	BS018525	40	BS900304	49
BM900016	61	BO668516	43	BO818640	43	BR592500	41	BS018532	40	BS990004ME	30
BM900018	61	BO668520	43	BR571200	41	BR592630	41	BS018540	40	BS990006ME	30
BM900019	61	BO668525	43	BR571250	41	BR592800	41	BS417502	40	BS990008ME	30
BM900022	47	BO668532	43	BR571320	41	BR592910	41	BS417504	40	BS990012ME	30
BM900022	54	BO668540	43	BR571400	41	BR593200	42	BS417506	40	BS990016ME	30
BO617506	43	BO668606	43	BR571500	41	BR593250	42	BS417510	40	BS990018ME	30
BO617510	43	BO668610	43	BR571630	41	BR593320	42	BS417516	40	BS990024ME	30
BO617516	43	BO668616	43	BR571800	41	BR593400	42	BS417520	40	BS990111ME	49
BO617520	43	BO668620	43	BR571910	41	BR593500	42	BS417525	40	BS990112ME	49
BO617525	43	BO668625	43	BR571912	41	BR593630	42	BS417532	40	BS990116ME	49
BO617532	43	BO668632	43	BR572200	41	BR593800	42	BS417540	40	BS990117ME	49
BO617540	43	BO668640	43	BR572250	41	BR593910	42	BS418506	40	BS990124	49
BO617606	43	BO717510	43	BR572320	41	BR598200	42	BS418510	40	BS990150	49
BO617610	43	BO717516	43	BR572400	41	BR598250	42	BS418516	40	BS990151	49
BO617616	43	BO717520	43	BR572500	41	BR598320	42	BS418520	40	BS990152	49
BO617620	43	BO717525	43	BR572630	41	BR598400	42	BS418525	40	BS990153	49

LIST OF ARTICLES

ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE
BS990170	51	BZ326439	74	BZ327711	72	C		IK020018	167	IK100504	185
BS990171	51	BZ326442	221	BZ327731	72	CU201003	161	IK020019	50	IK100505	171
BS990172	52	BZ326442	75	BZ328371	73	CU202003	161	IK021036	166	IK100505	185
BS990173	52	BZ326443	221	BZ328372	73	CU204005	161	IK021036I	167	IK100506	171
BS990174	52	BZ326443	75	BZ328391	73	CU204010	161	IK021037	166	IK100506	185
BS990175	52	BZ326444	221	BZ328392	73	CU205010	161	IK021037I	167	IK100507	171
BS990176	52	BZ326444	75	BZ328A71	73	CU206010	161	IK021038	166	IK100507	185
BS990177	52	BZ326445	221	BZ328A72	73	CU208010	161	IK021038I	167	IK100508	171
BS990178	52	BZ326445	75	BZ328A91	73	CU2S2005	161	IK021039	166	IK100508	185
BS990179	52	BZ326448	70	BZ328A92	73	CU2S3005	161	IK021039I	167	IK100511	170
BZ106380	62	BZ326450	70	BZ336902	63	CU2S3010	161	IK021078	168	IK100511	185
BZ106390	62	BZ326452	221	BZ336903	63	I		IK021079	168	IK100520	178
BZ106800	63	BZ326452	75	BZ501210ME	127	IG302015	26	IK021080	168	IK100520	185
BZ107010	61	BZ326453	221	BZ501211ME	127	IG302520	26	IK021081	168	IK100540	178
BZ107020	61	BZ326453	74	BZ501212ME	127	IG310008	26	IK100002	170	IK100540	185
BZ107030	61	BZ326460	221	BZ501213ME	127	IG310808	26	IK100004	170	IK100542	170
BZ107050	61	BZ326460	75	BZ501214ME	127	IG311010	26	IK100006	170	IK100542	179
BZ107410	62	BZ326461	221	BZ501215ME	127	IG311275	26	IK100010	170	IK100542	185
BZ107430	62	BZ326461	75	BZ501216ME	127	IG311511	26	IK100016	171	IK100583	170
BZ117121	62	BZ326462	221	BZ501217ME	127	IG311914	26	IK100035-A	171	IK100583	185
BZ117131	62	BZ326462	75	BZ501218ME	127	IG312419	26	IK100050	171	IK100601	174
BZ117531	63	BZ326463	221	BZ501219ME	127	IG390001	26	IK100070	171	IK100603	170
BZ117904	63	BZ326463	75	BZ900002	63	IG390002	26	IK100202	170	IK100603	186
BZ117908	63	BZ326464	221	BZ900201	60	IG390003	26	IK100204	170	IK100605	171
BZ127121	62	BZ326464	75	BZ900202	60	IG390004	26	IK100210	170	IK100605	186
BZ127131	62	BZ326465	221	BZ900203	60	IG390005	26	IK100216	171	IK100606	171
BZ127531	63	BZ326465	75	BZ900204	60	IG390012	26	IK100235-A	171	IK100606	186
BZ127904	63	BZ326466	221	BZ900221	60	IG390013	26	IK100250	171	IK100607	171
BZ127908	63	BZ326466	75	BZ900222	60	IG702023	26	IK100270	171	IK100607	186
BZ136010	61	BZ326467	221	BZ900223	60	IG702024	26	IK100401	170	IK100608	171
BZ136020	61	BZ326467	75	BZ900224	60	IG702054	26	IK100401	186	IK100608	186
BZ136030	61	BZ326468	221	BZ900241	60	IG702056	26	IK100402	174	IK100611	170
BZ136130	62	BZ326468	75	BZ900242	60	IG702057	26	IK100404	170	IK100611	174
BZ325000-A	69	BZ326469	221	BZ900243	60	IG704008	26	IK100404	186	IK100611	186
BZ325001-A	69	BZ326469	75	BZ900244	60	IG704032	26	IK100405	171	IK100612	170
BZ326325	72	BZ326470	221	BZ900261	60	IG704036	26	IK100405	186	IK100612	179
BZ326401	71	BZ326470	75	BZ900262	60	IG704045	26	IK100406	171	IK100612	186
BZ326413	351	BZ326471	221	BZ900263	60	IG713027	26	IK100406	186	IK100683	170
BZ326414	351	BZ326471	74	BZ900264	60	IK011030-A	152	IK100407	171	IK100683	186
BZ326416	351	BZ326484	72	BZ900281	60	IK011031-A	152	IK100407	186	IK100706	186
BZ326418	351	BZ326577	69	BZ900282	60	IK011032-A	152	IK100408	171	IK100707	186
BZ326421	221	BZ326578	69	BZ900283	60	IK011033-A	152	IK100408	186	IK100708	186
BZ326421	74	BZ326579	69	BZ900284	60	IK018004	167	IK100413	170	IK100711	186
BZ326424	72	BZ327031	71	BZ926338	69	IK020011	167	IK100413	186	IK100712	186
BZ326437	221	BZ327131	71	BZ926339	69	IK020013	167	IK100442	170	IK100744	186
BZ326437	74	BZ327210	66	BZ926351	69	IK020014	167	IK100442	179	IK100793	186
BZ326438	221	BZ327350	68	BZ926353	69	IK020015	167	IK100442	186	IK100803	170
BZ326438	74	BZ327360	68	BZ990000	66	IK020016	167	IK100458	174	IK100803	185
BZ326439	221	BZ327664	74	BZ990001	66	IK020017	167	IK100504	170	IK100807	170

LIST OF ARTICLES

ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE
IK100807	179	IK108210	184	IK123001	176	IK190601	181	IK197171	170	IK197571	174
IK100807	185	IK108600	184	IK123001	177	IK190651	181	IK197171	171	IK197571	180
IK100811	170	IK108700	184	IK123001	178	IK190701	181	IK197171	172	IK197581	170
IK100811	185	IK109001	170	IK123001	179	IK190751	181	IK197171	173	IK197581	172
IK100816	185	IK109001	179	IK123001	183	IK190801	181	IK197171	180	IK197581	174
IK100820	187	IK109001	184	IK130004-A	178	IK190851	181	IK197181	170	IK197581	180
IK100821	187	IK109004	170	IK130204-A	178	IK190901	181	IK197181	171	IK197591	170
IK100822	187	IK109004	171	IK131004-A	178	IK190951	181	IK197181	172	IK197591	172
IK100900	187	IK109004	174	IK131204	178	IK193901	184	IK197181	173	IK197591	174
IK100901	187	IK109004	179	IK141004	178	IK197100	170	IK197181	180	IK197591	180
IK100902	187	IK109004	184	IK150004-A	174	IK197100	171	IK197191	170	IK197600	170
IK100904	187	IK109005	171	IK150204-A	174	IK197100	172	IK197191	171	IK197600	172
IK100906	187	IK109005	178	IK160000	175	IK197100	173	IK197191	172	IK197600	179
IK100910	187	IK109005	184	IK170006	178	IK197100	180	IK197191	173	IK197600	180
IK100935	187	IK109006	171	IK170200	178	IK197110	170	IK197191	180	IK197610	170
IK101002	170	IK109006	174	IK171006	178	IK197110	171	IK197500	170	IK197610	172
IK101004	170	IK109006	184	IK180000	174	IK197110	172	IK197500	172	IK197610	179
IK101006	170	IK113000	183	IK180001	174	IK197110	173	IK197500	174	IK197610	180
IK101010	170	IK114120	175	IK180002	174	IK197110	180	IK197500	180	IK197611	170
IK101016	171	IK114185	175	IK180200	174	IK197111	170	IK197510	170	IK197611	172
IK101035-A	171	IK119200	175	IK180201	174	IK197111	171	IK197510	172	IK197611	179
IK101050	171	IK119201	175	IK190001	181	IK197111	172	IK197510	174	IK197611	180
IK101070	171	IK119900	183	IK190002	181	IK197111	173	IK197510	180	IK197621	170
IK101202	170	IK120801	179	IK190003	181	IK197111	180	IK197511	170	IK197621	172
IK101204	170	IK122002-A	172	IK190004	181	IK197121	170	IK197511	172	IK197621	179
IK101210	170	IK122004-A	172	IK190011	181	IK197121	171	IK197511	174	IK197621	180
IK101216	171	IK122006	172	IK190016	181	IK197121	172	IK197511	180	IK197631	170
IK101235-A	171	IK122010	172	IK190017	181	IK197121	173	IK197521	170	IK197631	172
IK101250	171	IK122016	173	IK190018	181	IK197121	180	IK197521	172	IK197631	179
IK101270	171	IK122035	173	IK190019	181	IK197131	170	IK197521	174	IK197631	180
IK107001	184	IK122070	173	IK190020	181	IK197131	171	IK197521	180	IK197641	170
IK107004	184	IK122202	172	IK190021	181	IK197131	172	IK197531	170	IK197641	172
IK107005	184	IK122204	172	IK190022	181	IK197131	173	IK197531	172	IK197641	179
IK107006	184	IK123000	170	IK190023	181	IK197131	180	IK197531	174	IK197641	180
IK108001	170	IK123000	171	IK190024	181	IK197141	170	IK197531	180	IK197651	170
IK108001	179	IK123000	172	IK190028	181	IK197141	171	IK197541	170	IK197651	172
IK108001	184	IK123000	173	IK190030	181	IK197141	172	IK197541	172	IK197651	179
IK108004	170	IK123000	174	IK190044	181	IK197141	173	IK197541	174	IK197651	180
IK108004	171	IK123000	175	IK190051	181	IK197141	180	IK197541	180	IK197661	170
IK108004	174	IK123000	176	IK190101	181	IK197151	170	IK197551	170	IK197661	172
IK108004	179	IK123000	177	IK190151	181	IK197151	171	IK197551	172	IK197661	179
IK108004	184	IK123000	178	IK190201	181	IK197151	172	IK197551	174	IK197661	180
IK108005	171	IK123000	179	IK190251	181	IK197151	173	IK197551	180	IK197671	170
IK108005	178	IK123000	183	IK190301	181	IK197151	180	IK197561	170	IK197671	172
IK108005	184	IK123001	170	IK190351	181	IK197161	170	IK197561	172	IK197671	179
IK108006	171	IK123001	171	IK190401	181	IK197161	171	IK197561	174	IK197671	180
IK108006	174	IK123001	172	IK190451	181	IK197161	172	IK197561	180	IK197681	170
IK108006	184	IK123001	173	IK190501	181	IK197161	173	IK197571	170	IK197681	172
IK108007	179	IK123001	174	IK190551	181	IK197161	180	IK197571	172	IK197681	179

LIST OF ARTICLES

ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE
IK197681	180	IK197881	170	IK200006-C	176	IK297271	180	IKB04050	166	ILC3H633	7
IK197691	170	IK197881	172	IK200202-C	176	IK297281	176	IKB14016	166	ILC3T433	7
IK197691	172	IK197881	178	IK200204-C	176	IK297281	177	IL900112-F	5	ILC3T533	7
IK197691	179	IK197881	180	IK200206-C	176	IK297281	180	IL900251-G	5	ILC3T633	7
IK197691	180	IK197891	170	IK200502--	176	IK297291	176	IL900251-W	5	ILCAMCF2	8
IK197710	174	IK197891	172	IK200502	185	IK297291	177	IL900315	167	ILCAMCF3	8
IK197710	178	IK197891	178	IK200502-A	176	IK297291	180	ILC2A224	7	ILCAMPT2	8
IK197710	179	IK197891	180	IK200502-A	177	IK297400	176	ILC2A324	7	ILCAMPT3	8
IK197710	180	IK197900	182	IK200502-A	185	IK297400	177	ILC2A424	7	ILCNK029	8
IK197711	174	IK197901	182	IK200547	176	IK297400	180	ILC2A524	7	ILCNK045	8
IK197711	178	IK197902	182	IK200547	177	IK297410	176	ILC2A624	7	ILCNK060	8
IK197711	179	IK197903	182	IK200547	185	IK297410	177	ILC2F224	7	ILCNK076	8
IK197711	180	IK197904	182	IK201002-A	176	IK297410	180	ILC2F324	7	ILCU0500FM	28
IK197800	170	IK197905	182	IK201004	176	IK297411	176	ILC2F424	7	ILCU0500FT	28
IK197800	172	IK197906	182	IK201006	176	IK297411	177	ILC2F524	7	ILCU0500WM	28
IK197800	178	IK197907	182	IK201202-A	176	IK297411	180	ILC2F624	7	ILCU0500WT	28
IK197800	180	IK197908	182	IK201204	176	IK297421	176	ILC2H224	7	ILCU0800FM	28
IK197810	170	IK197909	182	IK222002	177	IK297421	177	ILC2H324	7	ILCU0800FT	28
IK197810	172	IK197910	182	IK222004	177	IK297421	180	ILC2H424	7	ILCU0800WM	28
IK197810	178	IK197911	182	IK222006	177	IK297431	176	ILC2H524	7	ILCU0800WT	28
IK197810	180	IK197912	182	IK222206	177	IK297431	177	ILC2H624	7	ILCU1000FM	28
IK197811	170	IK197913	182	IK250002-C	177	IK297431	180	ILC2T224	7	ILCU1000FT	28
IK197811	172	IK197914	182	IK250202-C	177	IK297441	176	ILC2T324	7	ILCU1000WM	28
IK197811	178	IK197915	182	IK297200	176	IK297441	177	ILC2T424	7	ILCU1000WT	28
IK197811	180	IK197916	182	IK297200	177	IK297441	180	ILC2T524	7	ILCU1400FM	28
IK197821	170	IK197917	182	IK297200	180	IK297451	176	ILC2T624	7	ILCU1400FT	28
IK197821	172	IK197918	182	IK297210	176	IK297451	177	ILC2U224	8	ILCU1400WM	28
IK197821	178	IK197919	182	IK297210	177	IK297451	180	ILC2U224F	8	ILCU1400WT	28
IK197821	180	IK197920	182	IK297210	180	IK297461	176	ILC2U324	8	ILCU1800FM	28
IK197831	170	IK197921	182	IK297211	176	IK297461	177	ILC2U324F	8	ILCU1800FT	28
IK197831	172	IK197922	182	IK297211	177	IK297461	180	ILC2U424	8	ILCU1800WM	28
IK197831	178	IK197923	182	IK297211	180	IK297471	176	ILC2U424F	8	ILCU1800WT	28
IK197831	180	IK197924	182	IK297221	176	IK297471	177	ILC2U433	8	ILCUMCF2	8
IK197841	170	IK197925	182	IK297221	177	IK297471	180	ILC2U433F	8	ILCUMCF3	8
IK197841	172	IK197926	182	IK297221	180	IK297481	176	ILC2U524	8	ILCUMPT2	8
IK197841	178	IK197927	182	IK297231	176	IK297481	177	ILC2U524F	8	ILCUMPT3	8
IK197841	180	IK197928	182	IK297231	177	IK297481	180	ILC2U533	8	ILCZYL2233	8
IK197851	170	IK197929	182	IK297231	180	IK297491	176	ILC2U533F	8	ILDB0400FM	29
IK197851	172	IK197933	182	IK297241	176	IK297491	177	ILC2U624	8	ILDB0400WM	29
IK197851	178	IK197944	182	IK297241	177	IK297491	180	ILC2U624F	8	ILDB0600FM	29
IK197851	180	IK197955	182	IK297241	180	IK800002-C	176	ILC2U633	8	ILDB0600WM	29
IK197861	170	IK197966	182	IK297251	176	IK800202-C	176	ILC2U633F	8	ILDB0800FM	29
IK197861	172	IK197977	182	IK297251	177	IKB01016	166	ILC3A433	7	ILDB0800WM	29
IK197861	178	IK197988	182	IK297251	180	IKB01035	166	ILC3A533	7	ILDB1200FM	29
IK197861	180	IK197999	182	IK297261	176	IKB01070	166	ILC3A633	7	ILDB1200WM	29
IK197871	170	IK198901	184	IK297261	177	IKB01120	166	ILC3F433	7	ILDB1600FM	29
IK197871	172	IK199999	183	IK297261	180	IKB01185	166	ILC3F633	7	ILDB1600WM	29
IK197871	178	IK200002-C	176	IK297271	176	IKB04016	166	ILC3H433	7	ILDB1800FM	29
IK197871	180	IK200004-C	176	IK297271	177	IKB04035	166	ILC3H533	7	ILDB1800WM	29

LIST OF ARTICLES

ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE
ILDB2400WM	29	IM009011	6	IN004120	133	IN8E2338	129	ISO10181	105	IS503103	144
ILDIN016WM	30	IM009016	6	IN005120	132	IN8P2332	130	ISO10183	105	IS503320	144
ILMC0420WM	31	IM009019	6	IN005121	132	IN8P2333	130	ISO10187	105	IS503325	144
ILMC0421WM	31	IM009020	6	IN005122	132	IN8P2334	130	ISO10195	104	IS503335	144
ILMC0442WM	31	IM009021	6	IN005220	132	IN8P2338	130	ISO10200	112	IS504002	142
ILMC0462WM	31	IM009022	6	IN005320	132	IN8P2434	130	ISO10201	111	IS504002	143
ILMC0620WM	31	IM088843	14	IN006120	132	IN8R1322	131	ISO10201	112	IS504030	143
ILMC0621WM	31	IM088844	14	IN006121	132	IN8R1323	131	ISO10202	111	IS504031	143
ILMC0642WM	31	IM088854	14	IN006220	132	IN8R1324	131	ISO10202	112	IS504032	143
ILMC0662WM	31	IM088864	14	IN006221	132	IN8R1325	131	ISO50019	101	IS504033	143
ILMC0820WM	31	IM088865	14	IN006320	132	IN8R1327	131	ISO50019	103	IS504034	143
ILMC0821WM	31	IM088886	14	IN007121	133	IN8R1328	131	ISO50020	101	IS504035	143
ILMC0842WM	31	IM088943	14	IN007122	133	IN8R2322	130	ISO50020	103	IS504036	143
ILMC0862WM	31	IM088944	14	IN009A00	134	IN8R2323	130	ISO50103	110	IS504037	143
ILMC1020WM	31	IM088954	14	IN009A01	136	IN8R2324	130	ISO50104	110	IS504038	143
ILMC1021WM	31	IM088964	14	IN009V00	133	IN8R2325	130	ISO50105	110	IS504039	143
ILMC1042WM	31	IM088965	14	IN009V01	136	IN8R2327	130	IS111110	99	IS504040	143
ILMC1062WM	31	IM088986	14	IN083121	137	IN8R2328	130	IS111130	98	IS504041	143
ILMC1220WM	31	IMCH0043	14	IN085120	135	ISO10002	113	IS111140	98	IS504130	143
ILMC1221WM	31	IMCH0044	14	IN085220	135	ISO10003	113	IS211210	99	IS504131	143
ILMC1242WM	31	IMCH0054	14	IN085320	135	ISO10064-A	110	IS211210	103	IS504132	143
ILMC1262WM	31	IMCH0064	14	IN086120	135	ISO10065-A	110	IS211230	98	IS504133	143
ILMC1420WM	31	IMCH0065	14	IN086122	135	ISO10068-A	110	IS211230	103	IS504134	143
ILMC1421WM	31	IMCH0086	14	IN086220	135	ISO10069-A	110	IS211240	98	IS504135	143
ILMC1442WM	31	IMCH0586	14	IN086320	135	ISO10070-A	110	IS211240	103	IS504136	143
ILMC1462WM	31	IMMM0032	14	IN087120	136	ISO10071-A	110	IS211311	99	IS504137	143
ILMC1620WM	31	IMMM0043	14	IN087220	136	ISO10073	111	IS211311	101	IS504138	143
ILMC1621WM	31	IMMM0044	14	IN087320	136	ISO10075	110	IS211330	98	IS504140	143
ILMC1642WM	31	IMMM0054	14	IN108900	133	ISO10076	110	IS211330	101	IS504141	143
ILMC1662WM	31	IMMM0064	14	IN805780	129	ISO10077	110	IS211340	98	IS504142	143
ILMCCB20WM	30	IMMM0065	14	IN805781	129	ISO10078	110	IS211340	101	IS504143	143
IM008150	6	IMMM0086	14	IN805881	131	ISO10079	110	IS5005068	153	IS504144	143
IM008151	6	IMMP0032	14	IN885780	130	ISO10084	105	IS5005069	153	IS504145	143
IM008152	6	IMMP0043	14	IN885781	130	ISO10084	108	IS5005087	153	IS504223	142
IM008832	13	IMMP0044	14	IN885880	131	ISO10091	104	IS502750	153	IS504311	142
IM008843	13	IMMP0054	14	IN885881	131	ISO10094	104	IS502752	153	IS504313	142
IM008844	13	IMMP0064	14	IN8A2435	129	ISO10094	108	IS502753	153	IS504321	142
IM008854	13	IMMP0065	14	IN8A2437	129	ISO10111	106	IS502754	153	IS504463	142
IM008864	13	IMMP0086	14	IN8E1332	131	ISO10112	106	IS502755	153	IS504550	143
IM008865	13	IMPCM000	14	IN8E1333	131	ISO10113	106	IS502756	153	IS504700-A	145
IM008886	13	IMPI0043	14	IN8E1334	131	ISO10114	106	IS502757	153	IS504702-A	145
IM008932	13	IMPI0044	14	IN8E1335	131	ISO10172	105	IS502766	155	IS504703-A	145
IM008943	13	IMPI0064	14	IN8E1337	131	ISO10173	104	IS502767	155	IS504704-A	145
IM008944	13	IMPI0065	14	IN8E1338	131	ISO10173	105	IS502768	154	IS504710-A	145
IM008954	13	IMPI0086	14	IN8E2332	129	ISO10173	106	IS502769	154	IS504711-A	145
IM008964	13	IN003121	134	IN8E2333	129	ISO10174	104	IS502770	154	IS504712-A	145
IM008965	13	IN003122	134	IN8E2334	129	ISO10174	105	IS502774	154	IS504713-A	145
IM008986	13	IN003123	134	IN8E2335	129	ISO10174	106	IS502775	154	IS504714-A	145
IM009010	6	IN003124	134	IN8E2337	129	ISO10174	108	IS503101	144	IS504715-A	145

LIST OF ARTICLES

ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE
IS504716-A	145	IS505229	149	IS506221	141	ISPO1200	163	ISZ100005	140	IUK08562	24
IS504717-A	145	IS505250	149	IS506223	141	ISPO1250	151	ISZ10001	140	IUK08563	24
IS504718-A	145	IS505251	156	IS509325	145	ISPO1250	163	ISZ10002	140	IUK08564	24
IS504719-A	145	IS505255	149	IS509335	145	ISPO2035	151	ISZ10004	140	IUK08565	24
IS504721	146	IS505257	157	ISF53000	142	ISPO2035	163	ISZ10006	140	IUK08566	24
IS504722	146	IS505258	157	ISF53001	142	ISPO2050	151	ISZ10008	140	IUKNE150	25
IS504724	146	IS505260	157	ISPO0006	151	ISPO2050	163	ISZ10010	140	IUKNE250	25
IS504725	145	IS505261	162	ISPO0006	163	ISPO2063	151	ISZ10012	140	IUKNE350	25
IS504741	145	IS505262	148	ISPO0010	151	ISPO2063	163	ISZ10016	140	IUKNE450	25
IS504823	155	IS505263	156	ISPO0010	163	ISPO2080	151	ISZ10020	140	IUKNE550	25
IS504824	155	IS505265	156	ISPO0016	151	ISPO2080	163	ISZ10025	140	IUKNF1523A	25
IS504825	155	IS505266	149	ISPO0016	163	ISPO2100	151	ISZ10032	140	IUKNF2523A	25
IS504826	155	IS505290	156	ISPO0020	151	ISPO2100	163	ISZ14002	141	IUKNF3523A	25
IS505001	150	IS505295	149	ISPO0020	163	ISPO2125	151	ISZ14004	141	IUKNF4523A	25
IS505002	150	IS505300	148	ISPO0025	151	ISPO2125	163	ISZ14006	141	IUKNF5523A	25
IS505003	150	IS505305	161	ISPO0025	163	ISPO2160	151	ISZ14008	141	IUKNF6523A	25
IS505004	150	IS505305	162	ISPO0032	151	ISPO2160	163	ISZ14010	141	IUKNF7523A	25
IS505005	150	IS505311	161	ISPO0032	163	ISPO2200	151	ISZ14012	141	IUKNF8523A	25
IS505006	150	IS505311	162	ISPO0035	151	ISPO2200	163	ISZ14016	141	K	
IS505007	150	IS505320	161	ISPO0035	163	ISPO2225	151	ISZ14020	141	KS146030	19
IS505008	150	IS505320	162	ISPO0040	151	ISPO2225	163	ISZ14025	141	KS146040	19
IS505018	150	IS505326	162	ISPO0040	163	ISPO2250	151	ISZ14032	141	KS161030	19
IS505037	150	IS505327	162	ISPO0050	151	ISPO2250	163	ISZ14040	141	KS161040	19
IS505038	150	IS505335	148	ISPO0050	163	ISPO2315	151	ISZ14050	141	KS161042	19
IS505039	150	IS505353	161	ISPO0063	151	ISPO2315	163	ISZ22016	141	KS161242	19
IS505040	150	IS505735	148	ISPO0063	163	ISPO2400	151	ISZ22020	141	KS166040	19
IS505043	150	IS505736	148	ISPO0080	151	ISPO2400	163	ISZ22025	141	KS168030	19
IS505044	150	IS505736	149	ISPO0080	163	ISPO3020	151	ISZ22032	141	KS168040	19
IS505047	150	IS505737	148	ISPO0100	151	ISPO3020	163	ISZ22040	141	KS181040	19
IS505058	150	IS505737	149	ISPO0100	163	ISPO3250	151	ISZ22050	141	KS181042	19
IS505059	150	IS505744	148	ISPO0125	151	ISPO3250	163	ISZ22063	141	KS181242	19
IS505060	150	IS505747	157	ISPO0125	163	ISPO3315	151	ISZ22080	141	KS181642	19
IS505061	150	IS505870	157	ISPO0160	151	ISPO3315	163	ISZ22100	141	KS186040	19
IS505088	150	IS505871	157	ISPO0160	163	ISPO3400	151	IU008508	24	KS188030	19
IS505091	150	IS505872	157	ISPO1035	151	ISPO3400	163	IU008513	24	KS188040	19
IS505098	150	IS505873	157	ISPO1035	163	ISPO3500	151	IU008515	24	KS188050	19
IS505099	150	IS505874	157	ISPO1050	151	ISPO3500	163	IU008517	24	KS201040	19
IS505100	150	IS505875	157	ISPO1050	163	ISPO3630	151	IUK08250	23	KS201042	19
IS505200	150	IS505876	157	ISPO1063	151	ISPO3630	163	IUK08341	23	KS201242	19
IS505201	150	IS505877	157	ISPO1063	163	ISS90003	51	IUK08342	23	KS201642	19
IS505220	148	IS505878	157	ISPO1080	151	ISS90004	51	IUK08343	23	KS206040	19
IS505221	148	IS505879	157	ISPO1080	163	ISS900K3	51	IUK08344	23	KS208030	19
IS505222	148	IS505881	149	ISPO1100	151	ISS900K4	51	IUK08345	23	KS208040	19
IS505223	156	IS505882	149	ISPO1100	163	ISS90916	51	IUK08346	23	KS208050	19
IS505224	148	IS505883	149	ISPO1125	151	ISS909G1	51	IUK08351	23	L	
IS505225	148	IS506101	140	ISPO1125	163	ISS909G2	51	IUK08352	23	LA3K1813	205
IS505226	149	IS506103	140	ISPO1160	151	ISS909S1	51	IUK08353	23	LA3K1823	205
IS505227	149	IS506141	140	ISPO1160	163	ISS909S2	51	IUK08400	23	LA3K2433	205
IS505228	149	IS506143	140	ISPO1200	151	ISS91000	51	IUK08561	24	LA3K3233	205

LIST OF ARTICLES

ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE
LA3K5033	205	LP601003	354	LP603050I	355	LP702105I	359	LSD01735	201	LSDD0923	200
LA3K6233	205	LP601003T	355	LP604006	354	LP702108I	359	LSD02530	201	LSDD0925	200
LA3K7433	205	LP601006	354	LP604006I	356	LP702110I	359	LSD02532	201	LSDD1210	200
LAA14306	215	LP601006T	355	LP604010	354	LP702115I	359	LSD02533	201	LSDD1212	200
LAA14506	215	LP601010	354	LP604010I	356	LP702125T	359	LSD02535	201	LSDD1213	200
LAB34255	220	LP601010T	355	LP604016	354	LP7021B1I	359	LSD23230	202	LSDD1215	200
LAD34150	220	LP601016	354	LP604016I	356	LP723103I	358	LSD23232	202	LSDD1220	200
LAD34250	220	LP601016T	355	LP604020	354	LP723105I	358	LSD23233	202	LSDD1222	200
LAD36250	220	LP601020	354	LP604025	354	LP7231B1I	358	LSD23235	202	LSDD1223	200
LAK32035	219	LP601020T	355	LP604025I	356	LP733103I	357	LSD24030	202	LSDD1225	200
LAK32155	219	LP601032	354	LP604032	354	LP733105I	357	LSD24032	202	LSDE225F	203
LAK32255	219	LP601032T	355	LP604032I	356	LP733110I	357	LSD24033	202	LSDE265F	203
LAK34035	219	LP601050	354	LP604040	354	LP7331B1I	357	LSD24035	202	LSDE305F	203
LAK34155	219	LP601050T	355	LP604040I	356	LP734103I	357	LSD25030	202	LSDG415F	203
LAK34255	219	LP602003	354	LP604050	354	LP734105I	357	LSD25032	202	LSDG515F	203
LAK36155	219	LP602003I	355	LP604050I	356	LP7431C2	357	LSD25033	202	LSDH63G3	203
LAK36255	219	LP602006	354	LP604063	354	LP7431C2	70	LSD25035	202	LSDH64G3	203
LAKB4255	220	LP602006I	355	LP604063I	356	LP746101	357	LSD36530	202	LSDH82G3	203
LAM32154	216	LP602010	354	LP604100	354	LP746101	70	LSD36532	202	LSDH83G3	203
LAM34154	216	LP602010I	355	LP604100I	356	LQ203024	65	LSD36533	202	LSHD0670	205
LAM36154	216	LP602016	354	LP604160I	356	LQ203230	65	LSD36535	202	LSHD0673	205
LAS12301	213	LP602016I	355	LP604200I	356	LQ207024	65	LSD36553	202	LSHD0675	205
LAS12302	213	LP602020	354	LP604250I	356	LQ207220	65	LSD38030	202	LSHD067G	205
LAS12501	213	LP602025	354	LP604300I	356	LQ213024	65	LSD38032	202	LSHD067N	205
LAS12502	213	LP602025I	355	LP604400T	356	LQ300007	65	LSD38033	202	LSHD0680	205
LAS14152	213	LP602032	354	LP605010	354	LQ300008	65	LSD38035	202	LSHD0683	205
LAS14301	213	LP602032I	355	LP605010I	356	LQ611008	64	LSD38050	202	LSHD0685	205
LAS14302	213	LP602040	354	LP605025	354	LQ611012	64	LSD38052	202	LSHD068G	205
LAS14501	213	LP602040I	355	LP605025I	356	LQ611024	64	LSD39530	202	LSHD068N	205
LAS14502	213	LP602050	354	LP605050	354	LQ611048	64	LSD39533	202	LSHD0690	205
LAS22301	213	LP602050I	355	LP605050I	356	LQ611230	64	LSD39535	202	LSHD0693	205
LAS22302	213	LP602063	354	LP605080	354	LQ612024	64	LSD39553	202	LSHD0695	205
LAS24301	213	LP602063I	355	LP605080I	356	LQ612048	64	LSD6115F	203	LSHD069G	205
LAS24302	213	LP602080	354	LP605100	354	LQ612230	64	LSD6155F	203	LSHD069N	205
LAS24501	213	LP602080I	355	LP605100I	356	LQ617230	64	LSD6195F	203	LSR03540	204
LAS24502	213	LP602100	354	LP605130T	356	LQ618230	64	LSDD0710	200	LSR03543	204
LAS32101	214	LP602100I	355	LP605200T	356	LQ622230	64	LSDD0712	200	LSR03545	204
LAS32102	214	LP603003	354	LP605250T	356	LSD00930	201	LSDD0713	200	LSR04040	204
LAS32201	214	LP603003I	355	LP612003T	356	LSD00932	201	LSDD0715	200	LSR04043	204
LAS32202	214	LP603010	354	LP612006T	356	LSD00933	201	LSDD0720	200	LSR04045	204
LAS34101	214	LP603010I	355	LP612010T	356	LSD00935	201	LSDD0722	200	LSR26040	204
LAS34102	214	LP603016	354	LP612020T	356	LSD01230	201	LSDD0723	200	LSR26043	204
LAS34201	214	LP603016I	355	LP612025T	356	LSD01232	201	LSDD0725	200	LSR26045	204
LAS34202	214	LP603020	354	LP699001T	356	LSD01233	201	LSDD0910	200	LSR31140	204
LASUP62	217	LP603025	354	LP701310I	359	LSD01235	201	LSDD0912	200	LSR31143	204
LATB4355	220	LP603025I	355	LP701315I	359	LSD01730	201	LSDD0913	200	LSR31145	204
LATD4605	220	LP603040	354	LP701320I	359	LSD01732	201	LSDD0915	200	LSR31440	204
LAW34101	217	LP603040I	355	LP701330I	359	LSD01733	201	LSDD0920	200	LSR31443	204
LAW34102	217	LP603050	354	LP702103I	359	LSD01734	201	LSDD0922	200	LSR31445	204

LIST OF ARTICLES

ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE
LSRD1840	204	LSTD0040	210	LSZ2Y004	207	MC110045	245	MC140331	243	MC191581	249
LSRD1843	204	LSTD0050	210	LSZ3D001	207	MC110131	243	MC140341	244	MC191581	266
LSRD1845	204	LSTD0063	210	LSZ3D002	207	MC110141	244	MC150131	243	MC191581	282
LSRD2240	204	LSTD0080	210	LSZ3D003	207	MC110231	243	MC150141	244	MC191585	249
LSRD2243	204	LSTD0100	210	LSZ3D004	207	MC110241	244	MC150231	243	MC191585	266
LSRD2245	204	LSTD0125	210	LSZ3D811	206	MC110331	243	MC150241	244	MC191585	282
LSS0123H	201	LSTD0160	210	LSZ3TE01	211	MC110341	244	MC150331	243	MC191585	299
LSS0173H	201	LSTD0200	210	LSZ3W001	206	MC112034	245	MC150341	244	MC191586	249
LSS0253H	201	LSTD0250	210	LSZ3W002	207	MC112035	245	MC163034	245	MC191586	266
LSSD071G	200	LSTD0320	210	LSZ60001	207	MC112044	245	MC163035	245	MC191586	282
LSSD072G	200	LSTD0400	210	LSZ6D001	207	MC112045	245	MC163044	245	MC191586	299
LSSD091G	200	LSTD0500	210	LSZ6D002	207	MC112131	243	MC163045	245	MC191587	249
LSSD092G	200	LSTD0630	210	LSZ6W001	207	MC112141	244	MC163131	243	MC191587	266
LSSD121G	200	LSTD0800	210	LSZ6W002	206	MC112231	243	MC163141	244	MC191587	282
LSSD122G	200	LSTD1000	210	LSZD0001	206	MC112241	244	MC163231	243	MC191587	299
LST00040	210	LSTD1200	210	LSZD0002	206	MC112331	243	MC163241	244	MC191607	249
LST00050	210	LSZ00001	207	LSZD0003	206	MC112341	244	MC163331	243	MC192336	255
LST00250	210	LSZ00002	207	LSZD0004	206	MC116034	245	MC163341	244	MC192336	272
LST00320	210	LSZ00003	207	LSZD0005	207	MC116035	245	MC180131	243	MC193827	255
LST00630	210	LSZ00113	207	LSZD0006	207	MC116044	245	MC180141	244	MC193827	272
LST00800	210	LSZ0D001	206	LSZD0101	206	MC116045	245	MC180231	243	MC194603	246
LST01000	210	LSZ0D002	207	LSZD0101	207	MC116131	243	MC180241	244	MC194604	246
LST01250	210	LSZ0D003	206	LSZD0102	206	MC116141	244	MC180331	243	MC194605	246
LST01600	210	LSZ0D004	207	LSZD0102	207	MC116231	243	MC180341	244	MC194606	246
LST02000	210	LSZ0D010	206	LSZDD002	206	MC116241	244	MC190015	252	MC194607	246
LST02200	210	LSZ0D113	206	LSZDD003	206	MC116331	243	MC190019	252	MC194608	246
LST02500	210	LSZ0D122	206	LSZDD004	206	MC116341	244	MC190021	253	MC194609	246
LST20800	211	LSZ0D131	206	LSZDD005	206	MC120131	243	MC190125	250	MC194610	246
LST21000	211	LSZ0D711	206	LSZDD006	206	MC120141	244	MC190131	250	MC194611	246
LST21250	211	LSZ0D901	206	LSZDD201	206	MC120231	243	MC190135	250	MC194612	246
LST21600	211	LSZ0D910	206	LSZDD212	206	MC120241	244	MC190142	250	MC194613	246
LST22000	211	LSZ0TE01	211	LSZDD213	206	MC120331	243	MC190150	253	MC194614	246
LST22500	211	LSZ0W001	206	LSZDD222	206	MC120341	244	MC190166	251	MC194645	254
LST23200	211	LSZ0W002	207	LSZDH504	206	MC125131	243	MC190172	251	MC194646	254
LST24000	211	LSZ0Y001	207	LSZDH513	206	MC125141	244	MC190178	251	MC195700	159
LST24500	211	LSZ0Y002	207	LSZDH522	206	MC125231	243	MC190191	251	MC195700	255
LST25000	211	LSZ20001	207	LSZDH531	206	MC125241	244	MC190191	268	MC196154	249
LST32500	211	LSZ2D001	207	LSZDH540	206	MC125331	243	MC190195	255	MC196154	265
LST33200	211	LSZ2D002	207	LSZDTE01	211	MC125341	244	MC190199	256	MC196154	281
LST34000	211	LSZ2D003	206	LSZDW001	206	MC132131	243	MC190203	256	MC196154	298
LST35000	211	LSZ2D004	207	LSZDY001	206	MC132141	244	MC190203	274	MC196200	255
LST36300	211	LSZ2D005	207	LSZED001	207	MC132231	243	MC190213	256	MC196200	272
LST37500	211	LSZ2TE01	211	LSZED002	207	MC132241	244	MC190780	253	MC196725	252
LST39000	211	LSZ2W001	206	LSZEW001	206	MC132331	243	MC191232	251	MC196730	252
LST39999	211	LSZ2W002	207	LSZGW001	206	MC132341	244	MC191232	268	MC196731	252
LSTD0016	210	LSZ2W003	207	M		MC140131	243	MC191522	254	MC196734	253
LSTD0020	210	LSZ2Y001	207	MC110034	245	MC140141	244	MC191523	254	MC196737	253
LSTD0025	210	LSZ2Y002	207	MC110035	245	MC140231	243	MC191527	254	MC196739	253
LSTD0032	210	LSZ2Y003	207	MC110044	245	MC140241	244	MC191528	254	MC196739	270

LIST OF ARTICLES

ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE
MC196739	287	MC220045	260	MC290174	268	MC296777	271	MC340331	275	MC391459	285
MC196741	253	MC220131	257	MC290180	268	MC296778	271	MC340332	276	MC391460	285
MC196744	254	MC220141	258	MC290197	273	MC299356	272	MC340333	277	MC391461	285
MC196745	254	MC220231	257	MC290201	273	MC299430	263	MC340341	275	MC391462	285
MC196748	254	MC220241	258	MC290201	290	MC299430	280	MC340342	276	MC391525	289
MC196749	254	MC220331	257	MC290215	274	MC299491	264	MC340343	277	MC391530	289
MC196781	253	MC220341	258	MC290481	272	MC299491	280	MC340431	275	MC391583	282
MC197075	252	MC220431	257	MC291400	159	MC299499	264	MC350231	275	MC391668	159
MC198573	255	MC225034	260	MC291400	273	MC299499	280	MC350241	275	MC391668	290
MC198573	272	MC225035	260	MC291457	269	MC299501	264	MC350331	275	MC391700	159
MC199432	247	MC225044	260	MC291458	269	MC299501	280	MC350341	275	MC391700	290
MC199462	248	MC225045	260	MC291524	272	MC299509	264	MC350431	275	MC394545	283
MC199471	248	MC225131	257	MC291529	272	MC299509	280	MC363034	278	MC394546	283
MC199473	248	MC225141	258	MC291582	266	MC299591	264	MC363035	278	MC394546	300
MC199481	248	MC225231	257	MC291666	159	MC299591	281	MC363044	278	MC394550	283
MC199565	248	MC225233	259	MC291666	273	MC299594	264	MC363045	278	MC394551	283
MC199567	248	MC225241	258	MC292240	269	MC299594	281	MC363232	276	MC394551	300
MC199736	249	MC225243	259	MC292244	269	MC299754	265	MC363233	277	MC394645	290
MC199744	249	MC225331	257	MC292345	261	MC299754	281	MC363242	276	MC396678	282
MC202331	257	MC225333	259	MC292346	261	MC299763	265	MC363243	277	MC396711	279
MC202341	258	MC225341	258	MC294543	267	MC299763	281	MC363332	276	MC396712	279
MC205331	257	MC225343	259	MC294544	267	MC299775	271	MC363333	277	MC396783	285
MC205341	258	MC225431	257	MC294544	283	MC299776	271	MC363342	276	MC396792	286
MC210233	259	MC230131	257	MC294548	267	MC299777	271	MC363343	277	MC396795	286
MC210243	259	MC230141	258	MC294549	267	MC299832	266	MC390040	286	MC396797	287
MC210331	257	MC230231	257	MC294549	283	MC299833	266	MC390040	303	MC396801	288
MC210333	259	MC230241	258	MC294640	271	MC325232	276	MC390041	286	MC396804	288
MC210341	258	MC230331	257	MC294641	271	MC325233	277	MC390041	303	MC396805	288
MC210343	259	MC230341	258	MC294709	272	MC325242	276	MC390042	285	MC396808	288
MC212331	257	MC230431	257	MC294709	289	MC325243	277	MC390045	288	MC396809	288
MC212341	258	MC232331	257	MC295927	265	MC325332	276	MC390129	283	MC397082	289
MC216034	260	MC232341	258	MC295927	281	MC325333	277	MC390140	283	MC397082	306
MC216035	260	MC240331	257	MC296677	266	MC325342	276	MC390170	284	MC399455	289
MC216044	260	MC240341	258	MC296699	262	MC325343	277	MC390176	284	MC399455	306
MC216045	260	MC250331	257	MC296700	262	MC332231	275	MC390182	284	MC399850	282
MC216131	257	MC250341	258	MC296701	262	MC332241	275	MC390193	284	MC410035	294
MC216141	258	MC263331	257	MC296702	262	MC332331	275	MC390193	302	MC410045	294
MC216231	257	MC263341	258	MC296705	262	MC332341	275	MC390211	291	MC410232	292
MC216233	259	MC280331	257	MC296706	262	MC332431	275	MC390211	306	MC410233	293
MC216241	258	MC280341	258	MC296719	261	MC340034	278	MC390512	287	MC410242	292
MC216243	259	MC290030	269	MC296720	261	MC340035	278	MC390513	287	MC410243	293
MC216331	257	MC290032	271	MC296743	271	MC340044	278	MC390514	286	MC410332	292
MC216333	259	MC290038	270	MC296744	271	MC340045	278	MC390515	286	MC410333	293
MC216341	258	MC290127	267	MC296750	269	MC340231	275	MC390782	287	MC410342	292
MC216343	259	MC290133	267	MC296755	269	MC340232	276	MC390783	287	MC410343	293
MC216431	257	MC290137	267	MC296756	269	MC340233	277	MC390784	287	MC412035	294
MC220034	260	MC290144	267	MC296765	270	MC340241	275	MC390785	287	MC412045	294
MC220035	260	MC290156	270	MC296768	270	MC340242	276	MC391234	284	MC412232	292
MC220044	260	MC290168	268	MC296770	270	MC340243	277	MC391234	302	MC412233	293

LIST OF ARTICLES

ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE
MC412242	292	MC496221	297	MG952005	348	MGF49005	344	MGS591K5	342	MM216444	121
MC412243	293	MC496222	297	MG952006	348	MGF491K0	344	MGS59200	342	MM216445	121
MC412332	292	MC496447	298	MG952008	348	MGF491K5	344	MGS59250	342	MM216446	121
MC412333	293	MC496451	298	MG952010	348	MGF49200	344	MGS592K0	342	MM216464	126
MC412342	292	MC496596	298	MG952015	348	MGF49600	344	MGS592K5	342	MM216465	126
MC412343	293	MC496608	300	MG952020	348	MGF57000	341	MGS59300	342	MM216472	126
MC416035	294	MC496610	300	MG952025	348	MGF57005	341	MGS593K0	342	MM216480	126
MC416045	294	MC496614	301	MG954005	348	MGF57010	341	MGS59400	342	MM216483	126
MC416232	292	MC496616	301	MG954006	348	MGF57025	341	MGS59500	342	MM216484	126
MC416233	293	MC496618	301	MG954010	348	MGF59000	341	MGS59600	342	MM216485	126
MC416242	292	MC496685	299	MG954015	348	MGF59005	341	MGS59800	342	MM216486	126
MC416243	293	MC496713	295	MG954020	348	MGF59010	341	MGZ00001	344	MM216494	126
MC416332	292	MC496714	295	MG954025	348	MGF59015	341	MGZD0002	344	MM216495	126
MC416333	293	MC496814	304	MG954030	348	MGF59025	341	MGZD4000	344	MM216496	126
MC416342	292	MC496815	304	MG954040	348	MGF59050	341	MGZD7000	344	MM216499	126
MC416343	293	MC496820	304	MG954050	348	MGF67300	342	MGZD9000	344	MM216501	126
MC420233	293	MC496821	304	MG954060	348	MGF67500	342	MM107898	247	MM216515	125
MC420333	293	MC496826	305	MG955040	349	MGF69300	342	MM107898	263	MM216516	125
MC463232	292	MC496827	305	MG955050	349	MGF69500	342	MM107898	279	MM216521	125
MC463233	293	MC496829	303	MG955060	349	MGF77500	342	MM107898	296	MM216522	125
MC463242	292	MC496831	303	MG955080	349	MGF79500	342	MM107899	247	MM216524	125
MC463243	293	MC496836	302	MG957080	349	MGF87050	343	MM107899	263	MM216525	125
MC463332	292	MC496837	302	MG957100	349	MGF89050	343	MM107899	279	MM216529	125
MC463333	293	MC496842	303	MG957150	349	MGS17060	343	MM107899	296	MM216532	125
MC463342	292	MC496846	305	MG957200	349	MGS17100	343	MM213079	124	MM216535	124
MC463343	293	MC496847	305	MG958100	349	MGS17200	343	MM213080	124	MM216536	124
MC480035	294	MC900001	332	MG958150	349	MGS17300	343	MM216374	122	MM216537	124
MC480045	294	MC900002	332	MG958200	349	MGS17400	343	MM216376	123	MM216538	124
MC480232	292	MC900003	332	MG958250	349	MGS17500	343	MM216376	247	MM216539	124
MC480233	293	MC900020	333	MG959200	350	MGS49100	344	MM216376	263	MM216540	124
MC480242	292	MC900030	333	MG959250	350	MGS57050	341	MM216376	279	MM216557	123
MC480243	293	MC900035	333	MG959300	350	MGS57060	341	MM216376	296	MM216558	123
MC480332	292	MC900070	333	MGdiz005	345	MGS57080	341	MM216378	123	MM216559	123
MC480333	293	MC900105	333	MGdiz063	345	MGS57100	341	MM216378	247	MM216560	124
MC480342	292	MC900140	333	MGEIZ125	345	MGS57150	341	MM216378	263	MM216561	124
MC480343	293	MC900210	333	MGF17000	343	MGS571K0	341	MM216378	279	MM216562	124
MC491584	299	MC910175	333	MGF17025	343	MGS571K5	341	MM216378	296	MM216563	123
MC491593	305	MC910305	333	MGF17060	343	MGS57200	341	MM216380	123	MM216564	123
MC491594	305	MC910350	333	MGF27015	343	MGS57250	341	MM216382	123	MM216565	123
MC494473	304	MG900010	344	MGF27030	343	MGS57300	341	MM216384	123	MM216566	124
MC494474	304	MG900011	344	MGF27060	343	MGS57400	341	MM216385	123	MM216567	124
MC494547	300	MG900012	344	MGF27300	343	MGS57500	341	MM216386	123	MM216568	124
MC494552	300	MG900220	346	MGF37000	339	MGS57600	341	MM216387	123	MM216569	123
MC494646	306	MG900221	346	MGF39000	337	MGS57800	341	MM216392	126	MM216570	123
MC496172	296	MG900222	346	MGF3900A	337	MGS59060	342	MM216394	126	MM216571	123
MC496189	297	MG900224	346	MGF3900I	337	MGS59080	342	MM216416	118	MM216572	124
MC496193	297	MG900225	346	MGF3900M	337	MGS59100	342	MM216437	118	MM216573	124
MC496194	297	MG900226	346	MGF3900P	337	MGS59150	342	MM216442	121	MM216574	124
MC496204	297	MG900227	346	MGF3900R	337	MGS591K0	342	MM216443	121	MM216575	123

LIST OF ARTICLES

ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE
MM216576	123	MM216837	122	MM218058	124	MO116342	315	MO363446	320	MO800S33	324
MM216577	123	MM216841	122	MM218059	123	MO116346	318	MO800B02	321	MO800S55	325
MM216578	124	MM216843	122	MM218061	123	MO208332	316	MO800B03	321	MO800S71	324
MM216579	124	MM216845	122	MM218063	123	MO208336	319	MO800B04	321	MO800S75	324
MM216590	117	MM216847	122	MM218173	117	MO208342	316	MO800B05	321	MO800S76	324
MM216592	117	MM216849	122	MM218300	126	MO208346	319	MO800B06	321	MO800T40	329
MM216594	117	MM216851	122	MM229015	119	MO210332	316	MO800B08	321	MO810F23	323
MM216596	117	MM216855	121	MM229025	119	MO210336	319	MO800B10	321	MO810R10	330
MM216598	117	MM216863	121	MM229028	119	MO210342	316	MO800B12	321	MO810R21	330
MM216600	117	MM216865	121	MM229489	126	MO210346	319	MO800B16	321	MO814R10	330
MM216602	117	MM216867	121	MM229490	126	MO212332	316	MO800B20	321	MO814R21	330
MM216605	117	MM216870	121	MM229491	126	MO212336	319	MO800B25	321	MO820F23	323
MM216607	117	MM216872	121	MM229494	126	MO212342	316	MO800B32	321	MO820R10	330
MM216613	117	MM216874	121	MM229746	125	MO212346	319	MO800B40	321	MO820R21	330
MM216617	117	MM216876	118	MM229747	125	MO216332	316	MO800B50	321	MO824R10	330
MM216619	117	MM216878	118	MM229748	125	MO216336	319	MO800B63	321	MO824R21	330
MM216698	117	MM216879	118	MM229749	125	MO216342	316	MO800C01	326	MO830F23	323
MM216700	117	MM216881	118	MM231079	124	MO216346	319	MO800C11	326	MO830R10	330
MM216702	117	MM216887	118	MM231080	124	MO220232	316	MO800C12	326	MO830R21	330
MM216704	117	MM216894	118	MO108232	315	MO220236	319	MO800C20	326	MO834R10	330
MM216706	117	MM216900	118	MO108236	318	MO220242	316	MO800C22	326	MO834R21	330
MM216710	117	MM216922	120	MO108242	315	MO220246	319	MO800C26	326	MO8900	328
MM216712	118	MM216925	120	MO108246	318	MO220332	316	MO800C27	326	MO890004	329
MM216714	118	MM216927	120	MO108332	315	MO220336	319	MO800F31	322	MO890007	329
MM216716	118	MM216929	120	MO108336	318	MO220342	316	MO800K01	323	MO890008	329
MM216743	118	MM216931	120	MO108342	315	MO220346	319	MO800K07	326	MO8900B0	328
MM216745	118	MM216933	120	MO108346	318	MO225232	316	MO800K10	323	MO8900C0	328
MM216771	119	MM216936	120	MO110232	315	MO225236	319	MO800K13	323	MO8900E0	328
MM216772	119	MM216938	120	MO110236	318	MO225242	316	MO800R15	326	MO8900F0	328
MM216773	119	MM216940	120	MO110242	315	MO225246	319	MO800R16	326	MO8900G0	328
MM216774	119	MM216942	120	MO110246	318	MO225332	316	MO800R30	325	MO8900I0	328
MM216775	119	MM216944	120	MO110332	315	MO225336	319	MO800R50	325	MO8900K0	328
MM216776	119	MM216946	120	MO110336	318	MO225342	316	MO800R55	325	MO8900L0	328
MM216778	119	MM216948	120	MO110342	315	MO225346	319	MO800R56	325	MO8900M0	328
MM216779	119	MM216950	120	MO110346	318	MO232332	316	MO800R57	325	MO8900N0	328
MM216780	119	MM216952	120	MO112232	315	MO232336	319	MO800R60	324	MO8900P0	328
MM216781	119	MM216954	120	MO112236	318	MO232342	316	MO800R61	324	MO8900Q0	328
MM216782	119	MM216957	120	MO112242	315	MO232346	319	MO800R68	324	MO8900R0	328
MM216812	122	MM216959	120	MO112246	318	MO340432	317	MO800R81	325	MO8900S0	328
MM216814	122	MM216963	120	MO112332	315	MO340436	320	MO800R85	325	MO8900T0	328
MM216816	122	MM216965	121	MO112336	318	MO340442	317	MO800R86	325	MO8900U0	328
MM216818	122	MM216967	121	MO112342	315	MO340446	320	MO800S01	324	MO890B00	328
MM216823	122	MM216969	121	MO112346	318	MO350432	317	MO800S03	324	MO890C00	328
MM216825	122	MM216971	121	MO116232	315	MO350436	320	MO800S07	324	MO890D00	328
MM216827	122	MM216973	121	MO116236	318	MO350442	317	MO800S08	324	MO890E00	328
MM216829	122	MM216975	121	MO116242	315	MO350446	320	MO800S09	324	MO890F00	328
MM216831	122	MM216977	121	MO116246	318	MO363432	317	MO800S24	326	MO890G00	328
MM216833	122	MM216981	121	MO116332	315	MO363436	320	MO800S25	326	MO892000	329
MM216835	122	MM218057	123	MO116336	318	MO363442	317	MO800S30	325	MO893000	329

LIST OF ARTICLES

Page
XX

ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE
MO894000	329	MO90AE07	328	MO90AT27	330	MO90BC02	331	MT78603	230	PT580024	225
MO895000	329	MO90AE11	328	MO90AT28	331	MO90BC03	331	MT78612	230	PT580110	225
MO896000	329	MO90AE12	328	MO90AT31	327	MO90BC04	331	MT78613	230	PT580220	225
MO900AK06	323	MO90AE13	328	MO90AT33	331	MO90BC05	331	MT78740	230	PT580524	225
MO900BA31	324	MO90AE14	328	MO90AT44	327	MO90BC21	331	MTMF0W00	230	PT580730	225
MO90AA11	323	MO90AF01	329	MO90AT45	323	MO90CC10	331	MTML0024	230	PT78600	227
MO90AA12	323	MO90AF03	329	MO90AT46	323	MT221012	229	MTML0730	230	PT78601	227
MO90AA13	323	MO90AF04	329	MO90AT53	322	MT221024	229	MTMT00A0	230	PT78602	227
MO90AA21	323	MO90AG01	329	MO90AT56	322	MT221048	229	MTMU0524	230	PT78603	227
MO90AA22	323	MO90AG02	329	MO90AT81	322	MT221110	229	MTMU0730	230	PT78604	227
MO90AA23	323	MO90AG03	329	MO90BA13	327	MT221220	229	MTMZ0W00	230	PT78722	226
MO90AA31	323	MO90AH01	326	MO90BA14	327	MT226006	229	P		PT78742	226
MO90AA32	323	MO90AH02	326	MO90BA21	324	MT226012	229	PT17021	226	PT7874P	227
MO90AA33	323	MO90AH03	326	MO90BA22	324	MT226024	229	PT17021	227	R	
MO90AA51	321	MO90AH04	326	MO90BA24	324	MT226048	229	PT17040	226	RH229206	188
MO90AA52	321	MO90AH07	326	MO90BA33	324	MT226115	229	PT17040	227	RH229207	188
MO90AA53	321	MO90AH08	326	MO90BA34	324	MT226230	229	PT170P1	227	RH229208	188
MO90AA54	321	MO90AH11	326	MO90BA35	324	MT228230	229	PT270024	225	RH229210	188
MO90AA55	321	MO90AH12	326	MO90BA36	324	MT236230	229	PT270110	225	RH229213	188
MO90AA56	321	MO90AJ02	326	MO90BA38	324	MT28800	230	PT270524	225	RH229216	188
MO90AA57	321	MO90AJ03	326	MO90BA41	324	MT321006	229	PT270730	225	RH229218	188
MO90AA58	321	MO90AJ06	326	MO90BA50	324	MT321012	229	PT28800	226	RH229220	188
MO90AA61	321	MO90AK03	323	MO90BA51	324	MT321024	229	PT28800	227	RH229223	188
MO90AA62	321	MO90AK21	323	MO90BA53	324	MT321048	229	PT28802	227	RH229226	188
MO90AA63	321	MO90AK30	323	MO90BA57	324	MT321060	229	PT370024	225	RH229227	188
MO90AA64	321	MO90AK31	323	MO90BA58	324	MT3210C4	229	PT370125	225	RH229228	188
MO90AA65	321	MO90AK32	322	MO90BA71	324	MT321110	229	PT370524	225	RH229230	188
MO90AA66	321	MO90AP01	329	MO90BA72	326	MT321220	229	PT370730	225	RH229236	188
MO90AA67	321	MO90AP02	329	MO90BA73	324	MT323024	229	PT570006	225	RH229237	188
MO90AB01	327	MO90AP04	330	MO90BA75	324	MT323048	229	PT570012	225	RH229238	188
MO90AB03	327	MO90AP06	330	MO90BA76	324	MT323060	229	PT570024	225	RH229240	188
MO90AB04	327	MO90AP07	330	MO90BA77	324	MT3230C4	229	PT570048	225	RH229246	188
MO90AB07	327	MO90AP08	330	MO90BA81	325	MT323110	229	PT570060	225	RH229247	188
MO90AB08	327	MO90AP11	330	MO90BA83	325	MT323220	229	PT570110	225	RH229248	188
MO90AB12	327	MO90AP12	330	MO90BA85	325	MT326006	229	PT570125	225	RH723842	189
MO90AD01	328	MO90AS32	330	MO90BA86	325	MT326012	229	PT570220	225	RH723912	189
MO90AD02	328	MO90AS36	330	MO90BA87	325	MT326024	229	PT570506	225	RH723952	189
MO90AD03	328	MO90AS38	330	MO90BB12	325	MT326048	229	PT570512	225	RH724082	189
MO90AD04	328	MO90AS42	330	MO90BB13	325	MT326060	229	PT570524	225	RH724122	189
MO90AD05	328	MO90AS44	330	MO90BB15	325	MT326110	229	PT570548	225	RH724162	189
MO90AD05	329	MO90AS46	330	MO90BB21	325	MT326115	229	PT570560	225	RH724173	189
MO90AD06	328	MO90AT03	331	MO90BB22	325	MT326230	229	PT570615	225	RH724243	189
MO90AD06	329	MO90AT12	331	MO90BB23	325	MT328024	229	PT570730	225	RH725142	189
MO90AE01	328	MO90AT15	331	MO90BB24	325	MT328115	229	PT570L24	225	RH725152	189
MO90AE02	328	MO90AT16	331	MO90BB45	325	MT328230	229	PT570N20	225	RH725162	189
MO90AE03	328	MO90AT20	330	MO90BB46	325	MT331024	229	PT570R24	225	RH725172	189
MO90AE04	328	MO90AT21	330	MO90BB47	325	MT336230	229	PT570T30	225	RH725182	189
MO90AE05	328	MO90AT23	330	MO90BB50	330	MT338230	229	PT571730	225	RH725192	189
MO90AE06	328	MO90AT26	330	MO90BB68	331	MT78602	230	PT580012	225	RH725202	189

LIST OF ARTICLES

ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE	ORDER NO.	PAGE
RH725212	189	RM805730	232	SI017540	155	ST4P2LC4	236	WSM6050150	11	YMLRD024-A	235
RH725222	189	RM809730	232	SI017560	154	ST4P3LB2	236	WSM6050210	11	YMLRW230	226
RH725232	189	RM835012	232	SI017570	154	ST4P3LC4	236	WSM6050260	11	YMLRW230	235
RH726826	189	RM835024	232	SI017590	155	ST4P3SM5	236	WSM6050300	11	YMR78700	230
RH726856	189	RM835730SE	232	SI017600	155	ST4P3TP0	236	WSM6060210	11	YMR78700	84
RH726866	189	RM838024	232	SI058000	152	U		WSM6060300	11	YMR78701	230
RH726876	189	RM838730	232	SI310050	143	UR5I1011	92	WSM6080302	11	YMRCW024	226
RH726886	189	RM839024	232	SI310060	142	UR5L1021	91	WSM7050210	11	YMRCW024	235
RH726896	189	RM839730	232	SI310060	143	UR5P3011	93	WSM8012302	11	YMRCW230	226
RH726906	189	RMD05024	232	SI320070	158	UR5R1021	89	WSM8060210	11	YMRCW230	235
RH727152	189	RT170P1	235	SI321560	160	UR5U1011	87	WSM8060260	11	YMWAW024	226
RH727172	189	RT314005	234	SI321680	160	UR5U3011	88	WSM8060300	11	YMWAW230	226
RH727192	189	RT314006	234	SI322140	160	URL90010	90	WSM8080210	11	YPT16016	226
RH727212	189	RT314012	234	SI322150	160	URL90011	90	WSM8080300	11	YPT16040	226
RH734445	189	RT314024	234	SI322160	160	URL90020	90	WSMF1060AC	12	YPT78110	226
RH734455	189	RT314048	234	SI322620	160	URL90030	90	WSMF1080AC	12	YPT78702	226
RH734465	189	RT314110	234	SI324120	158	URU20301	86	WSMF1260AC	12	YPT78703	226
RM232012-D	232	RT314524	234	SI324300	158	W		WSMF1280AC	12	YPT78704	226
RM232024-D	232	RT314730	234	SI324310	158	WSM1006260	11	WSMF3025AC	12	YRT16016	235
RM232730-D	232	RT424005	234	SI324360	158	WSM1006300	11	WSMF3030AC	12	YRT16040	235
RM235730-C	232	RT424006	234	SI324410	158	WSM1008260	11	WSMF4030AC	12	YRT78626	235
RM238012SE	232	RT424012	234	SI324420	158	WSM1008300	11	WSMF4040AC	12	YY492637	69
RM239730-C	232	RT424024	234	SI324430	158	WSM1008400	11	WSMF5040AC	12	YY492639	69
RM28802	233	RT424048	234	SI324440	158	WSM1010302	11	WSMF6040AC	12	YY494004-A	360
RM332012-D	232	RT424060	234	SI324540	158	WSM1206300	11	WSMF6050AC	12	YY494012	360
RM332024-D	232	RT424110	234	SI324550	158	WSM1208300	11	WSMF6060AC	12	Z	
RM332110-D	232	RT424524	234	SI324560	158	WSM1208400	11	WSMF7050AC	12	ZR4B0025	84
RM332524-D	232	RT424615	234	SI324570	158	WSM1210302	11	WSMF8060AC	12	ZR4MF025	84
RM332730SE	232	RT424730	234	SI324590	158	WSM1212302	11	WSMIE03025	12	ZR5B0011	80
RM332880-D	232	RT7872P	235	SI324770	158	WSM1212402	11	WSMIE04030	12	ZR5B0025	83
RM338730-C	232	RT7872S	235	SI324780	158	WSM1410302	11	WSMIE05040	12	ZR5E0011	80
RM632024-A	232	S		SI326100	158	WSM2520150	11	WSMIE06040	12	ZR5ER011	79
RM732012-C	232	SI010040	161	SI329030	158	WSM3025150	11	WSMIE06060	12	ZR5MF011	78
RM732024-C	232	SI010680	154	SI329630	158	WSM3025210	11	WSMIE07050	12	ZR5MF025	78
RM732060	232	SI011100	154	SNR03012	236	WSM3030150	11	WSMIE08060	12	ZR5R0011	79
RM732524-C	232	SI011990	155	SNR03024	236	WSM3030210	11	WSMWB004	11	ZR5SD025	81
RM732730	232	SI012030	154	SNR07024	236	WSM3525150	11	Y			
RM732880-C	232	SI012300	161	SNR13024	236	WSM4030150	11	YMGFDG230	226		
RM735024-C	232	SI012400	155	ST36040	237	WSM4030210	11	YMGFDG230	235		
RM735730SE	232	SI012430	155	ST37001	237	WSM4040210	11	YMLGA024	226		
RM738024-C	232	SI012840	154	ST37002	237	WSM4060210	11	YMLGA024	235		
RM738730-C	232	SI012850	154	ST37003	237	WSM5040150	11	YMLGD024	226		
RM739024-C	232	SI012870	154	ST37040	237	WSM5040210	11	YMLGW230	226		
RM739730SE	232	SI012890	154	ST3FLC4	237	WSM5040260	11	YMLGW230	235		
RM78700	233	SI012900	154	ST3P2LC4	236	WSM5050210	11	YMLRA024	226		
RM78701	233	SI012920	154	ST3P3LB2	236	WSM5050300	11	YMLRA024	235		
RM78702-A	233	SI013180	155	ST3P3LC4	236	WSM6040150	11	YMLRD024	226		
RM78704	233	SI013190	155	ST3P3SM5	236	WSM6040210	11	YMLRD024	235		
RM78705	233	SI017530	155	ST3P3TP0	236	WSM6040260	11	YMLRD024-A	226		

TOP-TECHNIC



CONSUMER DISTRIBUTION BOARDS

TOP-TECHNIC



WALL-MOUNTING ENCLOSURES

TOP-TECHNIC



FLOOR-STANDING ENCLOSURES

TOP-TECHNIC



MODUL 4000TT – TYPE TESTED ENCLOSURES

TOP-TECHNIC



ENCLOSURES ACCESSORIES

TOP-TECHNIC



BRANCH ENCLOSURES



BRITISH STANDARD DISTRIBUTION BOARDS

ENCLOSURES

CONTENTS

CONSUMER DISTRIBUTION BOARDS	Page 2
WALL-MOUNTING ENCLOSURES	Page 9
FLOOR-STANDING ENCLOSURES	Page 15
MODUL 4000TT – TYPE TESTED ENCLOSURES	Page 21
ENCLOSURES ACCESSORIES	Page 24
BRANCH ENCLOSURES	Page 26
BRITISH STANDARD DISTRIBUTION BOARDS	Page 27

CONSUMER ENCLOSURES WALL-MOUNTED, WITH STEEL DOOR



BK003022

SCHRACK-INFO

- Degree of protection IP30 with rear panel
- Incl. PE- and N terminals
- Frame made from plastic
- Door: Sheet steel, to be ordered separately

CERTIFICATIONS

DIN VDE 0603, protection class II

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
1-row, 12 modules	300x245x106	BK003021
2-row, 24 modules	300x370x106	BK003022
3-row, 36 modules	300x495x106	BK003023
4-row, 48 modules	300x620x106	BK003024
Sheet steel door for BK003021	298x189x9	BK003001
Sheet steel door for BK003022	298x314x9	BK003002
Sheet steel door for BK003023	298x439x9	BK003003
Sheet steel door for BK003024	298x564x9	BK003004

CONSUMER ENCLOSURES WALL-MOUNTED, WITH PLASTIC DOOR



BK080152

SCHRACK-INFO

- Degree of protection IP 40
- Incl. PE- and N terminals
- Frame and door made from plastic
- Colour: white

CERTIFICATIONS

EN 60670-1, IEC 60670-24

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
1-row, 4 modules	215x263x112	BK0801501
1-row, 12 modules	287x236x112	BK080151
2-row, 24 modules	287x361x112	BK080152
3-row, 36 modules	287x482x112	BK080153

CONSUMER ENCLOSURES WALL-MOUNTED, WITH TRANSPARENT DOOR



BK080102

SCHRACK-INFO

- Degree of protection IP 40
- Incl. PE- and N terminals
- Frame and door made from plastic
- Colour: white

CERTIFICATIONS

EN 60670-1, IEC 60670-24

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
1-row, 4 modules	215x263x112	BK080100
1-row, 12 modules	287x236x112	BK080101
2-row, 24 modules	287x361x112	BK080102
3-row, 36 modules	287x482x112	BK080103

CONSUMER ENCLOSURES FLUSH-MOUNTED, WITH PLASTIC DOOR



BK080052

SCHRACK-INFO

- Degree of protection IP 40
- Incl. PE- and N terminals
- Frame and door made from plastic
- Colour: white

CERTIFICATIONS

EN 60670-1, IEC 60670-24

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
1-row, 4 modules	211x232x70	BK080050
1-row, 12 modules	283x232x70	BK080051
2-row, 24 modules	283x375x70	BK080052
3-row, 36 modules	283x482x70	BK080053

CONSUMER ENCLOSURES FLUSH-MOUNTED, WITH TRANSPARENT DOOR



BK080001

SCHRACK-INFO

- Degree of protection IP 40
- Incl. PE- and N terminals
- Frame and door made from plastic
- Colour: white

CERTIFICATIONS

EN 60670-1, IEC 60670-24

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
1-row, 4 modules	211x232x70	BK080000
1-row, 12 modules	283x232x70	BK080001
2-row, 24 modules	283x375x70	BK080002
3-row, 36 modules	283x482x70	BK080003

ACCESSORIES FOR CONSUMER ENCLOSURES

DESCRIPTION	ORDER NO.
PE/N terminal 2x15 (add.)	BK080098

CONSUMER ENCLOSURES DIN FLUSH-MOUNTED AND HOLLOW WALL, WITH STEEL DOOR



FLUSH-MOUNTED ENCLOSURES

SCHRACK-INFO

- IP 30 degree of protection plus polysterene trough, glow-wire tested, low on halogens
- Incl. PE- and N terminals
- Frame and doors from sheet steel- coated, colour: white
- Same order no. also available with viewing doors, with DT at end
- Door lock assembly and twist lock enclosed

CERTIFICATIONS

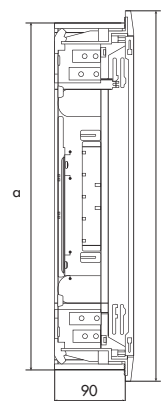
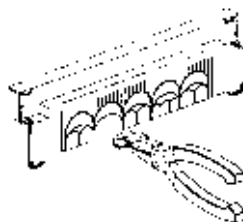
EN 60439-3, protection class II

RANGE OF APPLICATION

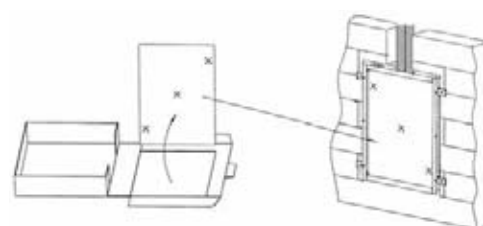
The solid construction reliably prevents distortion through being packed in plastic foam or through walling in. As an additional protection, the side flanges are hidden in the central enclosure area during delivery. Given its flat design and neutral colour, the domestic enclosure fits well in the wall plaster surface. As an additional advantage, the flush-mounted enclosure (incl.cover) are packed separately from the parts that are later visible. Thus ensuring that these parts remain protected until installation.

INCLUDED IN DELIVERY

Enclosure, device carrier, anti-dirt- device cover, neutral- and protective earth conductor terminal, assembly instructions, fixing material for hollow wall mounting, mounting angles and self-adhesive labels with graphical symbols (pictograms)



TYPE	TE	a	b
WUH -1	12+2	309	339
WUH -2	24+4	434	464
WUH -3	36+6	559	589
WUH -4	48+8	684	714



DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
1-row, 12/14 modules, wall box	CO*=325x315x91	BK070001-A
2-row, 24/28 modules, wall box	CO*=325x440x91	BK070002-A
3-row, 36/42 modules, wall box	CO*=325x565x91	BK070003-A
4-row, 48/56 modules, wall box	CO*=325x690x91	BK070004-A
1-row, 12/14 modules, complete	359x339	BK070001
2-row, 24/28 modules, complete	359x464	BK070002
3-row, 36/42 modules, complete	359x589	BK070003
4-row, 48/56 modules, complete	359x714	BK070004
1-row, 12/14 modules, doors and insert	-	BK070101
2-row, 24/28 modules, doors and insert	-	BK070102
3-row, 36/42 modules, doors and insert	-	BK070103
4-row, 48/56 modules, doors and insert	-	BK070104

CO*= hollow wall cut-out

ACCESSORIES FOR CONSUMER ENCLOSURES DIN FLUSH-MOUNTED AND HOLLOW WALL ENCLOSURES

SCHRACK-INFO

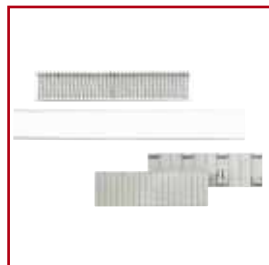
- An accurate cut-out in the hollow wall opening is no longer required
- The FM enclosure contains a cable fastening bar
- Tested clip technology for intuitive fastening
- Generous wiring space
- Easily retractable mounting rail structure
- Stops on DIN rails to position devices
- Quick-fastening locks for device covers
- Finger-proof terminal carrier
- Two different mounting levels, terminal blocks can be mounted on side. Sufficient space is available for additional PE- and N terminals

MOUNTING VARIANTS

- Fastening angle for hollow wall (wall thickness up to 30 mm)
- Dovetail mounting angle for front and rear panel fastening

DESCRIPTION	LENGTH mm	ORDER NO.
Lock set	-	BK077004
Cover plate for 45 mm slit, white, 6 modules	100	BK077002
Twist lock, complete, white	-	BK077005

BLANK STRIPS FOR CONSUMER ENCLOSURES DIN FLUSH-MOUNTED AND HOLLOW WALL ENCLOSURES



IL900112-F

SCHRACK-INFO

- Plastic strips to cover unused areas of device cutouts

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Lead-sealable cover plate, cannot be released from front	175x50x8	IL900112-F
Blank strips, ribbed (12 modules) white	220x50x8	BK004100
Blank strips, smooth grey	1000x25x8	IL900251-G
Blank strips, smooth white	1000x50x8	IL900251-W

DIN RAIL MOUNTED HOUSING WITH DOORS



IM008151

SCHRACK-INFO

- Housing with transparent viewing door
- Fully double-insulated
- Degree of protection: IP 55, lead-sealable
- Colour: RAL 7035
- Inc. NL and PE terminals

Series CT 12NS, 24NS, 36NS with EN/IEC certificate meeting EN 60439-3

MODULE WIDTHS	DIM. (WxHxD) mm	ORDER NO.
3 modules - 1 row with drop lid	83x175x111	IM009019
5 modules - 1 row with drop lid	125x175x111	IM009020
8 modules - 1 row with drop lid	215x175x111	IM009021
13 modules - 1 row with drop lid	286x200x119	IM009022
12 modules - 1 row with door	285x250x136	IM008150
24 modules - 2 row with door	285x375x136	IM008151
36 modules - 3 row with door	285x500x136	IM008152

DIN RAIL MOUNTED HOUSING WITHOUT DOORS



IM009016

SCHRACK-INFO

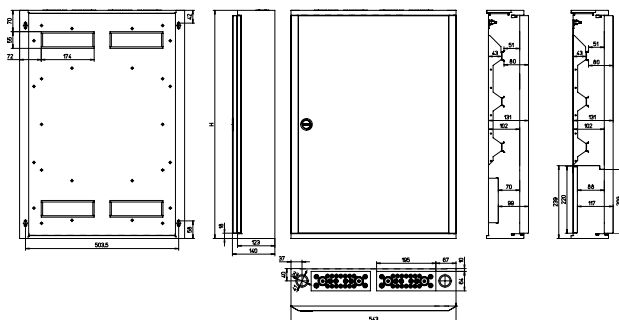
- Housing without door
- Fully double-insulated
- Degree of protection: IP 40, lead-sealable
- Colour: RAL 7035
- Inc. NL and PE terminals

MODULE WIDTHS	DIM. (WxHxD) mm	ORDER NO.
2 modules - 1 row	51x131x60	IM009010
4 modules - 1 row	88x131x60	IM009011
12 +1 modules - 1 row (not lead-sealable)	283x165x90	IM009016

MODUL 160 COMPACT WALL MOUNTING OPEN ENCLOSURES



ILC2A324



SCHRACK-INFO

- Wall mounting, open enclosure RAL 1016
- $I_n = 160$ A
- With front plates (dist. 150 mm) and rail frame
- PE rail
- Earthed front plates

NO. OF ROWS	N-TERMINALS	PE-TERMINALS	DIM (WxHxD) mm	ORDER NO.
WALL MOUNTING FRAME WITHOUT DOOR, 24 MODULES				
2	11	29	545x450x124+16	ILC2A224
3	11	29	545x605x124+16	ILC2A324
4	11	45	545x755x124+16	ILC2A424
5	11	60	545x905x124+16	ILC2A524
6	11	60	545x1055x124+16	ILC2A624
WALL MOUNTING FRAME WITHOUT DOOR, 33 MODULES				
4	11	60	705x755x124+16	ILC3A433
5	11	76	705x905x124+16	ILC3A533
6	11	76	705x1055x124+16	ILC3A633
METAL DOOR FOR 24 MODULES, TURNING BOLT "WS"				
2	11	29	545x450x124+16	ILC2T224
3	11	29	545x605x124+16	ILC2T324
4	11	45	545x755x124+16	ILC2T424
5	11	60	545x905x124+16	ILC2T524
6	11	60	545x1055x124+16	ILC2T624
METAL DOOR FOR 33 MODULES, TURNING BOLT "WS"				
4	11	60	545x755x124+16	ILC3T433
5	11	76	545x905x124+16	ILC3T533
6	11	76	545x1055x124+16	ILC3T633
METAL DOOR HIGH FOR 24 MODULES, ZYLINDER LOCK "RONIS"				
2	11	29	545x450x124+16	ILC2H224
3	11	29	545x605x124+16	ILC2H324
4	11	45	545x755x124+16	ILC2H424
5	11	60	545x905x124+16	ILC2H524
6	11	60	545x1055x124+16	ILC2H624
METAL DOOR HIGH FOR 33 MODULES, ZYLINDER LOCK "RONIS"				
4	11	60	545x755x124+16	ILC3H433
5	11	76	545x905x124+16	ILC3H533
6	11	76	545x1055x124+16	ILC3H633
GLAZED DOOR FOR 24 MODULES				
2	11	29	545x450x124+16	ILC2F224
3	11	29	545x605x124+16	ILC2F324
4	11	45	545x755x124+16	ILC2F424
5	11	60	545x905x124+16	ILC2F524
6	11	60	545x1055x124+16	ILC2F624
GLAZED DOOR FOR 33 MODULES				
4	11	60	545x755x124+16	ILC3F433
5	11	76	545x905x124+16	ILC3F533
6	11	76	545x1055x124+16	ILC3F633

MODUL 160 COMPACT FLUSH MOUNTED ENCLOSURES



ILC2U324

SCHRACK-INFO

- Flush mounted enclosure, RAL 1016
- $I_n = 160$ A
- With front plates (dist. 150 mm) and rail frame
- PE rail
- Earthed front plates

NO. OF ROWS	N-TERMINALS	PE-TERMINALS	DIM (WxHxD) mm	ORDER NO.
FLUSH MOUNTING FRAME INCL. METAL DOOR FOR 24 MODULES				
2	11	29	500/590x430/470x135	ILC2U224
3	11	29	500/590x580/620x135	ILC2U324
4	11	45	500/590x730/770x135	ILC2U424
5	11	60	500/590x880/920x135	ILC2U524
6	11	60	500/590x1030/1070x135	ILC2U624
FLUSH MOUNTING FRAME INCL. METAL DOOR FOR 33 MODULES				
4	11	45	660/750x730/770x135	ILC2U433
5	11	60	660/750x880/920x135	ILC2U533
6	11	60	660/750x1030/1070x135	ILC2U633
GLAZED DOOR FOR 24 MODULES				
2	11	29	500/590x430/470x135	ILC2U224F
3	11	29	500/590x580/620x135	ILC2U324F
4	11	45	500/590x730/770x135	ILC2U424F
5	11	60	500/590x880/920x135	ILC2U524F
6	11	60	500/590x1030/1070x135	ILC2U624F
GLAZED DOOR FOR 33 MODULES				
4	11	45	660/750x730/770x135	ILC2U433F
5	11	60	660/750x880/920x135	ILC2U533F
6	11	60	660/750x1030/1070x135	ILC2U633F

ACCESSORIES FOR MODUL 160 COMPACT

DESCRIPTION	PE-TERMINALS	DIM (WxHxD) mm	ORDER NO.
TERMINAL 16 mm²			
USE FOR ILCXX224, ILCXX324	29		ILCNK029
USE FOR ILCXX424	45		ILCNK045
USE FOR ILCXX524, ILCXX624, ILCXX433	60		ILCNK060
USE FOR ILCXX533, ILCXX633	76		ILCNK076
ZYLINDER LOCK			
Mini Zylinder lock set 2233X "WS"	-		ILCZYL2233
MODUL 160 COMPACT PRE-PUNCHED MOUNTING PLATES WITH SEPARATING PLATES			
Width 2, wall mounting	-	220x430x15	ILCAMPT2
Width 3, wall mounting	-	-	ILCAMPT3
Width 2, flush mounting	-	220x430x15	ILCUMPT2
Width 3, flush mounting	-	-	ILCUMPT3
MODUL 160 COMPACT MOUNTING PLATES WITH FRONT PLATES			
Width 2, wall mounting, MC1	-	-	ILCAMCF2
Width 3, wall mounting, MC1	-	-	ILCAMCF3
Width 2, flush mounting, MC1	-	-	ILCUMCF2
Width 3, flush mounting, MC1	-	-	ILCUMCF3

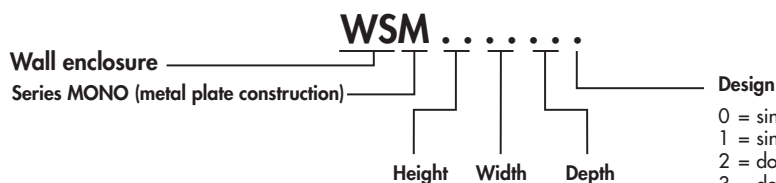
WALL-MOUNTING ENCLOSURES

WSM SHEET STEEL ENCLOSURES WITH MOUNTING PLATE FOR WALL MOUNTING

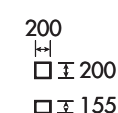


WSM

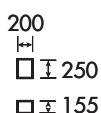
Type key



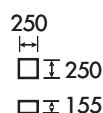
- 0 = single leaf, incl. mounting plate
- 1 = single leaf, w/o mounting plate
- 2 = double leaf, incl. mounting plate
- 3 = double leaf, w/o. mounting plate
- 4 = single leaf w/ window AC



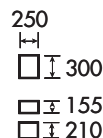
WSM2020150



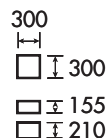
WSM2520150



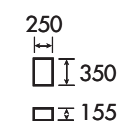
WSM2525150



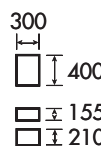
WSM3025150
WSM3025210



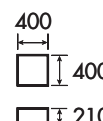
WSM3030150
WSM3030210



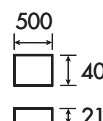
WSM3525150



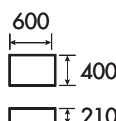
WSM4030150
WSM4030210



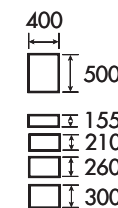
WSM4040210



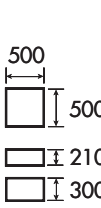
WSM4050210



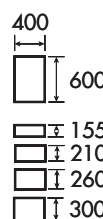
WSM4060210



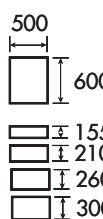
WSM5040150
WSM5040210
WSM5040260
WSM5040300



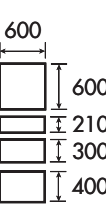
WSM5050210
WSM5050300



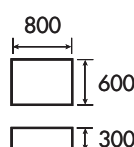
WSM6040150
WSM6040210
WSM6040260
WSM6040300



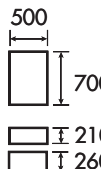
WSM6050150
WSM6050210
WSM6050260
WSM6050300



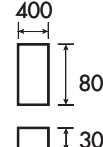
WSM6060210
WSM6060300
WSM6060400



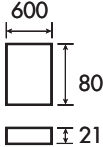
WSM6080300



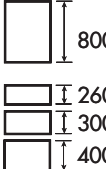
WSM7050210
WSM7050260



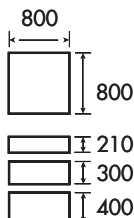
WSM8040300



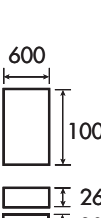
WSM8060210



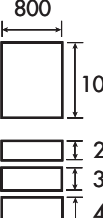
WSM8060260
WSM8060300
WSM8060400



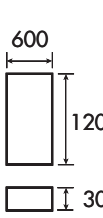
WSM8080210
WSM8080300
WSM8080400



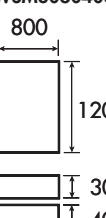
WSM1006260
WSM1006300



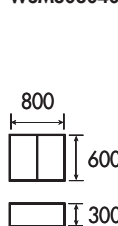
WSM1008260
WSM1008300
WSM1008400



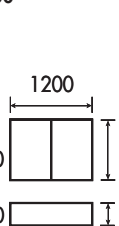
WSM1206300



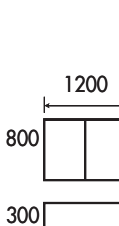
WSM1208300
WSM1208400



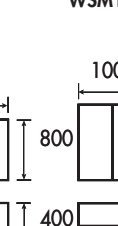
WSM6080302



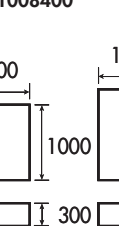
WSM0812302



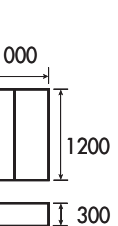
WSM0812402



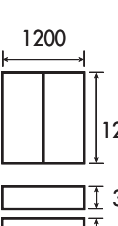
WSM1010302



WSM1210302

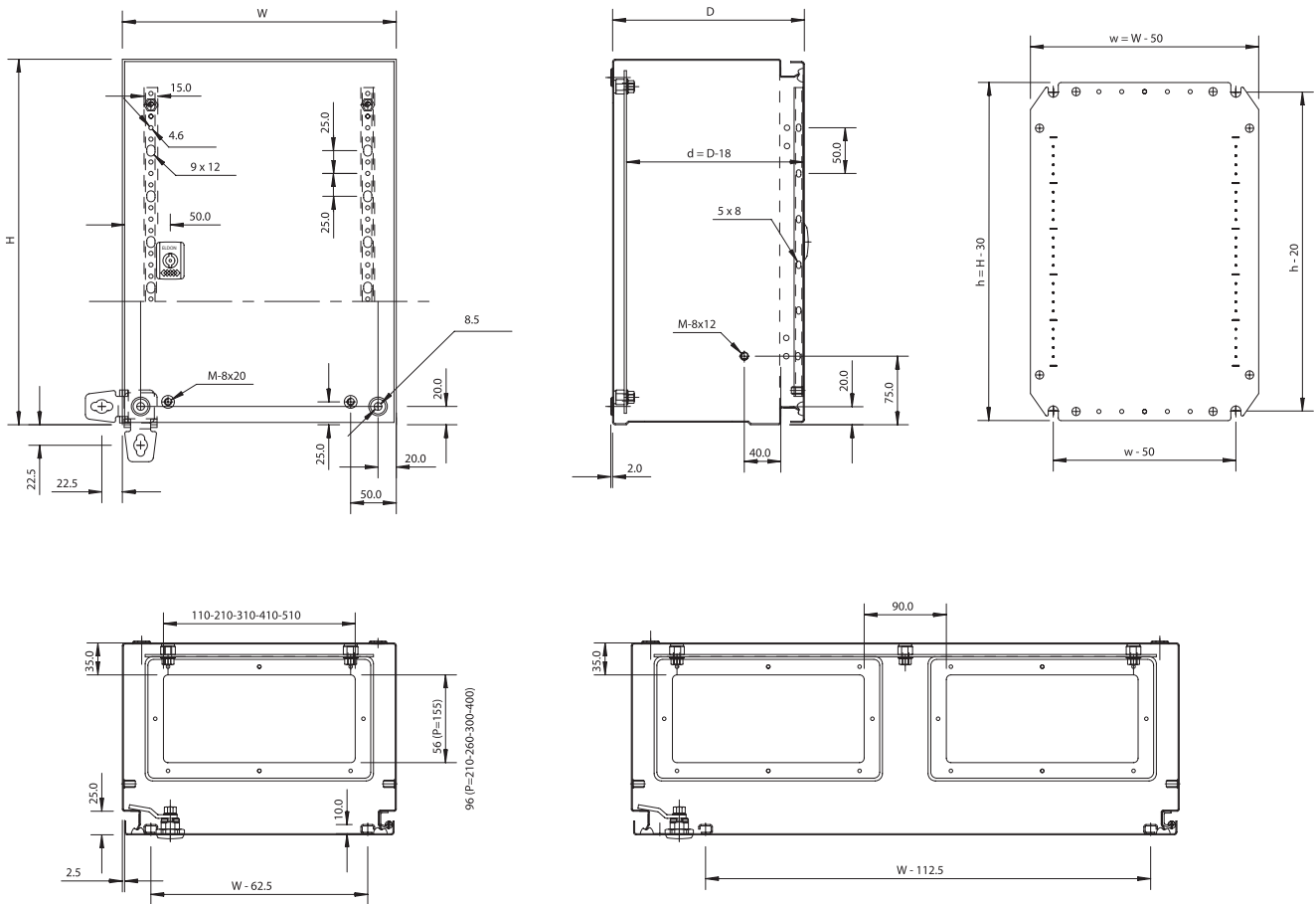


WSM1212302
WSM1212402



WSM1410302

WSM SHEET STEEL ENCLOSURES WITH MOUNTING PLATE FOR WALL MOUNTING – continued



SCHRACK-INFO

- Material:
 - Body: 1,2 mm mild steel / 1,4 mm WSM6060210 and above / 1,5 mm WSM1008260 and above, and 400 mm depth enclosures
 - Gland plate: 1,4 mm mild steel
 - Doors: 1,2 mm mild steel / 1,4 mm WSM6060210 and above / 1,8 mm WSM1008260 and above, and 400 mm depth enclosures
 - Mounting plate: 2 mm galvanised steel
- Body: Folded and seam-welded. Four instances 20,44 mm in diameter are provided to enable air circulation behind the enclosure when wall-mounted. These instances contain holes for wall-fastening, 8,55 mm in diameter.
- Doors: Opening angle 130°. Covered and removable hinges allow doors to be affixed on left or right hand side. From size WSM6040150, the door comes with two removable door mounting profiles. The enclosure is sealed in polyurethane coating fully-packed in plastic foam to ensure seal-tightness.
- Locking: Lock has double-grip to enable door to be opened easily, DIN lock with 5 mm pin and 90° dwell. From 1000 mm and up, 3 point lock rod. Other locks available as accessories.
- Mounting plate: The mounting plate has markings every 10 mm to enable equipment to be more easily positioned on the mounting plate. There are holes below and above for fastening cables. The mounting plate is mounted in M8 bolts on the rear side of the enclosure. All sides higher than 1000 mm come with rounded edges. Depth rails enable continuous adjustment.
- Flange opening: Easy cable entry is ensured by placing flange far back in the enclosure
- Surface: powder-structure coating, grey RAL 7035
- Degree of protection: Meets IP66 and NEMA 4, 12 and 13 single door, 2 casement models meet IP 55
- Included in delivery: Complete enclosure with 2 door mounting profiles (from size WSM5050210), mounting plate inc. fixing materials, blank flange with gaskets and screws. Nylon washers for sealing wall-fastening holes.

WALL-MOUNTING ENCLOSURES

WSM SHEET STEEL ENCLOSURES WITH MOUNTING PLATE FOR WALL MOUNTING – continued

DIM. (HxWxD) mm	MOUNTING PLATE (HxW) mm	INSTALLATION DEPTH (D) mm	FLANGE OPENING (WxD) mm / SIZE	LOCK	ORDER NO.
250x200x155	220x200	137	110x56 / 00	1	WSM2520150
300x250x155	270x200	137	110x56 / 00	1	WSM3025150
300x250x210	270x200	192	110x56 / 00	1	WSM3025210
300x300x155	270x250	137	210x56 / A0	1	WSM3030150
300x300x210	270x250	192	210x96 / A	1	WSM3030210
350x250x155	320x200	137	110x56 / 00	1	WSM3525150
400x300x155	370x250	137	210x56 / A0	1	WSM4030150
400x300x210	370x250	192	210x96 / A	1	WSM4030210
400x400x210	370x350	192	310x96 / B	1	WSM4040210
400x600x210	370x550	192	510x96 / D	1	WSM4060210
500x400x155	470x350	137	310x56 / B0	1	WSM5040150
500x400x210	470x350	192	310x96 / B	1	WSM5040210
500x400x260	470x350	224	310x96 / B	1	WSM5040260
500x500x210	470x450	192	410x96 / C	1	WSM5050210
500x500x300	470x450	282	410x96 / C	1	WSM5050300
600x400x155	570x350	137	310x56 / B0	2	WSM6040150
600x400x210	570x350	192	310x96 / B	2	WSM6040210
600x400x260	570x350	224	310x96 / B	2	WSM6040260
600x500x155	570x450	137	410x56 / C	2	WSM6050150
600x500x210	570x450	192	410x96 / C	2	WSM6050210
600x500x260	570x450	224	410x96 / C	2	WSM6050260
600x500x300	570x450	282	410x96 / C	2	WSM6050300
600x600x210	570x550	192	510x96 / D	2	WSM6060210
600x600x300	570x550	282	510x96 / D	2	WSM6060300
700x500x210	670x450	192	410x96 / C	2	WSM7050210
700x500x260	670x450	224	410x96 / C	2	WSM7050210
800x600x210	770x550	192	510x96 / D	2	WSM8060210
800x600x260	770x550	224	510x96 / D	2	WSM8060260
800x600x300	770x550	282	510x96 / D	2	WSM8060300
800x800x210	770x750	192	2x310x96 / B	2	WSM8080210
800x800x300	770x750	282	2x310x96 / B	2	WSM8080300
1000x600x260	970x550	224	510x96 / D	3 pt.	WSM1006260
1000x600x300	970x550	282	510x96 / D	3 pt.	WSM1006300
1000x800x260	970x750	224	2x310x96 / B	3 pt.	WSM1008260
1000x800x300	970x750	282	2x310x96 / B	3 pt.	WSM1008300
1000x800x400	970x750	382	2x310x96 / B	3 pt.	WSM1008400
1200x600x300	1170x550	282	510x96 / D	3 pt.	WSM1206300
1200x800x300	1170x750	282	2x310x96 / B	3 pt.	WSM1208300
1200x800x400	1170x750	382	2x310x96 / B	3 pt.	WSM1208400
600x800x300	570x750	282	2x310x96 / B	3 pt.	WSM6080302
800x1200x300	770x1150	282	2x510x96 / D	3 pt.	WSM8012302
1000x1000x300	970x950	282	2x410x96 / C	3 pt.	WSM1010302
1200x1000x300	1170x950	282	2x410x96 / C	3 pt.	WSM1210302
1200x1200x300	1170x1150	282	2x510x96 / D	3 pt.	WSM1212302
1200x1200x400	1170x1150	382	2x510x96 / D	3 pt.	WSM1212402
1400x1000x300	1370x950	282	2x410x96 / C	3 pt.	WSM1410302
Wall-fastening flaps, galvanized					WSMWB004

WSMIE WALL ENCLOSURES STANDARD PROFILE SYSTEM



WSMIE03025

SCHRACK-INFO

- Inserts for mounting protective devices
- Complete with DIN rails
- For enclosures 150 mm in depth
- Material: 1.2 mm sheet steel in RAL 7035 powder structure coating

FOR EQUIPMENT CABINETS (HxW) mm	ROWS	MODULES	ORDER NO.
300x250	2	16	WSMIE03025
400x300	3	33	WSMIE04030
500x400	3	48	WSMIE05040
600x400	4	64	WSMIE06040
600x600	4	108	WSMIE06060
700x500	5	110	WSMIE07050
800x600	6	162	WSMIE08060

WSM WALL ENCLOSURES GLAZED DOORS



WSMF3025AC

SCHRACK-INFO

- Mounted in place of standard doors to enable unimpeded viewing of enclosure components
- All standard locks can be used
- Degree of protection matches IP 55
- 1,2 mm / 1,4 mm WSMF6060AC and above / 1,8 mm WSMF1060AC and above, 3 mm transparent acrylic glass RAL 7035

DIM. (HxW) mm	VIEWING AREA	ORDER NO.
300x250	159x93	WSMF3025AC
300x300	159x143	WSMF3030AC
400x300	259x143	WSMF4030AC
400x400	259x243	WSMF4040AC
500x400	359x243	WSMF5040AC
600x400	459x243	WSMF6040AC
600x400	459x343	WSMF6050AC
600x600	459x443	WSMF6060AC
700x500	550x343	WSMF7050AC
800x600	659x443	WSMF8060AC
1000x600	859x427	WSMF1060AC
1000x800	859x627	WSMF1080AC
1200x600	1059x427	WSMF1260AC
1200x800	1059x627	WSMF1280AC

MINIPOL POLYESTER ENCLOSURES



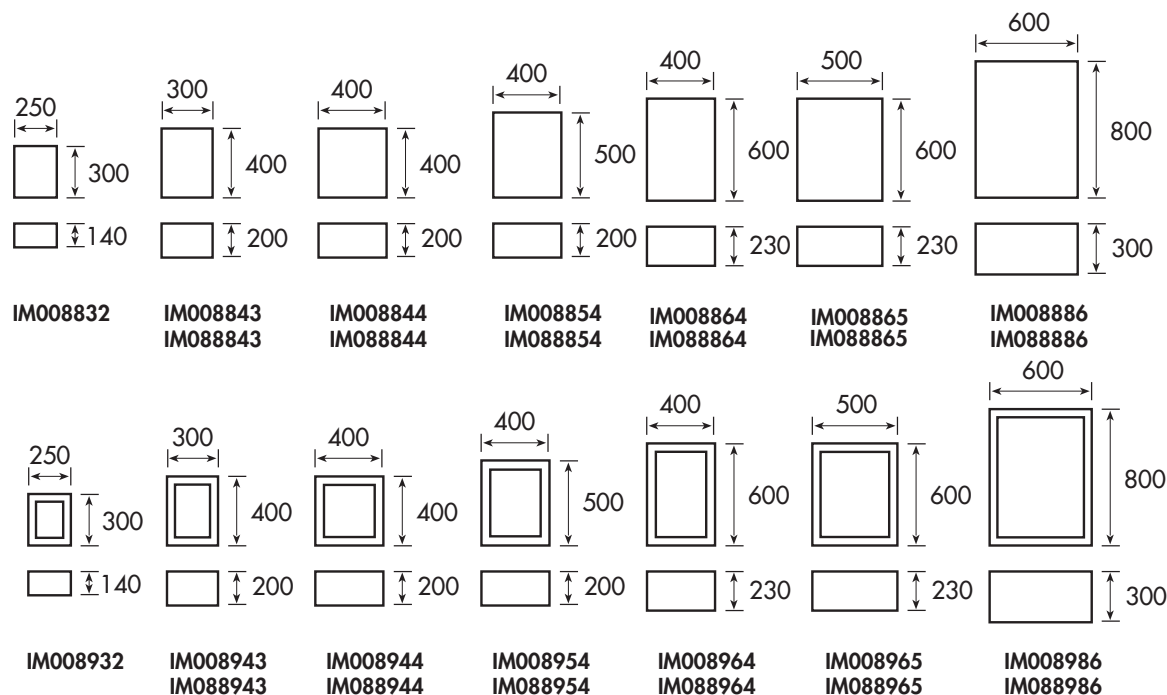
MINIPOL

SCHRACK-INFO

- Hot pressed, fibreglass-reinforced polyester, colour grey RAL 7035
- Free of halogens
- Degree of protection IP 66 according to EN 60529
- Double insulated according to EN 60439-1
- Self-extinguishing
- Weather-resistant
- High shock resistance
- Water-resistant
- Temperature range: -50° C to 150° C
- With flaps for fastening to wall
- With swing handle w/o cylinder insert
- UV-resistant
- UL, CSA, NEMKO, LGAI and KEMA certified
- Many areas of use and combinations

VW = viewing window

3P = 3-point rod lock with swing handle w/o semicylinder insert (otherwise 2x double tongue fastener)



DESCRIPTION	DIM. (HxWxD) mm	ORDER NO.
POLYESTER MINIPOL WALL ENCLOSURE		
Pol. wall enclosure	300x250x140	IM008832
Pol. wall enclosure	400x300x200	IM008843
Pol. wall enclosure	400x400x200	IM008844
Pol. wall enclosure	500x400x200	IM008854
Pol. wall enclosure	600x400x230	IM008864
Pol. wall enclosure	600x500x230	IM008865
Pol. wall enclosure	800x600x300	IM008886
Pol. wall enclosure VW	300x250x140	IM008932
Pol. wall enclosure VW	400x300x200	IM008943
Pol. wall enclosure VW	400x400x200	IM008944
Pol. wall enclosure VW	500x400x200	IM008954
Pol. wall enclosure VW	600x400x230	IM008964
Pol. wall enclosure VW	600x500x230	IM008965
Pol. wall enclosure VW	800x600x300	IM008986

MINIPOL POLYESTER ENCLOSURES – continued

DESCRIPTION	DIM. (HxWxD) mm	ORDER NO.
POLYESTER MINIPOL WALL ENCLOSURE		
Pol. wall enclosure 3P	400x300x200	IM088843
Pol. wall enclosure 3P	400x400x200	IM088844
Pol. wall enclosure 3P	500x400x200	IM088854
Pol. wall enclosure 3P	600x400x230	IM088864
Pol. wall enclosure 3P	600x500x230	IM088865
Pol. wall enclosure 3P	800x600x300	IM088886
Pol. wall enclosure 3P/VW	400x300x200	IM088943
Pol. wall enclosure 3P/VW	400x400x200	IM088944
Pol. wall enclosure 3P/VW	500x400x200	IM088954
Pol. wall enclosure 3P/VW	600x400x230	IM088964
Pol. wall enclosure 3P/VW	600x500x230	IM088965
Pol. wall enclosure 3P/VW	800x600x300	IM088986
Locking handle with small cylinder	-	IMPCM000
POLYESTER MOUNTING PLATE		
Polyester mounting plate, Minipol	268x216x4	IMMP0032
Polyester mounting plate, Minipol	358x260x4	IMMP0043
Polyester mounting plate, Minipol	358x360x4	IMMP0044
Polyester mounting plate, Minipol	458x360x4	IMMP0054
Polyester mounting plate, Minipol	558x360x4	IMMP0064
Polyester mounting plate, Minipol	558x460x4	IMMP0065
Polyester mounting plate, Minipol	754x556x4	IMMP0086
METALL MOUNTING PLATE		
Metal mounting plate, Minipol	268x216x2	IMMM0032
Metal mounting plate, Minipol	358x260x2	IMMM0043
Metal mounting plate, Minipol	358x360x2	IMMM0044
Metal mounting plate, Minipol	458x360x2	IMMM0054
Metal mounting plate, Minipol	558x360x2	IMMM0064
Metal mounting plate, Minipol	558x460x2	IMMM0065
Metal mounting plate, Minipol	754x556x2	IMMM0086
INSTALLATION INSERT		
Installation insert for 400x300 2x12 MW		IMCH0043
Installation insert for 400x400 2x18 MW		IMCH0044
Installation insert for 500x400 3x18 MW		IMCH0054
Installation insert for 600x400 3x18 MW		IMCH0064
Installation insert for 600x500 3x23 MW		IMCH0065
Installation insert for 800x600 4x29 MW		IMCH0086
Installation insert for 800x600 5x29 MW		IMCH0586
MINIPOL INTERIOR DOORS		
Interior doors 400 x 300		IMPI0043
Interior doors 400 x 400		IMPI0044
Interior doors 500 x 400		IMPI0043
Interior doors 600 x 400		IMPI0064
Interior doors 600 x 500		IMPI0065
Interior doors 800 x 600		IMPI0086

FLOOR-STANDING ENCLOSURES

AS MODULAR ENCLOSURES WITH MOUNTING PLATE



AS

Type key

AS

Modular enclosure

Height

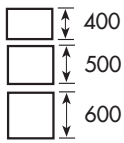
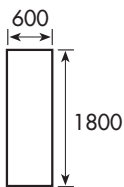
Width

Depth

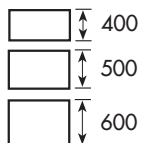
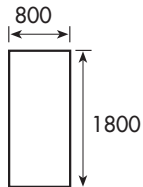
Design

- 0 = single leaf, incl. mounting plate
- 1 = single leaf, w/o mounting plate
- 2 = double leaf, w/o mounting plate
- 3 = single leaf w/ window AC

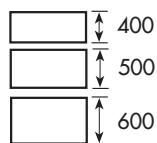
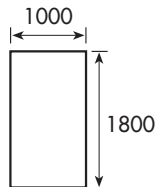
Page
15



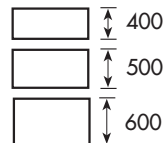
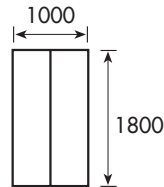
AS186040
AS186041
AS186050
AS186060



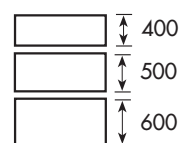
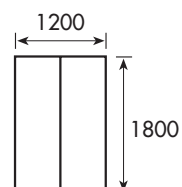
AS188040
AS188050
AS188060



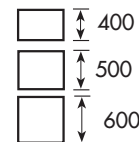
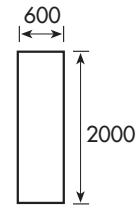
AS181040
AS181050
AS181060



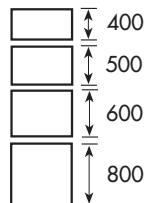
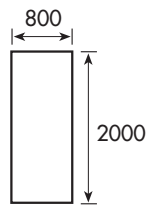
AS181042
AS181052
AS181062



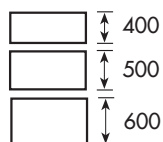
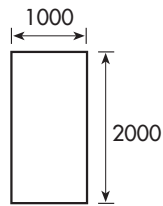
AS181242
AS181252
AS181262



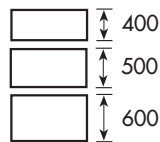
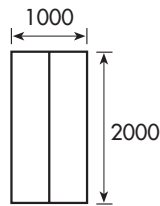
AS206040
AS206050
AS206060



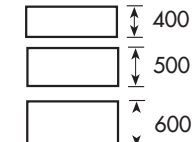
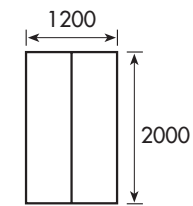
AS208040
AS208050
AS208060
AS208061
AS208080



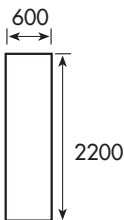
AS201040
AS201050
AS201060



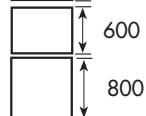
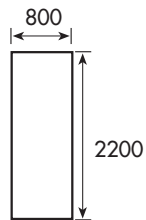
AS201042
AS201052
AS201062



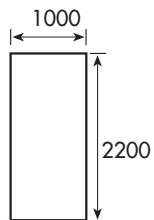
AS201242
AS201252
AS201262



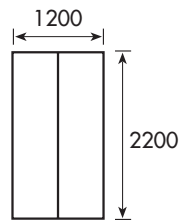
AS226060



AS228060
AS228080



AS221060



AS221262

AS MODULAR ENCLOSURES WITH MOUNTING PLATE – continued

SCHRACK-INFO

- Material:
 - Frame: Sheet steel 1,75 mm
 - Doors: Sheet steel 2 mm
 - Rear panel: Sheet steel 1.5 mm
 - Roof: Sheet steel 1.5 mm
 - Mounting plate: Sheet steel, galvanised, 3 mm
- Frame: 8x bevelled and laser-welded profile with 25 mm hole matrix and cable entry in floor
- Doors: Hinges can be attached on left or right, reinforced frame
- Rear panel: Removable. Can be replaced with rear doors
- Lock: Self-positioning 4 point rod lock for single doors and 3 point rod lock for double doors
- Comes as standard with swing handle lock with 5mm double-bit insert, replaceable
- Mounting plate: Double-bevelled, depth can be adjusted at 25 mm intervals
- Surface: powder-coated RAL 7035
- Degree of protection: IP 56 / NEMA 4 for single door-, IP 55 / NEMA 12 for double door models
- Included in delivery: Housing with doors with swing handle insert, 5mm double-bit insert, removable roof, cable entry plates, rear panel and mounting plate and earthing studs, keys and assembly instructions

DIM. (HxWxD) mm	ORDER NO.
SINGLE DOOR	
1800x600x400	AS186040
1800x600x500	AS186050
1800x600x600	AS186060
1800x800x400	AS188040
1800x800x500	AS188050
1800x800x600	AS188060
1800x1000x400	AS181040
1800x1000x500	AS181050
1800x1000x600	AS181060
2000x600x400	AS206040
2000x600x500	AS206050
2000x600x600	AS206060
2000x800x400	AS208040
2000x800x500	AS208050
2000x800x600	AS208060
2000x800x800	AS208080
2000x1000x400	AS201040
2000x1000x500	AS201050
2000x1000x600	AS201060
2200x600x600	AS226060
2200x800x600	AS228060
2200x800x800	AS228080
2200x1000x600	AS221060

AS MODULAR ENCLOSURES WITH MOUNTING PLATE – continued

DIM. (HxWxD) mm	ORDER NO.
DOUBLE DOOR	
1800x1000x400	AS181042
1800x1000x500	AS181052
1800x1000x600	AS181062
1800x1200x400	AS181242
1800x1200x500	AS181252
1800x1200x600	AS181262
2000x1000x400	AS201042
2000x1000x500	AS201052
2000x1000x600	AS201062
2000x1600x400	AS201642
2000x1200x400	AS201242
2000x1200x500	AS201252
2000x1200x600	AS201262
2200x1000x600	AS221062
2200x1200x600	AS221262

AS MODULAR ENCLOSURES SIDE PANELS

SCHRACK-INFO

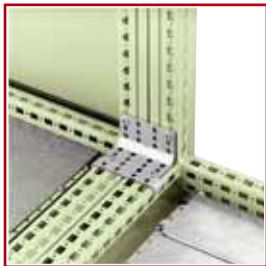
- Each unit comes as sold with 2 side panels

DIM. (DxH) mm	ORDER NO.
1800x400	ASSW1804
1800x500	ASSW1805
1800x600	ASSW1806
2000x400	ASSW2004
2000x500	ASSW2005
2000x600	ASSW2006
2000x800	ASSW2008
2200x600	ASSW2206
2200x800	ASSW2208

AS MODULAR ENCLOSURES CONNECTION KITS



ASCCI060



ASSCM040

SCHRACK-INFO

- Connecting angle for aligning AS enclosures next to one another
- Material: 3 mm galvanized steel, incl. fixing material

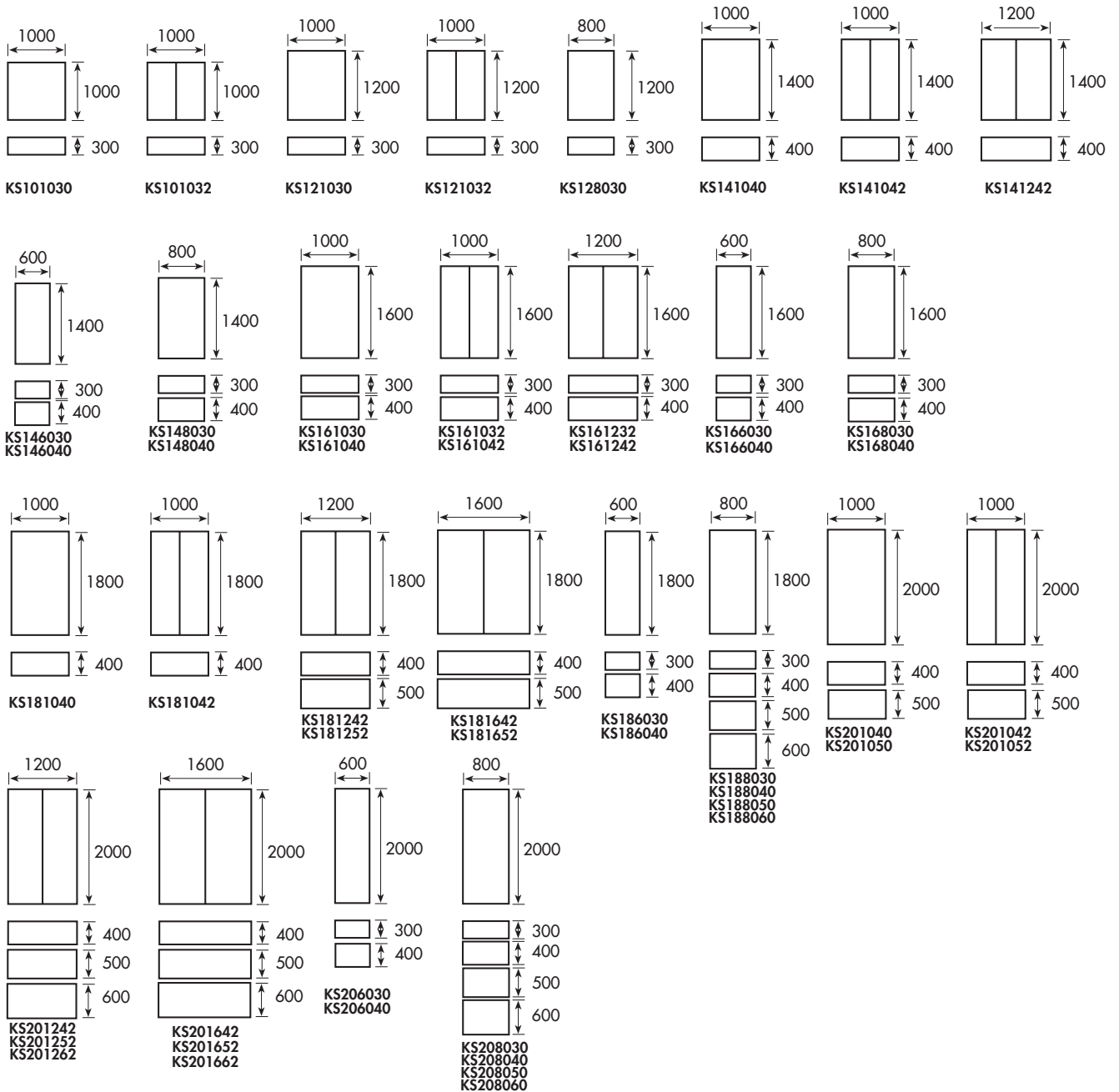
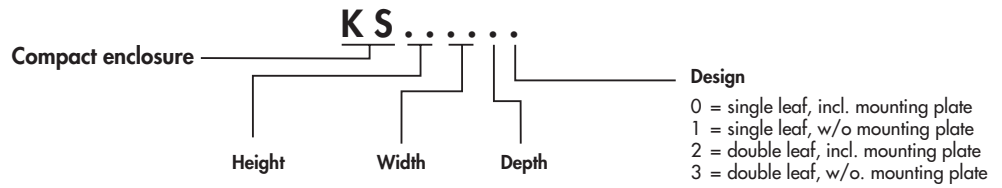
DESCRIPTION	ORDER NO.
Connection set, encl. with partition (set=12 pcs.)	ASCCJ120
Interior corner connector (set=4 pcs.)	ASSCM040
Connecting flap, vertical profile (set=6 pcs.)	ASCCI060

KS FLOOR-MOUNTED ENCLOSURES WITH MOUNTING PLATE



KS

Type key



KS FLOOR-MOUNTED ENCLOSURES WITH MOUNTING PLATE – continued

SCHRACK-INFO

- Material:
 - Frame: Sheet steel 1.5 mm
 - Doors: Sheet steel 2 mm
 - Rear panel: Sheet steel 1.5 mm
 - Roof: Sheet steel 1.5 mm
 - Mounting plate: Sheet steel, galvanised 3 mm
 - Frame: Rounded profile, seam-welded
 - Doors: Hinges can be attached on left or right, reinforced frame
 - Rear panel: Removable
 - Lock: Self-positioning 4 point rod lock for single doors and 3 point rod lock for double doors
- 5 mm double-bit insert comes as standard
- Mounting plate: Double-folded profile. Depth can be adjusted in 25 mm steps. Enclosures 1600 mm in width are supplied with two mounting plates.
- Surface: powder-coated RAL 7035
- Degree of protection: single door: IP 66 / NEMA 4
double door: IP 55 / NEMA 12
- Included in delivery: Enclosure with pre-fitted doors with 5 mm semicylinder two-way lock and reinforced profiles, roof, cable entry plates, rear panel and mounting plate, earthing bolts, keys and assembly instructions

DIM. (HxWxD) mm	ORDER NO
1400x600x300	KS146030
1400x600x400	KS146040
1600x600x400	KS166040
1600x800x300	KS168030
1600x800x400	KS168040
1600x1000x300	KS161030
1600x1000x400	KS161040
1600x1000x400	KS161042
1600x1200x400	KS161242
1800x600x400	KS186040
1800x800x300	KS188030
1800x800x400	KS188040
1800x800x500	KS188050
1800x1000x400	KS181040
1800x1000x400	KS181042
1800x1200x400	KS181242
1800x1600x400	KS181642
2000x600x400	KS206040
2000x800x300	KS208030
2000x800x400	KS208040
2000x800x500	KS208050
2000x1000x400	KS201040
2000x1000x400	KS201042
2000x1200x400	KS201242
2000x1600x400	KS201642

WIDTH SECTION FOR PLINTH



ASSOB

SCHRACK-INFO

- Width sections for standard bases
- Allows cable to be installed between enclosure rows free of obstruction. Meets VDE 0133 standard, secured through use of 4 corner pieces
- The width sections have no actual bearing function. Instead they keep cables from sight, even though their double-bevelled construction means they are very rigid.
- The corner parts are equipped with plastic covers which offer external access to mounting screws
- 200 mm height models have a simple plate for the front, a split plate for the rear - Cables can be managed from the rear by omitting a half
- Material: Corner sections 2.5 mm galvanized steel, closed at ends, base plates 2 mm steel, powder-coated according to RAL 7022
- Each package contains: 4x corner sections, 2x width sections incl. fixing material

DESCRIPTION	DIM. (WxH) mm	ORDER NO.
Width section for plinth 400/100	400x100	ASSOB041
Width section for plinth 600/100	600x100	ASSOB061
Width section for plinth 800/100	800x100	ASSOB081
Width section for plinth 1000/100	1000x100	ASSOB101
Width section for plinth 1200/100	1200x100	ASSOB121
Width section for plinth 400/200	400x200	ASSOB042
Width section for plinth 600/200	600x200	ASSOB062
Width section for plinth 800/200	800x200	ASSOB082
Width section for plinth 1000/200	1000x200	ASSOB102
Width section for plinth 1200/200	1200x200	ASSOB122

DEPTH SECTION FOR PLINTH



ASSOT

SCHRACK-INFO

- Depth sections for standard bases, especially rigid structure due to its double-bevelled construction
- Material: 2 mm steel, powder-coated accord. to RAL 7022
- Each package contains 2 pieces incl. fixing material

DESCRIPTION	DIM. (DxH) mm	ORDER NO.
Depth section for plinth 300/100	300x100	ASSOT031
Depth section for plinth 400/100	400x100	ASSOT041
Depth section for plinth 500/100	500x100	ASSOT051
Depth section for plinth 600/100	600x100	ASSOT061
Depth section for plinth 800/100	800x100	ASSOT081
Depth section for plinth 300/200	300x200	ASSOT032
Depth section for plinth 400/200	400x200	ASSOT042
Depth section for plinth 500/200	500x200	ASSOT052
Depth section for plinth 600/200	600x200	ASSOT062
Depth section for plinth 800/200	800x200	ASSOT082

■ MULTI COMBINATION OF FUNCTIONAL AREAS AND BUSBAR ACCORDING TO IEC/EN 60439

■ SCHRACK-INFO

Product Features:

- IEC/EN 60439-1 type-tested assembly
- TTA, PTTA, form 2b to form 4b
- TTCalc software for easy configuration, partlist and all projections plans
- Fully type-tested assemblies (TTA)

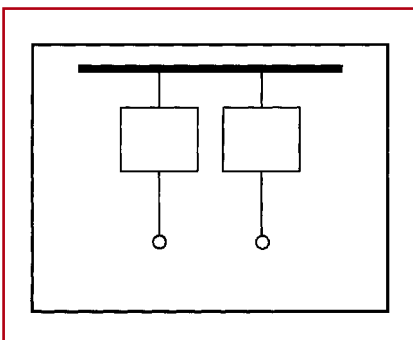


■ MODUL 4000 TT AVAILABLE IN FORM 1, 2B OR 4B ONCE TYPE TESTED IEC/EN 60439-1

This system enables a high density by 38 x 50 mm fixed modules per one selection.
Partlist automatically calculate by SCHRACK TTCALC.

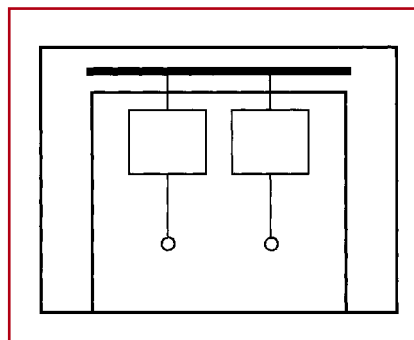
FORM 1

No partition.



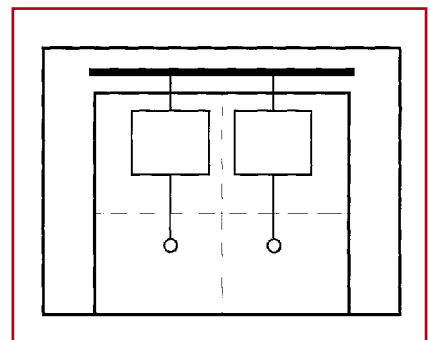
FORM 2b

Seperation of busbar from functional unit.
Partition between busbar and unit.

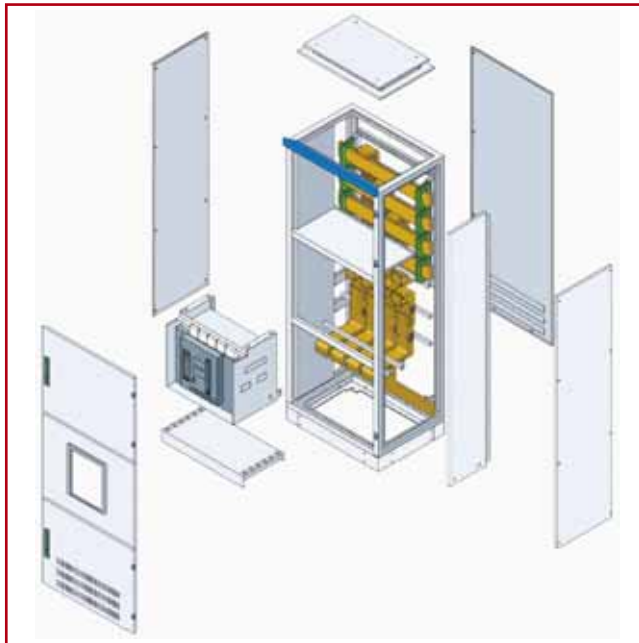


FORM 4b

Seperation of busbar from functional unit.
Seperation of functional unit from another.
Seperation of terminals associated with functional and other units.



MODUL 4000 TT PHILOSOPHY – SCHRACK COMPONENTS WILL BE COMBINED TO FORM ONE TECHNICAL AND ECONOMIC UNIT



- Clear and symmetrical construction with one circuit breaker per section reduces the variety of busbars and the assembly time
- Partitions up to form 4 increase protection of persons and boards
- Functionally packed in elements and delivered as flat pack
- High flexibility in the power connection through three alternatives: Cable connection, cable lugs or busbar trunking connectors

DECLARATION OF CONFORMITY FOR THE MODUL 4000 TT MODULE SYSTEM



- MODUL 4000 TT has passed the type tests TTA acc. to IEC/EN 60439-1
- SCHRACK confirms this to the panel builder with the declaration of conformity for the MODUL 4000 TT module system

HOW TO ORDER

- Ask us for the design software.

DESCRIPTION	ORDER NO.
Modul 4000TT	on request

EQUIPMENT CABINET HEATING SYSTEMS



HEATING SYSTEMS

SCHRACK-INFO

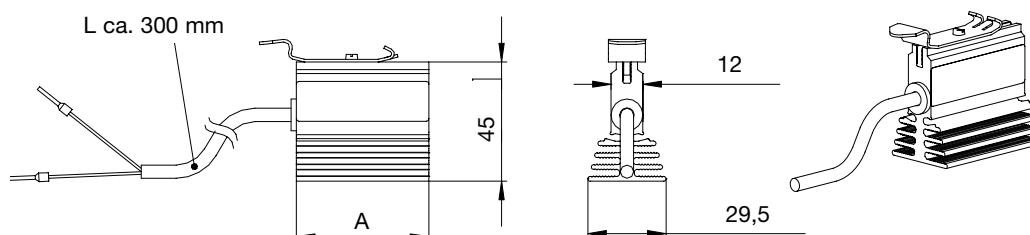
- Voltage range AC/DC 110 V - 250 V
- Self-regulating, PTC
- Self-limiting surface temperature
- Reduced energy consumption through power readjustment in accordance with dissipated heat
- No noise suppression required
- Dynamic heating behaviour
- Tropic-proof
- IP20
- Anodized surface, large effective heating surface, natural convection
- Can be mounted at different heights according to needs
- Fastening clips can be rotated 90° for top-hat mounting
- VDE, SEV, UL approved
- Protection class I
- 3 connector model
- Terminal connection

CONTINUOUS HEAT OUTPUT/SURFACE TEMPERATURE	DIM. (WxHxD) mm	ORDER NO.
15 W/65° C	65x70x50	IUK08346
30 W/90° C	65x70x50	IUK08341
45 W/105° C	65x70x50	IUK08342
60 W/105° C	140x70x50	IUK08343
100 W/130° C	140x70x50	IUK08344
150 W/150° C	215x70x50	IUK08345
250 W/75° C	186,5x85x104	IUK08250
400 W/85° C	223,5x85x104	IUK08400

SMALL HEATERS



IUK08353



SCHRACK-INFO

- Voltage range AC/DC 110 - 250 V, max. 265 V
- Heating element: (PTC) thermistor, self-regulating
- Heating unit: Anodized aluminium profile
- Protection class II, IP54
- Connecting lead: Silicon cable 0,3 m long 2 x 0,75 mm²
- Fastenings: Clip for 35 mm DIN rail EN 60715

CONTINUOUS HEAT OUTPUT	DIM. (WxHxD) mm	ORDER NO.
20 W	75x45x29	IUK08352
30 W	75x45x29	IUK08353
10 W + cable 1 m	50x45x29	IUK08351

LIGHTS FOR EQUIPMENT CABINETS



IU008508



IU008517

SCHRACK-INFO

IU008508, IU008513, IU008509

- Operating voltage: 230V, 50-60Hz with on/offswitch for lamp
- Output: 11 W (~ 75 W bulb)
- Light intensity: 900 lm
- Service life: 5000 h
- RI suppression: meets VDE 0712 IEC 82
- Degree of protection: IP 20
- Plug connection: 230 V AC, 16 A earthed
- Connection: Terminal 3 x 2,5 mm² with cable relief
- Magnetic fastener: approx. 20 kg for 2 mm steel plates
- Housing: Plastic, shock-resistant, UL 94 V0

SCHRACK-INFO IU008515 - IU008517

- Operating voltage: 220 - 240V/ 50-60Hz
- Lamp: Energy-saving lamp, base E27
- Power consumption: 20 W (~ 100 W bulb)
- Light intensity: 1000 lm
- Light colour: Daylight, white
- Service life: 10.000 hours
- Housing: Plastic, shock-proof
- Degree of protection: IP 20
- Protection class: II

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Compact light with magnetic fastening/with earthed plug	65x351x62	IU008508
Compact light with pin-earth/CH	65x351x62	IU008513
Dual light with one-off press switch/6-pole screw terminal 2,5 mm² for mains connection, 2 lamps in parallel output and external door contact switches	396x100x67	IU008515
Hand lamp with light holder and hook/mains lead and plug	337x84x68	IU008517

THERMOSTATS AND HUMIDISTATS



IUK08561



IUK08562



IUK08564

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Thermostat 10 - 60° C, th.comp. 0.5K, 1 U	67x50x37	IUK08561
Humidistat 50 - 100% rF, 1 U	67x50x37	IUK08562
Twin Thermostat	81x60x38	IUK08563
Hygrostat - Thermostat 0 - 60° C, 40-90% rF, 1 U - 8 A (AC240)	81x60x38	IUK08564
Heating thermostat N/C switch, red (UL)	60x33x35	IUK08565
Ventilation thermostat N/O switch, blue (UL)	60x33x35	IUK08566

POCKET FOR A4 CIRCUIT DIAGRAMS



ASDRA400

SCHRACK-INFO

- Self-adhesive pocket for circuit diagrams in DIN A4 format
- Up to depth: 30 mm
- Colour grey
- Material: Thermoplastic
- Each package contains 1x incl. fixing material

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Pocket for A4 circuit diagram	230x220x30	ASDRA400

FAN WITH FILTER, QUICK-FASTENING



IUKNF4523A

SCHRACK-INFO

- Easy, screw-free mounting
- Quick-fastening, click in
- Voltage 230V, 50-60Hz
- Plastic heat resistance (-15° C bis +55° C), self-extinguishing according to UL 94 V0
- Flat design: Dimensions of cover grille max. 6,5 mm
- Certifications: UL, CSA
- Degree of protection IP 54 (EN 60529)
- Toolless fixing
- RAL 7035

CURRENT CONSUMPTION/CAPACITY WITH FILTERMAT	DIM. (WxHxD) mm	CUTOUT	ORDER NO.
12 W/16 m³/h, Filtervent.IP54 230V	109x109x62	92x92	IUKNF1523A
19 W/44 m³/h, Filtervent.IP54 230V	145x145x70	125x125	IUKNF2523A
19 W/82 m³/h, Filtervent.IP54 230V	202x202x87	177x177	IUKNF3523A
41 W/116 m³/h, Filtervent.IP54 230V	252x252x97	223x223	IUKNF4523A
41 W/231 m³/h, Filtervent.IP54 230V	252x252x113	223x223	IUKNF5523A
66 W/370 m³/h, Filtervent.IP54 230V	320x320x150	291x291	IUKNF6523A
115 W/445 m³/h, Filtervent.IP54 230V	320x320x150	291x291	IUKNF7523A
135 W/560 m³/h, Filtervent.IP54 230V	320x320x150	291x291	IUKNF8523A

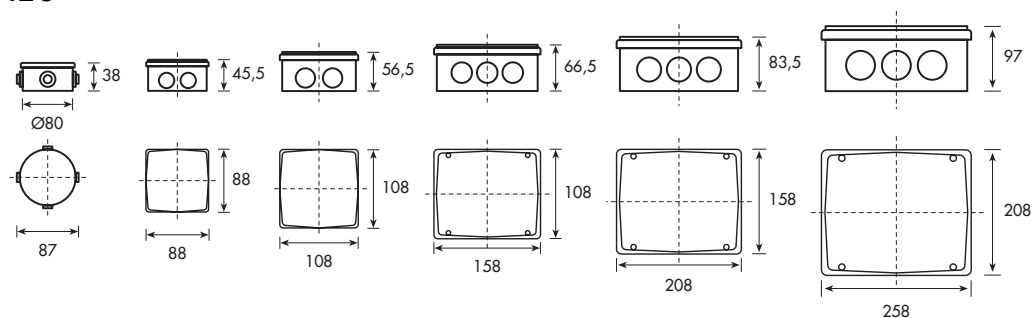
ACCESSORIES FOR FAN WITH FILTER, QUICK-FASTENING

DESCRIPTION	DIM. (WxHxD)	CUTOUT	ORDER NO.
Exhausd Filter IP54 150	109x109x19	92x92	IUKNE150
Exhausd Filter IP54 250	145x145x26	125x125	IUKNE250
Exhausd Filter IP54 350	202x202x34	177x177	IUKNE350
Exhausd Filter IP54 450	252x252x38	223x223	IUKNE450
Exhausd Filter IP54 550	320x320x39	291x291	IUKNE550

TERMINAL BOXES



IG311511



SCHRACK-INFO

- Material: Polycarbonate, self-extinguishing
- Embossed openings on all sides
- Colour: RAL 7035
- Degree of protection: IP 55 (IEC-529)
- Diagonal fins allows for a variety of devices with tapping screws

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Branch socket, round	80x40	IG310008
Branch socket	80x80x40	IG310808
Branch socket	100x100x50	IG311010
Branch socket	150x110x70	IG311511
Branch enclosure	208x158x83,5	IG302015
Branch enclosure	258x208x97	IG302520
Branch socket	150x 75x50	IG311275
Branch socket	190x145x70	IG311914
Branch socket	240x190x110	IG312419
Enclosure	175x175x100	IG702023
Enclosure	242x175x100	IG702024
Terminal box	120x122x65	IG704008
Terminal box	80x82x65	IG704032
Terminal box	80x160x65	IG704036
Terminal box	160x240x90	IG704045
Spacer screw for mounting set	M6/H15	IG713027

MOUNTING PLATES FOR TERMINAL BOXES



IG390012

DESCRIPTION	FOR BRANCH	DIM. (WxHxD) mm	ORDER NO.
MP-fastening screws included		184x136x2	IG390012
MP-fastening screws included		234x184x2	IG390013
MP-fastening screws included		98x98x1,5	IG702054
MP-fastening screws included		148x148x1,5	IG702056
MP-fastening screws included		232x148x1,5	IG702057

CABLE ENTRIES FOR TERMINAL BOXES

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
PG 9-PG 11	Ø 25x13	IG390001
PG 9-PG 16	Ø 33x20	IG390002
PG 9-PG 21	Ø 43x22	IG390003
PG 21-PG 48	Ø 70x20	IG390004
PG 21-PG 48	Ø 98x23	IG390005

BS PLASTIC CONSUMER UNITS WITH METALL DIN-RAIL



SCHRACK-INFO

- According to IEC/EN 60439-3
- Degree of protection IP 40
- Protection class I
- Available in 4, 8, 12, 14 and 20 modules
- Material:

Base:	Polystyrene RAL 9010
Pan Assembly:	Polyamide
Terminal Support:	Polyamide
Cover:	Polystyrene RAL 9010
Door:	Polystyrene RAL 9010
Busbar:	Copper 2 mm

OUTGOING WAYS	MODULES	ISOLATOR 100 A MAIN SWITCH	RCD 40 A/30 mA	RCD 63 A/30 mA	RCD 80 A/30 mA	ORDER NO.
2 POLE 100 A MAIN SWITCH CONTROLLED						
2	4	BZ900202	-	-	-	BKCU0210
6	8	BZ900202	-	-	-	BKCU0610
10	12	BZ900202	-	-	-	BKCU1010
12	14	BZ900202	-	-	-	BKCU1210
18	20	BZ900202	-	-	-	BKCU1810
2 POLE RCD CONTROLLED						
2	4	-	BC604203	-	-	BKCU0204
2	8	-	-	BC606203	-	BKCU0206
6	12	-	-	BC606203	-	BKCU0606
10	14	-	-	-	BC008203	BKCU1008
12	20	-	-	-	BC008203	BKCU1208
18	20	-	-	-	BC008203	BKCU1808
SPLIT LOAD - 2 POLE RCD / 100 A MAIN SWITCH CONTROLLED						
8	4	BZ900202	-	BC006203	-	BKCU0816
10	8	BZ900202	-	BC006203	-	BKCU1016
8	12	BZ900202	-	-	BC038203	BKCU0818
10	14	BZ900202	-	-	BC038203	BKCU1018
16	20	BZ900202	-	-	BC038203	BKCU1618

SINGLE PHASE DISTRIBUTION BOARDS



ILCU1000WM



ILCU1000WT

SCHRACK-INFO

- According to IEC/EN 60439-3
- Available in 5, 8, 10, 14 and 18 outgoing ways
- Fully shrouded busbar made of tinned copper, rated 100 A
- Neutral and earth terminal
- Flush- and wall-mounting versions
- With metall door or transparent lid
- Incomer devices: 2P Isolator, 2P RCCB
- Outgoing devices: MCBs and 1-module RCBOs

OUTGOING WAYS	MODULES	DIM. (WxHxD) mm	ORDER NO.
FLUSH-MOUNTING WITH METALL DOOR			
5	7	230x240x95	ILCU0500FM
8	10	285x240x95	ILCU0800FM
10	12	320x240x95	ILCU1000FM
14	16	390x240x95	ILCU1400FM
18	20	460x240x95	ILCU1800FM
WALL-MOUNTING WITH METALL DOOR			
5	7	210x223x95	ILCU0500WM
8	10	265x223x95	ILCU0800WM
10	12	300x223x95	ILCU1000WM
14	16	370x223x95	ILCU1400WM
18	20	440x223x95	ILCU1800WM
FLUSH-MOUNTING WITH TRANSPARENT LID			
5	7	230x240x95	ILCU0500FT
8	10	285x240x95	ILCU0800FT
10	12	320x240x95	ILCU1000FT
14	16	390x240x95	ILCU1400FT
18	20	460x240x95	ILCU1800FT
WALL-MOUNTING WITH TRANSPARENT LID			
5	7	210x223x95	ILCU0500WT
8	10	265x223x95	ILCU0800WT
10	12	300x223x95	ILCU1000WT
14	16	370x223x95	ILCU1400WT
18	20	440x223x95	ILCU1800WT

TPN DISTRIBUTION BOARDS



ILDB0600FM

SCHRACK-INFO

- Available in 4, 6, 8, 12, 16, 18 and 24 TPN ways
- Reversible door. Can be mounted to open from left to right or vice – a – verse
- Enclosures have an ingress protection rating of IP 40 and comply with BS EN 60439-3
- Additional bolt-on extension box and incoming spreader box
- Busbar system rated to 200A
- One piece copper busbar to eliminate potential hot spots
- Shrouded busbar for increased safety
- Neutral & Earth terminals provided on both sides
- Compact pan assembly providing generous wiring space
- Removable pan assemblies with key hole fixings to easy installation
- Easy fit, DIN-rail mounting, incoming and outgoing devices simply slot into place
- Combination incomer possible. TP main switch, four pole RCD and MCCB c/w Spreader box
- Heavy gauge removable gland plates are provided at the top and bottom with knockouts
- Generous cabling space
- Flush mounting and surface mounting options available

TECHNICAL DATA

- Applicable Standard: BS EN 60439-3
- Number of TPN ways: 4, 6, 8, 12, 16, 18 and 24
- Busbar Nominal Rating: 200 A
- Rated Voltage: 415V AC, 50/60 Hz
- Maximum Incomer Rating: 200 A
- Maximum Outgoing Device: SP/TP-125 A SP/TP
63 A (only in extensionbox)
- Incomer Devices: 3P/4P Isolator, 4P RCD, 3P/4P MCB or TP Isolator + 4P RCD, 200 A MCCB
- Outgoing Devices: SP and TP MCB, RCBo's

OUTGOING WAYS	DIM. (WxHxD) mm	ORDER NO.
FLUSH MOUNTING VERSION		
4 way TPN	420x519x106,2	ILDB0400FM
6 way TPN	420x574x106,2	ILDB0600FM
8 way TPN	420x629x106,2	ILDB0800FM
12 way TPN	420x739x106,2	ILDB1200FM
16 way TPN	420x849x106,2	ILDB1600FM
24 way TPN	420x904x106,2	ILDB1800FM
WALL MOUNTING VERSION		
4 way TPN	400x499x106,2	ILDB0400WM
6 way TPN	400x554x106,2	ILDB0600WM
8 way TPN	400x609x106,2	ILDB0800WM
12 way TPN	400x719x106,2	ILDB1200WM
16 way TPN	400x774x106,2	ILDB1600WM
18 way TPN	400x829x106,2	ILDB1800WM
24 way TPN	400x884x106,2	ILDB2400WM

EXTENSION BOX



ILDIN016WM

SCHRACK-INFO

- Reversible door. Can be mounted to open from left to right or vice – a – verse
- Enclosures have an ingress protection rating of IP 40 and comply with BS EN 60439-3
- Additional bolt-on extension box and incoming spreader box

DESCRIPTION	ORDER NO.
16 way SP	ILDIN016WM

MCCB INCOMING SPREADER BOX



ILMCCB20WM

SCHRACK-INFO

- Reversible door. Can be mounted to open from left to right or vice – a – verse
- Enclosures have an ingress protection rating of IP 40 and comply with BS EN 60439-3
- Additional bolt-on extension box and incoming spreader box

DESCRIPTION	ORDER NO.
200 A TP	ILMCCB20WM

PAN ASSEMBLIES



BS99012ME

SCHRACK-INFO

- Busbar system rated to 200A
- One piece copper busbar to eliminate potential hot spots
- Shrouded busbar for increased safety
- Neutral & Earth terminals provided on both sides
- Combination incomer possible. TP main switch, four pole RCD and MCCB c/w Spreader box
- Easy fit, DIN-rail mounting, incoming and outgoing devices simply slot into place

DESCRIPTION	ORDER NO.
4 way TPN	BS990004ME
6 way TPN	BS990006ME
8 way TPN	BS990008ME
12 way TPN	BS990012ME
16 way TPN	BS990016ME
18 way TPN	BS990018ME
24 way TPN	BS990024ME

SUBMAIN DISTRIBUTION BOARDS

■ DISTRIBUTION BOARDS WITHOUT INCOMER AND OUTGOING MCCB'S



■ SCHRACK-INFO

- Busbar rating options for 250A, 400A and 630A
- Incoming MCCB's or switch disconnectors from 160A to 630A
- Outgoing ways from 20A to 300A, 3 pole
- High quality steel-plate enclosures to IP40
- Metering available on request

NO OF WAYS	BUSBAR RATING	INCOMER MCCB's	OUTGOING MCCB's	DIM. (WxHxD) mm	ORDER NO.
DISTRIBUTION BOARDS 250A					
4	250A	MC2 up to 250A	BZM1 up to 125A	650x800x174	ILMC0420WM
6	250A	MC2 up to 250A	BZM1 up to 125A	650x890x174	ILMC0620WM
8	250A	MC2 up to 250A	BZM1 up to 125A	650x980x174	ILMC0820WM
10	250A	MC2 up to 250A	BZM1 up to 125A	650x1070x174	ILMC1020WM
12	250A	MC2 up to 250A	BZM1 up to 125A	650x1160x174	ILMC1220WM
14	250A	MC2 up to 250A	BZM1 up to 125A	650x1250x174	ILMC1420WM
16	250A	MC2 up to 250A	BZM1 up to 125A	650x1340x174	ILMC1620WM
4	250A	MC2 up to 250A	MC1 up to 160A	650x800x174	ILMC0421WM
6	250A	MC2 up to 250A	MC1 up to 160A	650x890x174	ILMC0621WM
8	250A	MC2 up to 250A	MC1 up to 160A	650x980x174	ILMC0821WM
10	250A	MC2 up to 250A	MC1 up to 160A	650x1070x174	ILMC1021WM
12	250A	MC2 up to 250A	MC1 up to 160A	650x1160x174	ILMC1221WM
14	250A	MC2 up to 250A	MC1 up to 160A	650x1250x174	ILMC1421WM
16	250A	MC2 up to 250A	MC1 up to 160A	650x1340x174	ILMC1621WM
DISTRIBUTION BOARDS 400A					
4	400A	MC3 up to 400A	MC2 up to 300A	750x1025x174	ILMC0442WM
6	400A	MC3 up to 400A	MC2 up to 300A	750x1130x174	ILMC0642WM
8	400A	MC3 up to 400A	MC2 up to 300A	750x1235x174	ILMC0842WM
10	400A	MC3 up to 400A	MC2 up to 300A	750x1340x174	ILMC1042WM
12	400A	MC3 up to 400A	MC2 up to 300A	750x1445x174	ILMC1242WM
14	400A	MC3 up to 400A	MC2 up to 300A	750x1550x174	ILMC1442WM
16	400A	MC3 up to 400A	MC2 up to 300A	750x1655x174	ILMC1642WM
DISTRIBUTION BOARDS 630A					
4	630A	MC3 up to 630A	MC2 up to 300A	750x1025x174	ILMC0462WM
6	630A	MC3 up to 630A	MC2 up to 300A	750x1130x174	ILMC0662WM
8	630A	MC3 up to 630A	MC2 up to 300A	750x1235x174	ILMC0862WM
10	630A	MC3 up to 630A	MC2 up to 300A	750x1340x174	ILMC1062WM
12	630A	MC3 up to 630A	MC2 up to 300A	750x1445x174	ILMC1262WM
14	630A	MC3 up to 630A	MC2 up to 300A	750x1550x174	ILMC1462WM
16	630A	MC3 up to 630A	MC2 up to 300A	750x1655x174	ILMC1662WM

TOP-TECHNIC



MCB

TOP-TECHNIC



RCBO

TOP-TECHNIC



RCCBS ADD-ON BLOCKS

TOP-TECHNIC



RCCB

TOP-TECHNIC



ACCESSORIES FOR MCBs, RCBOs AND RCCBs

TOP-TECHNIC



BUSBARS

TOP-TECHNIC



MOTOR PROTECTION DEVICES

TOP-TECHNIC



REMOTE SWITCHING UNIT

PROTECTIVE DEVICES

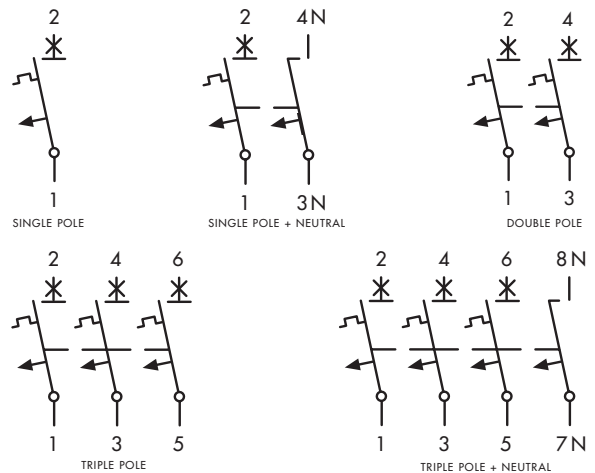
CONTENTS

MCB	Page 34
RCBO	Page 43
RCCBS ADD-ON BLOCKS	Page 45
RCCB	Page 46
ACCESSORIES FOR MCBs, RCBOs AND RCCBs	Page 47
BUSBARS	Page 49
MOTOR PROTECTION DEVICES	Page 53
REMOTE SWITCHING UNIT	Page 56

MCB – BM SERIES BMS0 4,5 kA



BMS0 4,5 kA



SCHRACK-INFO

- Rated voltage/frequency: 230 V/400 V AC 50/60 Hz, 240 V/415 V AC 50/60 Hz ME version
- Rated breaking capacity: 4.5 kA according to IEC/EN 60 898
- Rated breaking capacity DC: max 48 V one pole
- Tripping characteristics: B, C according to EN 60 898
- Back up fuse: 80 A gG max (>45 kA)
- Tripping temperature: -5 deg C to +40 deg C
- Operation temperature: -40 deg C to +75 deg C
- Ambient temperature: +50 deg C for ME-type
- Selectivity class: 3
- Degree of protection: IP20
- Endurance: > 8000 Operating cycles
- Window with contact position indicator (Red/Green for each pole)
- Terminal capacity: 1 mm² - 25 mm² (except 1P+N)
- Additional connection capability for busbar block system
- DIN rail mounting (EN 50 022)
- Finger and hand touch safe according to BVG A3/OVE-EN 6

SINGLE POLE

RATED CURRENT	TYPE B / CAL. TEMP 30°C	TYPE C / CAL. TEMP 30°C	TYPE D / CAL. TEMP 30°C	TYPE C / CAL. TEMP 40°C
6 A	BM418106	BM417106	–	BM417106ME
10 A	BM418110	BM417110	–	BM417110ME
16 A	BM418116	BM417116	–	BM417116ME
20 A	BM418120	BM417120	–	BM417120ME
25 A	BM418125	BM417125	–	BM417125ME
32 A	BM418132	BM417132	–	BM417132ME
40 A	BM418140	BM417140	–	BM417140ME
50 A	–	BM417150	–	–
63 A	–	BM417163	–	–

SINGLE POLE + NEUTRAL

RATED CURRENT	TYPE B / CAL. TEMP 30°C	TYPE C / CAL. TEMP 30°C	TYPE D / CAL. TEMP 30°C	TYPE C / CAL. TEMP 40°C
6 A	BM418606	BM417606	–	–
10 A	BM418610	BM417610	–	–
16 A	BM418616	BM417616	–	–
20 A	BM418620	BM417620	–	–
25 A	BM418625	BM417625	–	–
32 A	BM418632	BM417632	–	–
40 A	BM418640	BM417640	–	–
50 A	–	BM417650	–	–
63 A	–	BM417663	–	–

MCB – BM SERIES BMS0 4,5 kA – continued

DOUBLE POLE

RATED CURRENT	TYPE B / CAL. TEMP 30°C	TYPE C / CAL. TEMP 30°C	TYPE D / CAL. TEMP 30°C	TYPE C / CAL. TEMP 40°C
6 A	BM418206	BM417206	–	BM417206ME
10 A	BM418210	BM417210	–	BM417210ME
16 A	BM418216	BM417216	–	BM417216ME
20 A	BM418220	BM417220	–	BM417220ME
25 A	BM418225	BM417225	–	BM417225ME
32 A	BM418232	BM417232	–	BM417232ME
40 A	BM418240	BM417240	–	BM417240ME
50 A	–	BM417250	–	–
63 A	–	BM417263	–	–

TRIPLE POLE

RATED CURRENT	TYPE B / CAL. TEMP 30°C	TYPE C / CAL. TEMP 30°C	TYPE D / CAL. TEMP 30°C	TYPE C / CAL. TEMP 40°C
6 A	BM418306	BM417306	–	BM417306ME
10 A	BM418310	BM417310	–	BM417310ME
16 A	BM418316	BM417316	–	BM417316ME
20 A	BM418320	BM417320	–	BM417320ME
25 A	BM418325	BM417325	–	BM417325ME
32 A	BM418332	BM417332	–	BM417332ME
40 A	BM418340	BM417340	–	BM417340ME
50 A	–	BM417350	–	–
63 A	–	BM417363	–	–

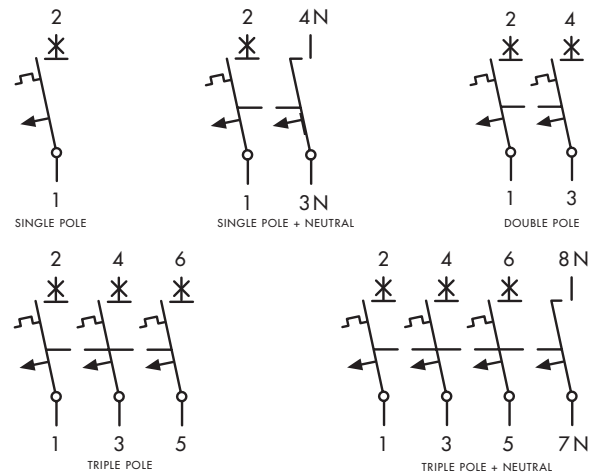
TRIPLE POLE + NEUTRAL

RATED CURRENT	TYPE B / CAL. TEMP 30°C	TYPE C / CAL. TEMP 30°C	TYPE D / CAL. TEMP 30°C	TYPE C / CAL. TEMP 40°C
6 A	BM418806	BM417806	–	BM417806ME
10 A	BM418810	BM417810	–	BM417810ME
16 A	BM418816	BM417816	–	BM417816ME
20 A	BM418820	BM417820	–	BM417820ME
25 A	BM418825	BM417825	–	BM417825ME
32 A	BM418832	BM417832	–	BM417832ME
40 A	BM418840	BM417840	–	BM417840ME
50 A	–	BM417850	–	–
63 A	–	BM417863	–	–

MCB – BM SERIES BMS0 6 kA



BMS0 6 kA



SCHRACK-INFO

- Rated voltage/frequency: 230 V/400 V AC 50/60 Hz, 240 V/415 V AC 50/60 Hz ME version
- Rated breaking capacity: 6 kA according to IEC/EN 60 898, 10 kA according to IEC/EN 60 947-2
- Rated breaking capacity DC: max 48 V one pole
- Tripping characteristics: B, C according to EN 60 898
- Back up fuse: 100 A gG max (>10 kA)
- Tripping temperature: -5 deg C to +40 deg C
- Operation temperature: -40 deg C to +75 deg C
- Ambient temperature: +50 deg C for ME-type
- Selectivity class: 3
- Degree of protection: IP20
- Endurance: > 8000 Operating cycles
- Window with contact position indicator (Red/Green for each pole)
- Terminal capacity: 1 mm² - 25 mm²
- Additional connection capability for busbar block system
- DIN rail mounting (EN 50 022)
- Finger and hand touch safe according to BVG A3/OVE-EN 6

SINGLE POLE

RATED CURRENT	TYPE B / CAL. TEMP 30°C	TYPE C / CAL. TEMP 30°C	TYPE D / CAL. TEMP 30°C	TYPE C / CAL. TEMP 40°C
2 A	–	BM617102	–	BM617102ME
4 A	–	BM617104	–	BM617104ME
6 A	BM618106	BM617106	–	BM617106ME
10 A	BM618110	BM617110	–	BM617110ME
16 A	BM618116	BM617116	–	BM617116ME
20 A	BM618120	BM617120	–	BM617120ME
25 A	BM618125	BM617125	–	BM617125ME
32 A	BM618132	BM617132	–	BM617132ME
40 A	BM618140	BM617140	–	BM617140ME
50 A	BM618150	BM617150	–	BM617150ME
63 A	BM618163	BM617163	–	BM617163ME

SINGLE POLE + NEUTRAL

RATED CURRENT	TYPE B / CAL. TEMP 30°C	TYPE C / CAL. TEMP 30°C	TYPE D / CAL. TEMP 30°C	TYPE C / CAL. TEMP 40°C
2 A	–	BM617602	–	–
4 A	–	BM617604	–	–
6 A	BM618606	BM617606	–	–
10 A	BM618610	BM617610	–	–
16 A	BM618616	BM617616	–	–
20 A	BM618620	BM617620	–	–
25 A	BM618625	BM617625	–	–
32 A	BM618632	BM617632	–	–
40 A	BM618640	BM617640	–	–
50 A	–	BM617650	–	–
63 A	–	BM617663	–	–

MCB – BM SERIES BMS0 6 kA – continued

DOUBLE POLE

RATED CURRENT	TYPE B / CAL. TEMP 30°C	TYPE C / CAL. TEMP 30°C	TYPE D / CAL. TEMP 30°C	TYPE C / CAL. TEMP 40°C
2 A	–	BM617202	–	BM617202ME
4 A	–	BM617204	–	BM617204ME
6 A	BM618206	BM617206	–	BM617206ME
10 A	BM618210	BM617210	–	BM617210ME
16 A	BM618216	BM617216	–	BM617216ME
20 A	BM618220	BM617220	–	BM617220ME
25 A	BM618225	BM617225	–	BM617225ME
32 A	BM618232	BM617232	–	BM617232ME
40 A	BM618240	BM617240	–	BM617240ME
50 A	BM618250	BM617250	–	BM617250ME
63 A	BM618263	BM617263	–	BM617263ME

TRIPLE POLE

RATED CURRENT	TYPE B / CAL. TEMP 30°C	TYPE C / CAL. TEMP 30°C	TYPE D / CAL. TEMP 30°C	TYPE C / CAL. TEMP 40°C
2 A	–	BM617302	–	BM617302ME
4 A	–	BM617304	–	BM617304ME
6 A	BM618306	BM617306	–	BM617306ME
10 A	BM618310	BM617310	–	BM617310ME
16 A	BM618316	BM617316	–	BM617316ME
20 A	BM618320	BM617320	–	BM617320ME
25 A	BM618325	BM617325	–	BM617325ME
32 A	BM618332	BM617332	–	BM617332ME
40 A	BM618340	BM617340	–	BM617340ME
50 A	BM618350	BM617350	–	BM617350ME
63 A	BM618363	BM617363	–	BM617363ME

TRIPLE POLE + NEUTRAL

RATED CURRENT	TYPE B / CAL. TEMP 30°C	TYPE C / CAL. TEMP 30°C	TYPE D / CAL. TEMP 30°C	TYPE C / CAL. TEMP 40°C
2 A	–	BM617802	–	BM617802ME
4 A	–	BM617804	–	BM617804ME
6 A	BM618806	BM617806	–	BM617806ME
10 A	BM618810	BM617810	–	BM617810ME
16 A	BM618816	BM617816	–	BM617816ME
20 A	BM618820	BM617820	–	BM617820ME
25 A	BM618825	BM617825	–	BM617825ME
32 A	BM618832	BM617832	–	BM617832ME
40 A	BM618840	BM617840	–	BM617840ME
50 A	BM618850	BM617850	–	BM617850ME
63 A	BM618863	BM617863	–	BM617863ME

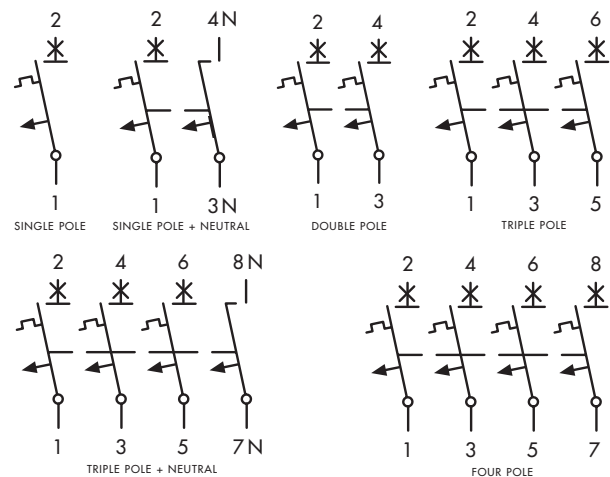
FOUR POLE

RATED CURRENT	TYPE B / CAL. TEMP 30°C	TYPE C / CAL. TEMP 30°C	TYPE D / CAL. TEMP 30°C	TYPE C / CAL. TEMP 40°C
2 A	–	BM617402	–	–
4 A	–	BM617404	–	–
6 A	–	BM617406	–	–
10 A	–	BM617410	–	–
16 A	–	BM617416	–	–
20 A	–	BM617420	–	–
25 A	–	BM617425	–	–
32 A	–	BM617432	–	–
40 A	–	BM617440	–	–
50 A	–	BM617450	–	–
63 A	–	BM617463	–	–

MCB – BM SERIES BMSO 10 kA



BMSO 10 kA



SCHRACK-INFO

- Rated voltage/frequency: 230 V/400 V AC 50/60 Hz
- Rated breaking capacity: 10 kA according to IEC/EN 60 898, 15 kA according to IEC/EN 60 947-2
- Rated breaking capacity DC: max 48 V one pole
- Tripping characteristics: B, C, D according to EN 60 898
- Back up fuse: 100 A gG max (>10 kA)
- Tripping temperature: -5 deg C to +40 deg C
- Operation temperature: -40 deg C to +75 deg C
- Ambient temperature: +50 deg C for ME-type
- Selectivity class: 3
- Degree of protection: IP20
- Endurance: > 8000 Operating cycles
- Window with contact position indicator (Red/Green for each pole)
- Terminal capacity: 1 mm² - 25 mm² (except 1P+N)
- Additional connection capability for busbar block system
- DIN rail mounting (EN 50 022)
- Finger and hand touch safe according to BVG A3/OVE-EN 6

SINGLE POLE

RATED CURRENT	TYPE B / CAL. TEMP 30°C	TYPE C / CAL. TEMP 30°C	TYPE D / CAL. TEMP 30°C	TYPE C / CAL. TEMP 40°C
2 A	–	BM017102	BM019102	BM017102ME
4 A	–	BM017104	BM019104	BM017104ME
6 A	BM018106	BM017106	BM019106	BM017106ME
10 A	BM018110	BM017110	BM019110	BM017110ME
16 A	BM018116	BM017116	BM019116	BM017116ME
20 A	BM018120	BM017120	BM019120	BM017120ME
25 A	BM018125	BM017125	BM019125	BM017125ME
32 A	BM018132	BM017132	BM019132	BM017132ME
40 A	BM018140	BM017140	BM019140	BM017140ME
50 A	BM018150	BM017150	BM019150*	BM017150ME
63 A	BM018163	BM017163	BM019163*	BM017163ME

SINGLE POLE + NEUTRAL

RATED CURRENT	TYPE B / CAL. TEMP 30°C	TYPE C / CAL. TEMP 30°C	TYPE D / CAL. TEMP 30°C	TYPE C / CAL. TEMP 40°C
2 A	BM018602	BM017602	–	–
4 A	BM018604	BM017604	–	–
6 A	BM018606	BM017606	–	–
10 A	BM018610	BM017610	–	–
16 A	BM018616	BM017616	–	–
20 A	BM018620	BM017620	–	–
25 A	BM018625	BM017625	–	–
32 A	BM018632	BM017632	–	–
40 A	BM018640	BM017640	–	–
50 A	BM018650	BM017650	–	–
63 A	BM018663	BM017663	–	–

* only according to EN 60947-2

MCB – BM SERIES BMS0 10 kA – continued

DOUBLE POLE

RATED CURRENT	TYPE B / CAL. TEMP 30°C	TYPE C / CAL. TEMP 30°C	TYPE D / CAL. TEMP 30°C	TYPE C / CAL. TEMP 40°C
2 A	–	BM017202	BM019202	BM017202ME
4 A	–	BM017204	BM019204	BM017204ME
6 A	BM018206	BM017206	BM019206	BM017206ME
10 A	BM018210	BM017210	BM019210	BM017210ME
16 A	BM018216	BM017216	BM019216	BM017216ME
20 A	BM018220	BM017220	BM019220	BM017220ME
25 A	BM018225	BM017225	BM019225	BM017225ME
32 A	BM018232	BM017232	BM019232	BM017232ME
40 A	BM018240	BM017240	BM019240	BM017240ME
50 A	BM018250	BM017250		BM017250ME
63 A	BM018263	BM017263		BM017263ME

TRIPLE POLE

RATED CURRENT	TYPE B / CAL. TEMP 30°C	TYPE C / CAL. TEMP 30°C	TYPE D / CAL. TEMP 30°C	TYPE C / CAL. TEMP 40°C
2 A	–	BM017302	BM019302	BM017302ME
4 A	–	BM017304	BM019304	BM017304ME
6 A	BM018306	BM017306	BM019306	BM017306ME
10 A	BM018310	BM017310	BM019310	BM017310ME
16 A	BM018316	BM017316	BM019316	BM017316ME
20 A	BM018320	BM017320	BM019320	BM017320ME
25 A	BM018325	BM017325	BM019325	BM017325ME
32 A	BM018332	BM017332	BM019332	BM017332ME
40 A	BM018340	BM017340	BM019340	BM017340ME
50 A	BM018350	BM017350	BM019350*	BM017350ME
63 A	BM018363	BM017363	BM019363*	BM017363ME

TRIPLE POLE + NEUTRAL

RATED CURRENT	TYPE B / CAL. TEMP 30°C	TYPE C / CAL. TEMP 30°C	TYPE D / CAL. TEMP 30°C	TYPE C / CAL. TEMP 40°C
2 A	–	BM017802	BM019802	BM017802ME
4 A	–	BM017804	BM019804	BM017804ME
6 A	BM018806	BM017806	BM019806	BM017806ME
10 A	BM018810	BM017810	BM019810	BM017810ME
16 A	BM018816	BM017816	BM019816	BM017816ME
20 A	BM018820	BM017820	BM019820	BM017820ME
25 A	BM018825	BM017825	BM019825	BM017825ME
32 A	BM018832	BM017832	BM019832	BM017832ME
40 A	BM018840	BM017840	BM019840	BM017840ME
50 A	BM018850	BM017850	BM019850*	BM017850ME
63 A	BM018863	BM017863	BM019863*	BM017863ME

FOUR POLE

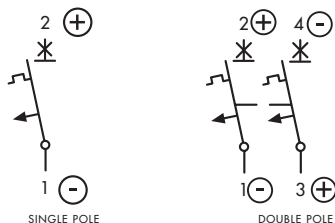
RATED CURRENT	TYPE B / CAL. TEMP 30°C	TYPE C / CAL. TEMP 30°C	TYPE D / CAL. TEMP 30°C	TYPE C / CAL. TEMP 40°C
2 A	–	–	–	–
4 A	–	–	–	–
6 A	–	BM017406	BM019406	–
10 A	–	BM017410	BM019410	–
16 A	–	BM017416	BM019416	–
20 A	–	BM017420	BM019420	–
25 A	–	BM017425	BM019425	–
32 A	–	BM017432	BM019432	–
40 A	–	BM017440	BM019440	–
50 A	–	BM017450		–
63 A	–	BM017463		–

*only according to EN 60947-2

MCB – SERIES BMS0-DC



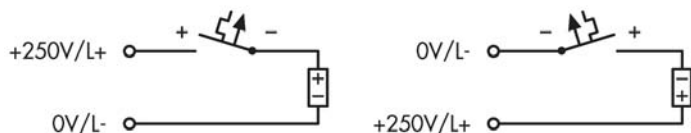
BM015110 / BM015225



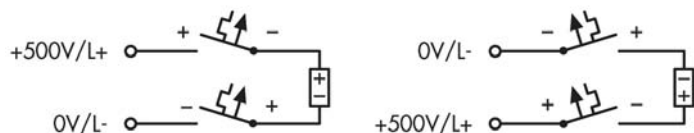
SCHRACK-INFO

- Rated voltage: 220 V DC per pole; T = 4 ms
- Switching capacity:
6 kA acc. to IEC/EN 60898
- Back-up fuse max.: 100 A gL
- Tripping characteristics: C
- Terminal capacity: 1-25 mm²
- Take in account polarity
- Designed for use in DC installations

Connection example for 250V=, single pole



Connection example for 500V=, double pole



SINGLE POLE

RATED CURRENT	TYPE	ORDER NO.
2 A	BMS0-C 2/1-DC	BM015102
6 A	BMS0-C 6/1-DC	BM015106
10 A	BMS0-C 10/1-DC	BM015110
16 A	BMS0-C 16/1-DC	BM015116
20 A	BMS0-C 20/1-DC	BM015120
25 A	BMS0-C 25/1-DC	BM015125
32 A	BMS0-C 32/1-DC	BM015132
40 A	BMS0-C 40/1-DC	BM015140
50 A	BMS0-C 50/1-DC	BM015150

DOUBLE POLE

RATED CURRENT	TYPE	ORDER NO.
2 A	BMS0-C 2/2-DC	BM015202
6 A	BMS0-C 6/2-DC	BM015206
10 A	BMS0-C 10/2-DC	BM015210
16 A	BMS0-C 16/2-DC	BM015216
20 A	BMS0-C 20/2-DC	BM015220
25 A	BMS0-C 25/2-DC	BM015225
32 A	BMS0-C 32/2-DC	BM015232
40 A	BMS0-C 40/2-DC	BM015240
50 A	BMS0-C 50/2-DC	BM015250

MCB – BS 1+N SERIES SI-E 4,5 kA / 6 kA



BS018516

SCHRACK-INFO

- 1+N at only 1 space unit, Selectivity class: 3
- Rated voltage/frequency: 230 V AC, 50/60 Hz
- Rated breaking capacity: 4,5 kA according to IEC/EN 60 898, 6 kA according to IEC/EN 60 898
- Rated breaking capacity DC: max 48 V
- Tripping characteristics: B, C according to EN 60 898
- Back up fuse: 4,5 kA - Type 80 A gG max (>4,5 kA), 6 kA - Type 100 A gG max (>10 kA)
- Tripping temperature: -5 deg C to +40 deg C
- Operation temperature: -40 deg C to +75 deg C

4,5 kA

RATED CURRENT	TYPE B CAL. TEMP 30°C	TYPE C CAL. TEMP 30°C
2 A	–	BS417502
4 A	–	BS417504
6 A	BS418506	BS417506
10 A	BS418510	BS417510
16 A	BS418516	BS417516
20 A	BS418520	BS417520
25 A	BS418525	BS417525
32 A	BS418532	BS417532
40 A	BS418540	BS417540

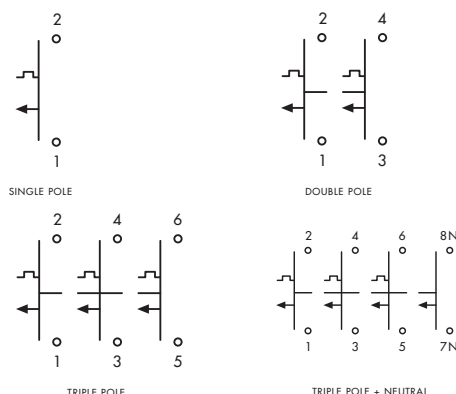
6 kA

RATED CURRENT	TYPE B CAL. TEMP 30°C	TYPE C CAL. TEMP 30°C
2 A	–	BS017502
4 A	–	BS017504
6 A	BS018506	BS017506
10 A	BS018510	BS017510
16 A	BS018516	BS017516
20 A	BS018520	BS017520
25 A	BS018525	BS017525
32 A	BS018532	BS017532
40 A	BS018540	BS017540

MCB – HIGH CURRENT SERIES BR 10 kA



BR 10 kA



SCHRACK-INFO

- Rated voltage/frequency: 230 V/400 V AC 50/60 Hz
- Rated breaking capacity: 10 kA according to marking
- Rated breaking capacity DC: max 60 V one pole
- Tripping characteristics: C & D according to EN 60 898
- Back up fuse: 200 A gG max (>20 kA)
- Tripping temperature: -5 deg C to +40 deg C
- Endurance: > 20,000 Operating cycles
- Window with contact position indicator (Red/Green for each pole)
- Terminal capacity: 2,5 mm² - 50 mm²
- Double break switching contact
- DIN rail mounting (EN 50 022)

SINGLE POLE

RATED CURRENT	TYPE C CAL. TEMP 30°C	TYPE D CAL. TEMP 30°C
80 A	BR971800	–
100 A	BR971910	–
125 A	BR971912	–

DOUBLE POLE

RATED CURRENT	TYPE C CAL. TEMP 30°C	TYPE D CAL. TEMP 30°C
80 A	BR972800	–
100 A	BR972910	–
125 A	BR972912	–

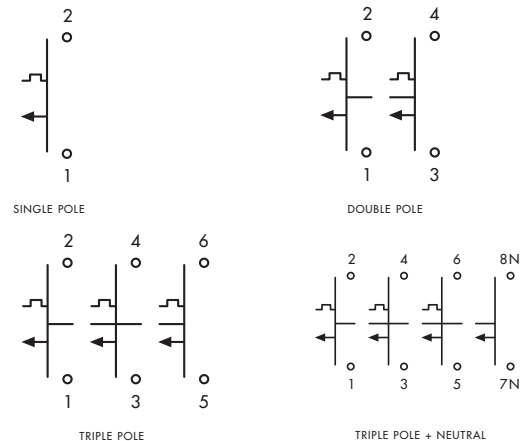
TRIPLE POLE

RATED CURRENT	TYPE C CAL. TEMP 30°C	TYPE D CAL. TEMP 30°C
80 A	BR973800	–
100 A	BR973910	–
125 A	BR973912	–

TRIPLE POLE + NEUTRAL

RATED CURRENT	TYPE C CAL. TEMP 30°C	TYPE D CAL. TEMP 30°C
80 A	BR978800	–
100 A	BR978910	–
125 A	BR978912	–

MCB – HIGH CURRENT BR SERIES 15 – 25 kA



SCHRACK-INFO

- Rated voltage/frequency: 230 V/400 V AC 50/60 Hz
- Rated breaking capacity: 15-25 kA according to marking
- Rated breaking capacity DC: max 60 V one pole
- Tripping characteristics: C & D according to EN 60 898
- Back up fuse: 200 A gG max (>20 kA)
- Tripping temperature: -5 deg C to +40 deg C
- Degree of protection: IP20
- Endurance: > 20,000 Operating cycles
- Window with contact position indicator (Red/Green for each pole)
- Terminal capacity: 2,5 mm² - 50 mm²
- Double break switching contact
- DIN rail mounting (EN 50 022)

SINGLE POLE

RATED CURRENT	TYPE C CAL. TEMP 30°C	TYPE D CAL. TEMP 30°C
20 A	BR571200	BR591200
25 A	BR571250	BR591250
32 A	BR571320	BR591320
40 A	BR571400	BR591400
50 A	BR571500	BR591500
63 A	BR571630	BR591630
80 A	BR571800	BR591800
100 A	BR571910	BR591910
125 A	BR571912	–

DOUBLE POLE

RATED CURRENT	TYPE C CAL. TEMP 30°C	TYPE D CAL. TEMP 30°C
20 A	BR572200	BR592200
25 A	BR572250	BR592250
32 A	BR572320	BR592320
40 A	BR572400	BR592400
50 A	BR572500	BR592500
63 A	BR572630	BR592630
80 A	BR572800	BR592800
100 A	BR572910	BR592910
125 A	BR572912	–

TRIPLE POLE

RATED CURRENT	TYPE C CAL. TEMP 30°C	TYPE D CAL. TEMP 30°C
20 A	BR573200	BR593200
25 A	BR573250	BR593250
32 A	BR573320	BR593320
40 A	BR573400	BR593400
50 A	BR573500	BR593500
63 A	BR573630	BR593630
80 A	BR573800	BR593800
100 A	BR573910	BR593910
125 A	BR573912	–

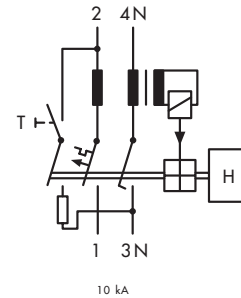
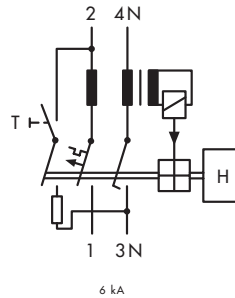
TRIPLE POLE + NEUTRAL

RATED CURRENT	TYPE C CAL. TEMP 30°C	TYPE D CAL. TEMP 30°C
20 A	BR578200	BR598200
25 A	BR578250	BR598250
32 A	BR578320	BR598320
40 A	BR578400	BR598400
50 A	BR578500	BR598500
63 A	BR578630	BR598630
80 A	BR578800	BR598800
100 A	BR578910	BR598910
125 A	BR578912	–

RCBO – COMBINED MCB AND RCCB SERIES BOLF



BOLF 6 kA / 10 kA



SCHRACK-INFO

- Single pole with switchable neutral
- Tripping independent of line voltage
- Tripping times: undelayed
- Rated voltage/frequency: 230 V/50 Hz
- Rated tripping current: 30 mA, 100mA and 300mA
- Sensitivity: AC 6 kA & 10 kA, Pulsating DC (10 kA only)
- Selectivity class: 3
- Rated breaking capacity:
 - 6 kA & 10 kA according to IEC/EN 61009
- Rated current: 6-40 A
- Characteristic: B and C according to EN 60 898
- Max back-up fuse (short circuit): 100 A gG (>10 kA)
- Endurance: Electrical: > 4000 operating cycles, Mechanical: > 20000 operating cycles
- Contact position colour indicator (Red/Green)
- Indicator: blue: switch off default, white: switch off manual
- Terminal capacity: 1 mm² - 25 mm²
- Additional connection capability for busbar block system
- DIN rail mounting (EN 50 022)
- Finger and hand touch safe according to BGV A3/OVE-EN 6

6 kA – 30 mA

RATED CURRENT	TYPE B AC	TYPE B PULSE	TYPE C AC	TYPE C PULSE
6 A	BO668506	BO668606	BO667506	BO667606
10 A	BO668510	BO668610	BO667510	BO667610
16 A	BO668516	BO668616	BO667516	BO667616
20 A	BO668520	BO668620	BO667520	BO667620
25 A	BO668525	BO668625	BO667525	BO667625
32 A	BO668532	BO668632	BO667532	BO667632
40 A	BO668540	BO668640	BO667540	BO667640

10 kA – 30 mA

RATED CURRENT	TYPE B AC	TYPE B PULSE	TYPE C AC	TYPE C PULSE
6 A	BO618506	BO618606	BO617506	BO617606
10 A	BO618510	BO618610	BO617510	BO617610
16 A	BO618516	BO618616	BO617516	BO617616
20 A	BO618520	BO618620	BO617520	BO617620
25 A	BO618525	BO618625	BO617525	BO617625
32 A	BO618532	BO618632	BO617532	BO617632
40 A	BO618540	BO618640	BO617540	BO617640

10 kA – 100 mA

RATED CURRENT	TYPE B AC	TYPE B PULSE	TYPE C AC	TYPE C PULSE
6 A	BO718506	–	–	–
10 A	BO718510	BO718610	BO717510	BO717610
16 A	BO718516	BO718616	BO717516	BO717616
20 A	–	BO718620	BO717520	BO717620
25 A	–	–	BO717525	–
32 A	–	–	BO717532	–
40 A	–	–	BO717540	–

10 kA – 300 mA

RATED CURRENT	TYPE B AC	TYPE B PULSE	TYPE C AC	TYPE C PULSE
6 A	BO818506	BO818606	BO817506	BO817606
10 A	BO818510	BO818610	BO817510	BO817610
16 A	–	BO818616	BO817516	BO817616
20 A	–	BO818620	BO817520	BO817620
25 A	–	BO818625	BO817525	BO817625
32 A	–	BO818632	BO817532	BO817632
40 A	–	BO818640	BO817540	BO817640

■ SINGLE MODULE RCBO SERIES LS-DI/PT



BI657520ME

■ SCHRACK-INFO

- Same width and profile as single pole MCB
- Rated voltage/frequency: 240 V 50/60 Hz
- Rated breaking capacity: 6 kA
- 30 mA Sensitivity (10mA, 100 mA and 300 mA on request)
- Contact position indicator
- Selectivity class: 3
- AC class sensitivity
- Rated current: 6-40 A
- Characteristic: B and C according to EN/IEC 60 898
- Class 3 let through energy classification
- Terminal capacity: 1 mm² - 25 mm²
- Flying Neutral lead 950 mm
- Sealable in On and Off positions
- Finger and hand touch safe terminals
- Manufactured and tested to IEC/EN 61009

■ 6 kA – 10 mA

RATED CURRENT	TYPE B AC	TYPE C AC
6 A	on request	BI557506ME
10 A	on request	BI557510ME
16 A	on request	BI557516ME
20 A	on request	BI557520ME
25 A	on request	BI557525ME
32 A	on request	BI557532ME
40 A	on request	BI557540ME

■ 6 kA – 30 mA

RATED CURRENT	TYPE B AC	TYPE C AC
6 A	BI658506	BI657506
10 A	BI658510	BI657510
16 A	BI658516	BI657516
20 A	BI658520	BI657520
25 A	BI658525	BI657525
32 A	BI658532	BI657532
40 A	BI658540	BI657540

■ 6 kA – 100 mA

RATED CURRENT	TYPE B AC	TYPE C AC
6 A	on request	BI757506ME
10 A	on request	BI757510ME
16 A	on request	BI757516ME
20 A	on request	BI757520ME
25 A	on request	BI757525ME
32 A	on request	BI757532ME
40 A	on request	BI757540ME

RCCBS – RESIDUAL CURRENT ADD-ON BLOCK, SERIES BB



BB004330

SCHRACK-INFO

- Tripping times:
 - undelayed, conditionally surge current proof up to 250 A (8/20 μ s)
 - delayed at least 40 ms (Type S), surge current proof up to 5 kA (8/20 μ s), with selective disconnecting function
- Rated voltage: 230/400 V; 50 Hz
- Rated current: ≤ 40 A, ≤ 63 A, ≤ 80 A, ≤ 125 A
- Rated tripping current: 30 mA, 300 mA (others on request)
- Tripping time: non-delayed, type S min. 40 ms delay
- Sensitivity: AC ~ and pulsating DC
- Rated short-circuit strength: same as BM-Series MCBs
- Back-up fuse for overload and short-circuit protection: by BM-Series MCBs
- Service life: same as Miniature Circuit Breakers series BM
- Prevents nuisance tripping caused by switching Electronic Light Devices (ELD)
- Ambient operating temperature: -25° C to +40° C
- Endurance: same as BM Series MCBs
- Terminals: 2/4-pole, lift terminals on both sides, 1-25 mm² cross-section finger/handtouch safe according to VBG 4, ÖVE-EN 6
- For subsequent mounting onto all BM-Series MCBs
- RCD blocks to be connected to MCBs with a maximum rated current of 40 A are mechanically interlocked against MCBs with a rated current of > 40 A.

SURGE CURRENT PROOF >250 A, PULSE

RATED CURRENT	TYPE	ORDER NO.
0.03 A	BB-402/003-A	BB044203
0.3 A	BB-402/03-A	BB044230
0.03 A	BB-404/003-A	BB044403
0.3 A	BB-404/03-A	BB044430
0.03 A	BB-632/003-A	BB046203
0.3 A	BB-632/03-A	BB046230
0.03 A	BB-634/003-A	BB046403
0.3 A	BB-634/03-A	BB046430
0.03 A	BB-802/003-A	BB048203
1 A	BB-802/1-A	BB048200
0.3 A	BB-802/03-A	BB048230
0.5 A	BB-802/05-A	BB048250
0.03 A	BB-804/003-A	BB048403
1 A	BB-804/1-A	BB048400
0.3 A	BB-804/03-A	BB048430
0.5 A	BB-804/05-A	BB048450
0.03 A	BB-1252/003-A	BB047203
1 A	BB-1252/1-A	BB047200
0.3 A	BB-1252/03-A	BB047230
0.5 A	BB-1252/05-A	BB047250
0.03 A	BB-1254/003-A	BB047403
1 A	BB-1254/1-A	BB047400
0.3 A	BB-1254/03-A	BB047430
0.5 A	BB-1254/05-A	BB047450

SURGE CURRENT PROOF 5 kA, TYPE S

RATED CURRENT	TYPE	ORDER NO.
0.3 A	BB-402/03-S	BB074230
0.3 A	BB-404/03-S	BB074430
0.3 A	BB-632/03-S	BB076230
1 A	BB-634/1-S	BB076400
0.3 A	BB-634/03-S	BB076430
1 A	BB-804/1-S	BB068400
0.3 A	BB-804/03-S	BB068430
0.5 A	BB-804/05-S	BB068450
1 A	BB-1254/1-S	BB067400
0.3 A	BB-1254/03-S	BB067430
0.5 A	BB-1254/05-S	BB067450

SURGE CURRENT PROOF >250 A

RATED CURRENT	TYPE	ORDER NO.
0.03 A	BB-402/003	BB004203
0.3 A	BB-402/03	BB004230
0.03 A	BB-404/003	BB004403
0.3 A	BB-404/03	BB004430
0.03 A	BB-632/003	BB006203
0.3 A	BB-632/03	BB006230
0.03 A	BB-634/003	BB006403
0.3 A	BB-634/03	BB006430
0.3 A	BB-634/03SA	BB066430
1 A	BB-634/1	BB066400
0.03 A	BB-802/003	BB008203
0.3 A	BB-802/03	BB008230
0.5 A	BB-802/05	BB008250
1 A	BB-802/1	BB008200
0.03 A	BB-804/003	BB008403
0.3 A	BB-804/03	BB008430
0.5 A	BB-804/05	BB008450
1 A	BB-804/1	BB008400
0.03 A	BB-1252/003	BB007203
0.3 A	BB-1252/03	BB007230
0.5 A	BB-1252/05	BB007250
1 A	BB-1252/1	BB007200
0.03	BB-1254/003	BB007403
0.3 A	BB-1254/03	BB007430
0.5 A	BB-1254/05	BB007450
1 A	BB-1254/1	BB007400

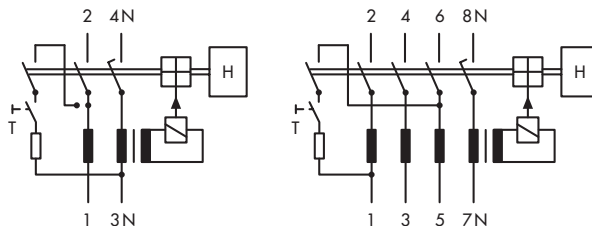
SURGE CURRENT PROOF 3 kA, TYPE G

RATED CURRENT	TYPE	ORDER NO.
0.03 A	BB-404/003-G	BB024403
0.03 A	BB-402/003-G	BB024203

RCCB – RESIDUAL CURRENT CIRCUIT BREAKER SERIES BCFO



BCFO 6 kA / 10 kA



SCHRACK-INFO

- Rated voltage:
6kA: 4P 230 V/400 V AC, 2P 230 V AC 50 Hz
10 kA: 4P 250 V/400 V AC, 2P 250 V AC 50 Hz
- Rated temperature: -25°C to +40°C
- Maximum back up fuse as short circuit protection:
6kA: 63 A gG (25 A-63 A)
10kA: 100 A gG
- Maximum back up fuse as overload protection:
6kA: 25 A gL (for 25 A, 40 A), 40 A gG (for 63 A)
10kA: 50 A gL (for 80 A), 63 A gG (for 100 A)
- Finger protection to BGV A3/ÖVE-EN 6
- Design according to EN 61 008, IEC 1008
- DIN rail mounting (EN 50 022)

6kA – 30 mA

RATED CURRENT	2 POLE AC	2 POLE PULSE	4 POLE AC	4 POLE PULSE
25 A	BC602203	BC652203	BC602103	BC652103
40 A	BC604203	BC654203	BC604103	BC654103
63 A	BC606203	BC656203	BC606103	BC656103

10kA – 30 mA

RATED CURRENT	2 POLE AC	2 POLE PULSE	4 POLE AC	4 POLE PULSE
25 A	BC002203	BC052203	BC002103	BC052103
40 A	BC004203	BC054203	BC004103	BC054103
63 A	BC006203	BC056203	BC006103	BC056103
80 A	BC008203	–	BC008103	BC058103
100 A	BC000203	–	BC000103	BC050103

6kA – 100 mA

RATED CURRENT	2 POLE AC	2 POLE PULSE	4 POLE AC	4 POLE PULSE
25 A	BC602210	BC652210	BC602110	BC652110
40 A	BC604210	BC654210	BC604110	BC654110
63 A	BC606210	BC656210	BC606110	BC656110

10kA – 100 mA

RATED CURRENT	2 POLE AC	2 POLE PULSE	4 POLE AC	4 POLE PULSE
25 A	BC002210	BC052210	BC002110	BC052110
40 A	BC004210	BC054210	BC004110	BC054110
63 A	BC006210	–	BC006110	BC056110
80 A	–	–	BC008110	BC058110
100 A	–	–	BC000110	BC050110

6kA – 300 mA

RATED CURRENT	2 POLE AC	2 POLE PULSE	4 POLE AC	4 POLE PULSE
25 A	BC602230	BC652230	BC602130	BC652130
40 A	BC604230	BC654230	BC604130	BC654130
63 A	BC606230	BC656230	BC606130	BC656130

10kA – 300 mA

RATED CURRENT	2 POLE AC	2 POLE PULSE	4 POLE AC	4 POLE PULSE
25 A	BC002230	BC052230	BC002130	BC052130
40 A	BC004230	BC054230	BC004130	BC054130
63 A	BC006230	BC056230	BC006130	BC056130
80 A	–	–	BC008130	BC058130
100 A	–	–	BC000130	BC050130

AUXILIARY CONTACT FOR CONTROL PURPOSES



BD900002

SCHRACK-INFO

- Thermal rated current: 8 A
- Rated voltage: 250 V/440 V AC; 50/60 Hz
- Minimum rated voltage: 24 V per insulation contact
- AC13: 6 A/250 V – 2 A/440 V, DC13: 4 A/60 V – 0.5 A/230 V
- Maximum backup fuse: 4 A gL/gG or SI-H
- Contacts: 1 NO + 1 NC
- Retrofittable

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
1 NC + 1 NO for BC (RCCBs) screw on type	8,8 x 80 x 65,5	BD900002
1 NC + 1 NO for BM (MCBs) & BO (RCBOs) screw on type	8,8 x 80 x 65,5	BD900006
1 NC + 1 NO for BM (MCBs) & BO (RCBOs) snap on type	8,8 x 80 x 65,5	BM900001
1 NC + 1 NO for BR screw on type	9 x 90 x 65,5	BR900005

AUXILIARY/TRIP SIGNAL CONTACT



BM900022

SCHRACK-INFO

- Thermal rated current: 5 A
- Rated voltage: 250 V/440 V AC; 50/60 Hz
- Minimum rated voltage: 5 V AC/DC per insulation contact
- Minimum rated current 10 mA per insulation contact
- Maximum backup fuse: 4 A gL/gG or SI-H
- AC12: 2 A 230V, AC15: 1 A 230 V, DC12: 0,5 A 110 V
- 2 CO contacts (auxiliary contacts) or 1 CO contact (aux.contact) + 1 CO contact (electrical tripping)
- For use with MCBs-BM series, RCCBs-BC series up to 63 A, retrofittable

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
2 CO contact (screw on-type)	8,8 x 80 x 65,5	BD900022
2 CO contact for BM and MP (snap on-type)	8,8 x 80 x 65,5	BM900022

PROTECTIVE CAP IP 20 FOR SERIES BM



BS900030

SCHRACK-INFO

- Cover for terminal screws for one screw per pole

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
IP20/BS	17x19x10,5	BS900030

REMOTE RELEASE



BM900006

SCHRACK-INFO

- Operating voltage 230 V Type: 110-410 V AC, 110-220 V DC
- Operating voltage 24 V Type: 12-110 V AC, 12-60 V DC
- Switch position indicator
- Optional mounting of signal contact
- Power requirement of low voltage source for 24 V type approx 63 VA
- For use with MCBs-BM series, MP

RATED VOLTAGE	DIM. (WxHxD) mm	ORDER NO.
UB=12-110 V AC 12-60 V DC for BM, MP and BO	17,7 (26,2) x 80 x 75,5	BM900005
UB=110-415 V AC 110- 220 V DC for BM, MP and BO	17,7 (26,2) x 80 x 75,5	BM900006
UB=12-60 V AC for BR	27 x 80 x 75,5	BR900004
UB=110-415 V AC for BR	27 x 80 x 75,5	BR900003

UNDER VOLTAGE RELEASE



BS900008

SCHRACK-INFO

- Terminal capacity: 1-2 x 2.5 mm
- Raising clamp terminal
- DIN rail mounting on DIN rail EN 50022
- Function indicator
- Service button for no-voltage switching
- For use with MCBs-BM series, MP

RATED VOLTAGE	DIM. (WxHxD) mm	ORDER NO.
115 V AC Undelayed	17,5 x 80 x 75,1	BS900007
230 V AC Undelayed	17,5 x 80 x 75,1	BS900008
400 V AC Undelayed	17,5 x 80 x 75,1	BS900009

BLIND MODULE



BS900026

SCHRACK-INFO

- Space holder to confirm the auxiliary contacts to 1 space unit

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Cap dimensions 45 mm, width 9 mm (0,5 SU) grip in cap	9x55x66	BS900026

NEUTRAL CONDUCTOR DUCT



BS900010



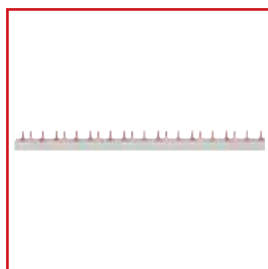
BS900004

SCHRACK-INFO

- Rated current: 63 A, 80 A
- Terminal capacity: 1-25 mm²
- Rated voltage: 230/400 V AC
- 1 SU wide

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
N-Conductor 63 A	17,5x80x65,5	BS900004
N-Conductor with insulated test terminal	17,5x80x65,5	BS900010
N-Conductor 80 A	17,5x80x65,5	BS900024

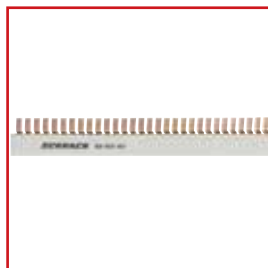
BUSBARS PIN VERSION



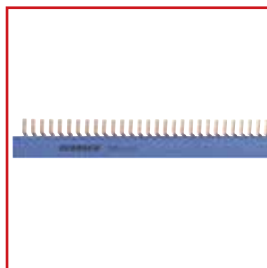
BS990111ME

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
1-POLE		
Busbar 1-pole 10 mm ²		BS990101ME
Busbar 1-pole 16 mm ²		BS990102ME
2-POLE		
Busbar 2-pole 10 mm ² , non break-out	1000x25x10	BS990111ME
Busbar 2-pole 16 mm ² , non break-out	1000x31x16	BS990112ME
3-POLE 10/16 mm² / 30 mm²		
Rail 3-pole pin 4 mm, 10 mm ²	1012x28x15	BS900120
3-pole 10 mm ² , not possible to break off	1015x31x16	BS990116ME
3-pole 16 mm ² , not possible to break off	1015x31x16	BS990117ME
End cap 2/3-pole, 10-16 mm ²	17x17x8	BS900116
4-POLE		
Busbar 4-pole 10 mm ²		BS990103ME
Busbar 4-pole 16 mm ²		BS990104ME
Busbar 4-pole 10 mm ² L1, N, L2, N, L3, N	1000	BS990124

PACKAGE BUSBAR FOR FREE PHASE SELECTION/0.5 MW



BS900150



BS900153

SCHRACK-INFO

- Pit rail for wiring of devices with:
Box or series terminal, clamp-type terminal

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Tongue busbar L1, L2, L3/ Tongue width 6 mm, 16 mm ²	1010x37x11	BS990150
Tongue busbar N/ Tongue width 6 mm, 16 mm ²	1005x37x11	BS990151
Tongue busbar L1, L2, L3/ Tongue width 4 mm, 16 mm ²	1010x37x11	BS990152
Tongue busbar N/ Tongue width 4 mm, 16 mm ²	1010x37x11	BS990153

ACCESSORIES FOR BUSBAR

DESCRIPTION	ORDER NO.
Insulation profile for 3-pole SS, 16 mm ²	BS900304

CONNECTION TERMINALS



BS900176

DESCRIPTION	ORDER NO.
Fork, straight, 6-25 mm ² , short	BS900170
Fork, cross-wise 6-25 mm ² , short	BS900171
Pin, straight, 6-25 mm ² , short	BS900172
Pin, cross-wise, 6-25 mm ² , short	BS900173
Fork, straight, 50 mm ² , short	BS900174
Fork, cross-wise, 50 mm ² , short	BS900175
Pin, straight, 50 mm ² , short	BS900176
Pin, cross-wise, 50 mm ² , short	BS900177
Pin, cross-wise, long, 6-25 mm ²	BS900178
Pin, cross-wise, 50 mm ²	BS900199
Pin, straight, 50 mm ² Tytan feed terminal	BS900179
Pin, straight 25 mm ² /2 screws without insulation	IK020019

MODUL – CONNECT, THE UNIVERSAL BUSBAR



ISS90004



MODUL CONNECT

SCHRACK-INFO

- Universal busbar
- Push-on in the 9 mm module step
- Any required configuration of the connection flags without breaking off
- Halogenfree

DESCRIPTION	LENGTH mm	ORDER NO.
Busbar 80 A, 1-pole, 16 mm ² , MW = 9 mm	1000	ISS90916
Insulation body, 3-pole	1000	ISS90003
Insulation body, 4-pole	1000	ISS90004
Connection flag L1/N Pin	-	ISS909S1
Connection flag L2/L3 Pin	-	ISS909S2
Connection flag L1/N C-Clamp	-	ISS909G1
Connection flag L2/L3 C-Clamp	-	ISS909G2
End cap for insulation body 3-pole	-	ISS900K3
End cap for insulation body 4-pole	-	ISS900K4
Marking tag	1000	ISS91000

SMALL CONNECT RAIL SET FOR MINIATURE CIRCUIT BREAKERS 1+N, 1SU, 10 mm²



BS990170



BS990171

SCHRACK INFO

Set contains 1 pcs. 1-meter rail 10mm² grey, 1 pcs. 1 meter rail 10 mm² blue, 3 (version 1-pole+N) or 9 (3-pole+N version) flexible 10mm² wires black ultrasonically-consolidated ends and 3 in blue. The ultra-sonically-consolidated ends of the wires have exactly the same fit which allows them to fit in the terminal of SCHRACK MCBs BM0 1+N with 1 space unit. Compared to a fixed adapter, they offer the advantage that they can be flexible from the side and from the supply device. Set packed in a polybag.

EXTREMELY COMPATIBLE RAIL FOR MINIATURE CIRCUIT BREAKERS TYPE SI-E 1+N WITH 1 SU

By using 1+N miniature circuit breakers in a pure single-module configuration helps you make the most of limited space with the same levels of safety. For example, when retrofitting during renovation. Small Connect rails are especially useful for these kinds of applications thanks to its especially compact design.

FLEXIBLE CONNECTION WIRES WITH ULTRASONICALLY-CONSOLIDATED ENDS

These offer the great advantage that they can fit in all terminals irrespective of whether the rail is attached above or below the miniature circuit breaker. Also independent of the switch producing the supply current.

COMPLETE SETS OFFER EASE OF USE

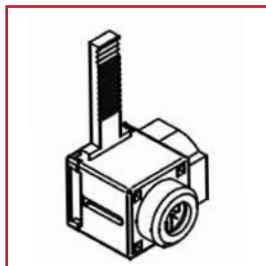
These Small Connect rail sets for 1-pole + Neutral and 3-pole + Neutral conductor applications have the advantage that always receiving the right connection cable for the rail.

DESCRIPTION	ORDER NO.
Rail set 1-pole+N for miniature circuit breakers 1+N, 1 SU , 10 mm ²	BS990170
Rail set 3-pole+N for miniature circuit breakers 1+N, 1 SU , 10 mm ²	BS990171

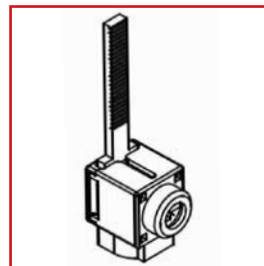
CONNECTION TERMINAL 25 mm² FOR THE SMALL CONNECT RAIL SYSTEM



BS990172



BS990173



SCHRACK-INFO

Side connection model saves vertical space and is thus especially suitable for 1-pole Small Connect rails.

Straight connection model saves horizontal space and is thus especially suitable for 3-pole Small Connect rails.

DESCRIPTION	ORDER NO.
Connectionterminal 25 mm ² for side connection (fits BS990170)	BS990172
Connectionterminal 25 mm ² for straight connection (fits BS990171)	BS990173

CONNECTING WIRE 1POLE, LENGTH 100 mm or 325 mm FOR THE SMALL CONNECT RAIL SYSTEM



BS990176



BS990177

SCHRACK-INFO

Flexible connection wires with ultrasonically-consolidated ends, highly compatible with all lift terminals.

The 325 mm long connecting wires are used for the connection from raw to raw in the distribution panel.

DESCRIPTION	ORDER NO.
Connecting wire, black, length 100 mm	BS990174
Connecting wire, black, length 325 mm	BS990178
Connecting wire, blue, length 100 mm	BS990175
Connecting wire, blue, length 325 mm	BS990179

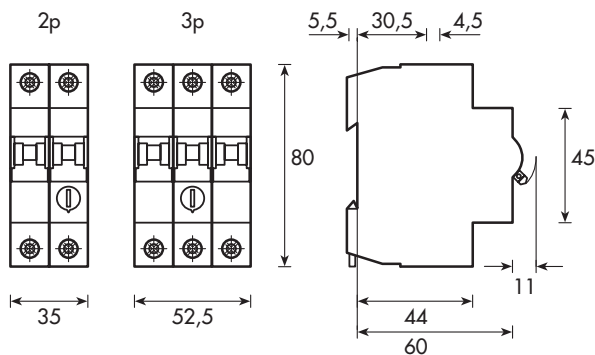
ACCESSORIES FOR THE SMALL CONNECT RAIL SYSTEM

DESCRIPTION	ORDER NO.
Single rail 1-pole, grey, length 1000 mm	BS990176
Single rail 1-pole, blue, length 1000 mm	BS990177
End cap for 3-pole rail	BS900116

MOTOR SAFETY SWITCH SERIES MP

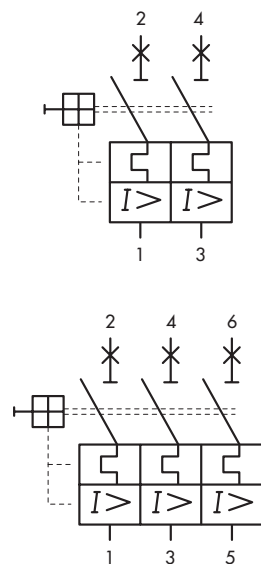


BE400301 / BE400206

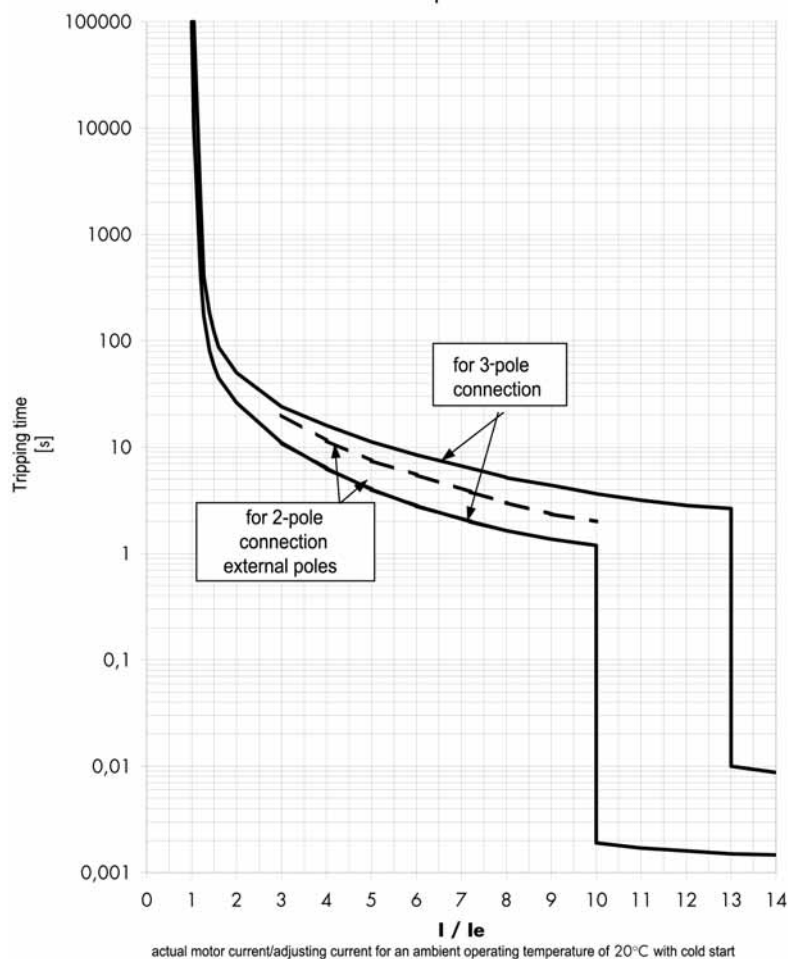


SCHRACK-INFO

- Rated voltage: 400 V, 50 Hz
- Rated isolation voltage: 440 V AC
- Rated operating current: max. 40 A, adjustable
- Thermal and magnetic release
- Inherently stable without backup fuse up to 4 A at 400 V AC, > 4 A max. back-up fuse 100 A gL
- Terminal and accessory compatibility for miniature circuit breakers and On-Off switch Series BS, RCCB safety switch Series BD, RCBO, LS-DI
- Terminal cross-section: 1-25 mm²
- Temperature compensation -25° C to +40° C
- Phase failure protection
- Remote control and automatic operation with FSE is possible



Tripping characteristic motor protective device series MP
3-pole



MOTOR SAFETY SWITCH SERIES MP – continued

SETTING RANGE / DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
2-POLE		
0.10 - 0.16 A	35x80x60	BE400201
0.16 - 0.25 A	35x80x60	BE400202
0.25 - 0.40 A	35x80x60	BE400203
0.40 - 0.63 A	35x80x60	BE400204
0.63 - 1.0 A	35x80x60	BE400205
1.0 - 1.6 A	35x80x60	BE400206
1.6 - 2.5 A	35x80x60	BE400207
2.5 - 4.0 A	35x80x60	BE400208
4.0 - 6.3 A	35x80x60	BE400209
6.3 - 10.0 A	35x80x60	BE400210
10.0 - 16.0 A	35x80x60	BE400211
16.0 - 25.0 A	35x80x60	BE400212
25.0 - 40.0 A	35x80x60	BE400213
3-POLE		
0.10 - 0.16 A	52,5x80x60	BE400301
0.16 - 0.25	52,5x80x60	BE400302
0.25 - 0.40 A	52,5x80x60	BE400303
0.40 - 0.63 A	52,5x80x60	BE400304
0.63 - 1.0 A	52,5x80x60	BE400305
1.0 - 1.6 A	52,5x80x60	BE400306
1.6 - 2.5 A	52,5x80x60	BE400307
2.5 - 4.0 A	52,5x80x60	BE400308
4.0 - 6.3 A	52,5x80x60	BE400309
6.3 - 10.0 A	52,5x80x60	BE400310
10.0 - 16.0 A	52,5x80x60	BE400311
16.0 - 25.0 A	52,5x80x60	BE400312
25.0 - 40.0 A	52,5x80x60	BE400313
AUXILIARY CONTACT SERIES MP		
1 NC + 1 NO for BM (MCBs) & BU (RCBOs) snap on type	8,8x80x65,5	BM900001
2 CO contact for BM and MP (snap on-type)	8,8x80x65,5	BM900022
2 CO contact (screw on-type)	8,8x80x65,5	BD900022
UB=12-110 V AC 12-60 V DC for BM and MP	17,7 (26,2)x80x75,5	BM900005
UB=110-415 V AC 110- 220 V DC for BM and MP	17,7 (26,2)x80x75,5	BM900006
115 V AC Undelayed	17,7x80x75,1	BS900007
230 V AC Undelayed	17,7x80x75,1	BS900008
400 V AC Undelayed	17,7x80x75,1	BS900009

HOUSING FOR MOTOR SAFETY SWITCH SERIES MP



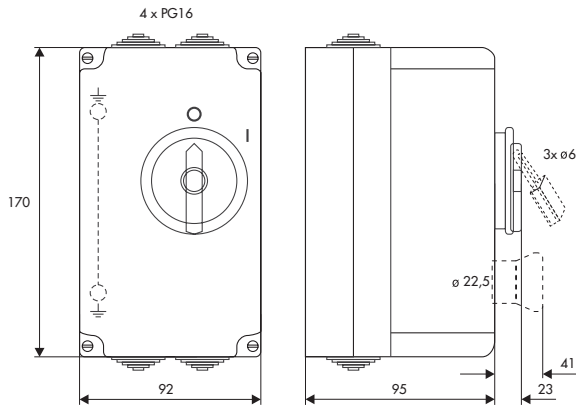
BE400001



BE400002



BE400003



SCHRACK-INFO

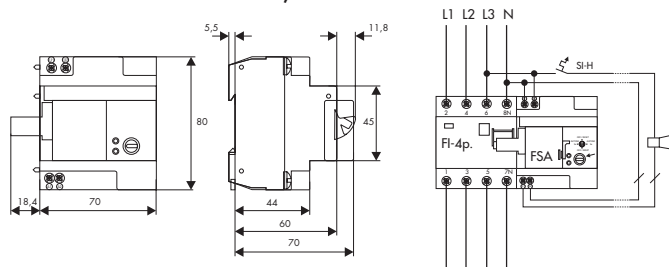
- Suitable for motor safety switch of MP series
- IP 54, shock-proof
- Max. mounting width 4 MW
- PE conductor railed
- Connection cross-section N/PE max. 16 mm²
- 4 lead-in options
- Possible to block the twist grip with max. 3 paddocs (max Ø 6 mm)

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Housing for series MP, IP54	92x170x120	BE400001
Housing for series MP, IP54, with Neutral	92x170x120	BE400002
Housing for Series MP, IP54, with emergency stop button	92x170x136	BE400003

AUTOMATIC SWITCHING UNIT, TYPE FSA



BD900907



SCHRACK-INFO

For unmanned switching stations, weekend houses and breakdown-critical industrial plants (e.g. cooling + heating) For quick, but interrupted re-supply of industrial current circuits, for the reliable availability of electric power supply even in extreme situations and in which accidental releases cannot be ruled out As interface for in-house process control technique and Bus installations.

TECHNICAL DATA

- Mechanical device with motor drive and gear with electronic controls for the automatic restarting of (safety) switches RCCB Series BS to 63 A, MCB, MP, A Series to 63 A with simplified functions for the remote switching devices FSE
- Additional mechanical blocking with blocking lever that can be sealed with lead
- Display to show ready-for-operation condition (steady burning green LED)
- Alarm display (red LED)
- Fixed automatic 5-time restarting
- Staggered restarting periods
- Alarm contact operation on A1/A2 using pulse contact for release and permanent contact after the 5th try for switching on (approx. 72 min)
- Selector switch OFF/Reset Autom 5x
- No interruption in function if the supply voltage is stopped
- Rated operating voltage U1/U2: 230 -250 V AC
- Relay output for alarm A1/A2: 5A, 250 V AC
- Permissible ambient conditions: Indoor assembly, European normal climates
- Ambient operating temperature: -25° C to +40° C
- Mechanical/electrical life: 20,000 On/Off switchings
- Typical/maximum restarting periods: instant/10s ; 10/20 s ; 60/70 s ; 10/10 min ; 1/1 h
- Switching delay period from the command: 40s after switching on the operating voltage
- Minimum distance for switching commands: 20s
- Max. current consumption: 2 A AC
- Own consumption: 5 W

Mechanical

- Switching capacity up to max. RCCB/63/4 or MCB 63/4
- Terminals 2x1,5 mm² or 1x2,5 mm²
- Terminal torques: 0.4 Nm

CAUTION!

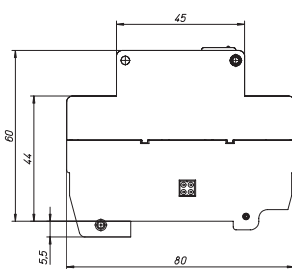
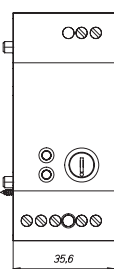
Uncontrolled starting of machines is possible!

FUNCTIONS	DIM. (WxHxD) mm	ORDER NO.
Automatic Switching unit FSA	88,4x80x60	BD900907

REMOTE MODUL TYPE FSM



BD900908



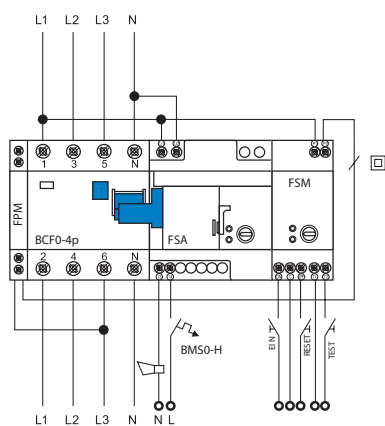
SCHRACK-INFO

Additional modul to control the automatic switching unit FSA (additional testmodul 0,5 TE for testing after RCCB).

TECHNICAL DATA

Voltage for remote:	24 - 230 V AC/DC
Switch:	ON – RESET – OFF
Terminals:	2x2,5 mm ²
Torque of terminals:	0,8 Nm

EXAMPLE

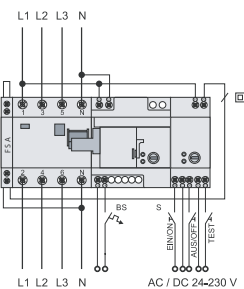


DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Remote modul	35x80x60	BD900908

TESTMODUL



BD900902



SCHRACK-INFO

Additional testmodul for RCCB

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Testmodul for 0,03A	8,8x80x65,5	BD900902
Testmodul for 0,1A	8,8x80x65,5	BD900903
Testmodul for 0,3A	8,8x80x65,5	BD900904

TOP-TECHNIC



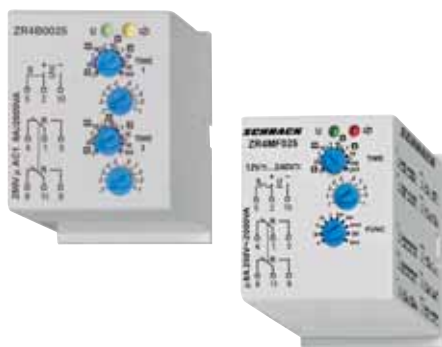
MODULAR DEVICES

TOP-TECHNIC



TIME AND MEASURING RELAYS, SERIES ZR5000

TOP-TECHNIC



PLUG-IN TIMER RELAY, SERIES ZR4

TOP-TECHNIC



MEASURING- AND MONITORING RELAY

MODULAR DEVICES, MODULAR TIME AND MONITORING RELAYS

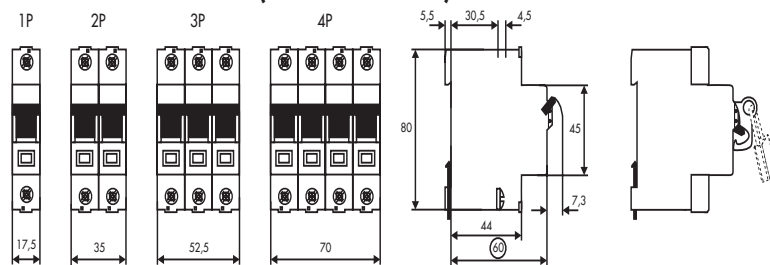
CONTENTS

MODULAR DEVICES	Page 60
TIME RELAYS, SERIES ZR5000	Page 76
PLUG-IN TIMER RELAYS, SERIES ZR4	Page 84
MONITORING RELAYS	Page 85

MAIN LOAD-BREAK SWITCH (ISOLATOR)



MAIN LOAD-BREAK SWITCH



SCHRACK-INFO

- Design meets IEC/EN 60947-3
- Load-break switch for continuous running
- Can be used as a main switch w/ isolating function
- Can come lead-sealed with locking option and accessories
- Can be used to switch motors & highly-inductive loads
- Rated voltage: 240/415 V, 50/60 Hz
- Max. permitted back-up fuse: 125 A
- High rated-isolation voltage: $U_i = 690$ V
- Thermic rated current: $I_{th} = 40/63/80/100/125$ A
- Rated current
 - AC 23...50 A
 - AC 22...100 A
- Conductor cross section: 50 mm²
- Fits RCCB and MCB rails

RATED CURRENT/NR. POLES	DIM. (WxHxD) mm	ORDER NO.
40 A/1-pole	17,5x80x73,5	BZ900241
40 A/2-pole	35x80x73,5	BZ900242
40 A/3-pole	52,5x80x73,5	BZ900243
40 A/4-pole	70x80x73,5	BZ900244
63 A/1-pole	17,5x80x73,5	BZ900261
63 A/2-pole	35x80x73,5	BZ900262
63 A/3-pole	52,5x80x73,5	BZ900263
63 A/4-pole	70x80x73,5	BZ900264
80 A/1-pole	17,5x80x73,5	BZ900281
80 A/2-pole	35x80x73,5	BZ900282
80 A/3-pole	52,5x80x73,5	BZ900283
80 A/4-pole	70x80x73,5	BZ900284
100 A/1-pole	17,5x80x73,5	BZ900201
100 A/2-pole	35x80x73,5	BZ900202
100 A/3-pole	52,5x80x73,5	BZ900203
100 A/4-pole	70x80x73,5	BZ900204
125 A/1-pole	17,5x80x73,5	BZ900221
125 A/2-pole	35x80x73,5	BZ900222
125 A/3-pole	52,5x80x73,5	BZ900223
125 A/4-pole	70x80x73,5	BZ900224

■ SERIES BM ON-OFF SWITCH, 40 A, 63 A



BM900011/BM900012/BM900013/BM900018

■ SCHRACK-INFO

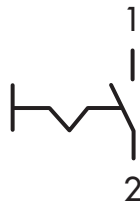
- Design meets IEC/EN 60947-3
- Rated voltage/frequency: 230/400 V AC, 50/60 Hz
- Conductor cross section: 1-25 mm²
- Finger and hand touch safe VBG 4 / EN/IEC 6
- Mounting system: special snap-on mounting for DIN rails EN 50 022
- Contact position indicator with coloured (red/green) window

RATED CURRENT/NR. POLES	DIM. (WxHxD) mm	ORDER NO.
40 A/1-pole	17,5x80x75,5	BM900011
40 A/2-pole	35x80x75,5	BM900012
40 A/3-pole	52,5x80x75,5	BM900013
40 A/3+N-pole	70x80x75,5	BM900018
63 A/1-pole	17,5x80x75,5	BM900014
63 A/2-pole	35x80x75,5	BM900015
63 A/3-pole	52,5x80x75,5	BM900016
63 A/3+N-pole	70x80x75,5	BM900019

■ SWITCH BZ SERIES, WITHOUT SIGNAL LAMP, 16 A



BZ107020



■ SCHRACK-INFO

- Meets IEC EN 60947-3
- Rated voltage/frequency: 230/400V AC, 50/60 Hz
- Conductor cross section: 1-10 mm²
- Finger and hand touch protection BVG A3 / EN/IEC 6
- Mounting system: Special snap-on fastening for DIN rail EN 50 022

RATED CURRENT/CONTACTS	DIM. (WxHxD) mm	ORDER NO.
16 A/1 NO	17,5x90x65	BZ107010
16 A/2 NO	17,5x90x65	BZ107020
16 A/1 NO / 1 NC	17,5x90x65	BZ107030
16 A/1 C/O	17,5x90x65	BZ107050

■ SWITCH BZ SERIES, WITHOUT SIGNAL LAMP, 32 A



BZ136010



■ SCHRACK-INFO

- Meets E C EN 60947-3
- Rated voltage/frequency: 230/400V AC, 50/60 Hz
- Conductor cross section: 1-10 mm²
- Finger and hand touch protection BVG A3 / EN/IEC 6
- Mounting system: Special snap-on fastening for DIN rail EN 50 022

RATED CURRENT/CONTACTS	DIM. (WxHxD) mm	ORDER NO.
32 A/1 NO	17,8x80x74,5	BZ136010
32 A/2 NO	17,8x80x74,5	BZ136020
32 A/3 NO	17,8x80x74,5	BZ136030

SWITCH BZ SERIES, WITH LED, 16 A



BZ127131

SCHRACK-INFO

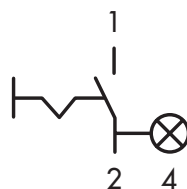
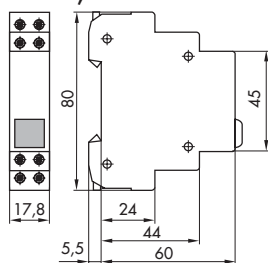
- Lamp: LED with a supply voltage of 24 V or 230 V AC/DC

RATED CURRENT/CONTACTS/SIGNAL VOLTAGE	DIM. (WxHxD) mm	ORDER NO.
16 A/1 NO + 1 NC/24 AC/DC	17,5x90x65	BZ127131
16 A/2 NO / 24 AC/DC	17,5x90x65	BZ127121
16 A/1 NO + 1 NC /230 AC/DC	17,5x90x65	BZ117131
16 A/2 NO /230 AC/DC	17,5x90x65	BZ117121

SWITCH BZ SERIES, WITH SIGNAL LAMP, 32 A



BZ136130



SCHRACK-INFO

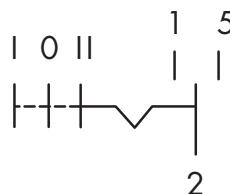
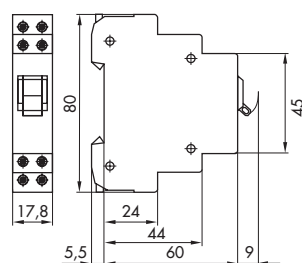
- Lamp: Glow lamp 250 V, E 10
- Clear hood pre-mounted
- Lamp (max. 2W) and hood are replaceable

RATED CURRENT/CONTACTS	DIM. (WxHxD) mm	ORDER NO.
32 A/3 NO	17,8x80x74,5	BZ136130

CHANGEOVER SWITCH BZ SERIES, WITH ZERO POSITION



BZ106380



RATED CURRENT/CONTACTS	DIM. (WxHxD) mm	ORDER NO.
16 A/1 C/O with 0	17,8x80x74,5	BZ106380
16 A/2 C/O with 0	17,8x80x74,5	BZ106390

PUSH-BUTTON SWITCH BZ SERIES



BZ107430



RATED CURRENT/CONTACTS	DIM. (WxHxD) mm	ORDER NO.
16 A/1 NO	17,5x90x65	BZ107410
16 A/1 NO + 1 NC	17,5x90x65	BZ107430

PUSH-BUTTON SWITCH BZ SERIES, WITH LED



BZ117531

RATED CURRENT/CONTACTS/SIGNAL VOLTAGE	DIM. (WxHxD) mm	ORDER NO.
16 A/1 NO + 1 NC / 24 V AC/DC	17,5x90x65	BZ127531
16 A/1 NO + 1 NC /230 V AC/DC	17,5x90x65	BZ117531

INDICATOR LIGHT BZ SERIES



BZ117904



BZ127908



BZ106800

DESCRIPTION	ORDER NO.
Single light 12-24 V AC/DC	BZ127904
Single light 110-240 V AC/DC	BZ117904
Double light 12-24 V AC/DC red/green, 2-colour LED's red/green can be unclipped	BZ127908
Double light 110-240 V AC/DC red/green, 2-colour LED's red/green can be unclipped	BZ117908
Double light 12-24 V AC/DC red/green, 2-colour LED's red/green can be unclipped	BZ127908
Indicator lighth with bulb	BZ106800

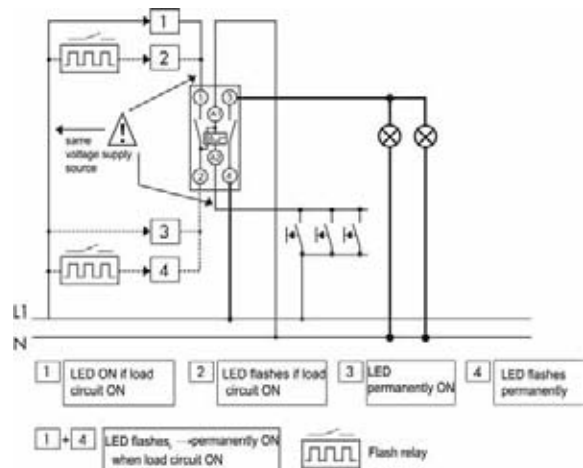
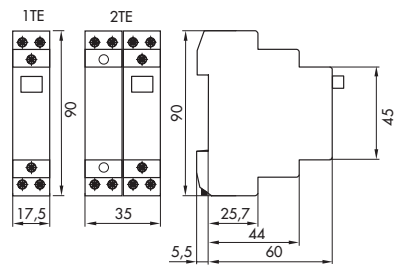
ACCESSORIES FOR BZ SERIES

DESCRIPTION	ORDER NO.
Incandescent lamp 24 V	BZ336902
Incandescent lamp 230 V	BZ336903
Glow lamp, green 230 V (must be used with a green hood)	BZ900002

MODULAR IMPULSE RELAY



LQ611230



SCHRACK-INFO

- 1 to 4-pole
- Main contacts
 - N/O 1, 2, 3 and 4 (1 MW)
 - C/O 1 and 2 (1-2 MW)
- Control circuit:
 - Control voltage U_s : 8, 12, 24, 48, 230 V AC 50Hz
 - 8, 12, 24, 110 V DC
 - Range: 0,9 - 1,1 x U_s
 - Pull-in power of coil: 12 VA / 7 W typ.
 - Minimum command time: > 200 ms
 - Duty cycle: 1 hr. unlimited with spacer
- Load circuit:
 - Rated operating voltage, 1-pole: 250 V AC; 2 / 3 / 4-pole: 240 / 415 V AC
 - Minimum operating voltage U_{min} : 24 V AC/DC
 - Rated voltage DC: 24 V I_e 16 A
 - 48 V I_e 12.5 A
 - 230 V I_e 1 A
 - Rated continuous current I_u : 16 A
 - Short circuit current: 10 kA (with 20 A gL/gG fuse)

- Service life: electrical: $\geq 40 \times 10^2$ operations
mechanical: $\geq 1 \times 10^6$ operations
- Degree of protection: IP 20
- No restrictions on service position
- Terminals above and below with firmly-secured lift terminals
- Terminal cross section: 0.5-10 mm² single- and multi-wire
0.5-6 mm² fine wire with end sleeve
- Temperature range: -25° C to +45° C
- Contact material is Cadmium free
- Can be clipped onto top-hat rail EN50022

CERTIFICATIONS

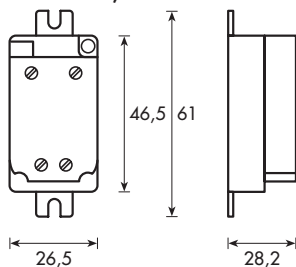
IEC/EN 60669-2-2

DESCRIPTION / RATED VOLTAGE	ORDER NO.
Remote switch, 1 NO, 8 V AC	LQ611008
Remote switch, 1 NO, 12 V AC	LQ611012
Remote switch, 1 NO, 24 V AC/12 V DC	LQ611024
Remote switch, 1 NO, 48 V AC/24 V DC	LQ611048
Remote switch, 1 NO, 230 V AC	LQ611230
Remote switch, 2 NO, 24 V AC/12 V DC	LQ612024
Remote switch, 2 NO, 48 V AC/24 V DC	LQ612048
Remote switch, 2 NO, 230 V AC	LQ612230
Remote switch, 1 C/O, 230 V AC	LQ617230
Remote switch, 2 C/O, 230 V AC	LQ618230
Remote switch w/ LED, 2 NO, 230 V AC	LQ622230

IMPULSE RELAY 10 A, 250 V AC, 1 N/O



LQ203230



SCHRACK-INFO

- Operating voltage: 8, 24, 230 V AC
- Rated current: 10 A

RANGE OF APPLICATION

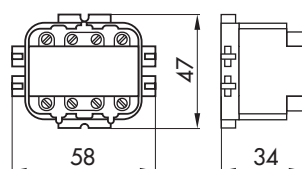
- For installation in wall boxes or snap-on mounting on DIN rails
- Contact load for fluorescent lamps: 36 lamps á 36 Watts, compensated

CONTROL VOLTAGE/CONTACTS	DIM. (WxHxD) mm	ORDER NO.
24 V AC, 14 V DC/1 NO	26,5x61x28,2	LQ203024
24 V DC/1 NO	26,5x61x28,2	LQ213024
230 V AC, 127 V DC/1 NO	26,5x61x28,2	LQ203230
Snap-on mounting on top-hat rail	9x50x5	LQ300008

IMPULSE RELAY 10 A, 250 V AC, 2 C/O



LQ207024



SCHRACK-INFO

- Operating voltage: 8, 24, 230 V AC
- Rated current: 10 A

RANGE OF APPLICATION

- For installation in wall boxes or snap-on mounting on DIN rails
- Contact load for fluorescent lamps: 36 lamps á 36 Watts, uncompensated
40 lamps á 36 Watts, compensated

CONTROL VOLTAGE/CONTACTS	DIM. (WxHxD) mm	ORDER NO.
24 V AC, 12 V DC/2 C/O	47x58x34	LQ207024
230 V AC, 110 V DC/2 C/O	47x58x34	LQ207220
Snap-on fastening for series 43, 2 pieces required	5x40x30	LQ300007

SCHRACK COMMUNICATION CENTER II



BZ990000

SCHRACK-INFO

- Easily configured from your Internet browser - does not require any additional software
- Remotely configurable via a GSM modem using PPP
- Network connection and serial interface
- Low power consumption through low power support
- Monitoring via 2 analogue Pt100 and 6 digital inputs
- Ideal for remote monitoring of UR5 monitoring relay
- Controls 7 digital outputs
- Alarms sent via email and SMS
- Compact enclosure for top-hat mounting
- Supply voltage 12-24 V-DC
- Transposed network cable (for direct connection with PC included)
- Integrated Antenna

HEATING SYSTEMS, SHUTTERS, UPS'S, ALARM SYSTEMS

The SCHRACK Communication Center is your ideal partner for the remote monitoring and control of any system. Use the digital inputs to retrieve data directly from your system's auxiliary- and signal contacts (RCCB- or combined RCCB/MCB devices). You need to monitor voltages, currents, phase failures, etc? Then order the SCHRACK Communication Center with monitoring relays from or ZR5 series.

Up to 8 persons can be notified by email or SMS should any of the measured values stray from the standard range. All messages of course come in easy-to-follow plain text (pre-defined by customers) with an overview of all current values!

Customers can also call up the status of the system at any time via SMS. Should technicians need to intervene directly in the system, they can switch on and off the 6 digital outputs of the SCHRACK Communication Center via SMS.

And what happens if a parameter or telephone number changes? Easy! All you need is nothing more than a laptop or PDA with a standard web browser and of course your mobile. You do not even need to visit the SCHRACK Communication Center. Without any fuss, you can simply dial into the device from your workstation and enter the new parameters on the SCHRACK Communication Center webpage.

POSSIBLE ACCESSORIES

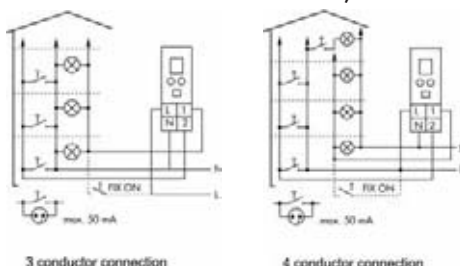
- Auxillary contacts for motor protection-, RCCB-, and combined RCCB/MCB devices
- BR900003 remote trip for BR series MCBs
- LP746101 modular PSU, 24V DC
- UR5..... Current-, voltage-, phase-, thermistor-, or level monitoring relays

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Communication Center II	105x86x64	BZ990001
Additional antenna with cable	-	BZ990000

TIMERS FOR STAIRCASE LIGHTING, COMFORT EDITION



BZ327210



SCHRACK-INFO

- 3/4 terminals, automatic detection
- Switching capacity 16 A/250 V AC
- Adjustable between 30 s and 20 min
- Lamp load:
Incandescent lamps 2300 W
Flourescent lamps: 2300 W DUO,
1000 W parallel
- Glow lamp proof, 50 push buttons x 1 mA
- Instant reset possible

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Timer for staircase lighting, 17,5 mm 210 Lux	17,5x60x45	BZ327210

TIMERS FOR STAIRCASE LIGHTING, VOWA



BZ327350

FUNCTIONS

Electronic staircase lighting timer with switch-off warning. The control input allows the connection of pushbuttons with a total glow lamp load up to 100mA and enables the application in 3-or 4-wire circuits. The unit can be retriggered via the connected pushbuttons. A long keypress will switch off the light (energy saving function). A fast sequence of pushes (pumping) will extend the period to a multiple of the selected value. Depending upon distinct type, the following operating methods can be selected by the controls on the unit:

- TW – Automatic timer with switch-off warning
- T – Automatic timer without switch-off warning
- 1 – Steady light (ON)
- 0 – Switch-off
- P – Impulse switch mode without time function (only for BZ327360)
- PN – Impulse switch mode power fail latch (only for BZ327360)

TECHNICAL DATA

1. Time range

Adjustment range

Time 0,5 - 12 min (in function T, TW)

2. Indicators

Green LED U ON: indication of supply voltage

Yellow LED ON/OFF: indication of relay output

3. Mechanical design

Self-extinguishing plastic housing, IP rating IP 40

Mounted on DIN-rail TS 35 according to EN 50022

Mounting position: any

Shockproof terminal connection according to

VBG 4 (PZ1 required), IP rating IP20

Tightening torque: max. 1 Nm

Terminal capacity:

1 x 0.5 to 2.5 mm² with/without multicore cable end

1 x 4 mm² without multicore cable end

2 x 0.5 to 1.5 mm² with/without multicore cable end

2 x 2.5 mm² flexible without multicore cable end

4. Input circuit

Supply voltage: terminals L - N

Nominal voltage: 230 V AC

Tolerance: -15% to +10%

Rated consumption: 2 VA (1,0 W)

Rated frequency: AC 48 to 63 Hz

Duty cycle: 100%

Reset time: 500 ms

Hold-up time: -

Residual ripple for DC: -

Drop out voltage: >30%

Overvoltage category: III (according to IEC 60664-1)

Rated surge voltage: 4kV

5. Output

1 normally open contact: terminals L - 18

Rated voltage: 250 V AC

Switching capacity (distance <5 mm):

10 A continuous current

Switching capacity (distance >5 mm):

16 A continuous current

Start-up peak (20 ms): 80 A

Mechanical life: 30 x 10⁶ operations

Electrical life:

Resistive load: 10⁵ operations at 16 A 250 V

Lamp load: 80.000 operations at

1000 W 250 V

6. Control input B1

Connection not potential free: pushbutton B1-N (3-conductor circuit)

pushbutton B1-L (4-conductor circuit)

Glow lamp load: max. 100 mA parallel to the pushbuttons

Overload protection: yes, electronic

7. Additional control input BZ327360

Connection: control voltage on terminals C1(+)-C2

Voltage range: 8...230 V AC/DC

Galvanic isolation: yes, basic isolation

Overvoltage category: III (in according with IEC 60664-1)

Rated surge voltage: 4kV

8. Accuracy

Base accuracy: ±5% of maximum scale value

Adjustment accuracy: <15% of maximum scale value

Repetition accuracy: <2%

Voltage influence: -

Temperature influence: ≤1%

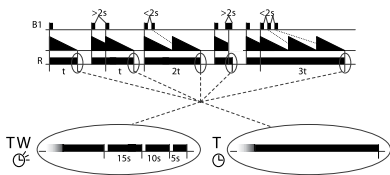
TIMERS FOR STAIRCASE LIGHTING, VOWA – continued

9. Ambient conditions

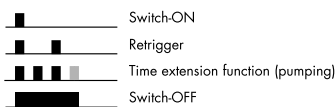
Ambient temperature: -25 to +55 °C
Storage temperature: -25 to +70 °C
Transport temperature: -25 to +70 °C
Relative humidity: 15% to 85%
(in according with IEC 60721-3-3 class 3K3)
Pollution degree: 2, if built-in 3
(in according with IEC 6064-1)

10. Functions

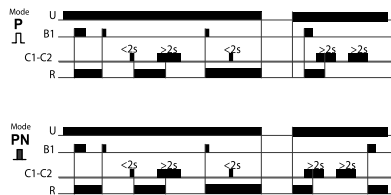
Function automatic timer (T, TW)
After the pushbutton at B1 has been pressed, the output relay R closes (terminals L-18) and the set interval t begins. If the pushbutton is pressed again before the interval t has expired, the interval begins again (restart function complies with EN 60669-2-3). Rapid, multiple pressing of the pushbutton (pumping) adds 2, 3 or more time intervals to extend the time up to 60 min. Prolonged pressure on the button (>2s) aborts the interval running and switches the relay off (energy saving function). In the TW mode the device provides a switch-off warning (in accordance with DIN 180-158-2) by generating short pulses (flashing) at 30 s, 15 s and 5 s prior to switch-off.



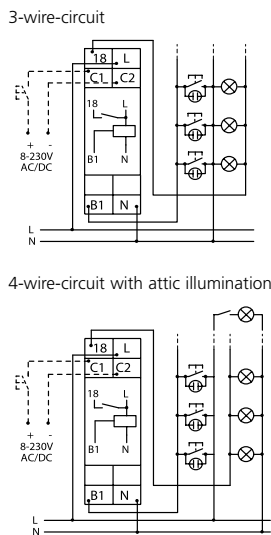
Operating possibilities at B1 in mode T and TW:
The additional control input C1-C2 can be used in the T and TW modes to control the staircase lighting timer with a voltage of 8 to 230 V AC/DC. This input can be used to start and restart the cycle. It cannot be used for switchoff (energy saving function) or for programming long intervals (pumping).



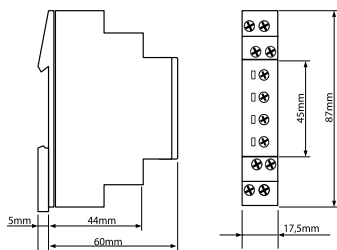
Impulse switch mode (P), (PN):
In this mode, every keypress toggles the output relay R (fl ip-fl op). In function P, the output relay R remains in off-position, whenever the supply voltage is applied. In function PN, the output relay R switches into on-position after applying the supply voltage U, if the output relay R was in on-position last before power failure. The output relay R switches into on-position, if a short voltage impulse (<2s) is applied to the additional control input (C1-C2). (central ON) A longer voltage impulse (>2s) opens the output relay R. (central OFF)



11. Connections



12. Dimensions



DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Staircase timer VOWA	17,5x87x65	BZ327350
Staircase timer VOWA-PLUS	17,5x87x65	BZ327360

SOCKET OUTLET WITH EARTH



YY492639



BZ325000-A

SCHRACK-INFO

- Cable cross-section 1-25 mm²
- Screw-mounting possible
- Rated current 10/16 A
- Rated voltage 250 V AC

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Socket outlet with earth	52x76x65	BZ325000-A
Socket outlet with plug; for french standard	44,5x76x65	BZ325001-A
Installation socket outlet, blue, screw terminals	44,5x76x65	YY492639
Installation socket outlet, blue, screwless terminals	44,5x76x65	YY492637

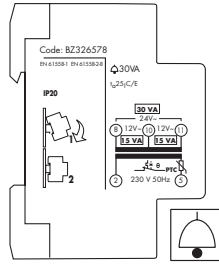
BELL TRANSFORMER, SHORT-CIRCUIT PROTECTED



BZ326577



BZ326578



SCHRACK-INFO

- Safety transformer with isolated windings
- Meets EN 61558-1-2-8
- Rated voltage 230 V 50 Hz
- Rated output 8, 15, 24, 30 VA
- Degree of protection IP40
- 100% operating time
- Including PTC

INPUT/OUTPUT	DIM. (WxHxD) mm	ORDER NO.
230 V AC prim./4,8,12 V AC sec., 15 VA	35x85x58	BZ326577
230 V AC prim./12,12,24 V AC sec., 30 VA	52x85x58	BZ326578
230 V AC prim./12, 24 V AC sec., 63 VA	105x85x65	BZ326579

BELL AND BUZZERS, FOR INSTALLATION IN ENCLOSURE



BZ926338

SCHRACK-INFO

- Coil voltage: 12, 230 V AC
- Power consumption: 4.5 VA
- Cable cross-section, 10 mm²
- 75 dB
- Continuous load up to 12h possible

DESCRIPTION/SUPPLY VOLTAGE	DIM. (WxHxD) mm	ORDER NO.
BELL		
Bell, 1 MW/230 V AC	17,5x86x67	BZ926338
Bell, 1 MW/12 V AC	17,5x86x67	BZ926351
BUZZER		
Bell, 1 MW/230 V AC	17,5x86x67	BZ926339
Bell, 1 MW/12 V AC	17,5x86x67	BZ926353

STABILISED POWER SUPPLIES, INSTALLATION DESIGN TYPE



LP746101

CERTIFICATIONS

EN 60742

SCHRACK-INFO

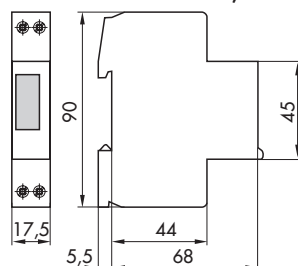
- Supply voltage: 230 V AC
- Frequency range: 48-63 Hz
- Output voltage: 12 V DC or 24 V DC
- Power loss: 4 VA
- Storage temperature: -20 °C to +60 °C
- Ambient operating temperature: -20 °C to +40 °C
- Test voltage: 4 kV
- Degree of protection: IP 20
- Terminals: 2.5 mm²

OUTPUT CURRENT/MAX. POWER OUTPUT/ OUTPUT VOLTAGE	DIM. (WxHxD) mm	ORDER NO.
1,25 A/30 W/24 V DC	51x90x65	LP746101
2,5 A/30 W/12 V DC	51x90x65	LP7431C2

MECHANICAL TIME SWITCH, 1 N/O, 24 HR.-PROGRAM



BZ326448



SCHRACK-INFO

- Minimum switching interval 30 min.
- Programming every 30 min.
- Model BZ 326 450 also available with 150 hr. power reserve
- Power consumption at 230 V AC: approx. 1 VA
- AC switching capacity:
 - resistive load (VDE, IEC) 16 A/250 V AC
 - inductive load p.f. 0,6 4 A/250 V AC
 - incandescent lamp load 1000 W
- Floating output
- Switching contacts: 1 N/O
- Protection class/degree of protection: II/IP 20
- Accuracy: BZ 326 448: synchronized with mains or $\pm 2,5s/day$ at +20° C with BZ 326 450
- Manual switch: Automatic/Fix ON

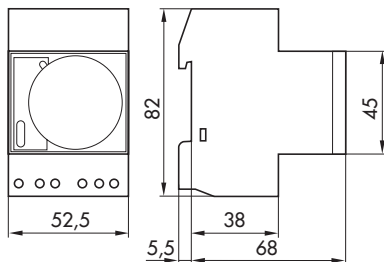
Mains-synchronous time switches must not be used when the quality of the mains supply is variable accuracy is dependent on the mains quality.

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Mechanical time switch, synchronous	17,5x90x68	BZ326448
Mechanical time switch, quartz	17,5x90x68	BZ326450

MECHANICAL CHANGEOVER SWITCH, 24-HR PROGRAM



BZ327031



SCHRACK-INFO

- Minimum switching interval 30 min.
- Programming every 30 min.
- Manual switch: Automatic/Fix ON/fix OFF
- Power consumption: approx. 1 VA
- AC switching capacity:
 - resistive load (VDE, IEC) 16 A/250 V AC
 - inductive load p.f. 0,6 4 A/250 V AC
 - incandescent lamp load 1350 W

- Floating output
- Switching contacts: 1 C/O
- Protection class/degree of protection: II/IP 20
- Accuracy: $\pm 2,5$ s/day at 20° C

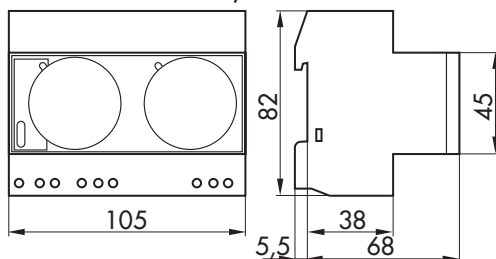
Mains-synchronous time switches must not be used when the quality of the mains supply is variable accuracy is dependent on the mains quality.

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Mechanical time switch, synchronous	52,5x82x68	BZ327031
Mechanical time switch, quartz	52,5x82x68	BZ327131

MECHANICAL TIME SWITCH, 24 HR & 7-DAY PROGRAM



BZ326401



SCHRACK-INFO

- 150 hr. power reserve
- Minimum switching interval for 24-hr program (T): 30 mins.
- Minimum switching interval for 7-day program (W): 3 hrs.
- Programmable: T every 30 min., W every 3 hrs.
- T: 1 C/O, W: 1 C/O
- Power consumption: approx. 1 VA

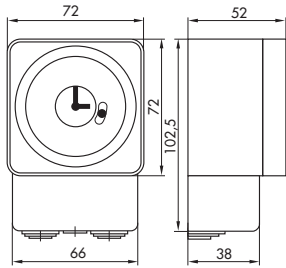
- AC switching capacity:
 - resistive load (VDE, IEC) 16 A/250 V AC
 - inductive load p.f. 0,6 4 A/250 V AC
 - incandescent lamp load 1350 W
- Floating output
- Switching contacts: 2 C/O
- Protection class/degree of protection: II/IP 20
- Accuracy: typ. $\pm 2,5$ s/day at +20° C
- Manual switch: Automatic/Fix ON/fix OFF

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Mechanical time switch, quartz	105x82x68	BZ326401

MECHANICAL CHANGEOVER SWITCH, 24-HR PROGRAM FOR SURFACE MOUNT



BZ326424



SCHRACK-INFO

- Minimum switching interval 15 min.
- Programming every 15 min.
- Switch status indicator

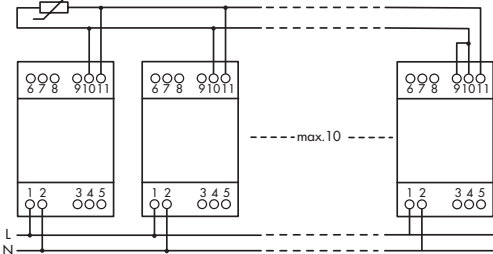
Mains-synchronous time switches must not be used when the quality of the mains supply is variable accuracy is dependent on the mains quality.

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Mechanical time switch, synchronous	72x102,5x52	BZ326424
Mechanical time switch, quartz	72x102,5x52	BZ326484

TWILIGHT SWITCH WITH EXTERNAL SENSOR



BZ327731



SCHRACK-INFO

- Light sensor
- 1 C/O, 1 N/O, or BZ 327711 with 1 N/C
- Switching status indicator
- Minimum switching interval 1 min.
- To the minute programming
- Switching capacity: 16 A/250 V AC
- Weekly time switch
- Power reserve: 3 years
- Date/time ex works
- 20 memory locations
- Captive program
- Fully-automatic summer & winter time conversion

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Twilight time switch 5-500 Lux	52,5x82x68	BZ327731
Twilight switch 5-500 Lux	17,5x82x68	BZ327711
Light sensor	36x85x32	BZ326325

DIGITAL DIN-RAIL TIME SWITCHES



BZ328371

SCHRACK-INFO

- Daily and weekly program
- 50 Memory spaces
- Automatic summertime/wintertime changeover
- 10 years running reserve
- Manual switch: FIX ON/FIX OFF
- Free weekday block formation
- Non-volatile memory (EEPROM)

TECHNICAL DATA

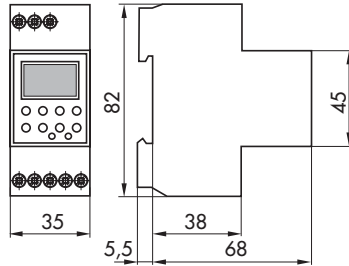
- Advertising signs
- Street lighting
- Shop window lighting
- Home & work environment
- Devices, motors and pumps control

DESCRIPTION	LANGUAGE	DIM. (WxHxD) mm	ORDER NO.
Digital DIN-rail time switch 1 canal	D, GB, F, I, E, P, CZ, NL	35x85x60	BZ328371
Digital DIN-rail time switch 2 canal	D, GB, F, I, E, P, CZ, NL	35x85x60	BZ328372
Digital DIN-rail time switch 1 canal	GB, PL,S, N, DK, FIN, L, H	35x85x60	BZ328391
Digital DIN-rail time switch 2 canal	GB, PL,S, N, DK, FIN, L, H	35x85x60	BZ328392

DIGITAL DIN-RAIL ASTRO TIME SWITCHES



BZ328A92



SCHRACK-INFO

- ASTRO function
- Automatic summertime/wintertime changeover
- 10 years running reserve
- Manual switch: FIX ON/FIX OFF
- Free weekday block formation
- Non-volatile memory (EEPROM)

TECHNICAL DATA

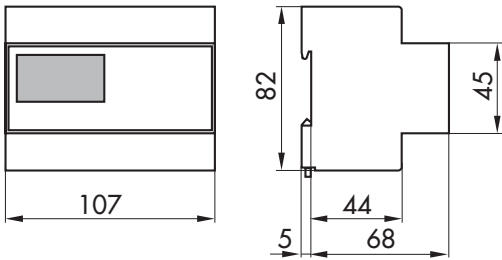
- Advertising signs
- Street lighting
- Shop window lighting

DESCRIPTION	LANGUAGE	DIM. (WxHxD) mm	ORDER NO.
Digital DIN-rail ASTRO time switch 1 canal	D, GB, F, I, E, P, CZ, NL	35x85x60	BZ328A71
Digital DIN-rail ASTRO time switch 2 canal	D, GB, F, I, E, P, CZ, NL	35x85x60	BZ328A72
Digital DIN-rail ASTRO time switch 1 canal	GB, PL,S, N, DK, FIN, L, H	35x85x60	BZ328A91
Digital DIN-rail ASTRO time switch 2 canal	GB, PL,S, N, DK, FIN, L, H	35x85x60	BZ328A92

4-CHANNEL 365-DAY TIME SWITCH



BZ327664



SCHRACK-INFO

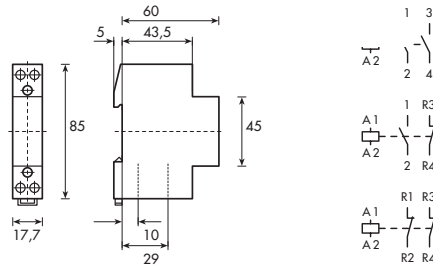
- Power reserve: 6 years
- 4 C/O
- 365-day switch
- Date/time ex works
- Minimum switching interval 1 min.
- To the minute programming
- Memory locations: 400
- Switch between summer and winter time fully automatically
- PC programming incl. software (in PC set)
- Transfer with PC set
- Captive program
- Impulse/cycle function
- Switch status indicator
- AC switching capacity:
 - resistive load (VDE, IEC) 16 A/250 V AC
 - inductive load p.f. 0,6 2,5 A/250 V AC
 - incandescent lamp load 1000 W
- Floating output
- Accuracy: ± 1 sec./day at $+20^{\circ}$ C
- Manual switch: Automatic/pre-selection
Fix ON/Fix OFF

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Digital 4-channel 365-day time switch w/ RF-trans.	107x82x68	BZ327664

MODULAR CONTACTORS 1/2-POLE



BZ326437



SCHRACK-INFO

- Modular 1 module wide
- Technical data according to EN 60 947-4-1; EN 60 947-5-1; VDE 0660
- Terminal labels according to EN 50011
- Degree of protection IP 20
- AC1/230 V: 4,6 kW (20 A)
- Low-hum (ultra-quiet)

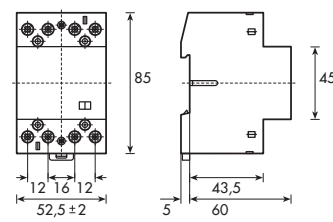
DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
1 NO / 230 V	17,7x85x65	BZ326471
2 NO / 24 V	17,7x85x65	BZ326453
2 NO / 230 V	17,7x85x65	BZ326437
1 NO + 1 NC / 24 V	17,7x85x65	BZ326421
1 NO + 1 NC / 230 V	17,7x85x65	BZ326438
2 NC / 230 V	17,7x85x65	BZ326439

MODULAR CONTACTORS 4-POLE

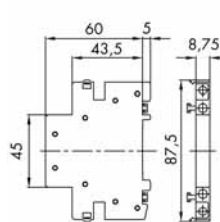


BZ326442

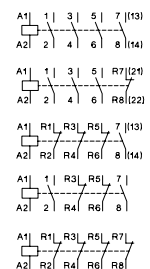
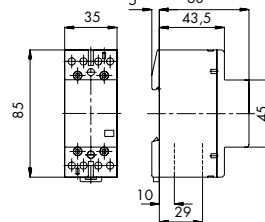
R40-..., R63-...



Auxiliary contact RH11



R25-...



SCHRACK-INFO

- Rated current: 25/40/63 A
- Technical data according to EN 60 947-4-1; EN 60 947-5-1; VDE 0660
- Terminal labels according to EN 50011
- Degree of protection IP 20
- AC1/230 V: 5,7 (25 A) / 9 (40 A) / 14,3 (63 A) kW
- AC1/400 V: 17 (25 A) / 27.5 (40 A) / 43 (63 A) kW
- Low-hum (ultra-quiet)

RATED CURRENT/DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
25 A,4 NO / 24 V	35x60,5x64	BZ326460
25 A,4 NO / 230 V	35x60,5x64	BZ326461
25 A,3 NO + 1 NC / 24 V	35x60,5x64	BZ326462
25 A,3 NO + 1 NC / 230 V	35x60,5x64	BZ326463
25 A,1 NO + 3 NC / 24 V	35x60,5x64	BZ326464
25 A,1 NO + 3 NC / 230 V	35x60,5x64	BZ326465
40 A,2 NC + 2 NO / 230 V	52,5x85x65	BZ326466
25 A,4 NC / 230 V	35x60,5x64	BZ326467
40 A,3 NO / 230 V	52,5x85x65	BZ326468
63 A,4 NC / 230 V	52,5x85x65	BZ326469
40 A,4 NO / 24 V	52,5x85x65	BZ326443
40 A,4 NO / 230 V	52,5x85x65	BZ326442
63 A,4 NO / 24 V	52,5x85x65	BZ326445
63 A,4 NO / 230 V	52,5x85x65	BZ326444
63 A,3 NO + 1 NC / 230 V	52,5x85x65	BZ326452
Auxillary contact block 10 A	8,75x85x65	BZ326470

GENERAL INFORMATION

TECHNICAL DATA

1. Time ranges

Time range	Adjustment range	
1s	50ms	1s
10s	500ms	10s
1min	3s	1min
10min	30s	10min
1h	3min	1h
10h	30min	10h
100h	5h	100h

2. Indicators

Green LED U/t ON:	indication of supply voltage
Green LED U/t flashes:	indication of time period
Yellow LED R ON/OFF:	indication of relay output

3. Mechanical design

Self-extinguishing plastic housing, IP rating IP40
 Mounted on DIN-rail TS 35 according to EN 50022
 Mounting position: any
 Shockproof terminal connection according to VBG 4 (PZ1 required), IP rating IP20
 Tightening torque: max. 1Nm
 Terminal capacity:
 1 x 0.5 to 2.5mm² with/without multicore cable end
 1 x 4mm² without multicore cable end
 2 x 0.5 to 1.5mm² with/without multicore cable end
 2 x 2.5mm² flexible without multicore cable end

4. Input circuit

Supply voltage:	Terminals A1(+)-A2
Types ZR5 12-240VAC/DC:	12V to 240V AC/DC
Tolerance:	12V-10% to 240V+10%
Types ZR5 24-240VAC/DC:	24V to 240V AC/DC
Tolerance:	24V-15% to 240V+10%
Rated consumption:	4VA (1.5W)
Rated frequency:	AC 48 to 63Hz
Duty cycle:	100%
Reset time:	100ms
Residual ripple for DC:	10%
Drop-out voltage:	>30% of minimum rated supply voltage
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	4kV

5. Output circuit

1 potential free change over contact	
Rated voltage:	250V AC
Switching capacity:	2000VA (8A / 250V)
Fusing:	8A fast acting
Mechanical life:	20 x 10 ⁶ operations
Electrical life:	2 x 10 ⁵ operations at 1000VA resistive load
Switching frequency:	max. 6/min at 1000VA resistive load (in accordance with IEC 60947-5-1)
Overvoltage category:	III. (in accordance with IEC 60664-1)
Rated surge voltage:	4kV

6. Control input

Input not potential free:	Terminals A1-B1
Loadable:	yes
Max. line length:	10m
Trigger level (sensitivity):	automatic adaption to supply voltage
Min. control pulse length:	DC 50 ms / AC 100 ms

7. Accuracy

Base accuracy:	±1% of maximum scale value
Adjustment accuracy:	<5% of maximum scale value
Repetition accuracy:	<0.5% or ±5ms
Voltage influence:	-
Temperature influence:	0.01% / °C

8. Ambient conditions

Ambient temperature:	-25 to +55°C
Storage temperature:	-25 to +70°C
Transport temperature:	-25 to +70°C
Relative humidity:	15% to 85% (in accordance with IEC 60721-3-3 class 3K3)
Pollution degree:	2, if built in 3 (in accordance with IEC 60664-1)

TIMER RELAY, ZR5 – GENERAL INFORMATION – continued

9. Function

ON delay (E)

When the supply voltage U is applied, the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay R switches into on-position (yellow LED illuminated). This status remains until the supply voltage is interrupted. If the supply voltage is interrupted before the expiry of the interval t , the interval already expired is erased and is restarted when the supply voltage is next applied.



OFF delay (R)

The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control contact S is closed, the output relay R switches into on-position (yellow LED illuminated). If the control contact is opened, the set interval t begins (green LED flashes). After the interval t has expired (green LED U/t illuminated) the output relay switches into off-position (yellow LED not illuminated). If the control contact is closed again before the interval t has expired, the interval already expired is erased and is restarted.



Single shot leading edge with control input (Ws)

The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control contact S is closed, the output relay R switches into on-position (green LED U/t illuminated) and the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay switches into off-position (yellow LED not illuminated). During the interval, the control contact can be operated any number of times. A further cycle can only be started when the cycle run has been completed.



Single shot trailing edge with control input (Wa)

The supply voltage U must be constantly applied to the device (green LED U/t illuminated). Closing the control contact S has no influence on the condition of the output R . When the control contact is opened, the output relay switches into on-position (yellow LED illuminated) and the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated), the output relay switches into off-position (yellow LED not illuminated).

During the interval, the control contact can be operated any number of times. A further cycle can only be started when the cycle run has been completed.



ON delay with control input (Es)

The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control contact S is closed, the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay R switches into on-position (yellow LED illuminated). This status remains until the control contact is opened again. If the control contact is opened before the interval t has expired, the interval already expired is erased and is restarted with the next cycle.



Single shot leading edge voltage controlled (Wu)

When the supply voltage U is applied, the output relay R switches into on-position (yellow LED illuminated) and the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay switches into off-position (yellow LED not illuminated). This status remains until the supply voltage is interrupted. If the supply voltage is interrupted before the interval t has expired, the output relay switches into off-position. The interval already is erased and is restarted when the supply voltage is next applied.



Flasher pause first (Bp)

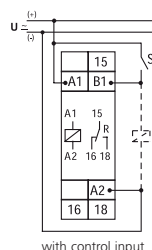
When the supply voltage U is applied, the set interval t begins (green LED U/t flashes). After the interval t has expired, the output relay R switches into on-position (yellow LED illuminated) and the set interval t begins again. After the interval t has expired, the output relay switches into off-position (yellow LED not illuminated). The output relay is triggered at a ratio of 1:1 until the supply voltage is interrupted.



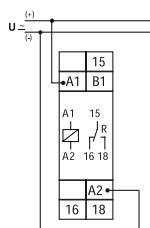
MULTIFUNCTIONAL RELAY, ZR5MF011



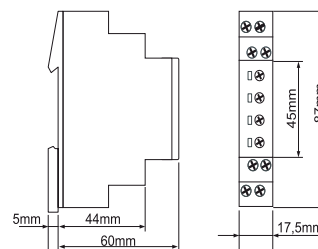
ZR5MF011



with control input



without control input



FUNCTION

The function has to be set before connecting the relay to the supply voltage.

E ON delay

R OFF delay

Ws Single shot leading edge with control input

Wa Single shot trailing edge with control input

Es ON delay with control input

Wu Single shot leading edge voltage controlled

Bp Flasher pause first

Function sets of the distinct types are according to table ordering information or printing on the unit.

SCHRACK INFO

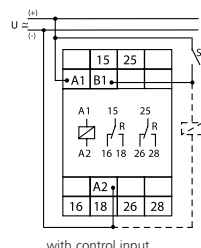
- Timers multifunctional
- Up to 7 functions
- 7 time ranges
- Wide input voltage range
- Width 17 mm
- Installation design

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Multifunction time relay 1 CO	17,5x87x65	ZR5MF011

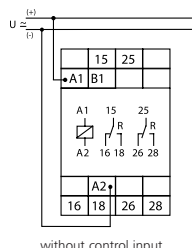
MULTIFUNCTIONAL RELAY, ZR5MF025



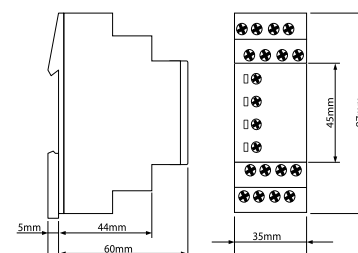
ZR5MF025



with control input



without control input



FUNCTION

The function has to be set before connecting the relay to the supply voltage.

E ON delay

R OFF delay

Ws Single shot leading edge with control input

Wa Single shot trailing edge with control input

Es ON delay with control input

Wu Single shot leading edge voltage controlled

Bp Flasher pause first

Function sets of the distinct types are according to table ordering information or printing on the unit.

SCHRACK INFO

- Timers multifunctional
- Up to 7 functions
- 7 time ranges
- Wide input voltage range
- 2 change-over contacts
- Width 35 mm
- Installation design

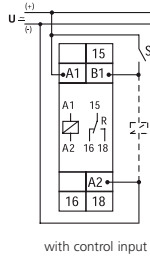
DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Multifunction time relay 2 CO	35x87x65	ZR5MF025

TIME RELAYS, SERIES ZR5000

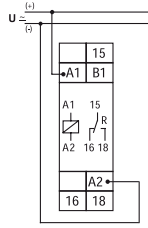
DUO-FUNCTION RELAY ZR5ER011



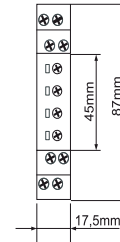
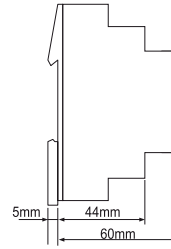
ZR5ER011



with control input



without control input



FUNCTION

The function has to be set before connecting the relay to the supply voltage.

E ON delay

R OFF delay

Function sets of the distinct types are according to table ordering information or printing on the unit.



SCHRACK INFO

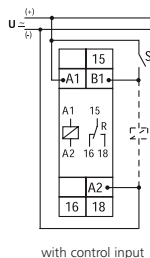
- Double function time relay
- Time range:
50ms – 100h setting
- Variance: 5% mechanical
- Repeat accuracy: >5%

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Double function time relay E + R	17,5x87x65	ZR5ER011

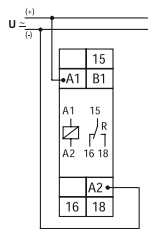
SINGLE-FUNCTION RELAY, OFF-DELAY ZR5R0011



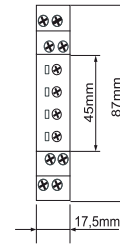
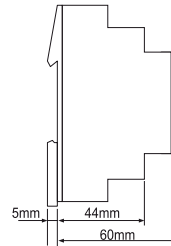
ZR5R0011



with control input



without control input



FUNCTION

The function has to be set before connecting the relay to the supply voltage.

R OFF delay

Function sets of the distinct types are according to table ordering information or printing on the unit.



SCHRACK INFO

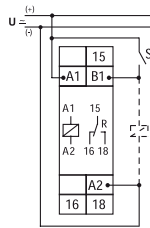
- Single function time relay
- Time range:
50ms – 100h setting
- Variance: 5% mechanical
- Repeat accuracy: >5%

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Single function time relay R	17,5x87x65	ZR5R0011

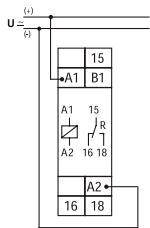
■ SINGLE-FUNCTION RELAY, ON-DELAY ZR5E0011



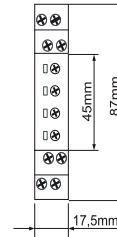
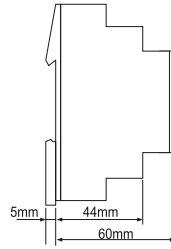
ZR5E0011



with control input



without control input



■ FUNCTION

The function has to be set before connecting the relay to the supply voltage.

E ON delay



■ SCHRACK INFO

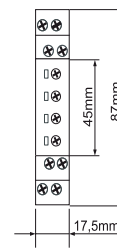
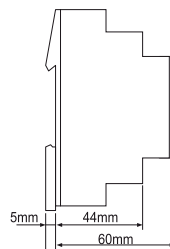
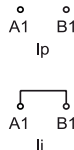
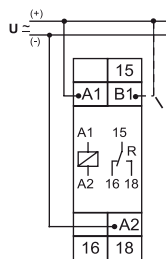
- Single function time relay
- Time range:
50ms – 100h setting
- Variance: 5% mechanical
- Repeat accuracy: >5%

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Single function time relay E	17,5x87x65	ZR5E0011

■ TIMER FLASHING ZR5B0011



ZR5B0011



■ SCHRACK INFO

- Asymmetric flasher
- 7 time ranges
- Wide input voltage range
- 1 change-over contact
- Width 17,5 mm
- Installation design

■ FUNCTION

1. Functions

- lp Asymmetric flasher pause first
- li Asymmetric flasher pulse first

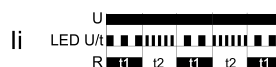
Asymmetric flasher pause first (lp)

When the supply voltage U is applied, the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay R switches into on-position (yellow LED illuminated) and the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired, the output relay switches into off-position (yellow LED not illuminated). The output relay is triggered at the ratio of t1:t2 until the supply voltage is interrupted.



Asymmetric flasher pulse first (li)

When the supply voltage U is applied, the output relay R switches into on-position (yellow LED illuminated) and the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay switches into off-position (yellow LED not illuminated) and the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired, the output relay switches into on-position (yellow LED illuminated). The output relay is triggered at the ratio of t1:t2 until the supply voltage is interrupted.



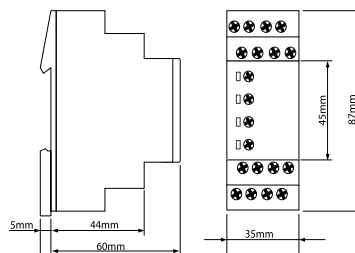
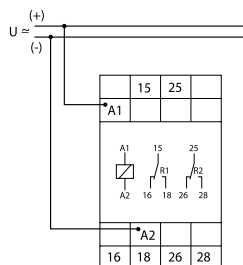
DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Asymmetric cycler	17,5x87x65	ZR5B0011

TIME RELAYS, SERIES ZR5000

STAR DELTA RELAY ZR5SD025



ZR5SD025



SCHRACK INFO

- Star-Delta start up
- 2 change-over contacts
- Wide input voltage range
- Width 35 mm
- Installation design

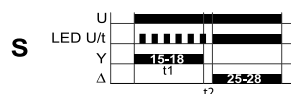
FUNCTION

1. Functions

S Star-delta start up

Star-delta start up

When the supply voltage U is applied, the star-contact switches into on-position (yellow LED illuminated) and the set star-time t1 begins (green LED U/t flashes). After the interval t1 has expired (green LED U/t illuminated), the star-contact switches into off-position (yellow LED not illuminated) and the set transit-time t2 begins. After the interval t2 has expired, the contact for the delta-contactor switches into on-position. To restart the function, the supply voltage must be interrupted and reapplied.



2. Time ranges

Start-up time

Time range

10 s

30 s

1 min

3 min

Transit time (fixed)

40ms

60ms

80ms

100ms

Adjustment range

500ms 10s

1500ms 30s

3s 1min

9s 3min

3. Indicators

Green LED U/t ON:

indication of supply voltage
delta-contactor in on-position
(terminals 25-28)

Green LED U/t flashes:

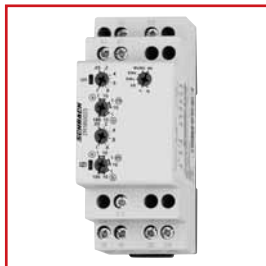
indication of time period star
time

Yellow LED R ON/OFF:

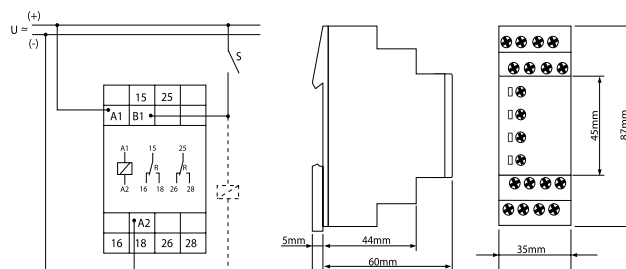
indication of star contactor
(terminals 15-18)

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Star delta relay	35x87x65	ZR5SD025

SERVICE RELAY ZR5B0025



ZR5B0025



SCHRACK INFO

- Asymmetric flasher, 2-time multifunctional
- 7 Time ranges
- Wide input voltage range
- 2 change-over contacts
- Width 35 mm
- Installation design

FUNCTION

1. Functions

The function has to be set before connecting the relay to the supply voltage.

- lp Asymmetric flasher pause first
- li Asymmetric flasher pulse first
- ER ON delay and OFF delay with control contact
- EWu ON delay single shot leading edge voltage controlled
- EWs ON delay single shot leading edge with control contact
- WsWa Single shot leading and single shot trailing edge with control contact
- Wt Pulse sequence monitoring

Asymmetric flasher pause first (lp)

When the supply voltage U is applied, the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay R switches into on-position (yellow LED illuminated) and the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired, the output relay switches into off-position (yellow LED not illuminated). The output relay is triggered at the ratio of t1:t2 until the supply voltage is interrupted.



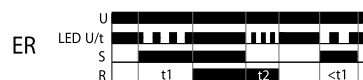
Asymmetric flasher pulse first (li)

When the supply voltage U is applied, the output relay R switches into on-position (yellow LED illuminated) and the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay switches into off-position (yellow LED not illuminated) and the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired, the output relay switches into on-position (yellow LED illuminated). The output relay is triggered at the ratio of t1:t2 until the supply voltage is interrupted.



ON delay and OFF delay with control contact (ER)

The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control contact S is closed, the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay R switches into on-position (yellow LED illuminated). If the control contact is opened, the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired, the output relay switches into off-position (yellow LED not illuminated). If the control contact is opened before the interval t1 has expired, the interval already expired is erased and is restarted with the next cycle.



ON delay and single shot leading edge voltage controlled (EWu)

When the supply voltage U is applied, the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay R switches into on-position (yellow LED illuminated) and the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired, the output relay switches into off-position (yellow LED not illuminated). If the supply voltage is interrupted before the interval t1+t2 has expired, the interval already expired is erased and is restarted when the supply voltage is next applied.



SERVICE RELAY ZR5B0025 – continued

ON delay and single shot leading edge with control contact (EWs)

The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control contact S is closed, the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay R switches into on-position (yellow LED illuminated) and the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired, the output relay switches into off-position (yellow LED not illuminated). During the interval, the control contact can be operated any number of times. A further cycle can only be started when the cycle run has been completed.



Single shot leading and single shot trailing edge with control contact (WsWa)

The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control contact S is closed, the output relay R switches into on-position (yellow LED illuminated) and the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay R switches into off-position (yellow LED not illuminated). If the control contact is opened, the output relay again switches into on-position (yellow LED illuminated) and the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired the output relay switches into off-position (yellow LED not illuminated). During the interval, the control contact can be operated any number of times.



Pulse sequence monitoring (Wt)

When the supply voltage U is applied, the set interval t1 begins (green LED U/t flashes slowly) and the output relay R switches into on-position (yellow LED illuminated) After the interval t1 has expired, the set interval t2 begins (green LED U/t flashes fast). So that the output relay R remains in on-position, the control contact S must be closed and opened again within the set interval t2. If this does not happen, the output relay R switches into off-position (yellow LED not illuminated) and all further pulses at the control contact are ignored. To restart the function the supply voltage must be interrupted and reapplied.



2. Ambient conditions

Ambient temperature:	-25 to +55 °C
Storage temperature:	-25 to +70 °C
Transport temperature:	-25 to +70 °C
Relative humidity:	15% to 85% (in accordance with IEC 60721-3-3 class 3K3)
Pollution degree:	2, if built in 3 (in accordance with IEC 60664-1)

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Two-time multifunction time relay	17,5x87x65	ZR5B0025

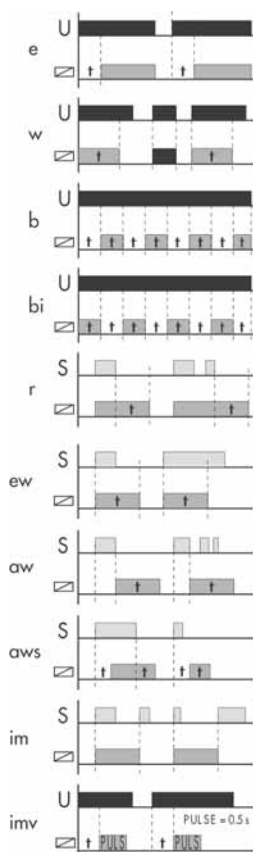
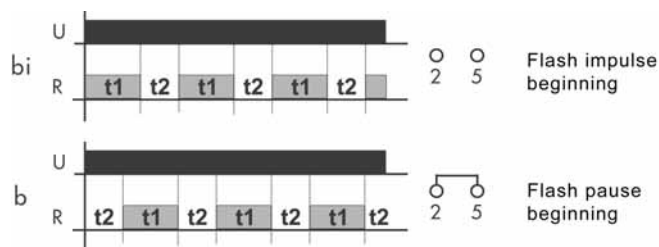
PLUG-IN TIME RELAY ZR4



ZR4B0025



ZR4MF025



Pull in delayed

Switch on

Clock pause generator

Clock impulse generator

Release delay with control contact

Switch on with control contact

Switch off with control contact

Switch on – off with control contact

Impulse relay

Impulse generator

SCHRACK INFO

- Time range ZR4B0025: 0,1 s - 100 days
- Time range ZR4MF025: 0,1 s - 10 days / ON / OFF
- Variance: 5 % - mechanical setting
- Repeat accuracy: 0,2 % - stability

OUTPUT

- Max. make current ZR4B0025: 10 A/< 3 s
- Max. make current ZR4MF025: 30 A/< 3 s
- Switch capacity ZR4B0025: 2000 VA/AC1, 192 W/DC
- Switch capacity ZR4MF025: 4000 VA/AC1, 384 W/DC
- Min switching capacity: DC 500 mW
- Load between S-A2: Yes
- Cannot connect fluorescent lamps at control contact
- Control terminals: 2-5
- Control pulse duration: min. 25 ms/max. unlimited
- Recovery time: max. 150 ms

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Plug-in multifunctional relay	38x50x53	ZR4MF025
Plug-in flasher relay, asymmetrical	38x50x53	ZR4B0025
11-pole screw-type socket	38x62x26	YMR78700

GENERAL INFORMATION

TECHNICAL DATA

1. Mechanical design

Self-extinguishing plastic housing, IP rating IP40
 Mounted on DIN-rail TS 35 according to EN 50022
 Mounting position: any
 Shockproof terminal connection according to VBG 4 (PZ1 required), IP rating IP20
 Tightening torque: max. 1Nm
 Terminal capacity:
 1 x 0.5 to 2.5mm² with/without multicore cable end
 1 x 4mm² without multicore cable end
 2 x 0.5 to 1.5mm² with/without multicore cable end
 2 x 2.5mm² flexible without multicore cable end

3. Accuracy

Base accuracy: $\pm 5\%$ of rated voltage
 Adjustment accuracy: 5% of maximum scale value
 Repetition accuracy: 2%
 Voltage influence: -
 Temperature influence: $\leq 1\%$

2. Output circuit

1 potential free change over contact
 Rated voltage: 250V AC
 Switching capacity: 1250VA (5A / 250V)
 Fusing: 5A fast acting
 Mechanical life: 20×10^6 operations
 Electrical life: 2×10^5 operations at 1000VA resistive load
 Switching frequency: max. 6/min at 1000VA resistive load (in accordance with IEC 60947-5-1)
 Overvoltage category: III (in accordance with IEC 60664-1)
 Rated surge voltage: 4kV

4. Ambient conditions

Ambient temperature: -25 to +55°C
 Storage temperature: -25 to +70°C
 Transport temperature: -25 to +70°C
 Relative humidity: 15% to 85% (in accordance with IEC 60721-3-3 class 3K3)
 Pollution degree: 2, if built in 3

VOLTAGE MONITORING RELAY WITH ADJUSTABLE TIME RANGE URU20301



URU20301

SCHRACK INFO

- Voltage monitoring in 3-phase mains
- Undervoltage monitoring
- ON delay 5...15 min.
- Supply voltage = measuring voltage
- 1 change over contact
- Width 17.5 mm
- Installation design

1. Functions

Undervoltage monitoring for 3-phase mains with fixed threshold voltage and fixed hysteresis. All measuring inputs (L1, L2 and L3) must be connected to phase voltage. If single or 2-phase monitoring is required, unused input terminals (L) must be connected to mains voltage to have proper L-N voltage on the terminals L1, L2 and L3. If there is a reverse voltage on account of a consumer, which exceeds the fixed threshold, detection of phase failure isn't possible.

Undervoltage monitoring with ON delay (Option E)
 When the voltage of all connected phases exceeds the fixed threshold by more than the fixed hysteresis, the set interval t begins (green LED U/t flashes). After the set interval t has expired, the output relay R switches into on-position (yellow LED R illuminated, green LED U/t illuminated). When the voltage of one of the connected phases falls below the fixed threshold, the output relay R switches into off-position (yellow LED R not illuminated, green LED U/t not illuminated).

2. Time ranges

Time range Adjustment range
 Tripping delay: fixed, approx. 200ms
 ON delay t: 5min to 15min

3. Input circuit

Supply voltage: (=measuring voltage)
 Terminals: N-L1-L2-L3
 Rated voltage U_N : 3N~400/230V
 Tolerance: -30% to +15% of U_N
 Rated consumption: 6VA (0,8W)
 Rated frequency: 48 to 63Hz
 Duty cycle: 100%
 Reset time: 500ms
 Hold-up time: -
 Drop out voltage: determined by undervoltage detection (see measuring circuit)
 Overvoltage category: III (in accordance with IEC 60664-1)
 Rated surge voltage: 4kV (in accordance with IEC 60664-1)

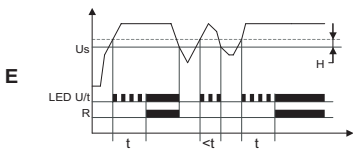
VOLTAGE MONITORING RELAY WITH ADJUSTABLE TIME RANGE URU20301 – continued

4. Indicators

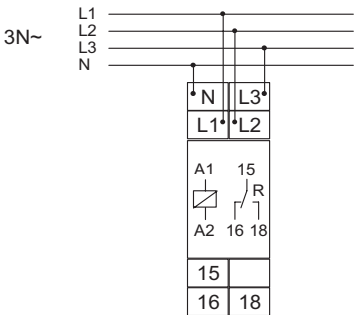
Green LED U/t ON: all 3 tensions are allright
Green LED U/t flashes: indication of time period
Yellow LED ON/OFF: indication of relay output

5. Measuring circuit

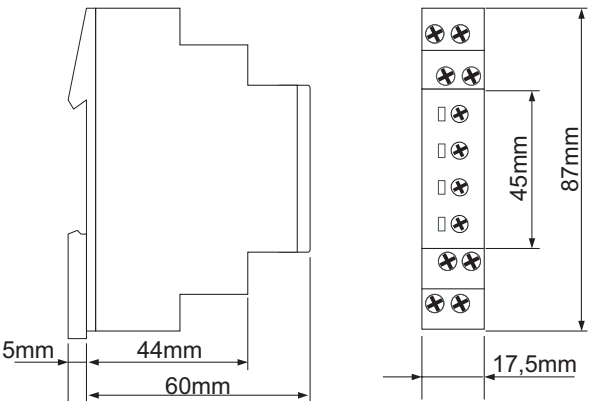
Measuring variable: AC sinus, 48 to 63Hz
Measuring input: (=supply voltage)
Terminals: N-L1-L2-L3
Overload capacity: determined by tolerance specified for supply voltage
Input resistance: -
Switching threshold Us: fixed 165V (L-N)
Hysteresis H: approx. 5%
Overvoltage category: III (in accordance with IEC 60664-1)
Rated surge voltage: 4kV



6. Connections



7. Dimensions



DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Voltage monitoring relay	17,5x87x65	URU20301

1PH. VOLTAGE MONITORING RELAY UR5U1011



UR5U1011

SCHRACK INFO

- AC/DC voltage monitoring in 1-phase mains
- Undervoltage monitoring
- 1 change over contact
- Width 17.5 mm
- Installation design

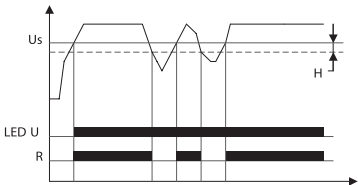
TECHNICAL DATA

1. Functions

AC/DC undervoltage monitoring in 1-phase mains with adjustable threshold and fixed hysteresis.
UNDER Undervoltage monitoring

The supply voltage U must be constantly applied to the device (green LED illuminated).

The output relay R switches into on-position (yellow LED illuminated) when the measured voltage U exceeds the value adjusted at the Usregulator. The output relay R switches into off-position (yellow LED not illuminated) when the measured value for the voltage falls below the set value by more than the fixed hysteresis.



2. Time ranges

Adjustment range

Tripping delay (Delay): -

3. Indicators

Green LED ON/OFF: indication of supply voltage
Yellow LED ON/OFF: indication of relay output

1 PH. VOLTAGE MONITORING RELAY UR5U1011 – continued

4. Input circuit

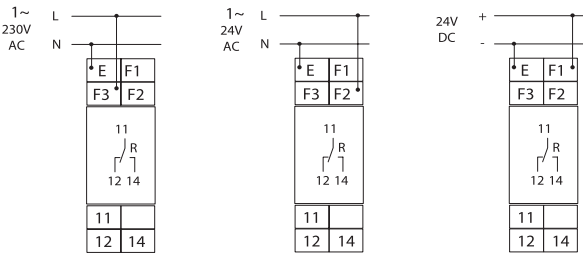
Supply voltage:	(= measuring voltage)
Terminals:	
230V AC	E-F3
24V AC	E-F2 (distance > 5mm)
24V DC	E-F1(+)
Rated voltage U_N :	see table ordering information or printing on the unit
Tolerance:	-25% to +20% of U_N
Rated consumption:	
230V AC	10VA (0.6W)
24V AC	1.3VA (0.8W)
24V DC	0.6W
Rated frequency:	AC 48 to 63Hz
Duration of operation:	100%
Reset time:	500ms
Wave form:	DC, AC Sinus
Hold-up time:	-
Drop-out voltage:	> 60% of supply voltage
Overvoltage category:	III (according to IEC 60664-1)
Rated surge voltage:	4kV

5. Measuring circuit

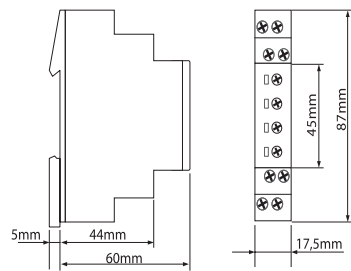
Measuring variable:	DC or AC Sinus, 48 to 63Hz
Measuring input:	(= supply voltage)
Terminals:	
230V AC	E-F3
24V AC	E-F2 Distance between the devices must be greater than 5mm!
24V DC	E-F1(+)

Overload capacity:	120% of U_N
Input resistance:	-
Switching threshold U_s :	75% – 115%
Hysteresis H:	fix 5%
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	4kV

6. Connections



7. Dimensions



DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Voltage monitoring relay 1-phase	17,5x87x65	UR5U1011

3 PH. VOLTAGE MONITORING RELAY WITH ADJUSTABLE VOLTAGE RANGE



UR5U3011

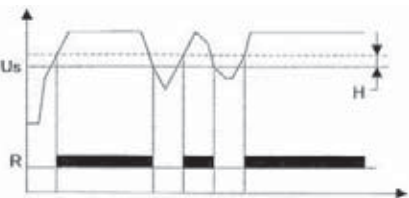
SCHRACK INFO

- Voltage monitoring in 3-phase mains
- Undervoltage monitoring
- Supply voltage = measuring voltage
- 1 change over contact
- Width 17.5 mm
- Installation design

TECHNICAL DATA

1. Functions

Undervoltage monitoring in 3-phase mains (each phase against the neutral wire) with fixed or variable threshold voltage U_S and fixed hysteresis.



2. Time range

Adjustment range	
Tripping delay :	fixed, approx. 200ms

3. Indicators

Green LED L1 ON/OFF: indication of supply voltage L1-N
Green LED L2 ON/OFF: indication of supply voltage L2-N
Green LED L3 ON/OFF: indication of supply voltage L3-N
Yellow LED ON/OFF: indication of relay output

3PH. VOLTAGE MONITORING RELAY WITH ADJUSTABLE VOLTAGE RANGE – continued

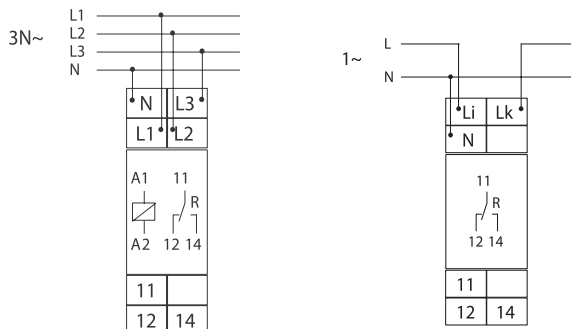
4. Input circuit

Supply voltage: (= measured voltage)
 Terminals: N-L1-L2-L3
 Rated voltage U_N : see table ordering information or printing on the unit
 Tolerance: -30% to +10% of U_N
 Rated consumption: 8VA (0,8W)
 Rated frequency: AC 48 to 63Hz
 Duty cycle: 100%
 Reset time: 500ms
 Hold-up time: -
 Drop out voltage: determined by undervoltage detection (see measured circuit)
 Overvoltage category: III (in accordance with IEC 60664-1)
 Rated surge voltage: 4kV

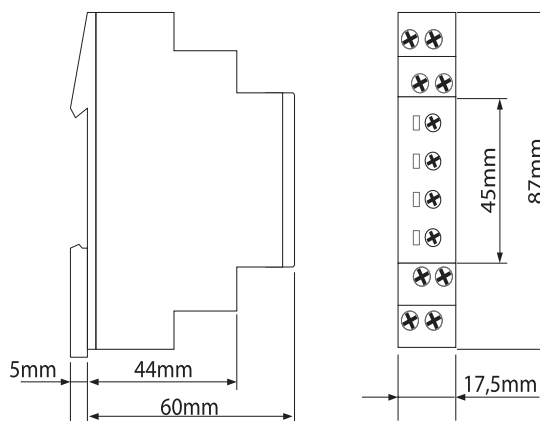
5. Measuring circuit

Measuring variable: AC sinus, 48 to 63Hz
 Measuring input: (= supply voltage)
 Terminals: N-L1-L2-L3
 Overload capacity: determined by tolerance specified for supply voltage
 Input resistance: -
 Switching threshold U_S : see table ordering information or printing on the unit
 Hysteresis H: approx. 5%
 Overvoltage category: III (in accordance with IEC 60664-1)
 Rated surge voltage: 4kV

6. Connections



7. Dimensions



DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Voltage monitoring relay 3-phase	17,5x87x65	UR5U3011

THERMISTOR MONITORING RELAY UR5R1021



UR5R1021

SCHRACK INFO

- Tripping unit for temperature monitoring of the motor winding with and without short circuit monitoring of the thermistor line(selectable by means of terminals)
- Optional evaluation of one thermal contact
- Test function with integrated reset key
- Rated isolated voltage on the sensor circuit up to 690V
- 1 change over contact
- Width 35mm
- Installation design

TECHNICAL DATA

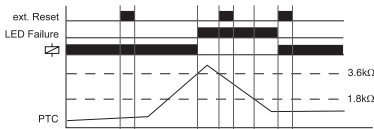
1. Functions

Temperature monitoring of the motor winding (max. 6 PTC) with fault latch for temperature sensors in accordance with DIN 44081, short circuit monitoring of the thermistor line (selectable by means of terminals), integrated test/reset key.

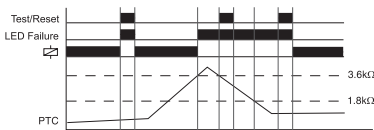
THERMISTOR MONITORING RELAY UR5R1021 – continued

Temperature monitoring of the motor winding with fault latch. If the supply voltage U is applied (green LED illuminated) and the cumulative resistance of the PTC-circuit is less than 3.6kΩ (standard temperature of the motor), the output relay switches into on-position. Pressing the test/reset key under this conditions forces the output relay to switch into off-position. It remains in state as long as the test/reset key is pressed and thus the switching function can be checked in case of fault. The test function is not effective by using an external reset key. When the cumulative resistance of the PTC-circuit exceeds 3.6kΩ (at least one of the PTCs has reached the cut-off temperature), the output relay switches into off-position (red LED illuminated). The output relay switches into on-position again (red LED not illuminated), if the cumulative resistance drops below 1.65kΩ by cooling down of the PTC and either a reset key (internal or external) was pressed or the supply voltage was disconnected and re-applied.

Application of an external Reset



Application of internal Test/Reset - key



2. Time ranges

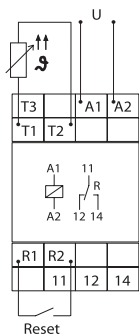
	Adjustment range
Start-up suppression time (Start):	-
Tripping delay (Delay):	-

3. Indicators

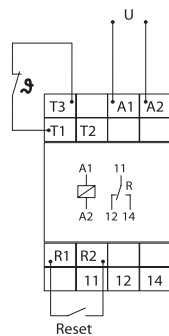
Green LED ON:	indication of supply voltage
Red LED ON/OFF:	indication of failure

4. Connections

Monitoring
Temperature sensor



Monitoring
Thermal contact



5. Input voltage

Supply voltage:	230V AC
Terminals:	A1-A2
Rated voltage U_N :	230V AC
Tolerance:	-15% to +10% of U_N
Rated consumption:	1,3VA (1W)
Rated frequency:	AC 48 to 63Hz
Duty cycle:	100%
Reset time:	250ms
Residual ripple for DC:	50ms
Drop-out voltage:	>30% of the supply voltage
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	6kV

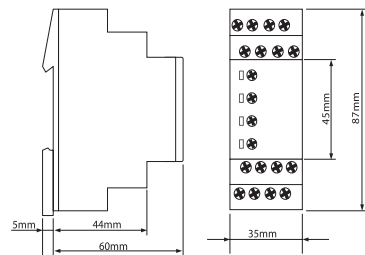
6. Measuring circuit

Terminals:	T1-T2 or T1-T3
Initial resistance:	<1.5kΩ
Response value (relay in off-position):	≤3.6kΩ
Release value (relay in on-position):	≤1.65kΩ
Disconnection (short circuit thermistor):	yes at T1-T2 no at T1-T3
Measuring voltage T1-T2:	≤7.5VΩ at R ≤4.0kΩ (in accordance with EN 60947-8)
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	6kV

7. Control contact R

Function:	connection of an external reset key
Loadable:	no
Line length R1-R2:	max. 10m (twisted pair)
Control pulse length:	min. 50ms
Reset:	potential free normally open contact, terminals R1-R2

8. Dimensions



DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Thermistor-monitoring relay	35x87x65	UR5R1021

LEVEL MONITORING RELAY UR5L1021



UR5L1021

SCHRACK INFO

- Level monitoring of conductive liquids
- Multifunction
- Secure isolation of the measuring circuit
- 1 change over contact
- Width 35mm
- Installation design

TECHNICAL DATA

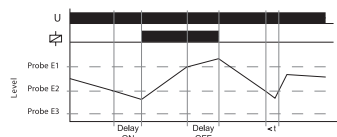
1. Functions

Level monitoring of conductive liquid, timing for tripping delay and turn-off delay separately adjustable and the following functions (selectable by means of rotary switch):

Pump up pump up or minimum monitoring
Pump down pump down or maximum monitoring

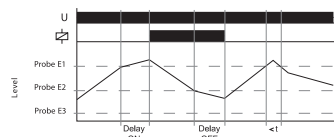
Pump up

Connection of the probe rods E1, E2 and E3. Alternatively the electrically conducting container can be connected in lieu of the test probe E3. When the air-fluid level falls below the minimum probe E2 the set interval of tripping delay (Delay ON) begins. After the expiration of the interval, the output relays R switches into on-position (yellow LED illuminated). When the air-fluid level again rises above the maximum probe E1, the set interval of turn-off delay (Delay OFF) begins. After the expiration of the interval the output relays R switches into off-position (yellow LED not illuminated).

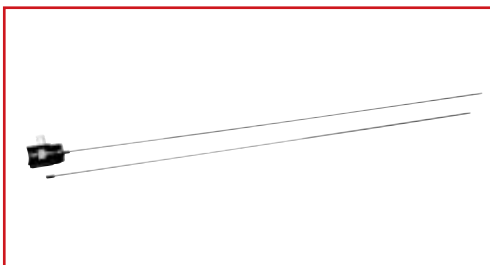


Pump down

Connection of the probe rods E1, E2 and E3. Alternatively the electrically conducting container can be connected in lieu of the test probe E3. When the maximum probe E1 gets moistened the set interval of tripping delay (Delay ON) begins. After the expiration of the interval the output relays R switches into on-position (yellow LED illuminated). When the air-fluid level falls below the minimum probe E2, the set interval of turn-off delay (Delay OFF) begins. After the expiration of the interval, the output relays R switches into off-position (yellow LED not illuminated).



PROBES FOR LEVEL MONITORING



URL9001

SCHRACK INFO

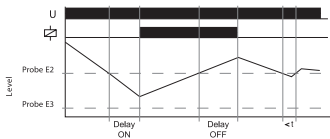
- URL 90010, URL 90020, URL 90030 types are coated with Nylon 66
- Operating temperature max. 70 °C
- Maximum pressure 1000 kPa
- Can be used universally except for special areas of the food industry where Nylon 66 is not approved for use as an insulator.

DESCRIPTION	ORDER NO.
Level sensor, 1 rod	URL90010
Level sensor, 2 rods	URL90020
Level sensor, 3 rods	URL90030
Sensor rod extension, 900 mm	URL90011

LEVEL MONITORING RELAY UR5L1021 – continued

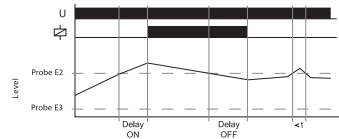
Minimum monitoring (Pump up)

Connection the probe rods E2 and E3 (bridge E1-E3). Alternatively the electrically conducting container can be connected in lieu of the test probe E3. When the air-fluid level falls below the probe E2 the set interval of tripping delay (Delay ON) begins. After the expiration of the interval, the output relays R switches into on-position (yellow LED illuminated). When the air-fluid level again rises above the probe E2, the set interval of turnoff delay (Delay OFF) begins. After the expiration of the interval the output relays R switches into off-position (yellow LED not illuminated).



Maximum monitoring (Pump down)

Connection of probe rods E2 and E3 (bridge E1-E3). Alternatively the electrically conducting container can be connected in lieu of the test probe E3. When the probe E2 gets moistened the set interval of tripping delay (Delay ON) begins. After the expiration of the interval the output relays R switches into on-position (yellow LED illuminated). When the air-fluid level sinks below the probe E2, the set interval of turn-off delay (Delay OFF) begins. After the expiration of the interval the output relays R switches into off-position (yellow LED not illuminated).



2. Time ranges

Adjustment range

Tripping delay (Delay ON): 0.5s to 10s

Turn-off delay (Delay OFF): 0.5s to 10s

3. Indicators

Green LED ON: indication of supply voltage

Yellow LED ON/OFF: indication of output relay

4. Input circuit

Terminals: A1-A2

Rated voltage U_N : 230V AC

Tolerance: -15% of +10% of U_N

Rated consumption: 2VA (1.0W)

Rated frequency: AC 48 to 63Hz

Duty cycle: 100%

Reset time: 500ms

Hold-up time: -

Drop-out voltage: >30% of supply voltage

Overvoltage category: III (in accordance with IEC 60664-1)

Rated surge voltage: 6kV

5. Measuring circuit

Measuring input: conductive probes
(Type SK1, SK2, SK3)

Terminals: E1-E2-E3

Sensitivity: 0,25 to 100k Ω (4mS to 10 μ S)

Sensor voltage: 12V AC

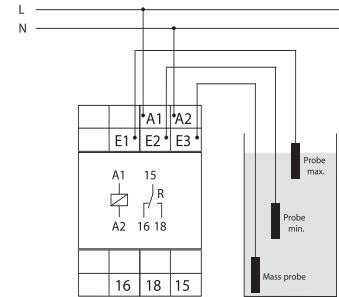
Sensor current: max. 7mA

Wiring distance (capacity of cable 100nF/km):
max. 1000m (set value <50%)
max. 100m (set value 100%)

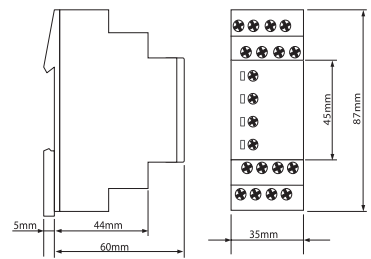
Overvoltage category: III (in accordance with
IEC 60664-1)

Rated surge voltage: 6kV

6. Connections



7. Dimensions



DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Level monitoring relay	35x87x65	UR5L1021

CURRENT MONITORING RELAY UR5I1011



UR5I1011

SCHRACK INFO

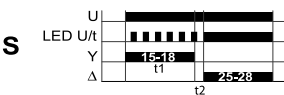
- AC current monitoring in 1-phase mains
- 1 change over contact
- Width 17.5 mm
- Installation design

TECHNICAL DATA

1. Functions

AC current monitoring in 1-phase mains with adjustable threshold and fixed hysteresis.

The supply voltage U must be constantly applied to the device (green LED illuminated). The output relay R switches into on-position (yellow LED illuminated) when the measured current exceeds the value adjusted at the Isregulator. The output relay R switches into off-position (yellow LED not illuminated) when the measured value for the current falls below the set value by more than the fixed hysteresis.



2. Time ranges

Tripping delay (Delay): - Adjustment range

3. Indicators

Green LED ON: indication of supply voltage
Yellow LED ON/OFF: indication of relay output

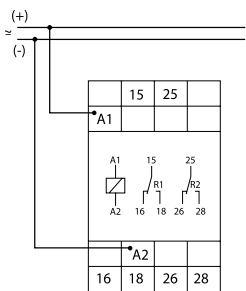
4. Input circuit

Supply voltage: 230 V AC
Terminals: Li-N
Tolerance: -15% to +15% of U_N
Rated consumption: 5 VA (0,8 W)
Rated frequency: AC 48 to 63 Hz
Duty cycle: 100%
Reset time: 500 ms
Wave form: Sinus
Hold-up time: -
Drop out voltage: >20% of rated voltage
Overvoltage category: III (in accordance with IEC 60664-1)
Rated surge voltage: 4 kV

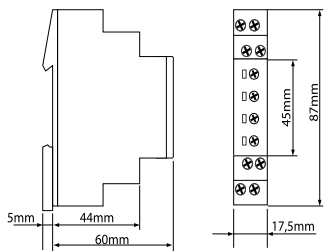
5. Measuring circuit

Measuring variable: AC sinus, 48 to 63 Hz
Measuring input: 5 A AC
Terminals: Li, Lk
Overload capacity: 7 A
Input resistance: 10 mΩ
Switching threshold Is: 10% to 100% of I_N
Hysteresis H: fixed 10%
Overvoltage category: III (in accordance with IEC 60664-1)
Rated surge voltage: 4 kV

6. Connections



7. Dimensions



DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Current monitoring relay 1-phase	17,5x87x65	UR5I1011

PHASE MONITORING RELAY UR5P3011



UR5P3011

SCHRACK INFO

- Voltage monitoring in 3-phase mains
- Monitoring of phase sequence, phase failure, asymmetrie

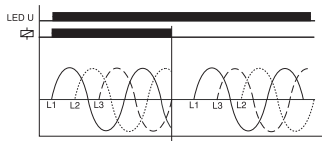
TECHNICAL DATA

1. Functions

Monitoring of phase sequence, phase failure and asymmetry with adjustable asymmetrie, connection of neutral wire optional.

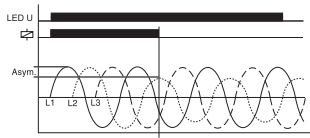
Phase sequence monitoring

When all the phases are connected in the correct sequence and the measured asymmetry is less than the fixed value, the output relay switches into on-position (yellow LED illuminated). When the phase sequence changes, the output relay switches into off-position (yellow LED not illuminated).



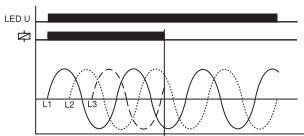
Asymmetry monitoring

The output relay R switches into off-position (yellow LED not illuminated) when the asymmetrie exceeds the value set at the ASYM-regulator. Reverse voltages of a consumer (e.g. a motor which continues to run on two phases only) do not effect the disconnection.



Phase failure monitoring

The output relay switches into off-position (yellow LED not illuminated), when one of the three phases fails.



2. Time ranges

Tripping delay: fixed, approx. 100 ms

3. Indicators

Green LED ON: indication of supply voltage
Yellow LED ON/OFF: indication of relay output

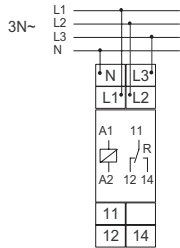
4. Input circuit

Supply voltage: (= measured voltage)
Terminals: (N)-L1-L2-L3
Rated voltage U_N : 3(N)~400/230V AC
Tolerance: -30% to +30% of U_N
Rated consumption: 8 VA (0,8 W)
Rated frequency: AC 48 to 63 Hz
Duty cycle: 100%
Reset time: 500 ms
Hold-up time: -
Drop out voltage: >20% of the supply voltage
Overvoltage category: III (in accordance with IEC 60664-1)
Rated surge voltage: 4 kV

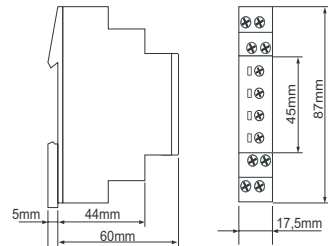
5. Measuring circuit

Measuring variable: 3(N)~, sinus, 48 to 63 Hz
Measuring input: (= supply voltage)
Terminals: (N)- L1- L2- L3
Overload capacity: determined by tolerance specified for supply voltage
Input resistance: -
Asymmetry: 5% to 25% adjustable, or disengageable
Overvoltage category: III (in accordance with IEC 60664-1)
Rated surge voltage: 4 kV

6. Connecting diagram



7. Dimensions



DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Monitoring relay 3-phase	17,5x87x65	UR5P3011

TOP-TECHNIC



SURGE ARRESTER

TOP-TECHNIC



SURGE ARRESTERS, CLASS I + II (B/C) –
25 kA (10/350) / 12,5 kA (10/350)

TOP-TECHNIC



SURGE ARRESTERS, CLASS I + II (B/C)

TOP-TECHNIC



SURGE ARRESTERS, CLASS I (B)

TOP-TECHNIC



SURGE ARRESTERS, CLASS II (C)

TOP-TECHNIC



SURGE ARRESTERS, CLASS III (D)

SURGE VOLTAGE PROTECTION

CONTENTS

SURGE ARRESTER	Page 96
SURGE ARRESTERS, CLASS I + II (B/C) – 25 kA (10/350)	Page 100
SURGE ARRESTERS, CLASS I + II (B/C) – 12,5 kA (10/350) ..	Page 102
SURGE ARRESTERS, CLASS I + II (B/C)	Page 104
SURGE ARRESTERS, CLASS I (B).....	Page 106
SURGE ARRESTERS, CLASS II (C).....	Page 109
SURGE ARRESTERS, CLASS III (D)	Page 112

OVERVIEW OF CIRCUIT SYSTEMS AND USABLE LIGHTNING PROTECTION DEVICES

SCHRACK-INFO

The SCHRACK – SPD allows a easy connection for each system. It is not necessary to search and order different devices for system-protection.

TN-C SYSTEM

TN-S SYSTEM

TT SYSTEM

PROTEC T1 & T2
LPL I + II



IS211330



IS211340



IS211311

COMBTEC T1 & T2
LPL III + IV



IS211230



IS211240



IS211210

VARTEC T2 (II)
(OVERVOLTAGE
PROTECTION)



IS111130



IS111140

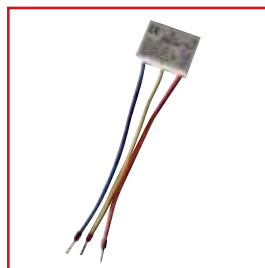


IS111110

VARTEC T3 (III)
(DEVICE
PROTECTION)



IS010002

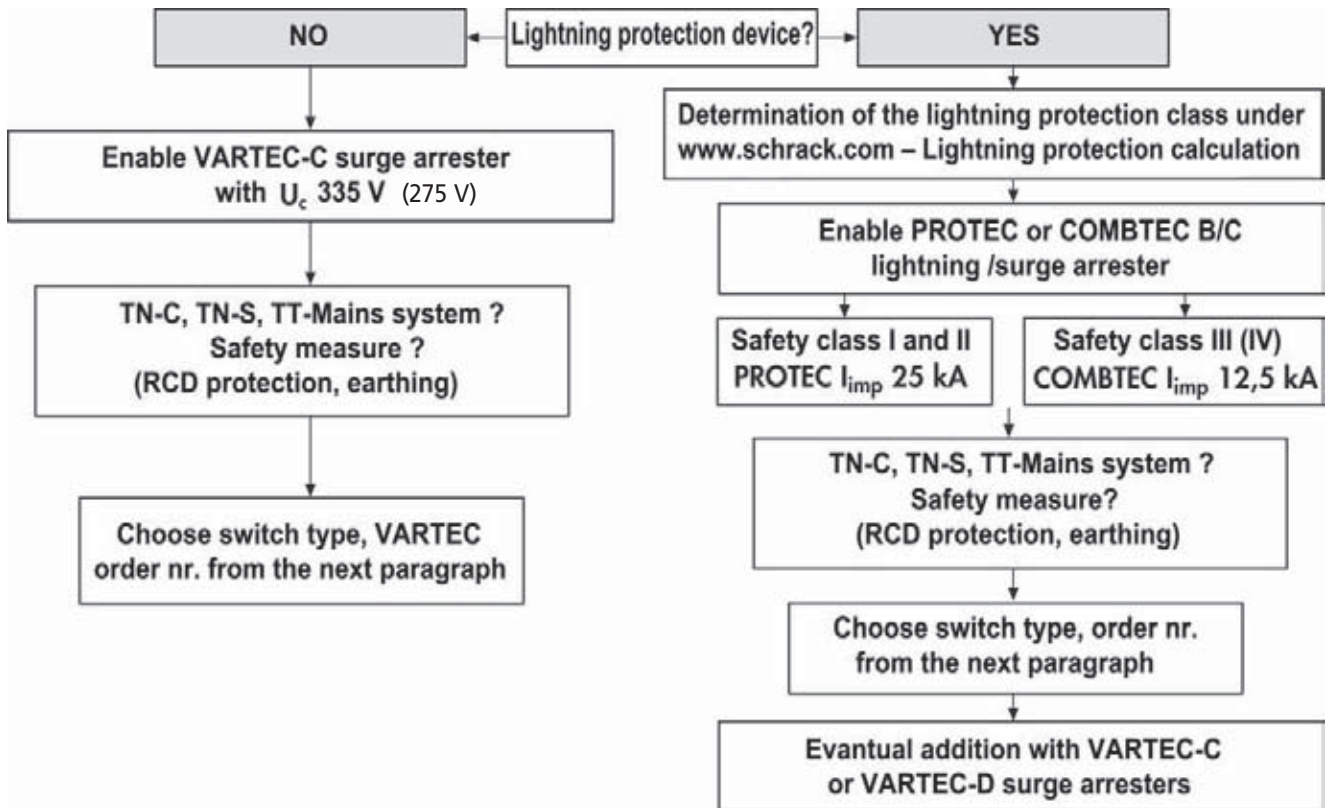


IS010003

■ SURGE ARRESTERS

■ WHEN CHOOSING A SURGE ARRESTER

Consider the detailed requirements in the following diagram and then select the appropriate switch type and surge arrester in the next section as appropriate to the mains system and protective action required.



■ GENERAL INFORMATION – SPD TERMINOLOGY

- Surge Protection Device (SPD): device for limiting over-voltages.
- Maximum Continuous Operating Voltage (U_c): the maximum voltage which may be connected to the SPD (sometimes referred to as its "rated voltage").
- Voltage Protective Level (U_p): the limiting voltage which appears across the terminals of an SPD under conduction of a surge of defined waveshape and amplitude. If no such waveshape or amplitude is defined, U is assumed to be stated when the SPD is subjected to the nominal discharge current I .
- Impulse Current (I_{imp}): peak value of current having a wave shape of 10/350 s. It is used in the classification of SPDs to test class I, for direct strike lightning discharges.
- Nominal Discharge Current (I_n): used in the classification of SPDs to test Class II. It shows the SPDs ability to withstand 15 impulses of peak magnitude I_n with an 8/20 swaveshape.
- Environmental Protective Rating (IP): the protective rating of the SPD enclosure against the environment e.g. water, dust etc.
- Disconnecter: a device, internal or external to the SPD, which is used to provide safe disconnection under fault conditions. Disconnecters may provide isolation by operating as thermal devices, or over current devices.
- Following Current (I_f): generally applies to voltage-switching type SPDs. This is the current delivered by the power distribution system which can be safely extinguished by the SPD during operation.

■ STANDARDS AND REFERENCES

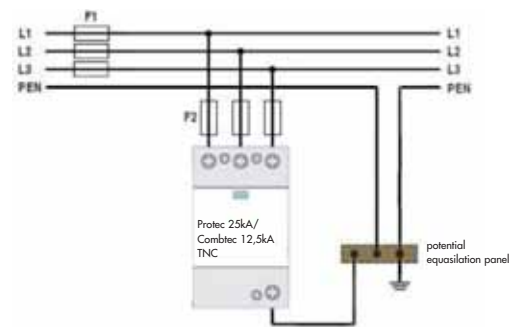
- IEC 61643-1
- ÖVE NORM E 8001-1
- IEC 60364-4-443
- IEC 62305-1
- IEC 62305-2
- IEC 62305-3
- IEC 62305-4

■ SURGE ARRESTERS FOR TNC-SYSTEM (PME / PEN CONDUCTOR)

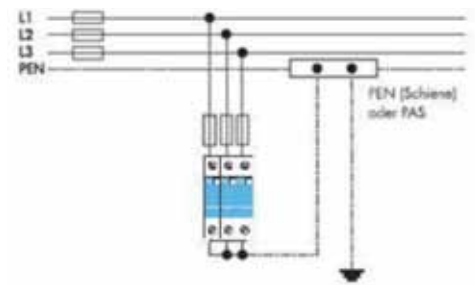


IS211230

LIGHTNING ARRESTER (PROTEC, COMBTEC)



OVERVOLTAGE PROTECTION DEVICE (VARTEC)



■ SCHRACK-INFO

Switches with relay contact usually have a "1" at the end of the article number, e.g. IS211331

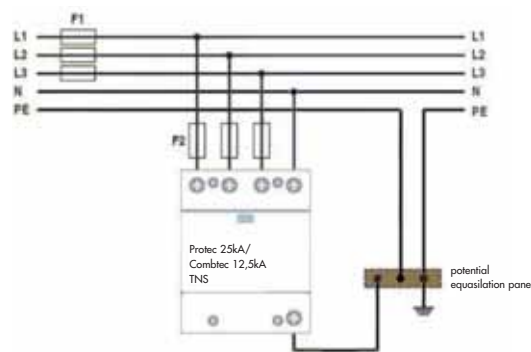
DESCRIPTION	LIGHTING PROTECTION LEVEL	SPD-CLASS	ORDER NO.
Protec PTNC BC 275	LPL I + II	Testclass I + II	IS211330
Combtec CTNC BC 275	LPL III + IV	Testclass I + II	IS211230
Vartec TN-C Set 255	--	Testclass II	IS111130

■ SURGE ARRESTERS FOR TNS-SYSTEM (PEN CONDUCTOR SPLIT INTO PE & N)

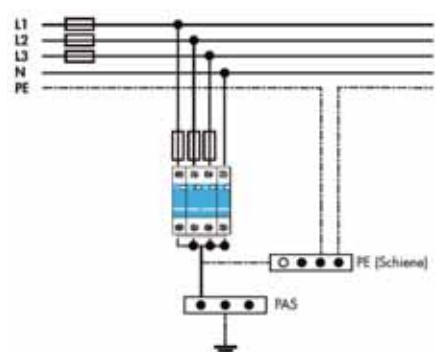


IS211340

LIGHTNING ARRESTER (PROTEC, COMBTEC)



OVERVOLTAGE PROTECTION DEVICE (VARTEC)



■ SCHRACK-INFO

No surge arrester is required for the Neutral conductor and the TN-C-SET can be used if the PEN conductor (protective multiple earthing connection) was separated in the immediate vicinity, e.g. in the upstream meter section.

Switches with relay contact usually have a "1" at the end of the article number, e.g. IS211341

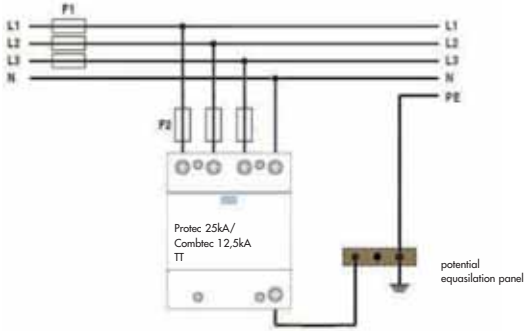
DESCRIPTION	LIGHTING PROTECTION LEVEL	SPD-CLASS	ORDER NO.
Protec PTNS BC 275	LPL I + II	Testclass I + II	IS211340
Combtec CTNS BC 275	LPL III + IV	Testclass I + II	IS211240
Vartec TN-S Set 255	--	Testclass II	IS111140

■ SURGE ARRESTERS FOR TT SYSTEM (PE CONDUCTOR)

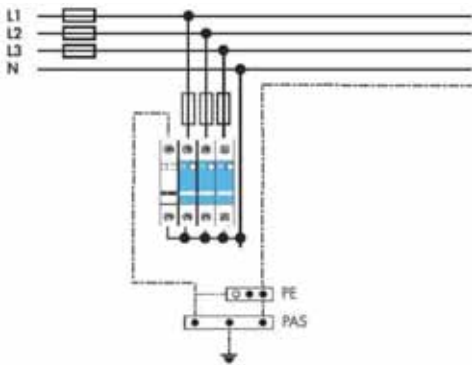


IS211210

LIGHTNING ARRESTER (PROTEC, COMBTEC)



OVERVOLTAGE PROTECTION DEVICE (VARTEC)



■ SCHRACK-INFO

Switches with relay contact usually have a “1” at the end of the article number, e.g. IS211211.

DESCRIPTION	LIGHTING PROTECTION CLASS	SPD-CLASS	ORDER NO.
Protec PTT BC 275	LPL I + II	Testclass I + II	IS211311
Combtec CTT BC 275	LPL III + IV	Testclass I + II	IS211210
Vartec TT Set 255	--	Testclass II	IS111110

PROTEC 25 kA (10/350), CLASS I + II (LPL I + II)



IS211330

SCHRACK-INFO

The Schrack-Protec series has been developed to protect against partial direct and indirect discharges. It is intended to provide lightning protection level I and II (protection zone 0A to 1) according to IEC62305.

This series is tested for testclass I and testclass II according to IEC61643-1 with a maximum impulse current (I_{imp}) of 25kA (10/350) per pole and nominal discharge current (I_n) of 40kA (8/20) per pole. The devices are available for maximum continuous current operating voltage (U_c) of 275Vac.

Surge arrester class B/C, Class I/II, Type of design 1/2, meets EN/IEC-SN 60, part 4, and EN/IEC 61643.

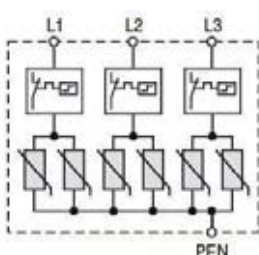
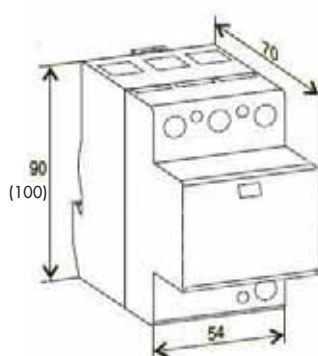
INSTALLATION REQUIREMENTS

National regulations for installation must be followed!

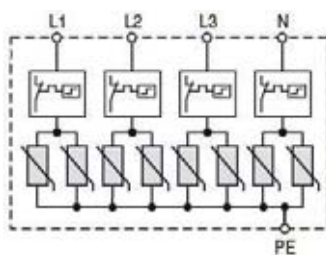
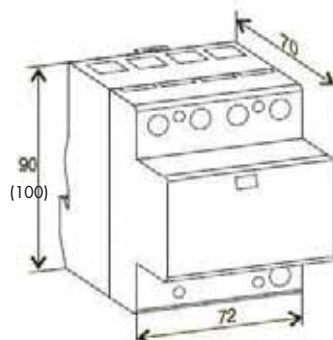
In Austria: EN/IEC 8001-1, EN/IEC E 8049, EN/IEC 62305 or IEC 60364-5-53 A1.

RANGE OF APPLICATION

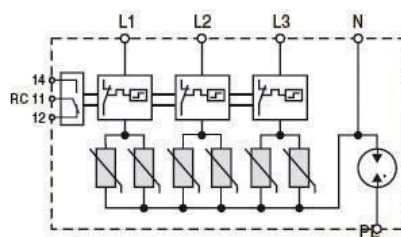
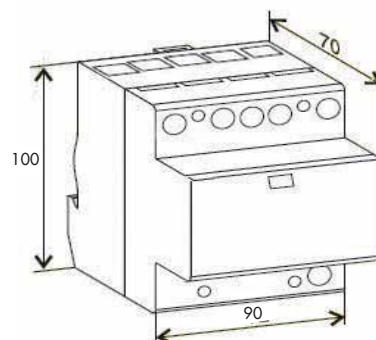
Varistor-lightning arresters/surge arresters designed for indoor mounting as a means of protecting consumer appliances against lightning and transient voltage surges. Can be used for construction systems with I and II classes of protection in accordance with EN/IEC E 8049 (EN/IEC 62305). The surge arrester operates in any position. The application of varistor technology extinguishes mains follow currents. It also ensures that connected devices are stress free and also offers a lower protection set off. No additional gas-filled blow-out spark gaps are required.



Protec PTNC 275/25



Protec PTNS 275/25



Protec PTT 275/25 + H

SURGE ARRESTERS, CLASS I + II (B/C) – 25 kA (10/350)

PROTEC 25 kA (10/350), CLASS I + II (LPL I + II) – continued

TECHNICAL DATA

	PTNC BC 275 (3+0)	PTNS BC 275 (4+0)	PTT BC 275 (3+1)
Standard	IEC61643-1		
Max. continuous voltage AC (DC)	275Vac (350Vdc)		
Nominal discharge current (I_n 8/20) per pole	40kA	40kA	40kA (MOV) 100kA (GDT)
Max. discharge current (I_{max} 8/20) per pole	100kA	100kA	100kA (MOV) 160kA (GDT)
Impulse current (I_{imp} 10/350) per pole	25kA	25kA	25kA (MOV) 100kA (GDT)
Specific energy per pole	156kJ/Ω	156kJ/Ω	156kJ/Ω (MOV) 2,5MJ/Ω (GDT)
Charge per pole	12,5As	12,5As	12,5As (MOV) 50As (GDT)
Protection level U_p	<1,4kV (at I_n) <1,1kV (at I_{imp})	<1,4kV (at I_n) <1,1kV (at I_{imp})	<1,4kV (at I_n) (MOV) <1,1kV (at I_{imp}) (MOV)
Response time	<25ns	<25ns	<25ns (MOV) <100ns (GDT)
Follow current	-	-	>100A _{RMS}
Back-up fuse	max. 250A gL/gG	max. 250A gL/gG	max. 250A gL/gG
Short-circuit withstand current	25kA / 50Hz	25kA / 50Hz	25kA / 50Hz
Protection	Thermal protection	Thermal protection	Thermal protection
Terminal screw torque	max. 4,5Nm	max. 4,5Nm	max. 4,5Nm
Temperature range	-40°C - +80°C	-40°C - +80°C	-40°C - +80°C
Terminal cross section	35mm² (solid) / 25mm² (stranded)	35mm² (solid) / 25mm² (stranded)	35mm² (solid) / 25mm² (stranded)
Degree of protection	IP20	IP20	IP20
Housing material	Thermoplastic; ext. degree UL94 V-0	Thermoplastic; ext. degree UL94 V-0	Thermoplastic; ext. degree UL94 V-0
Dimensions DIN43880	3TE	4TE	5TE
Art.No. (without remote contact)	IS211330	IS211340	IS211311

DESCRIPTION	LIGHTING PROTECTION LEVEL	SPD-CLASS	ORDER NO.
Protec PTNC BC 275	LPL I + II	Testclass I + II	IS211330
Protec PTNC BC 275 + H	LPL I + II	Testclass I + II	IS211331
Protec PTNS BC 275	LPL I + II	Testclass I + II	IS211340
Protec PTNS BC 275 + H	LPL I + II	Testclass I + II	IS211341
Protec PTT BC 275	LPL I + II	Testclass I + II	IS211311
CU-Busbar (SPD-FI) TNS (not useable for Protec TT system)			IS050019
CU-Busbar (SPD-FI) TNC			IS050020

COMBTEC 12,5 kA (10/350), CLASS I + II (LPL III + IV)



IS211230

SCHRACK-INFO

The Schrack-Combttec series has been developed to protect against partial direct and indirect discharges. It is intended to provide lightning protection level III and IV (protection zone 0A to 1) according to IEC62305.

This series is tested for testclass I and testclass II according to IEC61643-1 with a maximum impulse current (I_{imp}) of 12,5kA (10/350) per pole and nominal discharge current (I_n) of 20kA (8/20) per pole. The devices are available for maximum continuous current operating voltage (U_c) of 275Vac and 335Vac.

For each path: Class B/C, type of design I/II, type 1/2, EN/IEC-SN 60, part 4, / EN/IEC 61643 approved.

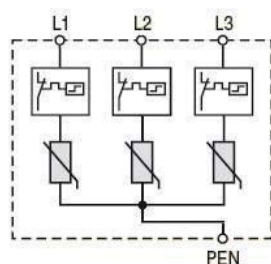
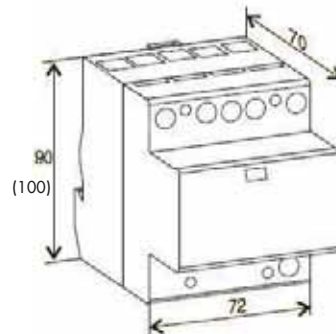
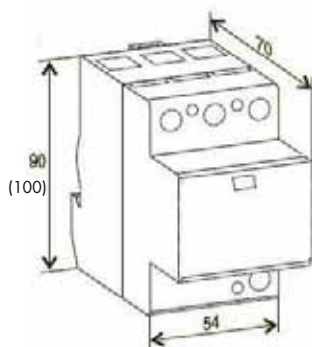
INSTALLATION REQUIREMENTS

National regulations for installation must be followed!

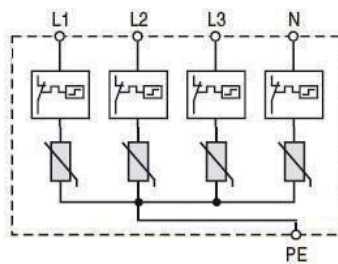
In Austria: EN/IEC 8001-1, EN/IEC E 8049, EN/IEC 62305 or IEC 60364-5-53 A1.

RANGE OF APPLICATION

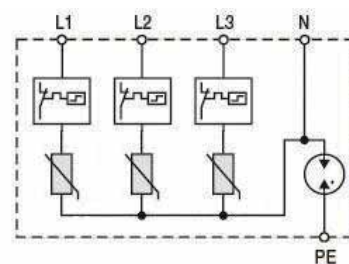
Combined lightning arresters/surge arresters designed for indoor mounting as a means of protecting consumer appliances against lightning and transient surge voltages. Are ideally used for construction systems having protection class III and (IV) according to ÖVE/ÖNORM E 8049. Surge arrester operates in all locations. Coupling VV-SG50-VS surge arresters provide a low protection level in a variety of network systems (TT/IT/TN-C/TN-C-S) with the width of an RCCB of only 4 MW (3+1 switching operation 6 MW) without any mains follow currents.



Combtec CTNC 275/12,5



Combtec CTNS 275/12,5



Combtec CTT 275/12,5

COMBTEC 12,5 kA (10/350), CLASS I + II (LPL III + IV) – continued

TECHNICAL DATA

	CTNC BC 275 (3+0)	CTNS BC 275 (4+0)	CTT BC 275 (3+1)
Standard	IEC61643-1		
Max. continuous voltage AC (DC)	275Vac (350Vdc)		
Nominal discharge current (I_n 8/20) per pole	20kA	20kA	20kA (MOV) 50kA (GDT)
Max. discharge current (I_{max} 8/20) per pole	50kA	50kA	50kA (MOV) 100kA (GDT)
Impulse current (I_{imp} 10/350) per pole	12,5kA	12,5kA	12,5kA (MOV) 50kA (GDT)
Specific energy per pole	39kJ/Ω	39kJ/Ω	39kJ/Ω (MOV) 625kJ/Ω (GDT)
Charge per pole	6,25As	6,25As	6,25As (MOV) 25As (GDT)
Protection level U_p	<1,4kV (at I_n) <1,0kV (at I_{imp})	<1,4kV (at I_n) <1,0kV (at I_{imp})	<1,4kV (at I_n) (MOV) <1,0kV (at I_{imp}) (MOV)
Response time	<25ns	<25ns	<25ns (MOV) <100ns (GDT)
Follow current	-	-	>100A _{RMS}
Back-up fuse	max. 250A gL/gG	max. 250A gL/gG	max. 250A gL/gG
Short-circuit withstand current	25kA / 50Hz	25kA / 50Hz	25kA / 50Hz
Protection	Thermal protection	Thermal protection	Thermal protection
Terminal screw torque	max. 4,5Nm	max. 4,5Nm	max. 4,5Nm
Temperature range	-40°C - +80°C	-40°C - +80°C	-40°C - +80°C
Terminal cross section	35mm ² (solid) / 25mm ² (stranded)	35mm ² (solid) / 25mm ² (stranded)	35mm ² (solid) / 25mm ² (stranded)
Degree of protection	IP20	IP20	IP20
Housing material	Thermoplastic; ext. degree UL94 V-0	Thermoplastic; ext. degree UL94 V-0	Thermoplastic; ext. degree UL94 V-0
Dimensions DIN43880	3TE	4TE	5TE
Art.No. (without remote contact)	IS211230	IS211240	IS211210

DESCRIPTION	LIGHTING PROTECTION LEVEL	SPD-CLASS	ORDER NO.
Combtec CTNC BC 275	LPL III + IV	Testclass I + II	IS211230
Combtec CTNC BC 275 + H	LPL III + IV	Testclass I + II	IS211231
Combtec CTNS BC 275	LPL III + IV	Testclass I + II	IS211240
Combtec CTNS BC 275 + H	LPL III + IV	Testclass I + II	IS211241
Combtec CTT BC 275	LPL III + IV	Testclass I + II	IS211210
Combtec CTT BC 275 + H	LPL III + IV	Testclass I + II	IS211211
Combtec CTNC BCD 275 + H	LPL III + IV	Testclass I + II + III	IS211431
Combtec CTNS BCD 275 + H	LPL III + IV	Testclass I + II + III	IS211441
Combtec CTT BCD 275 + H	LPL III + IV	Testclass I + II + III	IS211411
CU-Busbar (SPD-FI) TT, TNS			IS050019
CU-Busbar (SPD-FI) TNC			IS050020

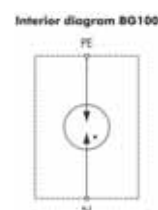
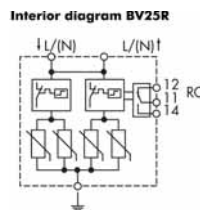
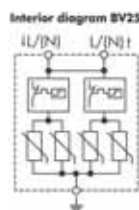
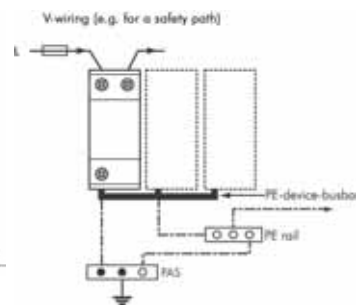
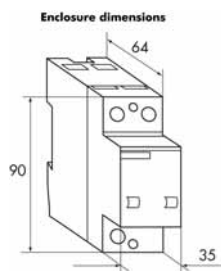
■ SURGE ARRESTER B/C, PROTEC 25 kA SERIES



ISO10091



ISO10092



BV 25-275* BVR 25-275*

BG100

Varistor

N/PE Gas surge arrester

Continuous voltage U_c	275 VAC
Nominal discharge current I_n (8/20 μ s)	40 kA
Max. discharge current I_{max} (8/20 μ s)	100 kA
Lightning impulse current I_{imp} (10/350 μ s)	25 kA
Protection level U_p at I_n	≤ 1600 V
Protection level U_p of I_{imp}	≤ 1250 V
Protection level U_p (gas surge arrester)-(1,2/50 μ s)	—
Response time t_a	< 25 ns

255 VAC

100 kA

150 kA

100 kA

—

—

≤ 1200 kV

< 100 ns

Max. permissible ambient temperature

-40° C up to +80° C

Degree of protection open/installed

IP 20/40

Max. permissible fuse:

250 AgL

Short-circuit protection with max. fuse

25 kA / 50 Hz

Enclosure material

Thermoplastic, self-extinguishing

Max. terminal cross section

25/35 mm²

DIN-rail mountable

both sides, top terminals for V wiring

Model with auxiliary contact

BVR 25-275/335

Auxillary contacts

250 V AC/0,5 A, max. 1,5 mm²

*) Us N-/PE surge arrester ISO 10094 when using the 3+1 switching operation.

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Protec BV 25 kA EN/IEC ¹⁾	35x90x64	ISO10091
Protec BVR 25 kA +H IEC ²⁾	35x90x64	ISO10195
Lightning arrester 100 kA	-	ISO10094
CU-Busbar, 3x f. TN-C network	-	ISO10173
CU-Busbar,, 4x f. TN-S TT network	-	ISO10174

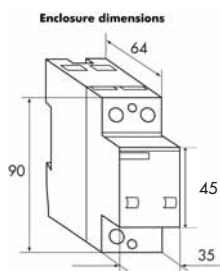
■ SURGE ARRESTER CLASS B/C, COMBTEC SERIES, 12,5 kA



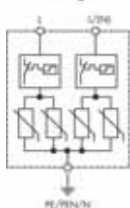
ISO10081



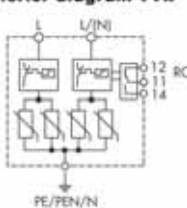
ISO10083



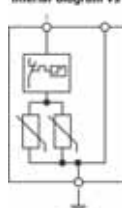
Interior diagram VV



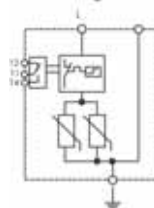
Interior diagram VVR



Interior diagram VS



Interior diagram VSR



	VV 275*	VS275*
	Varistor	Varistor
Continuous voltage U_c	275 VAC	275 V AC
Nominal discharge current I_n (8/20 μ s)	40 kA	40 kA
Max. discharge current I_{max} (8/20 μ s)	80 kA	80 kA
Lightning impulse current I_{imp} (10/350 μ s)	12.5 kA	12.5 kA
Protection level U_p at I_n	$\leq 1,8$ kV	$\geq 1,8$ kV
Protection level U_p at I_{imp}	$\leq 1,2$ kV	$\leq 1,2$ kV
Response time t_a	< 25 ns	< 25 ns
Max. permissible ambient temperature	-40° C up to +80° C	
Degree of protection open/installed	IP 20/40	
Max. permissible fuse:	250 AgL	
Short-circuit protection with max. fuse 25 kA/50Hz	25 kA/50Hz	
Enclosure material	Thermoplastic, self-extinguishing V0	
Max. terminal cross section	25/35 mm ²	
DIN-rail mountable	on both sides	
Model with auxiliary contact	VVR 335	VSR 335
Auxillary contacts	250 V AC/0,5 A, max. 1,5 mm ²	

*) Use N/PE surge arrester ISO10084 when using the 3+1 switching operation.

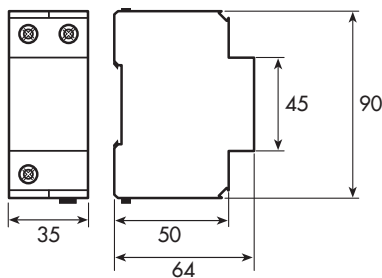
DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Combtec VS 12,5 kA IEC 1)	35x90x64	ISO10183
Combtec VV 12,5 kA IEC 1)	35x90x64	ISO10181
Combtec VSR 12,5 kA+H IEC 1)	35x90x64	ISO10187
CU-Busbar, 2x f. TN-C network	35x90x64	ISO10172
Lighting arrester N/PE-50 kA, SG50	35x90x64	ISO10084
CU-Busbar, 3x f. TN-C network	-	ISO10173
CU-Busbar, 4x f. TN-S TT network	-	ISO10174

1) ÖVE/ÖNORM design according to ÖVE/ÖNORM 8001-1, section 18. Must be implemented by law in Austria.

■ LIGHTNING ARRESTER 25 / 60 kA WITH SPARK GAP, POWERTEC SERIES

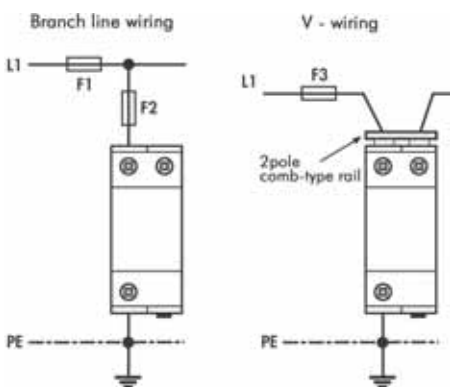
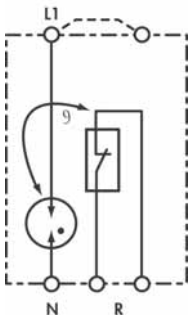


ISO10111/ISO10112/ISO10113/ISO10114



Drawing with
remote contact R

R 230VAC/0,5A



If conductor safety fuse (F1) ≤ 160 A is used,
there is no need for the back-up fuse (F2).

■ SCHRACK-INFO

- Level of protection ≤ 2,5 kV
- No blow-out opening, hence no need for spark gaps
- Optional relay contact
- Test current 25 kA, 60 kA (10/350μs)
- High Insulation resistance $R_{isol} > 10^{10} \Omega$
- Rated voltage U_c : 335 V~
- Nominal operating voltage U_n : 230 / 400 V AC 50/60 Hz
- Response time < 50 ns
- Max. permissible conductor/back-up fuse F2 with single drop 160 A gL
- Max. permissible conductor/back-up fuse F3 with V-wiring: 100 A gL
- Operating temperature range: -40° C up to +85° C
- Max. cable cross-section:
multi-wired 50 mm² / fine-wired 35 mm²
- Enclosure material / colour:
Polycarbonate (halogen-free)/ grey RAL 7035
- Degree of protection: IP 20
- Mounted on DIN-rail 35 mm accord. to EN 50 022

■ CERTIFICATIONS

tested in accordance with E DIN VDE 0675-6-11/98-A1 and EN 61643-11 / IEC 61643-1 and ÖVE 8001-1.
Classification accord. to class B/C, I + II, T1/T2

■ PRODUCT DESCRIPTION:

POWERTEC 25, 60 (R) with a low protection level is a selective, two-level T1 + T2 (B+C) surge arrester, which combines protection classes I+II in a single device. This means no decoupling elements are required for cable lengths under 10 m. Using hermetically sealed spark gaps filled with inert gas means that the requirement of a high discharge capacity is fulfilled while maintaining functional stability. The first level (non-linear resistor type arrester) discharges impact currents (up to 4kA) without causing any mains follow-currents. When a pre-defined impact current (up to 4 kA) has been exceeded, the second level (the hermetically sealed spark gap filled with inert gas) engages for the less common discharge of high-energy transients up to 25 kA / 60 kA (10/350 μs) which may arise during close-up or direct lightning strikes. As an option, a potential-free relay contact (R) with terminal is included in the enclosure- to aid signalling.

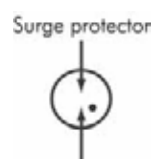
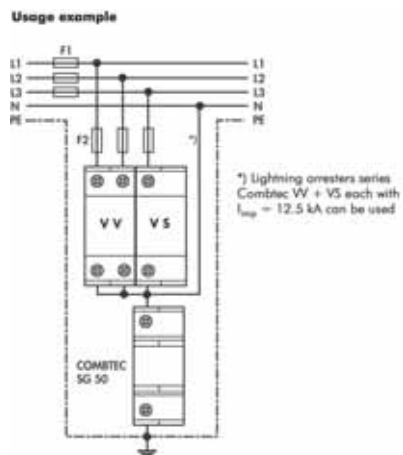
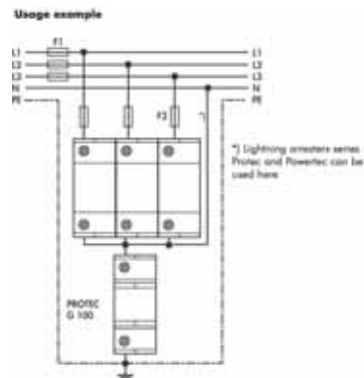
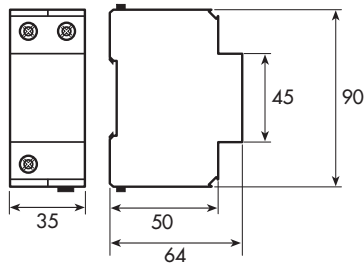
V-wiring can be easily installed using the unlabelled terminal (the one not connected with the L/N terminal in the device) using the optional 2-pole comb-type rail.

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Lightning arrester, 25 kA, Class I/II, B/C	35x90x64	ISO10111
Lightning arrester, 25 kA+H, Class I/II, B/C	35x90x64	ISO10112
Lightning arr. 60 kA, Class I/II, B/C	35x90x64	ISO10113
Lightning arr. 60 kA+H, Class I/II, B/C	35x90x64	ISO10114
CU-Busbar, 3x f. TN-C network	-	ISO10173
CU-Busbar, 4x f. TN-S, TT network	-	ISO10174

■ N/PE LIGHTNING ARRESTER, 50 kA / 100 kA (10/350) μ S, SG50, G100



ISO10084/ISO10094



■ SCHRACK-INFO

- N/PE Spark-gap based lightning arrester, for use in 3+1 switching operation
- No leakage current
- No blow-out opening, hence no need for spark gaps
- Test current 50 kA / 100 kA (10/350 μ s) meeting lightning protection class III, (IV)
- High Insulation resistance $R_{isol} > 10^{10} \Omega$
- Level of protection < 1.5 kV
- High follow-current reset capability
- Multi-functional lift terminal for conductor and comb-type rail
- Nominal mains and operating voltage U_n : 230 / 400 V AC 50/60 Hz
- Rated voltage U_n : 225 V AC 50/60 Hz
- Response time < 50 ns
- Follow-current reset capability at U_c (50/60Hz) up to 100 Aeff / 200 Aeff
- Short-circuit protection with max. back up fuse 160A gL: 25 kAeff
- Operating temperature range: -40° C up to $+85^\circ$ C
- Max. cable cross-section: multi-wired 50 mm² / fine-wired 35 mm²
- Enclosure material / colour: Polycarbonate (halogen-free)/ grey RAL 7035
- Degree of protection: IP 20
- Mounted on top-hat rail 35mm accord. to EN 50022

■ CERTIFICATIONS

Test in accordance with EN 61643-11 & IEC 61643-1, ÖVE 8001-1

■ RANGE OF APPLICATION

SG50 used in combination with COMBTEC VV, VS, G100 in combination with PROTEC, POWERTEC in 3 + 1 switching operation is used to protect against direct lightning strikes in external overhead lines or external lightning arrester in the TT system. See graphic for application.

■ PRODUCT DESCRIPTION:

SG 50, G 100 are 1-pole N/PE lightning arresters with protection class I+II+III (B+C+D) for protection against partial lightning currents from entering electrical installations. The device is used for equipotential bonding of lightning protection in the 400/230 VAC TT system, as a N/PE conductor with 3 + 1 switching operation.

It is able to deflect lightning currents up to 50 kA / 100 kA (10/350 μ s) with a charge of 50 As, and has a low protection level, $U_p < 1,5$ kV.

The use of a hermetically-sealed high-performance spark-gap filled with inert gas makes use of a dangerous blow-out opening superfluous.

■ INSTALLATION- AND OPERATING NOTES:

A gap need no longer be enforced between neighbouring cables and components to prevent arcing faults. Given that this arrester is required to deflect high lightning currents, we recommend the use of single-wire Cu conductors upwards of 16 mm². The entire length of the connection must not exceed 0.5 m. If this cannot be ensured, install the PE conductor with an extra terminal V-formed where possible.

■ N/PE LIGHTNING ARRESTER, 50 kA / 100 kA (10/350) μ S, SG50, G100 – continued

■ CAUTION:

The SG 50, G 100 must only be installed by specialist electricians. All valid norms must be observed during mounting and installation. This device must only be used as a N/PE aggregate-lightning arrester in the 3+1 switching operation, appropriate to the lightning protection class.

■ FAULT DETECTION

When required, this arrester can also be tested using an insulation meter. When Risol 0.5 to 1 M Ω , the arrester must be replaced at the next opportunity, when Risol < 0.5 M Ω it must be replaced immediately.

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
N/PE lightning arrester, 50 kA, SG50,	35x90x64	IS010084
N/PE lightning arrester, 100kA G100	35x90x64	IS010094
CU-Busbar, 4x f. TN-S TT network	-	IS010174

SURGE ARRESTERS, CLASS II (C)

PLUG-IN SURGE ARRESTER, VARTEC VVP, DVP SERIES



7N5B4976



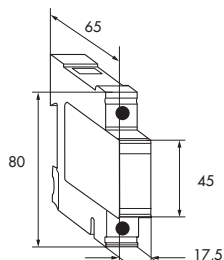
7N5B4990



7N5B4992

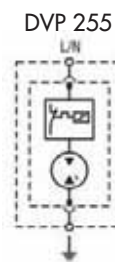
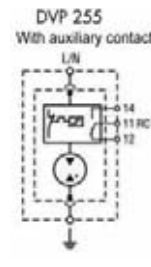
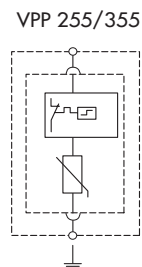
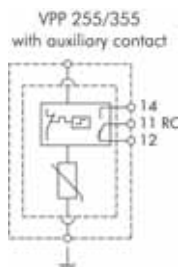


7N5B4994



SCHRACK-INFO

Class C, design type II, type 2, meets ÖVE-SN 60, part 4 & EN/IEC 61643



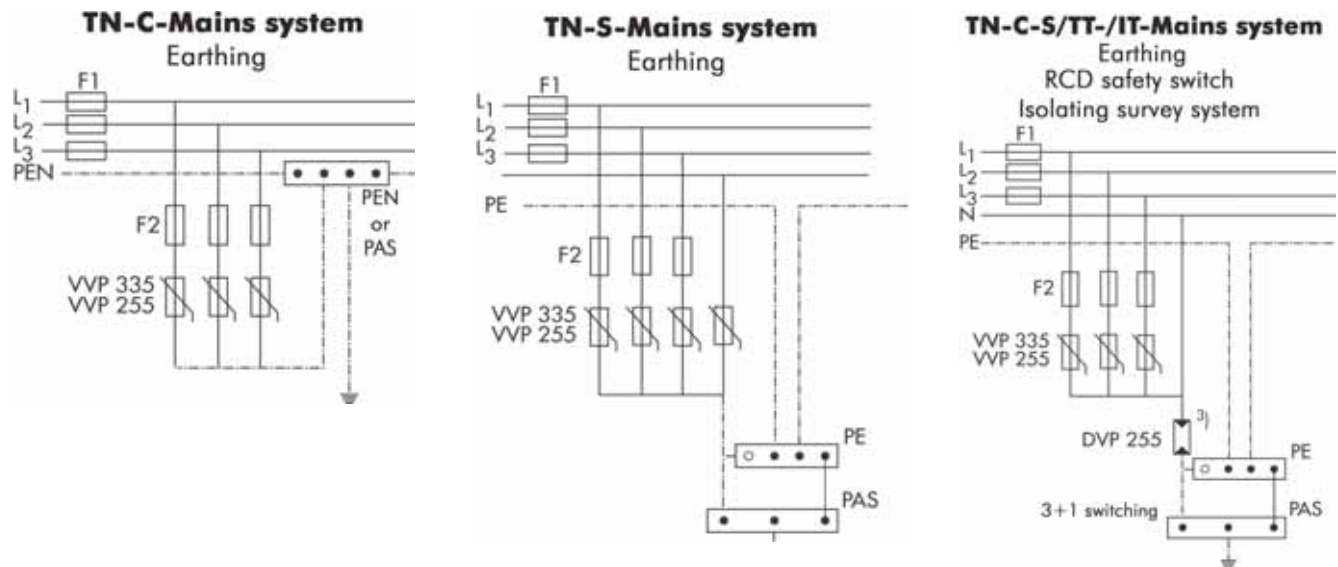
Continuous voltage U_c
 Nominal discharge current I_n (8/20 μ s)
 Max. discharge current I_{max} (8/20 μ s)
 Protection level U_p at I_n
 Response time t_a
 Max. permissible ambient temperature
 Degree of protection open/installed
 Max. permissible fuse:
 Max. terminal cross section
 Auxiliary contact (optional)
 DIN-rail mountable
 Max. terminal torque

VVP 255
 Varistor
 255 VAC
 15 kA/20 kA
 30 kA/40 (30) kA
 $\leq 1,3/1,4$ kV
 < 25 ns

VVP 335
 Varistor
 335 VAC
 15 kA/20 kA
 30 kA/40 (30) kA
 $\leq 1,4$ kV/1,65 kV
 < 25 ns
 -40° C up to $+80^\circ$ C
 IP 20/40
 100 A
 16/25 mm²
 250 V AC/0,5 A, max. 1,5 mm²
 on both sides
 2,5 - 3,0 Nm (main terminal)

DVP 255 ²⁾
 Gas-filled surge arrester
 255 VAC
 20 kA
 40 kA
 $\leq 1,2$ kV
 < 100 ns

PLUG-IN SURGE ARRESTER, VARTEC VVP, DVP SERIES – continued



TIPS & TRICKS

Observe the respective national regulation for installation! E.g. ÖVE 8001-1 or IEC 60361-5-53 A1. The neutral contactor does not require a surge protection device (in accordance with the TN-C switching arrangement) if the protective multiple earthing connection is set up where the surge protection device is integrated.

The connection line to the equipotential bonding rail or PE rail should be as short as possible and without looping. All surge devices must be unplugged during insulation measurement.

The VVP335 surge arrester has been designed for mains voltages of 3~400/230 V in accordance with ÖVE 8001-1. According to IEC 60364-5-53 A1, the VVP255 surge arrester is for export only.

RANGE OF APPLICATION

Plug-in surge arresters designed for indoor mounting as a means of protecting consumer appliances against lightning and transient voltage surges. The surge arrester operates in any position. Terminal assignment for the mains and PE/PEN-conductor is freely definable.

DESCRIPTION	ORDER NO.
C-arrester module 15 kA ÖVE VVP335	IS010078
C-arrester module 20 kA ÖVE VVP335	IS010079
C-arrester module 15 kA IEC VVP255 ¹⁾	IS010076
C-arrester module 20 kA IEC VVP255 ¹⁾	IS010077
N-PE surge arrester Module 20kA DVP255 ²⁾	IS010075
Base, 1-pol. for VVP	IS010071-A
Base, 1-pol. for VVP +H	IS010069-A
Base, 1-pol. for DVP	IS010070-A
Base, 1-pol. for DVP +H	IS010068-A
Base 3+1 operation	IS010064-A
Base 3+1 operation +H	IS010065-A
Busbar, 3x, insulated, for TN-C system	IS050103
Busbar, 4x, insulated, for TN-S, TT system	IS050104
Busbar, 5x, insulated, for N arrangement	IS050105

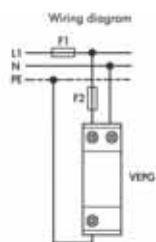
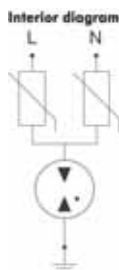
¹⁾ ÖVE design according to ÖVE 8001-1, section 18. Must be implemented by law in Austria.

²⁾ As specified in ÖNORM/ÖVE E8001-1, the 20kA requirement still applies to the surge arrester between Neutral and the main earthing rail (N/PE conductor). (PAS) or PE-rail, even in cases where surge protection devices were installed with greater nominal discharge currents, e.g. 15 kA or 20 kA between the external conductors and the Neutral conductor.

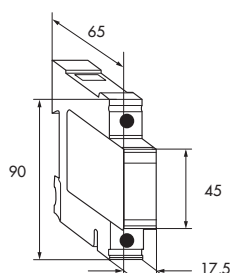
VARTEC SURGE ARRESTER CLASS C, VEPG SERIES FOR SINGLE-PHASE OPERATION, 230 VAC, 1 MODUL WIDE



ISO10073



F2 only necessary when F2 > 35 A/gL



SCHRACK-INFO

Class C, design type II, type 2,
meets ÖVE 60, part 4 & EN/IEC 61643

TECHNICAL DATA

- Space saving - only 1 module wide
- Ideal for retrofits (renovating old buildings)
- D surge arrester, protection level
(U_p 950 V at 5 kA I_n (8/20))
- High back-up fuse possible
- National regulations for installation must be followed!

RANGE OF APPLICATION

Surge arresters designed for indoor mounting as a means of protecting consumer appliances against lightning and transient voltage surges. The surge arrester operates in any position. The connection line to the equipotential bonding rail or PE rail should be as short as possible and without looping. When measuring insulation, the surge arrester is disconnected from PE by the gas-filled spark gap.

- Continuous voltage U_c
- Nominal discharge current I_n (8/20 μ s)
 I_{max} (8/20 μ s)
- Level of protection U_p at I_n
- Response time t_a
- Max. permissible ambient temperature
- Degree of protection open/installed
- Max. permissible fuse:
- Max. terminal cross section
- Auxiliary contact (optional)

VEPG
Varistor + gas surge arrester
335 VAC
10 kA / Pol
20 kA / Pol
 $\leq 1,6$ kV at 5 kA 950 V
< 100 ns
-40° C up to +80° C
IP 20/40
100 A
L, N = 6 mm²; PE = 25/35 mm²
250 VAC / 0,5 A; max. 1,5 mm²

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
C surge arrester, 10 kA, 335 V, 1-phase, 1 modul wide	17,5x90x65	ISO10073
Base for VMG / VEPG	-	ISO10201
Base + H for VMG / VEPG	-	ISO10202

PLUG-IN SURGE ARRESTER, D CLASS, VMG SERIES FOR SINGLE PHASE OPERATION, 230 V, 1 MODUL WIDE, DIN-RAIL



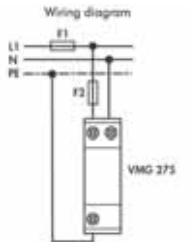
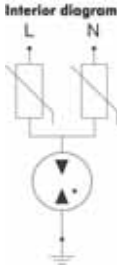
ISO10200



ISO10201



ISO10200



F2 only necessary when F2 > 63 A/gL

SCHRACK-INFO

Class D, design type II, type 2,
meets ÖVE-SN 60, part 4 & EN/IEC 61643

TECHNICAL DATA

- National regulations for installation must be followed!
- Space saving - only 1 module wide
- Plug-in module
- N/PE - spark gap already fitted
- Low level of protection
- High back-up fuse possible

RANGE OF APPLICATION

D class surge arresters designed for indoor mounting as a means of protecting consumer appliances against lightning and transient voltage surges. The surge arrester operates in any position. The connection line to the equipotential bonding rail or PE rail should be as short and possible and without looping. When measuring insulation, the surge arrester is disconnected from PE by the gas-filled spark gap. Only for use in TN systems.

- Continuous voltage U_c
- Nominal discharge current I_n (8/20 μ s)
 U_{oc} (1,2/50)
- Protection level U_p at I_n
- Response time t_a
- Max. permissible ambient temperature
- Degree of protection open/installed
- Max. permissible fuse:
- Max. terminal cross section
- Auxiliary contact (optional)
- DIN-rail mountable

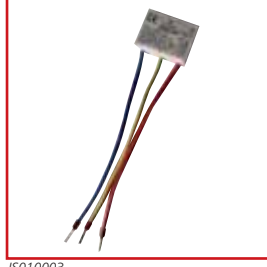
VMG 275
Varistor + gas surge arrester
275 VAC
3 kA / Pol
6 kV / Pol
 ≤ 0.9 V
< 100ns
-40° C up to +80° C
IP 20/40
63 A
L, N = 6 mm²; PE = 25/35 mm²
250 VAC / 0,5 A; max. 1,5 mm²
on both sides

DESCRIPTION	ORDER NO.
D surge arrester Module 3kA, 1 MW	ISO10200
Base for VMG / VEPG	ISO10201
Base + H for VMG / VEPG	ISO10202

PLUG SOCKETS – INSERTABLE PROTECTION MODULE

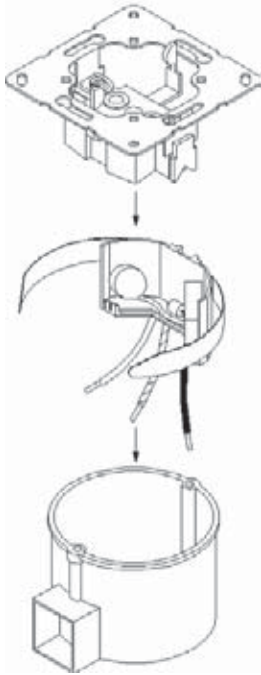


ISO10002



ISO10003

Mounting indication



SCHRACK-INFO

- Requirement class D
- Rated discharge current (8/20 μ s) I_{sn} : 2.5 kA
- Rated voltage U_c : 250 V~ (50Hz)
- Max. load circuit current I_{max} : 16 A
- Connection type: 3 wire
- Response time: L - N < 25 ns
- Short-circuit protection: 6 kA (back-up fuse 16 AgL)
- Temperature range: -20° C to 60° C

TECHNICAL DATA

For the equipping of new and retrofitting of existing earthed sockets. Can be integrated in flush-mounted enclosure boxes. Through-wiring model enables other plug sockets to be connected.

RANGE OF APPLICATION

The protective device is primarily designed for fusing sensitive electronic devices mains-side, and is suitable for universal application in flush-mounted modular device- and enclosure sockets. This device allows you to equip already existing flush-mounted plug sockets with surge protection. The protective device is clamped into a FM- device insert using a spring clip after the L, N and PE conductors are connected to the plug socket- on the device side. Afterwards, the plug socket is mounted as usual.

This enables the user not only to equip plug sockets to be installed for the first time but also to retrofit existing plug sockets, regardless of individual models of different manufacturers. The switching operation of the device provides parallel protection. This ensures that supply to the protected device- mains-side is maintained even if the protective device is damaged. Fault indication is provided by a sensor integrated in the device. This indicates when protection is no longer provided, in which case the protective device should be replaced by an electrician as soon as possible.

DESCRIPTION	ORDER NO.
D Surge arrester for plug socket, 2,5 kA, through-wiring	ISO10002
D Surge arrester for plug socket, 3 kA (I_n), 16 A	ISO10003

TOP-TECHNIC



CONTROL UNITS

TOP-TECHNIC



SWITCH DISCONNECTORS & CAM SWITCHES

TOP-TECHNIC



EMERGENCY STOP MAIN SWITCHES

TOP-TECHNIC



MAIN SWITCHES

TOP-TECHNIC



CAM SWITCHES FOR PANEL MOUNTING

TOP-TECHNIC



CAM SWITCHES FOR DIN RAIL

SWITCHES AND CONTROLS

CONTENTS

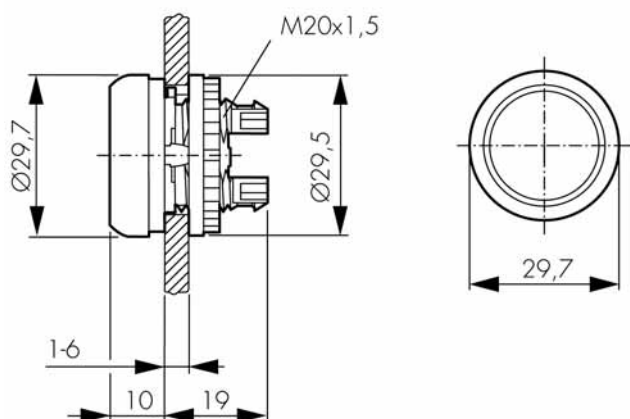
CONTROL UNITS	Page 116
SWITCH DISCONNECTORS & CAM SWITCHES	Page 128
EMERGENCY STOP MAIN SWITCHES	Page 130
MAIN SWITCHES.....	Page 131
CAM SWITCHES FOR PANEL MOUNTING	Page 132
CAM SWITCHES FOR DIN RAIL	Page 135

CONTROL UNITS

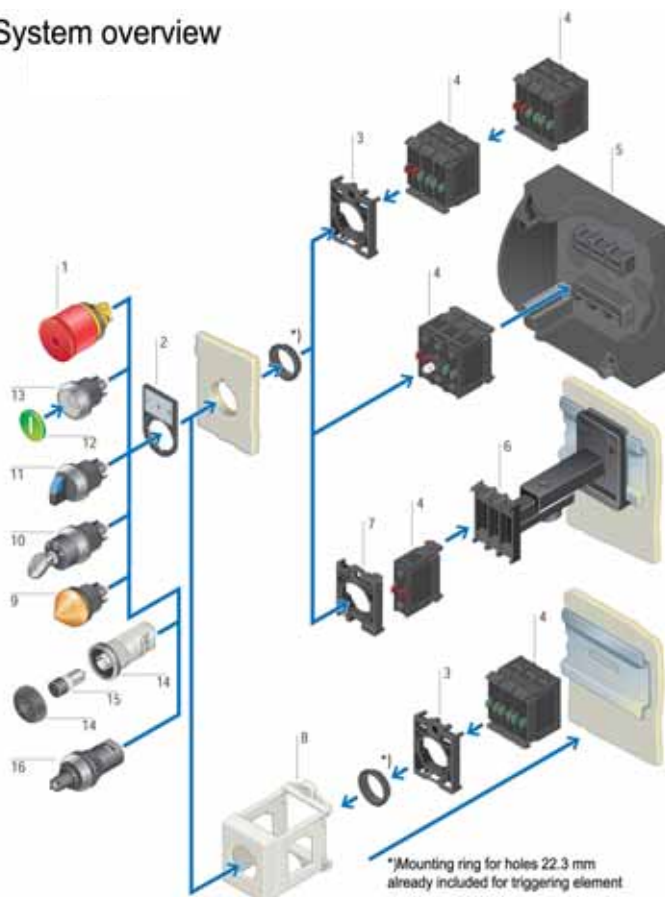


CONTROL UNITS

Triggering and signalling indicators



System overview



SCHRACK-INFO

- Integrated LED technology
 - 100,000 h service life
 - 3 LEDs for 5 colours
- Cage clamp terminals for contact and LED elements
- Degree of protection:
 - IP 67/69 K for pushbuttons and illuminated pushbuttons and indicator lights, emergency stop buttons, mushroom buttons
 - IP 66 for two-button stations, Selector and key-operated switches
- Laser labeling
 - Abrasion proof
 - Database (1000 symbols)
 - Customer-specific symbols fitted to size
 - Customizable text
 - 1. 8 characters
 - 2. 10 characters
 - 3. 8 characters
 - 5mm letter height and one row with 5 characters
- Programmable latching and momentary function
- Diameter 22,5 mm

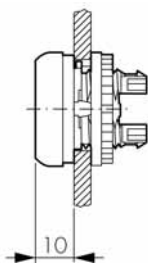
- Emergency stop buttons
- Label holder
- Adapter
- Contact elements
- Encapsulation
- Telescopic clip
- Centering adapter
- Top-hat adapter
- Indicator light
- Key-buttons
- Option buttons
- Plates/Lenses
- Pushbuttons
- Acoustic indicator
- Sommer
- Potentiometer

*Mounting ring for holes 22.3 mm already included for triggering element

PUSHBUTTONS



MM216605



SCHRACK-INFO

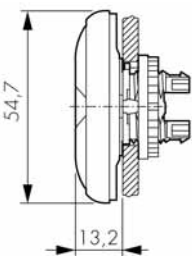
- IP 67, 69K
- Diameter 22,5 mm

DESCRIPTION	ORDER NO.
SPRING – RETURN	
Spring – return, black	MM216590
Spring – return, white	MM216592
Spring – return, red	MM216594
Spring – return, green	MM216596
Spring – return, yellow	MM216598
Spring – return, blue	MM216600
Spring – return, red “0”	MM216605
Spring – return, green “1”	MM216607
Spring – return, w/o plate	MM216602
STAY – PUT	
Stay – put, black	MM216613
Stay – put, red	MM216617
Stay – put, green	MM216619
PLATES FOR FLAT PUSHBUTTONS	
Plate for pushbuttons, black “arrow”	MM218173

DOUBLE-PUSHBUTTONS WITH INDICATOR LENS



MM216700



SCHRACK-INFO

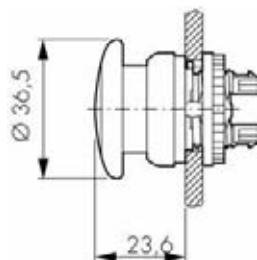
- With indicator light central light attachment, white
- LED can also be refitted later
- IP 66
- Diameter 22,5 mm

DESCRIPTION	ORDER NO.
Spring – return, illuminated, green/red	MM216698
Spring – return, illuminated, green/red “1/0”	MM216700
Spring – return, illuminated, green/red, “start/stop”	MM216702
Spring – return, illuminated, white/black	MM216704
Spring – return, illuminated, white/red, “1/0”	MM216706
Spring – return, illuminated, black/black, arrows	MM216710

MUSHROOM PUSHBUTTONS



MM216714



SCHRACK-INFO

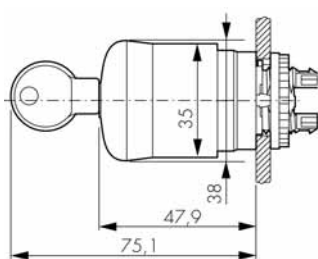
- IP 67, 69K
- Diameter 22,5 mm

DESCRIPTION	ORDER NO.
SPRING – RETURN	
Spring – return, black	MM216712
Spring – return, red	MM216714
Spring – return, green	MM216716
STAY – PUT	
Stay – put, black	MM216743
Stay – put, red	MM216745
PLATE FOR MUSHROOM BUTTON	
Plate, mushroom button f. red	MM216437

EMERGENCY STOP BUTTONS



MM216878



SCHRACK-INFO

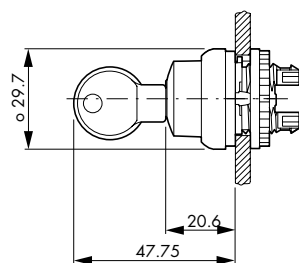
- IP 67, IP 69K
- Tamper-proof in accordance with EN418
- Pull to reset
- Diameter 22,5 mm

DESCRIPTION	ORDER NO.
Emergency stop button	MM216876
Emergency stop button, illuminated	MM216878
Emergency stop key-operated button	MM216879

KEY-OPERATED BUTTONS



MM216900



SCHRACK-INFO

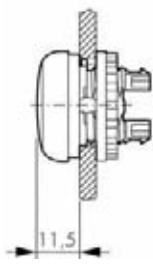
- IP 66
- Diameter 22,5 mm

DESCRIPTION	ORDER NO.
2 positions, spring – return, 40°	MM216881
2 positions, stay – put, 60°	MM216887
3 positions, spring – return, 40°	MM216894
3 positions, stay – put, 60°	MM216900
Key, MS1 standard	MM216416

INDICATOR LIGHT, FLUSH



MM216771



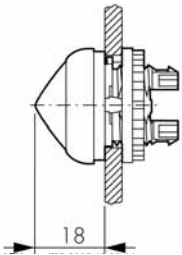
- SCHRACK-INFO
- IP 67, 69K
 - Diameter 22,5 mm
 - LED technology

DESCRIPTION	ORDER NO.
Flush, white	MM216771
Flush, red	MM216772
Flush, green	MM216773
Flush, yellow	MM216774
Flush, blue	MM216775
Flush, empty	MM216776

INDICATOR LIGHT, CONICAL



MM216779



- SCHRACK-INFO
- IP 67, 69K
 - Diameter 22,5 mm
 - LED technology

DESCRIPTION	ORDER NO.
Conical, white	MM216778
Conical, red	MM216779
Conical, green	MM216780
Conical, yellow	MM216781
Conical, blue	MM216782

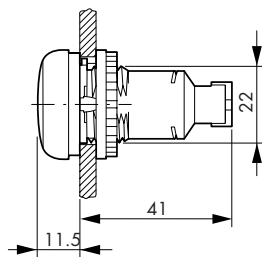
ACOUSTIC INDICATOR IP 40



MM216913



MM21691F



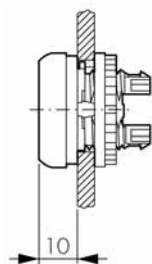
- SCHRACK-INFO
- 83dB
 - 18 -30 V AC/DC
 - Diameter 22,5 mm
 - 100% ED

DESCRIPTION	ORDER NO.
Acoustic indicator, empty	MM229015
Buzzer, continuous tone, 24 V AC/DC	MM229025
Buzzer, pulse tone, 24 V AC/DC	MM229028

ILLUMINATED PUSHBUTTONS, FLUSH



MM216938



SCHRACK-INFO

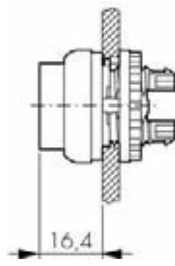
- IP 67, 69K
- Diameter 22,5 mm

DESCRIPTION	ORDER NO.
SPRING – RETURN	
Spring – return, white	MM216922
Spring – return, red	MM216925
Spring – return, green	MM216927
Spring – return, yellow	MM216929
Spring – return, blue	MM216931
Spring – return, red “0”	MM216936
Spring – return, green “1”	MM216938
Spring – return, white “0”	MM216940
Spring – return, white “1”	MM216942
Spring – return, w/o plate	MM216933
STAY – PUT	
Stay – put, white	MM216944
Stay – put, red	MM216946
Stay – put, green	MM216948
Stay – put, yellow	MM216950
Stay – put, blue	MM216952
Stay – put, red “0”	MM216957
Stay – put, green “1”	MM216959
Stay – put, white “1”	MM216963
Stay – put, w/o plate	MM216954

ILLUMINATED PUSHBUTTONS, HIGH



MM216975



SCHRACK-INFO

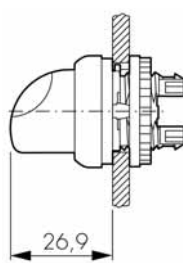
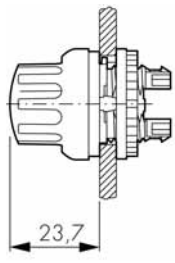
- IP 67, 69K
- Diameter 22,5 mm

DESCRIPTION	ORDER NO.
SPRING – RETURN	
High, spring – return, white	MM216965
High, spring – return, red	MM216967
High, spring – return, green	MM216969
High, spring – return, yellow	MM216971
High, spring – return, blue	MM216973
High, spring – return, red "0"	MM216975
High, spring – return, green "1"	MM216977
High, spring – return, white "1"	MM216981
LENSES FOR ILLUMINATED PUSHBUTTONS	
Lense, illuminated button f. red	MM216442
Lense, illuminated button f. green	MM216443
Lense, illuminated button f. yellow	MM216444
Lense, illuminated button f. blue	MM216445
Lense, illuminated button f. individual	MM216446

SELECTOR SWITCHES



MM216865



SCHRACK-INFO

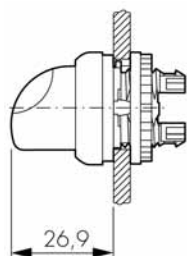
- IP 66
- Diameter 22,5 mm
- Stay – put: 60°
- Spring – return: 40°

DESCRIPTION	ORDER NO.
2 POSITIONS	
2 positions, spring – return, 40°, thumb grip	MM216865
2 positions, stay – put, 60°, thumb grip	MM216867
2 positions, stay – put, 60°, thumb grip	MM216874
2 positions, stay – put, black, 1-0, rotary head	MM216855
3 POSITIONS	
3 positions, spring – return, 40°, thumb grip	MM216870
3 positions, stay – put, 60°, thumb grip	MM216872
3 positions, stay – put, black, 1-0 II, rotary head	MM216863

ILLUMINATED SELECTOR SWITCHES



MM216845



SCHRACK-INFO

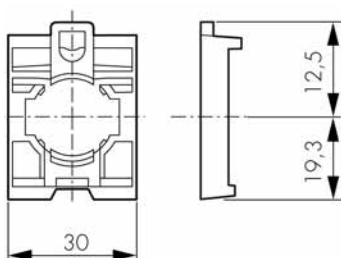
- IP 66
- Diameter 22,5 mm

DESCRIPTION	ORDER NO.
2 POSITIONS, SPRING – RETURN	
2 positions, spring – return, white	MM216812
2 positions, spring – return, red	MM216814
2 positions, spring – return, green	MM216816
2 positions, spring – return, yellow	MM216818
2 POSITIONS, STAY – PUT	
2 positions, stay – put, white	MM216823
2 positions, stay – put, red	MM216825
2 positions, stay – put, green	MM216827
2 positions, stay – put, yellow	MM216829
2 positions, stay – put, blue	MM216831
3 POSITIONS, SPRING – RETURN	
3 positions, spring – return, white	MM216833
3 positions, spring – return, red	MM216835
3 positions, spring – return, green	MM216837
3 positions, spring – return, blue	MM216841
3 POSITIONS, STAY – PUT	
3 positions, stay – put, white	MM216843
3 positions, stay – put, red	MM216845
3 positions, stay – put, green	MM216847
3 positions, stay – put, yellow	MM216849
3 positions, stay – put, blue	MM216851

ADAPTER



MM216374



SCHRACK-INFO

- For front mounting switching and LED elements
- The adapter is required for all control devices which are made up of individual parts. Up to 6 contacts or 1 LED plus a maximum of 4 contacts can be mounted.

DESCRIPTION	ORDER NO.
Adapter (front)	MM216374

SWITCHING ELEMENTS



MM216378

SCHRACK-INFO

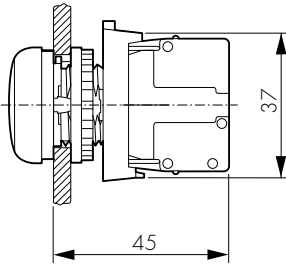
- Version front to mounting onto adaptor or
Version floor for mounting in enclosure and on telescopic clip
- Cage clamp or screw terminals
- Breaking capacity: AC 15,230 V 6 A
DC 13,24 V 3 A

DESCRIPTION	ORDER NO.
SWITCH ELEMENT FOR FRONT MOUNTING	
NO contact front	MM216376
NC contact front	MM216378
NO contact CC front	MM216384
NC contact CC front	MM216385
SWITCH ELEMENT FOR FLOOR MOUNTING	
NO contact floor	MM216380
NC contact floor	MM216382
NO contact CC floor	MM216386
NC contact CC floor	MM216387

LEDS



MM216557



SCHRACK-INFO

- 2 supply voltages: 12 -30 V AC/DC, 85-264 V AC
- Rated current: 12-30 V AC/DC: 8-15 mA, 85-264 V AC:
5-15 mA (Pmax = 0,33 W)
- Diameter 22,5 mm

DESCRIPTION	ORDER NO.
LED FOR FRONT MOUNTING	
LED 12-30 V AC/DC white, front	MM216557
LED 12-30 V AC/DC red, front	MM216558
LED 12-30 V AC/DC green, front	MM216559
LED 12-30 V AC/DC blue, front	MM218057
LED 12-30 V AC/DC white, front CC	MM216569
LED 12-30 V AC/DC red, front CC	MM216570
LED 12-30 V AC/DC green, front CC	MM216571
LED 12-30 V AC/DC blue, front CC	MM218061
LED 85-264 V AC white, front	MM216563
LED 85-264 V AC red, front	MM216564
LED 85-264 V AC green, front	MM216565
LED 85-264 V AC/DC, blue, front	MM218059
LED 85-264 V AC white, front CC	MM216575
LED 85-264 V AC red, front CC	MM216576
LED 85-264 V AC green, front CC	MM216577
LED 85-264 V AC/DC, blue, front CC	MM218063

LEDS – continued

DESCRIPTION	ORDER NO.
LED FOR FLOOR MOUNTING	
LED 12-30 V AC/DC white, floor	MM216560
LED 12-30 V AC/DC red, floor	MM216561
LED 12-30 V AC/DC green, floor	MM216562
LED 12-30 V AC/DC blue, floor	MM218058
LED 12-30 V AC/DC white, floor CC	MM216572
LED 12-30 V AC/DC green, floor CC	MM216574
LED 12-30 V AC/DC red, floor CC	MM216573
LED 85-264 V AC white, floor	MM216566
LED 85-264 V AC red, floor	MM216567
LED 85-264 V AC green, floor	MM216568
LED 85-264 V AC red, floor CC	MM216579
LED 85-264 V AC white, floor CC	MM216578
LED ACCESSORIES	
LED test module 12-30 V AC/DC	MM231079
LED test module 85-264 V AC/DC	MM231080
LED test module 85-264 V AC/DC	MM231080
LED test module 12-30 V AC/DC	MM213079

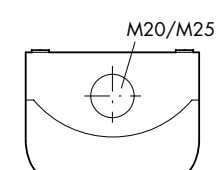
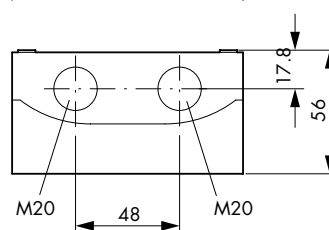
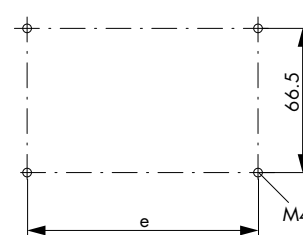
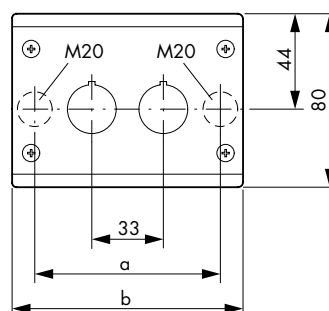
SURFACE ENCLOSURE



MM216536



MM216538



SCHRACK-INFO

- Diameter 22,5 mm

Type	Mounting positions	a	b	e	Conductor insertions
M22-I (Y)	1	172	42,6	58,5	2 x M16 3 x M20 2 x M25
M22-I2	2	120	85,6	106,5	2 x M20 3 x M20 2 x M25
M22-I3	3	153	118,6	139,5	2 x M20 2 x M25 4 x M20
M22-I4	4	186	151,6	172,5	2 x M20 2 x M25 4 x M40
M22-I6	6	252	217,6	238,5	2 x M20 2 x M25 4 x M20

DESCRIPTION	ORDER NO.
Surface enclosure 1 black/light grey	MM216535
Surface enclosure 1 black/yellow	MM216536
Surface enclosure 2 black/light grey	MM216537
Surface enclosure 3 black/light grey	MM216538
Surface enclosure 4 black/light grey	MM216539
Surface enclosure 6 black/light grey	MM216540

ALL-IN-ONE UNITS



MM216529



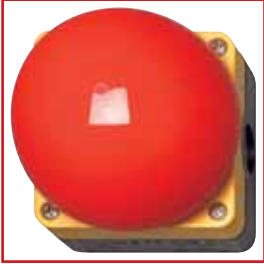
MM216525

SCHRACK-INFO

- Diameter 22,5 mm
- Design: Insulation enclosure IP 67
- Surface- and panel units delivered pre-assembled.

DESCRIPTION	ORDER NO.
All-in-one surface buttons, 2x "0", "1"	MM216529
All-in-one surface buttons, 3x "0", "1", "3"	MM216532
All-in-one emergency stop mushroom button, 1 N/O, 1 N/C	MM216525
All-in-one emergency stop mushroom button, 1 N/C	MM216524
All-in-one surface buttons, green "1"	MM216522
All-in-one surface buttons, red "0"	MM216521
All-in-one emergency stop button, 1 N/C for insertion	MM216515
All-in-one emergency stop mushroom button, 1 N/O, 1 N/C	MM216516

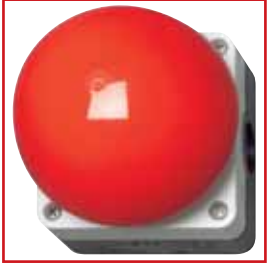
FOOT AND PALM SWITCHES



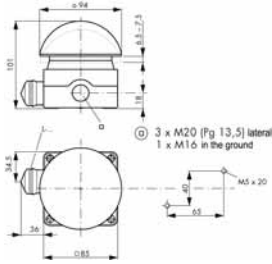
MM229746



MM229747



MM229749



SCHRACK-INFO

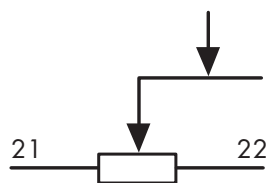
- IP 67/ IP 69K
- N/C with safety function through positive opening operation meeting IEC 947-5-1
- Large robust impact surface
- Emergency stop provides tamper-proof operation in accordance with ISO 13 850/EN 418

DESCRIPTION	ORDER NO.
Coarse manual switch, black, 1 N/O, 1 N/C, momentary	MM229749
Coarse manual switch, red, 1 N/O, 1 N/C, momentary	MM229746
Emergency stop button, 1 N/C, momentary	MM229747
Emergency stop button, 1 N/C, 1 N/O, momentary	MM229748

POTENTIOMETER



MM229491



SCHRACK-INFO

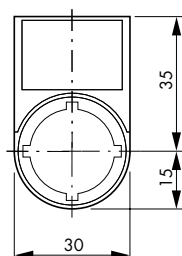
- Complete with potentiometer
- From 1 k Ω to 470 k Ω
- 3 connectors lead out separately
- Degree of protection IP 65
- Fully insulated
- Pmax = 0,5 W

DESCRIPTION	ORDER NO.
Potentiometer 1 k Ω	MM229489
Potentiometer 4.7 k Ω	MM229490
Potentiometer 10 k Ω	MM229491
Potentiometer 470 k Ω	MM229494

LABELS



MM216480



DESCRIPTION	ORDER NO.
Emergency stop label $\varnothing$ =60 mm 4-languages	MM216483
Emergency stop label, 33x50 mm	MM216472
Emergency stop label, 50x50 mm	MM216484
Emergency stop label, $\varnothing$ =90 mm plain	MM216464
Emergency stop label $\varnothing$ =90 mm 4 languages	MM216465
Label holder, blank, 30x50 mm	MM216392
Label holder f. double-pushbuttons, blank, 30x75 mm	MM216394
Label, 18x27 mm alu blank	MM216480
Label + holder 30x50 mm 0 I	MM216485
Label + holder 30x50 mm I 0 II	MM216486
Label + holder 30x50 mm Stop	MM216494
Label + holder 30x50 mm Start	MM216495
Label + holder 30x50 mm ON	MM216496
Label + holder 30x50 mm OFF ON	MM216499
Label + holder MAN. 0 AUTO	MM216501
Label + holder 30x50 mm OFF	MM218300

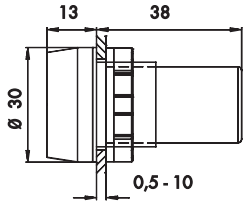
COMPACT INDICATOR LIGHT



BZ501210ME



BZ501219ME



SCHRACK-INFO

- Colour range: green, red, blue, yellow, white
- Voltage range: 20 - 30 V AC/DC
170 - 250 V AC, 50 Hz
- Flash rate: 100 Hz for all voltage ranges
- Temperature range: -25 to +55° C
- Diameter: 22 mm
- Degree of protection: IP 65

CERTIFICATIONS

EN 60947, IEC 947

MULTI CHIP LED

Several LED chips are integrated in the surface of the lamp. Through multichip LED technology, we can offer an even, colour-intensive light distribution, which is easy to see even in bright conditions. Not to mention the well-known long service life of LEDs.

DESCRIPTION	DIAMETER	ORDER NO.
Compact LED red 20-30 V AC/DC	Ø22	BZ501210ME
Compact LED yellow 20-30 V AC/DC	Ø22	BZ501211ME
Compact LED blue 20-30 V AC/DC	Ø22	BZ501212ME
Compact LED green 20-30 V AC/DC	Ø22	BZ501213ME
Compact LED white 20-30 V AC/DC	Ø22	BZ501214ME
Compact LED red 170-250 V AC/DC	Ø22	BZ501215ME
Compact LED yellow 170-250 V AC/DC	Ø22	BZ501216ME
Compact LED blue 170-250 V AC/DC	Ø22	BZ501217ME
Compact LED green 170-250 V AC/DC	Ø22	BZ501218ME
Compact LED white 170-250 V AC	Ø22	BZ501219ME

LOAD-BREAK SWITCHES & CAM SWITCHES – GENERAL INFORMATION



MAIN-, LOAD-BREAK-, CAM- SWITCHES

MAIN SWITCHES AND MAIN SWITCHES WITH EMERGENCY STOP

In accordance with the standards IEC/EN 60204/ VDE0113, all production machines and machine tool must be equipped with a main switch, which disconnects all electrical equipment from all active mains connections during cleaning, maintenance and repair work and during longer downtimes.

Where 2 or more main switches are required, suitable protective interlocking devices must be used. However, we recommend the use of a 4 pole main switch (cam switch).

The main switch must be of one of the following types:

- a) Load-break switch which meets IEC/EN 60947-3 and VDE 0660 part 107 for application categories AC23-B or DC-23B.
- b) Disconnecter with auxillary contact (e.g. A3-10 switching program), which ensures at all times that the switch devices can break the load before the main contacts of the disconnecter are opened.
- c) The breaking capacity must be break at the same time the current of the largest motor at stall, together with the sum of the currents of all other motors and/or load circuits.

LT LOAD-BREAK SWITCH.. 20 – 160 A

Load-break switches can be used anywhere where compact ON-OFF switches with large contact gaps (isolators) and a high contact pressure, and where a greater short circuit protection is required. They are thus used as main switches in accordance with IEC/EN 60204/ VDE 0113 incl. locking device, terminal cover and forced-switching contactors.

Disconnectors according to IEC/EN 60947-3 & VDE 0660 part 107 with switching-position-indicators for 690 V.

3-pole or 4-pole motor switch. In accordance with IEC/EN 60947-3 / VDE 0660 part 107, these LT range switches have a high AC3 & AC23A switching capacity.

CAM SWITCHES, 10 – 250 A

Cam switches can be used for practically any purpose, as motor switches, main switches, control switches or instrument switches for example. Alongside the list of switching programs, a practically endless list of special switching programmes can also be used.

SCHRACK cam switches are modular, operate with double disconnection per pole and two contacts per switch cell. Using a variety of models, additional devices and various handles and front frames, they can be used in almost endless combinations. The switches of all types are made up of a locating mechanism and a switch kit. The cams are driven by a stabile, torsionally rigid aluminium shaft. The locating mechanism determines the switching angle and the number of positions. Switches of all sizes and designs can in theory also be designed with 90°-, 60°-, 45°- and 30° switching angles.

LT LOAD-BREAK SWITCHES



IN8E2333



SCHRACK-INFO

Their ideal performance characteristics enable main switches to be used as main switches, emergency stop-, repair- & safety switches.

TECHNICAL DATA

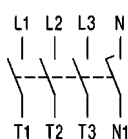
- Main switch, 3-pole
- 20 - 160 A / 3 x 400 VAC
- Ampere meets AC21 690 V; capacity AC23 3 x 400 V
- VBG 4 terminals
- Meets EN 60204, VDE 0113 standards
- Max. cable cross-section:
 - 20 – 40 A: 10 mm²
 - 63 A, 80A: 25 mm²
 - 80 A, 100A: 50 mm²
- Front-side degree of protection: IP 66
- Switch: IP 2x
- 4-bore mounting (Built-in, red handle, yellow front frame, lockable)

DESCRIPTION/RATED CURRENT/SWITCHING CAPACITY	DIM. (WxHxD) mm	FRONTPLATE DIM. (WxHxD) mm	ORDER NO.
Load break switch 3-pole/20 A/5.5 kW	48x64x54	64x64	IN8E2332
Load break switch 3-pole/25 A/7.5 kW	48x64x54	64x64	IN8E2333
Load break switch 3-pole/32 A/11 kW	48x64x54	64x64	IN8E2334
Load break switch 3-pole/40 A/15 kW	48x64x54	64x64	IN8E2335
Load break switch 3-pole/63 A/22 kW	48x64x54	64x64	IN8E2337
Load break switch 3-pole/80 A/22 kW	48x64x54	64x64	IN8E2338
Load break switch 3-pole/80 A/30 kW	70x80x71	64x64	IN805780
Load break switch 3-pole/100 A/37 kW	70x80x71	64x64	IN805781

FLOOR MOUNTING WITH DOOR-COUPLING, LOCKING DEVICE FOR 4-HOLE FASTENING



IN8A2435



SCHRACK-INFO

- Emergency-stop switch, 4-pole
- Installation depth can be subsequently adjusted up to a length of 190 mm
- Frontside degree of protection IP 66

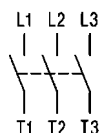
DESCRIPTION/RATED CURRENT/SWITCHING CAPACITY	DIM. (WxHxD) mm	FRONTPLATE DIM. (WxHxD) mm	ORDER NO.
Emergency stop main switch 4-pole/40 A/15 kW	48x64x...	64x64	IN8A2435
Emergency stop main switch 4-pole/63 A/22 kW	62.5x64x...	64x64	IN8A2437

EMERGENCY-STOP MAIN SWITCHES

MODULAR, RED HANDLE, YELLOW FRONT FRAME, LOCKABLE



IN8R2322



SCHRACK-INFO

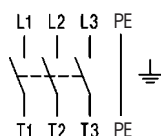
- Emergency-stop switch, 3-pole
- Frontside degree of protection IP 40
- For up to a max of 2 padlocks

DESCRIPTION/RATED CURRENT/SWITCHING CAPACITY	DIM. (WxHxD) mm	ORDER NO.
Emergency-stop main switch, 3-pole, Modular/20 A/5.5 kW	48x64x60	IN8R2322
Emergency-stop main switch, 3-pole, Modular/25 A/7.5 kW	48x64x60	IN8R2323
Emergency-stop main switch, 3-pole, Modular/32 A/11 kW	48x64x60	IN8R2324
Emergency-stop main switch, 3-pole, Modular/40 A/15 kW	48x64x60	IN8R2325
Emergency-stop main switch, 3-pole, Modular/63 A/22 kW	48x64x60	IN8R2327
Emergency-stop main switch, 3-pole, Modular/80 A/22 kW	48x64x60	IN8R2328
Emergency-stop main switch, 3-pole, Modular/80 A/30 kW	70x80x70	IN885780
Emergency-stop main switch, 3-pole, Modular/100 A/45 kW	70x80x70	IN885781

REPAIR SWITCHES, INSULATION-ENCLOSED, RED HANDLE, LOCKABLE, IP65



IN8P2332



SCHRACK-INFO

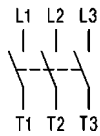
- Main switch, 3/4-pole
- For up to a max of 3 padlocks
- Integrated PE rail
- Degree of protection IP 65

DESCRIPTION/RATED CURRENT/SWITCHING CAPACITY	DIM. (WxHxD) mm	ORDER NO.
Emergency stop main switch 3-pole/20 A/5.5 kW	98x130x77	IN8P2332
Emergency stop main switch 3-pole/25 A/7.5 kW	98x130x77	IN8P2333
Emergency stop main switch 3-pole/32 A/11 kW	98x130x77	IN8P2334
Emergency stop main switch 3-pole/80 A/22 kW	120x200x86	IN8P2338
Emergency stop main switch 4-pole/32 A/11 kW	98x130x77	IN8P2434

MAIN SWITCHES



IN8E1332



SCHRACK-INFO

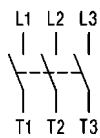
- Main switch for installation, 4-hole mounting
- Lockable with a max. of 3 padlocks
- Frontside degree of protection: IP 66

DESCRIPTION/RATED CURRENT/SWITCHING CAPACITY	DIM. (WxHxD) mm	FRONTPLATE DIM. (WxHxD) mm	ORDER NO.
Main switch 3-pole/20 A/5.5 kW	48x64x54	64x64	IN8E1332
Main switch 3-pole/25 A/7.5 kW	48x64x54	64x64	IN8E1333
Main switch 3-pole/32 A/11 kW	48x64x54	64x64	IN8E1334
Main switch 3-pole/40 A/15 kW	48x64x54	64x64	IN8E1335
Main switch 3-pole/63 A/22 kW	48x64x54	64x64	IN8E1337
Main switch 3-pole/80 A/22 kW	48x64x54	64x64	IN8E1338
Main switch 3-pole/100 A/37 kW	70x80x71	64x64	IN805881

MODULAR, BLACK HANDLE, LOCKABLE



IN8R1322



SCHRACK-INFO

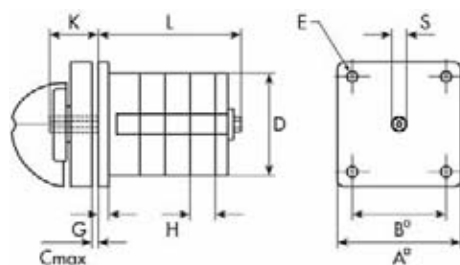
- Frontside degree of protection: IP 40
- Lockable with a max. of 2 padlocks

DESCRIPTION/RATED CURRENT/SWITCHING CAPACITY	DIM. (WxHxD) mm	ORDER NO.
Main switch 3-pole/20 A/5.5 kW	48x64x60	IN8R1322
Main switch 3-pole/25 A/7.5 kW	48x64x60	IN8R1323
Main switch 3-pole/32 A/11 kW	48x64x60	IN8R1324
Main switch 3-pole/40 A/15 kW	48x64x60	IN8R1325
Main switch 3-pole/63 A/22 kW	48x64x60	IN8R1327
Main switch 3-pole/80 A/22 kW	48x64x60	IN8R1328
Main switch 3-pole/80 A/30 kW	70x80x70	IN885880
Main switch 3-pole/100 A/37 kW	70x80x70	IN885881

CAM SWITCHES FOR PANEL MOUNTING – GENERAL INFORMATION



IN005120



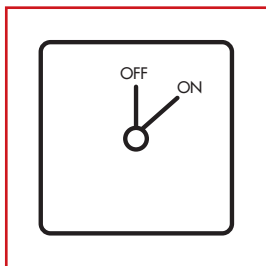
SCHRACK-INFO

- Front-mounted
- Switching capacity: AC 3 up to 15 kW
- Rated current: 20 A to 50 A
- Frontside degree of protection: IP 65

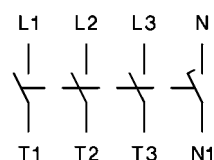
Typ	A	B	C	D	D1	D2	D3	E	G	H	K	S
M10H	48	36	5	7	4,5	8 ¹⁾	-	4	3,5	9,5	19	SW5

Dimension L for switch cells												
Typ	1	2	3	4	5	6	7	8	9	10	11	12
M10H	36,5	46	55,5	65	74,5	84	93,5	103	112,5	122	131,5	141

ON-OFF SWITCH

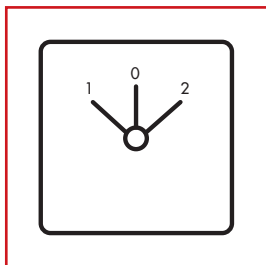


IN005120

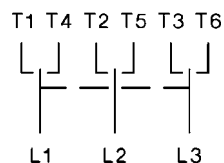


DESCRIPTION		DIM. (WxHxD) mm	NO. OF CELLS	ORDER NO.
1-pole/20 A	0-1	48x58x36,5	1	IN005120
2-pole/20 A	0-1	48x58x46	1	IN005220
3-pole/20 A/AC3 5.5	0-1	48x58x55,5	2	IN005320
1-pole/20 A/ON-OFF		48x58x36,5	1	IN005121
1-pole/20 A/with key switch	0-1	48x58x36,5	1	IN005122

CHANGEOVER SWITCH WITH ZERO POSITION

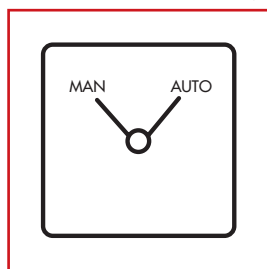


IN006120

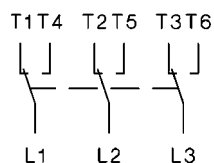


DESCRIPTION		DIM. (WxHxD) mm	NO. OF CELLS	ORDER NO.
1-pole/20 A	1-0-2	48x58x36,5	1	IN006120
2-pole/20 A	1-0-2	48x58x46	2	IN006220
3-pole/20 A/AC 3 5.5 kW	1-0-2	48x58x55,5	3	IN006320
1-pole/20 A	MAN-OFF-AUTO	48x58x36,5	1	IN006121
2-pole/20 A	MAN-OFF-AUTO	48x58x46	2	IN006221

CHANGEOVER SWITCH WITHOUT ZERO POSITION

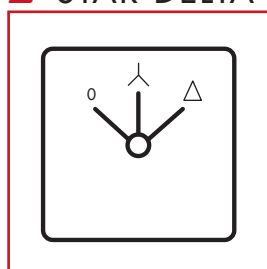


IN007121

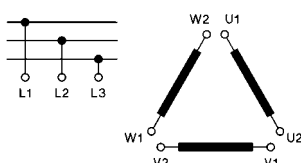


DESCRIPTION	DIM. (WxHxD) mm	NO. OF CELLS	ORDER NO.
1-pole/20 A/AC 3 5.5 kW, AC 23 7.5 kW; MAN/AUTO	48x58x36,5	1	IN007121
1-pole/20 A/1-2	48x58x36,5	1	IN007122

STAR DELTA SWITCH

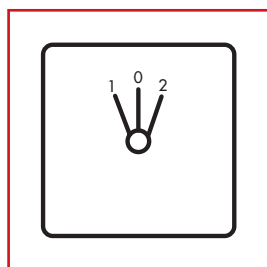


IN108900

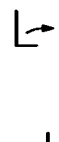


DESCRIPTION	DIM. (WxHxD) mm	NO. OF CELLS	ORDER NO.
Star delta switch, AC 21 32 A/15 kW	48x58x65	3	IN108900

CHANGEOVER SWITCH WITH SPRING RETURN

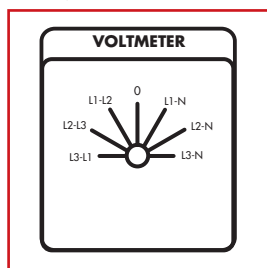


IN004120

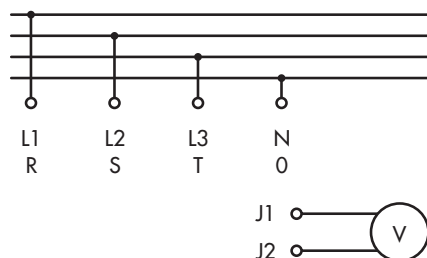


DESCRIPTION	DIM. (WxHxD) mm	NO. OF CELLS	ORDER NO.
Changeover switch with spring return, AC 21 20 A	48x58x36,5	1	IN004120

VOLTMETER SWITCH



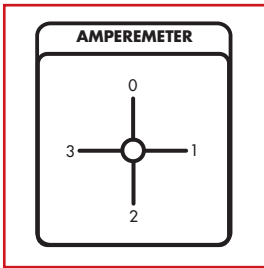
IN009V00



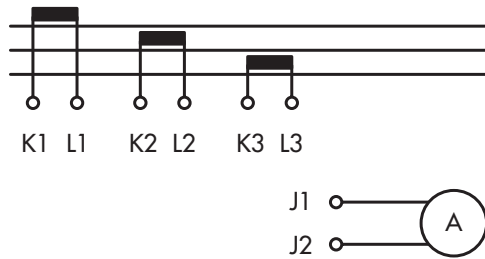
SCHRACK-INFO
3 line-to-line, 3 phase voltages

DESCRIPTION	DIM. (WxHxD) mm	NO. OF CELLS	ORDER NO.
Line-to-line & phase voltages, 1-pole/20 A	48x58x36,5	3	IN009V00

AMMETER SWITCHES

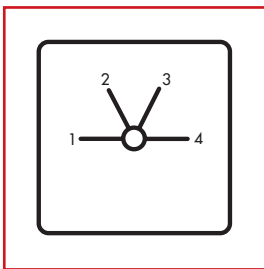


IN009A00

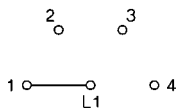


DESCRIPTION/RATED CURRENT	DIM. (WxHxD) mm	NO. OF CELLS	ORDER NO.
Ammeter switch for 3 current transformer circuits, 1-pole/20 A	48x58x36,5	3	IN009A00

STEP SWITCH, 1-POLE, WITHOUT 0 POSITION

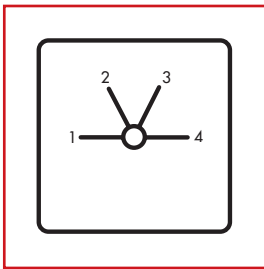


IN003122

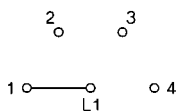


DESCRIPTION/RATED CURRENT	DIM. (WxHxD) mm	NO. OF CELLS	ORDER NO.
3-step switch/20 A	48x58x44	2	IN003121
4-step switch/20 A	48x58x44	2	IN003122

STEP SWITCH, 2-POLE, WITHOUT 0 POSITION



IN003123

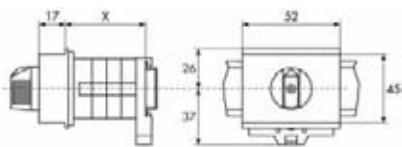


DESCRIPTION/RATED CURRENT	DIM. (WxHxD) mm	NO. OF CELLS	ORDER NO.
3-step switch/20 A	48x58x44	3	IN003123
4-step switch/20 A	48x58x44	4	IN003124

CAM SWITCH FOR DIN-RAIL – GENERAL INFORMATION



IN085220

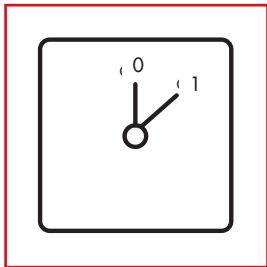


Switch cells for max X			
Typ	46	61	70
M10H	2	3	4

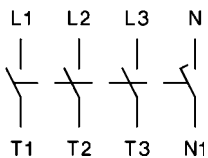
SCHRACK-INFO

- Switching capacity: up to 11 kW
- Rated current: up to 32 A
- Degree of protection: IP 40

ON-OFF SWITCH

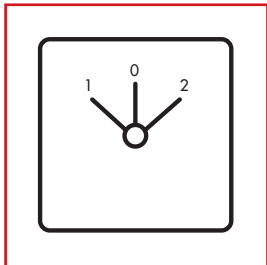


IN085120

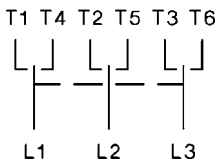


DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
1-pole/20 A	52x45x60	IN085120
2-pole/20 A	52x45x60	IN085220
3-pole/20 A/5.5 kW	52x45x60	IN085320

CHANGEOVER SWITCH WITH ZERO POSITION

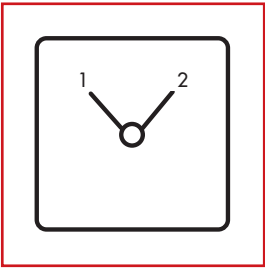


IN086120

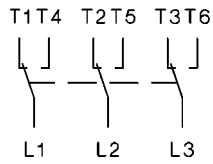


DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
1-pole/20 A 1-0-2	52x45x60	IN086120
2-pole/20 A 1-0-2	52x45x60	IN086220
3-pole/20 A 1-0-2	52x45x60	IN086320
1-pole /20 A MAN-0-AUTO	52x45x60	IN086122

CHANGEOVER SWITCH WITHOUT ZERO POSITION

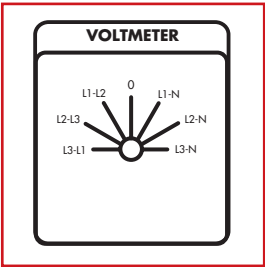


IN087120

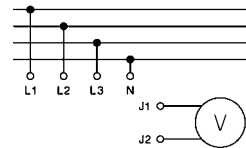


DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
1-pole/20 A	52x45x60	IN087120
2-pole/20 A	52x45x60	IN087220
3-pole/20 A	52x45x60	IN087320

VOLTMETER SWITCH

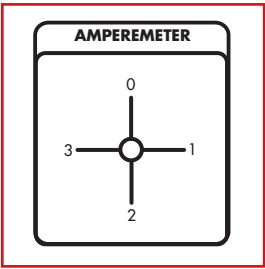


IN009V01

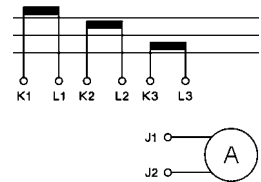


DESCRIPTION/RATED CURRENT	DIM. (WxHxD) mm	ORDER NO.
Line-to-line and phase voltages, 1-pole/20 A	52x45x60	IN009V01

AMMETER SWITCHES

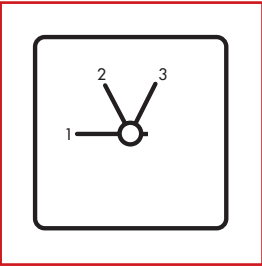


IN009A01

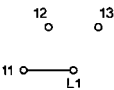


DESCRIPTION/RATED CURRENT	DIM. (WxHxD) mm	ORDER NO.
Ammeter switch for 3 current transformer circuits, 1-pole/20 A	52x45x60	IN009A01

STEP SWITCH, 2-POLE, WITHOUT ZERO POSITION



IN083121



DESCRIPTION/RATED CURRENT	DIM. (WxHxD) mm	ORDER NO.
3-step switch/20 A	52x52x60	IN083121

TOP-TECHNIC



FUSE DISCONNECTORS FOR CYLINDRICAL FUSE-LINKS

TOP-TECHNIC



PANEL-MOUNTING FUSE BASE

TOP-TECHNIC



FUSE LOADBREAK DISCONNECTORS CORON

TOP-TECHNIC



FUSE LOADBREAK DISCONNECTORS TYTAN-II

TOP-TECHNIC



HRC FUSE ELEMENTS

TOP-TECHNIC



60mm BUSBAR SYSTEM



185mm BUSBAR SYSTEM

FUSE MATERIAL

CONTENTS

FUSE DISCONNECTORS FOR CYLINDRICAL FUSE-LINKS	Page 140
PANEL-MOUNTING FUSE BASE	Page 142
FUSE LOADBREAK DISCONNECTORS CORON	Page 144
FUSE LOADBREAK DISCONNECTORS TYTAN-II	Page 145
HRC FUSE ELEMENTS	Page 147
60mm BUSBAR SYSTEM	Page 153
185mm BUSBAR SYSTEM	Page 161

FUSE DISCONNECTORS 10x38 UP TO 32A



IS506101



IS506103

SCHRACK-INFO

- Rated voltage: 690 V AC
- Rated current: 32 A
- Utilization category: AC-22B
- Cage clamps (max. mm²): 25 mm²
- According to EN 60947-3

DESCRIPTION	FOR FUSE	DIM (WxHxD) mm	ORDER NO.
Fuse Carrier 1P	10x38	17,5x81x64,5	IS506101
Fuse Carrier 3P	10x38	52,5x81x64,5	IS506103

CYLINDRICAL FUSE-LINKS 10x38mm

DESCRIPTION	FOR FUSE	CURRENT	ORDER NO.
Fuse-link	10x38	0,5A	ISZ100005
Fuse-link	10x38	1A	ISZ10001
Fuse-link	10x38	2A	ISZ10002
Fuse-link	10x38	4A	ISZ10004
Fuse-link	10x38	6A	ISZ10006
Fuse-link	10x38	8A	ISZ10008
Fuse-link	10x38	10A	ISZ10010
Fuse-link	10x38	12A	ISZ10012
Fuse-link	10x38	16A	ISZ10016
Fuse-link	10x38	20A	ISZ10020
Fuse-link	10x38	25A	ISZ10025
Fuse-link	10x38	32A	ISZ10032

FUSE DISCONNECTORS 14x51 UP TO 50A



IS506141

SCHRACK-INFO

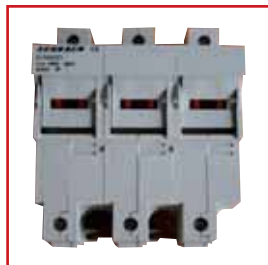
- Rated voltage: 690 V AC
- Rated current: 50 A
- Utilization category: AC-22B
- Cage clamps (max. mm²): 35 mm²
- According to EN 60947-3

DESCRIPTION	FOR FUSE	DIM (WxHxD) mm	ORDER NO.
Fuse Carrier 1P	14x51	27x90x76,8	IS506141
Fuse Carrier 3P	14x51	81x90x76,8	IS506143

■ CYLINDRICAL FUSE-LINKS 14x51mm

DESCRIPTION	FOR FUSE	CURRENT	ORDER NO.
Fuse-link	14x51	2A	ISZ14002
Fuse-link	14x51	4A	ISZ14004
Fuse-link	14x51	6A	ISZ14006
Fuse-link	14x51	8A	ISZ14008
Fuse-link	14x51	10A	ISZ14010
Fuse-link	14x51	12A	ISZ14012
Fuse-link	14x51	16A	ISZ14016
Fuse-link	14x51	20A	ISZ14020
Fuse-link	14x51	25A	ISZ14025
Fuse-link	14x51	32A	ISZ14032
Fuse-link	14x51	40A	ISZ14040
Fuse-link	14x51	50A	ISZ14050

■ FUSE DISCONNECTORS 22x58 UP TO 100A



IS506223

■ SCHRACK-INFO

- Rated voltage: 690 V AC
- Rated current: 100 A
- Utilization category: AC-21B
- Cage clamps (max. mm²): 50 mm²
- According to EN 60947-3

DESCRIPTION	FOR FUSE	DIM (WxHxD) mm	ORDER NO.
Fuse Carrier 1P	22x58	35,6x116,8x76,8	IS506221
Fuse Carrier 3P	22x58	106,8x116,8x76,8	IS506223

■ CYLINDRICAL FUSE-LINKS 14x51mm

DESCRIPTION	FOR FUSE	CURRENT	ORDER NO.
Fuse-link	22x58	16A	ISZ22016
Fuse-link	22x58	20A	ISZ22020
Fuse-link	22x58	25A	ISZ22025
Fuse-link	22x58	32A	ISZ22032
Fuse-link	22x58	40A	ISZ22040
Fuse-link	22x58	50A	ISZ22050
Fuse-link	22x58	63A	ISZ22063
Fuse-link	22x58	80A	ISZ22080
Fuse-link	22x58	100A	ISZ22100

NEOZED FUSE BASE UP TO 63 A



IS504321

SCHRACK-INFO

- DIN 49524, 1-3-pole
- With snap-on mounting, division 27 mm
- Including cover
- 400 V AC/250 V DC
- D01 to 16 A, D02 to 63 A
- HRC fuse DIN 49522
- Sleeve adjusting inserts/links DIN 49523
- D01 two-sided box terminal (1.5-25 mm²), Md 4 Nm
- D02 two-sided box terminal (1,5-35 mm²), Md 4 Nm

DESCRIPTION/RATED CURRENT	DIM. (WxHxD) mm	ORDER NO.
D02/E 18/3-pole with cover/63 A	80.4x60x72	IS504321
D02/E 18/1-pole with cover/63 A	27x60x72	IS504311
D02/E 18/3-pole with cover/63 A lug connection	81x60x72	IS504463
D03/M 30x2/1-pole with cover/100 A	44x50x46	IS504313
Cover for IS 504313	-	IS504223
Screw cap D02	-	SI310060
Screw cap D03	-	IS504002

ARROW – FUSE – ON



ISF53000

SCHRACK-INFO

- Switchable D02 fuse base, single-pole up to 63 A
- No screw cap, but a connector secured against loosening
- Release via push button
- Captive adjusting/gauge ring insert

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Switchable fuse D02	27x65x85	ISF53000
Switchable fuse D02 with LED	27x65x85	ISF53001

NEOZED MELT INSERTS / FUSES D0, ADJUSTING SLEEVES AND ACCESSORIES



ISF540000

SCHRACK-INFO

- Classification: Fuse system according to DIN VDE 0106
- Size: D01, D02
- Operating categories: gL-gG
- Rated current I_n : 2-63 A
- Rated voltage U_n : 250 V DC, 400 V AC
- Rated frequency: 45 -62 Hz
- Rated insulation voltage U_i : 2500 V
- Rated short circuit switching capacity: 50 kA (AC), 8 kA (DC)

CERTIFICATIONS

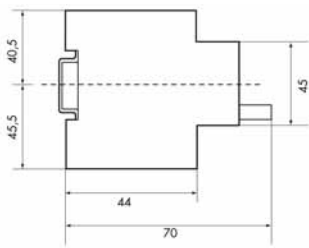
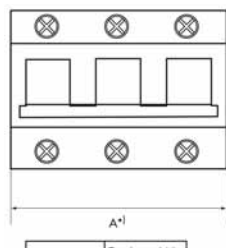
DIN VDE 0636 Part 1, 10, 41, IEC 269-3, IEC 269-4

DESCRIPTION/RATED CURRENT	DIM. (WxHxD) mm	ORDER NO.
MELT INSERTS / FUSES		
D 01 melt insert/2 A	11x36	IS504030
D 01 melt insert/4 A	11x36	IS504031
D 01 melt insert/6 A	11x36	IS504032
D 01 melt insert/10 A	11x36	IS504033
D 01 melt insert/16 A	11x36	IS504034
D 02 melt insert/20 A	15x36	IS504035
D 02 melt insert/25 A	15x36	IS504036
D 02 melt insert/35 A	15x36	IS504037
D 02 melt insert/50 A	15x36	IS504038
D 02 melt insert/63 A	15x36	IS504039
D 03 melt insert/80 A	22x43	IS504040
D 03 melt insert/100 A	22x43	IS504041
ADJUSTING SLEEVES		
D 01 adjusting sleeves/2 A	12x10	IS504130
D 01 adjusting sleeves/4 A	12x10	IS504131
D 01 adjusting sleeves/6 A	12x10	IS504132
D 01 adjusting sleeves/10 A	12x10	IS504133
D 02 adjusting sleeve - D01 in D02/2 A	16x10	IS504141
D 02 adjusting sleeve - D01 in D02/4 A	16x10	IS504142
D 02 adjusting sleeve - D01 in D02/6 A	16x10	IS504143
D 02 adjusting sleeve - D01 in D02/10 A	16x10	IS504144
D 02 adjusting sleeve/16 A	16x10	IS504145
D 02 adjusting sleeve/20 A	16x10	IS504134
D 02 adjusting sleeve/25 A	16x10	IS504135
D 02 adjusting sleeve/35 A	16x10	IS504136
D 02 adjusting sleeve/50 A	16x10	IS504137
D 03 adjusting sleeve/80 A	27x10	IS504138
ACCESSORIES		
1pole neozed pin-type busbar 16 mm ² /27 space unit	L=981	BS900133
Retaining spring	D01 in D02	IS504140
Set screw key D01-D03	-	IS504550
Screw cap plastic, D 01, E 14/16 A	26x29	SI310050
Screw cap plastic D 02, E 18/63 A	22,5x29,5	SI310060
Screw cap neozed D03	M 32	IS504002

■ D0 FUSE LOADBREAK DISCONNECTORS CORON 2



IS503103



	Device width in mm
Number of poles	A
single pole	27
double-pole	54
three-pole	81

■ SCHRACK-INFO

- Number of poles: 1, 2 and 3-pole
- Suitable for fuses D01: 2, 4, 6, 10, 16, 20, 25 A
D02: 20, 25, 35, 50, 63 A
- Ambient operating temperature:
 - Storage -50 °C up to +100 °C
 - Operation -25 °C up to +60 °C
- Temperature of the reception/receiver for the plug insert/connector link max +190° C
- Insulated parts plastic - halogen and phosphorous-free
- Fire classification: V0, glow wire test 960 °C
- Non-tracking quality: CTI 600
- Degree of protection: IP 20
- Protection against accidental contact: finger and hand touch safe
- Connection technique Stainless steel cage terminal

■ CERTIFICATIONS

DIN VDE 0638, DIN VDE 0660, DIN VDE 60947

■ SPECIAL FEATURES

- Possible to look down with commercial padlock
- Reliable fault signalisation using alarm flasher
- Instant restarting option through reserved magazine
- Easy handling using plugging technique without screw cap,

■ EXTENDED TECHNICAL DATA

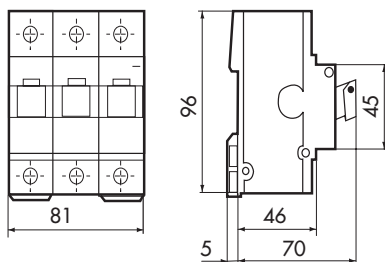
- Rated operating voltage U_e :
 - AC 400 V
 - DC to 110 V 1-pole / to 220 V 2-pole
- Rated operating current I_e : 63 A
- Rated continuous current I_u : 63 A
- Excess voltage category: IV
- Degree of contamination: 3 (DIN VDE 0110)
- Rated surge voltage protection U_{imp} : 4000V
- Rated special voltage: 440 AC only while using Si links 440 V
- Current heat losses per current track at I_e : 0.5 W
- Max. heating at I_u and room temperature: approx. 25 °C / handling fuse plug approx. 30 °C
- Clampable fixed cross-sections: 1.5 mm -35 mm
- Locking torque MD: max 4.5 Nm
- Rated short circuit switching capacity I_{cm} : 50 kAeff
- Switch category: AC 21 B

DESCRIPTION	ORDER NO.
1-pole	IS503101
3-pole	IS503103
3-pole, 20 A with fix adjusting sleeve	IS503320
3-pole, 25 A with fix adjusting sleeve	IS503325
3-pole, 35 A with fix adjusting sleeve	IS503335

■ D0 FUSE LOADBREAK DISCONNECTORS TYTAN II



IS504702



■ SCHRACK-INFO

- Up to 63 A, 400 V AC, AC 22
- Switching capacity 50 kA
- Snap-on mounting, serially installable, 35 mm² Lift terminals/blocks
- Without fuse plug without set screw, without fuse
- Lead sealing possible in switched-on and switched-off condition

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
1-pole	27x96x75	IS504700-A
3-pole	80,5x96x75	IS504702-A
3-pole, fixed insert, 25 A	81x96x75	IS509325
3-pole, fixed insert, 35 A	81x96x75	IS509335
1-pole + N	54x96x75	IS504703-A
3-pole + N	108x96x75	IS504704-A

■ FUSE PLUG



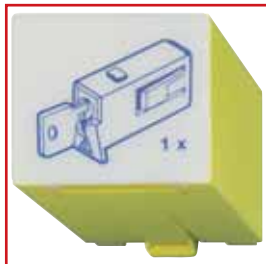
IS504715

■ SCHRACK-INFO

- With alarm flasher
- In the plugging principle, without screw caps, with contact-voltage protection set screw, art.D0 fuse, complete (1 set = 3 pcs) in installation box
- 32 A and 40 A are also available

RATED CURRENT	DIM. (WxHxD) mm	ORDER NO.
2 A	54x45x75	IS504710-A
4 A	54x45x75	IS504711-A
6 A	54x45x75	IS504712-A
10 A	54x45x75	IS504713-A
16 A	54x45x75	IS504714-A
20 A	54x45x75	IS504715-A
25 A	54x45x75	IS504716-A
35 A	54x45x75	IS504717-A
50 A	54x45x75	IS504718-A
63 A	54x45x75	IS504719-A
Connection bridge	54x45x75	IS504725
Empty box	54x45x75	IS504741

RESTART LOCK



IS504720

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
With installation box, plastic lock	54x45x75	IS504721

CONNECTIONTERMINALS AND THREE-PHASE CURRENT BUSBARS



IS504722

DESCRIPTION	ORDER NO.
Feed terminal 95 mm ² , 1-pole pin-type connection, long	IS504724
3-pole, 3 x 2 x 35 mm ² , connections 35 mm ²	IS504722
3-pole busbar 16 mm ² /27mm ²	BS900134
3-pole Tytan busbar 30 mm ² /27mm ²	BS900143
4-pole Tytan busbar 30 mm ² /27mm ²	BS900144
End cap 3+4 pole for BS900143/BS900144	BS900187

LOADBREAK DISCONNECTORS 1-POLE / 2-POLE / 3-POLE / 4-POLE – GENERAL INFORMATION



IS505221



IS505228



IS505227



IS505229

SCHRACK-INFO

- For ranges of application according to ÖNORM E 6020 and DIN 43.620
- Easy cover lead-sealing
- Switch cover dump
- Halogen-free, non-inflammable plastics
- Three standard connection variants
- Offset ventilation slot
- Fully isolated, contact-voltage safe
- Safe voltage check
- Functions
 - SAFETY (with inserted HRC fuses)
 - Of lines against overload and short circuit
 - Of persons and animals against dangerous contact and pace voltages
 - Selective disconnection of faulty system parts
 - Device safety
 - Safe shut down
 - ISOLATION
 - Visible large isolation stretch
 - SWITCHING
 - Safe shutoff on for short circuit (with NH HRC fuses)
 - Load switching capacity (AC 23, DC 23)

CERTIFICATIONS

EN/IEC-SN40, IEC 408, VDE 0636, VDE 0660, SEV 1089-1.1983, CCC

ARROW BLOC HRC FUSE LOADBREAK DISCONNECTORS SIZE 00 TO 160 A, SURFACE MOUNTING



IS505224



IS505221

SCHRACK-INFO

- Technical data according to IEC 947 / EN 60947
- Size 00; 1 to 4-pole
- Conventional thermic current with HRC lth: 160 A continuous operation
- Rated operating voltage: 400 VAC 500 VAC 690 VAC 440 VDC
- Rated operating current: 160 A 160 A 125 A 160 A
- Usage category: AC 23B AC22B AC21B DC22B
- Rated isolation voltage: 1000 V
- Surge voltage: 8 kV
- Frequency: 50 - 60 Hz
- Standard connection: M8; Cu-max.B.: 20 mm; max 2x70 mm² Cu or 2x95 mm² AL
- Power loss without HRC: 2,5 W / pole
- Ambient temperature T_a: -25° C to +55° C
- Degree of protection IP 20

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
1-pole Size 00 - 160 A, M8	41x184x84	IS505224
2-pole Size 00 - 160 A, M8	82x184x84	IS505220
3-pole Size 00 - 160 A, clip/fitting	106x184x84	IS505221
3-pole Size 00 - 160 A, M8	106x184x84	IS505222
3-pole Size 00 - 160 A, M8 + fuse monitoring	106x184x151	IS505262
4-pole Size 00 - 160 A, M8	147x184x84	IS505225

ARROW BLOC-HRC SIZE 00 FUSE LOADBREAK DISCONNECTORS ACCESSORIES

DESCRIPTION	ORDER NO.
Signal switch for switch position 3 p	IS505735
Terminal Al/Cu 1.5 - 70 mm ² rm or 95 mm ² se, 1Set=3Pcs.	IS505335
Single Clips Set for Isolator Sz. 00	IS505300
Window block, 1Set=3Pcs.	IS505736
Lead sealing set	IS505737

ARROW BLOC HRC FUSE LOADBREAK DISCONNECTORS SIZE 1 TO 3, SURFACE MOUNTING



IS505059



IS505227

SCHRACK-INFO

- Technical data according to IEC 947 / EN 60947
- Size 1: 1 to 4-pole, size 2 and 3: 3-pole
- Degree of protection IP 20

TECHNICAL DATA

- Rated operating voltage: 400 VAC 500 VAC 690 VAC 440 VDC
- Rated operating current Size 1: 250 A 250 A 200 A 250 A 50 kA
- Rated operating current Size 2: 400 A 400 A 315 A 400 A 80 kA
- Rated operating current Size 3: 630 A 630 A 500 A - 80 kA
- Usage category: AC 23B AC22B AC21B DC21B
- Rated isolation voltage: 1000 V
- Rated surge voltage: 12 kV
- Nominal frequency Size 1: 50 - 60 Hz; Size 2 and 3: 45 -62 Hz
- Standard connection Size 1 and 2: M10; Cu-max.B.: 18 mm; max 2x150 mm² Cu bzw. 2x185 mm² AL
- Standard connection Size 3: M12; Cu-max.B.: 24 mm; max 2x185 mm² Cu and 2x240 mm² AL
- Power loss without HRC1: 4 W / Pole, Size 2 and 3: max. 48 W per device
- Ambient temperature T_u: -25° C to +55° C

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
1-pole Size 1 - 250 A, M 10	71x238x110,55	IS505227
2-pole Size 1 - 250 A, M 10	142x238x110,5	IS505228
3-pole Size 1 - 250 A, M 10	185x238x110,5	IS505226
3-pole Size 1 - 250 A, M 10 + fuse monitoring	185x238x187	IS505266
4-pole Size 1 - 250 A, M 10	256x238x110,5	IS505229
3-pole Size 2 - 400 A, M 10	205x259x156	IS505250
3-pole Size 2 - 400 A, M 10 + fuse monitoring	205x259x207	IS505255
3-pole Size 3 - 630 A, M 12	256x270x246	IS505295

ARROW BLOC-HRC SIZE 1 TO 3 FUSE LOADBREAK DISCONNECTORS - ACCESSORIES

DESCRIPTION	ORDER NO.
Window block, 1set=3pcs	IS505736
Lead sealing set	IS505737
Adapter 1ST8 Size 1 for 100 mm busbar system	IS505881
Adapter 2ST8 Size 2 for 100 mm busbar system	IS505882
Adapter 3ST8 Size 3 for 100 mm busbar system	IS505883

FUSE BASE SIZE 00 – 3, 160 A – 630 A



IS505061



IS505001

SCHRACK-INFO

- Dimensions according to ÖNORM 6021 and DIN 43.620
- 3-pole version with 2 piece phase partitions

CERTIFICATIONS

EN/IEC-SN40, IEC 269, VDE 0636, SEV 1018

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
1-pole Size 00, M8/strap	32x120x75	IS505001
1-pole Size 00, strap/strap	32x120x75	IS505002
1-pole Size 00, V Terminal/strap	32x120x75	IS505003
3-pole Size 00, M8/V Terminals	100x120x75	IS505037
3-pole Size 00, two-sided insert nuts M8	100x120x75	IS505039
3-pole Size 1, two-sided Hexagonal screw M10, Washer and nut	184x200x89	IS505060
3-pole Size 2, two-sided Hexagonal screw M12, Washer and nut	184x230x98	IS505061

NEUTRAL BRACKET 1-POLE SIZE 00 – 3

DESCRIPTION	ORDER NO.
Size 00 M8/strap	IS505004
Size 00 strap/strap	IS505005
Size 00 V terminal/strap	IS505006
Size 00; 2-pole + 2	IS505007
Size 00; 2-pole connected on one side, 4 x M8	IS505008
Size 00, M8 / V-terminal	IS505038
Size 00, 2 x M8	IS505043
Size 00, M8 / insert nuts	IS505044
Size 00, 2 outgoing terminals, 3 x M8	IS505091

ACCESSORIES FOR FUSE BASE

DESCRIPTION	ORDER NO.
Direct connection terminals for V-shaped terminal lugs VK160	IS505040
Partition NHU-00	IS505088
Phase partition for Size 00	IS505047
Phase partition for Size 1	IS505058
Phase partition for Size 2 and Size 3	IS505059
Connection link M8 - 1 x V terminal	IS505098
2 x M 8 - 1 x V terminal	IS505099
20x3 Drilled rail 8.5 Ø, hole spacing 32 mm	IS505100
Direct connection terminals for V-shaped terminal lugs VK 400	IS505200
Connection link for VK 400	IS505201

ACCESSORIES

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
V double terminal	2x35-70SM	IS505018

HRC FUSES OF TYPE 00.SE TO 3.SE



HRC FUSES

SCHRACK-INFO

- Isolator body made from Stealit
- Contact blade made from one piece
- Antimagnetic cover plate
- Silver casing fusible conductor
- Flat detector, live tags
- Operating category: gL
- Anticorrosive

CERTIFICATIONS

EN/IEC-SN40

RANGE OF APPLICATION

These NH HRC fuses are used to protect cables and lines. HRC fuses ensure that impermissible overcurrents up to the rated current of the fuse are shut down. Sz. 000 (C00) to 100 A only 2 cm wide.

SIZE/RATED CURRENT/RATED VOLTAGE	ORDER NO.
SIZE 00	
00/6 A/400 V AC	ISP00006
00/10 A/400 V AC	ISP00010
00/16 A/400 V AC	ISP00016
00/20 A/400 V AC	ISP00020
00/25 A/400 V AC	ISP00025
00/32 A/400 V AC	ISP00032
00/35 A/400 V AC	ISP00035
00/40 A/400 V AC	ISP00040
00/50 A/400 V AC	ISP00050
00/63 A/400 V AC	ISP00063
00/80 A/400 V AC	ISP00080
00/100 A/400 V AC	ISP00100
00/125 A/400 V AC	ISP00125
00/160 A/400 V AC	ISP00160
SIZE 1	
1/35 A/400 V AC	ISP01035
1/50 A/400 V AC	ISP01050
1/63 A/400 V AC	ISP01063
1/80 A/400 V AC	ISP01080
1/100 A/400 V AC	ISP01100
1/125 A/400 V AC	ISP01125
1/160 A/400 V AC	ISP01160
1/200 A/400 V AC	ISP01200
1/250 A/400 V AC	ISP01250
SIZE 2	
2/35 A/400 V AC	ISP02035
2/50 A/400 V AC	ISP02050
2/63 A/400 V AC	ISP02063
2/80 A/400 V AC	ISP02080
2/100 A/400 V AC	ISP02100
2/125 A/400 V AC	ISP02125
2/160 A/400 V AC	ISP02160
2/200 A/400 V AC	ISP02200
2/225 A/400 V AC	ISP02225
2/250 A/400 V AC	ISP02250
2/315 A/400 V AC	ISP02315
2/400 A/400 V AC	ISP02400
SIZE 3	
3/200 A/400 V AC	ISP03200
3/250 A/400 V AC	ISP03250
3/315 A/400 V AC	ISP03315
3/400 A/400 V AC	ISP03400
3/500 A/400 V AC	ISP03500
3/630 A/400 V AC	ISP03630

SUPPORT INSULATORS



IK011030

SCHRACK-INFO

- Rated voltage 1 kV, excess voltage 34 - 50 kV
- Heat-stabilised, glass fibre strengthened plastic
- Halogen-free (in case of fire, no corrosive, toxic gases are released)
- Fire-proof according to DIN IEC 695, Part Z-2
- Fire classification VO for 0.8 mm according to UL 94
- Flash point more than 350° C
- Oxygen index 30.5
- Resistance to:
 - Ageing due to heat
 - Mould fungus
 - Termites
 - Oil
 - Grease
 - Petrol
 - Alcohol
 - UV rays
 - Tropical climate
- Thermic resistance according to ISO/R75 at 1.82 MPa 250° C
- Non-tracking quality PTI 250 (KC 375), high stiffness (up to 7500 MPa)
- Cold impact resistant
- Maximum cantilever, tensile and crush strengths
- Surface resistance 3×10^{13} Ohm

SCREW THREAD	DIM. (TxH) mm	ORDER NO.
M6, upheaval/cantilever 5 kN	Ø 30x40	IK011030-A
M8, upheaval/cantilever 6 kN	Ø 30x40	IK011032-A
M10, upheaval/cantilever 11 kN	Ø 40x40	IK011031-A
M12, upheaval/cantilever 11 kN	Ø 50x50	IK011033-A

SUPPORT INSULATOR WITH ONE INSIDE THREAD AND ONE OUTSIDE THREAD



SI058000

SCHRACK-INFO

- Rated Voltage 1,5 kV
- Female and male screw thread

TECHNICAL DATA

- Free of silicon and halogen
- Flashpoint more than 250 °C
- Fire classification according to UL 94
- Leakage current resistance CTI 600
- In according of IEC/EN 60664-1

SCREW THREAD	HIGH WITHOUT THREAD/WRENCH SITE	ORDER NO.
M6, inside and outside thread	30mm	SI058000

60 mm BUSBAR SUPPORT FOR BUSBAR SYSTEM



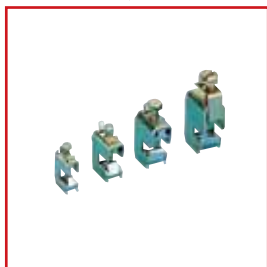
60mm BUSBAR SYSTEM

SCHRACK-INFO

- Halogen, phosphorous, silicone, CFC-free, recyclable!
- Possible to overhang, highly short circuit proof, UL94-V0
- Temperature stability: +200° C, glow wire 960° C
- Rated operating voltage: 690 V
- Starting torque of screws of the upper part: 3-4 Nm

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
BUSBAR SUPPORT		
Busbar support 3p short	18.5x185x45(50)	IS502750
Busbar support 3p long	18.5x216x45(50)	IS502752
Busbar support 1p single	18.5x75,5x45(50)	IS502753
Busbar support 1p detachable	18.5x60x45(50)	IS502754
Busbar support 2p single	18.5x116x45(50)	IS502755
Busbar support 2p detachable	18.5x132x45(50)	IS502756
Support end cover 3p	-	IS502757
BUSBAR		
Busbar 2 m	20x5	IS5005068
Busbar 2 m	30x5	IS5005069
Busbar 2 m	20x10	IS5005087

UNIVERSAL CONDUCTOR CONNECTION TERMINALS FOR BUSBAR SYSTEM



UNIVERSAL CONDUCTOR CONNECTION TERMINALS

SCHRACK-INFO

- For 5 and 10 mm thick busbar, and special profiles
- Connection of conductor 1.5-120 mm²
- Integrated retaining springs
- Opened clamping space and captive clamping screw enable easy assembly.
- Nominal cross-section and starting torque marked on the terminal

RAIL STRENGTH/ CONNECTION CROSS-SECTION/CONDUCTOR TYPE	DIM. (WxHxD) mm	ORDER NO.
5 mm/1.5-16 mm ² /sc, mc, stranded, stranded with ensleeve	11.5x22.5x30	SI012840
5 mm/4-35 mm ² /sc, mc, stranded, stranded with ensleeve, la. Cu 3/6x9x0.8	15.5x29x41	SI012850
5 mm/16-70 mm ² /mc, stranded, stranded with ensleeve, 2x la. Cu 3/6x9x0.8	20.5x32	SI012870
5 mm/16-120 mm ² /mc, stranded, stranded with ensleeve, la. Cu 10x16x0.8	23.5x36x60	SI010680
10 mm/1.5-16 mm ² /sc, mc, stranded, stranded with ensleeve	11.5x22.5x35	SI012890
10 mm/4-35 mm ² /sc, mc, stranded, stranded with ensleeve, la. Cu 3/6x9x0.8	15.5x29x45	SI012900
10 mm, TT- TTT Profiles/16-70 mm ² /mc, stranded, stranded with ensleeve, 2x la. Cu 3/6x9x0.8	20.5x32	SI012920
10 mm, TT- TTT Profiles/16-120 mm ² /mc, stranded, stranded with ensleeve, la. Cu 10x16x0.8	23.5x36x65	SI012030
20x5 mm/50 mm ² , 2 Screws/rail overlapping	17x25x37	SI011100

CONTACT VOLTAGE PROOF SAFETY COVER



IS502768

SCHRACK-INFO

- Contact voltage proof safety hood in combination with rail safety plate
- Clamp terminal should be ordered separately!

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Contact voltage proof safety cover 35 mm ² yellow	54x200x42	IS502768
Contact voltage proof safety cover 70 mm ² yellow	108x200x42	IS502769
Contact voltage proof safety cover 120 mm ² yellow	108x200x78	IS502770
Rail safety plate 54 mm	54	IS502774
Rail safety plate 108 mm	108	IS502775
135mm wide shrouding cover for connection space/room or reserved places	135x200x90	SI017560
270mm wide shrouding cover for connection space/room or reserved places	270x200x90	SI017570

BRACE TERMINALS – CRITO PROFI CLIP FOR BUSBAR SYSTEM



BRACE TERMINALS

SCHRACK-INFO

- Connection of Cu and Alu conductor 95-300 mm² and laminar copper rails up to 32x20
- Overlappable terminal system
- For rails 20x5-30x10, and TT, TTT Profile
- Nominal cross-section and starting torque marked on the terminal

DESCRIPTION/CONDUCTOR TYPE	DIM. (WxHxD) mm	ORDER NO.
95-185 mm ² /Cu und Al, mc, stranded, stranded with ensleeve	51x38x70	SI013180
150-300 mm ² /Cu und Al, mc, stranded, stranded with ensleeve	51x41x85.5	SI017600
For lam. Cu 5x24x1-10x30	51x38x70	SI013190
For lam. Cu 5x24x1-10x32	51x41x85.5	SI017590

CONNECTION TERMINAL PLATES



SI012400

SCHRACK-INFO

- 3-pole
- Inclusive cover cap
- For conductor 6-300 mm², and flat rails up to 32x20
- For rails 12x5 - 30x10, TT and TTT Profile
- Terminals can be removed for connecting conductors that are not cut off

CROSS-SECTION/CONDUCTOR TYPE/WIDTH	DIM. (WxHxD) mm	ORDER NO.
50mm ² Mc, stranded, stranded with ensleeve/la.Cu. 6x9x0,8mm	54x200	SI012400
120mm ² Mc, stranded, stranded with ensleeve/la.Cu. 6x10x15,5x0,8mm	81x200	SI012430
95-185mm ² Cu, Alu, mc, stranded/135mm wide	135x200x117,5	SI011990
120-300mm ² Cu und Alu mc, sc/135mm wide	135x200x117,5	SI017540
La. Cu 5x24x1 -10x32x1/135mm wide	135x200x117,5	SI017530

D02 BUSBAR FUSE SOCKET FUSE SWITCH DISCONNECTOR



IS504823



IS504851

SCHRACK-INFO

- Integral - designation field, stainless steel terminal that is free of loss
- Temperature stability: +200° C, glow wire 960° C
- For IS504851 fuse switch disconnecter:
 - incl. fuse plug with flashing indicator
 - incl. reduction spring for D01- and cylindrical fuses 10x38mm 400V~, 63A, 50kA, AC22B, lockable, sealable, 27mm wide
- For D0 - fuses 2...63A and cylindrical fuses 10x38mm 2...32A
- For D02 - gauge pieces 2...50A
- For bus bars 12, 15, 20, 25, 30mm wide, 5 or 10mm thick

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
FUSE SOCKET		
D02 busbar fuse socket E18 o. cover	27x201x32/50	IS504823
D02 strip/tag cover 27 mm 3p	27x201	IS504824
D02 strip/tag cover 36 mm + widening 3p	36x201	IS504825
D02 strip/tag cover 54 mm + widening 3p	54x201	IS504826
Screw cap D02		SI310060
FUSE SWITCH DISCONNECTION		
D02 and 10x38mm	27x226	IS504851

60 mm BUSBAR SYSTEM

ARROW BLOC HRC FUSE LOADBREAK DISCONNECTORS SIZE 00 / 160 A AND GR. 1 / 250 A AND 00 STRIP, BUSBAR ASSEMBLY

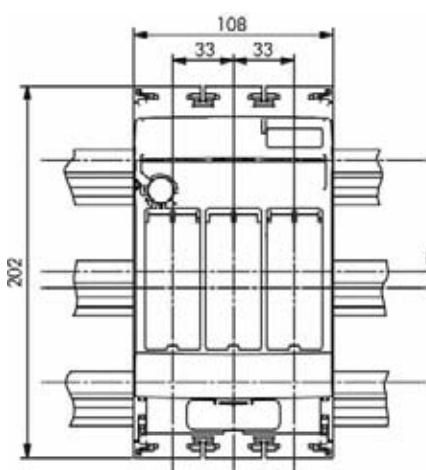
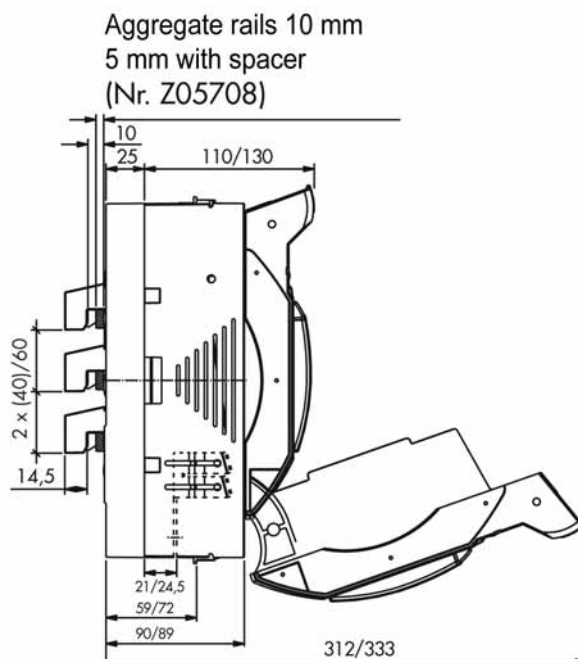
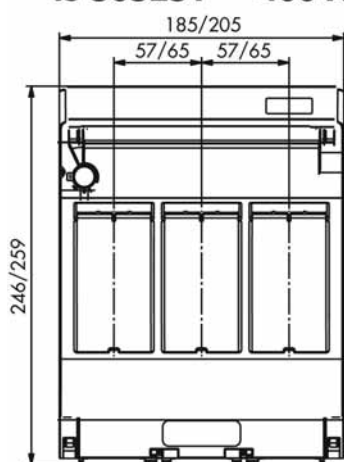


IS505234

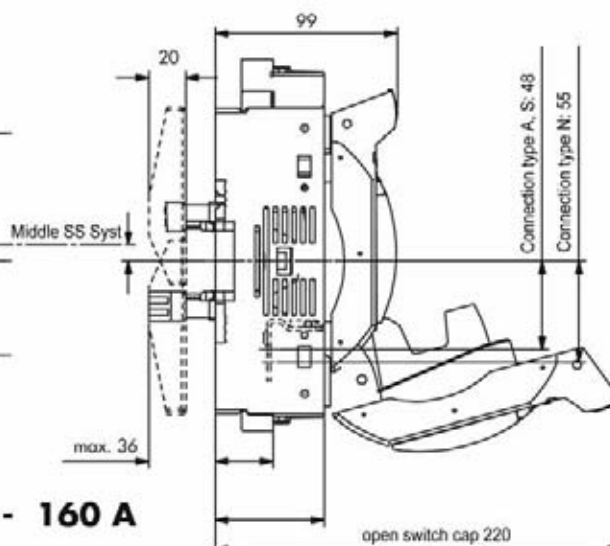
SCHRACK-INFO

- Universal for 40 mm and 60 mm bar/rail system
- Universal for 5 mm and 10 mm busbar strength
- Universal version: Cable outlet above or below
- Technical power data according to IEC 947 / EN 60947 same as in the surface mounting variant
- With motor protection device and fuse monitoring

IS 505290 - 250 A IS 505251 - 400 A



IS 505223 - 160 A



DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
3-pole Size 00 - 160 A, M8	108x202x99	IS505223
3-pole Size 00 - 160 A, M8 + fuse monitoring	108x202x161	IS505263
3-pole Size 1 - 250 A, M10	185x246x135	IS505290
3-pole Size 1 - 250 A, M10 + fuse monitoring	185x246x213	IS505265
3-pole Size 2 - 400 A, M10	205x259x233	IS505251

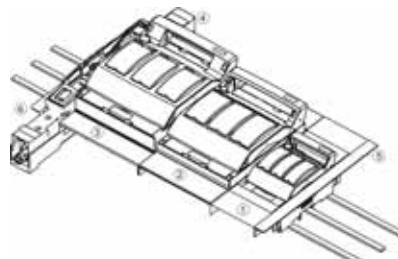
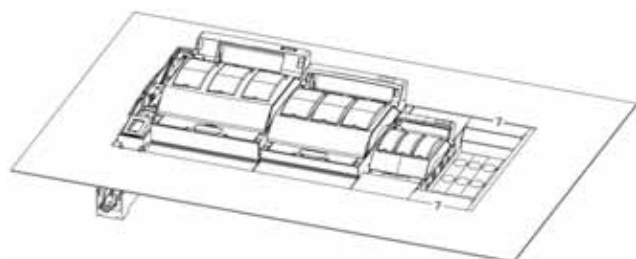
■ SIZE 00 FOR 60/100/185 mm BUSBAR SYSTEM WITH ACCESSORIES

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Loadbreak strip 3-pole Size 00 - 160 A, M8 + Cable cover + Claw set for direct assembly	50x406x116	IS505260

■ ARROW BLOC HRC FUSE LOADBREAK DISCONNECTOR BUSBAR ASSEMBLY - ACCESSORIES

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
SS grip protection 3 p, 1set=2pcs	B=185	IS505747

■ ARROW BLOC – SCREEN SYSTEMS



DESCRIPTION	ORDER NO.
Arrow bloc compensation screen 00/70 mm, refer to diagram Point 1	IS505870
Arrow bloc compensation screen 1/70 mm, refer to diagram Point 2	IS505871
Arrow bloc compensation screen 2/70 mm, refer to diagram Point 3	IS505872
Multivert compensation cap 00/70 mm, refer to diagram Point 4	IS505873
Arrow bloc/Multivert closing angle 70/90 mm, refer to diagram Point 5/6	IS505874
Arrow bloc compensation screen 00/90 mm, refer to diagram Point 1	IS505875
Arrow bloc compensation screen 1/90 mm, refer to diagram Point 2	IS505876
Arrow bloc compensation screen 2/90 mm, refer to diagram Point 3	IS505877
Arrow bloc compensation screen 3/90 mm, as in diagram Point 3	IS505878
Multivert compensation cap 00/90 mm, refer to diagram Point 4	IS505879
4-fold D02 Arrow bloc screens with upper and lower sides, H = 70 mm, W = 108 mm refer to diagram Point 7	IS505257
4-fold D02 Multivert screens with upper and lower sides, H = 70 mm, W = 108 mm, refer to diagram Point 7	IS505258

BUSBAR ADAPTER – EQUES EASYCONNECTOR



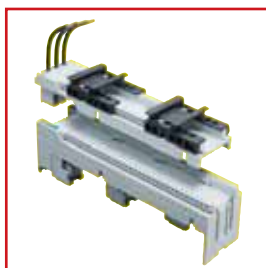
BUSBAR ADAPTER

SCHRACK-INFO

- 3-pole, 25 - 80 A
- Adapter widths 45 mm to 81 mm can be combined
- For rails 12-30x5/10, TT and TTT profile
- Multi-purpose base for 5 and 10 mm thick rails
- Ultrasound welded lines
- Length 200 mm or 260 mm

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Busbar adapter 25 A, 45mm wide, 1 mounting rail, 3 x 4 mm ² Lines	45x200	SI324300
Busbar adapter 25 A, 45mm wide, 2 mounting rail, 3 x 4 mm ² Lines	45x200	SI324310
Busbar adapter 25 A, 45mm wide, 2 mounting rail, 3 x 6 mm ² Connection terminals	45x200	SI324360
Busbar adapter 32 A, 54mm wide, 1 mounting rail, 3 x 6 mm ² Lines	54x200	SI324410
Busbar adapter 32 A, 54mm wide, 2 mounting rails, 3 x 6 mm ² Lines	54x200	SI324420
Busbar adapter 32 A, 63mm wide, 1 mounting rail, 3 x 6 mm ² Lines	63x200	SI324430
Busbar adapter 32 A, 72mm wide, 1 mounting rail, 3 x 6 mm ² Lines	72x200	SI324440
Busbar adapter 63 A, 54mm wide, 1 mounting rail, 3x10 mm ² Lines	54x200	SI324540
Busbar adapter 63 A, 54mm wide, 2 mounting rails, 3x10 mm ² Lines	54x200	SI324550
Busbar adapter 63 A, 63mm wide, 1 mounting rail, 3 x 10 mm ² Lines	63x200	SI324560
Busbar adapter 63 A, 72mm wide, 1 mounting rail, 3 x 10 mm ² Lines	72x200	SI324570
Busbar adapter 63 A, 81mm wide, 2 mounting rails, 3 x 10 mm ² Lines	81x200	SI324590
Busbar adapter 80 A, 81mm wide, 2 mounting rails, with connection terminals 16 mm ²	81x182x60	SI326100
Device suport without bonding, 45mm wide, 1 mounting rail	45x182x60	SI324770
Device suport without bonding, 54mm wide, 1 mounting rail	54x182x60	SI324780
PE/N adapter module with connection terminals 2 x 16 mm ² without lines, 18 mm width	18x242x60	SI320070
Separate mounting rail, 72 mm	35x70x7,5	SI329030

EQUES MOTORCONTROLLER



SI324120



SI324120

SCHRACK-INFO

- 3-pole 25 - 45 A
- Adapter widths 45, 54 mm and can be combined
- For rails 12 - 30 x 5/10 mm, TT and TTT profile
- Multi-purpose base for 5 and 10 mm thick rails
- Ultrasound welded lines
- Length 200 and 260 mm
- Offers MCC Technology
- Busbar protected against accidental contact for device exchange

DESCRIPTION	DIM. (WxH) mm	ORDER NO.
Busbar adapter, 2 mounting rails	54x200	SI324120
Side module, attachable on both sides	9x200	SI329630

■ DEVICE ADAPTERS FOR CIRCUIT-BREAKERS AND SWITCH-DISCONNECTORS FOR 60 mm BUSBAR SYSTEM, MC1, MC2, MC3



MC195700



MC291400



MC391668

■ SCHRACK INFO

- For mounting on flat copper rails 12 x 5 mm bis 30 x 10 mm
- Double T and triple T profile
- Snaps onto the voltage-free busbar
- Rated operational voltage U_e : 690 V

■ TECHNICAL DATA

MC 1 up to 160 A:

- For switches with standard box terminal connection
- Connected to system via terminal strips above
- Can be used in connection with IP2X finger protection to increase accidental-contact protection against accidental contact on outgoing side

MC 2 up to 250 A:

- Top or bottom connection to system as required
- Cover plate MC2-XKR4 required

MC 3 up to 630 A:

- Connection to system from top
- For component adapter MC3-XKR13 with rear connection, cover plate needed

DESCRIPTION	ORDER NO.
MC1	
60 mm busbar adapter 160 A for MC1, 3 pole	MC195700
4 pole adapter with cover plate	upon request
MC2	
60 mm busbar adapter 250 A for MC2, 3 pole	MC291400
Cover plate for component adapter MC2, 3 pole	MC291666
4 pole adapter with cover plate	upon request
MC3	
60 mm busbar adapter 550 A for MC3, 3 pole for MC3	MC391700
Cover plate for component adapter MC3, 3 pole	MC391668
4 pole adapter with cover plate	upon request

UNIVERSAL ADAPTER 200 A – 630 A



UNIVERSAL ADAPTER

SCHRACK-INFO

- 3-pole for all commercial switchgear and control gear
- Connection version above or below
- With fastening screws M4 (M5, M6 refer to accessories) for adapter 200 A/250 A
- With fastening screws M4 (M6, M8 refer to accessories) for adapter 630 A
- 200 A - Box terminal version for conductor 6-70 mm², mc, stranded, stranded with ensleeve or laminar copper 10x16x0.8
- 250 A - Box terminal version for conductor 35-120 mm², mc, stranded, stranded with ensleeve or laminar copper 10x20x0.8
- 630 A - Screw M12/240 mm² or connection fish plate flat rails up to 14x25 mm
- For bonding on un-drilled busbar

DESCRIPTION/RATED CURRENT	DIM. (WxH) mm	ORDER NO.
Outgoing terminal above/200 A	108x222	SI322140
Outgoing terminal below/200 A	108x222	SI322150
For MG-NS100, NS250/250 A	106x192	SI321560
Outgoing terminal above/250 A	110x320	SI321680
Outgoing terminal below/250 A	110x320	SI322160
Outgoing terminal above/below/630 A	238x320	SI322620

BUSBAR CARRIER FOR 185 mm UP TO 2100 A



BUSBAR CARRIER

SCHRACK-INFO

- High protection against short circuit and temperature stability
- Silicone-free, chlorine-free
- Temperature stability 120° C/V0
- Non-tracking quality CTI 600
- For bore-free assembly of busbars 30-120x10, TT and TTT profile (for busbar carrier SI012300)

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Bore-free assembly for 30-120x10mm, TT/TTT profile in the 185 mm system	30x580x65	SI012300
For bored rails from 30x10 to 120x10 mm in the 100/185 mm system	32x412x40	SI010040

CUPONAL



CU201003

SCHRACK-INFO

Cuponal current-carrying rails are used globally for following ranges of application:

- Distributors in the low voltage range
- Distributors in the high voltage range
- Switch cabinets
- Busbar distribution systems
- Vacuum switchboard plants
- Motor monitoring centers
- Generators, transformers, rectifiers
- Certifications: Germanischer Lloyd, Det Norske Veritas, Bureau Veritas, Lloyds, UL

CONSTANT CURRENT AT 65° C RAIL TEMPERATURE	DIM. (WxHxD) mm	ORDER NO.
94 A	2000x10x3	CU201003
168 A	2000x20x3	CU202003
225 A - sharp-edged	2000x20x5	CU2S2005
313 A - sharp-edged	2000x30x5	CU2S3005
400 A	2000x40x5	CU204005
472 A - sharp-edged	2000x30x10	CU2S3010
595 A	2000x40x10	CU204010
705 A	2000x50x10	CU205010
820 A	2000x60x10	CU206010
1030 A	2000x80x10	CU208010

CONDUTOR CONNECTIONS TERMINAL FOR BUSBAR SYSTEM

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
10 mm/1.5-16 mm ² /sc, mc, stranded, stranded with ensleeve	11.5x22.5x35	SI012890
10 mm/4-35 mm ² /sc, mc, stranded, stranded with ensleeve, la. Cu 3/6x9x0.8	15.5x29x45	SI012900
10 mm, TT-, TTT Profiles/16-70 mm ² /mc, stranded, stranded with ensleeve, 2x la. Cu 3/6x9x0.8	20.5x32	SI012920
10 mm, TT-, TTT Profiles/16-120 mm ² /mc, stranded, stranded with ensleeve, la. Cu 10x16x0.8	23.5x36x65	SI012030

ARROW LINE HRC FUSE LOAD BREAKER



IS505301



IS505303

TECHNICAL DATA

Sz. 00, 1, 2, 3:	3-Poles
Thermal current in open air:	160/250/400/630 A
Max. powerloss of HRC-fuses:	12/23/34/48 W
Rated voltage U _e :	AC 400/500/690 V
Utilization category:	AC 23/22/21B
Rated isolation voltage U _i :	1000 V
Rated frequency:	50-60 Hz
Protection class:	IP 20
Degree of pollution:	3
Rated operation category:	permanent
Rated short current switch capacity:	6,1/8/8/12,6 kA per second
Rated short circuit making capacity with NH-fuse links:	50/50/25 kA

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
ARROW LINE – SIZE 00 UP TO 160 A		
HRC-fuse load breaker 3pol. Gr. 00 - 160 A - 100 mm busbarsystem, M8	50x406x116	IS505261
Singleadapter Gr. 00; 100 mm to 185 mm busbarsystem	-	IS505327
Doubleadapter Gr. 00; 100 mm to 185 mm busbarsystem	-	IS505326
ARROW LINE – SIZE 1 UP TO 250 A		
Size 1 to 250 A, 3pol. switchable M10, for 185 mm busbarsystem	100x725x157	IS505305
ARROW LINE – SIZE 2 UP TO 400 A		
Size 2 to 400 A, 3pol. switchable M12 for 185 mm busbarsystem	100x725x157	IS505311
ARROW LINE – SIZE 3 UP TO 630 A		
Size 3 to 630 A, 3pol. switchable M12 for 185 mm busbarsystem	100x725x157	IS505320

HRC FUSES OF TYPE 00.SE TO 3.SE



HRC FUSES

SCHRACK-INFO

- Isolator body made from Stealit
- Contact blade made from one piece
- Antimagnetic cover plate
- Silver casing fusible conductor
- Front detector
- Operating category: gL
- Anticorrosive

CERTIFICATIONS

EN/IEC-SN40

RANGE OF APPLICATION

These HRC fuses are used to protect cables and lines. HRC fuses ensure that impermissible overcurrents up to the rated current of the fuse are shut down. Sz. 000 (C00) to 100 A only 2 cm wide.

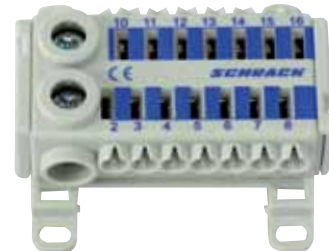
SIZE/RATED CURRENT/RATED VOLTAGE	ORDER NO.
SIZE 00	
00/6 A/400 V AC	ISP00006
00/10 A/400 V AC	ISP00010
00/16 A/400 V AC	ISP00016
00/20 A/400 V AC	ISP00020
00/25 A/400 V AC	ISP00025
00/32 A/400 V AC	ISP00032
00/35 A/400 V AC	ISP00035
00/40 A/400 V AC	ISP00040
00/50 A/400 V AC	ISP00050
00/63 A/400 V AC	ISP00063
00/80 A/400 V AC	ISP00080
00/100 A/400 V AC	ISP00100
00/125 A/400 V AC	ISP00125
00/160 A/400 V AC	ISP00160
SIZE 1	
1/35 A/400 V AC	ISP01035
1/50 A/400 V AC	ISP01050
1/63 A/400 V AC	ISP01063
1/80 A/400 V AC	ISP01080
1/100 A/400 V AC	ISP01100
1/125 A/400 V AC	ISP01125
1/160 A/400 V AC	ISP01160
1/200 A/400 V AC	ISP01200
1/250 A/400 V AC	ISP01250
SIZE 2	
2/35 A/400 V AC	ISP02035
2/50 A/400 V AC	ISP02050
2/63 A/400 V AC	ISP02063
2/80 A/400 V AC	ISP02080
2/100 A/400 V AC	ISP02100
2/125 A/400 V AC	ISP02125
2/160 A/400 V AC	ISP02160
2/200 A/400 V AC	ISP02200
2/225 A/400 V AC	ISP02225
2/250 A/400 V AC	ISP02250
2/315 A/400 V AC	ISP02315
2/400 A/400 V AC	ISP02400
SIZE 3	
3/200 A/400 V AC	ISP03200
3/250 A/400 V AC	ISP03250
3/315 A/400 V AC	ISP03315
3/400 A/400 V AC	ISP03400
3/500 A/400 V AC	ISP03500
3/630 A/400 V AC	ISP03630

TOP-TECHNIC



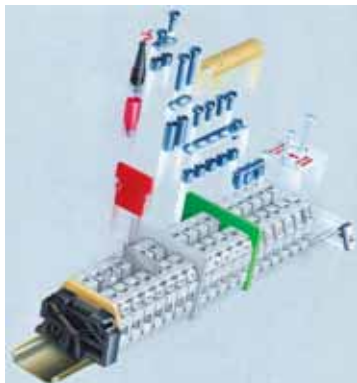
TERMINALS

TOP-TECHNIC



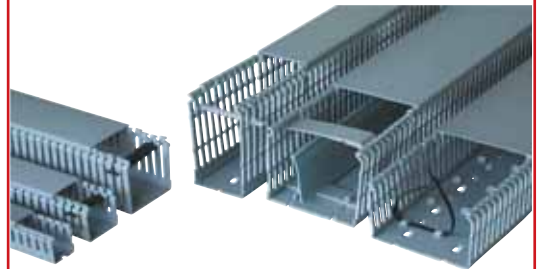
EASY CONNECTION BOX

TOP-TECHNIC



SCREW-TYPE TERMINALS

TOP-TECHNIC



WIRING DUCTS

CONNECTION AND INSTALLATION SYSTEM

CONTENTS

TERMINALS	Page 166
EASY CONECTION BOX	Page 168
SCREW-TYPE TERMINALS / ACCESSORIES	Page 169
SCREW-CLAMP FEED-THROUGH TERMINALS	Page 170
EARTH TERMINAL BLOCKS	Page 172
TERMINALS ON TWO AND THREE LEVELS	Page 174
HIGH CURRENT TERMINALS	Page 175
SPRING-CLAMP FEED-THROUGH TERMINALS	Page 176
SPECIAL TERMINALS	Page 178
ACCESSORIES	Page 180
WIRING DUCTS	Page 188

ELECTRIC MAIN BRANCH TERMINALS



IKB14016



IK04050



IKB01035

SCHRACK-INFO

- For DIN-rail or mounting plate
- UL listed
- Protection class IP 20

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Electric main branch terminal 1pol. 80A, input 1 x 16mm ² , output 2 x 6mm ² and 3 x 16mm ²	27x66x47	IKB01016
Electric main branch terminal 1pol. 125A, input 1 x 35mm ² , output 6 x 16mm ²	27x66x47	IKB01035
Electric main branch terminal 1pol. 160A, input 1 x 70mm ² , output 6 x 16mm ²	35x92x49	IKB01070
Electric main branch terminal 1pol. 250A, input 1 x 120mm ² , output 2 x 6mm ² , 4 x 10mm ² and 4 x 16mm ²	44,5x95,5x49	IKB01120
Electric main branch terminal 1pol. 400A, input 1 x 185mm ² , output 2 x 35mm ² , 5 x 16mm ² and 4 x 10mm ²	44,5x95,5x49	IKB01185
Electric main branch terminal 1pol. 80A, per Pol: input 1 x 16mm ² , output 8 x 10mm ²	85x80x48	IKB04016
Electric main branch terminal 4pol. 100A, per Pol: input 1 x 35mm ² , output 3 Pole 2 x 16mm ² and 5 x 6mm ² , 1 Pol output 6 x 16mm ² and 4 x 6mm ²	74,5x98x45	IKB14016
Electric main branch terminal 4pol. 125A, per Pol: input 1 x 35mm ² , output 10 x 16mm ²	85x129x48	IKB04035
Electric main branch terminal 4pol. 160A, per Pol: input 1 x 50mm ² , output 3 x 35mm ² and 8 x 16mm ²	90x160,5x50	IKB04050

N AND PE TERMINALS



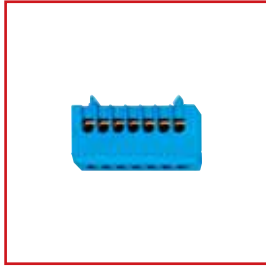
IK021036

SCHRACK-INFO

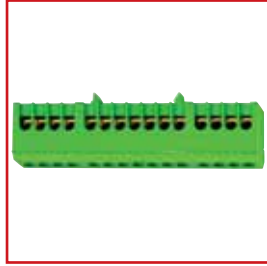
- Can be snapped on H rail
- Max. load 63 A

DESCRIPTION	ORDER NO.
NL/PE terminals can be screwed down	BK004405
PE 15 outgoing terminals	IK021039
N 15 outgoing terminals	IK021038
PE 7 outgoing terminals	IK021037
N 7 outgoing terminals	IK021036

INSULATED N- AND PE TERMINALS



IK021036



IK021039

SCHRACK-INFO

- Can be snapped on H rail
- Max. load 63A
- Insulated
- Terminal cross-section 16 mm² (single core)
(10 mm² for stranded wire with sleeve)

DESCRIPTION	ORDER NO.
Insulated PE terminal, 15 outgoing terminals	IK021039I
Insulated N terminal, 15 outgoing terminals	IK021038I
Insulated PE terminal, 7 outgoing terminals	IK021037I
Insulated N terminal, 7 outgoing terminals	IK021036I

NEUTRAL CONDUCTOR RAIL AND SUPPORT



IK018004

SCHRACK-INFO

- Support: 2 NL rails can be snapped on
- Support on top hat rail can be snapped on or should be fitted with screw and slide nut on C rail.

DESCRIPTION	ORDER NO.
Neutral conductor support 10 mm ²	IK018004
Neutral conductor support 16 mm ²	IL900315
10 mm ² Neutral conductor rail, L=1 m	IK020014
16 mm ² Neutral conductor rail, L=1 m	IK020018
25 mm ² Neutral conductor rail, L=1 m	IK020013
4step insulated part	IK020017
Cover for IK 020017, L=1 m	IK020011
Additional terminal for connection up to 25 mm ²	IK020015
Additional steel terminal 25 mm ²	IK020016

POTENTIAL EQUALIZATION RAIL



BS900200

SCHRACK-INFO

- Up to 100 A
- With plastic cover
- 1 earthing tape up to 30 x 3.5 mm
- 1 massive round conductor 7 - 10 mm (protection against lightening)
- Nominal cross-section and starting torque marked on the terminal

CERTIFICATIONS

VDE 0606 art. 7 and art. 8

DESCRIPTION	ORDER NO.
Potential equalization rail	BS900200

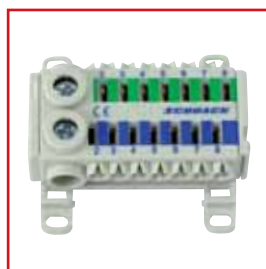
EASY CONNECTION BOX



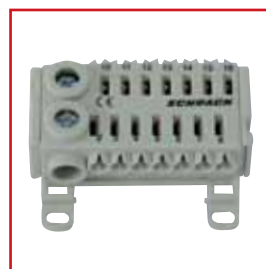
IK021078



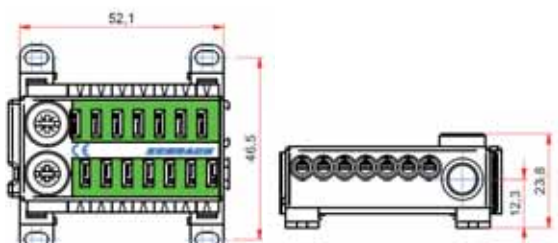
IK021079



IK021080



IK021081



SCHRACK-INFO

- Compact size
- Can be mounted directly onto mounting plate or alternatively snapped onto top-hat rail
- Horizontal and vertical mounting on top-hat rail possible
- Quick-connect spring-clamp terminal system for outgoing terminals
- Can be installed side by side
- Available in gray, blue, green and blue / green

TECHNICAL DATA

- Materials:
 - Terminal carrier: Plain brass
 - Housing: PA66-V0 gray RAL 7035
 - Cover: PA66-V0 gray RAL 7035
 - End caps: PA66-V0 gray RAL 7035
 - Terminal board: E-Cu
 - Threaded pin: Steel, combi-slot
- Temperature resistance: HDT B ISO179 = 200 °C – UL94-V0/1,5
- CTI value, insulating materials: 600V
- Specifications: EN 60998-1:2004, EN 60998-2:2004, EN60998-2-2:2004, EN60999-1:2000, VDE 0603-1
- Electrical data:
 - Max. load capacity: 80A
 - Protection class: IP20

CONNECTION OPTIONS

Screw terminals

Cable type:	H07V-U - single-wire H07V-R – stranded	H07V-K - fine-wire (with end sleeve)
Max. connection Ø:	25 mm ²	16 mm ²
Min. connection Ø:	1,5 mm ²	1,5 mm ²

Quick-connect spring-clamp connection terminals

Cable type:	H05V-U - single-wire H07V-U - single-wire H07V-R - stranded H07V-K - fine-wire (without end sleeve)	H05V-K - fine-wire (with end sleeve) H07V-K - fine-wire (with end sleeve)
Max. connection Ø:	4 mm ²	4 mm ²
Min. connection Ø:	0,5 mm ²	0,5 mm ²

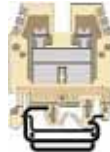
DESCRIPTION	ORDER NO.
EASY CONNECTION BOX blue, 2 x 25 mm ² , 14 x 4 mm ²	IK021078
EASY CONNECTION BOX green, 2 x 25 mm ² , 14 x 4 mm ²	IK021079
EASY CONNECTION BOX blue/green, 1 x 25 mm ² , 7 x 4 mm ²	IK021080
EASY CONNECTION BOX blank, 2 x 25 mm ² , 14 x 4 mm ²	IK021081



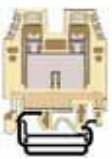
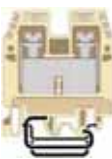
Insulating body:

- Page
-
- 169

SCREW-CLAMP FEED-THROUGH TERMINALS

				
TYPE	CBD.2	CBD.4	CBD.6	CBD.10
RATED CROSS-SECTION				
Connection capacity rated cross-section	0,5-4mm ²	0,5-6mm ²	0,5-10mm ²	0,5-16mm ²
Max. rigid	4mm ²	6mm ²	10mm ²	16mm ²
Max. multistrand	4mm ²	6mm ²	10mm ²	16mm ²
Max. flexible	4mm ²	6mm ²	10mm ²	16mm ²
Max. flexible with ferrule	2,5mm ²	4mm ²	6mm ²	10mm ²
Insulation stripping length	13	14	14	14
Thickness (mm)	5.5	6.5	8	10
Height / width / thickness (mm)	40,5 x 5,5 x 47	44 x 6,5 x 52	44 x 8 x 52	44 x 10 x 55
Tightening torque value (test/recommended) (Nm)	0,4/0,8	0,5/1,2	0,8/1,4	1,2/1,9
Rated current (A)	29	40	58	77
ORDER NO.				
Terminal beige	IK100002	IK100004	IK100006	IK100010
Terminal blue	IK101002	IK101004	IK101006	IK101010
END SECTIONS				
End sections beige	IK100202	IK100204	IK100204	IK100210
End sections blue	IK101202	IK101204	IK101204	IK101210
PARTITION				
Partition red	IK108001	IK108004	IK108004	IK108004
Partition green	IK109001	IK109004	IK109004	IK109004
PERMANENT CROSS CONNECTION				
Permanent cross connection for 2 terminals complete	IK100511	IK100542	IK100583	IK100504
Permanent cross connection for 10 terminals complete	IK100803	IK100807	IK100811	–
Permanent cross connection 250mm screw and sleeve	IK100401 IK100611	IK100442 IK100612	IK100413 IK100683	IK100404 IK100603
END BRACKET				
End bracket screw type	IK123000	IK123000	IK123000	IK123000
End bracket snap on type	IK123001	IK123001	IK123001	IK123001
MARKING TAG				
Numbering tag 1-10	IK197510	IK197610	IK197810	IK197110
Numbering tag 11-20	IK197511	IK197611	IK197811	IK197111
Numbering tag 21-30	IK197521	IK197621	IK197821	IK197121
Numbering tag 31-40	IK197531	IK197631	IK197831	IK197131
Numbering tag 41-50	IK197541	IK197641	IK197841	IK197141
Numbering tag 51-60	IK197551	IK197651	IK197851	IK197151
Numbering tag 61-70	IK197561	IK197661	IK197861	IK197161
Numbering tag 71-80	IK197571	IK197671	IK197871	IK197171
Numbering tag 81-90	IK197581	IK197681	IK197881	IK197181
Numbering tag 91-100	IK197591	IK197691	IK197891	IK197191
Numbering tag blank	IK197500	IK197600	IK197800	IK197100

SCREW-CLAMP FEED-THROUGH TERMINALS

				
TYPE	CBD.16	CBD.35	CBD.50	CBD.70
RATED CROSS-SECTION				
Rated cross-section	0,5-25mm ²	0,5-50mm ²	0,5-70mm ²	0,5-95mm ²
Max. rigid	25mm ²	50mm ²	70mm ²	95mm ²
Max. multistrand	25mm ²	35mm ²	50mm ²	70mm ²
Max. flexible	25mm ²	35mm ²	50mm ²	70mm ²
Max. flexible with ferrule	16mm ²	35mm ²	50mm ²	70mm ²
Insulation stripping length	18	20	22	26
Thickness (mm)	12	16	18	20.5
Height / width / thickness (mm)	47 x 12 x 57	52 x 16 x 60	57 x 18 x 62	62 x 20,5 x 71
Tightening torque value (test/recommended) (Nm)	1,8/3,0	2,0/3,5	2,5/5,0	3,0/8,0
Rated current (A)	104	147	180	250
ORDER NO.				
Terminal beige	IK100016	IK100035-A	IK100050	IK100070
Terminal blue	IK101016	IK101035-A	IK101050	IK101070
END SECTIONS				
End sections beige	IK100216	IK100235-A	IK100250	IK100270
End sections blue	IK101216	IK101235-A	IK101250	IK101270
PARTITION				
Partition red	IK108004	IK108005	IK108005	IK108006
Partition green	IK109004	IK109005	IK109005	IK109006
PERMANENT CROSS CONNECTION				
Permanent cross connection for 2 terminals complete	IK100505	IK100506	IK100507	IK100508
Permanent cross connection for 10 terminals complete	–	–	–	–
Permanent cross connection 250mm screw and sleeve	IK100405 IK100605	IK100406 IK100606	IK100407 IK100607	IK100408 IK100608
END BRACKET				
End bracket screw type	IK123000	IK123000	IK123000	IK123000
End bracket snap on type	IK123001	IK123001	IK123001	IK123001
MARKING TAG				
Numbering tag 1-10	Numbering for CBD . 10 (IK197110)			
Numbering tag 11-20	Numbering for CBD . 10 (IK197111)			
Numbering tag 21-30	Numbering for CBD . 10 (IK197121)			
Numbering tag 31-40	Numbering for CBD . 10 (IK197131)			
Numbering tag 41-50	Numbering for CBD . 10 (IK197141)			
Numbering tag 51-60	Numbering for CBD . 10 (IK197151)			
Numbering tag 61-70	Numbering for CBD . 10 (IK197161)			
Numbering tag 71-80	Numbering for CBD . 10 (IK197171)			
Numbering tag 81-90	Numbering for CBD . 10 (IK197181)			
Numbering tag 91-100	Numbering for CBD . 10 (IK197191)			
Numbering tag blank	Numbering for CBD . 10 (IK197100)			

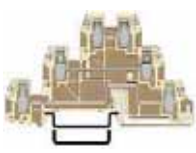
EARTH TERMINAL BLOCKS

				
TYPE	TEO.2	TEO.4	TE.6	TE.10
RATED CROSS-SECTION				
Rated cross-section	0,5-4mm ²	0,5-6mm ²	0,5-10mm ²	0,5-16mm ²
Max. rigid	4mm ²	6mm ²	10mm ²	16mm ²
Max. multistrand	4mm ²	6mm ²	10mm ²	16mm ²
Max. flexible	4mm ²	6mm ²	10mm ²	16mm ²
Max. flexible with ferrule	2,5mm ²	4mm ²	6mm ²	10mm ²
Insulation stripping length	12	14	14	13
Thickness (mm)	5.5	6.5	8	10
Height / width / thickness (mm)	50 x 5,5 x 47	49 x 6,5 x 52	42 x 8 x 52	47 x 10 x 55
Tightening torque value (test/recommended) (Nm)	0,4/0,8	0,5/1,2	0,8/1,4	1,2/1,9
ORDER NO.				
Earth terminal yellow / green	IK122002-A	IK122004-A	IK122006	IK122010
END SECTIONS				
End sections yellow / green	IK122202	IK122204	covered terminal	
END BRACKET				
End bracket screw type EN50022/TS 35	IK123000			
End bracket snap on type EN50022/TS 35	IK123001			
MARKING TAG				
Numbering tag 1-10	IK197510	IK197610	IK197810	IK197110
Numbering tag 11-20	IK197511	IK197611	IK197811	IK197111
Numbering tag 21-30	IK197521	IK197621	IK197821	IK197121
Numbering tag 31-40	IK197531	IK197631	IK197831	IK197131
Numbering tag 41-50	IK197541	IK197641	IK197841	IK197141
Numbering tag 51-60	IK197551	IK197651	IK197851	IK197151
Numbering tag 61-70	IK197561	IK197661	IK197861	IK197161
Numbering tag 71-80	IK197571	IK197671	IK197871	IK197171
Numbering tag 81-90	IK197581	IK197681	IK197881	IK197181
Numbering tag 91-100	IK197591	IK197691	IK197891	IK197191
Numbering tag blank	IK197500	IK197600	IK197800	IK197100

EARTH TERMINAL BLOCKS

			
TYPE	TE.16	TE.50	TE.70
RATED CROSS-SECTION			
Rated cross-section	0,5-25mm ²	0,5-70mm ²	0,5-95mm ²
Max. rigid	25mm ²	70mm ²	95mm ²
Max. multistrand	25mm ²	50mm ²	70mm ²
Max. flexible	25mm ²	50mm ²	70mm ²
Max. flexible with ferrule	16mm ²	50mm ²	70mm ²
Insulation stripping length	13	17	26
Thickness (mm)	12	18	
Height / width / thickness (mm)	47 x 12 x 56	57 x 18 x 62	48 x 18 x 62
Tightening torque value (test/recommended) (Nm)	1,8/3,0	2,0/3,5	3,0/8,0
ORDER NO.			
Earth terminal yellow / green	IK122016	IK122035	IK122070
END SECTIONS			
End sections yellow / green	covered terminal		terminal without cover
END BRACKET			
End bracket screw type EN50022/TS 35	IK123000		
End bracket snap on type EN50022/TS 35	IK123001		
MARKING TAG			
Numbering tag 1-10	Numbering for CBD . 10 (IK197110)	–	
Numbering tag 11-20	Numbering for CBD . 10 (IK197111)	–	
Numbering tag 21-30	Numbering for CBD . 10 (IK197121)	–	
Numbering tag 31-40	Numbering for CBD . 10 (IK197131)	–	
Numbering tag 41-50	Numbering for CBD . 10 (IK197141)	–	
Numbering tag 51-60	Numbering for CBD . 10 (IK197151)	–	
Numbering tag 61-70	Numbering for CBD . 10 (IK197161)	–	
Numbering tag 71-80	Numbering for CBD . 10 (IK197171)	–	
Numbering tag 81-90	Numbering for CBD . 10 (IK197181)	–	
Numbering tag 91-100	Numbering for CBD . 10 (IK197191)	–	
Numbering tag blank	Numbering for CBD . 10 (IK197100)	–	

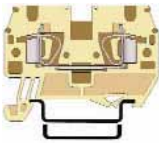
TERMINALS ON TWO AND THREE LEVELS

				
TYPE	Double deck DAS.4	Three deck TLS.2	Three deck TLD.2	Three deck TDE.2
RATED CROSS-SECTION				
Rated cross-section	0,2-4mm ²	0,2-2,5mm ²	0,2-2,5mm ²	0,2-2,5mm ²
Max. rigid	6mm ²	4mm ²	4mm ²	4mm ²
Max. multistrand	6mm ²	4mm ²	4mm ²	4mm ²
Max. flexible	6mm ²	4mm ²	4mm ²	4mm ²
Max. flexible with ferrule	4mm ²	2,5mm ²	2,5mm ²	2,5mm ²
Insulation stripping length	9	8	8	8
Thickness (mm)	6	6.2	6.2	6.2
Height / width / thickness (mm)	64 x 6 x 62	62,5 x 6,2 x 52	85 x 6,2 x 52	82,5 x 6,2 x 52
Tightening torque value (test/recommended) (Nm)	0,5 / 1,2	0,4 / 0,8	0,4 / 0,8	0,4 / 0,8
Rated current (A)	32 A	24 A	24 A	24 A
ORDER NO.				
Terminal beige	IK150004-A	IK180000	IK180001	IK180002
END SECTIONS				
End sections beige	IK150204-A	IK180200	IK180201	IK180201
PARTITION				
Partition red	IK108006	IK108004	IK108004	IK108004
Partition green	IK109006	IK109004	IK109004	IK109004
PERMANENT CROSS CONNECTION				
Permanent cross connection 250mm screw and sleeve	IK100458 IK100601	IK100402 IK100611	IK100402 IK100611	IK100402 IK100611
END BRACKET				
End bracket screw type EN50022/TS 35	IK123000	IK123000	IK123000	IK123000
End bracket snap on type EN50022/TS 35	IK123001	IK123001	IK123001	IK123001
MARKING TAG				
Numbering tag 1-10	IK197510	IK197710	IK197710	IK197710
Numbering tag 11-20	IK197511	IK197711	IK197711	IK197711
Numbering tag 21-30	IK197521	-	-	-
Numbering tag 31-40	IK197531	-	-	-
Numbering tag 41-50	IK197541	-	-	-
Numbering tag 51-60	IK197551	-	-	-
Numbering tag 61-70	IK197561	-	-	-
Numbering tag 71-80	IK197571	-	-	-
Numbering tag 81-90	IK197581	-	-	-
Numbering tag 91-100	IK197591	-	-	-
Numbering tag blank	IK197500	-	-	-

HIGH CURRENT TERMINALS

			
TYPE	GPM.150/BC	CDA.120/CC	CDA.185/CC
RATED CROSS-SECTION			
Rated cross-section	50-150mm ²	6-120mm ²	6-185mm ²
Max. rigid	185mm ²	150mm ²	240mm ²
Max. multistrand	185mm ²	150mm ²	240mm ²
Max. flexible	150mm ²	185mm ²	185mm ²
Max. flexible with ferrule	–	–	–
Insulation stripping length	35	32	40
Thickness (mm)	42	32	38
Height / width / thickness (mm)	170 x 42 x 134	96 x 32 x 101	110 x 38 x 117
Tightening torque value (test/recommended) (Nm)	10 / 15	4 / 10	- / 14
Rated current (A)	309 A	269 A	353 A
ORDER NO.			
Terminal beige	IK160000	IK114120	IK114185
END SECTIONS			
End sections beige	terminal closed	IK119200	IK119201
PARTITION			
Partition red	–	–	–
Partition green	–	–	–
PERMANENT CROSS CONNECTION			
Permanent cross connection 250mm screw and sleeve	–	–	–
END BRACKET			
End bracket screw type EN50022/TS 35	IK123000	IK123000	IK123000
End bracket snap on type EN50022/TS 35	–	–	–
MARKING TAG			
Numbering tag 1-10	–	–	–
Numbering tag 11-20	–	–	–
Numbering tag 21-30	–	–	–
Numbering tag 31-40	–	–	–
Numbering tag 41-50	–	–	–
Numbering tag 51-60	–	–	–
Numbering tag 61-70	–	–	–
Numbering tag 71-80	–	–	–
Numbering tag 81-90	–	–	–
Numbering tag 91-100	–	–	–
Numbering tag blank	–	–	–

SPRING CLAMP TERMINAL

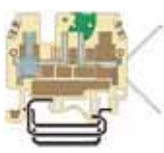
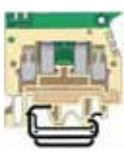
				
TYPE	HMM.2	HMM.4	HMM.6	HMM.2 / 2+2
RATED CROSS-SECTION				
Rated cross-section	0,2-2,5mm ²	0,2-4mm ²	0,2-6mm ²	0,2-2,5mm ²
Max. rigid	4mm ²	6mm ²	10mm ²	4mm ²
Max. multistrand	4mm ²	6mm ²	10mm ²	4mm ²
Max. flexible	2,5mm ²	4mm ²	6mm ²	2,5mm ²
Max. flexible with ferrule	–	–	–	–
Insulation stripping length	13	17	14	–
Thickness (mm)	5.2	6.2	8.2	–
Height / width / thickness (mm)	50 x 5,2 x 37	58 x 6,2 x 41	62 x 8,2 x 44	–
Rated current (A)	24 A	32 A	41 A	–
ORDER NO.				
Terminal beige	IK200002-C	IK200004-C	IK200006-C	IK800002-C
Terminal blue	IK201002-A	IK201004	IK201006	–
Terminal yellow / green	–	–	–	–
END SECTIONS				
End sections beige	IK200202-C	IK200204-C	IK200206-C	IK800202-C
End sections blue	IK201202-A	IK201204	–	–
End sections yellow / green	–	–	–	–
PERMANENT CROSS CONNECTION				
Permanent cross connection for 2 terminals complete	IK200502-A	IK200502--	–	IK200502-A
Permanent cross connection for 47 terminals complete	IK200547	–	–	IK200547
END BRACKET				
End bracket screw type EN50022/TS 35	IK123000	IK123000	IK123000	IK123000
End bracket snap on type EN50022/TS 35	IK123001	IK123001	IK123001	IK123001
MARKING TAG				
Numbering tag 1-10	IK297210	IK297410	IK297410	IK297210
Numbering tag 11-20	IK297211	IK297411	IK297411	IK297211
Numbering tag 21-30	IK297221	IK297421	IK297421	IK297221
Numbering tag 31-40	IK297231	IK297431	IK297431	IK297231
Numbering tag 41-50	IK297241	IK297441	IK297441	IK297241
Numbering tag 51-60	IK297251	IK297451	IK297451	IK297251
Numbering tag 61-70	IK297261	IK297461	IK297461	IK297261
Numbering tag 71-80	IK297271	IK297471	IK297471	IK297271
Numbering tag 81-90	IK297281	IK297481	IK297481	IK297281
Numbering tag 91-100	IK297291	IK297491	IK297491	IK297291
Numbering tag blank	IK297200	IK297400	IK297400	IK297200

SPRING-CLAMP FEED-THROUGH TERMINALS

SPRING-CLAMP FEED-THROUGH TERMINALS AND EARTH TERMINALS

				
TYPE	HMD.2N	HTE.2	HTE.4	HTE.6
RATED CROSS-SECTION				
Rated cross-section	0,2-2,5mm ²	0,2-2,5mm ²	0,2-4mm ²	0,2-6mm ²
Max. rigid	2,5mm ²	4mm ²	6mm ²	10mm ²
Max. multistrand	2,5mm ²	4mm ²	6mm ²	10mm ²
Max. flexible	2,5mm ²	2,5mm ²	4mm ²	6mm ²
Max. flexible with ferrule				
Insulation stripping length	13	13	17	18
Thickness (mm)	5.2	5.2	6.2	8.2
Height / width / thickness (mm)	73 x 5,2 x 59	70 x 5,2 x 37	58 x 6,2 x 41	62 x 8,2 x 44
Rated current (A)				
ORDER NO.				
Terminal beige	IK250002-C	-	-	-
Terminal blue	-	-	-	-
Terminal yellow / green	-	IK222002	IK222004	IK222006
END SECTIONS				
End sections beige	IK250202-C	-	-	-
End sections blue	-	-	-	-
End sections yellow / green	-	-	-	IK222206
PERMANENT CROSS CONNECTION				
Permanent cross connection for 2 terminals complete	IK200502-A	-	-	-
Permanent cross connection for 47 terminals complete	IK200547	-	-	-
END BRACKET				
End bracket screw type EN50022/TS 35	IK123000	IK123000	IK123000	IK123000
End bracket snap on type EN50022/TS 35	IK123001	IK123001	IK123001	IK123001
MARKING TAG				
Numbering tag 1-10	IK297210	IK297210	IK297410	IK297410
Numbering tag 11-20	IK297211	IK297211	IK297411	IK297411
Numbering tag 21-30	IK297221	IK297221	IK297421	IK297421
Numbering tag 31-40	IK297231	IK297231	IK297431	IK297431
Numbering tag 41-50	IK297241	IK297241	IK297441	IK297441
Numbering tag 51-60	IK297251	IK297251	IK297451	IK297451
Numbering tag 61-70	IK297261	IK297261	IK297461	IK297461
Numbering tag 71-80	IK297271	IK297271	IK297471	IK297471
Numbering tag 81-90	IK297281	IK297281	IK297481	IK297481
Numbering tag 91-100	IK297291	IK297291	IK297491	IK297491
Numbering tag blank	IK297200	IK297200	IK297400	IK297400

SPECIAL TERMINALS

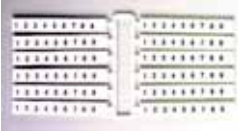
				
TYPE	Disconnect terminal MPS.4	Fuse holder terminal SFR.4	Current transformer terminal SCB.6/CD	Current transformer terminal SCB.6
RATED CROSS-SECTION				
Rated cross-section	0,2-4 mm ²	0,2-4mm ²	0,5-6mm ²	0,5-6mm ²
Max. rigid	6mm ²	6mm ²	10mm ²	10mm ²
Max. multistrand	6mm ²	6mm ²	10mm ²	10mm ²
Max. flexible	6mm ²	6mm ²	10mm ²	10mm ²
Max. flexible with ferrule	4mm ²	4mm ²	6mm ²	6mm ²
Insulation stripping length	9	11	12	12
Thickness (mm)	6	8	8	8
Height / width / thickness (mm)	45 x 6 x 61	52x8x52	65 x 8 x 82	65 x 8 x 69
Rated current (A)	20A	6,3A	41A	41A
ORDER NO.				
Terminal beige	IK130004-A	IK141004	IK170006	IK171006
Terminal blue	IK131004-A	–	–	–
END SECTIONS				
End sections beige	IK130204-A	IK131204	IK170200	IK170200
PARTITION				
Partition red	IK108005	IK108005	IK108005	IK108005
Partition green	IK109005	IK109005	IK109005	IK109005
PERMANENT CROSS CONNECTION				
Permanent cross connection for 2 terminals complete	–	–	IK100520	IK100520
Permanent cross connection for 4 terminals complete	–	–	IK100540	IK100540
END BRACKET				
End bracket screw type EN50022/TS 35	IK123000	IK123000	IK123000	IK123000
End bracket snap on type EN50022/TS 35	IK123001	IK123001	IK123001	IK123001
MARKING TAG				
Numbering tag 1-10	IK197710	IK197810	IK197810	IK197810
Numbering tag 11-20	IK197711	IK197811	IK197811	IK197811
Numbering tag 21-30	–	IK197821	IK197821	IK197821
Numbering tag 31-40	–	IK197831	IK197831	IK197831
Numbering tag 41-50	–	IK197841	IK197841	IK197841
Numbering tag 51-60	–	IK197851	IK197851	IK197851
Numbering tag 61-70	–	IK197861	IK197861	IK197861
Numbering tag 71-80	–	IK197871	IK197871	IK197871
Numbering tag 81-90	–	IK197881	IK197881	IK197881
Numbering tag 91-100	–	IK197891	IK197891	IK197891
Numbering tag blank	–	IK197800	IK197800	IK197800

 SPECIAL TERMINALS

		
TYPE	Orange CBD4 CBD.4	Cut-terminal NCS
RATED CROSS-SECTION		
Rated cross-section	0,5-6mm ²	0,5-1,5mm ²
Max. rigid	6mm ²	1mm ²
Max. multistrand	6mm ²	1mm ²
Max. flexible	6mm ²	1,5mm ²
Max. flexible with ferrule	4mm ²	–
Insulation stripping length	14	–
Thickness (mm)	6.5	6.2
Height / width / thickness (mm)	44 x 6,5 x 52	48 x 6,2 x 53
Rated current (A)	40 A	15 A
ORDER NO.		
Terminal	IK108007 orange	IK120801
Terminal blue	–	–
END SECTIONS		
End sections beige	–	
PARTITION		
Partition red	IK108004	IK108001
Partition green	IK109004	IK109001
PERMANENT CROSS CONNECTION		
Permanent cross connection for 10 terminals	IK100542 IK100807	–
Permanent cross connection 250mm screw and sleeve	IK100442 IK100612	–
END BRACKET		
End bracket screw type EN50022/TS 35	IK123000	IK123000
End bracket snap on type EN50022/TS 35	IK123001	IK123001
MARKING TAG		
Numbering tag 1-10	IK197610	IK197710
Numbering tag 11-20	IK197611	IK197711
Numbering tag 21-30	IK197621	–
Numbering tag 31-40	IK197631	–
Numbering tag 41-50	IK197641	–
Numbering tag 51-60	IK197651	–
Numbering tag 61-70	IK197661	–
Numbering tag 71-80	IK197671	–
Numbering tag 81-90	IK197681	–
Numbering tag 91-100	IK197691	–
Numbering tag blank	IK197600	–

MARKING TAGS

NUMBERING STRIP	FOR FOLLOWING TYPES			
 	CBD.2	CBD.4	CBD.6	CBD.10
	TEO.2	TEO.4	TE.6	CBD.16
	DAS.4	CBD.4 orange		CBD.35
				CBD.50
				CBD.70
				TE.10
				TE.16
				TE.50
	ORDER NO.	ORDER NO.	ORDER NO.	ORDER NO.
Numbering strip 1-10	IK197510	IK197610	IK197810	IK197110
Numbering strip 11-20	IK197511	IK197611	IK197811	IK197111
Numbering strip 21-30	IK197521	IK197621	IK197821	IK197121
Numbering strip 31-40	IK197531	IK197631	IK197831	IK197131
Numbering strip 41-50	IK197541	IK197641	IK197841	IK197141
Numbering strip 51-60	IK197551	IK197651	IK197851	IK197151
Numbering strip 61-70	IK197561	IK197661	IK197861	IK197161
Numbering strip 71-80	IK197571	IK197671	IK197871	IK197171
Numbering strip 81-90	IK197581	IK197681	IK197881	IK197181
Numbering strip 91-100	IK197591	IK197691	IK197891	IK197191
Numbering strip blank	IK197500	IK197600	IK197800	IK197100

NUMBERING STRIP	FOR FOLLOWING TYPES		
	TLS.2	HMM.2	HMM.4
	TLD.2	HMM.2 / 2+2	HMM.6
		HMD.2N	HTE.4
		HTE.2	HTE.6
	ORDER NO.	ORDER NO.	ORDER NO.
Numbering strip 1-10	IK197710	IK297210	IK297410
Numbering strip 11-20	IK197711	IK297211	IK297411
Numbering strip 21-30	–	IK297221	IK297421
Numbering strip 31-40	–	IK297231	IK297431
Numbering strip 41-50	–	IK297241	IK297441
Numbering strip 51-60	–	IK297251	IK297451
Numbering strip 61-70	–	IK297261	IK297461
Numbering strip 71-80	–	IK297271	IK297471
Numbering strip 81-90	–	IK297281	IK297481
Numbering strip 91-100	–	IK297291	IK297491
Numbering strip blank	–	IK297200	IK297400

 MARKING TAGS

DESCRIPTION	ORDER NO.	FOR FOLLOWING TYPES		
				
Numbering tag 1-50	IK190001			
Numbering tag 51-100	IK190051			
Numbering tag 101-150	IK190101			
Numbering tag 151-200	IK190151			
Numbering tag 201-250	IK190201			
Numbering tag 251-300	IK190251			
Numbering tag 301-350	IK190301			
Numbering tag 351-400	IK190351			
Numbering tag 401-450	IK190401			
Numbering tag 451-500	IK190451			
Numbering tag 501-550	IK190501			
Numbering tag 551-600	IK190551			
Numbering tag 601-650	IK190601	CBD.2	CBD.4	CBD.6
Numbering tag 651-700	IK190651	CBD.16	CBD.35	CBD.50
Numbering tag 701-750	IK190701	CBD.70	TEO.2	TEO.4
Numbering tag 751-800	IK190751	TE.6	TE.10	TE.16
Numbering tag 801-850	IK190801	TE.50	DAS.4	TLS.2
Numbering tag 851-900	IK190851	TLD.2	TDE.2	HMM.2
Numbering tag 901-950	IK190901	HMM.4	HMM.6	HMM.2/2+2
Numbering tag 951-1000	IK190951	HMD.2N	HTE.2	HTE.4
markers "L1" (100 pcs.)	IK190002	HTE.6	MPS.4	SFR.4
markers "L2" (100 pcs.)	IK190003	SCB.6/CD	SCB.6	Orange CBD.4
markers "L3" (100 pcs.)	IK190004	GPM	NCS	CDA
markers 4xABC Groß	IK190011			
markers "N" (100 pcs.)	IK190016			
markers "U" (100 pcs.)	IK190017			
markers "V" (100 pcs.)	IK190018			
markers "W" (100 pcs.)	IK190019			
markers "X" (100 pcs.)	IK190020			
markers "Y" (100 pcs.)	IK190021			
markers "Z" (100 pcs.)	IK190022			
markers "+" (100 pcs.)	IK190023			
markers "- " (100 pcs.)	IK190024			
markers Earth (100 pcs.)	IK190028			
markers withe (100 pcs.)	IK190030			
markers "L" (100 pcs.)	IK190044			

MARKING TAGS CSC

DESCRIPTION	ORDER NO.	FOR FOLLOWING TYPES		
	width 5mm x height 5mm			
Markers "0" (100 pcs.)	IK197900	CBD.2 CBD.4 CBD.6 CBD.16 CBD.35 CBD.50 CBD.70 TEO.2 TEO.4 TE.6 TE.10 TE.16 TE.50 DAS.4 TLS.2 TLD.2 TDE.2 MPS.4 SFR.4 SCB.6/CD SCB.6 Orange CBD.4 NCS GPM CDA		
Markers "1" (100 pcs.)	IK197911			
Markers "2" (100 pcs.)	IK197922			
Markers "3" (100 pcs.)	IK197933			
Markers "4" (100 pcs.)	IK197944			
Markers "5" (100 pcs.)	IK197955			
Markers "6" (100 pcs.)	IK197966			
Markers "7" (100 pcs.)	IK197977			
Markers "8" (100 pcs.)	IK197988			
Markers "9" (100 pcs.)	IK197999			
Markers "0-9" (100 pcs.)	IK197909			
Markers "L" (100 pcs.)	IK197901			
Markers "N" (100 pcs.)	IK197902			
Markers "X" (100 pcs.)	IK197903			
Markers "A" (100 pcs.)	IK197904			
Markers "B" (100 pcs.)	IK197905			
Markers "C" (100 pcs.)	IK197906			
Markers "D" (100 pcs.)	IK197907			
Markers "E" (100 pcs.)	IK197908			
Markers "F" (100 pcs.)	IK197912			
Markers "G" (100 pcs.)	IK197913			
Markers "H" (100 pcs.)	IK197914			
Markers "I" (100 pcs.)	IK197915			
Markers "J" (100 pcs.)	IK197916			
Markers "K" (100 pcs.)	IK197917			
Markers "M" (100 pcs.)	IK197918			
Markers "P" (100 pcs.)	IK197919			
Markers "Q" (100 pcs.)	IK197920			
Markers "R" (100 pcs.)	IK197921			
Markers "S" (100 pcs.)	IK197923			
Markers "T" (100 pcs.)	IK197924			
Markers "U" (100 pcs.)	IK197925			
Markers "V" (100 pcs.)	IK197926			
Markers "W" (100 pcs.)	IK197927			
Markers "Y" (100 pcs.)	IK197928			
Markers "Z" (100 pcs.)	IK197929			
Markers Blank (100 pcs.)	IK197910			

END BRACKET

DESCRIPTION	ORDER NO.	FOR FOLLOWING TYPES
		
End bracket screw type for EN50022/TS 35	IK123000	for all types
		
End bracket snap on type for EN50022/TS 35	IK123001	for all types
		
End bracket for C-Rail	IK113000	for all types
		
End bracket metall for C-Rail	IK119900	for all types
		
Marking tag for end bracket	IK199999	for end bracket IK123000, IK123001, IK113000

PARTITION PLATE

DESCRIPTION	ORDER NO.	DIM (HxWxT)	FOR FOLLOWING TYPES
			
Partition plate 2,5-4mm ² red	IK108210	0,5 x 23 x 20 mm	CBD.2
Partition plate 6mm ² red	IK108600	0,5 x 24 x 31 mm	CBD.2, CBD.4, CBD.6
Partition plate large 6mm ² red	IK108700	0,5 x 28 x 32 mm	CBD.10, CBD.16, CBD.35, CBD.50 CBD.70

COLORED PARTITION

DESCRIPTION	ORDER NO.	DIM (HxWxT)	FOR FOLLOWING TYPES
			
Partition plate 2,5mm white	IK107001	2 x 52 x 51 mm	CBD.2, TEO.2, HMM.4, HMM.6, HTE.2, HTE.4, HTE.6,
Partition plate 2,5mm red	IK108001	2 x 52 x 51 mm	
Partition plate 2,5mm green	IK109001	2 x 52 x 51 mm	
Partition plate 4/6/10/16mm white	IK107004	2 x 52 x 62 mm	CBD.4, CBD.6, CBD.10, CBD.16, TEO.4, TE.6, TE.10, TE.16
Partition plate 4/6/10/16mm red	IK108004	2 x 52 x 62 mm	
Partition plate 4/6/10/16mm green	IK109004	2 x 52 x 62 mm	
Partition plate 35/50mm white	IK107005	2 x 62 x 58 mm	CBD.35, CBD.50, TE.50
Partition plate 35/50mm red	IK108005	2 x 62 x 58 mm	
Partition plate 35/50mm green	IK109005	2 x 62 x 58 mm	
Partition plate 70mm white	IK107006	2 x 72 x 74 mm	CBD.70, TE.70, SCB.6/CD, SCB.6, HMD.2N
Partition plate 70mm red	IK108006	2 x 72 x 74 mm	
Partition plate 70mm green	IK109006	2 x 72 x 74 mm	

PENCIL

DESCRIPTION	ORDER NO.	FOR FOLLOWING TYPES
		
Pencil red	IK198901	for all types
Pencil black	IK193901	

PERMANENT CROSS CONNECTION FOR 2 TERMINALS COMPLETE

DESCRIPTION	ORDER NO.	FOR FOLLOWING TYPES
		
Permanent cross section für 2,5mm für CBD	IK100511	CBD.2
Permanent cross section für 4mm für CBD	IK100542	CBD.4
Permanent cross section für 6mm für CBD	IK100583	CBD.6
Permanent cross section für 10mm für CBD	IK100504	CBD.10
Permanent cross section für 16mm für CBD	IK100505	CBD.16
Permanent cross section für 35mm für CBD	IK100506	CBD.35
Permanent cross section für 50mm für CBD	IK100507	CBD.50
Permanent cross section für 70mm für CBD	IK100508	CBD.70
Permanent cross section f. 2 terminals SCB.6	IK100520	SCB.6
Permanent cross section f. 4 terminals SCB.6	IK100540	SCB.6

PERMANENT CROSS CONNECTION FOR 10 TERMINALS COMPLETE

DESCRIPTION	ORDER NO.	FOR FOLLOWING TYPES
		
Permanent cross section 10 x CBD.2	IK100803	CBD.2
Permanent cross section 10 x CBD.4	IK100807	CBD.4
Permanent cross section 10 x CBD.6	IK100811	CBD.6
Permanent cross section 10 x TLS2/TLD2	IK100816	TLS.2, TLD.2

CROSS CONNECTION FOR SPRING-TERMANIALS

DESCRIPTION	ORDER NO.	FOR FOLLOWING TYPES
		
Cross connection 2-times for HMM.2	IK200502-A	HMM.2, HMM.2/2+2, HMD.2N
Cross connection 2-times for HMM.4	IK200502	HMM.4
Cross connection 47-times for HMM.2	IK200547	HMM.2, HMM.2/2+2, HMD.2N

PERMANENT CROSS CONNECTION 250 mm SCREW AND SLEEVE

DESCRIPTION	ORDER NO.	FOR FOLLOWING TYPES
		
Permanent cross section f. 2,5mm CBD	IK100401	CBD.2
Screw and sleeve f. 2,5mm CBD	IK100611	
Permanent cross section f. 4mm CBD	IK100442	CBD.4
Screw and sleeve f. 4mm CBD	IK100612	
Permanent cross section f. 6mm CBD	IK100413	CBD.6
Screw and sleeve f. 6mm CBD	IK100683	
Permanent cross section f. 10mm CBD	IK100404	CBD.10
Screw and sleeve f. 10mm CBD	IK100603	
Permanent cross section f. 16mm CBD	IK100405	CBD.16
Screw and sleeve f. 16mm CBD	IK100605	
Permanent cross section f. 35mm CBD	IK100406	CBD.35
Screw and sleeve f. 35mm CBD	IK100606	
Permanent cross section f. 50mm CBD	IK100407	CBD.50
Screw and sleeve f. 50mm CBD	IK100607	
Permanent cross section f. 70mm CBD	IK100408	CBD.70
Screw and sleeve f. 70mm CBD	IK100608	

SWITCHABLE CONNECTION

DESCRIPTION	ORDER NO.	FOR FOLLOWING TYPES
		
Switchable connection f. 2,5mm CBD	IK100711	CBD.2
Switchable connection f. 4mm CBD	IK100712	CBD.4
Switchable connection f. 6mm CBD	IK100793	CBD.6
Switchable connection f. 10/16mm CBD	IK100744	CBD.10, CBD.16
Switchable connection f. 35mm CBD	IK100706	CBD. 35
Switchable connection f. 50mm CBD	IK100707	CBD.50
Switchable connection f. 70mm CBD	IK100708	CBD.70

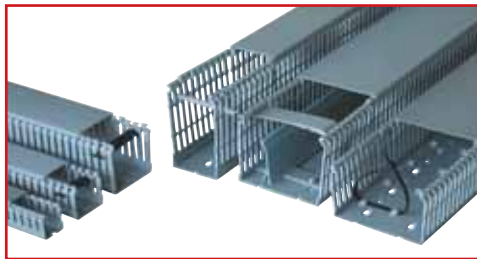
BRIDGE COVER

DESCRIPTION	ORDER NO.	FOR FOLLOWING TYPES
		
Bridge cover for CBD 2,5,4	IK100820	CBD.2, CBD.4
Bridge cover for CBD 6,10,16	IK100821	CBD.6, CBD.10, CBD.16
Bridge cover for CBD 35,50,70	IK100822	CBD.35, CBD.50, CBD.70

PSD SOCKETS - SDD PLUGS

DESCRIPTION	ORDER NO.	FOR FOLLOWING TYPES
		
Bundle-type plugs for 2,5/4/6mm	IK100900	CBD.2, CBD.4, CBD.6, MPS.4, NCS, SFR.4, TDE.2, TLD.2, TLS.2
Bundle-type plugs for 10/16/35/50/70mm	IK100901	CBD.10, CBD.16, CBD.35, CBD.50, CBD.70
Insulated socket for 2,5mm	IK100902	CBD.2, TDE.2, TLD.2, TLS.2
Insulated socket for 4mm	IK100904	CBD.4, MPS.4, NCS, SFR.4
Insulated socket for 6mm	IK100906	CBD.6
Insulated socket for 10/16mm	IK100910	CBD.10, CBD.16, CBD.35
Insulated socket for 35/70mm	IK100935	CBD.50, CBD.70

WIRING DUCT TYPE METRA



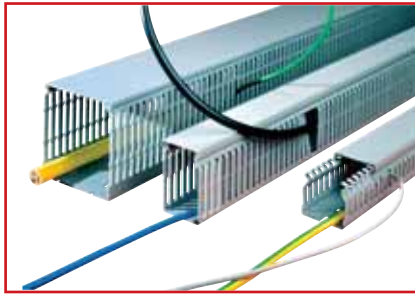
VDK-METRA

SCHRACK-INFO

- Optimum cover fit, easy assembly and disassembly
- Cover contour 90°
- Wire restraint catch from the overall height 80 mm
- Breaking points on the fins and on the duct base
- Use of partition possible for 100 mm width
- Bottomside holing according to DIN EN 50085-2-3, punch/stamp block identical for each length, Single-lane up to 60 mm width, three-lane from 80 mm width
- Great variety of accessories
- Fin width 6.5 mm
- Slot width 4.5 mm
- Material: Hard PVC, leed-free, hardly inflammable, self-extinguishing temperature stability up to 60 °C
- Colour: gray, RAL 7030
- Test VDE, UL/CSA, IMQ
- Delivery in 2 m rod SET

DESCRIPTION	DIM. (WxH) mm	ORDER NO.
Wiring duct Series VDK slotted	25x40	RH229246
Wiring duct Series VDK slotted	25x60	RH229247
Wiring duct Series VDK slotted	25x80	RH229248
Wiring duct Series VDK slotted	30x60	RH229208
Wiring duct Series VDK slotted	30x80	RH229223
Wiring duct Series VDK slotted	40x40	RH229206
Wiring duct Series VDK slotted	40x60	RH229210
Wiring duct Series VDK slotted	40x80	RH229226
Wiring duct Series VDK slotted	40x100	RH229237
Wiring duct Series VDK slotted	60x40	RH229207
Wiring duct Series VDK slotted	60x60	RH229213
Wiring duct Series VDK slotted	60x80	RH229227
Wiring duct Series VDK slotted	60x100	RH229238
Wiring duct Series VDK slotted	80x60	RH229216
Wiring duct Series VDK slotted	80x80	RH229228
Wiring duct Series VDK slotted	100x60	RH229218
Wiring duct Series VDK slotted	100x80	RH229230
Wiring duct Series VDK slotted	100x100	RH229240
Wiring duct Series VDK slotted	120x60	RH229220
Wiring duct Series VDK slotted	120x80	RH229236

WIRING DUCT WITH DIN DIMENSIONS



BE-DIN

SCHRACK-INFO

- Incl. upper parts (can be ordered separately)
- Material: PVC 1309 (tested up to overall height 75 mm according to UL 94 V0, Test No. E167546)
- UL-certified
- Side sealing cover: PVC 1309
- Cable hanging chamber: SB
- Hardly inflammable self-extinguishing according to VDE/UL 94 V0
- Temperature range of -5° C to +60° C
- Colour: RAL 7030 stone gray
- 24 dimensions
- Bottomside holing according to DIN 43659

TECHNICAL DATA

- In increased overall heights wire restrainer is located in the side punching for captive wiring.
- Slight breaking off of the fins due to breaking points on the side walls.
- Safe wiring through both sided tapered side punchings in the upper area prevents the unintended detachment of the locked up cover through inlaid lines.
- Tight fit of the cover for more safety; subsequent unlocking of the cover and re-wiring is always possible.
- A tooth extension is available in the upper area of the tooth for all dimensions, which ensures the safe wire restraint in the duct. Prices in price list and PU are indicated in meters.

DIM. (WxH) mm	SPACE (mm ²)	ORDER NO.
WIRING DUCTS		
25x25	625	RH724243
25x75	1875	RH726856
37.5x37.5	1406	RH725142
37.5x50	1875	RH725152
37.5x62.5	2344	RH725182
37.5x75	2812	RH726866
50x37.5	1875	RH727152
50x50	2500	RH725162
50x62.5	3125	RH725192
50x75	3750	RH726876
62.5x50	3125	RH725172
62.5x62.5	3906	RH725202
75x50	3750	RH727172
75x75	5625	RH726886
87.5x62.5	5469	RH725212
100x75	7500	RH726896
100x62.5	6250	RH734455
100x25	2500	RH734445
75x125	9375	RH726906
50x100	5000	RH727192
62.5x100	6250	RH725222
62.5x125	7812	RH725232
100x100	10000	RH734465
125x50	6250	RH727212
SPARE COVER		
Spare cover, 25 mm wide	25	RH724173
Spare cover, 37.5 mm wide	37.5	RH723842
Spare cover, 50 mm wide	50	RH723912
Spare cover, 62.5 mm wide	62.5	RH723952
Spare cover, 75 mm wide	75	RH726826
Spare cover, 87.5 mm wide	87.5	RH724082
Spare cover, 100 mm wide	100	RH724122
Spare cover, 125 mm wide	125	RH724162

TOP-TECHNIC



MOTOR PROTECTION SWITCHES UP TO 100A

TOP-TECHNIC



CONTACTORS

TOP-TECHNIC



OVERLOAD RELAYS

TOP-TECHNIC



SEMICONDUCTOR CONTACTORS

TOP-TECHNIC



1-PHASE ELECTRONIC
ANALOGUE CONTROLLER

TOP-TECHNIC



3-PHASE ELECTRONIC
MOTOR CONTACTOR

TOP-TECHNIC



SOFT STARTERS

TOP-TECHNIC



MODULAR CONTACTORS

MOTOR PROTECTION SWITCHES, CONTACTORS, OVERLOAD RELAYS

CONTENTS

MOTOR PROTECTION SWITCHES UP TO 100A.....	Page 192
CONTACTORS.....	Page 198
OVERLOAD RELAYS.....	Page 210
SEMICONDUCTOR CONTACTORS	Page 213
1-PHASE ELECTRONIC ANALOGUE CONTROLLER	Page 216
3-PHASE ELECTRONIC MOTOR CONTACTOR	Page 217
SOFT STARTERS.....	Page 218
MODULAR CONTACTORS	Page 221

MOTOR PROTECTION SWITCH



BESD0063



BES00400



BES2....



BES3....

SCHRACK-INFO

ALEA motor starter protectors are compact, current limiting motor starter protectors which are optimized for load feeders. The motor starter protectors are used for switching and protecting induction motors of up to 45 kW at 400 V AC and for other loads with rated currents of up to 100A.

TYPE	BESD / BES0 / BES2 / BES3			
APPLICATIONS System protection Motor protection Motor protection with overload relay function Starter combinations Transformer protection Fuse monitoring Voltage transformer circuit breakers for distance protection SIZE RATED CURRENT I_n SIZE S00 SIZE S0 SIZE S2 SIZE S3 RATED OPERATIONAL VOLTAGE U_e ACCORDING TO IEC RATED FREQUENCY TRIP CLASS THERMAL OVERLOAD RELEASE ELECTRONIC TRIP UNITS A multiple of the rated current SHORT-CIRCUIT BREAKING CAPACITY I_{cu} at 400 VAC	✓ ¹⁾ ✓ -- -- -- -- -- S00, S0, S2, S3 up to 12A up to 25A up to 50A up to 100A 690 VAC ²⁾ 50/60 Hz Class 10 0.11 ... 0.16A up to 80 ... 100A 13 Times 50/100 kA			
ACCESSORIES FOR SIZES Auxiliary switches Signaling switches Undervoltage releases Shunt trip units Insulated three-phase busbar systems Busbar adapters Door-coupling rotary operating mechanisms Link modules Enclosures for surface mounting Infeed terminal	S00 ✓ -- ✓ ✓ ✓ ✓ -- ✓ ✓ ✓	S0 ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	S2 ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	S3 ✓ ✓ ✓ ✓ -- ✓ ✓ -- --

¹⁾ For symmetrical loading of the three phases.

²⁾ 500 V AC with moulded-plastic enclosure.

MOTOR PROTECTION SWITCH, SIZE 00



BESD0063

DESCRIPTION	*SHORT CIRCUIT BRAKING CAPACITY	SIZE	ORDER NO.
ALEA MOTOR PROTECTION SWITCH SIZE 00			
Motor protection switch 0,16A, Class 10	100kA	00	BESD0016
Motor protection switch 0,20A, Class 10	100kA	00	BESD0020
Motor protection switch 0,25A, Class 10	100kA	00	BESD0025
Motor protection switch 0,32A, Class 10	100kA	00	BESD0032
Motor protection switch 0,40A, Class 10	100kA	00	BESD0040
Motor protection switch 0,50A, Class 10	100kA	00	BESD0050
Motor protection switch 0,63A, Class 10	100kA	00	BESD0063
Motor protection switch 0,80A, Class 10	100kA	00	BESD0080
Motor protection switch 1,00A, Class 10	100kA	00	BESD0100
Motor protection switch 1,25A, Class 10	100kA	00	BESD0125
Motor protection switch 1,60A, Class 10	100kA	00	BESD0160
Motor protection switch 2,00A, Class 10	100kA	00	BESD0200
Motor protection switch 2,50A, Class 10	100kA	00	BESD0250
Motor protection switch 3,20A, Class 10	100kA	00	BESD0320
Motor protection switch 4,00A, Class 10	100kA	00	BESD0400
Motor protection switch 5,00A, Class 10	100kA	00	BESD0500
Motor protection switch 6,30A, Class 10	100kA	00	BESD0630
Motor protection switch 8,00A, Class 10	50kA	00	BESD0800
Motor protection switch 10A, Class 10	50kA	00	BESD1000
Motor protection switch 12A, Class 10	50kA	00	BESD1200

MOTOR PROTECTION SWITCH, SIZE 0



BES00400

DESCRIPTION	*SHORT CIRCUIT BRAKING CAPACITY	SIZE	ORDER NO.
ALEA MOTOR PROTECTION SWITCH SIZE 0			
Motor protection switch 0,16A, Class 10	100kA	0	BES00016
Motor protection switch 0,20A, Class 10	100kA	0	BES00020
Motor protection switch 0,25A, Class 10	100kA	0	BES00025
Motor protection switch 0,32A, Class 10	100kA	0	BES00032
Motor protection switch 0,40A, Class 10	100kA	0	BES00040
Motor protection switch 0,50A, Class 10	100kA	0	BES00050
Motor protection switch 0,63A, Class 10	100kA	0	BES00063
Motor protection switch 0,80A, Class 10	100kA	0	BES00080
Motor protection switch 1,00A, Class 10	100kA	0	BES00100
Motor protection switch 1,25A, Class 10	100kA	0	BES00125
Motor protection switch 1,60A, Class 10	100kA	0	BES00160
Motor protection switch 2,00A, Class 10	100kA	0	BES00200
Motor protection switch 2,50A, Class 10	100kA	0	BES00250
Motor protection switch 3,20A, Class 10	100kA	0	BES00320
Motor protection switch 4,00A, Class 10	100kA	0	BES00400
Motor protection switch 5,00A, Class 10	100kA	0	BES00500
Motor protection switch 6,30A, Class 10	100kA	0	BES00630
Motor protection switch 8,00A, Class 10	100kA	0	BES00800
Motor protection switch 10A, Class 10	100kA	0	BES01000
Motor protection switch 12,5A, Class 10	100kA	0	BES01200
Motor protection switch 16A, Class 10	50kA	0	BES01600
Motor protection switch 20A, Class 10	50kA	0	BES02000
Motor protection switch 22A, Class 10	50kA	0	BES02200
Motor protection switch 25A, Class 10	50kA	0	BES02500

MOTOR PROTECTION SWITCH, SIZE 2



BES2....

DESCRIPTION	*SHORT CIRCUIT BRAKING CAPACITY	SIZE	ORDER NO.
ALEA MOTOR PROTECTION SWITCH SIZE 2			
Motor protection switch 25A, Class 10	50kA	2	BES22500
Motor protection switch 32A, Class 10	50kA	2	BES23200
Motor protection switch 40A, Class 10	50kA	2	BES24000
Motor protection switch 45A, Class 10	50kA	2	BES24500
Motor protection switch 50A, Class 10	50kA	2	BES25000

MOTOR PROTECTION SWITCH, SIZE 3



BES3....

DESCRIPTION	*SHORT CIRCUIT BRAKING CAPACITY	SIZE	ORDER NO.
ALEA MOTOR PROTECTION SWITCH SIZE 3			
Motor protection switch 63A, Class 10	50kA	3	BES36300
Motor protection switch 75A, Class 10	50kA	3	BES37500
Motor protection switch 90A, Class 10	50kA	3	BES39000
Motor protection switch 100A, Class 10	50kA	3	BES39999

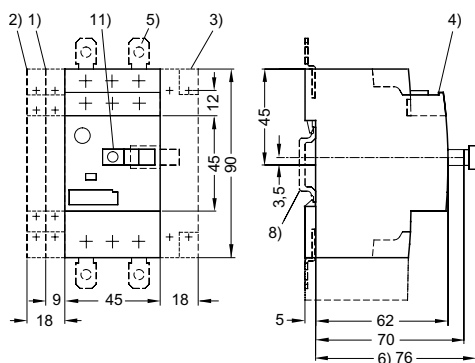
MOTOR PROTECTION ACCESSORIES

DESCRIPTION	SIZE	ORDER NO.
AUXILLIARY SWITCH		
Auxilliary switch side mounted 1 NO + 1 NC	00/0/2/3	BEZ00001
Auxilliary switch front mounted 1 NO + 1 NC	00/0/2/3	BEZ00003
Auxilliary switch side mounted 2 NO	00/0/2/3	BEZ00002
Auxilliary switch front mounted 2 NO	00/0/2/3	BEZ00004
ALARM-SWITCH		
Alarm switch 1 NO + 1 NC	0/2/3	BEZ00005
UNDERVOLTAGE RELEASE		
Undervoltage release side mounted AC 230V/50HZ, AC 240V/60HZ	00/0/2/3	BEZ00006
Undervoltage release side mounted AC 400V/50HZ, AC 440V/60HZ	00/0/2/3	BEZ00007
SHUNT TRIP		
Shunt trip side mounted AC 20...24V, 50/60HZ, 100% ED	00/0/2/3	BEZ00008
Shunt trip side mounted AC 210...240V, 50/60HZ, 100% ED	00/0/2/3	BEZ00009
HOUSINGS		
Moulded plastic housing, membran IP55	00	BEZ00012
Moulded plastic housing, emergency stop, mushroom head	00	BEZ00013
Moulded plastic housing, rotary handle IP55	0	BEZ00112
Moulded plastic housing, emergency stop IP55	0	BEZ00113
Moulded plastic housing, rotary handle IP55	2	BEZ00212
Moulded plastic housing, emergency stop IP55	2	BEZ00213
Locking plate for 3 padlocks	00	BEZ00014
BUSBARS/COVERS FOR SPARE-PLACE		
3-pole busbar for 2 motor protection switches	00/0	BEZ00017
3-pole busbar for 3 motor protection switches	00/0	BEZ00018
3-pole busbar for 4 motor protection switches	00/0	BEZ00020
3-pole busbar for 5 motor protection switches	00/0	BEZ00021
3-pole busbar for 2 motor protection switches	2	BEZ00217
3-pole busbar for 3 motor protection switches	2	BEZ00218
Cover for spare-place, blank plate	00/0	BEZ00019
Cover for spare-place, blank plate	2	BEZ00219
ACCESSORIES		
Rotary operating (door coupling)	0/2/3	BEZ00010
Rotary operating, emergency stop (door coupling)	0/2/3	BEZ00011
3 PHASE INFEED TERMINAL		
3 Phase Infeed Terminal Size 00 for 3-phase-busbar	00	BEZ00016
3 Phase Infeed Terminal Size 0 for 3-phase-busbar	0	BEZ00116
3 Phase Infeed Terminal Size 2 for 3-phase-busbar	2	BEZ00216

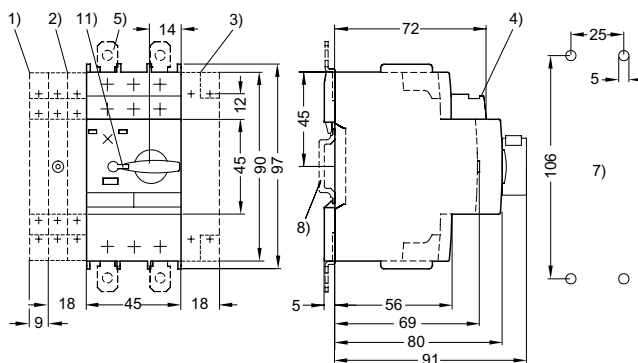
MOTOR PROTECTION SWITCHES UP TO 100A

DIMENSIONS

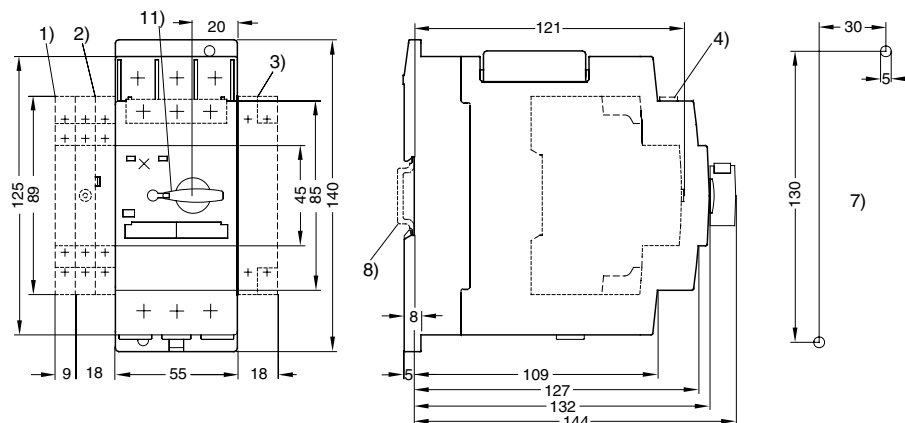
**MOTOR PROTECTION SWITCH, SIZE 00
BESD**



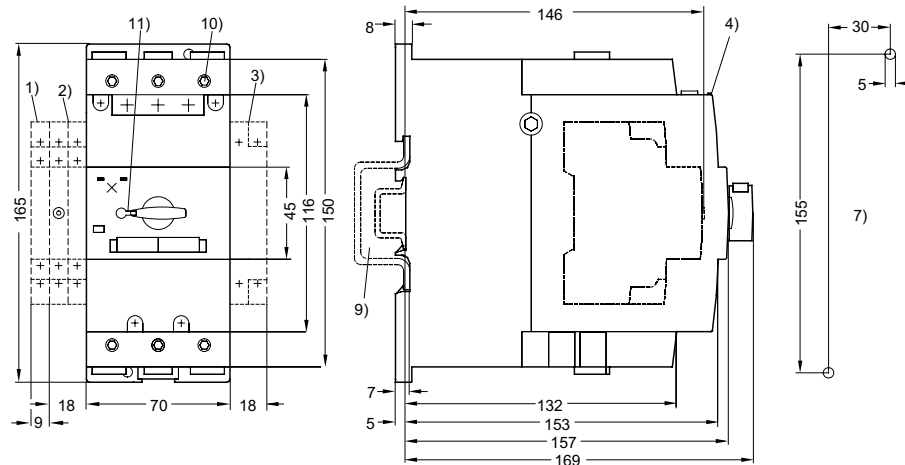
**MOTOR PROTECTION SWITCH, SIZE 0
BES0**



**MOTOR PROTECTION SWITCH, SIZE 2
BES2**



**MOTOR PROTECTION SWITCH, SIZE 3
BES3**



- 1) Side mounted auxiliary switch, 2-pole
- 2) Signaling switch (S0 ... S3) side mounted
- 3) Auxiliary trip unit
- 4) Front mounted auxiliary switch
- 5) Push-in lugs for screw mounting
- 6) With leading auxiliary switch only for undervoltage release
- 7) Drilling pattern
- 8) Standard mounting rail TH 35 according to EN 60715
- 9) For mounting according to EN 60715 on TH 35 standard mounting rail, 15 mm deep, or TH 75 standard mounting rail
- 10) Allen screw 4 mm
- 11) Lockable in neutral position with 3.5 ... 4.5 mm shackle diameter

CONTACTORS AND CONTACTOR ASSEMBLIES 3-POLE / INTRODUCTION

											
LSHD / LSHD-PLC*		LSDD / LSDD-PLC*		LSD0 / LSS0		LSD2					
SIZE	S00	S00		S0		S2					
TYPE	LSHD	LSDD / LSDD*		LSD0 / LSS0		LSD2					
CONTACTORS AND VACUUM CONTACTORS											
TYPE / AC, DC OPERATION	06	07	09	12	09	12	17	25	32	40	50
AC-3											
Ie/AC-3/400 V	6A	7A	9A	12A	9A	12A	17A	25A	32A	40A	50A
400 V	3A	3kW	4kW	5.5kW	4kW	5.5kW	7.5kW	11kW	15kW	18.5kW	22kW
230 V	--	2.2kW	3kW	3kW	3kW	3kW	4kW	5.5kW	7.5kW	11kW	15kW
500 V	2A	3.5kW	4.5kW	5.5kW	4.5kW	7.5kW	10kW	11kW	18.5kW	22kW	30kW
690 V	1A	4kW	5.5kW	5.5kW	5.5kW	7.5kW	11kW	11kW	18.5kW	22kW	22kW
1 000 V	--	--	--	--	--	--	--	--	--	--	--
AC-4 (FOR IA = 6 X IE)											
400 V	--	3kW	4kW	4kW	4kW	5.5kW	7.5kW	7.5kW	15kW	18.5kW	22kW
400 V (200 000 operating cycles)	--	1.15kW	2kW	2kW	2kW	2.6kW	3.5kW	4.4kW	8.2kW	9.5kW	12.6kW
AC-1 (40 °C, ≤ 690 V)											
Ie	10A	18A	22A	22A	40A	40A	40A	40A	50A	60A	60A
ACCESSORIES FOR CONTACTORS											
AUXILIARY SWITCH BLOCKS* front	LSZDH5..	LSZDH.../LSZDD			LSZOD...			LSZOD...			
lateral	--	LSZDD			LSZOD7..			LSZOD7..			
TERMINAL COVERS	--	--			--			LSZ2D...			
SURGE SUPPRESSORS	LSZH0...	LSZD....			LSZ0....			LSZ2D....			
OVERLOAD RELAYS (PROTECTION EQUIPMENT: OVERLOAD RELAYS)											
LST, thermal, Class 10	--	LSTD.... 0.1 ... 12 A			LST0.... 2.5 ... 25 A			LST2.... 10 ... 50 A			
		LST0.... 2.5 ... 12 A									
MOTOR STARTER PROTECTORS (PROTECTION EQUIPMENT: MOTOR STARTER PROTECTORS)											
TYPE BES	--	BESD 0.16 ... 12 A Size 00			BES0 0.16 ... 25 A			BES2 25 ... 50 A			
		BESD 0.16 ... 12 A Size 0									
LINK MODULES LSZ	--	LSZDD005, LSZDD006			LSZ0D002 (AC), LSZ0D004 (DC)			LSZ2D004 (AC), LSZ2D005 (DC)			
REVERSING CONTACTOR ASSEMBLIES											
COMPLETE UNITS TYPE LSW	--	LSWD07.. LSWD09.. LSWD12..			LSW012.. LSW017.. LSW025..			LSW232.. LSW240.. LSW250..			
400 V	--	3kW 4kW 5.5kW			5.5kW 7.5kW 12kW			15kW 18.5kW 22kW			
INSTALLATION KITS/WIRING MODULES	--	LSZDW001			LSZDW001			LSZ2W001			
MECHANICAL INTERLOCKS	--	in installation kit included			LSZ0W002			LSZ0W002			
CONTACTOR ASSEMBLIES FOR WYE-DELTA STARTING											
COMPLETE UNITS TYPE LSY	--	LSYD17..			LSY032..			LSY25033			
400 V	--	7.5kW			15kW			22kW			
INSTALLATION KITS/WIRING MODULES	--	LSZDW001			LSZ0Y001			LSZ2Y003			

* no further auxiliary contacts for PLC-use types possible

CONTACTORS AND CONTACTOR ASSEMBLIES 3-POLE / INTRODUCTION

												
LSD3	LSD6	LSDE	LSDG	LSDH								
S3 LSD3	S6 LSD6	S10 LSDE	S12 LSDG	S14 LSDH								
65	80	95	11	15	19	22	26	30	41	51	63/64	82/83
65A	80A	95A	115A	150A	185A	225A	265A	300A	400A	500A	630A	820A
30kW	37kW	45kW	55kW	75kW	90kW	110kW	132kW	160kW	200kW	250kW	335kW	450kW
18.5kW	22kW	22kW	37kW	45kW	55kW	55kW	75kW	90kW	132kW	160kW	200kW	260kW
37kW	45kW	55kW	75kW	90kW	110kW	160kW	160kW	200kW	250kW	355kW	434kW	600kW
45kW	55kW	55kW	110kW	132kW	160kW	200kW	250kW	250kW	400kW	400/500kW	600kW	800kW
30kW	37kW	37kW	75kW	90kW	90kW	90/315kW	132/355kW	132/400kW	250/560kW	250/710kW	600kW	800kW
30kW	37kW	45kW	55kW	75kW	90kW	110kW	132kW	160kW	200kW	250kW	335kW	450kW
15.1kW	17.9kW	22kW	29kW	38kW	45kW	54/78kW	66/93kW	71/112kW	84/140kW	98/161kW	168kW	191kW
100A	120A	120A	160A	185A	215A	275/330A	330A	330A	430/610A	610A	700A	910A
LSZ0D...			LSZ0D...			LSZ0D...			LSZ0D...		--	
LSZ0D7..., LSZ3D8..			LSZ0D7..., LSZ3D8..			LSZ0D7..., LSZ3D8..			LSZ0D7..., LSZ3D8..		--	
LSZ3D...			LSZ6D...			LSZED...			--		--	
LSZ2....			LSZ6....			LSZ6....			LSZ6....		--	
LST3 25 ... 100 A			--			--			--		--	
BES3 63 ... 100 A			--			--			--		--	
LS3D003 (AC), LS3D004 (DC)												
LSW365..	LSW380..	LSW395..	--			--			--		--	
30kW	37kW	45kW	--			--			--		--	
	LSZ3W001		--			--			--		--	
	LSZ0W002		--			--			--		--	
--			--			--			--		--	
--			--			--			--		--	
--			--			--			--		--	

CONTACTORS

CONTACTORS AC3 – 3POLE, SIZE 00



LSDD....



LSDD....-PLC

DESCRIPTION	COIL VOLTAGE	FREQU/REMARK	ORDER NO.
SIZE 00 – TYPE LSDD			
Contactors AC3:3KW/400V, 1NO	AC24V	50HZ	LSDD0710
Contactors AC3:3KW/400V, 1NC*	AC24V	50HZ	LSDD0720
Contactors AC3:3KW/400V, 1NO	AC110V	50HZ	LSDD0712
Contactors AC3:3KW/400V, 1NC*	AC110V	50HZ	LSDD0722
Contactors AC3:3KW/400V, 1NO	AC230V	50/60HZ	LSDD0713
Contactors AC3:3KW/400V, 1NC*	AC230V	50/60HZ	LSDD0723
Contactors AC3:3KW/400V, 1NO	DC24V		LSDD0715
Contactors AC3:3KW/400V, 1NC*	DC24V		LSDD0725
Contactors AC3:4KW/400V, 1NO	AC24V	50HZ	LSDD0910
Contactors AC3:4KW/400V, 1NC*	AC24V	50HZ	LSDD0920
Contactors AC3:4KW/400V, 1NO	AC110V	50HZ	LSDD0912
Contactors AC3:4KW/400V, 1NC*	AC110V	50HZ	LSDD0922
Contactors AC3:4KW/400V, 1NO	AC230V	50/60HZ	LSDD0913
Contactors AC3:4KW/400V, 1NC*	AC230V	50/60HZ	LSDD0923
Contactors AC3:4KW/400V, 1NO	DC24V		LSDD0915
Contactors AC3:4KW/400V, 1NC*	DC24V		LSDD0925
Contactors AC3:5,5KW/400V, 1NO	AC24V	50HZ	LSDD1210
Contactors AC3:5,5KW/400V, 1NC*	AC24V	50HZ	LSDD1220
Contactors AC3:5,5KW/400V, 1NO	AC110V	50HZ	LSDD1212
Contactors AC3:5,5KW/400V, 1NC*	AC110V	50HZ	LSDD1222
Contactors AC3:5,5KW/400V, 1NO	AC230V	50/60HZ	LSDD1213
Contactors AC3:5,5KW/400V, 1NC*	AC230V	50/60HZ	LSDD1223
Contactors AC3:5,5KW/400V, 1NO	DC24V		LSDD1215
Contactors AC3:5,5KW/400V, 1NC*	DC24V		LSDD1225
SIZE 00 – TYPE LSDD FOR PLC			
Contactors AC3:3KW/400V, 1NO	DC17-30V	no further aux. contacts	LSDD071G
Contactors AC3:3KW/400V, 1NC	DC17-30V	no further aux. contacts	LSDD072G
Contactors AC3:4KW/400V, 1NO	DC17-30V	no further aux. contacts	LSDD091G
Contactors AC3:4KW/400V, 1NC	DC17-30V	no further aux. contacts	LSDD092G
Contactors AC3:5,5KW/400V, 1NO	DC17-30V	no further aux. contacts	LSDD121G
Contactors AC3:5,5KW/400V, 1NC	DC17-30V	no further aux. contacts	LSDD122G

* Only Auxiliary block type LSZDH5.. possible

CONTACTORS AC3 – 3POLE, SIZE 0



LSD0....-PLC

DESCRIPTION	COIL VOLTAGE	FREQU/REMARK	ORDER NO.
SIZE 0 – TYPE LSD0			
Contact AC3:4KW/400V	AC24V	50HZ	LSD00930
Contact AC3:4KW/400V	DC24V		LSD00935
Contact AC3:4KW/400V	AC110V	50HZ	LSD00932
Contact AC3:4KW/400V	AC230V	50/60HZ	LSD00933
Contact AC3:5,5KW/400V	AC24V	50HZ	LSD01230
Contact AC3:5,5KW/400V	DC24V		LSD01235
Contact AC3:5,5KW/400V	AC110V	50HZ	LSD01232
Contact AC3:5,5KW/400V	AC230V	50/60HZ	LSD01233
Contact AC3:7,5KW/400V	AC24V	50HZ	LSD01730
Contact AC3:7,5KW/400V	DC24V		LSD01735
Contact AC3:7,5KW/400V	AC110V	50HZ	LSD01732
Contact AC3:7,5KW/400V	AC230V	50/60HZ	LSD01733
Contact AC3:7,5KW/400V	AC400V	50HZ	LSD01734
Contact AC3:11KW/400V	AC24V	50HZ	LSD02530
Contact AC3:11KW/400V	DC24V		LSD02535
Contact AC3:11KW/400V	AC110V	50HZ	LSD02532
Contact AC3:11KW/400V	AC230V	50/60HZ	LSD02533
SIZE 0 – TYPE LSS0 FOR PLC			
Contact AC3,5,5KW/400V	DC17-30V		LSS0123H
Contact AC3:7,5KW/400V	DC17-30V		LSS0173H
Contact AC3:11KW/400V	DC17-30V		LSS0253H

CONTACTORS

CONTACTORS AC3 – 3POLE, SIZE 2



LSD2...

DESCRIPTION	COIL VOLTAGE	FREQU/REMARK	ORDER NO.
SIZE 2 – TYPE LSD2			
Contactora AC3:15KW/400V	AC24V	50HZ	LSD23230
Contactora AC3:15KW/400V	DC24V		LSD23235
Contactora AC3:15KW/400V	AC110V	50HZ	LSD23232
Contactora AC3:15KW/400V	AC230V	50/60HZ	LSD23233
Contactora AC3:18,5KW/400V	AC24V	50HZ	LSD24030
Contactora AC3:18,5KW/400V	DC24V		LSD24035
Contactora AC3:18,5KW/400V	AC110V	50HZ	LSD24032
Contactora AC3:18,5KW/400V	AC230V	50/60HZ	LSD24033
Contactora AC3:22KW/400V	AC24V	50HZ	LSD25030
Contactora AC3:22KW/400V	DC24V		LSD25035
Contactora AC3:22KW/400V	AC110V	50HZ	LSD25032
Contactora AC3:22KW/400V	AC230V	50/60HZ	LSD25033

CONTACTORS AC3 – 3POLE, SIZE 3



LSD3...

DESCRIPTION	COIL VOLTAGE	FREQU/REMARK	ORDER NO.
SIZE 3 – TYPE LSD3			
Contactora AC3:30KW/400V	AC24V	50HZ	LSD36530
Contactora AC3:30KW/400V	DC24V		LSD36535
Contactora AC3:30KW/400V	AC110V	50HZ	LSD36532
Contactora AC3:30KW/400V	AC230V	50/60HZ	LSD36533
Contactora AC3:30KW/400V, 2NO+2NC	AC230V	50HZ	LSD36553
Contactora AC3:37KW/400V	AC24V	50HZ	LSD38030
Contactora AC3:37KW/400V	DC24V		LSD38035
Contactora AC3:37KW/400V, 2NO+2NC	AC24V	50HZ	LSD38050
Contactora AC3:37KW/400V	AC110V	50HZ	LSD38032
Contactora AC3:37KW/400V, 2NO+2NC	AC110V	50HZ	LSD38052
Contactora AC3:37KW/400V	AC230V	50/60HZ	LSD38033
Contactora AC3:45KW/400V	AC24V	50HZ	LSD39530
Contactora AC3:45KW/400V	DC24V		LSD39535
Contactora AC3:45KW/400V	AC230V	50/60HZ	LSD39533
Contactora AC3:45KW/400V, 2NO+2NC	AC230V	50/60HZ	LSD39553

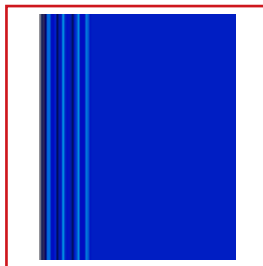
CONTACTORS AC3 – 3POLE, SIZE 6/10/12/14



LSD6....



LSDE.... / LSDG....



LSDH....

DESCRIPTION	COIL VOLTAGE	FREQU/REMARK	ORDER NO.
SIZE 6 – TYPE LSD6			
Contact AC3:55KW/400V, 2NO+2NC	UC220-240V	40-60HZ	LSD6115F
Contact AC3:75KW/400V, 2NO+2NC	UC220-240V	40-60HZ	LSD6155F
Contact AC3:90KW/400V, 2NO+2NC	UC220-240V	40-60HZ	LSD6195F
SIZE 10 – TYPE LSDE			
Contact AC3:110KW/400V, 2NO+2NC	UC220-240V	40-60HZ	LSDE225F
Contact AC3:132KW/400V, 2NO+2NC	UC220-240V	40-60HZ	LSDE265F
Contact AC3:160KW/400V, 2NO+2NC	UC220-240V	40-60HZ	LSDE305F
SIZE 12 – TYPE LSDG			
Contact AC3:200KW/400V, 2NO+2NC	UC220-240V	40-60HZ	LSDG415F
Contact AC3:250KW/400V, 2NO+2NC	UC220-240V	40-60HZ	LSDG515F
SIZE 14 – TYPE LSDH			
Contact AC3:335KW/400V, 4NO+4NC	UC200-240V	50HZ	LSDH63G3
Contact AC3:335KW/1000V, 4NO+4NC	UC200-240V	50HZ	LSDH64G3
Contact AC3:450KW/400V, 4NO+4NC	UC200-240V	50HZ	LSDH82G3
Contact AC3:450KW/1000V, 4NO+4NC	UC200-240V	50HZ	LSDH83G3

CONTACTORS AC1 – 4POLE, SIZE 00/0



LSR0....

DESCRIPTION	COIL VOLTAGE	FREQU/REMARK	ORDER NO.
SIZE 00 – TYPE LSRD			
Contact AC1:18A/690V	AC24V	50/60HZ	LSRD1840
Contact AC1:18A/690V	DC24V		LSRD1845
Contact AC1:18A/690V	AC230V	50/60HZ	LSRD1843
Contact AC1:22A/690V	AC24V	50/60HZ	LSRD2240
Contact AC1:22A/690V	DC24V		LSRD2245
Contact AC1:22A/690V	AC230V	50/60HZ	LSRD2243
SIZE 0 – TYPE LSR0			
Contact AC1:35A/690V	AC24V	50HZ	LSR03540
Contact AC1:35A/690V	DC24V		LSR03545
Contact AC1:35A/690V	AC230V	50/60HZ	LSR03543
Contact AC1:40A/690V	AC24V	50HZ	LSR04040
Contact AC1:40A/690V	DC24V		LSR04045
Contact AC1:40A/690V	AC230V	50/60HZ	LSR04043

CONTACTORS AC1 – 4POLE, SIZE 2/3



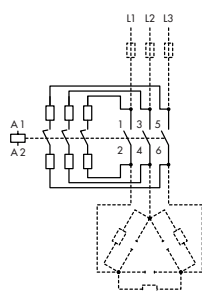
LSR3....

DESCRIPTION	COIL VOLTAGE	FREQU/REMARK	ORDER NO.
SIZE 2 – TYPE LSR2			
Contactora AC1:60A/690V	AC24V	50HZ	LSR26040
Contactora AC1:60A/690V	DC24V		LSR26045
Contactora AC1:60A/690V	AC230V	50/60HZ	LSR26043
SIZE 3 – TYPE LSR3			
Contactora AC1:110A/690V	AC24V	50HZ	LSR31140
Contactora AC1:110A/690V	DC24V		LSR31145
Contactora AC1:110A/690V	AC230V	50/60HZ	LSR31143
Contactora AC1:140A/690V	AC24V	50HZ	LSR31440
Contactora AC1:140A/690V	DC24V		LSR31445
Contactora AC1:140A/690V	AC230V	50/60HZ	LSR31443

CAPACITOR SWITCHING CONTACTORS



LA3K181



SCHRACK-INFO

- For use in detuned or non-detuned capacitor units.
- Technical data according to EN 60 947-4-1; EN 60 947-5-1; VDE 0660

TECHNICAL DATA

Specification: The capacitor switching contactors K3-..K are suitable for switching low-inductive and lowloss capacitors in capacitor banks (IEC 70 & 831, VDE 0560) with and without reactors. Capacitor switching contactors are fitted with early make contacts and damping resistors to reduce the value of the make current to $<70 \times I_e$.

Operating conditions: Capacitor switching contactors are protected against contact welding for a prospective make current of $200 \times I_e$. Fuse rating approx. $1,6$ to $2,5 \times I_e$, type gL gG9.

CAPACITOR RATING 400V/AUXILIARY CONTACTS	COIL VOLTAGE	FREQU/REMARK	ORDER NO.
12,5 kVar/1 NO	AC220-240V	50Hz	LA3K1813
12,5 kVar/1 NC	AC220-240V	50Hz	LA3K1823
20 kVar/ 0	AC220-240V	50Hz	LA3K2433
25 kVar/ 0	AC220-240V	50Hz	LA3K3233
33,3 kVar/ 0	AC220-240V	50Hz	LA3K5033
50 kVar/ 0	AC220-240V	50Hz	LA3K6233
75 kVar/ 0	AC220-240V	50Hz	LA3K7433

AUXILIARY CONTACTORS AC15 – 4POLE, SIZE 00



LSHD....



LSHD....-PLC

DESCRIPTION	COIL VOLTAGE	FREQU/REMARK	ORDER NO.
SIZE 00 – TYPE LSHD			
Contactors AC15: 6A/230V, 4NO	AC24V	50HZ	LSHD0670
Contactors AC15: 6A/230V, 4NO	DC24V		LSHD0675
Contactors AC15: 6A/230V, 4NO	AC230V	50/60HZ	LSHD0673
Contactors AC15: 6A/230V, 3NO+1NC	AC24V	50HZ	LSHD0680
Contactors AC15: 6A/230V, 3NO+1NC	DC24V		LSHD0685
Contactors AC15: 6A/230V, 3NO+1NC	AC230V	50/60HZ	LSHD0683
Contactors AC15: 6A/230V, 2NO+2NC	AC24V	50HZ	LSHD0690
Contactors AC15: 6A/230V, 2NO+2NC	DC24V		LSHD0695
Contactors AC15: 6A/230V, 2NO+2NC	AC230V	50/60HZ	LSHD0693
SIZE 00 – TYPE LSHD FOR PLC			
Contactors, plug for RC, AC15: 6A/230V, 4NO	DC17-30V	no further aux. contacts	LSHD067N
Contactors with diode assembly, AC15: 6A/230V, 4NO	DC17-30V	no further aux. contacts	LSHD067G
Contactors, plug for RC, AC15: 6A/230V, 3NO+1NC	DC17-30V	no further aux. contacts	LSHD068N
Contactors with diode assembly, AC15: 6A/230V, 3NO+1NC	DC17-30V	no further aux. contacts	LSHD068G
Contactors, plug for RC, AC15: 6A/230V, 2NO+2NC	DC17-30V	no further aux. contacts	LSHD069N
Contactors with diode assembly, AC15: 6A/230V, 2NO+2NC	DC17-30V	no further aux. contacts	LSHD069G

ACCESSORIES FOR CONTACTORS, SIZE 00

DESCRIPTION	COIL VOLTAGE	FREQU/REMARK	ORDER NO.
ACCESSORIES FOR SIZE 00 – TYPE LSDD			
Auxiliary Contact Block for size 00, 1NC*			LSZDD201
Auxiliary Contact Block for size 00, 1NO+2NC*			LSZDD212
Auxiliary Contact Block for size 00, 1NO+3NC*			LSZDD213
Auxiliary Contact Block for size 00, 2NO+2NC*			LSZDD222
Parallel connector, 25mm ² for size 00, 3pol.+terminal			LSZDD003
Parallel connector, 25mm ² for size 00, 4pol.+terminal			LSZDD004
Reversing contactor assemblies for size 00, mech.interlock, connection clips, wiring set			LSZDW001
Wye-Delta starting assemblies for size 00, mech.interlock, connection clips, wiring set			LSZDY001
YD-timer, 0,5-20s for size 00, timedelay -20s			LSZD0101
YD-timer, 60s heavy duty for size 00, timedelay -60s			LSZD0102
Connection link for motor protection switch BESD, size 00, and contactor size 00	AC-DC operated		LSZDD005
Connection link for motor protection switch BES0, size 00, and contactor size 00	AC-DC operated		LSZDD006
Solder pin connection for size 00			LSZDD002
Varistor for size 00	AC24-48V; DC24-70V		LSZD0001
Varistor for size 00	AC127-240V; DC150-250V		LSZD0002
Surge suppressor for size 00	AC127-240V; DC150-250V		LSZD0003
Surge suppressor diode for size 00	DC12-250V		LSZD0004

* Auxiliary contact blocks only for use with contactors type LSDD.... with one NO included

for contactors type LSDD.... with one NC included use auxiliary contact blocks type LSZDH5.. (see page 206)

ACCESSORIES FOR CONTACTORS, SIZE 00

DESCRIPTION	COIL VOLTAGE	FREQU/REMARK	ORDER NO.
ACCESSORIES FOR SIZE 00 – TYPE LSHD/LSDD WITH 1NC			
Auxiliary Contact Block for size 00, 4NO			LSZDH540
Auxiliary Contact Block for size 00, 3NO+1NC			LSZDH531
Auxiliary Contact Block for size 00, 2NO+2NC			LSZDH522
Auxiliary Contact Block for size 00, 1NO+3NC			LSZDH513
Auxiliary Contact Block for size 00, 4NC			LSZDH504

ACCESSORIES FOR CONTACTORS, SIZE 0-12

DESCRIPTION	ORDER NO.
ACCESSORIES FOR SIZE 0 – 12	
Auxiliary Contact for size 0-12, 1NC	LSZ0D001
Auxiliary Contact for size 0-12, 1NO	LSZ0D010
Auxiliary Contact for size 0-12, 1NC-delayed	LSZ0D901
Auxiliary Contact for size 0-12, 1NO-early make	LSZ0D910
Auxiliary Contact, sidemounted for size 0-12, 1NO+1NC, first position	LSZ0D711
Auxiliary Contact, sidemounted for size 3-12, 1NO+1NC, second position	LSZ3D811
Auxiliary Contact Block for size 0-12, 1NO+3NC	LSZ0D113
Auxiliary Contact Block for size 0-12, 2NO+2NC	LSZ0D122
Auxiliary Contact Block for size 0-12, 3NO+1NC	LSZ0D131
Parallel connector, 35mm ² for size 0, 3pol.+terminal	LSZ0D003
Parallel connector; 95mm ² for size 2, 3pol.+terminal	LSZ2D003
Reversing contactor assemblies for size 0, connection clips, wiring set	LSZ0W001
Reversing contactor assemblies for size 2, wiring set	LSZ2W001
Reversing contactor assemblies for size 3, wiring set	LSZ3W001
Reversing contactor assemblies for size 6, wiring set	LSZ6W002
Reversing contactor assemblies for size 10, wiring set	LSZEW001
Reversing contactor assemblies for size 12, wiring set	LSZGW001
Mechanical interlock for size 0-3	LSZ0W002
Mechanical interlock for size 6-12	LSZ6W001
YD starting assemblies for size 0, mech.interlock, connection clips, wiring set	LSZ0Y001
Parallel connector, star link for size 0, 3pol.	LSZ0Y002
YD starting assemblies for size 2-2-0, wiring set	LSZ2Y004
YD starting assemblies for size 2-2-2, wiring set	LSZ2Y003
YD-timer, 0,5-20s for size 0-12, timedelay -20s	LSZD0101
YD-timer, 60s heavy duty for size 0-12, timedelay -60s	LSZD0102
YD-connection clips for size 2-3	LSZ2D001
Feed terminal, 1phase for size 3	LSZ3D001
YD-Mountingplate for size S2-S2-S0	LSZ2Y001
YD-Mountingplate for size S2-S2-S2	LSZ2Y002
Connection link for motor protection switch BES0, size 0, and contactor size 0	AC-operating LSZ0D002
Connection link for motor protection switch BES0, size 0, and contactor size 0	DC-operating LSZ0D004
Surge suppressor, diode assemblies for size 0, top mounted	DC24V, DC-operating LSZD0005
Surge suppressor, diode assemblies for size 0, bottom mounted	DC24V, DC-operating LSZD0006
Varistor for size 0	AC24-48V; DC24-70V LSZ00001
Varistor for size 0	AC127-240V; DC150-250V LSZ00002
Surge suppressor, RC for size 0	AC127-240V; DC150-250V LSZ00003
Surge suppressor, RC for size 2-3	AC127-240V; DC150-250V LSZ20001
Surge suppressor, RC for size 6-12	AC127-240V; DC150-250V LSZ60001

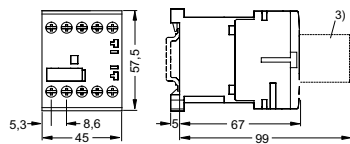
ACCESSORIES FOR CONTACTORS, SIZE 0-12 – continued

DESCRIPTION	COIL VOLTAGE	FREQU/REMARK	ORDER NO.
ACCESSORIES FOR SIZE 0 – 12			
Connection link for motor protection switch BES2, size 2, and contactor size 2	for AC-use		LSZ2D004
Connection link for motor protection switch BES2, size 2, and contactor size 2	for DC-use		LSZ2D005
Connection link for motor protection switch BES3, size 3, and contactor size 3	for DC-use		LSZ3D003
Connection link for motor protection switch BES3, size 3, and contactor size 3	for AC-use		LSZ3D004
Connection link, 4pole for size 2 to S2			LSZ2W002
Connection link, 4pole for size 3 to S3			LSZ3W002
Connection link, 3pole for size 2/3/6 to 2/3/6			LSZ2W003
Mechanical latching block for size 0-2, remains "ON" if voltage fails	24VACDC		LSZ00113
Terminal Cover for size 2*			LSZ2D002
Terminal Cover for size 3*			LSZ3D002
Terminal Cover for size 6*			LSZ6D001
Terminal Cover - short version for size 6*			LSZ6D002
Terminal Cover for size 10*			LSZED001
Terminal Cover - short version for size 10*			LSZED002

* Order 2 pcs. for one complete contactor, order 1 pc. just for one side (up side or bottom side) of contactor

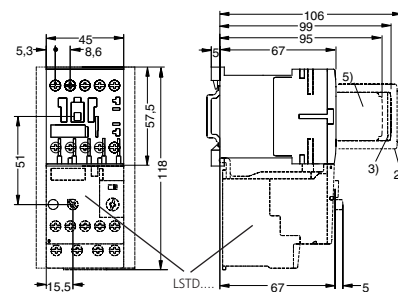
DIMENSIONS

LSHD.... size S00, LSDD.... size S00



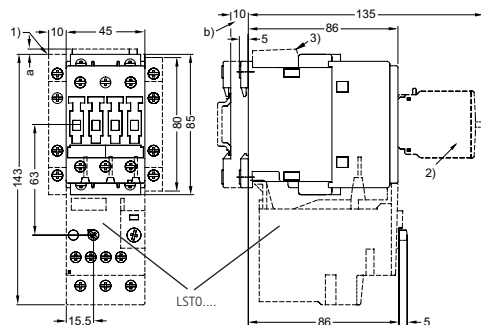
3) Surge suppressor

LSDD.... size S00



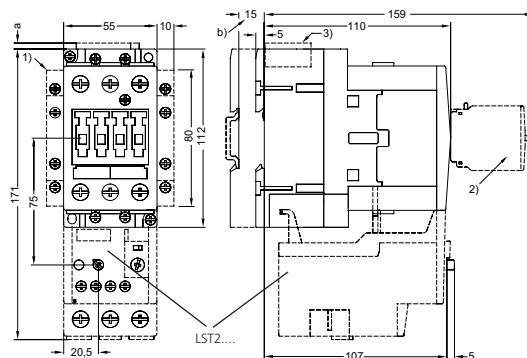
2) Auxiliary switch block (LSZDD2...)
3) Surge suppressor (LSZD000)
5) Auxiliary switch block 1-pole

LSD0.... size S0



a = 3 mm at < 240 V, a = 7 mm at > 240 V, b = DC 10 mm deeper than AC
1) Auxiliary switch block, laterally mountable
2) Auxiliary switch block, mountable on the front, LSZ0D...
3) Surge suppressor

LSD2.... size S2

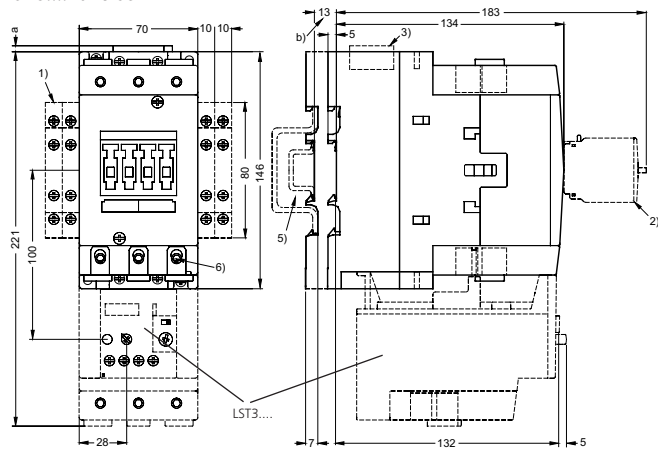


a = 0 mm with varistor < 240 V, diode assembly
a = 3.5 mm with varistor > 240 V
a = 17 mm with RC element
b = DC 15 mm deeper than AC
1) Auxiliary switch block, laterally mountable
2) Auxiliary switch block, mountable on the front, LSZ0D...
3) Surge suppressor

CONTACTORS

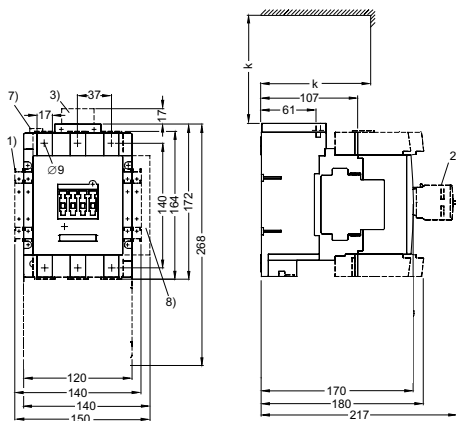
DIMENSIONS

LSD3.... size S3



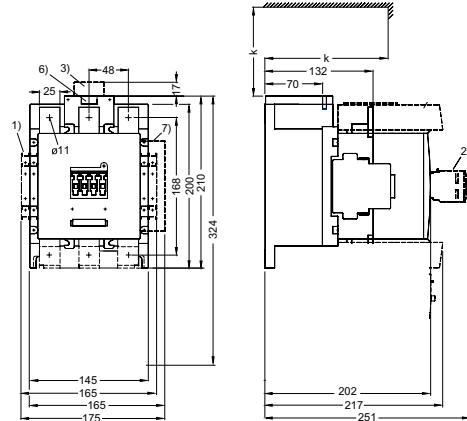
- a = 0 mm with varistor, diode assembly and < 240 V, a = 3.5 mm with varistor and > 240 V, a = 17 mm with RC element,
 b = DC 13 mm deeper than AC
 1) Auxiliary switch block, laterally mountable
 2) Auxiliary switch block, mountable on the front (1-, 2- and 4-pole), LSZ0D7..., LSZ3D8..., LSZ0D9...
 3) Surge suppressor
 5) For mounting on TH 35 or TH 75 standard mounting rail according to EN 60715 (15 mm deep)
 6) Allen screw 4 mm

LSD6.... size S6



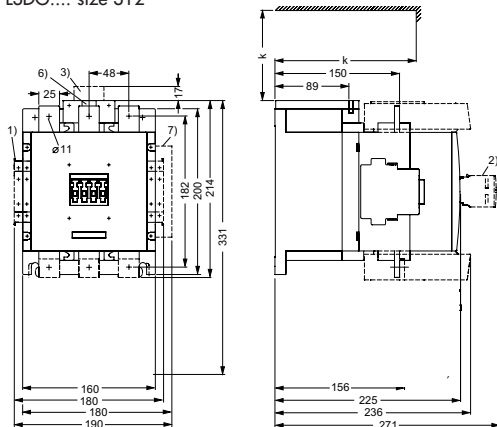
- k = 120 mm (minimum clearance for removing the withdrawable coil)
 1) 2nd auxiliary switch block, lateral LSZ3D8...
 2) Auxiliary switch block, mountable on the front LSZ0D...
 3) RC element

LSDE.... size S10



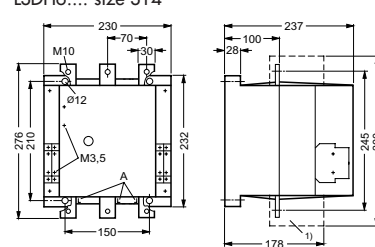
- k = 150 mm (minimum clearance for removing the withdrawable coil)
 1) 2nd auxiliary switch block, lateral LSZ3D8...
 2) Auxiliary switch block, mountable on the front LSZ0D...
 3) RC element

LSDG.... size S12

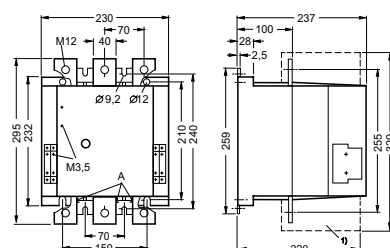


- k = 150 mm (minimum clearance for removing the withdrawable coil)
 1) 2nd auxiliary switch block, lateral LSZ3D8...
 2) Auxiliary switch block, mountable on the front LSZ0D...
 3) RC element

LSDH6.... size S14

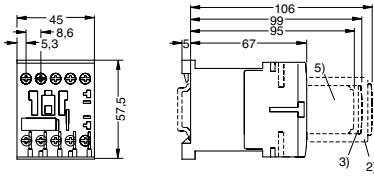


LSDH8.... size S14



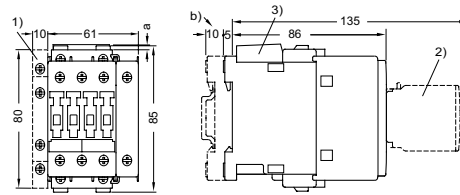
DIMENSIONS

LSRD... size S00



- 2) Auxiliary switch block
- 3) Surge suppressor
- 5) Auxiliary switch block 1-pole

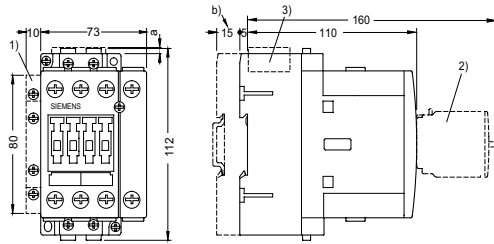
LSR0... size S0



a = 3 mm at < 250 V and mounting of surge suppressor, a = 7 mm at > 250 V and mounting of surge suppressor,
b = DC 10 mm deeper than AC

- 1) Auxiliary switch block, laterally mountable (left)
- 2) Auxiliary switch block, mountable on the front
- 3) Surge suppressor

LSR2... size S2

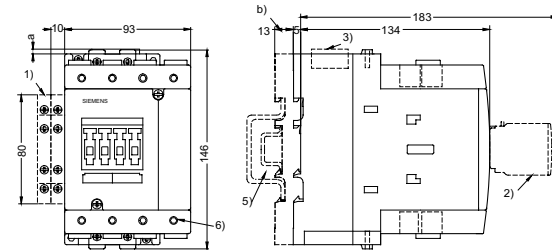


For sizes S2 and S3:

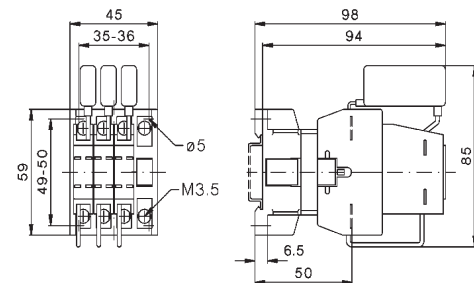
a = 0 mm with varistor < 240 V, a = 3.5 mm with varistor > 240 V, a = 17 mm with RC element and diode assembly, b = S2: DC 15 mm deeper than AC, S3: DC 13 mm deeper than AC

- 1) Auxiliary switch block, laterally mountable (right or left)
- 2) Auxiliary switch block, mountable on the front, (1-, 2- and 4-pole, also 3RH19 21-1FE22 solid-state compatible version)
- 3) Surge suppressor
- 4) For mounting on TH 35 standard mounting rail according to EN 60715 (15 mm deep) or for size S3 also to TH 75 standard mounting rail according to EN 60715
- 5) Allen screw 4 mm

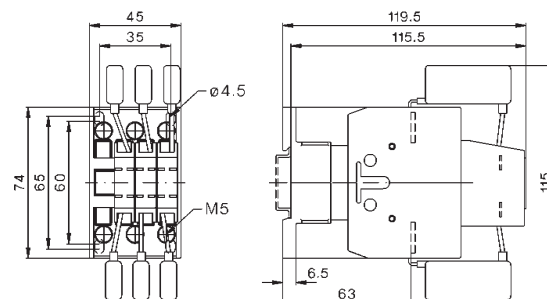
LSR3.... size S3



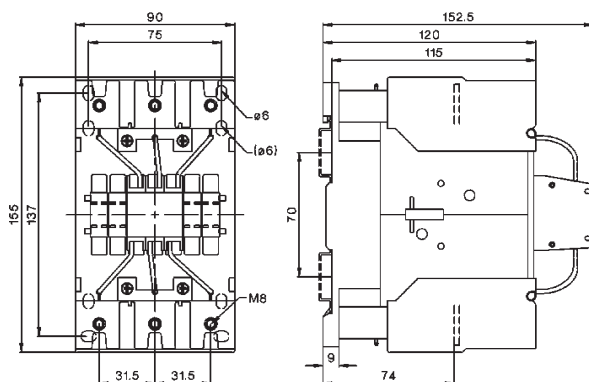
LA3K18..



LA3K24.. / LA3K32..



LA3K05.. / LA3K62.. / LA3K74..



OVERLOAD RELAYS



LSTD



LST0



LST2



LST3

FEATURES	BENEFITS	LST
GENERAL DATA		
SIZES	• Are coordinated with the dimensions, connections and technical characteristics of the other devices in the ALEA modular system • Permit the mounting of slim and compact load feeders in widths of 45 mm (S00), 45 mm (S0), 55 mm (S2), 70 mm (S3), 120 mm (S6) and 145 mm (S10/S12) • Simplify configuration	S00 ... S3
SEAMLESS CURRENT RANGE	• Allows easy and consistent configuration with one series of overload relays (for small to large loads)	0.11 ... 100 A
PROTECTION FUNCTIONS		
TRIPPING IN THE EVENT OF OVERLOAD	• Provides optimum inverse-time delayed protection of loads against excessive temperature rises due to overload	✓
TRIPPING IN THE EVENT OF PHASE UNBALANCE	• Provides optimum inverse-time delayed protection of loads against excessive temperature rises due to phase unbalance	✓
TRIPPING IN THE EVENT OF PHASE FAILURE	• Minimizes heating of induction motors during phase failure	✓
PROTECTION OF SINGLE-PHASE LOADS	• Enables the protection of single-phase loads	✓
FEATURES		
RESET FUNCTION	• Allows manual or automatic resetting of the relay	✓
REMOTE RESET FUNCTION	• Allows the remote resetting of the relay	✓ (by means of separate module)
TEST FUNCTION FOR AUXILIARY CONTACTS	• Allows easy checking of the function and wiring	✓
STATUS DISPLAYS	• Displays the current operating state	✓
LARGE CURRENT ADJUSTMENT BUTTON	• Makes it easier to set the relay exactly to the correct current value	✓
INTEGRATED AUXILIARY CONTACTS (1 NO + 1 NC)	• Allows the load to be switched off if necessary • Can be used to signal output	✓
DESIGN OF LOAD FEEDERS		
SHORT-CIRCUIT STRENGTH UP TO 100 KA AT 690 V (in conjunction with the corresponding fuses or the corresponding motor starter protector)	• Provides optimum protection of the loads and operating personnel in the event of short-circuits due to insulation faults or faulty switching operations	✓
ELECTRICAL AND MECHANICAL MATCHING TO CONTACTORS LSSD, LSDD, LSD0, LSD2, LSD3	• Simplifies configuration • Reduces wiring outlay and costs • Enables stand-alone installation as well as space-saving direct mounting	✓ ✓ ✓
OTHER FEATURES		
TEMPERATURE COMPENSATION	• Allows the use of the relays at high temperatures without derating • Prevents premature tripping • Allows compact installation of the control cabinet without distance between the devices/load feeders	✓ ✓ ✓
VERY HIGH LONG-TERM STABILITY	• Simplifies configuration • Enables space to be saved in the control cabinet • Provides safe protection for the loads even after years of use in severe operating conditions	✓ ✓ ✓

THERMAL OVERLOAD RELAY, SIZE 00



LSTD....

DESCRIPTION	ORDER NO.
THERMAL OVERLOAD RELAY SIZE 00	
Thermal overload relay 0,11...0,16 A	LSTD0016
Thermal overload relay 0,14...0,2 A	LSTD0020
Thermal overload relay 0,18...0,25 A	LSTD0025
Thermal overload relay 0,22...0,32 A	LSTD0032
Thermal overload relay 0,28...0,4 A	LSTD0040
Thermal overload relay 0,35...0,5 A	LSTD0050
Thermal overload relay 0,45...0,63 A	LSTD0063
Thermal overload relay 0,55...0,8 A	LSTD0080
Thermal overload relay 0,7...1 A	LSTD0100
Thermal overload relay 0,9...1,25 A	LSTD0125
Thermal overload relay 1,1...1,6 A	LSTD0160
Thermal overload relay 1,4...2 A	LSTD0200
Thermal overload relay 1,8...2,5 A	LSTD0250
Thermal overload relay 2,2...3,2 A	LSTD0320
Thermal overload relay 2,8...4 A	LSTD0400
Thermal overload relay 3,5...5 A	LSTD0500
Thermal overload relay 4,5...6,3 A	LSTD0630
Thermal overload relay 5,5...8 A	LSTD0800
Thermal overload relay 7...10 A	LSTD1000
Thermal overload relay 9...12 A	LSTD1200

THERMAL OVERLOAD RELAY, SIZE 0



LST0....

DESCRIPTION	ORDER NO.
THERMAL OVERLOAD RELAY SIZE 0	
Thermal overload relay 1,8...2,5 A	LST00250
Thermal overload relay 2,2...3,2 A	LST00320
Thermal overload relay 2,8...4 A	LST00040
Thermal overload relay 3,5...5 A	LST00050
Thermal overload relay 4,5...6,3 A	LST00630
Thermal overload relay 5,5...8 A	LST00800
Thermal overload relay 7...10 A	LST01000
Thermal overload relay 9...12,5 A	LST01250
Thermal overload relay 11...16 A	LST01600
Thermal overload relay 14...20 A	LST02000
Thermal overload relay 17...22 A	LST02200
Thermal overload relay 20...25 A	LST02500

OVERLOAD RELAYS

■ THERMAL OVERLOAD RELAY, SIZE 2



LST2....

DESCRIPTION	ORDER NO.
THERMAL OVERLOAD RELAY SIZE 2	
Thermal overload relay 5,5...8 A	LST20800
Thermal overload relay 7...10 A	LST21000
Thermal overload relay 9...12,5 A	LST21250
Thermal overload relay 11...16 A	LST21600
Thermal overload relay 14...20 A	LST22000
Thermal overload relay 18...25 A	LST22500
Thermal overload relay 22...32 A	LST23200
Thermal overload relay 28...40 A	LST24000
Thermal overload relay 36...45 A	LST24500
Thermal overload relay 40...50 A	LST25000

■ THERMAL OVERLOAD RELAY, SIZE 3



LST3....

DESCRIPTION	ORDER NO.
THERMAL OVERLOAD RELAY SIZE 3	
Overload relay thermal 18...25 A	LST32500
Overload relay thermal 22...32 A	LST33200
Overload relay thermal 28...40 A	LST34000
Overload relay thermal 36...50 A	LST35000
Overload relay thermal 45...63 A	LST36300
Overload relay thermal 57...75 A	LST37500
Overload relay thermal 70...90 A	LST39000
Overload relay thermal 80...100 A	LST39999

■ HOLDER



LSZ....

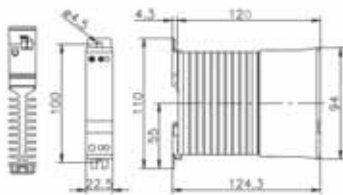
DESCRIPTION	SIZE	ORDER NO.
Holder for stand-alone install	00	LSZDTE01
Holder for stand-alone install	0	LSZ0TE01
Holder for stand-alone install	2	LSZ2TE01
Holder for stand-alone install	3	LSZ3TE01

■ SINGLE-PHASE/ TWO-PHASE/ THREE-PHASE

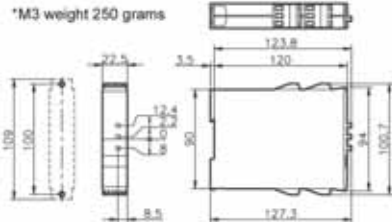


SEMICONDUCTOR CONTACTORS SINGLE-, TWO-, THREE-PHASE

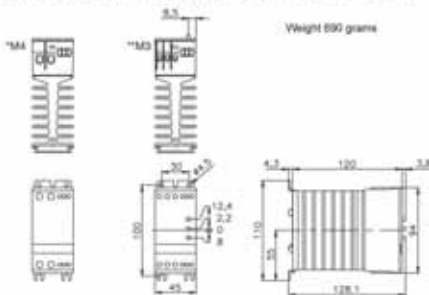
Dimensions for the 22.5 mm module (LAS110 A/15 A und LAK3,5 A)



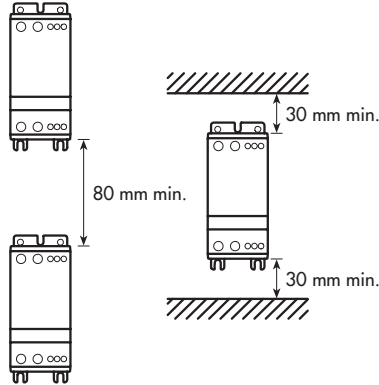
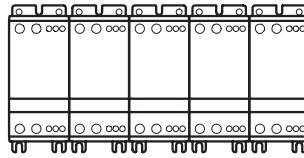
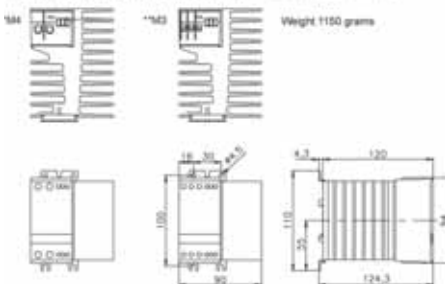
*M3 weight 250 grams



Dimensions for the 45 mm module (LAS1/LAW/LAK15A/LAD/LAA 30A)



Dimensions for the 90 mm module (LAS2 60A/30A /LAA 50A)



■ SCHRACK-INFO

- Rated operating voltage up to 600V AC, 50/60 Hz
- Control voltage 5-24 V DC or 24-230 V AC/DC
- Meets requirements of EN 60947-4-3
- Modular design with an overall width of 45 mm on DIN rails
- LED operating status indicator
- IP 20 degree of protection
- AC and DC control voltage
- Built-in varistor protection

■ RANGE OF APPLICATION

Heater controls:

- Soldering machines
- Plastic processing industry
- Galvanic industry
- Photo/film developers
- Film packaging
- Rubber industry

Lighting:

- Traffic lights
- Streetlights
- Floodlights in stadiums
- Outside factory lighting

■ TECHNICAL DATA, SINGLE-PHASE:

- Rated operating current up to 63 A AC-1

■ TECHNICAL DATA, TWO-PHASE:

- Rated operating current up to 50 A AC-1/2x15 A AC-3
- 2 autonomous 1-pole contactors in a single housing

■ TECHNICAL DATA, THREE-PHASE:

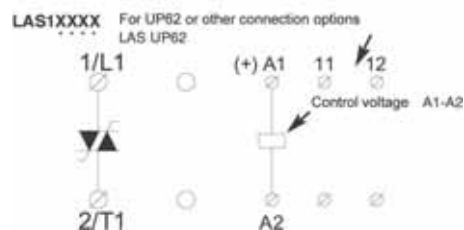
- Rated operating current up to 3x20 A AC-1/ 10 A AC-3

SINGLE-PHASE



LAS12301

Connection diagram single phase



SCHRACK-INFO

- Rated operating current up to 63 A AC-1
- Rated operating voltage up to 600 V AC, 50/60 Hz
- Control voltage 5-24 V DC or 24-230 V AC/DC
- Meets requirements of EN 60947-4-3
- Modular design with following widths 22.5 mm, 45 mm and 90 mm on DIN rail
- LED operating status indicator
- IP 20 degree of protection
- AC and DC control voltage
- Integrated varistor protection

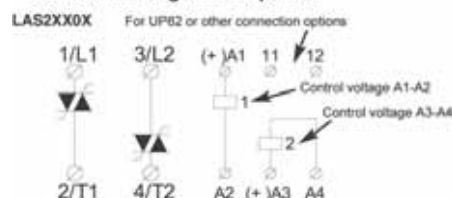
RATED CURRENT	RATED VOLTAGE	CONTROL VOLTAGE	DIM. (WxHxD) mm	ORDER NO.
15 A	24-480 V AC 50/60 Hz	24-230 V AC/DC	22,5x110x124,3	LAS14152
30 A	12-240 V AC 50/60 Hz	5-24 V DC	45x110x124,3	LAS12301
30 A	12-240 V AC 50/60 Hz	24-230 V AC/DC	45x110x124,3	LAS12302
30 A	24-480 V AC 50/60 Hz	5-24 V DC	45x110x124,3	LAS14301
30 A	24-480 V AC 50/60 Hz	24-230 V AC/DC	45x110x124,3	LAS14302
50 A	12-240 V AC 50/60 Hz	5-24 V DC	90x110x124,3	LAS12501
50 A	12-240 V AC 50/60 Hz	24-230 V AC/DC	90x110x124,3	LAS12502
50 A	24-480 V AC 50/60 Hz	5-24 V DC	90x110x124,3	LAS14501
50 A	24-480 V AC 50/60 Hz	24-230 V AC/DC	90x110x124,3	LAS14502

TWO-PHASE



LAS22302

Connection diagram two-phase



SCHRACK-INFO

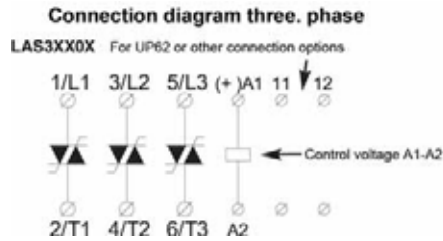
- 2 autonomous 1-pole contactors in a single housing
- Rated operating current up to 50 A AC-1/2x15 A AC-3

RATED CURRENT	RATED VOLTAGE	CONTROL VOLTAGE	DIM. (WxHxD) mm	ORDER NO.
30 A	12-240 V AC 50/60 Hz	5-24 V DC	45x110x124,3	LAS22301
30 A	12-240 V AC 50/60 Hz	24-230 V AC/DC	45x110x124,3	LAS22302
30 A	24-480 V AC 50/60 Hz	5-24 V DC	45x110x124,3	LAS24301
30 A	24-480 V AC 50/60 Hz	24-230 V AC/DC	45x110x124,3	LAS24302
50 A	24-480 V AC 50/60 Hz	5-24 V DC	90x110x124,3	LAS24501
50 A	24-480 V AC 50/60 Hz	24-230 V AC/DC	90x110x124,3	LAS24502

THREE-PHASE



LAS32102



SCHRACK-INFO

- Rated operating current up to 3x20 A
AC-1/ 10 A AC-3

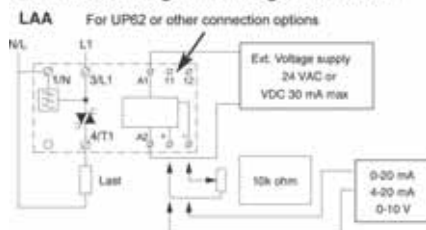
RATED CURRENT	RATED VOLTAGE	CONTROL VOLTAGE	DIM. (WxHxD) mm	ORDER NO.
10 A	12-240 V AC 50/60 Hz	5-24 V DC	45x110x124,3	LAS32101
10 A	12-240 V AC 50/60 Hz	24-230 V AC/DC	45x110x124,3	LAS32102
10 A	24-480 V AC 50/60 Hz	5-24 V DC	45x110x124,3	LAS34101
10 A	24-480 V AC 50/60 Hz	24-230 V AC/DC	45x110x124,3	LAS34102
20 A	12-240 V AC 50/60 Hz	5-24 V DC	90x110x124,3	LAS32201
20 A	12-240 V AC 50/60 Hz	24-230 V AC/DC	90x110x124,3	LAS32202
20 A	24-480 V AC 50/60 Hz	5-24 V DC	90x110x124,3	LAS34201
20 A	24-480 V AC 50/60 Hz	24-230 V AC/DC	90x110x124,3	LAS34202

1-PHASE ELECTRONIC ANALOGUE CONTROLLER



LAA14306

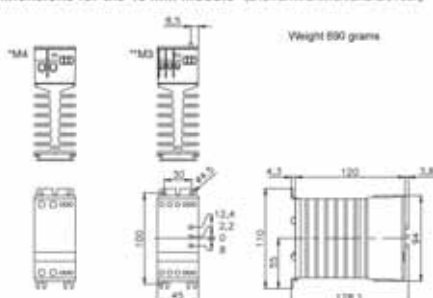
Connection diagram analogue controller



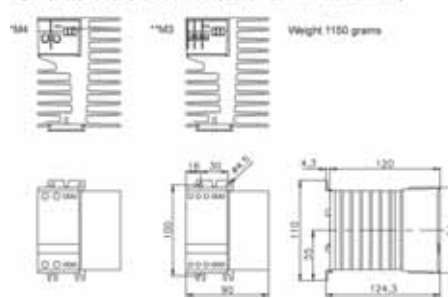
SCHRACK-INFO

- Analogue controller for accurate process temperature control
- Heating element control with phase angle or burst firing control
- Current loop control: 0-20 mA, 4-20 mA
- Voltage control: 0-10 V DC
- Manual control 10 kΩ potentiometer
- Reverse action possible
- Rated voltage: 230 or 400 V AC
- Rated current: up to 30 or 50 A AC-51 (AC 1)
- Integrated EMC filter

Dimensions for the 45 mm module (LAA14306/LAA14306A/LAA 35A)



Dimensions for the 90 mm module (LAA14506/LAA 50A)

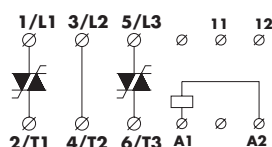


DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Analogue controller 30 A/380–480 V	45x110x128,1	LAA14306
Analogue controller 50 A/380–480 V	90x110x128,1	LAA14506

MOTOR CONTACTORS



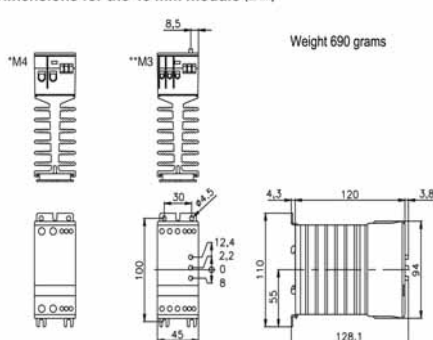
LAM32154



SCHRACK-INFO

- Designed for direct start-up of 3-phase motors
- Rated operating current: 15 A AC-3 (10 HP at 400 V 3 Phase)
- Operating voltage range: from 24 to 600 V AC 50 or 60 Hz
- Control voltage range: from 24 to 480 V AC or 24-60 V DC
- LED operating status indicator
- Degree of protection IP 20
- Compact modular design, 45 mm installation width on DIN rail
- Meets requirements of standard EN 6047-4-2
- Genuine contact-free motor contactor for extremely long service life
- Unlimited number of start/stop cycles possible per hour

Dimensions for the 45 mm module (LAM)



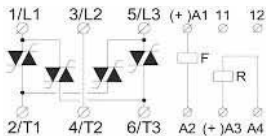
RATED CURRENT	RATED VOLTAGE	CONTROL VOLTAGE	DIM. (WxHxD) mm	ORDER NO.
15 A	208-240 VAC 50/60 Hz	24-480 V AC 24-60 V DC	45x110x124,3	LAM32154
15 A	400-480 VAC 50/60 Hz	24-480 V AC 24-60 V DC	45x110x124,3	LAM34154
15 A	550-600 VAC 50/60 Hz	24-480 V AC 24-60 V DC	45x110x124,3	LAM36154

3-PHASE ELECTRONIC MOTOR CONTACTOR

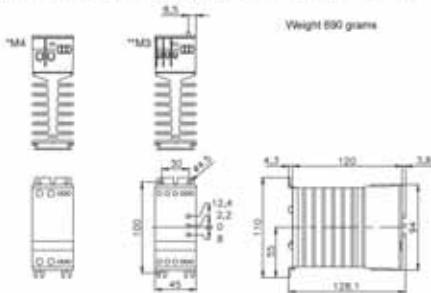
REVERSING CONTACTOR



LAW34101



Dimensions for the 45 mm module (LAS1/LAW/LAK/SA/LAD/LAA 35A)

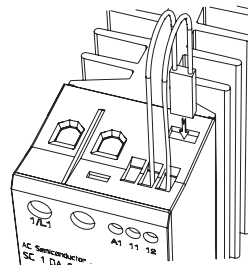


SCHRACK-INFO

- Electronic contactor for reverse motor control
- Rated operating current up to 10 A AC-3/8 A AC-4
- Rated operating voltage up to 480V AC
- Control voltage 5-24 V DC or 24-230 V AC
- 2 separate potential-free control voltage inputs
- Meets requirements of EN 60947-4-2
- Modular design with an overall width of 45 mm on DIN rail
- LED operating status indicator
- IP 20 shock protection
- AC and DC control voltage
- Integrated interlock circuit

RATED CURRENT	RATED VOLTAGE	CONTROL VOLTAGE	DIM. (WxHxD) mm	ORDER NO.
10 A	24-480 V AC 50/60 Hz	5-24 V DC	45x110x124,3	LAW34101
10 A	24-480 V AC 50/60 HZ	24-230 V AC/DC	45x110x124,3	LAW34102

ELECTRONIC/MOTOR CONTACTOR ACCESSORIES

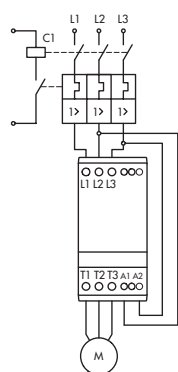


DESCRIPTION	ORDER NO.
Thermal overload protection	LASUP62

MOTOR CONTROLLER



lak32155



RANGE OF APPLICATION

Motor drive:

- Packaging industry
- Printing presses
- Valve control in power stations
- Bell controls

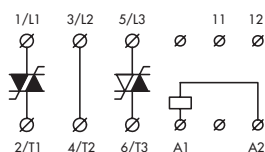
In general:

- Compressor systems
- Machine tools
- Conveyor systems
- Looms
- Fans and ventilation systems
- Woodworking machines

SUPPLEMENTAL TECHNICAL DATA

- Soft starter, three controlled phases
- Soft starter, two controlled phases
- Soft starters with break system
- Initial torque limiting system, 1 or 3 controlled phases

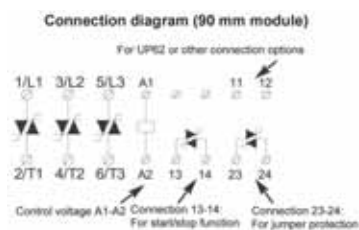
2 controlled phases, LAK



Benefits:

- Easy, rapid mounting
- Immediately ready for use
- Very easy to adjust
- Contact-protected
- More compact than standard soft starters
- Standardized module widths

3 controlled phases, LAT

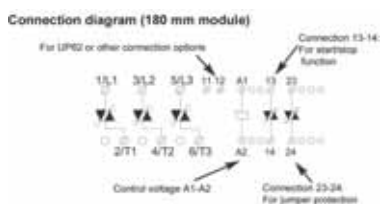


APPLICATIONS

Used to delay the start and stop of 3-phase motors:

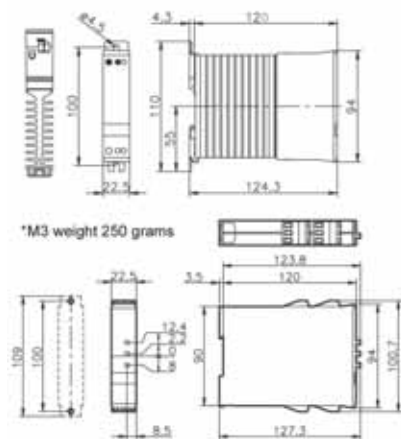
- Compressor systems
- Machine tools
- Conveyor systems
- Looms
- Fans and ventilation systems
- Woodworking machines
- Can be used instead of Star/Delta starters
- Packaging industry
- Printing presses

3 controlled phases, LAT B/D

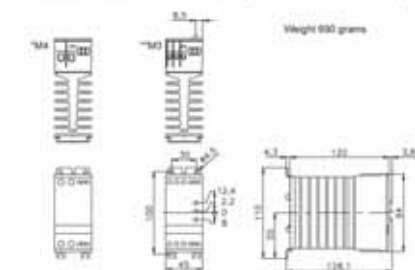


MOTOR CONTROLLER – continued

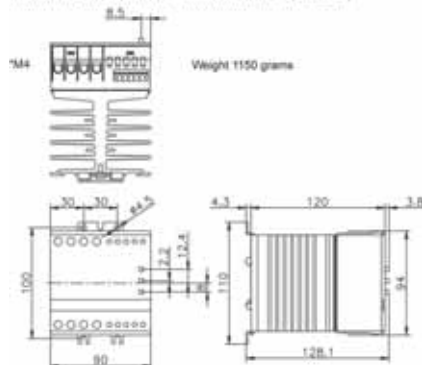
Dimensions for the 22.5 mm module (LAK119 A/15 A und LAK3,5 A)



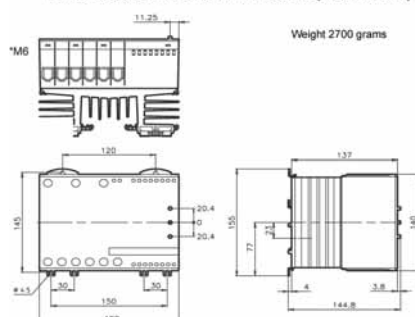
Dimensions for the 45 mm module (LAK11, LAK15, LAK15A, LAK15A, LAK15A, LAK15A)



Dimensions for the 90 mm module (LAK1, LAK1)



Dimensions for the 180 mm module (LAT/LATB/LATD)



SOFT STARTER UP TO 45 kW/400 VAC

- AC electronic motor controller with soft start and soft stop or with by-pass function (from 30A)
- Rated operating current:
 - LAK type up to 25 A AC-3, AC-53a, AC-58a (11 kW 400-480 V AC) or up to 30 A AC 53b (15kW with jumper)
 - LAT type up to 86 A *Root 3* switch with 3 controlled phases (see Special Catalogue)
- Rated operating voltage up to 600V AC, 50/60 Hz
- Meets requirements of EN 60947-4-2
- Includes integrated microcomputer for optimal performance
- Start and stop times can be regulated between 0.5 s and 10 s (20 s)
- Initial torque can be adjusted up to 85% of nominal torque, Kick start option available
- LED operating status indicator
- Potential-free control inputs
- Control voltage range 24 V AC/DC to 480 V AC/DC
- Degree of protection IP 20
- Compact modular structure, 45 mm and 90 mm installation width on DIN rail

SOFT STARTER WITH DYNAMIC BREAK

Rated operating voltage up to 480 V AC 50/60 Hz

- Rated operating current from 1 A up to 25 A AC-3, AC-53a, AC-58a (15PS, 400-480 V AC)
- Start time can be set between 0.5 to 10 secs.
- Initial torque can be set to between 0% - 85% of nominal torque. Kickstart option available.
- Control voltage range 24 V to 480 V AC/DC
- Braking current adjustable between 0-50 A DC
- Super-rapid brake function with automatic motor magnetic field reduction.
- Slow speed function: The motor operates at only 7.5 to 10% of the nominal speed
- Automatic down-time detection
- Output signal for full control (by-pass) and for the control of a mechanical

RATED CURRENT	RATED VOLTAGE	CONTROL VOLTAGE	DIM. (WxHxD) mm	ORDER NO.
3 A	208-240 VAC 50/60 Hz	24-230 V AC/DC	22,5x110x128,1	LAK32035
3 A	400-480 VAC 50/60 Hz	24-480 V AC/DC	22,5x110x128,1	LAK34035
15 A	208-240 VAC 50/60 Hz	24-230 V AC/DC	45x110x128,1	LAK32155
15 A	400-480 VAC 50/60 Hz	24-480 V AC/DC	45x110x128,1	LAK34155
15 A	550-600 VAC 50/60 Hz	24-480 V AC/DC	45x110x128,1	LAK36155
25 A	208-240 VAC 50/60 Hz	24-230 V AC/DC	90x110x128,1	LAK32255
25 A	400-480 VAC 50/60 Hz	24-480 V AC/DC	90x110x128,1	LAK34255
25 A	550-600 VAC 50/60 Hz	24-480 V AC/DC	90x110x128,1	LAK36255

MOTOR CONTROLLER WITH BY-PASS

WITHOUT BY-PASS	WITH BY-PASS	RATED VOLTAGE	DIM. (WxHxD) mm	ORDER NO.
25 A AC-53a	30 A AC-53b	400–480 V	90x110x128,1	LAKB4255
35 A AC-53a	50 A AC-53b	400–480 V	180x145x144,8	LATB4355
60 A AC-53a	86 A AC-53b	400–480 V	180x145x144,8	LATD4605

SOFT STARTER WITH DYNAMIC BREAK

WITHOUT BY-PASS	WITH BY-PASS	RATED VOLTAGE	DIM. (WxHxD) mm	ORDER NO.
25 A AC-53a	30 A AC-53b	400–480 V	90x110x128,1	LAB34255

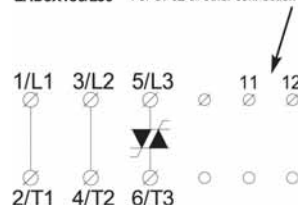
TORQUE LIMITER



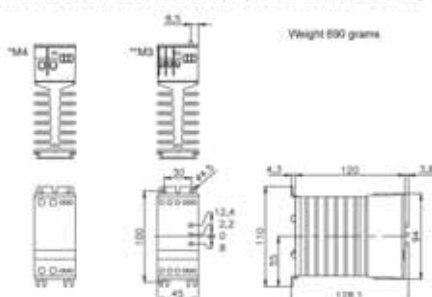
LAD34150

Connection diagram

LAD3X150/250 For UP62 or other connection options



Dimensions for the 45 mm module (LAB1/LAW/LAK1SA/LAD1AA 35A)



SCHRACK-INFO

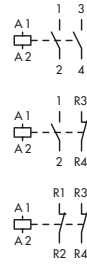
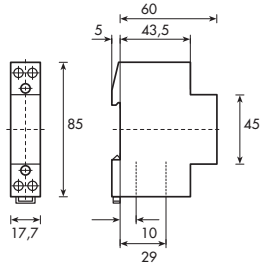
- Unit used to soft start three-phase and single-phase motors with rated operating voltages of 230 to 600 V, 50 or 60 Hz
- Rated operating current up to 25 A AC-3 (11 kW 400 V 3 phases)
- Operating voltage range: 230 to 600 V AC, 50 or 60 Hz
- Adjustable ramp-up time 0.5 s to 5 s
- Initial torque can be set to between 0% - 85% of nominal torque.
- LED operating status indicator
- Degree of protection IP 20
- Compact modular structure, 45 mm installation width on DIN rail
- Genuine contact-free motor contactor for extremely long service life
- Unlimited number of start/stop operations per hour.

RATED CURRENT	RATED VOLTAGE	DIM. (WxHxD) mm	ORDER NO.
15 A	208-480 V AC	45x110x128,1	LAD34150
25 A	208-480 V AC	45x110x128,1	LAD34250
25 A	550-600 V AC	45x110x128,1	LAD36250

1/2-POLE



BZ326437



SCHRACK-INFO

- Modular 1 module wide
- Technical data according to EN 60 947-4-1; EN 60 947-5-1; VDE 0660
- Terminal labels according to EN 50011
- Degree of protection IP 20
- AC1/230 V: 4,6 kW (20 A)
- Low-hum (ultra-quiet)

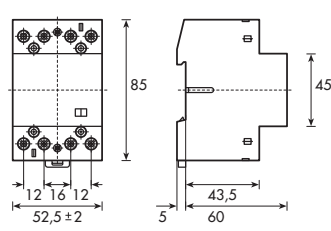
DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
1 NO / 230 V	17,7x85x65	BZ326471
2 NO / 24 V	17,7x85x65	BZ326453
2 NO / 230 V	17,7x85x65	BZ326437
1 NO + 1 NC / 24 V	17,7x85x65	BZ326421
1 NO + 1 NC / 230 V	17,7x85x65	BZ326438
2 NC / 230 V	17,7x85x65	BZ326439

4-POLE

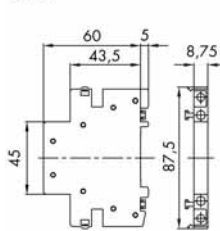


BZ326442

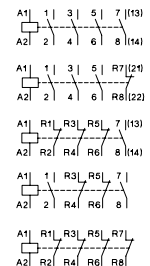
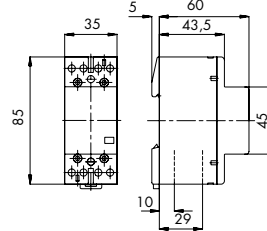
R40..., R63...



Auxiliary contact RH11



R25...



SCHRACK-INFO

- Rated current: 25/40/63 A
- Technical data according to EN 60 947-4-1; EN 60 947-5-1; VDE 0660
- Terminal labels according to EN 50011
- Degree of protection IP 20
- AC1/230 V: 5,7 (25 A) / 9 (40 A) / 14,3 (63 A) kW
- AC1/400 V: 17 (25 A) / 27.5 (40 A) / 43 (63 A) kW
- Low-hum (ultra-quiet)

RATED CURRENT/DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
25 A,4 NO / 24 V	35x60,5x64	BZ326460
25 A,4 NO / 230 V	35x60,5x64	BZ326461
25 A,3 NO + 1 NC / 24 V	35x60,5x64	BZ326462
25 A,3 NO + 1 NC / 230 V	35x60,5x64	BZ326463
25 A,1 NO + 3 NC / 24 V	35x60,5x64	BZ326464
25 A,1 NO + 3 NC / 230 V	35x60,5x64	BZ326465
40 A,2 NC + 2 NO / 230 V	52,5x85x65	BZ326466
25 A,4 NC / 230 V	35x60,5x64	BZ326467
40 A,3 NO / 230 V	52,5x85x65	BZ326468
63 A,4 NC / 230 V	52,5x85x65	BZ326469
40 A,4 NO / 24 V	52,5x85x65	BZ326443
40 A,4 NO / 230 V	52,5x85x65	BZ326442
63 A,4 NO / 24 V	52,5x85x65	BZ326445
63 A,4 NO / 230 V	52,5x85x65	BZ326444
63 A,3 NO + 1 NC / 230 V	52,5x85x65	BZ326452
Auxillary contact block 10 A	8,75x85x65	BZ326470

TOP-TECHNIC



MINIATURE RELAYS, TYPE PT

TOP-TECHNIC



MULTIMODE RELAYS, TYPE MT

TOP-TECHNIC



POWER RELAYS, TYPE RM

TOP-TECHNIC



POWER PCB RELAYS, TYPE RT

TOP-TECHNIC



SLIM PCB RELAYS, TYPE SNR

RELAYS

CONTENTS

MINIATURE RELAYS, TYPE PT	Page 224
MULTIMODE RELAYS, TYPE MT	Page 228
POWER RELAYS, TYPE RM	Page 231
POWER PCB RELAYS, TYPE RT	Page 234
SLIM PCB RELAYS, TYPE SNR	Page 236

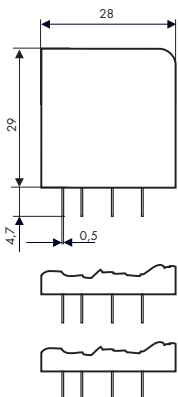
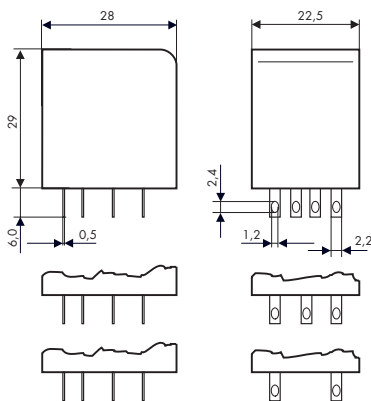
MINIATURE RELAY, TYPE PT



MINIATURE RELAY PT



PT78742



SCHRACK-INFO

- Socket comes with solder or PCB terminals
- Plug-in sockets with screw-type terminals
- LED and Protection modules
- With a switching current of 6 A, the 4-pole version offers switch cabinets a power reserve of 20% compared with comparable relays. Its reduced height means space in the switch cabinet can be used more efficiently.
- Can be used universally in automation and control
- 2, 3 or 4 C/O contacts
- Switching performance of up to 3000 VA
- Height 29 mm
- Cadmium-free contact material
- Mechanical and electrical indicator
- Push-to-test button, accidental contact-proof, various lock options
- White label
- RoHS compliant (directive 2002/95/EC)

SUPPLEMENTAL TECHNICAL DATA

- Contact data

Nr. & type of contacts	2C/O / 3C/O / 4C/O
Contact design:	Single contacts:
Switching current:	12 A/10 A/6 A
Rated voltage:	250 V~/250 V~/250 V~
Max. switching voltage:	440 V~/440 V~/440 V~
Max. switching capacity:	3000 VA/2500 VA/1500 VA
Peak inrush power:	24 A/20 A/12 A
Contact material:	AgNi 90/10, AgNi 90/10 htv

- Contact rating

Type	Load	Operations	Certification
PT570	6 A, 250 V~, at C/O	1x10 ⁵	VDE 0435

- Coil data

Rated voltage	DC coil:	6 - 220 V-
	AC coil:	6 - 230 V~
Rated power	DC coil:	typ. 0,75 W
	AC coil:	typ. 1,0 VA
Operating range/pull-in category:		2/b
Operating range, AC coil 60 Hz at 70 °C:		90 - 110 % U _{rated}

TIPS & TRICKS

The PT series miniature relay is predominantly used in heating and elevator control systems, machines and process plant engineering.

RANGE OF APPLICATION

Can be used universally in automation and control

ACCESSORIES

- Sockets come with solder or PCB terminals
- Plug-in sockets with screw-type terminals
- LED and Protection modules

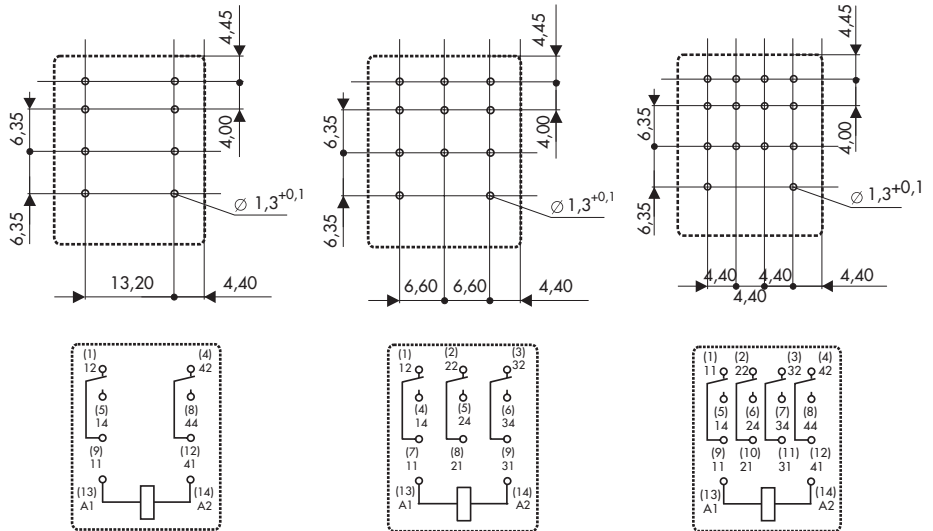
PACKAGING

All PT miniature relays come with a new user-friendly cardboard packaging in sets of 10 pieces.

MINIATURE RELAY, TYPE PT – continued



MINIATURE RELAY PT

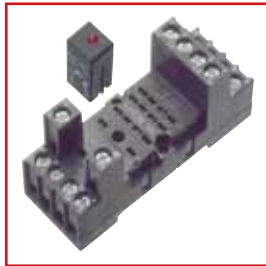


NOTE

Technical details available upon request for approved types.

RATED COIL VOLTAGE	ORDER NO.
WITH 2 C/O CONTACTS, 12 A AND DC AND AC COILS	
24 V DC	PT270024
110 V DC	PT270110
24 V AC	PT270524
230 V AC	PT270730
WITH 3 C/O CONTACTS, 10 A AND DC AND AC COILS	
24 V DC	PT370024
125 V DC	PT370125
24 V AC	PT370524
230 V AC	PT370730
WITH 4 C/O CONTACTS, 6 A AND DC AND AC COILS	
6 V DC	PT570006
12 V DC	PT570012
12 V DC with gold-plated contacts	PT580012
24 V DC	PT570024
24 V DC with LED	PT570L24
24 V DC with gold-plated contacts	PT580024
48 V DC	PT570048
60 V DC	PT570060
110 V DC	PT570110
110 V DC with gold-plated contacts	PT580110
125 V DC	PT570125
220 V DC	PT570220
220 V DC with LED	PT570N20
220 V DC with gold-plated contacts	PT580220
6 V AC	PT570506
12 V AC	PT570512
24 V AC	PT570524
24 V AC with LED	PT570R24
24 V AC with gold-plated contacts	PT580524
48 V AC	PT570548
60 V AC	PT570560
115 V AC	PT570615
230 V AC	PT570730
230 V AC with LED	PT570T30
230 V AC with gold-plated contacts	PT580730
230 V AC, PCB-Pins	PT571730

PT PLUG-IN SOCKETS WITH SCREW-TYPE TERMINALS



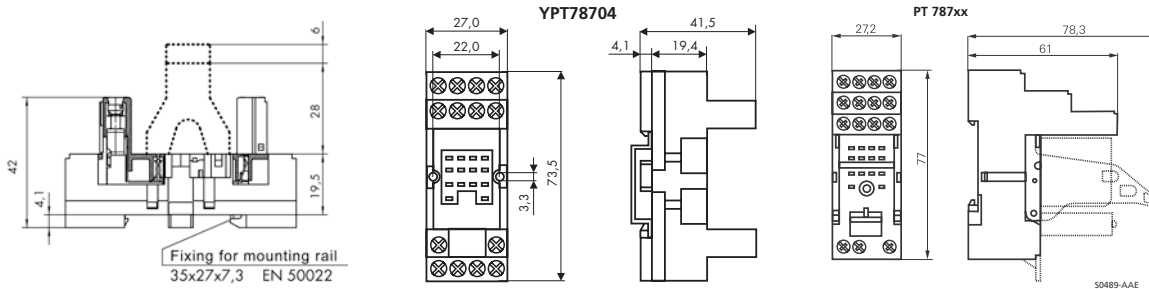
YPT78704



YMFDG230



PT78742



DESCRIPTION	ORDER NO.
Plug-in socket, 4-pole, 6 A	YPT78704
Plug-in socket, 4-pole, 6 A with protection diode 1N4007	YPT78110
Plug-in socket, I/O, 4-pole, 6 A	PT78742
Plug-in socket, 2-pole, 12 A	YPT78702
Plug-in socket, I/O, 2-pole, 12 A	PT78722
Plug-in socket, 3-pole, 10 A	YPT78703

ACCESSORIES FOR PLUG-IN SOCKETS WITH SCREW-TYPE TERMINALS

DESCRIPTION	ORDER NO.
Marking tag	YPT16040
Retaining clip	YPT16016
Marking tag for PT787xx	PT17040
Retaining clip for PT787xx	PT17021
Metal retaining clip for plug-in sockets	PT28800

LED- AND PROTECTION MODULES FOR PLUG-IN SOCKETS WITH SCREW-TYPE TERMINAL AND SCREWLESS TERMINALS

DESCRIPTION	ORDER NO.
Red LED module, 6...24 VDC w/ protective diode 1N4007, A1+	YMLRD024-A
Red LED module, 6... 24V DC w/ protective diode 1N4007, A1-	YMLRD024
Green LED module, 6...24 VDC w/ protective diode 1N4007, A1+	YMLGD024
Green LED module, 6...24 VAC/DC	YMLGA024
Red LED module, 6...24 VAC/DC	YMLRA024
Red LED module, 110...230 VAC	YMLRW230
Green LED module, 110...230 VAC	YMLGW230
Protective diode module 6...230 VDC, A1+	YMFDG230
Red RC module, 6...24 VAC/DC	YMRCW024
RC module, 110...230 VAC	YMRCW230
Varistor module 24V AC	YMWAW024
Varistor module 230V AC	YMWAW230

PT PLUG-IN SOCKETS WITH SCREWLESS TERMINALS



PT7874P

DESCRIPTION	ORDER NO.
Screwless, Plug-in socket, 4-pole, 6 A	PT7874P

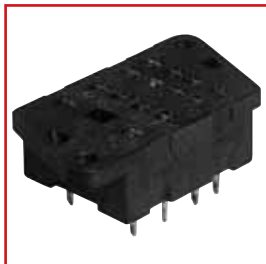
ACCESSORIES FOR PLUG-IN SOCKETS WITH SCREWLESS TERMINALS



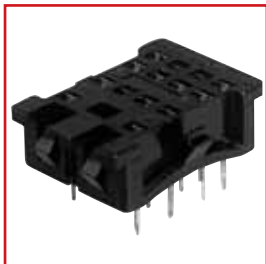
PT17021

DESCRIPTION	ORDER NO.
Plastic retaining clip, relay height 29/35 mm	PT17021
Metall retaining clip PT, relay height 29 mm	PT28800
Marking tag	PT17040
Sumper Link	PT170P1

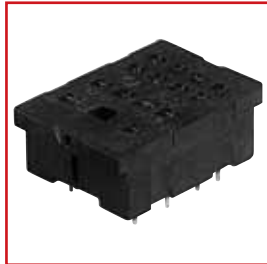
PT SOCKETS



PT78600



PT78601



PT78604

DESCRIPTION	ORDER NO.
Plug-in socket with screw-type terminals, 4-pole, 6 A	PT78600
Plug-in socket for 4-pole PCB relay, 6 A	PT78604
Plug-in socket with solder terminals, 4-pole, 6 A	PT78601
PCB socket, 3-pole, 10 A	PT78603
Plug-in socket for 2-pole PCB relay, 10 A	PT78602

ACCESSORIES FOR PT SOCKETS

DESCRIPTION	ORDER NO.
Metal retaining clip for PCB sockets	PT28802

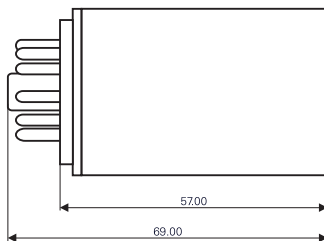
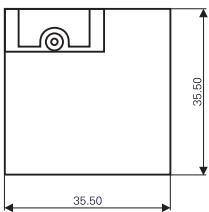
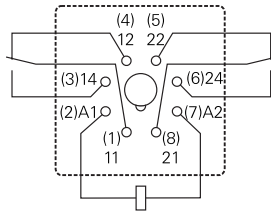
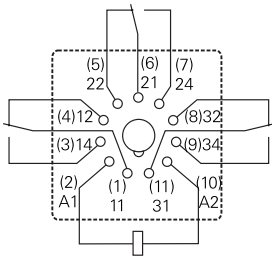
MULTIMODE RELAY, TYPE MT



MULTIMODE RELAY MT



MT326024/MTMF0W00



SCHRACK-INFO

- 2 C/O or 3 C/O contacts
- Cadmium-free contact material
- Mechanical indicator as standard
- Electrical indicator
- New test system with front operated fingerprotected push-to-test button and integral locking test tab.
- Safe from contact
- Integrated locking tab in cap
- Push-to-test button at front
- White marking label
- RoHS compliant (directive 2002/95/EC)

- DC coil:
The pull-in voltage is equal to 0,75 x rated voltage.
The release voltage is equal to 0.10 x rated voltage.
- AC coil:
The pull-in voltage is equal to 0.80 x rated voltage.
The release voltage is equal to 0.40 x rated voltage.

TECHNICAL DATA

The MT series miniature relay is predominately used in heating and elevator control systems, machines and process plant engineering.

ACCESSORIES

Screw-type sockets
Protection modules
Plug-in sockets

NOTE

Technical details available upon request for approved types

MULTIMODE RELAY, TYPE MT – continued

COIL VOLTAGE	DIM. (WxHxD) mm	ORDER NO.
WITH 2 C/O CONTACTS, 10A, 8-POLE, DC COIL		
12 V	35,5x35,5x69	MT221012
24 V	35,5x35,5x69	MT221024
48 V	35,5x35,5x69	MT221048
110 V	35,5x35,5x69	MT221110
220 V	35,5x35,5x69	MT221220
WITH 3 C/O CONTACTS, 10A, 11-POLE, DC COIL		
6 V	35,5x35,5x69	MT321006
12 V	35,5x35,5x69	MT321012
24 V	35,5x35,5x69	MT321024
24 V with gold-plated contacts	35,5x35,5x69	MT331024
24 V with prot. diode	35,5x35,5x69	MT3210C4
48 V	35,5x35,5x69	MT321048
60 V	35,5x35,5x69	MT321060
110 V	35,5x35,5x69	MT321110
220 V	35,5x35,5x69	MT321220
24 V with LED and prot. diode	35,5x35,5x69	MT3230C4
24 V with LED	35,5x35,5x69	MT323024
48 V with LED	35,5x35,5x69	MT323048
60 V with LED	35,5x35,5x69	MT323060
110 V with LED	35,5x35,5x69	MT323110
220 V with LED	35,5x35,5x69	MT323220
WITH 2 C/O CONTACTS, 10A, 8-POLE, AC COIL		
6 V	35,5x35,5x69	MT226006
12 V	35,5x35,5x69	MT226012
24 V	35,5x35,5x69	MT226024
48 V	35,5x35,5x69	MT226048
115 V	35,5x35,5x69	MT226115
230 V	35,5x35,5x69	MT226230
230 V with LED	35,5x35,5x69	MT228230
230 V with htv	35,5x35,5x69	MT236230
WITH 3 C/O CONTACTS, 10A, 11-POLE, AC COIL		
6 V	35,5x35,5x69	MT326006
12 V	35,5x35,5x69	MT326012
24 V	35,5x35,5x69	MT326024
24 V with LED	35,5x35,5x69	MT328024
48 V	35,5x35,5x69	MT326048
60 V	35,5x35,5x69	MT326060
110 V	35,5x35,5x69	MT326110
115 V	35,5x35,5x69	MT326115
115 V with LED	35,5x35,5x69	MT328115
230 V	35,5x35,5x69	MT326230
230 V with htv	35,5x35,5x69	MT336230
230 V with LED	35,5x35,5x69	MT328230
230 V with LED & htv	35,5x35,5x69	MT338230

MULTIMODE RELAYS, TYPE MT

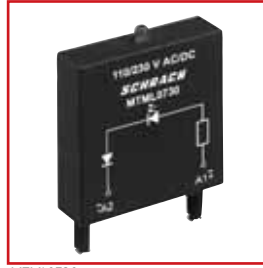
MT PLUG-IN SOCKETS WITH SCREW-TYPE TERMINALS



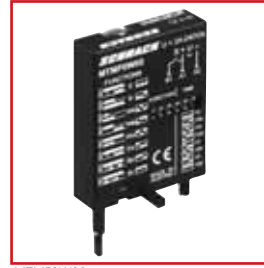
YMR78700



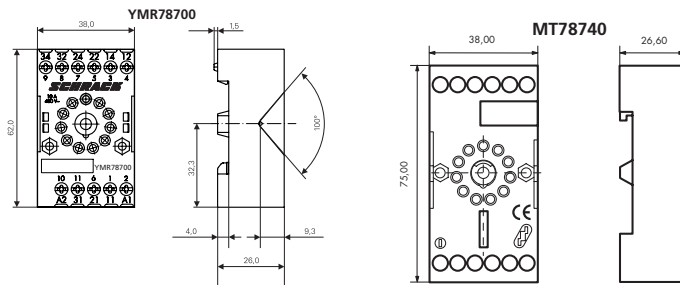
MT78740



MTML0730



MTMF0W00



DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
11-pole screw-type socket	38x62x26	YMR78700
8-pole screw-type socket	38x62x26	YMR78701
11-pole screw-type socket with shaft for modules	38x75x26	MT78740
Metal retaining clip	-	MT28800

LED-, FUNCTION- AND PROTECTION MODULES FOR MT PLUG-IN SOCKETS MT78740

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Module protect. diode 1N4007	35x55x10	MTMT00A0
Module RC network, 115/240 V AC	35x55x10	MTMU0730
Module RC network, 6/24 V AC	35x55x10	MTMU0524
Module LED 24 V-/24 V~	35x55x10	MTML0024
Module LED 230 V~	35x55x10	MTML0730
Timer module/multifunction	35x55x20	MTMF0W00
Module timer module/delay ON	35x55x20	MTMZ0W00

MT PLUG-IN SOCKETS WITH SOLDER AND PCB TERMINALS



MT78612



MT78613



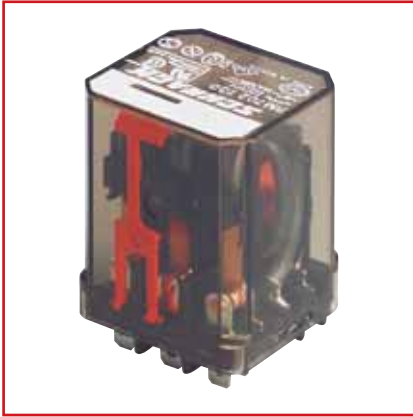
MT78602



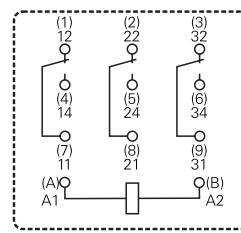
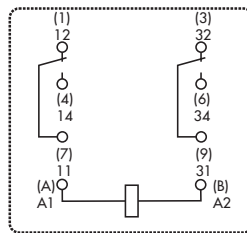
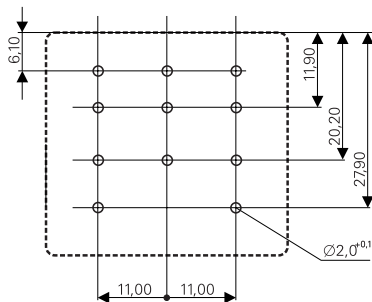
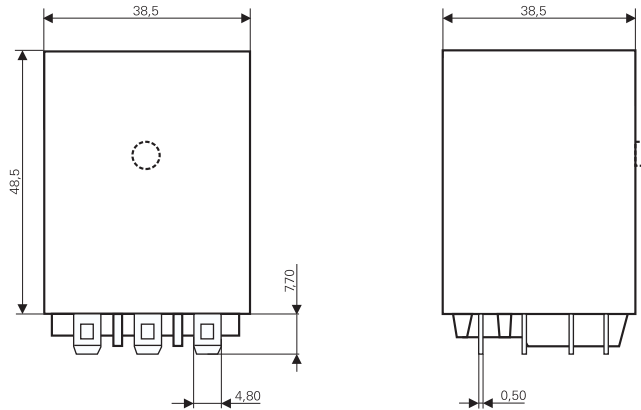
MT78603

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
8-pole plug-in socket with solder terminal	32x48x22	MT78612
11-pole plug-in socket with solder terminal	32x48x22	MT78613
8-pole plug-in socket with PCB terminal	Ø28x19	MT78602
11-pole plug-in socket with PCB terminal	Ø28x19	MT78603

POWER RELAY, TYPE RM, 1-, 2- OR 3-POLE



POWER RELAY RM



SCHRACK-INFO

- 1/2/3-pole, 10/16/25/30 A, DC and AC coils
- For plug-in and PCB terminals
- Mechanical indicator, push-to-test button
- Tab fastening, DIN rail mount
- RoHS compliant (directive 2002/95/EC)
- DC coil:
The pull-in voltage is equal to 0,75 x rated voltage.
The release voltage is equal to 0.1 x rated voltage.
- AC coil:
The pull-in voltage is equal to 0.8 x rated voltage.
The release voltage is equal to 0.4 x rated voltage.

SUPPLEMENTAL TECHNICAL DATA

For power relay RM 5/6:

- 2 N/O or 3 N/O contacts
- 3 mm contact gap
- DC and AC coils
- Push-to-test button
- Tab fastening, DIN rail mount plug-in
- Used in emergency power supplies, pump control systems

For power relay RM 8:

- 2 C/O contacts
- DC and AC coils
- Mechanical indicator
- Push-to-test button
- Tab fastening or DIN rail mount
- Used in cleaning machinery, heating and refrigeration control systems

For power relay RM C/D:

- 1 N/O or 1 N/O + 1 N/C
- Switching capacity up to 7200 VA
- DC and AC coils
- Push-to-test button
- Tab fastening
- Used in battery chargers, heating control systems

TIPS & TRICKS

Used for the direct control of short-circuit rotary motors, hot water storage units and off-peak current ovens. Can be used as switching relay in series devices.

NOTE

Technical details available upon request for approved types.

ACCESSORIES

Sockets

POWER RELAY, TYPE RM, 1-, 2- OR 3-POLE – continued

DC COILS

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
1 AK, 30 A, 24 V, Faston 250	38,5x73,5x35,5	RM05024
2 UK, 16 A, 24 V, Faston 187	38,5x56,2x35,5	RM232024-D
2 UK, 25 A, 12 V, Faston 250	38,5x56,2x35,5	RM835012
2 UK, 25 A, 24 V, Faston 250	38,5x56,2x35,5	RM835024
2 UK, 25 A, 24 V, Faston 250 with snap-on device	38,5x56,2x44	RM839024
2 UK, 25A, 24 V, cap with snap-on fastening, horizontal position, Faston 250	38,5x56,2x35,5	RM838024
3 UK, 10 A, 12 V, Faston 187	38,5x56,2x35,5	RM332012-D
3 UK, 10 A, 24 V, Faston 187	38,5x56,2x35,5	RM332024-D
3 UK, 16 A, 12 V, Faston 187	38,5x56,2x35,5	RM732012-C
3 UK, 16 A, 24 V, Faston 187	38,5x56,2x35,5	RM732024-C
3 UK, 16A, 24 V, cap with snap-on fastening, horizontal position, Faston 250	38,5x56,2x44	RM739024-C
3 UK, 16 A, 24 V, cap with tab, Faston 250	38,5x73,5x35,5	RM735024-C
3 UK, 16 A, 60 V, Faston 187	38,5x56,2x35,5	RM732060

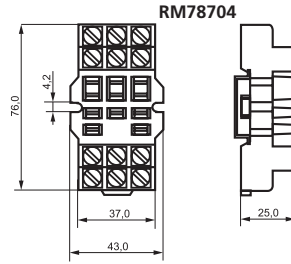
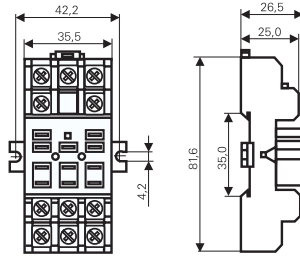
AC COILS

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
3 UK, 10 A, 380 V, Faston 187	38,5x56,2x35,5	RM332880-D
2 UK, 16 A, 230 V, cap with tab, vertical position, Faston 250	38,5x73,5x35,5	RM235730-C
2 UK, 16 A, 230 V, Faston 187	38,5x56,2x35,5	RM232730-D
2 UK, 25 A, 230 V, cap with tab, Faston 250	38,5x73,5x35,5	RM835730SE
2 UK, 16A, 230 V, cap with snap-on fastening, Faston 250	38,5x56,2x44	RM839730
2 UK, 25 A, 230 V, Faston 250 with snap-on device vertical position	38,5x56,2x44	RM838730
2 UK, 25 A, 230 V, Faston 250 with snap-on device horizontal position	38,5x56,2x44	RM809730
2 UK, 25 A, 230V, Faston 250	38,5x73,5x35,5	RM805730
3 UK, 10 A, 24V, Faston 187	38,5x56,2x35,5	RM332524-D
3 UK, 10 A, 230V, Faston 187	38,5x56,2x35,5	RM332730SE
3 UK, 16 A, 24V, Faston 187	38,5x56,2x35,5	RM732524-C
3 UK, 16 A, 230V, Faston 187	38,5x56,2x35,5	RM732730
3 UK, 16 A, 230V, cap with tab, Faston 250	38,5x73,5x35,5	RM735730SE
3 UK, 1 6A, 230V, with snap-on fastening, Faston 250	38,5x66x35,5	RM738730-C
3 UK, 16 A, 230V, with snap-on fastening, Faston 250	38,5x56,2x44	RM739730SE

ACCESSORIES: SOCKETS



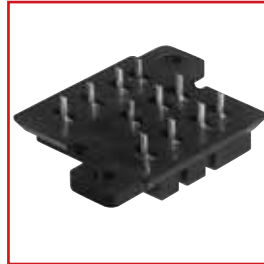
SOCKETS



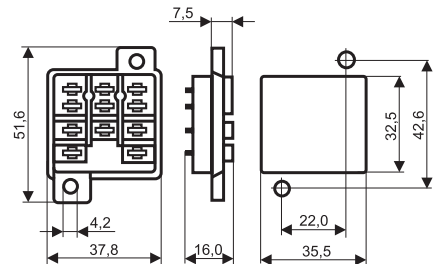
RM78700



RM78701



RM78702

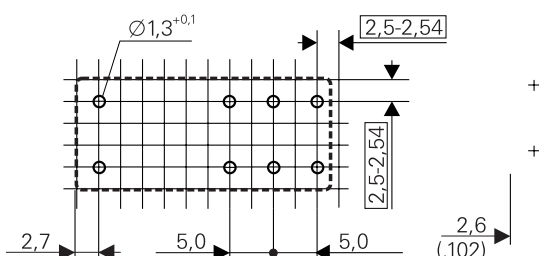
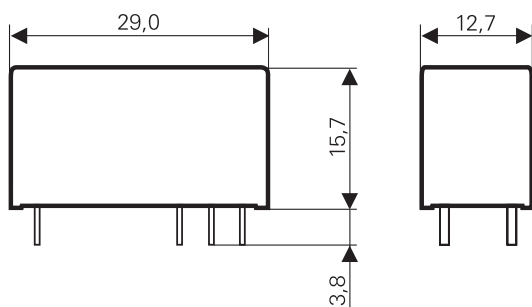


DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Plug-in socket with screw-type terminals f. DIN-RAIL	49x81,6x26,5	RM78705
Plug-in socket with screw-type terminals f. mounting-plate	43x76x26,5	RM78704
Plug-in socket with screw-type terminals f. front-plate	37,8x51,6x16	RM78700
Plug-in socket with solder terminals	37,8x51,6x16	RM78701
Plug-in socket with PCB terminals	37,8x51,6x11,1	RM78702-A
Retaining clips for RM 78700, RM 78701, RM 78702	-	RM28802

POWER PCB RELAYS, TYPE RT



POWER PCB RELAY RT



SCHRACK-INFO

- 1-pole 16 A, 2-pole 8 A
- Coil 400 mW/0,75 VA
- 5 kV/10 mm coil contact, protection class II (VDE 0700)
- Ambient temperature 85°C (DC coil)
- Low height 15,7 mm
- Gold-plated contacts available
- PCB and screw-type sockets
- Models for large make currents
- AC/DC coils
- RoHS compliant (directive 2002/95/EC)

TIPS & TRICKS

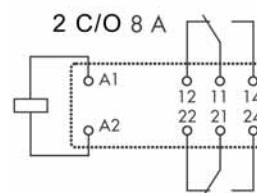
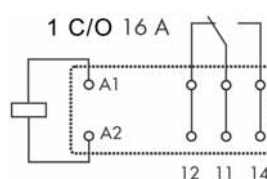
For electrical devices for control systems, for memory-programmable controls, to control contactors, servomotors, magnetic valves, hub magnets, etc.

CERTIFICATIONS

VDE 0700

NOTE

Technical details available upon request for approved types.



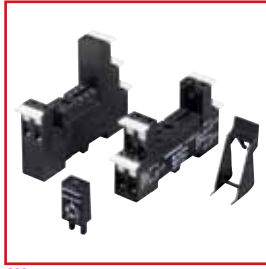
DC COILS

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
1-pole, 5V coil, 1 C/O 16A	29x12,6x15,7	RT314005
1-pole, 6V coil, 1 C/O 16A	29x12,6x15,7	RT314006
1-pole, 16V coil, 1 C/O 16A	29x12,6x15,7	RT314012
1-pole, 24V coil, 1 C/O 16A	29x12,6x15,7	RT314024
1-pole, 48V coil, 1 C/O 16A	29x12,6x15,7	RT314048
1-pole, 110V coil, 1 C/O 16A	29x12,6x15,7	RT314110
2-pole, 5V coil, 2 C/O 8A	29x12,6x15,7	RT424005
2-pole, 6V coil, 2 C/O 8A	29x12,6x15,7	RT424006
2-pole, 12V coil, 2 C/O 8A	29x12,6x15,7	RT424012
2-pole, 24V coil, 2 C/O 8A	29x12,6x15,7	RT424024
2-pole, 48V coil, 2 C/O 8A	29x12,6x15,7	RT424048
2-pole, 60V coil, 2 C/O 8A	29x12,6x15,7	RT424060
2-pole, 110V coil, 2 C/O 8A	29x12,6x15,7	RT424110

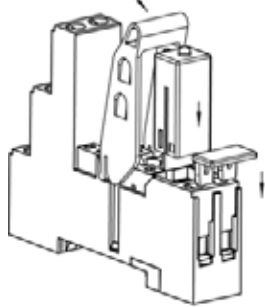
AC COILS

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
1-pole, 24V coil, 1 C/O 16A	29x12,6x15,7	RT314524
1-pole, 230V coil, 1 C/O 16A	29x12,6x15,7	RT314730
2-pole, 24V coil, 2 C/O 8A	29x12,6x15,7	RT424524
2-pole, 115V coil, 2 C/O 8A	29x12,6x15,7	RT424615
2-pole, 230V coil, 2 C/O 8A	29x12,6x15,7	RT424730

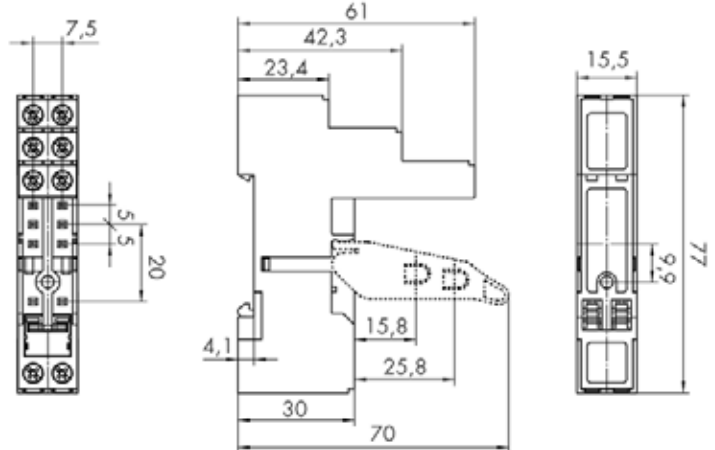
ACCESSORIES



???



We reserve the right to apply technical changes.



DESCRIPTION	ORDER NO.
8-pole screwless-type socket I/O 5.0 for 1- & 2-pole relay	RT7872P
8-pole screw-type socket, conventional for 1- & 2-pole relay	RT78725
8-pole screw-type socket I/O 5.0 for 1- & 2-pole relay	YRT78626
Retaining clip	YRT16016
Marking tag	YRT16040
Red LED module, 6...24 VDC w/ protective diode 1N4007, A1+	YMLRD024-A
Red LED module, 6... 24V DC w/ protective diode 1N4007, A1-	YMLRD024
Green LED module, 6...24 VAC/DC	YMLGA024
Red LED module, 6...24 VAC/DC	YMLRA024
Red LED module, 110...230 VAC	YMLRW230
Green LED module, 110...230 VAC	YMLGW230
Protective diode module 6...230 VDC, A1+	YMFDG230
Red RC module, 6...24 VAC/DC	YMRCW024
RC module, 110...230 VAC	YMRCW230
2pole-jumper bar for RT7872P	RT170P1

SLIM PCB RELAYS, TYPE SNR



SLIM PCB RELAY SNR

SCHRACK-INFO

- 6 A/1-pole
- Extremely slim: 5 mm
- Cadmium-free contacts
- Sensitive coil 170mW
- 4 kV coil contact, 6/8 mm clearance/creepage
- N/O version available with 8/8 mm clearance/creepage upon request
- Protection class II (VDE 0631)
- High function and packing density
- RoHS compliant (directive 2002/95/EC)

RANGE OF APPLICATION

Central and local heating control systems, extremely narrow coupling devices, interface technology, timer relays, SPSS, I/O modules.

NOTE

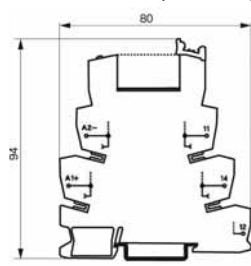
Technical details available upon request for approved types.

DESCRIPTION	ORDER NO.
1 C/O contact, 12 V DC	SNR03012
1 C/O contact, 24 V DC	SNR03024
1 C/O contact, 24 V DC with gold-plated contacts	SNR07024
1 make contact, 24 V DC	SNR13024

SNR PACKAGE WITH SCREW-TYPE TERMINALS OR SPRING TERMINALS, LED, RELAY AND PROTECTION CIRCUIT



SNR PACKAGE



SCHRACK-INFO

- Module width only 6.2 mm
- Relay package made up of relay and socket
- Electric switch indicator (LED) as standard
- DC and AC versions
- Narrow width allows for high functional and packing depths
- Width protection circuit
- Lateral jumper bar in several colours

DESCRIPTION	ORDER NO.
SNR PACKAGE, SCREW-TYPE TERMINALS	
SNR package, screw-type terminals, 12 V DC	ST3P3LB2
SNR package, screw-type terminals, 24 V DC	ST3P3LC4
SNR package, screw-type terminals, 24 V DC, relay with gold-plated contacts	ST3P2LC4
SNR package, screw-type terminals, 115 V AC/DC	ST3P3SM5
SNR package, screw-type terminals, 230 V AC/DC	ST3P3TP0
SNR PACKAGE, SPRING TERMINALS	
SNR package, spring terminals, 12 V DC	ST4P3LB2
SNR package, spring terminals, 24 V DC	ST4P3LC4
SNR package, spring terminals, 24 V DC, relay with gold-plated contacts	ST4P2LC4
SNR package, spring terminals, 115 V AC/DC	ST4P3SM5
SNR package, spring terminals, 230 V AC/DC	ST4P3TP0

SNR SOCKET WITHOUT RELAY

DESCRIPTION	ORDER NO.
Socket for SNR REL 12/24/48 UDC	ST3FLC4

ACCESSORIES FOR SNR PACKAGE

DESCRIPTION	ORDER NO.
Marking plate	ST37040
Spacer plate	ST36040
SNR traverse jumper bar, red, 500 mm, for STG Type	ST37001
SNR traverse jumper bar, blue, 500 mm, for STG Type	ST37002
SNR traverse jumper bar, grey, 500 mm, for STG Type	ST37003

TOP-TECHNIC



MC – MOULDED CASE CIRCUIT BREAKERS

TOP-TECHNIC



MO – AIR CIRCUIT BREAKERS

TOP-TECHNIC



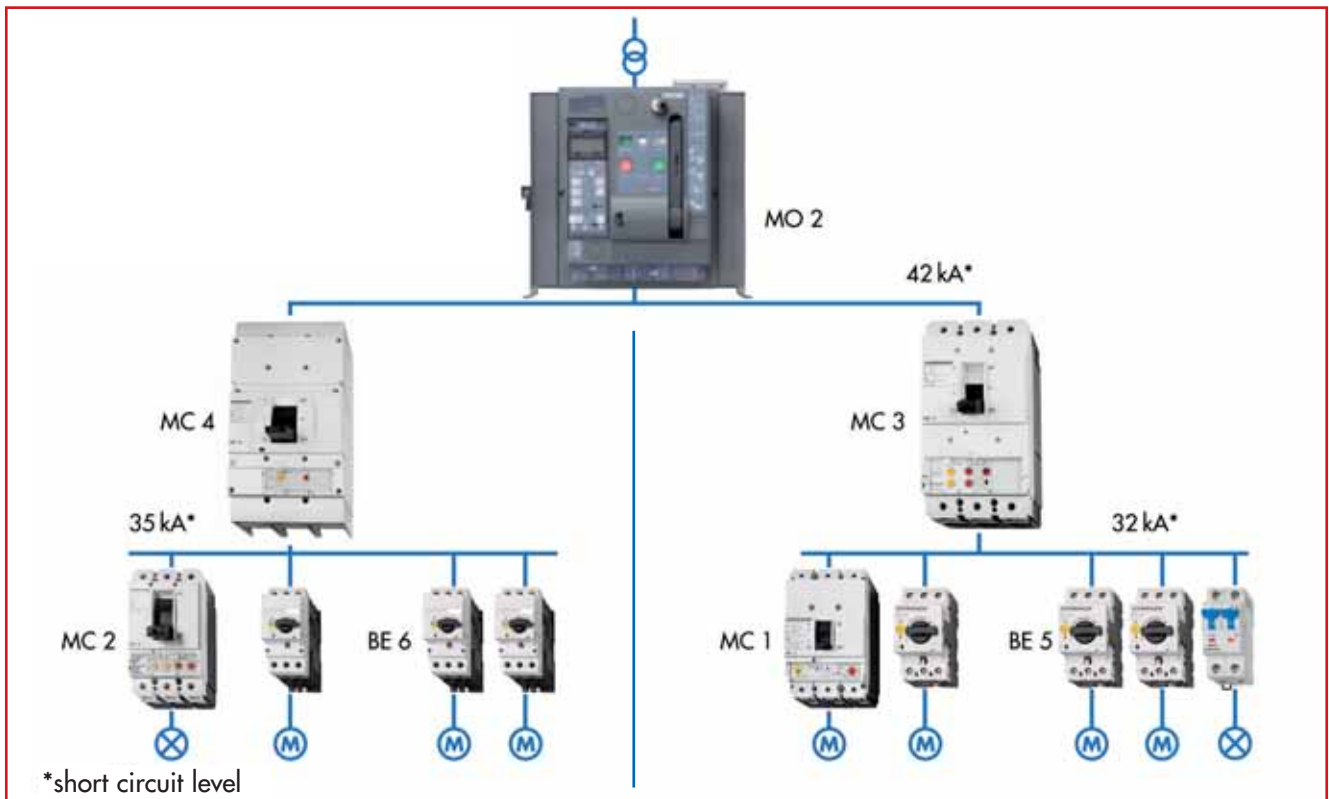
RESIDUAL CURRENT RELEASE RELAY
WITH CONVERTER

CIRCUIT BREAKERS (MO-MC/MCCB)

CONTENTS

MO / MC – SYSTEM OVERVIEW	Page 240
MC – SYSTEM OVERVIEW	Page 241
MC – FRAME SIZE 1 / UP TO 160 A.....	Page 243
MC – FRAME SIZE 2 / UP TO 300 A.....	Page 257
MC – FRAME SIZE 3 / UP TO 630 A.....	Page 275
MC – FRAME SIZE 4 / UP TO 2000 A	Page 292
RESIDUAL CURRENT RELEASE RELAY WITH CONVERTER	Page 307
MO / MC – SYSTEM OVERVIEW	Page 312
AIR CIRCUIT BREAKERS MO SERIES UP TO 6300 A	Page 315
MO – FIXED-MOUNTED INSTALLATION	Page 318
MO – WITHDRAWABLE MODELS.....	Page 321
ACCESSORIES FOR MO	Page 332

■ CIRCUIT BREAKERS – OVERVIEW



■ SELECTIVITY

Thanks to the way they are designed, MC circuit breakers have a high level of selectivity which enables you to construct a selective system.

■ OPTIMUM PROTECTION RANGE BETWEEN 0,16 A AND 6300 A

With the MC and MO circuit breaker concept, SCHRACK is now able to combine trusted technology with modern features. These circuit breakers work perfectly together and can communicate with each other. MC and MO circuit breakers have modern communication functions. They provide optimum protection between 0,16 A and 6300 A. MC and MO are part of a generation of circuit breakers whose modularity allows the use in any power distribution application. These circuit breakers are cost competitive providing flexibility for engineering and can also be integrated into higher-level system solutions. MC and MO circuit breakers are manufactured to international standards. Combining intelligent open and compact devices together with communication systems giving many benefits and solutions.

■ CONTINUOUS COVERAGE BETWEEN 0,16 A AND 6300 A

MC and MO cover a rated current range from 0,16 A to 6300 A. With their four classes of switching capacity up to 150 kA, they provide a safe and, at the same time, the most efficient solution – from standard applications to the most demanding of requirements.

■ COMMUNICATION OPENS UP NEW POSSIBILITIES

MC and MO circuit breakers open up new possibilities for power distribution and automation with their communication capability. They record all the important data you need, indicate them locally and can pass this data on to higher level systems. In this way, system transparency is increased and reaction times to critical states such as over-current, phase imbalance or phase failure are reduced. Targeted intervention can help avoid system breakdowns and preventative maintenance can be planned. This enhances system and machine availability, avoiding costly production downtimes.

■ SYSTEMS WITH CIRCUIT BREAKERS – THE BENEFITS

- Circuit breakers offer protection, contacting and disconnection capabilities.
- Contacts always use 3-pole triggering, thus preventing 2-phase motor operation.
- In the event of the circuit breaker being triggered by a fault, the circuit breaker is simply reset once the fault is removed.
- Remote on/off switching including appropriate indications is easy.
- Ageing / replace all three fuses / characteristic curve shift.

■ A COMPACT DESIGN IN 4 FRAME SIZES FOR HIGH-PERFORMANCE APPLICATIONS



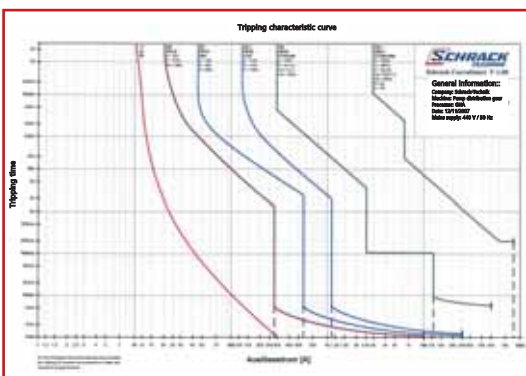
MCCBs - Enclosed compact circuit breakers from 15 to 2.000 A with only four frame sizes. These circuit breakers can be used universally – from the smallest of service distribution boards, to machine controls or motor starter combinations, up to large energy distribution systems with a maximum short-circuit breaking capacity of 150 kA. Special versions are available for smaller power ratings with phase failure sensitivity protection for motor and motor-related applications. The range of CBs is rounded off nicely with switch actuation using toggle-lever, rotary- or remote operators. Shunt-, undervoltage- and earth fault- and residualcurrent releases complete the range. The MCCBs can be used universally for DC applications thanks to their high DC-3 utilization category: ranging from photovoltaics to emergency generator batteries to sophisticated breaking and protection of DC shunt-wound motors in reverse- and jog mode. The new MC-A circuit breakers are the ideal protection devices for DC current networks with operating voltages up to 750 V and operating currents up to 500 A. Featuring thermomagnetic release systems for exact r.m.s detection of operating and fault currents. These contacts feature a double break system which enables safe breaking in high-energy networks with shortcircuit currents of up to 70.000 amps.

■ UNIFORM ACCESSORIES / UNIVERSAL CONNECTION SYSTEM



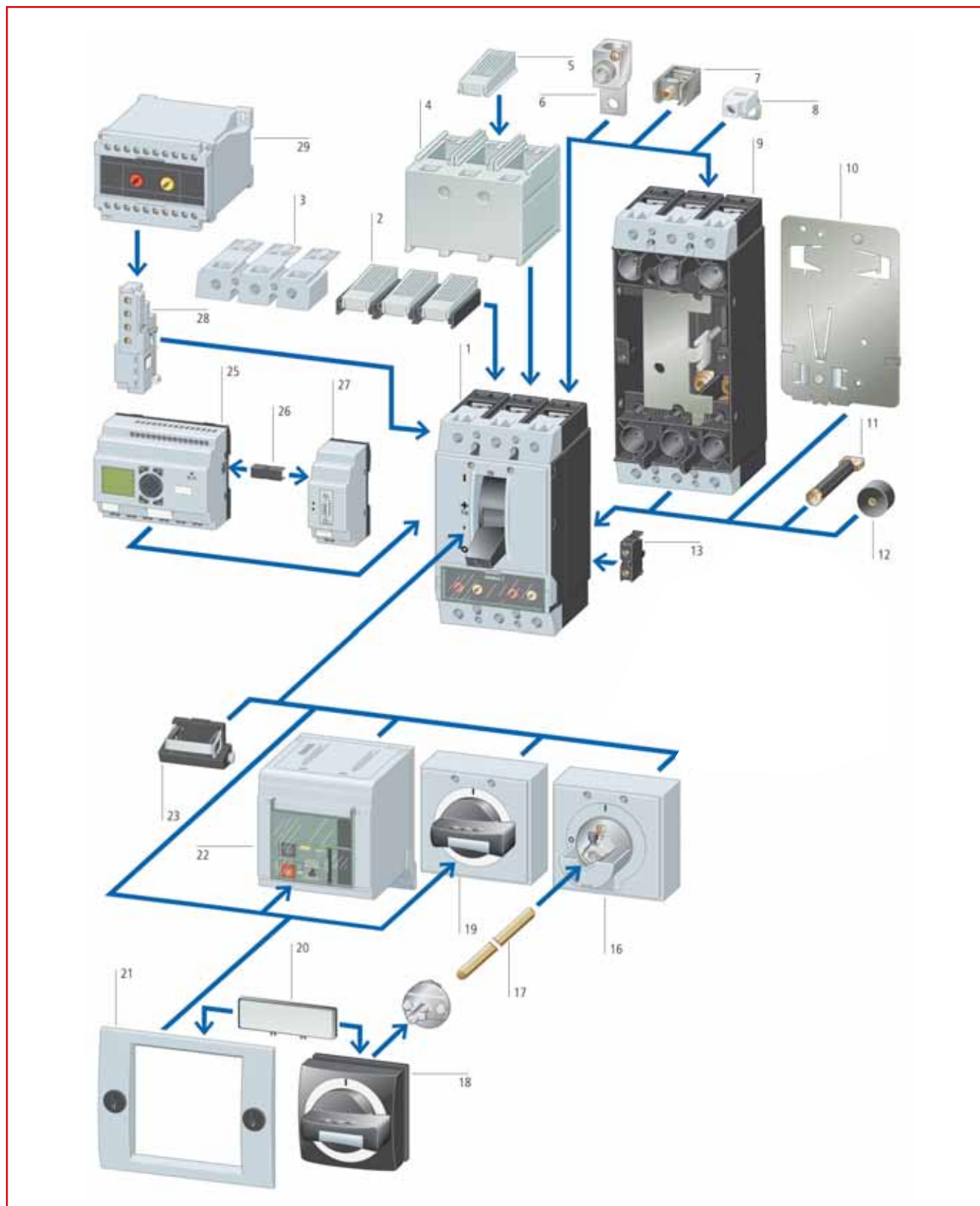
Front mountable retrofitable accessories. The installation location is the same for all frame sizes. The auxiliary contacts and trip-indicating modules are contact elements part of the RMQ Titan range of control switches. They are available in screw- or tension spring technology. This reduces assembly times and cuts costs. Effective shunt- and undervoltage releases are also available in combination with early make auxiliary contacts for Emergency Stop functions or load-shedding circuits and offer elegant solutions for a broad spectrum of applications. The connection features of MCCBs enable you to respond effectively to your system's demands, whatever they may be. Whether using copper or aluminium cables or copper busbars, these MCs offer the right solution for any connection type. An add-on part gives the circuit breaker IP (finger-proof) protection.

■ EASIER VISUALISATION, COMPARISON AND DOCUMENTATION OF CHARACTERISTIC CURVES



This characteristic curve program - available free-of-charge - supports the documentation of circuit-breakers used in completed switchgear systems. All setting parameters are easy to set, display in graphical form and print with the tripping characteristics. For example, you can make a direct comparison between MC and MO circuit breakers and H.R.C. fuses, which enables you to assess the selectivity class for the overload- and time-delayed overcurrent range.

MCCB- SYSTEM OVERVIEW



1. MC circuit breaker,
MC.-PN, MC.-N Switch disconnector
2. Terminal cover
3. Terminal cover
4. IPX2 Finger protection for cover
5. IPX2 Finger protection for cover
6. Tunnel terminal for AI cable
7. Box terminal
8. Control circuit terminal
9. Plug-in and withdrawable unit

10. Clip plate
11. Reverse-side connection
12. Spacer
13. Standard auxiliary contact,
Trip-indicating auxiliary contact
16. Rotary operator with shaft support
17. Extension shaft
18. Door coupling rotary handle
19. Rotary handle with rotary operator
20. Type plate

21. Insulating surround
22. Remote operator
23. Toggle-lever
interlock device
25. Communication module (DMI)
26. Data plug
27. Profibus interface
28. Voltage release or
early-make auxiliary contact
29. Time-delay unit for voltage release

■ CIRCUIT BREAKER 3 POLE UP TO 160A WITH THERMAL MAGNETIC RELEASE TYPES MC1B-A, MC1N-A, MC1H-A



MC110231

■ SCHRACK INFO

- For system and line protection
- Adjustable overload release I_r: 0,8 – 1 x I_n (factory setting 0,8 x I_n)
- Adjustable short-circuit release I_i: 6 – 10 x I_n (factory setting 6 x I_n);
except MC.-A40: 8 - 10 x I_n
- Box terminals as standard, screw terminals as accessories
- Breaking capacity 25 / 50 / 100 kA at 415 V 50/60 Hz
- Meets IEC/EN 60947-2
- Rated uninterrupted current = Rated current

RATED CURRENT/ BREAKING CAPACITY	SETTING RANGE		TYPE	ORDER NO.
	OVERLOAD- RELEASE (A)	SHORT CIRCUIT- RELEASE (A)		
3 POLE (BASIC BREAKING CAPACITY) 25 kA				
20 A/25 kA	15...20	fix 350	MC1B-A20	MC120131
25 A/25 kA	20...25	fix 350	MC1B-A25	MC125131
32 A/25 kA	25...32	fix 350	MC1B-A32	MC132131
40 A/25 kA	32...40	320...400	MC1B-A40	MC140131
50 A/25 kA	40...50	300...500	MC1B-A50	MC150131
63 A/25 kA	50...63	380...630	MC1B-A63	MC163131
80 A/25 kA	63...80	480...800	MC1B-A80	MC180131
100 A/25 kA	80...100	600...1000	MC1B-A100	MC110131
125 A/25 kA	100...125	750...1250	MC1B-A125	MC112131
160 A/25 kA	125...160	fix 1280	MC1B-A160	MC116131
3 POLE (NORMAL BREAKING CAPACITY) 50 kA				
20 A/50 kA	15...20	fix 350	MC1N-A20	MC120231
25 A/50 kA	20...25	fix 350	MC1N-A25	MC125231
32 A/50 kA	25...32	fix 350	MC1N-A32	MC132231
40 A/50 kA	32...40	320...400	MC1N-A40	MC140231
50 A/50 kA	40...50	300...500	MC1N-A50	MC150231
63 A/50 kA	50...63	380...630	MC1N-A63	MC163231
80 A/50 kA	63...80	480...800	MC1N-A80	MC180231
100 A/50 kA	80...100	600...1000	MC1N-A100	MC110231
125 A/50 kA	100...125	750...1250	MC1N-A125	MC112231
160 A/50 kA	125...160	fix 1280	MC1N-A160	MC116231
3 POLE (HIGH BREAKING CAPACITY) 100 kA				
20 A/100 kA	15...20	fix 350	MC1H-A20	MC120331
25 A/100 kA	20...25	fix 350	MC1H-A25	MC125331
32 A/100 kA	25...32	fix 350	MC1H-A32	MC132331
40 A/100 kA	32...40	320...400	MC1H-A40	MC140331
50 A/100 kA	40...50	300...500	MC1H-A50	MC150331
63 A/100 kA	50...63	380...630	MC1H-A63	MC163331
80 A/100 kA	63...80	480...800	MC1H-A80	MC180331
100 A/100 kA	80...100	600...1000	MC1H-A100	MC110331
125 A/100 kA	100...125	750...1250	MC1H-A125	MC112331
160 A/100 kA	125...160	fix 1280	MC1H-A160	MC116331

CIRCUIT BREAKER 4 POLE UP TO 160A WITH THERMAL MAGNETIC RELEASE TYPES MC1B-4-A, MC1N-4-A, MC1H-4-A



MC110231

SCHRACK INFO

- For system and line protection
- 100% overload- and short-circuit protection
- Adjustable overload release I_r : $0,8 - 1 \times I_n$ (factory setting $0,8 \times I_n$)
- Adjustable short-circuit release I_s : $6 - 10 \times I_n$ (factory setting $6 \times I_n$); except MC.-A40: $8 - 10 \times I_n$
- Box terminals as standard, screw terminals as accessories
- Breaking capacity 25 / 50 / 100 kA at 415 V 50/60 Hz
- Specifications to IEC/EN 60947-2
- Rated uninterrupted current = Rated current

RATED CURRENT/ BREAKING CAPACITY	SETTING RANGE		TYPE	ORDER NO.
	OVERLOAD- RELEASE (A)	SHORT CIRCUIT- RELEASE (A)		
4 POLE (BASIC BREAKING CAPACITY) 25 kA				
20 A/25 kA	15...20	fix 350	MC1B-4-A20	MC120141
25 A/25 kA	20...25	fix 350	MC1B-4-A25	MC125141
32 A/25 kA	25...32	fix 350	MC1B-4-A32	MC132141
40 A/25 kA	32...40	320...400	MC1B-4-A40	MC140141
50 A/25 kA	40...50	300...500	MC1B-4-A50	MC150141
63 A/25 kA	50...63	380...630	MC1B-4-A63	MC163141
80 A/25 kA	63...80	480...800	MC1B-4-A80	MC180141
100 A/25 kA	80...100	600...1000	MC1B-4-A100	MC110141
125 A/25 kA	100...125	750...1250	MC1B-4-A125	MC112141
160 A/25 kA	125...160	fix 1280	MC1B-4-A160	MC116141
4 POLE (NORMAL BREAKING CAPACITY) 50 kA				
20 A/50 kA	15...20	fix 350	MC1N-4-A20	MC120241
25 A/50 kA	20...25	fix 350	MC1N-4-A25	MC125241
32 A/50 kA	25...32	fix 350	MC1N-4-A32	MC132241
40 A/50 kA	32...40	320...400	MC1N-4-A40	MC140241
50 A/50 kA	40...50	300...500	MC1N-4-A50	MC150241
63 A/50 kA	50...63	380...630	MC1N-4-A63	MC163241
80 A/50 kA	63...80	480...800	MC1N-4-A80	MC180241
100 A/50 kA	80...100	600...1000	MC1N-4-A100	MC110241
125 A/50 kA	100...125	750...1250	MC1N-4-A125	MC112241
160 A/50 kA	125...160	fix 1280	MC1N-4-A160	MC116241
4 POLE (HIGH BREAKING CAPACITY) 100 kA				
20 A/100 kA	15...20	fix 350	MC1H-A20	MC120341
25 A/100 kA	20...25	fix 350	MC1H-A25	MC125341
32 A/100 kA	25...32	fix 350	MC1H-A32	MC132341
40 A/100 kA	32...40	320...400	MC1H-A40	MC140341
50 A/100 kA	40...50	300...500	MC1H-A50	MC150341
63 A/100 kA	50...63	380...630	MC1H-A63	MC163341
80 A/100 kA	63...80	480...800	MC1H-A80	MC180341
100 A/100 kA	80...100	600...1000	MC1H-A100	MC110341
125 A/100 kA	100...125	750...1250	MC1H-A125	MC112341
160 A/100 kA	125...160	fix 1280	MC1H-A160	MC116341

SWITCH DISCONNECTOR UP TO 160A

TYPES MC1-PN, MC1-PN-4, MC1-N, MC1-N-4



MC110231

SCHRACK INFO

- Rated uninterrupted current up to 160A
- Switch disconnecter type MC1-PN two switch positions, 0/I, cannot be tripped remotely
- Switch disconnecter type MC1-N, with Trip setting "0"; "+"; "I", can be tripped remotely with undervoltage/shunt release, trip-indicating auxiliary contacts possible
- Box terminals as standard, screw terminals as accessories
- Main switch characteristics including positive drive according to IEC/EN 60204 & VDE 0113
- Isolating characteristics to IEC/EN 60947-3 and VDE 0660
Protection against accidental contact to VDE 0160 Part 100
- Specifications to IEC/EN 60947-2
- Rated uninterrupted current = Rated current
- Rated short-circuit breaking capacity values: I_{cm} 2,8kA
- Rated short-time withstand current: I_{cw} 2kA

RATED CURRENT/ BREAKING CAPACITY	MAX. BACK-UP FUSE (gL) FOR SWITCH DISCONNECTOR (AgL)	TYPE	ORDER NO.
3 POLE CANNOT BE TRIPPED REMOTELY			
63 A	125 A	MC1-PN-63	MC163034
100 A	125 A	MC1-PN-100	MC110034
125 A	125 A	MC1-PN-125	MC112034
160 A	160 A	MC1-PN-160	MC116034
4 POLE CANNOT BE TRIPPED REMOTELY			
63 A	125 A	MC1-PN-4-63	MC163044
100 A	125 A	MC1-PN-4-100	MC110044
125 A	125 A	MC1-PN-4-125	MC112044
160 A	160 A	MC1-PN-4-160	MC116044
3 POLE CAN BE TRIPPED REMOTELY			
63 A	125 A	MC1-N-63	MC163035
100 A	125 A	MC1-N-100	MC110035
125 A	125 A	MC1-N-125	MC112035
160 A	160 A	MC1-N-160	MC116035
4 POLE CAN BE TRIPPED REMOTELY			
63 A	125 A	MC1-N-4-63	MC163045
100 A	125 A	MC1-N-4-100	MC110045
125 A	125 A	MC1-N-4-125	MC112045
160 A	160 A	MC1-N-4-160	MC116045

RESIDUAL-CURRENT (RCD) RELEASE

TYPES MC1-N-XFI.R, MC1-N-4-XFI.R, MC1-N-XFI.U, MC1-N-4-XFI.U



MC194608

SCHRACK INFO

- Suitable for use in three- and single-phase systems
- Pulse current sensitive accord. to core-balance principle
- For 3- and 4-pole circuit breaker and switch disconnectors MC1, MC1-N, not for MC1-PN
- Dependant on mains power $U_e = 200 - 415 \text{ V } 50/60 \text{ Hz}$
- Meets IEC/EN 60947-2
- Bottom mounting up to 100 A / installed from right 125A
- Complete unit

TECHNICAL DATA

- At $I_{\Delta n} = 0,03 \text{ A}$: Time delay t_v permanently set to 10 ms.
- Alarm message $> 30 \% I_{dn}$ via yellow LED.
- Trip-indicating auxiliary contacts can be fitted by user (max. 2 auxillary contacts):
N/O: Order No: MM216376, N/C: Order No: MM216378 (see page 13) are reset via a reset toggle lever.
- When using the trip-indicating auxiliary contacts in the FI module, the N/C contact works as an N/O contact and the N/O contact as an N/C.
- Not for use in XCS insulated enclosures.
- Type MC1-XFI...U cannot be combined with shunt or undervoltage releases and an early-make auxiliary contact.
- Rated short-circuit breaking capacity values are determined by installed MC1 or when using a switch disconnector MC1-N by the back-up fuse to be used.

FOR TYPE	RATED FAULT CURRENT ($I_{\Delta n}$)	TIME-DELAY (ms)	TYPE	ORDER NO.
----------	--	-----------------	------	-----------

3 POLE INSTALLED FROM RIGHT UP TO 125A

MC1-N	0.03	10	MC1-N-XFI30R	MC194603
MC1-N	0.3	10	MC1-N-XFI300R	MC194604
MC1-N	0.03-0.1-0.3-0.5-1-3	10, 60, 150, 300, 450	MC1-N-XFIR	MC194605

4 POLE INSTALLED FROM RIGHT UP TO 125A

MC1-4 / MC1-N-4	0.03	10	MC1-N-4-XFI30R	MC194606
MC1-4 / MC1-N-4	0.3	10	MC1-N-4-XFI300R	MC194607
MC1-4 / MC1-N-4	0.03-0.1-0.3-0.5-1-3	10, 60, 150, 300, 450	MC1-N-4-XFIR	MC194608

3 POLE BOTTOM MOUNTING UP TO 100A

MC1-N	0.03	10	MC1-N-XFI30U	MC194609
MC1-N	0.3	10	MC1-N-XFI300U	MC194610
MC1-N	0.03-0.1-0.3-0.5-1-3	10, 60, 150, 300, 450	MC1-N-XFIU	MC194611

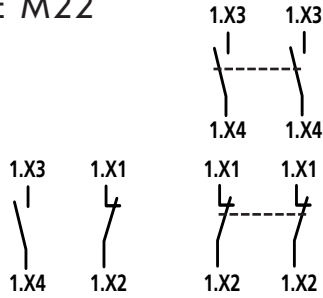
4 POLE BOTTOM MOUNTING UP TO 100A

MC1-4 / MC1-N-4	0.03	10	MC1-N-4-XFI30U	MC194612
MC1-4 / MC1-N-4	0.3	10	MC1-N-4-XFI300U	MC194613
MC1-4 / MC1-N-4	0.03-0.1-0.3-0.5-1-3	10, 60, 150, 300, 450	MC1-N-4-XFIU	MC194614

STANDARD AUXILIARY CONTACT / TRIP-INDICATING AUXILIARY CONTACT TYPE M22



MM216378



SCHRACK INFO

- Switches with the main contacts, used for indicating and interlocking tasks
- General trip indication "+" with trip due to voltage release, overload release or short-circuit-release

TECHNICAL DATA

Breaking capacity: AC15: 4 A / 230 VAC
DC13: 3 A / 24 VDC

TIPS & TRICKS

The trip-indicating auxiliary contacts is the same contact as the standard auxiliary contact. It derives its function from its place of installation where it is installed (alarm contact on left).

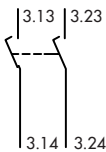
Maximum component installation with auxillary contacts: 1 x Standard auxiliary contact (HIN) M22-K. or M22-CK..
+ 1 x Trip-indicating contact (HIA) M22-K. or M22-CK..

DESCRIPTION	TYPE	ORDER NO.
1 NO contact with plug screw terminals	M22-K10	MM216376
1 NC contact with plug screw terminals	M22-K01	MM216378
2 NO contacts with cage clamp terminals	M22-CK20	MM107898
2 NC contacts with cage clamp terminals	M22-CK02	MM107899

EARLY-MAKE AUXILIARY CONTACT TYPE MC1-XHIVL



MC199432



SCHRACK INFO

For interlock- and load-shedding circuits as well as for early make of undervoltage release in main switch/Emergency stop applications.

TECHNICAL DATA

- Early-make during switch on and off (manual switch): approx. 20 ms
- Not in connection with undervoltage release
MC1-XU... or shunt release MC1-XA...
- Breaking capacity: AC15: 4 A / 230 VAC
DC13: 3 A / 24 VDC

TIPS & TRICKS

Maximum component installation with auxillary contacts:

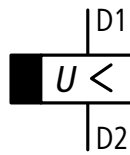
1 x early-make auxiliary contact

DESCRIPTION	TYPE	ORDER NO.
Early-make auxiliary contact, 2 N/O incl. 3 m cable	MC1-XHIVL	MC199432

■ UNDERVOLTAGE RELEASE TYPES MC1-XUL



MC199471



■ SCHRACK INFO

- Non-delayed breaking of circuit breaker MC/ switch disconnector MC-N when the control voltage drops below 35 % -70% U_s .
- For use in Emergency stop devices in connection with EMERGENCY STOP button
- Installed in breaker
- Without auxiliary contact

■ TIPS & TRICKS

When the undervoltage release is de-energized, accidental contact with the main contacts of the switch is safely prevented during attempts to switch on. Undervoltage release cannot be installed simultaneously with an shunt release or early-make auxiliary contact MC1-XHIV.

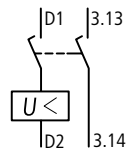
VOLTAGE	VERSION	TYPE	ORDER NO.
24 VAC	incl. 3m cable	MC1-XUL24AC	MC199462
24 VDC	incl. 3m cable	MC1-XUL24DC	MC199481
208-240 V AC	incl. 3m cable	MC1-XUL208-240AC	MC199471
380-440 V AC	incl. 3m cable	MC1-XUL380-440AC	MC199473

Other voltage variants available upon request.

■ UNDERVOLTAGE RELEASE WITH TWO EARLY-MAKE AUXILIARY CONTACTS TYPES MC1-XUHIVL



MC199565



■ SCHRACK INFO

- With 2 early-make auxiliary contacts
- For early-make of the undervoltage release in main switch applications and for interlock- and load-shedding circuits
- Installed in breaker
- Other voltages and connection versions available on request

■ TIPS & TRICKS

When the undervoltage release is de-energized, accidental contact with the main contacts of the switch is safely prevented during attempts to switch on. Early-make of auxiliary contacts during switch on and off (20ms). Undervoltage releases cannot be installed simultaneously with shunt releases or early-make auxiliary contact, type MC1-XHIV.

VOLTAGE	VERSION	TYPE	ORDER NO.
208 - 240 VAC	incl. 3m cable	MC1-XUHIVL230V	MC199565
380 - 440 VAC	incl. 3m cable	MC1-XUHIVL400VAC	MC199567

Other voltage variants available upon request.

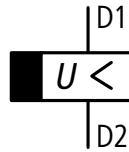
UNDervOLTAGE RELEASE, OFF-DELAY TYPES MC-UVU, MC-XUVL



MC199471



MC496189



SCHRACK INFO

- Voltage drops less than 0,07–16 s do not cause MC circuit breakers or N switch disconnectors to trip.
- Suitable for voltages:
220 – 240 VAC 50/60 Hz
380 – 440 VAC 50/60 Hz
480 – 550 VAC 50/60 Hz
24 VAC/DC

TECHNICAL DATA

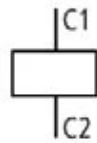
- Time-delay adjustable between 70 ms – 4 s
- With additional external capacitor:
30.000 µF ≥ 35 V to 8 s
90.000 µF ≥ 35 V to 16 s
- Special release MC1-XUVL is required.
- Cannot be installed at same time with early-make auxiliary contact MC1-XHIV... or shunt release MC1-XA....
- Time-delay device for separate mounting (Fixing: DIN rail or screws).
- For other operating voltages, please use a control transformer.

NAME	TYPE	ORDER NO.
Time-delay unit	MC-UVU	MC196154
Special undervoltage release for time-delay unit MC1	MC1-XUVL	MC191607

SHUNT RELEASE TYPE MC1-XAL



MC199744



SCHRACK INFO

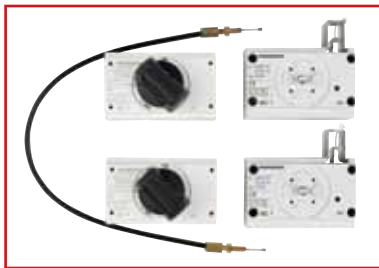
- Without auxiliary contact
- Switches are tripped by a voltage pulse or by the application of uninterrupted voltage

TECHNICAL DATA

When the shunt release is energized, accidental contact with the main contacts of the switch is safely prevented during attempts to switch on. Shunt release cannot be installed simultaneously with undervoltage releases or early-make auxiliary contact MC1-XHIV.

VOLTAGE	VERSION	TYPE	ORDER NO.
24 VAC/DC	incl. 3m cable	MC1-XAL24AC/DC	MC199736
208 - 250 VAC/DC	incl. 3m cable	MC1-XAL230AC/DC	MC199744

MECHANICAL INTERLOCK FOR (DOOR COUPLING-) ROTARY HANDLES FOR MC1



MC191581

SCHRACK INFO

Rotary handle on switch or door coupling rotary handle additionally required.

Cannot be combined with remote operator or door frame.

At least 2 interlocking modules are required to construct a mechanical interlocking circuit. See Page 142 for possible combinations and variations of interlocking circuits. Bowden cable to be ordered separately.

DESCRIPTION	TYPE	ORDER NO.
Mechanical interlock	MC1-XMV	MC191581
Bowden cable 225 mm	MC-XBZ225	MC191585
Bowden cable 600 mm	MC-XBZ600	MC191586
Bowden cable 1000 mm	MC-XBZ1000	MC191587

■ ROTARY HANDLE DIRECTLY ON SWITCH FOR MC1



MC290127

■ SCHRACK INFO

- Complete with rotary drive
- Can also be combined with door frame

■ TECHNICAL DATA

Available in the following versions:

Type MC.-XDV

Lockable in the "0" position (up to three padlocks), black/grey

Type MC.-XDVR

Lockable in the "0" position (up to three padlocks), Emergency stop red/yellow

Type MC.-XDTV

Lockable in the "0" position on handle, modification also available in "1" position, black/grey

Type MC.-XDTV

Lockable in "0" position, Emergency Stop red/yellow

Version comes with door interlock:

- Door frame supplied with door interlock
- Rotary handle can be rotated 90° for horizontally-mounted switches
- In the ON position, can be defeated from the outside using a 1 mm pin
- Cannot be defeated in the locked OFF and ON positions
- Door can be opened in OFF
- Can only be switched on when door closed

DESCRIPTION	TYPE	ORDER NO.
Lockable rotary handle for MC1, black/grey	MC1-XDV	MC190125
Lockable rotary handle for MC1, Emergency stop red/yellow	MC1-XDVR	MC190135
Rotary handle for MC1 with door interlock, lockable, black/grey	MC1-XDTV	MC190131
Rotary handle for MC1 with door interlock, lockable, Emergency stop red/yellow	MC1-XDTV	MC190142

DOOR COUPLING ROTARY HANDLE FOR MC1



MC190160



MC190160



MC290127

SCHRACK INFO

- Complete unit including rotary drive and coupling parts
- Degree of Protection IP66
- Rotary handle can be rotated 90° for horizontally-mounted switches
- Cannot be defeated in the locked OFF and ON positions
- Can be modified when in the unlocked ON position, can be defeated from the outside with a screwdriver
- Door can be opened in OFF
- External warning plate/designation plate can be clipped on

NOTES

- Order extension shaft separately!

TECHNICAL DATA

Available in the following versions:

Type MC.-XTVD

Lockable in the "0" position on handle with up to three padlocks, with door interlock, black/grey

Type MC.-XTVDV

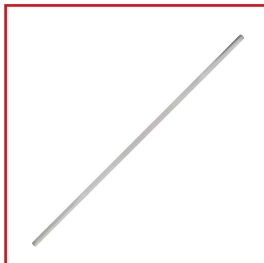
Lockable in the "0" position on handle and switch, with up to three padlocks, with door interlock, black/grey

Type MC.-XTVDVR

Lockable in the "0" position on handle and switch with up to three padlocks, with door interlock, Emergency stop red/yellow

DESCRIPTION	TYPE	ORDER NO.
Door coupling rotary handle for MC1 with door interlock, lockable, black/grey	MC1-XTVD	MC190166
Door coupling rotary handle for MC1 with door interlock, lockable, "0", "1", black/grey	MC1-XTVDV	MC190172
Door coupling rotary handle for MC1 with door interlock, lockable, Emergency stop red/yellow	MC1-XTVDVR	MC190178

EXTENSION SHAFT FOR MC1



MC190191

SCHRACK INFO

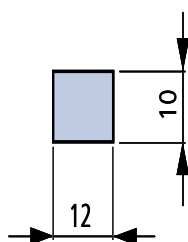
- For maximum cabinet depths of 400 or 600 mm
- Can be cut to required length

DESCRIPTION	CABINET DEPTH	TYPE	ORDER NO.
Extension shaft for MC1 max. 400 mm	max. 400 mm	MC1/2-XV4	MC191232
Extension shaft for MC1 max. 600 mm	max. 600 mm	MC1/2-XV6	MC190191

BOX TERMINALS FOR MC1



MC292240



SCHRACK INFO

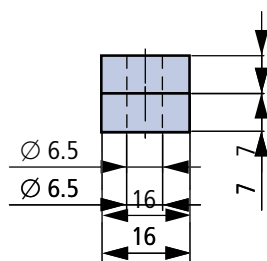
- Standard connection for all MC1, MC1-PN and MC1-N switches
- Conversion kit for switches with screw connection
- Contains parts for one switch side
- Installed inside the switch housing
- Use cover plate MC.-XSKA
- Terminal capacities
CU conductors 1 x 10–70 mm²
CU cables 2 x 6–25 mm²

DESCRIPTION	TYPE	ORDER NO.
Box terminal up to 160 A (contains 3 pcs.) for MC1	MC1-160-XKC	MC190015
Box terminal up to 160 A (includes 4 pcs.) for MC1-4	MC1-160-4-XKC	MC197075

SCREW CONNECTION FOR MC1



MC190019



SCHRACK INFO

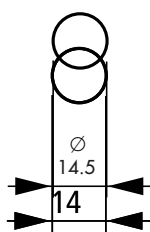
- Contains parts for one switch side located at top or bottom
- 3- or 4 pole switches
- Installed outside switch housing
- Cover plate MC.-XSKA included
- Terminal capacities
CU conductors 1 x 10–70 mm², 2 x 6–25 mm²
AL cable lugs 1 x 10–35 mm², 2 x 10–35 mm²

DESCRIPTION	TYPE	ORDER NO.
Screw connection 3 pcs. for MC1	MC1-XKS	MC190019
Screw connection 4 pcs. for MC1-4	MC4-4-XKC	MC196725

TUNNEL TERMINAL FOR MC1



MC196730



SCHRACK INFO

- Contains parts for one switch side, top or bottom
- With terminal for control circuit for 1 x 0,75–2,5 mm², 2 x 0,75–1,5 mm² Cu conductor
- Installed outside switch housing
- Maximum specified cross-section can only be connected stranded and without end sleeve.
- Cover plate MC1(-4)-XKSA must be installed (supplied).
- Terminal capacities:
Cu cable, Al cable 95 mm²

TECHNICAL DATA

- for Cu- And Al cables
- Includes cover plate
- Stranded round conductor / stranded sector-shaped conductor
- Use with flexible and ultra-flexible conductor end sleeves

DESCRIPTION	TYPE	ORDER NO.
Tunnel terminal 95 mm ² , 3 pole for MC1	MC1-XKA	MC196730
Tunnel terminal 95 mm ² , 4 pole for MC1-4	MC1-4-XKA	MC196731

REAR CONNECTION FOR MC1



MC196734

SCHRACK INFO

- Contains parts for one switch side located at top or bottom 3- or 4 pole switches
- Terminal capacities:
Cu cable lug 1 x 10–70 mm², 2 x 6–25 mm²
Al cable lug 1 x 10–35 mm², 2 x 10–35 mm²

DESCRIPTION	TYPE	ORDER NO.
Rear connection, 3 pole for MC1	MC1-XKR	MC196734
Rear connection, 4 pole for MC1-4	MC1-4-XKR	MC196737

CONTROL CIRCUIT TERMINAL FOR MC1



MC196739

SCHRACK INFO

- Contains parts for two terminals located at top or bottom for 3/ 4 pole switches
- Included with tunnel terminal
- Terminal capacities:
Screw connection 1 x 0,75 – 2,5 mm², 2 x 0,75 – 1,5 mm²

DESCRIPTION	TYPE	ORDER NO.
Control circuit terminal for box terminal MC1	MC-XSTK	MC196739
Control circuit terminal for screw connection MC1	MC1-XSTS	MC190150

TERMINAL COVER FOR MC1



MC290038

SCHRACK INFO

- Protection against accidental contact when using cable lugs, rails or Tunnel terminals
- Contains parts for one switch side located at top or bottom 3- or 4 pole switches
- Degree of protection IP4X front, side and rear, IP1X on the connection side when using insulated conductor material
- Cover plate included with tunnel terminals

DESCRIPTION	TYPE	ORDER NO.
Terminal cover, 3 pole for MC1	MC1-XKSA	MC190021
Terminal cover, 4 pole for MC1-4	MC1-4-XKSA	MC196741

CONNECTION COVER, KNOCKOUT FOR BOX TERMINAL MC1



MC196781

SCHRACK INFO

- Connection cover, knockout

DESCRIPTION	TYPE	ORDER NO.
Terminal cover, 3 pole for MC1	MC1-XKSFA	MC190780
Terminal cover, 4-pol. for MC1-4	MC1-4-XKSFA	MC196781

IP2X FINGER PROTECTION FOR DIRECT-MOUNTED MC1 SWITCHES



MC196744



MC196748

SCHRACK INFO

- Increases protection against accidental contact to IP2X
- Protection when reaching into the cable connection area when cables are connected
- MC1-XIPA and MC1-4-XIPA only in combination with cover plate
- Contains parts for one switch side, top or bottom

DESCRIPTION	TYPE	ORDER NO.
FOR BOX TERMINAL		
Finger protection, 3 pole for MC1	MC1-XIPK	MC196744
Finger protection, 4 pole for MC1	MC1-4-XIPK	MC196745
FOR TERMINAL COVER		
Finger protection, 3 pole for MC1	MC1-XPA	MC196748
Finger protection, 4 pole for MC1	MC1-4-XIPA	MC196749

INSULATED ENCLOSURE XCI



MC191522

SCHRACK INFO

- Only for switches with box terminals for direct cable connection
- With door coupling rotary handle
- Complete unit includes all necessary functional parts
- Degree of protection IP65
- MC1-XCI23 housing with flanges
- MC1-XCI43 are fitted with gland plates

TECHNICAL DATA

Enclosure suitable for installation of circuit-breakers and switch-disconnectors for separate mounting with top and bottom cable entry.

Including fixing straps for wall mounting. Short circuit protection at 415 V 50/60 Hz to 10 kA.

Not in combination with remote operator, plug-in- or withdrawable unit.

Additional insulated terminals for 4 or 5 pole must be ordered separately.

Available in the following versions:

Standard, black/grey

Lockable in the "0" position at handle with up to 3 padlocks. Additionally with cover interlock.

For Emergency stop, red/yellow

Lockable on handle and switch lockable with up to 3 padlocks in the "0" position on handle. Additionally with cover interlock and lockable at switch in the "0" position.

DESCRIPTION	MAX. RATED UNINTERRUPTED CURRENT	TYPE	ORDER NO.
STANDARD, BLACK/GREY			
Insulated enclosure for MC1, 3 pole	≤ 63 A	MC1-XCI23-TVD	MC191522
Insulated enclosure for MC1-4, 3-pole or 4 pole	≤ 125 A	MC1-XCI43	MC191523
Insulated enclosure for MC1-4, 3-pole or 4 pole	≤ 160 A	MC1-XCI43/2-TVD	MC194645

FOR EMERGENCY STOP, RED/YELLOW

Insulated enclosure for MC1, 3 pole	≤ 63 A	MC1-XCI23-R	MC191527
Insulated enclosure for MC1-4, 3- or 4-pole	≤ 125 A	MC1-XCI43-R	MC191528
Insulated enclosure for MC1-4, 3- or 4 pole	≤ 160 A	MC1-XCI43/2-R	MC194646

ADDITIONAL INSULATED TERMINALS FOR MC1



MC198573



MC192336

SCHRACK INFO

- For looping through the neutral and earth conductor
- 1 pole

DESCRIPTION	TERMINAL CAPACITY	TYPE	ORDER NO.
Additional insulated terminal 32 A	Fine-wired 1 x (1,5-6 mm ²)	K10/1	MC193827
Additional insulated terminals 63 A	Fine-wired 1 x (6-16 mm ²), stranded 1 x (16-25 mm ²)	K25/1	MC196200
Additional insulated terminals 100 A	Fine-wired 1 x (10-35 mm ²), stranded 1 x (16-50 mm ²)	K50/1	MC198573
Additional insulated terminal 160 A	Stranded 1 x (16-95 mm ²)	K95/1N/BR	MC192336

DEVICE ADAPTERS FOR CIRCUIT-BREAKERS AND SWITCH-DISCONNECTORS FOR 60 mm BUSBAR SYSTEM, MC1



MC195700 – SIDE VIEW



MC195700 – FRONT VIEW

SCHRACK INFO

- For mounting on flat copper rails 12 x 5 mm bis 30 x 10 mm
- Double T and triple T profile
- Snaps onto the voltage-free busbar
- Rated operational voltage U_e: 690 V

TECHNICAL DATA

MC 1 up to 160 A:

- For switches with standard box terminal connection
- Connected to system via terminal strips above
- Can be used in connection with IP2X finger protection to increase accidental-contact protection against accidental contact on outgoing side

DESCRIPTION	TYPE	ORDER NO.
60 mm busbar adapter 160 A for MC1, 3 pole	32570	MC195700
4 pole adapter with cover plate	MC3-4XKR13	upon request

DOOR SEALING FRAME FOR MC1



MC190195

SCHRACK INFO

- For toggle levers, rotary handles with rotary- and remote operators
- Degree of protection IP40
- For rectangular cut-out on doors and enclosures with material thicknesses of 1,5 – 5 mm
- External warning plate/designation plate can be clipped on

DESCRIPTION	TYPE	ORDER NO.
Door sealing frame for MC1	MC1-XBR	MC190195

TOGGLE LEVER LOCKING DEVICE FOR MC1



MC190199

SCHRACK INFO

- Off position lockable with up to 3 padlocks (hasp thickness 4 – 8 mm)
- Cannot be combined with Insulating surround

DESCRIPTION	TYPE	ORDER NO.
Toggle lever locking device for MC1	MC1-XKAV	MC190199

SPACER FOR MC1



MC190203

SCHRACK INFO

- Enables fast and low-priced adjustment of various frame sizes with/without rotary handle or remote operator at identical front depth
- Grid depth 17,5 mm, thread M4
- Each set contains 4 x spacers
- Maximum component installation 4 pcs. per fastening screw
- 2 fastening screws included for each circuit breaker MC1

DESCRIPTION	TYPE	ORDER NO.
Spacer for MC1	MC1/2-XAB	MC190203

CLIP PLATE FOR MC1



MC190213

SCHRACK INFO

- Enables snap fit of circuit breakers / switch disconnectors to DIN rail (35 mm top-hat rail)

DESCRIPTION	TYPE	ORDER NO.
Clip plate for MC1	MC1-XC35	MC190213

■ CIRCUIT BREAKER 3 POLE UP TO 300A WITH THERMAL MAGNETIC RELEASE TYPES MC2B-A, MC2C-A, MC2N-A, MC2H-A



MC216233

■ SCHRACK INFO

- For system and line protection
- Adjustable overload release I_r: 0,8 – 1 x I_n (factory setting 0,8 x I_n)
- Adjustable short-circuit release I_s: 6 – 10 x I_n (factory setting 6 x I_n);
except MC.-A40: 8 - 10 x I_n
- Screw terminals as standard, box terminals as accessories
- Breaking capacity 25 / 36 / 50 / 150 kA at 415 V 50/60 Hz
- Meets IEC/EN 60947-2
- Rated uninterrupted current = Rated current

RATED CURRENT/ BREAKING CAPACITY	SETTING RANGE		TYPE	ORDER NO.
	OVERLOAD- RELEASE (A)	SHORT CIRCUIT- RELEASE (A)		

3 POLE (BASIC BREAKING CAPACITY) 25 kA

160 A/25 kA	125...160	960...1600	MC2B-A160	MC216131
200 A/25 kA	160...200	1200...2000	MC2B-A200	MC220131
250 A/25 kA	200...250	1500...2500	MC2B-A250	MC225131
300 A/25 kA	240...300	2000...2500	MC2B-A300	MC230131

3 POLE (COMFORT BREAKING CAPACITY) 36 kA

160 A/36 kA	125...160	960...1600	MC2C-A160	MC216431
200 A/36 kA	160...200	1200...2000	MC2C-A200	MC220431
250 A/36 kA	200...250	1500...2500	MC2C-A250	MC225431
300 A/36 kA	240...300	2000...2500	MC2C-A300	MC230431

3 POLE (NORMAL BREAKING CAPACITY) 50 kA

160 A/50 kA	125...160	960...1600	MC2N-A160	MC216231
200 A/50 kA	160...200	1200...2000	MC2N-A200	MC220231
250 A/50 kA	200...250	1500...2500	MC2N-A250	MC225231
300 A/50 kA	240...300	2000...2500	MC2N-A300	MC230231

3 POLE (HIGH BREAKING CAPACITY) 150 kA

20 A/150 kA	15...20	fix 350	MC2H-A20	MC202331
25 A/150 kA	20...25	fix 350	MC2H-A25	MC205331
32 A/150 kA	25...32	fix 350	MC2H-A32	MC232331
40 A/150 kA	32...40	320...400	MC2H-A40	MC240331
50 A/150 kA	40...50	300...500	MC2H-A50	MC250331
63 A/150 kA	50...63	380...630	MC2H-A63	MC263331
80 A/150 kA	63...80	480...800	MC2H-A80	MC280331
100 A/150 kA	80...100	600...1000	MC2H-A100	MC210331
125 A/150 kA	100...125	750...1250	MC2H-A125	MC212331
160 A/150 kA	125...160	960...1600	MC2H-A160	MC216331
200 A/150 kA	160...200	1200...2000	MC2H-A200	MC220331
250 A/150 kA	200...250	1500...2500	MC2H-A250	MC225331
300 A/150 kA	240...300	2000...2500	MC2H-A300	MC230331

■ CIRCUIT BREAKER 4 POLE UP TO 300A WITH THERMAL MAGNETIC RELEASE TYPES MC2B-4-A, MC2N-4-A, MC2H-4-A



MC216141

■ SCHRACK INFO

- For system and line protection
- Adjustable overload release I_r : $0,8 - 1 \times I_n$ (factory setting $0,8 \times I_n$)
- Adjustable short-circuit release I_s : $6 - 10 \times I_n$ (factory setting $6 \times I_n$);
except MC.-A40: $8 - 10 \times I_n$
- Screw terminals as standard, box terminals as accessories
- Breaking capacity 25 / 50 / 150 kA at 415 V 50/60 Hz
- Meets IEC/EN 60947-2
- Rated uninterrupted current = Rated current

RATED CURRENT/ BREAKING CAPACITY	SETTING RANGE		TYPE	ORDER NO.
	OVERLOAD- RELEASE (A)	SHORT CIRCUIT- RELEASE (A)		
4 POLE (BASIC BREAKING CAPACITY) 25 kA				
160 A/25 kA	125...160	960...1600	MC2B-4-A160	MC216141
200 A/25 kA	160...200	1200...2000	MC2B-4-A200	MC220141
250 A/25 kA	200...250	1500...2500	MC2B-4-A250	MC225141
300 A/25 kA	240...300	2000...2500	MC2B-4-A300	MC230141
4 POLE (NORMAL BREAKING CAPACITY) 50 kA				
160 A/50 kA	125...160	960...1600	MC2N-4-A160	MC216241
200 A/50 kA	160...200	1200...2000	MC2N-4-A200	MC220241
250 A/50 kA	200...250	1500...2500	MC2N-4-A250	MC225241
300 A/50 kA	240...300	2000...2500	MC2N-4-A300	MC230241
4 POLE (HIGH BREAKING CAPACITY) 150 kA				
20 A/150 kA	15...20	fix 350	MC2H-4-A20	MC202341
25 A/150 kA	20...25	fix 350	MC2H-4-A25	MC205341
32 A/150 kA	25...32	fix 350	MC2H-4-A32	MC232341
40 A/150 kA	32...40	320...400	MC2H-4-A40	MC240341
50 A/150 kA	40...50	300...500	MC2H-4-A50	MC250341
63 A/150 kA	50...63	380...630	MC2H-4-A63	MC263341
80 A/150 kA	63...80	480...800	MC2H-4-A80	MC280341
100 A/150 kA	80...100	600...1000	MC2H-4-A100	MC210341
125 A/150 kA	100...125	750...1250	MC2H-4-A125	MC212341
160 A/150 kA	125...160	960...1600	MC2H-4-A160	MC216341
200 A/150 kA	160...200	1200...2000	MC2H-4-A200	MC220341
250 A/150 kA	200...250	1500...2500	MC2H-4-A250	MC225341
300 A/150 kA	240...300	2000...2500	MC2H-4-A300	MC230341

■ CIRCUIT BREAKER UP TO 250A 3-/4 POLE **WITH DELAYED ELECTRONIC RELEASE** **TYPES MC2N-VE, MC2H-VE, MC2N-4-VE, MC2H-4-VE**



MC216233

■ SCHRACK INFO

- System and line protection
- Selective and generator protection
- 3 and 4 pole versions
- RMS value and "thermal memory"
- Adjustable overload release I_r : $0,5 - 1 \times I_n$ (factory setting $0,8 \times I_n$)
- Adjustable time delay setting to overcome current peaks t_r : $2 - 20$ s at $6 \times I_r$ as well as infinity (factory setting 10s)
- Adjustable delayed short-circuit releases I_{sd} : $2 - 10 \times I_r$ (factory setting $6 \times I_r$)
- Adjustable time delay t_{sd} : Levels: 0, 20, 60, 100, 200, 300, 500, 750, 1000 ms (factory setting 0)
- Non-delayed short-circuit release I_i : permanent $12 \times I_n$)
- Screw terminals as standard, box terminals as accessories
- Meets IEC/EN 60947-2
- Rated uninterrupted current = Rated current

RATED CURRENT/ BREAKING CAPACITY	SETTING RANGE			TYPE	ORDER NO.
	OVERLOAD- RELEASE (A)	SHORT-CIRCUIT UNDELAYED (A)	RELEASE DELAYED (A)		
3 POLE (NORMAL BREAKING CAPACITY) 50 kA					
100 A/50 kA	50...100	1200	100...1000	MC2N-VE100	MC210233
160 A/50 kA	80...160	1920	160...1600	MC2N-VE160	MC216233
250 A/50 kA	125...250	3000	250...2500	MC2N-VE250	MC225233
3 POLE (HIGH BREAKING CAPACITY) 150 kA					
100 A/150 kA	50...100	1200	100...1000	MC2H-VE100	MC210333
160 A/150 kA	80...160	1920	160...1600	MC2H-VE160	MC216333
250 A/150 kA	125...250	3000	250...2500	MC2H-VE250	MC225333
4 POLE (NORMAL BREAKING CAPACITY) 50 kA					
100 A/50 kA	50...100	1200	100...1000	MC2N-4-VE100	MC210243
160 A/50 kA	80...160	1920	160...1600	MC2N-4-VE160	MC216243
250 A/50 kA	125...250	3000	250...2500	MC2N-4-VE250	MC225243
4 POLE (HIGH BREAKING CAPACITY) 150 kA					
100 A/150 kA	50...100	1200	100...1000	MC2H-4-VE100	MC210343
160 A/150 kA	80...160	1920	160...1600	MC2H-4-VE160	MC216343
250 A/150 kA	125...250	3000	250...2500	MC2H-4-VE250	MC225343

SWITCH DISCONNECTOR UP TO 250A TYPES MC2-PN, MC2-PN-4, MC2-N, MC2-N-4



MC216233

SCHRACK INFO

- 3- and 4-pole versions
- Rated uninterrupted current up to 250A
- Switch disconnecter, MC2-PN type, two switch positions 0/I, cannot be tripped remotely
- Switch disconnecter MC2-N, with trip setting "0"; "+"; "I", can be tripped remotely with undervoltage/shunt release
- Screw terminals as standard, box terminals as accessories
- Remote trip MC2-N can also be combined with remote operator MC-XR
- Main switch characteristics including positive drive according to IEC/EN 60204 & VDE 0113
- Isolating characteristics according to IEC/EN 60947-3 and VDE 0660. Protection against accidental contact accord. to VDE 0160 Part 100
- Meets IEC/EN 60947-2
- Rated uninterrupted current = Rated current
- Rated short-circuit breaking capacity values: I_{cm} 5,5kA
- Rated short-time withstand current: I_{cw} 3,5kA

RATED UNINTERRUPTED CURRENT	MAX. BACK-UP FUSE (gL) FOR SWITCH DISCONNECTOR (AgL)	TYPE	ORDER NO.
3 POLE CANNOT BE TRIPPED REMOTELY			
160 A	250	MC2-PN-160	MC216034
200 A	250	MC2-PN-200	MC220034
250 A	250	MC2-PN-250	MC225034
4 POLE CANNOT BE TRIPPED REMOTELY			
160 A	250	MC2-PN-4-160	MC216044
200 A	250	MC2-PN-4-200	MC220044
250 A	250	MC2-PN-4-250	MC225044
3 POLE CAN BE TRIPPED REMOTELY			
160 A	250	MC2-N-160	MC216035
200 A	250	MC2-N-200	MC220035
250 A	250	MC2-N-250	MC225035
4 POLE CAN BE TRIPPED REMOTELY			
160 A	250	MC2-N-4-160	MC216045
200 A	250	MC2-N-4-200	MC220045
250 A	250	MC2-N-4-250	MC225045

RESIDUAL CURRENT (RCD) RELEASE UP TO 250A TYPES MC2-4-XFI, MC2-4-XFIA



MC296720

SCHRACK INFO

- Direct mounting on 4 pole MC2 circuit breaker and MC2-N switch disconnector
- Type MC2-4-XFI pulse current sensitive accord. to core-balance principle
- Specifications to IEC/EN 60947-2
- Bottom mounting up to 250 A

TECHNICAL DATA

- Independent of mains- and auxiliary voltage, $U_e = 280 \text{ V} - 690 \text{ V } 50/60 \text{ Hz}$
- Auxiliary contact: 1 N/O, 1 N/C reset via reset feature
- Type XFI(A)30: Rated fault current $I_{\Delta n} = 0,03 \text{ A}$, suitable for human protection to Annex B of IEC/EN 60947-2 and VDE 664 Parts 2 and 3
- Type XFI: Rated fault current $I_{\Delta n} = 0,1-0,3-1-3 \text{ A}$, time-delay $t_v = 60-150-300-450 \text{ ms}$,
Type XFIA: Rated fault current $I_{\Delta n} = 0,1-0,3-1 \text{ A}$, time-delay $t_v = 60-150-300-450 \text{ ms}$,
AC/DC current sensitivity accord. to core-balance principle (0–200 kHz)
- Internal supply voltage $U_e = 50-400 \text{ V}$
- Note that response threshold is dependent on frequency! (See frequency response characteristic curve, Page 245).

DESCRIPTION	TYPE	ORDER NO.
4 POLE BOTTOM MOUNTING PULSE-CURRENT SENSITIVE 		
FI-human protection 30 mA $I_{\Delta n}$ for MC2-4	MC2-4-XFI30	MC296719
FI 0.1-3 A $I_{\Delta n}$ for MC2-4	MC2-4-XFI	MC296720
4 POLE BOTTOM MOUNTING AC/DC CURRENT SENSITIVITY 		
FI-human protection 30 mA $I_{\Delta n}$ for MC2-4	MC2-4-XFIA30	MC292345
FI 0.1-1 A $I_{\Delta n}$ for MC2-4	MC2-4-XFIA	MC292346

SOCKET UND PLUG-IN MODULE FOR MC2



MC294573

SCHRACK INFO

- 3- and 4-pole versions
- FOR CIRCUIT BREAKER MC2 AND SWITCH DISCONNECTOR MC2-N
- **Plug-in module only available in combination with switch**
- Socket can be ordered separately, available pre-assembled
- Order control circuit plug unit separately

TECHNICAL DATA

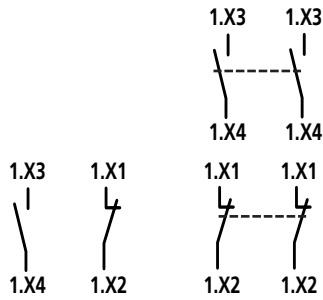
- I_n max. at 40 °C:
230A MC2
250A MC2-E (electronic release)

DESCRIPTION	TYPE	ORDER NO.
SOCKET		
Socket, 3 pole	MC2-XSVS	MC296699
Socket, 4 pole	MC2-4-XSVS	MC296700
PLUG-IN MODULE		
Plug-in module, 3 pole (add an S to end of switch part number if supplied with switch)	MC2-XSVE	
Plug-in module, 4 pole (add an S to end of switch part number if supplied with switch)	MC2-4-XSVE	
ACCESSORIES FOR PLUG-IN STYLE ASSEMBLY MC2/MC2-N		
Control circuit plug unit for auxiliary contact	MC2-XSVHI	MC296705
Control circuit plug unit undervoltage-/shunt release and remote operator	MC2-XSVR	MC296706

STANDARD AUXILIARY CONTACT / TRIP-INDICATING AUXILIARY CONTACT TYPE M22



MM216378



SCHRACK INFO

- Breaking with the main contacts, used for indicating and interlocking tasks
- General trip indication "+" with trip due to voltage release, overload release or short-circuit-release

TECHNICAL DATA

Breaking capacity: AC15: 4 A / 230 VAC
DC13: 3 A / 24 VDC

TIPS & TRICKS

The trip-indicating auxiliary contact is the same contact as the standard auxiliary contact. It derives its function from where it is installed (alarm contact on left).

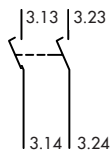
Maximum component installation with auxiliary contacts: 2 x Standard auxiliary contact (HIN) M22-K. or M22-CK...
+ 1 x Trip-indicating contact (HIA) M22-K. or M22-CK...

DESCRIPTION	TYPE	ORDER NO.
1 NO contact with screw terminals	M22-K10	MM216376
1 NC contact with screw terminals	M22-K01	MM216378
2 NO contacts with cage clamp terminals	M22-CK20	MM107898
2 NC contacts with cage clamp terminals	M22-CK02	MM107899

EARLY-MAKE AUXILIARY CONTACT TYPE MC2-XHIVL



MC299430



SCHRACK INFO

For interlock- and load-shedding circuits as well as for early make of undervoltage release in main switch/Emergency stop applications.

TECHNICAL DATA

- Early-make during switch on and off (manual switch): approx. 20 ms
- Not in connection with undervoltage release
MC2-XU... or shunt release MC2-XA...
- Breaking capacity: AC15: 4 A / 230 VAC
DC13: 3 A / 24 VDC

TIPS & TRICKS

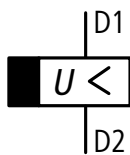
Maximum component installation with auxiliary contacts:
1 x early-make auxiliary contact

DESCRIPTION	TYPE	ORDER NO.
Early-make auxiliary contact, 2 NO	MC2/3-XHIV	MC299430

■ UNDERVOLTAGE RELEASE TYPES MC2-XU



MC299499



■ SCHRACK INFO

- Non-delayed breaking of circuit breaker MC/ switch disconnector MC-N when the control voltage drops below 35 % - 70% U_s .
- For use in Emergency stop devices in connection with Emergency stop buttons
- Installed in breaker
- Without auxiliary contact

■ TECHNICAL DATA

When the undervoltage release is de-energized, accidental contact with the main contacts of the switch is safely prevented during attempts to switch on. Undervoltage releases cannot be installed at the same time with shunt releases or early-make auxiliary contact, type MC2-XHIV.

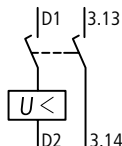
VOLTAGE		TYPE	ORDER NO.
24 VAC	Screw terminals	MC2/3-XU24AC	MC299491
24 VDC	Screw terminals	MC2/3-XU24DC	MC299509
208-240 V AC	Screw terminals	MC2/3-XU208-240AC	MC299499
380-440 V AC	Screw terminals	MC2/3-XU380-440AC	MC299501

Other voltage variants available upon request.

■ UNDERVOLTAGE RELEASE WITH TWO EARLY-MAKE AUXILIARY CONTACTS TYPES MC2-XUHIV



MC299591



■ SCHRACK INFO

- With 2 early-make auxiliary contacts
- For early-make of the undervoltage release in main switch applications and for interlock- and load-shedding circuits
- Installed in breaker
- Other voltages and connection versions available on request

■ TECHNICAL DATA

When the undervoltage release is de-energized, accidental contact with the main contacts of the switch is safely prevented during attempts to switch on. Early-make of auxiliary contacts during switch on and off (20ms). Undervoltage releases cannot be installed simultaneously with shunt releases or early-make auxiliary contact, type MC2-XHIV.

VOLTAGE		TYPE	ORDER NO.
208 - 240 VAC	screw terminals	MC2/3-XUHIV230V	MC299591
380 - 440 VAC	screw terminals	MC2/3-XUHIV400V	MC299594

Other voltage variants available upon request.

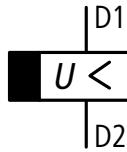
■ UNDERVOLTAGE RELEASE, OFF-DELAY TYPES MC-UVU, MC-XUV



MC295927



MC299499



■ SCHRACK INFO

- Voltage drops less than 0,07–16 s do not cause MC circuit breakers or N switch disconnectors to trip.
- Suitable for voltages:
220 – 240 VAC 50/60 Hz
380 – 440 VAC 50/60 Hz
480 – 550 VAC 50/60 Hz
24 VAC/DC

■ TECHNICAL DATA

- Time-delay adjustable between 70 ms – 4 s
- With additional external capacitor:
30.000 μ F $\geq$ 35 V to 8 s
90.000 μ F $\geq$ 35 V to 16 s
- 1 x special release MC2-XUV required.
- Cannot be installed simultaneously with early-make auxiliary contact MC2-XHIV... or shunt release MC2-XA....
- Time-delay device for separate mounting (Fastening: DIN rail or screws).
- For other operating voltages, please use a control transformer.

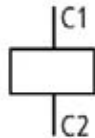
NAME	TYPE	ORDER NO.
Time-delay unit	MC-UVU	MC196154
Special undervoltage release for time-delay unit MC2	MC2/3-XUV	MC295927

Other voltage variants available upon request.

■ SHUNT RELEASE TYPES MC2-XA



MC299754



■ SCHRACK INFO

- Without auxiliary contact
- Switches are tripped by a voltage pulse or by the application of uninterrupted voltage

■ TECHNICAL DATA

When the shunt release is energized, accidental contact with the main contacts of the switch is safely prevented during attempts to switch on. Shunt release cannot be installed simultaneously with undervoltage releases or early-make auxiliary contact MC1-XHIV.

VOLTAGE	TYPE	ORDER NO.
24 VAC/DC	MC2/3-XA24V	MC299754
208 - 250 VAC/DC	MC2/3-XA230V	MC299763

Other voltage variants available upon request.

REMOTE OPERATOR FOR MC2



MC299832

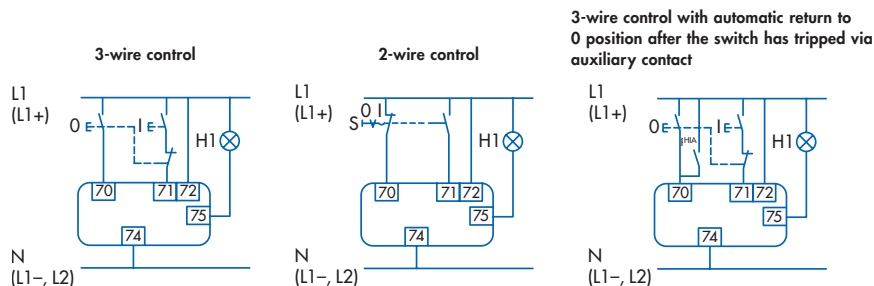
SCHRACK INFO

- Remote operator can be combined with circuit breaker MC and switch disconnecter MC-N, but not with switch disconnecter MC-PN.
- Do not deactivate switch simultaneously via remote control and trip via undervoltage/shunt release.

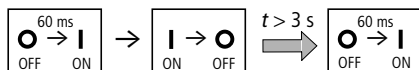
TECHNICAL DATA

- On/Off breaking and reset by means of 2-wire or 3-wire control.
- MC299832 can be synchronized
- Breaking time On: ≤ 60 ms for MC2-XR208-240AC
 ≤ 170 ms for MC2-XRD208-240AC
- Local manual breaking possible
- Pause between Off and On: 3 secs.
Command is ignored
- Function of Terminal 75:
Ready for activation signal when the cover is closed and not locked.
AC-15: 2 A/400 V
DC-13: 0,2 A/220 V

CIRCUIT DIAGRAMS

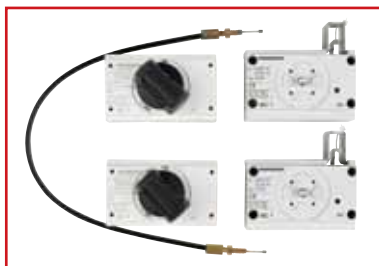


BREAKING CYCLE



VOLTAGE	TYPE	ORDER NO.
208 - 240 V AC	MC2-XR208-240AC	MC299832
208 - 240 V AC mech. interlock not possible	MC2-XRD208-240AC	MC299833
Extra cover for 4-pole switches	MC2-XAVPR	MC296677

MECHANICAL INTERLOCK FOR (DOOR COUPLING) ROTARY HANDLES FOR MC2



MC191581

SCHRACK INFO

Rotary handle on switch or door coupling rotary handle additionally required.

Cannot be combined with remote operator or door frame.

At least 2 interlocking modules are required in order to construct a mechanical interlocking circuit. See Page 142 for possible combinations and variations of interlocking circuits. Bowden cable to be ordered separately.

DESCRIPTION	TYPE	ORDER NO.
Mechanical interlock	MC2-XMV	MC291582
Bowden cable 225 mm	MC-XBZ225	MC191585
Bowden cable 600 mm	MC-XBZ600	MC191586
Bowden cable 1000 mm	MC-XBZ1000	MC191587

MECHANICAL INTERLOCK WITH REMOTE OPERATOR FOR MC2



MC294543



MC294543

SCHRACK INFO

- For 2 switches of the same or next frame size side by side
- Side-by-side mounting
- Mounted on top of each other, long version
- Contains parts for 2 switches
- Remote operator also required
- For maximum breaking distance
- Not for MC2-XRD208-240AC

NOTES

Cannot be combined with rotary handles, door coupling rotary handles and early-make auxiliary contacts.

DESCRIPTION	TYPE	ORDER NO.
Mechanical interlock for MC2	MC2-XMVR	MC294543
Mechanical interlock for MC2 long version	MC2-MVRL	MC294548
Mechanical interlock for MC2/3	MC2/3-XMVR	MC294544
Mechanical interlock for MC2/3, long version	MC2/3-XMVRL	MC294549

ROTARY HANDLES DIRECTLY ON SWITCH FOR MC2



MC290127

SCHRACK INFO

- Complete with rotary drive
- Can also be combined with door frame

TECHNICAL DATA

Available in the following versions:

Type MC.-XDV

Lockable in the "0" position (up to three padlocks), black/grey

Type MC.-XDVR

Lockable in the "0" position (up to three padlocks), Emergency stop red/yellow

Type MC.-XDTV

Lockable in the "0" position on handle, modification also available in "1" position, black/grey

Type MC.-XDTVR

Lockable in "0" position, Emergency Stop red/yellow

Version comes with door interlock:

- Door frame supplied with door interlock
- Rotary handle can be rotated 90° for switches mounted horizontally
- In the ON position, can be defeated from the outside using a 1 mm pin
- Cannot be defeated in the locked OFF and ON positions
- Door can be opened in OFF
- Can only be switched on when door closed

DESCRIPTION	TYPE	ORDER NO.
Lockable rotary handle for MC2, black/grey	MC2-XDV	MC290127
Lockable rotary handle for MC2, Emergency stop red/yellow	MC2-XDVR	MC290137
Rotary handle for MC2 with door interlock, lockable, black/grey	MC2-XDTV	MC290133
Rotary handle for MC2 with door interlock, lockable, Emergency stop red/yellow	MC2-XDTVR	MC290144

DOOR COUPLING ROTARY HANDLE FOR MC2



MC190160



MC190160



MC190160

SCHRACK INFO

- Complete unit includes rotary drive and coupling parts
- Degree of Protection IP66
- Rotary handle can be rotated 90° for horizontally-mounted switches
- Cannot be defeated in the locked OFF and ON positions
- Can be modified when in the unlocked ON position, can be defeated from the outside with a screwdriver
- Door can be opened in OFF
- External warning plate/designation plate can be clipped on

NOTES

- Order extension shaft separately!

TECHNICAL DATA

Available in the following versions:

Type MC.-XTVD

Lockable in the "0" position on handle with up to three padlocks, with door interlock, black/grey

Type MC.-XTVDV

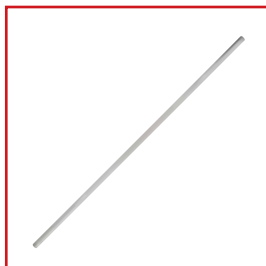
Lockable in the "0" position on handle and switch, with up to three padlocks, with door interlock, black/grey

Type MC.-XTVDVR

Lockable in the "0" position on handle and switch with up to three padlocks, with door interlock, Emergency stop red/yellow

DESCRIPTION	TYPE	ORDER NO.
Door coupling rotary handle for MC2 with door interlock, lockable, black/grey	MC2-XTVD	MC290168
Door coupling rotary handle for MC2 with door interlock, lockable, "0", "1", black/grey	MC2-XTVDV	MC290174
Door coupling rotary handle for MC2 with door interlock, lockable, Emergency stop red/yellow	MC2-XTVDVR	MC290180

EXTENSION SHAFT FOR MC2



MC190191

SCHRACK INFO

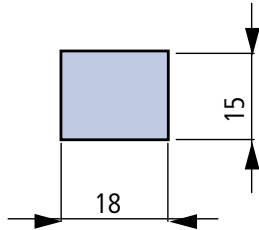
- for maximum cabinet depths of 400 or 600 mm
- Can be cut to required length

DESCRIPTION	CABINET DEPTH	TYPE	ORDER NO.
Extension shaft for MC2 max. 400 mm	max. 400 mm	MC1/2-XV4	MC191232
Extension shaft for MC2 max. 600 mm	max. 600 mm	MC1/2-XV6	MC190191

BOX TERMINALS FOR MC2



MC292240



SCHRACK INFO

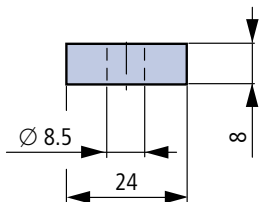
- Conversion kit for switches with screw connection
- Contains parts for one switch side
- Installed within the switch housing
- Use cover plate MC.-XSKA
- Terminal capacities:
Copper lines 1 x 4 – 185 mm²
Copper cables 2 x 4 – 70 mm²

DESCRIPTION	TYPE	ORDER NO.
Box terminal up to 160 A (contains 3 pcs.) for MC2	MC2-160-XKC	MC292240
Box terminal up to 250 A (contains 3 pcs.) for MC2	MC2-250-XKC	MC292244
Box terminal up to 160 A (contains 4 pcs.) for MC2-4	MC2-4-160-XKC	MC296755
Box terminal up to 250 A (contains 4 pcs.) for MC2-4	MC2-4-250-XKC	MC296756

SCREW CONNECTION FOR MC2



MC190019



SCHRACK INFO

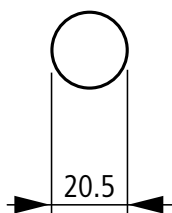
- Standard connection for all MC2, MC2-PN and MC2-N switches
- Conversion kit for switches with box terminal
- Installed inside switch housing
- Contains parts for one switch side located at top or bottom
- 3- or 4 pole switches
- Terminal capacities:
Copper cable lug 1 x 4 – 185 mm², 2 x 4 – 70 mm²
Aluminium cable lug 1 x 10 – 50 mm², 2 x 10 – 50 mm²

DESCRIPTION	TYPE	ORDER NO.
Screw connection, 3 pole for MC2	MC2-XKS	MC290030
Screw connection, 4 pole for MC2-4	MC2-4-XKS	MC296750

TUNNEL TERMINAL FOR MC2



MC196730



SCHRACK INFO

- Contains parts for one switch side, top or bottom
- Comes with terminal for control circuit cabling as standard for 1 x 0,75 – 2,5 mm² or 2 x 0,75 – 1,5 mm²
- Terminal capacities:
Copper cable, Aluminium cable 1 x 16 – 185 mm²
- Installed outside switch housing

TECHNICAL DATA

- For copper and aluminium cables, as ordered, up to 240 mm²
- Includes cover plate
- Stranded round conductor / stranded sector-shaped conductor

DESCRIPTION	TYPE	ORDER NO.
Tunnel terminal 185 mm ² , 3 pcs. included, for MC2	MC2-XKA	MC291457
Tunnel terminal 185 mm ² , 4 pcs. included, for MC2-4	MC2-4-XKA	MC291458

REAR CONNECTION FOR MC2



MC296765

SCHRACK INFO

- Contains parts for one switch side, top or bottom
- Terminal capacities:
Copper cable lug 1 x 4 – 185 mm², 2 x 4 – 70 mm²
Aluminium cable lug 1 x 10 – 50 mm², 2 x 10 – 50 mm²

DESCRIPTION	TYPE	ORDER NO.
Rear connection, 3 pole MC2	MC2-XKR	MC296765
Rear connection, 4 pole MC2-4	MC2-4-XKR	MC296768

CONTROL CIRCUIT TERMINAL FOR MC2



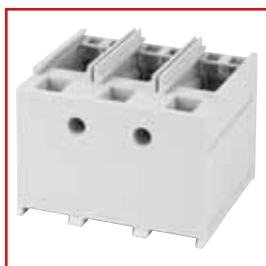
MC196739

SCHRACK INFO

- Contains parts for two terminals located at top or bottom for 3/ 4 pole switches
- Included with tunnel terminal
- Degree of protection IP1X
- Terminal capacities:
Screw connection 1 x 0,75 – 2,5 mm², 2 x 0,75 – 1,5 mm²
Box terminal 1 x 0,75 – 2,5mm², 2 x 0,75 – 1,5 mm²

DESCRIPTION	TYPE	ORDER NO.
Control circuit terminal for box terminal MC2	MC2-XSTK	MC196739
Control circuit terminal for screw connection MC2	MC2-XSTS	MC290156

TERMINAL COVER FOR MC2



MC290038

SCHRACK INFO

- Protection against accidental contact when using cable lugs, rails or Tunnel terminals
- Contains parts for one switch side located at top or bottom 3- or 4 pole switches
- Degree of protection IP4X front, side and rear, IP1X on the connection side when using insulated conductor material
- Cover plate included with tunnel terminals

DESCRIPTION	TYPE	ORDER NO.
Terminal cover, 3 pole for MC2	MC2-XKSA	MC290038
Terminal cover, 4 pole for MC2-4	MC2-4-XKSA	MC296770

CABLE LUG FOR MC2



MC299776

SCHRACK INFO

- Special cable lug in slimline design
- Cable lugs must be insulated when using without a cover plate.

DESCRIPTION	TYPE	ORDER NO.
Cable lug 95 mm ²	MC2-XKS95	MC299775
Cable lug 120 mm ²	MC2-XKS120	MC299776
Cable lug 150 mm ²	MC2-XKS150	MC299777
Cable lug 185 mm ²	MC2-XKS185	MC290032

CONNECTION COVER, KNOCKOUT FOR BOX TERMINAL MC2



MC294640

SCHRACK INFO

- Contains parts for a terminal located at top or bottom for 3 or 4 pole switches
- Increases protection against accidental contact (simplified finger protection)

DESCRIPTION	TYPE	ORDER NO.
Terminal cover, knockout, 3 pole for MC2	MC2-XKSFA	MC294640
Terminal cover, knockout, 4 pole for MC2	MC2-4-XKSFA	MC294641

IP2X FINGER PROTECTION FOR DIRECT-MOUNTED MC2 SWITCHES



MC196744



MC196748

SCHRACK INFO

- Increases the protection against accidental contact to IP2X
- Protection when reaching into the cable connection area when cables are connected in box terminal
- For 2 conductors, minimum cross-section equals 25 mm²
- MC2-XIPA and MC2-4-XIPA only in connection with cover plate MC2(-4)-XKSA

DESCRIPTION	TYPE	ORDER NO.
FOR BOX TERMINAL		
Finger protection, 3 pole for MC2	MC2-XIPK	MC296743
Finger protection, 4 pole for MC2-4	MC2-4-XIPK	MC296744
FOR TERMINAL COVER		
Finger protection, 3 pole for MC2	MC2-XIPA	MC296777
Finger protection, 4 pole for MC2-4	MC2-4-XIPA	MC296778

INSULATED ENCLOSURE XCI



MC291524

SCHRACK INFO

- For switches with box terminals only, for direct cable connection
- With door coupling rotary handle
- Complete unit including all necessary functional parts
- Degree of protection IP65
- Comes with gland plates

TECHNICAL DATA

Enclosure suitable for installation of circuit-breakers and switch-disconnectors for separate mounting with top and bottom cable entry. Includes fixing straps for wall mounting.

Short circuit protection at 415 V 50/60 Hz to 10 kA.

Not in combination with remote operator, plug-in- or withdrawable unit.

Additional insulated terminals for 4 or 5 pole must be ordered separately.

Available in the following versions:

Standard, black/grey

Lockable in the "0" position at handle with up to 3 padlocks. Additionally with cover interlock.

For Emergency stop, red/yellow

Lockable on handle and switch with up to 3 padlocks in the "0" position on handle. Additionally with cover interlock and lockable at switch in the "0" position.

DESCRIPTION	MAX. RATED UNINTERRUPTED CURRENT	TYPE	ORDER NO.
STANDARD, BLACK/GREY			
Insulated enclosure for MC2 and MC2-4	≤ 200 A	MC2-XCI43-TVD	MC291524
Insulated enclosure for MC2 and MC2-4	≤ 250 A	MC2-XCI45-TVD	MC290418
FOR EMERGENCY STOP, RED/YELLOW			
Insulated enclosure for MC2 and MC2-4	≤ 200 A	MC2-XCI43-TVDR	MC291529
Insulated enclosure for MC2 and MC2-4	≤ 250 A	MC2-XCI45-TVDR	MC299356

ADDITIONAL INSULATED TERMINALS FOR MC2



MC198573



MC192336

SCHRACK INFO

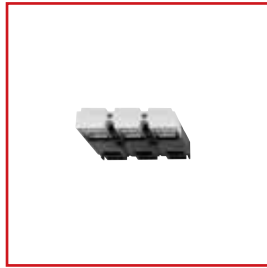
- For looping through the neutral and earth conductor
- 1 pole

DESCRIPTION	TERMINAL CAPACITY	TYPE	ORDER NO.
Additional insulated terminal 32 A	Fine-wired 1 x (1,5-6 mm ²)	K10/1	MC193827
Additional insulated terminals 63 A	Fine-wired 1 x (6-16 mm ²), stranded 1 x (16-25 mm ²)	K25/1	MC196200
Additional insulated terminals 100 A	Fine-wired 1 x (10-35 mm ²), stranded 1 x (16-50 mm ²)	K50/1	MC198573
Additional insulated terminal 160 A	stranded 1 x (16-95 mm ²)	K95/1N/BR	MC192336
Additional insulated terminal 250 A	stranded, 1 x (35-150mm ²), 2 x (16-70mm ²)	K150/1BR	MC294709

■ DEVICE ADAPTERS FOR CIRCUIT-BREAKERS AND SWITCH-DISCONNECTORS FOR 60 mm BUSBAR SYSTEM MC2



MC291400



MC291666

■ SCHRACK INFO

- For mounting on flat copper rails 12 x 5 mm to 30 x 10 mm
- Double T and triple T profile
- Mounted via terminal-, screw fixing
- Rated operational voltage Ue: 690 V
- Cover plate also required (MC-XKR)

■ TECHNICAL DATA

MC 2 up to 250 A:

- Top or bottom connection to system as required
- Cover plate MC2-XKR4 required

DESCRIPTION	TYPE	ORDER NO.
60 mm busbar adapter 250 A, 3 pole	32140	MC291400
Cover plate for component adapter, 3 pole	MC2-XKR4	MC291666
4 pole adapter with cover plate	MC3-4XKR13	upon request

■ DOOR SEALING FRAME FOR MC2



MC290197

■ SCHRACK INFO

- For toggle levers, rotary handles with rotary drive and remote operator
- Degree of protection IP40
- For rectangular cut-out on doors and enclosures with material thicknesses of 1,5 – 5 mm
- External warning plate/designation plate can be clipped on

DESCRIPTION	TYPE	ORDER NO.
Door sealing frame for MC2	MC2-XBR	MC290197

■ TOGGLE LEVER LOCKING DEVICE FOR MC2



MC290201

■ SCHRACK INFO

- Off position lockable with up to 3 padlocks (hasp thickness 4 – 8 mm)
- Cannot be combined with Insulating surround

DESCRIPTION	TYPE	ORDER NO.
Toggle lever locking device for MC2	MC2/3-XKAV	MC290201

SPACERS FOR MC2



MC190203

SCHRACK INFO

- Enables fast and low-priced adjustment of various frame sizes with/without rotary handle or remote operator at same front depth
- Grid depth 17,5 mm, thread M4
- Each set contains 4 x spacers
- Maximum component installation 4 pcs. per fastening screw
- 2 fastening screws included for each circuit breaker MC2

DESCRIPTION	TYPE	ORDER NO.
Spacers for MC2	MC2-XAB	MC190203

CLIP PLATE FOR MC2



MC290215

SCHRACK INFO

- Enables snap fit of circuit breakers / switch disconnectors to DIN rail (75 mm top-hat rail)
- Not suitable for switches with remote operator

DESCRIPTION	TYPE	ORDER NO.
Clip plate for MC2	MC2-XC75	MC290215

■ CIRCUIT BREAKER 3/4-POLE UP TO 500A WITH THERMAL MAGNETIC RELEASE, TYPES MC3C-A, MC3N-A, MC3H-A, MC3N-4-A, MC3H-4-A



MC332231

■ SCHRACK INFO

- System and line protection
- 3 and 4 pole versions
- Adjustable overload release I_r : $0,8 - 1 \times I_n$ (factory setting $0,8 \times I_n$)
- Adjustable short-circuit release I_s : $8 - 10 \times I_n$ (factory setting $8 \times I_n$)
- Breaking capacity 36 / 50 / 150 kA at 415 V 50/60 Hz
- Screw terminals as standard, box terminals as accessories
- Rated uninterrupted current = Rated current

RATED CURRENT/ BREAKING CAPACITY	SETTING RANGE		TYPE	ORDER NO.
	OVERLOAD- RELEASE (A)	SHORT CIRCUIT- RELEASE (A)		
3 POLE (COMFORT BREAKING CAPACITY) 36 kA				
320 A/36 kA	250...320	1920...3200	MC3C-A320	MC332431
400 A/36 kA	320...400	2400...4000	MC3C-A400	MC340431
500 A/36 kA	400...500	3000...5000	MC3C-A500	MC350431
3 POLE (NORMAL BREAKING CAPACITY) 50 kA				
320 A/50 kA	250...320	1920...3200	MC3N-A320	MC332231
400 A/50 kA	320...400	2400...4000	MC3N-A400	MC340231
500 A/50 kA	400...500	3000...5000	MC3N-A500	MC350231
3 POLE (HIGH BREAKING CAPACITY) 150 kA				
320 A/150 kA	250...320	1920...3200	MC3H-A320	MC332331
400 A/150 kA	320...400	2400...4000	MC3H-A400	MC340331
500 A/150 kA	400...500	3000...5000	MC3H-A500	MC350331
4 POLE (NORMAL BREAKING CAPACITY) 50 kA				
320 A/50 kA	250...320	1920...3200	MC3N-4-A320	MC332241
400 A/50 kA	320...400	2400...4000	MC3N-4-A400	MC340241
500 A/50 kA	400...500	3000...5000	MC3N-4-A500	MC350241
4 POLE (HIGH BREAKING CAPACITY) 150 kA				
320 A/150 kA	250...320	1920...3200	MC3H-4-A320	MC332341
400 A/150 kA	320...400	2400...4000	MC3H-4-A400	MC340341
500 A/150 kA	400...500	3000...5000	MC3H-4-A500	MC350341

■ CIRCUIT BREAKER 3/4-POLE UP TO 630A WITH ELECTRONIC RELEASE TYPES MC3N-AE, MC3H-AE, MC3N-4-AE, MC3H-4-AE



MC325232

■ SCHRACK INFO

- System and line protection
- Selective and generator protection
- 3 and 4 pole versions
- RMS value and "thermal memory"
- Adjustable overload release I_r: 0,5 – 1 x I_n (factory setting 0,8 x I_n)
- Adjustable short-circuit release I_i: 2 – 12 x I_n (factory setting 6 x I_n)
at MC3...-AE250/400: 2 – 11 x I_n (factory setting 6 x I_n)
at MC3...-AE630: 2 – 8 x I_n (factory setting 6 x I_n)
- Breaking capacity 50 / 150 kA at 415 V 50/60 Hz
- Screw terminals as standard, box terminals as accessory
- Rated uninterrupted current = Rated current

RATED CURRENT/ BREAKING CAPACITY	SETTING RANGE		TYPE	ORDER NO.
	OVERLOAD- RELEASE (A)	SHORT CIRCUIT- RELEASE (A)		
3 POLE (NORMAL BREAKING CAPACITY) 50 kA				
250 A/50 kA	125...250	500...2750	MC3N-AE250	MC325232
400 A/50 kA	200...400	800...4400	MC3N-AE400	MC340232
630 A/50 kA	315...630	1260...5040	MC3N-AE630	MC363232
3 POLE (HIGH BREAKING CAPACITY) 150 kA				
250 A/150 kA	125...250	500...2750	MC3H-AE250	MC325332
400 A/150 kA	200...400	800...4400	MC3H-AE400	MC340332
630 A/150 kA	315...630	1260...5040	MC3H-AE630	MC363332
4 POLE (NORMAL BREAKING CAPACITY) 50 kA				
250 A/50 kA	125...250	500...2750	MC3N-4-AE250	MC325242
400 A/50 kA	200...400	800...4400	MC3N-4-AE400	MC340242
630 A/50 kA	315...630	1260...5040	MC3N-4-AE630	MC363242
4 POLE (HIGH BREAKING CAPACITY) 150 kA				
250 A/150 kA	125...250	500...2750	MC3H-4-AE250	MC325342
400 A/150 kA	200...400	800...4400	MC3H-4-AE400	MC340342
630 A/150 kA	315...630	1260...5040	MC3H-4-AE630	MC363342

■ CIRCUIT BREAKER, 3/4 POLE UP TO 630A **WITH DELAYED ELECTRONIC RELEASE** **TYPES MC3N-VE, MC3H-VE, MC3N-4-VE, MC3H-4-VE**



MC325233

■ SCHRACK INFO

- System and line protection
- Selective and generator protection
- 3 and 4 pole versions
- RMS value and "thermal memory"
- Adjustable overload release I_r : $0,5 - 1 \times I_n$ (factory setting $0,8 \times I_n$)
- Adjustable time delay setting to overcome current spikes t_r : $2 - 20$ s at $6 \times I_r$ as well as infinity
- Adjustable delayed short-circuit releases I_{sd} : $2 - 10 \times I_r$ (factory setting $6 \times I_r$)
MC3...-4-VE630: $2 - 7 \times I_r$ (factory setting $6 \times I_r$)
- Adjustable delay time t_{sd} : Levels:
 $0, 20, 60, 100, 200, 300, 500, 750, 1000$ ms (factory setting 0)
- Adjustable not-delayed short-circuit release I_r : $2 - 12 \times I_n$ (factory setting $12 \times I_n$)
MC3...-VE250/400: $2 - 11 \times I_n$ (factory setting $6 \times I_n$)
MC3...-VE630: $2 - 8 \times I_n$ (factory setting $6 \times I_n$)
- Switchable i^2t constant function (factory setting OFF)
- Screw terminals as standard, box terminals as accessories
- Rated uninterrupted current = Rated current

RATED CURRENT/ BREAKING CAPACITY	OVERLOAD- RELEASE (A)	SETTING RANGE		TYPE	ORDER NO.
		SHORT-CIRCUIT RELEASE NOT DELAYED (A)	SHORT-CIRCUIT RELEASE DELAYED (A)		

3 POLE (NORMAL BREAKING CAPACITY) 50 kA

250 A/50 kA	125...250	500...2750	250...2500	MC3N-VE250	MC325233
400 A/50 kA	200...400	800...4400	400...4000	MC3N-VE400	MC340233
630 A/50 kA	315...630	1260...5040	472...4410	MC3N-VE630	MC363233

3 POLE (HIGH BREAKING CAPACITY) 150 kA

250 A/150 kA	125...250	500...2750	250...2500	MC3H-VE250	MC325333
400 A/150 kA	200...400	800...4400	400...4000	MC3H-VE400	MC340333
630 A/150 kA	315...630	1260...5040	472...4410	MC3H-VE630	MC363333

4 POLE (NORMAL BREAKING CAPACITY) 50 kA

250 A/50 kA	125...250	500...2750	250...2500	MC3N-4-VE250	MC325243
400 A/50 kA	200...400	800...4400	400...4000	MC3N-4-VE400	MC340243
630 A/50 kA	315...630	1260...5040	472...4410	MC3N-4-VE630	MC363243

4 POLE (HIGH BREAKING CAPACITY) 150 kA

250 A/150 kA	125...250	500...2750	250...2500	MC3N-4-VE250	MC325343
400 A/150 kA	200...400	800...4400	400...4000	MC3N-4-VE400	MC340343
630 A/150 kA	315...630	1260...5040	472...4410	MC3H-4-VE630	MC363343

SWITCH DISCONNECTOR UP TO 630A TYPES MC3-PN, MC3-PN-4, MC3-N, MC3-N-4



MC340035

SCHRACK INFO

- 3- and 4-pole version
- Rated uninterrupted current up to 630A
- Switch disconnecter type MC3-PN, 2 switch positions 0/I, cannot be tripped remotely
- Switch disconnecter type MC3-N, with trip setting "0"; "+"; "I", can be tripped remotely with undervoltage/shunt release, trip-indicating auxiliary contacts possible
- For type MC...-N switch disconnectors, undervoltage/shunt releases and trip-indicating auxiliary contacts can also be used.
- Type MC3-N... can also be combined with remote control MC-XR...
- Screw terminals as standard, box terminals as accessories
- Remote-trip MC3-N can also be combined with remote operator
- Properties of main switches including positive drive to IEC/EN 60204 and VDE 0113
- Isolating characteristics according to IEC/EN 60947-3 and VDE 0660. Protection against accidental contact accord. to VDE 0160 Part 100
- Rated uninterrupted current = Rated current
- Rated short-circuit breaking capacity values: I_{cm} 25kA
- Rated short-time withstand current: I_{cw} 12kA

RATED UNINTERRUPTED CURRENT	MAX. BACK-UP FUSE (gL) FOR SWITCH DISCONNECTOR (AgL)	TYPE	ORDER NO.
3 POLE CANNOT BE TRIPPED REMOTELY			
400 A	630	MC3-PN-400	MC340034
630 A	630	MC3-PN-630	MC363034
4 POLE CANNOT BE TRIPPED REMOTELY			
400 A	630	MC3-PN-4-400	MC340044
630 A/630 A	630	MC3-PN-4-630	MC363044
3 POLE CAN BE TRIPPED REMOTELY			
400 A	630	MC3-N-400	MC340035
630 A	630	MC3-N-630	MC363035
4 POLE CAN BE TRIPPED REMOTELY			
400 A	630	MC3-N-4-400	MC340045
630 A	630	MC3-N-4-630	MC363045

SOCKET BASE AND WITHDRAWABLE MODULE FOR MC3



MC396707



MC396707

SCHRACK INFO

- 3- and 4-pole version
- For circuit breaker MC3 and switch disconnecter MC3-N

TECHNICAL DATA

- Withdrawable unit complete with control circuit plug unit
- I_n max. at 20°C – 605 A
- I_n max. at 40°C – 550 A
- Mounting position: vertical, 90° left
- 3 positions: Retracted, test, extended. The 3 positions are shown mechanically.
- Auxiliary contacts can also be used for remote signaling. Either one N/C or N/O contact per position.
- All connections of auxiliary switches (HIA, HIN, HIV) and undervoltage and shunt releases to the control circuit plug units are already present.
- **Withdrawable module only available in combination with switch.**
- Add an A to switch part number (e.g.: MC340232A) – Switch will be supplied ready for use with withdrawable feature.
- Socket base can be ordered separately, available pre-assembled.

DESCRIPTION	TYPE	ORDER NO.
SOCKET BASE		
Socket base, 3 pole	MC3-XAVS	MC396711
Socket base, 4 pole	MC3-4-XAVS	MC396712

WITHDRAWABLE MODULE

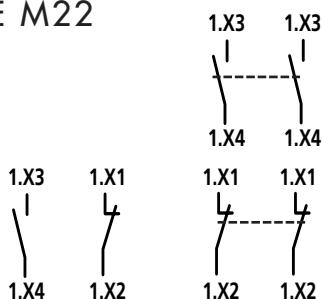
Withdrawable module, 3 pole, supplied with switch, add an A to end of switch part number

Withdrawable module, 4 pole, supplied with switch, add an A to end of switch part number

STANDARD AUXILIARY CONTACT / TRIP-INDICATING AUXILIARY CONTACT TYPE M22



MM216378



SCHRACK INFO

- Breaking with the main contacts, used for indicating and interlocking tasks
- General trip indication “+” with trip due to voltage release, overload release or short-circuit-release

TECHNICAL DATA

Breaking capacity: AC15: 4 A / 230 VAC
DC13: 3 A / 24 VDC

TIPS & TRICKS

The trip-indicating auxiliary contacts is the same contact as the standard auxiliary contact. It derives its function from where it is installed (alarm contact on left)

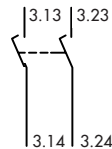
Maximum component installation with auxiliary contacts: 3 x Standard auxiliary contact (HIN) M22-K. or M22-CK..
+ 1 x Trip-indicating contact (HIA) M22-K. or MK22-CK.

DESCRIPTION	TYPE	ORDER NO.
1 NO contact with screw terminals	M22-K10	MM216376
1 NC contact with screw terminals	M22-K01	MM216378
2 NO contacts with cage clamp terminals	M22-CK20	MM107898
2 NC contacts with cage clamp terminals	M22-CK02	MM107899

EARLY-MAKE AUXILIARY CONTACT TYPE MC3-XHIV



MC299430



SCHRACK INFO

For interlock- and load-shedding circuits as well as for early make of under-voltage release in main switch/Emergency stop applications.

TECHNICAL DATA

- Not in connection with undervoltage release MC3-XU... or shunt release MC3-XA... Early-make during switch on and off (manual switch): approx. 20 ms
- Not in connection with remote operator MC-XR
- Breaking capacity: AC15: 4 A / 230 VAC
DC13: 3 A / 24 VDC

TIPS & TRICKS

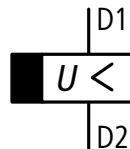
Maximum component installation with auxiliary contacts:
1 x early-make auxiliary contact

DESCRIPTION	TYPE	ORDER NO.
Early-make auxiliary contact, 2 NO	MC2/3-XHIV	MC299430

UNDervOLTAGE RELEASE TYPES MC3-XU



MC299499



SCHRACK INFO

- For use in Emergency stop devices in connection with Emergency stop buttons
- Installed in breaker
- Without auxiliary contact
- Not-delayed breaking of circuit breaker MC/ switch disconnectors MC-N when the control voltage drops below 35 % - 70% U_s .

TECHNICAL DATA

When the undervoltage release is de-energized, accidental contact with the main contacts of the switch is safely prevented during attempts to switch on. Undervoltage releases cannot be installed at the same time as operating current releases or early-make auxiliary contact MC2-XHIV.

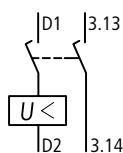
VOLTAGE	TYPE	ORDER NO.
24 VAC 50/60 Hz	MC2/3-XU24AC	MC299491
24 VDC 50/60 Hz	MC2/3-XU24DC	MC299509
208-240 VAC 50/60 Hz	MC2/3-XU208-240AC	MC299499
380-440 VAC 50/60 Hz	MC2/3-XU380-440AC	MC299501

Other voltage variants available upon request.

■ UNDERVOLTAGE RELEASE WITH TWO EARLY-MAKE AUXILIARY CONTACTS TYPES MC3-XUHIV



MC299591



■ SCHRACK INFO

- With 2 early-make auxiliary contacts
- For early-make of the undervoltage release in main switch applications and for interlock- and load-shedding circuits
- Installed in contact
- Other voltages and connection versions available on request

■ TECHNICAL DATA

When the undervoltage release is de-energized, accidental contact with the main contacts of the switch is safely prevented during attempts to switch on. Early-make of auxiliary contacts during switch on and off (20ms). Undervoltage releases cannot be installed at the same time as operating current releases or early-make auxiliary contact MC2-XHIV.

VOLTAGE	TYPE	ORDER NO.
208 - 240 VAC	MC2/3-XUHIV230V	MC299591
380 - 440 VAC	MC2/3-XUHIV400V	MC299594

Other voltage variants available upon request.

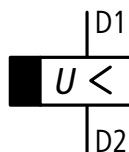
■ UNDERVOLTAGE RELEASE, OFF-DELAY TYPES MC-UVU, MC-XUV



MC295927



MC299499



■ SCHRACK INFO

- Voltage drops less than 0,07–16 s do not cause MC circuit breakers or N switch disconnectors to trip.
- Suitable for voltages:
220 – 240 VAC 50/60 Hz
380 – 440 VAC 50/60 Hz
480 – 550 VAC 50/60 Hz
24 VAC/DC

■ TECHNICAL DATA

- Time-delay adjustable between 70 ms – 4 s
- With additional external capacitor:
30.000 µF ≥ 35 V to 8 s
90.000 µF ≥ 35 V to 16 s
- 1 x special release MC2-XUV required.
- Cannot be installed simultaneously with early-make auxiliary contact MC2-XHIV... or shunt release MC2-XA....
- Time-delay device for separate mounting (Fastening: DIN rail or screws).
- For other operating voltages, please use a control transformer.

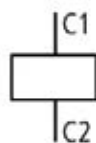
NAME	TYPE	ORDER NO.
Time-delay unit	MC-UVU	MC196154
Special undervoltage release for time-delay unit MC2	MC2/3-XUV	MC295927

Other voltage variants available upon request.

■ SHUNT RELEASE TYPES MC2-XA



MC299754



■ SCHRACK INFO

- Without auxiliary contact
- Switches are tripped by a voltage pulse or by the application of uninterrupted voltage

■ NOTES

When the shunt release is energized, accidental contact with the main contacts of the switch during attempts to switch on is safely prevented. Shunt release cannot be installed simultaneously with undervoltage release.

VOLTAGE	TYPE	ORDER NO.
24 V AC/DC	MC2-XA24VAC/DC	MC299754
208 - 250 V AC/DC	MC2-XA230VAC/DC	MC299763

Other voltage variants available upon request.

REMOTE OPERATOR FOR MC3



MC299832

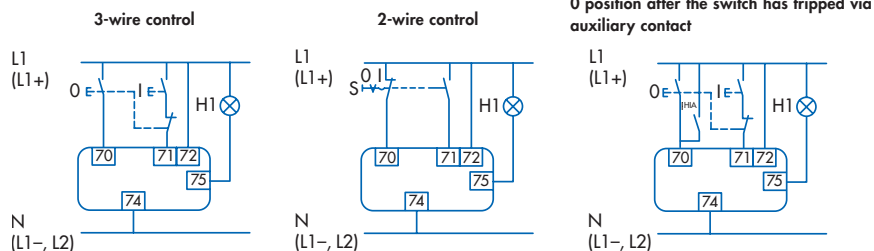
SCHRACK INFO

- Remote operator can be combined with circuit breaker MC and switch disconnecter MC-N, but not with switch disconnecter MC-PN.
- Do not deactivate simultaneously via remote control and trip via undervoltage/operating current release.

TECHNICAL DATA

- On/Off breaking and reset by means of 2-wire or 3-wire control.
 - Can be synchronized
 - Breaking time On: ≤ 80 ms
 - Local manual breaking possible
 - Pause between Off and On: 3 sec.
 - On command is ignored
- Function of Terminal 75:
Ready for operation signal, when cover is closed and not locked.
AC-15: 2 A/400 V
DC-13: 0,2 A/220 V

CIRCUIT DIAGRAMS



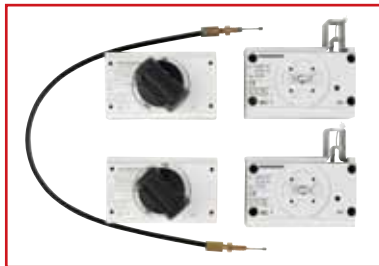
BREAKING CYCLE



VOLTAGE	TYPE	ORDER NO.
208 - 240 V AC	MC3-XR208-240AC	MC399850
Extra cover for 4-pole switches	MC3-XAVPR	MC396678

Other voltage variants available upon request.

MECHANICAL INTERLOCK FOR (DOOR COUPLING-) ROTARY HANDLES FOR MC3



MC191581

SCHRACK INFO

Rotary handle on switch or door coupling rotary handle additionally required.

Cannot be combined with remote operator or door frame.

At least 2 interlocking modules are required to construct a mechanical interlocking circuit. See Page 142 for possible combinations and variations in interlocking circuits. Bowden cable to be ordered separately.

DESCRIPTION	TYPE	ORDER NO.
Mechanical interlock	MC3-XMV	MC391583
Bowden cable 225 mm	MC-XBZ225	MC191585
Bowden cable 600 mm	MC-XBZ600	MC191586
Bowden cable 1000 mm	MC-XBZ1000	MC191587

MECHANICAL INTERLOCK FOR REMOTE OPERATOR FOR MC3



MC294543



MC294543

SCHRACK INFO

- For 2 switches of same or next frame size side by side
- Side-by-side mounting
- Mounted on top of each other, long version
- Type contains parts for 2 switches
- Remote operator also required
- For maximum breaking distance, see Page 143

NOTES

Cannot be combined with rotary handles, door coupling rotary handles and early-make auxiliary contacts.

DESCRIPTION	TYPE	ORDER NO.
Mechanical interlock for MC2/3	MC2/3-XMVR	MC294544
Mechanical interlock for MC2/3, long version	MC2/3-XMVRL	MC294549
Mechanical interlock for MC3	MC3-XMVR	MC394545
Mechanical interlock for MC3 long version	MC3-XMVRL	MC394550
Mechanical interlock for MC3/4	MC3/4-XMVR	MC394546
Mechanical interlock for MC3/4 long version	MC3/4-XMVRL	MC394551

ROTARY HANDLE DIRECTLY ON SWITCH FOR MC3



MC390129

SCHRACK INFO

- Complete with rotary drive
- Can also be combined with door frame

TECHNICAL DATA

Available in the following versions:

Type MC.-XDV

Lockable in the "0" position (up to three padlocks), black/grey

Type MC.-XDVR

Lockable in the "0" position (up to three padlocks), Emergency stop red/yellow

DESCRIPTION	TYPE	ORDER NO.
Lockable rotary handle for MC3, black/grey	MC3-XDV	MC390129
Lockable rotary handle for MC3, Emergency stop red/yellow	MC3-XDVR	MC390140

DOOR COUPLING ROTARY HANDLE FOR MC3



MC390170



MC390170



MC390170

SCHRACK INFO

- Complete unit includes rotary drive and coupling parts
- Degree of Protection IP66
- Rotary handle can be rotated 90° for horizontally-mounted switches
- Cannot be defeated in the locked OFF and ON positions
- Can be modified when in the unlocked ON position, can be defeated from the outside with a screwdriver
- Door can be opened in OFF
- External warning plate/designation plate can be clipped on

NOTES

- Order extension shaft separately!

TECHNICAL DATA

Available in the following versions:

Type MC.-XTVD

Lockable in the "0" position on handle with up to three padlocks, with door interlock, black/grey

Type MC.-XTVDV

Lockable in the "0" position on handle and switch, with up to three padlocks, with door interlock, black/grey

Type MC.-XTVDVR

Lockable in the "0" position on handle and switch with up to three padlocks, with door interlock, Emergency stop red/yellow

DESCRIPTION	TYPE	ORDER NO.
Rotary handle for MC3 with door interlock, lockable, black/grey	MC3-XTVD	MC390170
Door coupling rotary handle for MC3 with door interlock, lockable, "0", "1", black/grey	MC3-XTVDV	MC390176
Door coupling rotary handle for MC3 with door interlock, lockable, Emergency stop red/yellow	MC3-XTVDVR	MC390182

EXTENSION SHAFT FOR MC3



MC190191

SCHRACK INFO

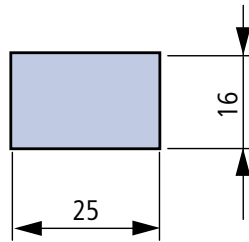
- for maximum cabinet depths of 400 or 600 mm
- Can be cut to required length

DESCRIPTION	CABINET DEPTH	TYPE	ORDER NO.
Extension shaft for MC3	max. 400 mm	MC3/4-XV4	MC391234
Extension shaft for MC3	max. 600 mm	MC3/4-XV6	MC390193

BOX TERMINALS FOR MC3



MC390042



SCHRACK INFO

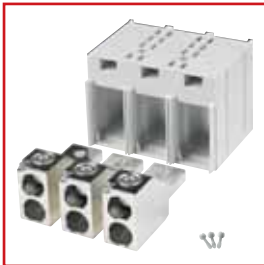
- Installed within the switch housing
- If $U_e \geq 525V$ AC, use cover plate MC3(-4)-XSKA
- Conversion kit for switches with screw connection
- Contains parts for one switch side
- Terminal capacities:
Copper lines/cables 500A: 1 x 35 – 240 mm²
2 x 16 – 120 mm²
Copper strip 630A: 10 x 24 x 1 + 5 x 24 x 1 or (2x) 8 x 24 x 1

DESCRIPTION	TYPE	ORDER NO.
Box terminal (contains 3 pcs.) for MC3	MC3-XKC	MC390042
Box terminal (contains 4 pcs.) for MC3-4	MC3-4-XKC	MC396783

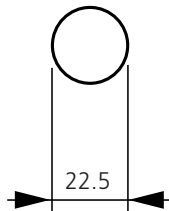
TUNNEL TERMINAL FOR MC3



MC391461



MC391461



SCHRACK INFO

- Contains parts for one switch side located at top or bottom for 3 or 4-pole switches
- Comes with terminal for control circuit cabling as standard for 1 x 0,75 – 2,5 mm² or 2 x 0,75 – 1,5 mm² copper conductors
- Terminal capacities:
XKA1 max. 350A: Cu/Al cable 1 x 16 – 185 mm²*
XKA2 max. 630A: Cu/Al-cable 2 x 50 – 240 mm²
(* depending on cable manufacturer up to 240 mm² can be connected)
- Installed outside switch housing

TECHNICAL DATA

- For Cu- and Al cables
- Includes cover plate
- Stranded round conductor / stranded sector-shaped conductor

DESCRIPTION	TYPE	ORDER NO.
Tunnel terminal 185 mm ² , 3 pole for MC3	MC3-XKA1	MC391459
Tunnel terminal 2 x 240 mm ² , 3-pole for MC3	MC3-XKA2	MC391461
Tunnel terminal 185 mm ² , 4 pole for MC3-4	MC3-4-XKA1	MC391460
Tunnel terminal 2 x 240 mm ² , 4-pole for MC3-4	MC3-4-XKA2	MC391462

CABLE LUG FOR MC3



MC299776

SCHRACK INFO

- Special cable lug in slimline design
- Cable lugs must be insulated when using without a cover plate.

DESCRIPTION	TYPE	ORDER NO.
Cable lug 185 mm ² , for MC3	MC3/4-XKS185	MC390040
Cable lug 240 mm ² , for MC3	MC3/4-XKS240	MC390041

REAR CONNECTION FOR MC3



MC396792

SCHRACK INFO

- Contains parts for one switch side located at top or bottom for 3- or 4-pole switches
- Terminal capacities: Copper cable 8 x 16 – 240 mm²

DESCRIPTION	TYPE	ORDER NO.
Rear connection, 3 pole for MC3	MC3-XKR	MC396792
Rear connection, 4 pole for MC3-4	MC3-4-XKR	MC396795

CONNECTION WIDTH EXTENSION FOR MC3



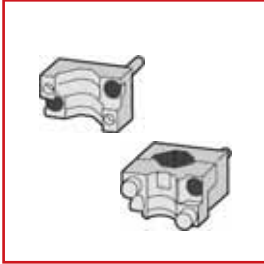
MC390514

SCHRACK INFO

- Contains parts for one switch side incl. phase separator
- Central holes, max. 2 cable lugs per phase
- Distance between pole centers 70 mm
- Terminal capacities: Copper cable lugs 2 x 300 mm²
Copper rails (2x) 10 x 50

DESCRIPTION	TYPE	ORDER NO.
Connection width extension, 3 pole 630 A for MC3	MC3-XKV70	MC390514
Connection width extension, 4 pole 630 A for MC3	MC3-4-XKV70	MC390515

CONNECTION TERMINALS FOR CONNECTION WIDTH EXTENSION MC3



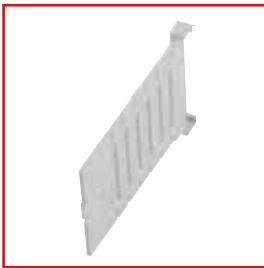
MC390782 + MC390784

SCHRACK INFO

- Contains parts for one switch side located at top or bottom for 3- or 4-pole switches
- Only in combination with connection width extension
- Use with flexible and highly-flexible conductor end sleeves
- Comes with terminal for control circuit cabling as standard for 1 x 0,75 – 2,5 mm² or 2 x 0,75 – 1,5 mm² Cu conductors
- Terminal capacities: Copper cable 2 x 120 – 300 mm²
Cu strip (2x) 11 x 21 x 1 mm

DESCRIPTION	TYPE	ORDER NO.
3 POLE		
Connection terminals for connection width extension, 500 A for cable	MC3-XK300	MC390782
Connection terminals for connection width extension, 630 A for strip	MC3-XK22X21	MC390784
4 POLE		
Connection terminals for connection width extension, 500 A for cable	MC3-4-XK300	MC390783
Connection terminals for connection width extension, 630 A for strip	MC3-4-XK22X21	MC390785

PHASE SEPERATOR PLATE FOR MC3



MC4-XKP

SCHRACK INFO

- Contains parts for one switch side located at top or bottom for 3- or 4-pole switches
- Supplied with the connection width extension
- Insulation protection where cable lugs, busbars or flat conductor are connected.
- Cannot be combined with tunnel terminal, rear-side connection

DESCRIPTION	TYPE	ORDER NO.
Phase seperator plate for MC3	MC3-XKP	MC390512
Phase seperator plate for MC3-4	MC3-4-XKP	MC390513

CONTROL CIRCUIT TERMINAL FOR MC3



MC196739

SCHRACK INFO

- Contains parts for two terminals located at top or bottom for 3/ 4 pole switches
- Included with tunnel terminal
- Terminal capacities: Screw connection 1 x 0,75 – 2,5 mm², 2 x 0,75 – 1,5 mm²

DESCRIPTION	TYPE	ORDER NO.
Control circuit terminal for box terminal MC3	MC3/4-XSTK	MC196739
Control circuit terminal for screw connection MC3	MC3/4-XSTS	MC396797

■ TERMINAL COVER FOR MC3



MC390045

■ SCHRACK INFO

- Protection against accidental contact when using cable lugs, rails or tunnel terminals
- Contains parts for one switch side located at top or bottom for 3- or 4-pole switches
- Degree of protection IP4X front, side and rear, IP1X on the connection side when using insulated conductor material
- Cover plate included with tunnel terminals

DESCRIPTION	TYPE	ORDER NO.
Terminal cover, 3 pole for MC3	MC3-XKSA	MC390045
Terminal cover, 4 pole for MC3-4	MC3-4-XKSA	MC396801

■ IP2X FINGER PROTECTION FOR DIRECT-MOUNTED MC3 SWITCHES



MC196744



MC196748

■ SCHRACK INFO

- Increases the protection against accidental contact to IP2X
- Protects when reaching into the cable connection area when cables are connected in box terminal
- For 2 conductors, maximum cross-section 70 mm²
- MC3-XIPA and MC3-4-XIPA only in combination with cover plate

DESCRIPTION	TYPE	ORDER NO.
FOR BOX TERMINAL		
Finger protection, 3 pole for MC3	MC3-XIPK	MC396804
Finger protection, 4 pole for MC3-4	MC3-4-XIPK	MC396805
FOR TERMINAL COVER		
Finger protection, 3 pole for MC3	MC3-XIPA	MC396808
Finger protection, 4 pole for MC3-4	MC3-4-XIPA	MC396809

INSULATED ENCLOSURE XCI



MC391525

SCHRACK INFO

- Only for switches with box terminals for direct cable connection
- With door coupling rotary handle
- Complete including all necessary functional parts
- Degree of protection IP65
- Comes with gland plates

TECHNICAL DATA

Enclosure suitable for installation of circuit-breakers and switch-disconnectors for separate mounting with top and bottom cable entry. Including fixing straps for wall mounting.

Short circuit protection at 415 V 50/60 Hz to 10 kA.

Not in combination with remote operator, plug-in- or withdrawable unit.

Additional insulated terminals for 4 or 5 pole must be ordered separately.

Available in the following versions:

Standard, black/grey

Lockable in the "0" position at handle with up to 3 padlocks. Additionally with cover interlock.

For Emergency stop, red/yellow

Lockable on handle and switch with up to 3 padlocks. Lockable in the "0" position on handle. Additionally with cover interlock and lockable at switch in the "0" position.

DESCRIPTION	MAX. RATED UNINTERRUPTED CURRENT	TYPE	ORDER NO.
STANDARD, BLACK/GREY			
Insulated enclosure for MC3(-4)	≤ 400 A	MC3-XCI48-TVD	MC391525
FOR EMERGENCY STOP, RED/YELLOW			
Insulated enclosure for MC3(-4)	≤ 400 A	MC3-XCI48-TVD	MC391530

ADDITIONAL INSULATED TERMINALS FOR MC3



MC294709

SCHRACK INFO

- For looping through the neutral and earth conductor
- 1 pole

DESCRIPTION	TERMINAL CAPACITY	TYPE	ORDER NO.
Additional insulated terminal 250 A	stranded, 1 x (35-150mm²), 2 x (16-70mm²)	K150/1/BR	MC294709
Additional insulated terminals 400 A	stranded, 1 x (50-240mm²), 2 x (25-120mm²)	K240/1/BR	MC397082
Additional insulated terminals 630 A	stranded, 1 x (240 – 300mm²), 2 x (50 – 240mm²)	K2x240/1/BR	MC399455

■ DEVICE ADAPTERS FOR CIRCUIT-BREAKERS AND SWITCH-DISCONNECTORS FOR 60 mm MC3 BUSBAR SYSTEM



MC391668

■ SCHRACK INFO

- Cover plate MC-XKR necessary for frame size 2 and 3.
- For mounting on flat copper rails 12 x 5 mm bis 30 x 10 mm
- Double T and triple T profile
- Snaps onto the voltage-free busbar
- Rated operational voltage, Ue: 690 V

■ TECHNICAL DATA

MC 3 up to 630 A:

- Connection to system from top
- For component adapter MC3-XKR13 with rear connection, cover plate needed

DESCRIPTION	TYPE	ORDER NO.
60 mm busbar adapter 550 A, 3 pole for MC3	32170	MC391700
Cover plate for component adapter, 3 pole	MC3-XKR13	MC391668
4 pole adapter with cover plate	MC3-4XKR13	upon request

■ DOOR SEALING FRAME FOR MC3



MC394645

■ SCHRACK INFO

- For toggle levers, rotary handles with rotary drive and remote operator
- Degree of protection IP40
- For rectangular cut-out on doors and enclosures with material thicknesses of 1,5 – 5 mm
- External warning plate/designation plate can be clipped on

DESCRIPTION	TYPE	ORDER NO.
Door sealing frame for MC3	MC3-XBR	MC394645

■ TOGGLE LEVER LOCKING DEVICE FOR MC3



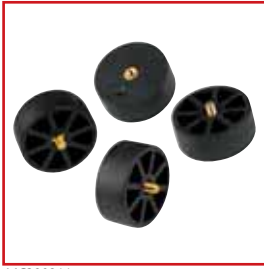
MC390201

■ SCHRACK INFO

- Off position lockable with up to 3 padlocks (hasp thickness 4 – 8 mm)
- Cannot be combined with Insulating surround

DESCRIPTION	TYPE	ORDER NO.
Toggle lever locking device for MC3	MC2/3-XKAV	MC290201

SPACERS FOR MC3



MC390211

SCHRACK INFO

- Enables fast and low-priced adjustment of a variety frame sizes with/without rotary handle or remote operator same front depth
- Grid depth 17,5 mm, thread M5
- Each set contains 4 x spacers
- 4 fastening screws included per switch

DESCRIPTION	TYPE	ORDER NO.
Spacers for MC3	MC3/4-XAB	MC390211

■ CIRCUIT BREAKER 3/4-POLE UP TO 1600A WITH ELECTRONIC RELEASE TYPES MC4N-AE, MC4H-AE, MC4N-4-AE, MC4H-4-AE



MC463232

■ SCHRACK INFO

- System and line protection
- 3 and 4 pole versions
- RMS value and "thermal memory"
- Adjustable overload release I_r: 0,5 – 1 x I_n (factory setting 0,8 x I_n)
- Adjustable short-circuit release I_s: 2 – 12 x I_n (factory setting 6 x I_n)
- Breaking capacity 50 / 85 kA at 415 V 50/60 Hz
- Screw terminals as standard
- Rated uninterrupted current = rated current

RATED CURRENT/ BREAKING CAPACITY	SETTING RANGE		TYPE	ORDER NO.
	OVERLOAD- RELEASE (A)	SHORT CIRCUIT- RELEASE (A)		
3 POLE (NORMAL BREAKING CAPACITY) 50 kA				
630 A/50 kA	315...630	1260...7560	MC4N-AE630	MC463232
800 A/50 kA	400...800	1600...9600	MC4N-AE800	MC480232
1000 A/50 kA	500...1000	2000...12000	MC4N-AE1000	MC410232
1250 A/50 kA	630...1250	2500...15000	MC4N-AE1250	MC412232
1600 A/50 kA	800...1600	3200...19200	MC4N-AE1600	MC416232

3 POLE (HIGH BREAKING CAPACITY) 85 kA

630 A/85 kA	315...630	1260...7560	MC4H-AE630	MC463332
800 A/85 kA	400...800	1600...9600	MC4H-AE800	MC480332
1000 A/85 kA	500...1000	2000...12000	MC4H-AE1000	MC410332
1250 A/85 kA	630...1250	2500...15000	MC4H-AE1250	MC412332
1600 A/85 kA	800...1600	3200...19200	MC4H-AE1600	MC416332

4 POLE (NORMAL BREAKING CAPACITY) 50 kA

630 A/50 kA	315...630	1260...7560	MC4N-4-AE630	MC463242
800 A/50 kA	400...800	1600...9600	MC4N-4-AE800	MC480242
1000 A/50 kA	500...1000	2000...12000	MC4N-4-AE1000	MC410242
1250 A/50 kA	630...1250	2500...15000	MC4N-4-AE1250	MC412242
1600 A/50 kA	800...1600	3200...19200	MC4N-4-AE1600	MC416242

4 POLE (HIGH BREAKING CAPACITY) 85 kA

630 A/85 kA	315...630	1260...7560	MC4H-4-AE630	MC463342
800 A/85 kA	400...800	1600...9600	MC4H-4-AE800	MC480342
1000 A/85 kA	500...1000	2000...12000	MC4H-4-AE1000	MC410342
1250 A/85 kA	630...1250	2500...15000	MC4H-4-AE1250	MC412342
1600 A/85 kA	800...1600	3200...19200	MC4H-4-AE1600	MC416342

Higher breaking capacity available upon request

■ CIRCUIT BREAKER 3-/4 POLE UP TO 2000A **WITH DELAYED ELECTRONIC RELEASE** **TYPES MC4N-VE, MC4H-VE, MC4N-4-VE, MC4H-4-VE**



MC480233

■ SCHRACK INFO

- System and line protection
- Selective and generator protection
- 3 and 4 pole versions
- Rated uninterrupted current = rated current

■ TECHNICAL DATA

- RMS value and "thermal memory"
- Adjustable overload release I_r : $0,5 - 1 \times I_n$ (factory setting $0,8 \times I_n$)
- Adjustable time delay setting to overcome current peaks t_r :
 $2 - 20 \text{ s}$ at $6 \times I_r$ as well as infinity
- Adjustable delayed short-circuit releases I_{sd} :
 $2 - 10 \times I_r$ (factory setting $6 \times I_r$)
- Adjustable time delay t_{sd} : Levels: 0, 20, 60, 100, 200, 300, 500, 750, 1000 ms (factory setting 0)
- Adjustable not-delayed short-circuit release I_i :
 $2 - 12 \times I_n$ (factory setting $12 \times I_n$)
- Switchable i^2t constant function (factory setting: OFF)
- MC4.-VE...: $2 - 12 \times I_n$ (factory setting $12 \times I_n$)
- MC4.-VE2000: $2 - 8 \times I_n$ (factory setting $8 \times I_n$)
- 2000A cannot be combined with withdrawable units

RATED CURRENT/ BREAKING CAPACITY	OVERLOAD- RELEASE (A)	SETTING RANGE		TYPE	ORDER NO.
		SHORT-CIRCUIT RELEASE			
		NOT DELAYED (A)	DELAYED (A)		
3 POLE (NORMAL BREAKING CAPACITY) 50 kA					
630 A/50 kA	315...630	1260...7560	630...6300	MC4N-VE630	MC463233
800 A/50 kA	400...800	1600...9600	800...8000	MC4N-VE800	MC480233
1000 A/50 kA	500...1000	2000...12000	1000...10000	MC4N-VE1000	MC410233
1250 A/50 kA	630...1250	2500...15000	1250...12500	MC4N-VE1250	MC412233
1600 A/50 kA	800...1600	3200...19200	1600...16000	MC4N-VE1600	MC416233
2000 A/50 kA AC1	1000...2000	4000...16000	2000...12000	MC4N-VE2000	MC420233

3 POLE (HIGH BREAKING CAPACITY) 150 kA					
630 A/150 kA	315...630	1260...7560	630...6300	MC4H-VE630	MC463333
800 A/150 kA	400...800	1600...9600	800...8000	MC4H-VE800	MC480333
1000 A/150 kA	500...1000	2000...12000	1000...10000	MC4H-VE1000	MC410333
1250 A/150 kA	630...1250	2500...15000	1250...12500	MC4H-VE1250	MC412333
1600 A/150 kA	800...1600	3200...19200	1600...16000	MC4H-VE1600	MC416333
2000 A/150 kA AC1	1000...2000	4000...16000	2000...12000	MC4H-VE2000	MC420333

4 POLE (NORMAL BREAKING CAPACITY) 50 kA					
630 A/50 kA	315...630	1260...7560	630...6300	MC4N-4-VE630	MC463243
800 A/50 kA	400...800	1600...9600	800...8000	MC4N-4-VE800	MC480243
1000 A/50 kA	500...1000	2000...12000	1000...10000	MC4N-4-VE1000	MC410243
1250 A/50 kA	630...1250	2500...15000	1250...12500	MC4N-4-VE1250	MC412243
1600 A/50 kA	800...1600	3200...19200	1600...16000	MC4N-4-VE1600	MC416243

4 POLE (HIGH BREAKING CAPACITY) 150 kA					
630 A/150 kA	315...630	1260...7560	630...6300	MC4H-4-VE630	MC463343
800 A/150 kA	400...800	1600...9600	800...8000	MC4H-4-VE800	MC480343
1000 A/150 kA	500...1000	2000...12000	1000...10000	MC4H-4-VE1000	MC410343
1250 A/150 kA	630...1250	2500...15000	1250...12500	MC4H-4-VE1250	MC412343
1600 A/150 kA	800...1600	3200...19200	1600...16000	MC4H-4-VE1600	MC416343

SWITCH DISCONNECTOR 3-/4 POLE UP TO 1600A, REMOTE TRIP POSSIBLE TYPES MC4-N, MC4-N-4



MC480233

SCHRACK INFO

- 3 and 4 pole versions
- Main switch characteristics including positive drive according to IEC/EN 60204 & VDE 0113
- Isolating characteristics to IEC/EN 60947-3 and VDE 0660 Protection against accidental contact to VDE 0160 Part 100
- Rated uninterrupted current up to 1600A
- Switch disconnecter MC4-N, with trip setting "0"; "+"; "I", can be tripped remotely with undervoltage-/shunt release, trip-indicating auxiliary contacts also possible
- Can be combined with remote operator MC-XR...
- Screw terminals as standard
- Rated uninterrupted current = Rated current
- Rated short-circuit breaking capacity values: I_{cm} 53kA
- Rated short-time withstand current: I_{cw} 25kA

RATED UNINTERRUPTED CURRENT	MAX. BACK-UP FUSE (gL) FOR SWITCH DISCONNECTOR (AgL)	TYPE	ORDER NO.
3 POLE CAN BE TRIPPED REMOTELY			
800 A	1600	MC4-N-800	MC480035
1000 A	1600	MC4-N-1000	MC410035
1250 A	1600	MC4-N-1250	MC412035
1600 A	1600	MC4-N-1600	MC416035
4 POLE CAN BE TRIPPED REMOTELY			
800 A	1600	MC4-N-4-800	MC480045
1000 A	1600	MC4-N-4-1000	MC410045
1250 A	1600	MC4-N-4-1250	MC412045
1600 A	1600	MC4-N-4-1600	MC416045

SOCKET BASE AND WITHDRAWABLE MODULE FOR MC4



MC396707



MC396707

SCHRACK INFO

- 3- and 4 pole versions
- for MC4 circuit breakers and MC4-N switch disconnectors

TECHNICAL DATA

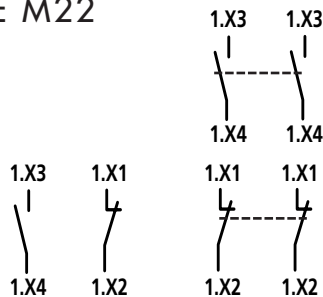
- Withdrawable unit complete with control circuit plug unit
- I_n max. at 20°C – 1600A
- I_n max. at 40°C – 1500A
- Mounting position: vertical
- 3 positions: Retracted, test, extended. The 3 positions are indicated mechanically.
- Auxiliary contacts can also be used for remote signaling. Either one N/C or N/O contact per position.
- All connections of auxiliary switches (HIA, HIN, HIV) and undervoltage and shunt releases to the control circuit plug units come pre-fitted.
- **Withdrawable module only available in combination with switch.**
- Add A to switch part number (MC340232A), comes supplied ready for use with withdrawable units.
- Socket base can be ordered separately and supplied pre-assembled.

DESCRIPTION	TYPE	ORDER NO.
SOCKET BASE		
Socket base, 3 pole	MC4-XAVS	MC496713
Socket base, 4 pole	MC4-4-XAVS	MC496714
WITHDRAWABLE MODULE		
Withdrawable module, 3 pole, supplied with switch, add an A to end of switch part number		
Withdrawable module, 4 pole, supplied with switch, add an A to end of switch part number		

STANDARD AUXILIARY CONTACT / TRIP-INDICATING AUXILIARY CONTACT TYPE M22



MM216378



SCHRACK INFO

- Switches with the main contacts, used for indicating and interlocking tasks
- General trip indication "+" with trip due to voltage release, overload release or short-circuit-release

TECHNICAL DATA

Breaking capacity: AC15: 4 A / 230 VAC
DC13: 3 A / 24 VDC

TIPS & TRICKS

The trip-indicating auxiliary contacts is the same contact as the standard auxiliary contact. It derives its function from where it is installed (alarm contact on left).

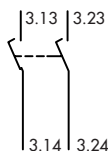
Maximum component installation with auxiliary contacts: 3 x Standard auxiliary contact (HIN) M22-K. or M22-CK..
+ 2 x Trip-indicating contact (HIA) M22-K. or M22-CK..

DESCRIPTION	TYPE	ORDER NO.
1 NO contact with screw terminals	M22-K10	MM216376
1 NC contact with screw terminals	M22-K01	MM216378
2 NO contacts with cage clamp terminals	M22-CK20	MM107898
2 NC contacts with cage clamp terminals	M22-CK02	MM107899

EARLY-MAKE AUXILIARY CONTACT TYPE MC4-XHIV



MC496172



SCHRACK INFO

For interlock- and load-shedding circuits as well as for early make of undervoltage release in main switch/Emergency stop applications.

TECHNICAL DATA

- Not in connection with undervoltage release MC4-XU... or shunt release MC4-XA... Early-make during switch on and off (manual switch): approx. 20 ms
- Not in connection with remote operator MC-XR
- Breaking capacity: AC15: 4 A / 230 VAC
DC13: 3 A / 24 VDC

TIPS & TRICKS

Maximum component installation with auxiliary contacts:

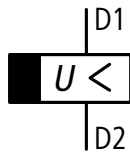
1 x early-make auxiliary contact

DESCRIPTION	TYPE	ORDER NO.
Early-make auxiliary contact, 2 NO	MC4-XHIV	MC496172

■ UNDERVOLTAGE RELEASE TYPES MC4-XU



MC496189



■ SCHRACK INFO

- For use in Emergency stop devices in connection with Emergency stop buttons
- Installed in breaker
- Without auxiliary contact
- Non-delayed breaking of circuit breaker MC/ switch disconnecter MC-N when the control voltage drops below 35 % - 70% U_s .

■ TECHNICAL DATA

When the undervoltage release is de-energized, accidental contact with the main contacts of the switch is safely prevented during attempts to switch on. Undervoltage releases cannot be installed at the same time with operating current releases or early-make auxiliary contact, type MC4-XHIV.

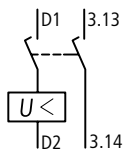
VOLTAGE	TYPE	ORDER NO.
24 VAC	MC4-XU24AC	MC496189
24 V DC	MC4-XU24DC	MC496204
208-240 V AC	MC4XU208-240AC	MC496193
380-440 V AC	MC4-XU380-440AC	MC496194

Other voltage variants available upon request.

■ UNDERVOLTAGE RELEASE WITH TWO EARLY-MAKE AUXILIARY CONTACTS TYPES MC4-XHIV



MC496221



■ SCHRACK INFO

- With 2 early-make auxiliary contacts
- For early-make of the undervoltage release in main switch applications and for interlock- and load-shedding circuits
- Installed in breaker
- Other voltages and connection versions available on request

■ TECHNICAL DATA

When the undervoltage release is de-energized, accidental contact with the main contacts of the switch is safely prevented during attempts to switch on. Early-make of auxiliary contacts during switch on and off (20ms). Undervoltage releases cannot be installed at the same time with operating current releases or early-make auxiliary contact, type MC4-XHIV.

VOLTAGE	TYPE	ORDER NO.
208 - 240 VAC	MC4-XUHIV230VAC	MC496221
380 - 440 VAC	MC4-XUHIV400VAC	MC496222

Other voltage variants available upon request.

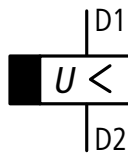
UNDervOLTAGE RELEASE, OFF-DELAY TYPES MC4-UVU, MC4-XUV



MC196154



MC299499



SCHRACK INFO

- Voltage drops less than 0,07–16 s do not cause MC circuit breakers or N switch disconnectors to trip.
- Suitable for voltages:
220 – 240 VAC 50/60 Hz
380 – 440 VAC 50/60 Hz
480 – 550 VAC 50/60 Hz
24 VAC/DC

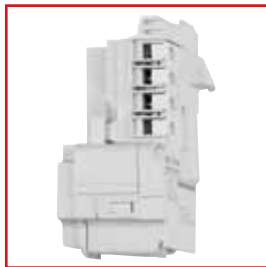
TECHNICAL DATA

- Time-delay adjustable between 70 ms – 4 s
- With additional external capacitor:
30.000 µF ≥ 35 V to 8 s
90.000 µF ≥ 35 V to 16 s
- Special release MC4-XUVL is required.
- Cannot be installed at same time with early-make auxiliary contact MC4-XHIV... or operating current trip MC4-XA....
- Time-delay device for separate assembly (fixing: Top-hat rail or screws).
- For other operating voltages, please use a control transformer.

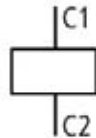
NAME	TYPE	ORDER NO.
Time-delay unit	MC4-UVU	MC196154
Special undervoltage release for time-delay unit MC4	MC4-XUV	MC496596

Other voltage variants available upon request.

SHUNT RELEASE TYPES MC4-XA



MC496451



SCHRACK INFO

- Without auxiliary contact
- Switches are tripped by a voltage pulse or by the application of uninterrupted voltage

TECHNICAL DATA

When the shunt release is energized, accidental contact with the main contacts of the switch is safely prevented during attempts to switch on. Undervoltage releases cannot be installed at the same time with undervoltage release or early-make auxiliary contact, type MC4-XHIV.

VOLTAGE	TYPE	ORDER NO.
24 VAC/DC	MC4-XA24AC/DC	MC496447
208 - 250 VAC/DC	MC4-XA230AC/DC	MC496451

Other voltage variants available upon request.

REMOTE OPERATOR FOR MC4



MC496685

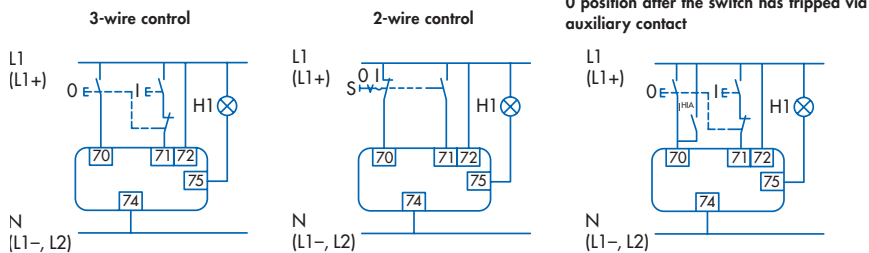
SCHRACK INFO

- Remote operator can be combined with circuit breaker MC and switch disconnecter MC-N, but not with switch disconnecter MC-PN.
- Do not switch off switch simultaneously via remote control and release via undervoltage/shunt release.

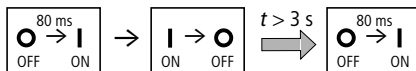
TECHNICAL DATA

- On/Off breaking and reset by means of 2-wire or 3-wire control.
- Can be synchronized
- Breaking time On: ≤ 100 ms
- Local manual breaking possible
- Pause between Off and On: 3 sec.
- On command is ignored
- Function of Terminal 75:
Ready for operation signal, when cover is closed and not locked.
AC-15: 2 A/400 V
DC-13: 0,2 A/220 V

CIRCUIT DIAGRAMS



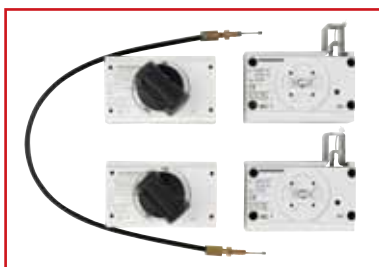
BREAKING CYCLE



VOLTAGE	TYPE	ORDER NO.
208 - 240 V AC	MC4-XR208-240AC	MC496685

Other voltage variants available upon request.

MECHANICAL INTERLOCK FOR (DOOR COUPLING) ROTARY HANDLES FOR MC4



MC491584

SCHRACK INFO

Rotary handle on switch or door coupling rotary handle additionally required.

Cannot be combined with remote operator or insulating surround.

At least 2 interlocking modules are required in order to construct a mechanical interlocking circuit. See Page 142 for possible combinations and variations in interlocking circuits. Bowden cable to be ordered separately.

DESCRIPTION	TYPE	ORDER NO.
Mechanical interlock	MC4-XMV	MC491584
Bowden cable 225 mm	MC-XBZ225	MC191585
Bowden cable 600 mm	MC-XBZ600	MC191586
Bowden cable 1000 mm	MC-XBZ1000	MC191587

MECHANICAL INTERLOCK FOR REMOTE OPERATOR FOR MC4



MC294543



MC494547 - montiert

SCHRACK INFO

- For 2 switches of the same or next frame size side by side
- Side-by-side mounting
- Mounted on top of each other, long version
- Contains parts for 2 switches
- Remote operator also required
- For maximum breaking distance, see Page 143

NOTES

Cannot be combined with rotary handles, door coupling rotary handles and early-make auxiliary contacts.

DESCRIPTION	TYPE	ORDER NO.
Mechanical interlock for MC4	MC4-XMVR	MC494547
Mechanical interlock for MC4, long version	MC4X-MXRL	MC494552
Mechanical interlock for MC3/4	MC3/4-XMVR	MC394546
Mechanical interlock for MC3/4, long version	MC3/4-XMVRL	MC394551

ROTARY HANDLE DIRECTLY ON SWITCH FOR MC4



MC496608

SCHRACK INFO

- Complete with rotary drive
- Can also be combined with door frame

TECHNICAL DATA

Available in the following versions:

Type MC.-XDV

Lockable in the "0" position (up to three padlocks), black/grey

Type MC.-XDVR

Lockable in the "0" position (up to three padlocks), Emergency stop red/yellow

Type MC.-XDTV

Lockable in the "0" position on handle, modification also available in "1" position, black/grey

Type MC.-XDTV

Lockable in "0" position, Emergency Stop red/yellow

Version comes with door interlock:

- Door frame supplier with door interlock
- Rotary handle can be rotated 90° for switches mounted horizontally
- In the ON position, can be defeated from the outside using a 1 mm pin
- Cannot be defeated in the locked OFF and ON positions
- Door can be opened in OFF
- Can only be switched on when door closed

DESCRIPTION	TYPE	ORDER NO.
Lockable rotary handle for MC4, black/grey	MC4-XDV	MC496608
Lockable rotary handle for MC4, Emergency stop red/yellow	MC4-XDVR	MC496610

DOOR COUPLING ROTARY HANDLE FOR MC4



MC494614



MC494614



MC494614

SCHRACK INFO

- Complete including rotary drive and coupling parts
- Degree of Protection IP66
- Rotary handle can be rotated 90° for switches mounted horizontally
- Cannot be defeated in the locked OFF and ON positions
- Can be modified when in the unlocked ON position, can be defeated from the outside with a screwdriver
- Door can be opened in OFF
- External warning plate/designation plate can be clipped on

NOTES

- Order extension shaft separately!

TECHNICAL DATA

Available in the following versions:

Type MC.-XTVD

Lockable in the "0" position on handle with up to three padlocks, with door interlock, black/grey

Type MC.-XTVDV

Lockable in the "0" position on handle and switch, with up to three padlocks, with door interlock, black/grey

Type MC.-XTVDVR

Lockable in the "0" position on handle and switch with up to three padlocks, with door interlock, Emergency stop red/yellow

DESCRIPTION	TYPE	ORDER NO.
Door-coupling rotary handle for MC4 with door interlock, lockable, black/grey	MC4-XTVD	MC496614
Door coupling rotary handle for MC4 with door interlock, lockable, "0", "1", black/grey	MC4-XTVDV	MC496616
Door coupling rotary handle for MC4 with door interlock, lockable, Emergency stop red/yellow	MC4-XTVDVR	MC496618

EXTENSION SHAFT FOR MC4



MC391234

SCHRACK INFO

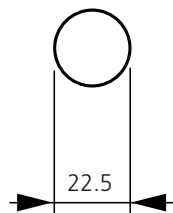
- For maximum cabinet depths of 400 or 600 mm
- Can be cut to required length

DESCRIPTION	CABINET DEPTH	TYPE	ORDER NO.
Extension shaft for MC4	max. 400 mm	MC3/4-XV4	MC391234
Extension shaft for MC4	max. 600 mm	MC3/4-XV6	MC390193

TUNNEL TERMINAL FOR MC4



MC496836



SCHRACK INFO

- Installed external to switch housing
- Contains parts for one switch side located at top or bottom for 3 pole switches
- Comes with terminal for control circuit cabling as standard for copper conductors, 1 x 0,75 – 2,5 mm², or 2 x 0,75 – 1,5 mm²
- Terminal capacities:
Cu/Al cable 1 x 50 – 240 mm², 4 x 50 – 240 mm²

TECHNICAL DATA

- For Cu- and Al cables, max. 1400A
- Includes cover plate
- Stranded round conductor / stranded sector-shaped conductor

DESCRIPTION	TYPE	ORDER NO.
Tunnel terminal 4 x 240 mm ² , 3-pole for MC4	MC4-XKA	MC496836
Tunnel terminal 4 x 240 mm ² , 4-pole for MC4	MC4-4-XKA	MC496837

RIBBON CABLE FOR MC4



MC496829

SCHRACK INFO

- $I_n \leq 1100$ A
- When mounting switch on conductive mounting plates you must use supplied cover plate MC4(-4)-XKSA
- Use cover plate for phase separator plates
- Contains parts for one switch side, top or bottom

DESCRIPTION	TYPE	ORDER NO.
Flat conductor terminal, 3 pole for MC4/MC4-N	MC4-XKB	MC496829
Flat conductor terminal, 4 pole for MC4-4/MC4-N-4	MC4-4-XKB	MC496831

CABLE LUG FOR MC4



MC299776

SCHRACK INFO

- Special cable lug in slimline design
- Cable lugs must be insulated when using without a cover plate.

DESCRIPTION	TYPE	ORDER NO.
Cable lug 185 mm ² , for MC4	MC3/4-XKS185	MC390040
Cable lug 240 mm ² , for MC4	MC3/4-XKS240	MC390041

REAR CONNECTION FOR MC4



MC396792

SCHRACK INFO

- Contains parts for one switch side, top or bottom
- Can be retrofitted:
Module plate MC4...-XKM... or connection width extension MC4-...-XKV...
- Max. terminal capacities 1250A:
Copper cable lug 1 x 120 – 185 mm², 2 x 95 – 185 mm², 4 x 35 – 185 mm²
Al cable lug 1 x 185 mm², 2 x 70 – 185 mm², 4 x 50 – 185 mm²

DESCRIPTION	TYPE	ORDER NO.
Rear connection, 3-pol. for MC4	MC4-XKR	MC496842

MODULE PLATE FOR MC4



MC496814



MC496820



MC494473

SCHRACK INFO

- For M10 screws, can be bored for M12 screws
- Use special cable lugs in slimline design
- Can be mounted to switch with screw connection
- Contains parts for one switch side, top or bottom
- Insulated using cover plate MC4(-4)-XKSA or phase isolator MC4(-4)-XKP necessary

TECHNICAL DATA

- Terminal capacities, 1 bore: Copper cable lug 1 x 120 – 300 mm², 2 x 95 – 300 mm²
- Terminal capacities, 2 bore: Copper cable lug 2 x 95 – 185 mm², 4 x 35 – 185 mm²
- Connection width extension: 2 x 95 – 300

DESCRIPTION	TYPE	ORDER NO.
3 POLE		
Module plate 1 bore for MC4/MC4-N, $I_n \leq 1250$ A	MC4-XKM1	MC496814
Module plate 2 bore for MC4/MC4-N, $I_n \leq 1400$ A	MC4-XKM2	MC496820
Connection extension MC4 3 pole 1600 A	MC4-XKM2S-1600	MC494473
4 POLE		
Module plate 1 bore for MC4-4/MC4-N-4, $I_n \leq 800$ A	MC4-4-XKM1	MC496815
Module plate 2 bore for MC4-4/MC4-N-4, $I_n \leq 1000$ A	MC4-4-XKM2	MC496821
Connection extension MC4 4 pole 1600 A	MC4-4-XKM2S-1600	MC494474

CONNECTION WIDTH EXTENSION FOR MC4



MC496826

SCHRACK INFO

- Contains parts for one switch side located at top or bottom for 3 or 4 pole switches incl. phase separator
- 5x bore for up to 6 cable lugs per phase
- Can be mounted to switch with screw connection
- Phase separator supplied
- 4 mm bore holes fitted for control circuit terminal
- Terminal capacities: Copper cable lug 4 x 300 mm², 6 x 95 – 240 mm²

TECHNICAL DATA

Distance between pole centres, MC4(-4)-XKV95:	95 mm
Installation possible for current transformer:	up to width 130 mm given rail width of 80 mm
Distance between pole centres, MC4-XKV110:	107,5 mm
Installation possible for current transformer:	up to width 135 mm given rail width of 80 mm
Distance between pole centres, MC4-4-XKV120:	122 mm
Installation possible for current transformer:	up to width 164 mm given rail width of 80 mm

DESCRIPTION	TYPE	ORDER NO.
Connection extension MC4 3 pole 1600 A	MC4-XKV95	MC496826
Connection extension MC4 4 pole 1600 A	MC4-4-XKV95	MC496827
Connection extension MC4 3 pole 1600 A long version	MC4-XKV110	MC491593
Connection extension MC4 4 pole 1600 A long version	MC4-4-XKV120	MC491594

TERMINAL COVER FOR MC4



MC496846

SCHRACK INFO

- Protection against accidental contact when using cable lugs, rails or Tunnel terminals
- Contains parts for one switch side located at top or bottom 3- or 4 pole switches
- Degree of protection IP4X front, side and rear, IP1X on the connection side when using insulated conductor material
- Cover plate included with tunnel terminals

DESCRIPTION	TYPE	ORDER NO.
Terminal cover, 3 pole for MC4	MC4-XKSA	MC496846
Terminal cover, 4 pole for MC4	MC4-4-XKSA	MC496847

■ ADDITIONAL INSULATED TERMINALS FOR MC4



MC397082

■ SCHRACK INFO

- For looping through the neutral and earth conductor
- 1 pole

DESCRIPTION	TERMINAL CAPACITY	TYPE	ORDER NO.
Additional insulated terminals 400 A	stranded, 1 x (50-240mm ²), 2 x (25-120mm ²)	K240/1/BR	MC397082
Additional insulated terminal 630 A	stranded, 1 x (240 – 300mm ²), 2 x (50 – 240mm ²)	K2x240/1/BR	MC399455

■ DOOR SEALING FRAME FOR MC4



MC394645

■ SCHRACK INFO

- For toggle levers, rotary handles with rotary drive and remote operator
- Degree of protection IP40
- For rectangular cut-out on doors and enclosures with material thicknesses of 1,5 – 5 mm
- External warning plate/designation plate can be clipped on

DESCRIPTION	TYPE	ORDER NO.
Door sealing frame for MC4	MC4-XBR	MC494646

■ SPACERS FOR MC4



MC390211

■ SCHRACK INFO

- Enables fast and low-priced adjustment of a variety frame sizes with/without Rotary handle or remote operator same front depth
- Grid depth 17,5 mm, thread M5
- Each set contains 4 x spacers
- 4 fastening screws included per switch

DESCRIPTION	TYPE	ORDER NO.
Spacers for MC4	MC3/4-XAB	MC390211

RESIDUAL CURRENT RELEASE RELAY WITH CONVERTER

RESIDUAL CURRENT (RCD) RELEASE RELAY, FIR



MC900001



MC900002



MC900003

SCHRACK INFO

Residual current release relay in combination with core-balance transformers. Switch-off can be achieved with undervoltage- and shunt releases or a contactor.

TECHNICAL DATA

Version corresponds to:	IEC 947-2, IEC 755, IEC 1008, IEC 1009			
Sensitivity:	Pulse current sensitive, type A			
Rated control voltage U_s (V):	230 +/- 20% (50/60 Hz)			
Rated operational voltage P_e (W):	3			
Relay contacts:	1 integral C/O			
Rated voltage of the relay contacts:	250 V AC			
	100 V DC			
Rated current of the relay contacts:	6 A			
Rated fault currents:	FIR-003	$I_{\Delta n}$	A	0.03
	FIR-03	$I_{\Delta n}$	A	0.3
	FIR-5	$I_{\Delta n}$	A	0.03 – 0.1 – 0.3 – 0.5 – 1 – 3 – 5
Time delay:	FIR-003	t_v	s	0.02 (non-delayed)
	FIR-03	t_v	s	0.02 (non-delayed)
	FIR-5	t_v	s	0.02 – 0.1 – 0.3 – 0.5 – 1 – 3 – 5
Fault current warning with FIR-5 through flashing red LED:	0.5Hz: 25% – 50% $I_{\Delta n}$			
	1Hz: 50% – 75% $I_{\Delta n}$			
	2Hz: 75% – <100% $I_{\Delta n}$			

DESCRIPTION	TYPE	ORDER NO.
Rated fault current $I_{\Delta n}$ = 0.03 A Pulse current sensitive	FIR-003	MC900001
Rated fault current $I_{\Delta n}$ = 0.3 A Pulse current sensitive	FIR-03	MC900002
Rated fault current $I_{\Delta n}$ = 0.03...5 A Pulse current sensitive	FIR-5	MC900003

RESIDUAL CURRENT RELEASE RELAY WITH CONVERTER

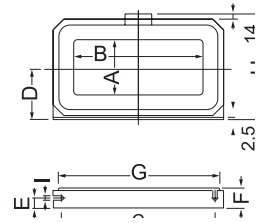
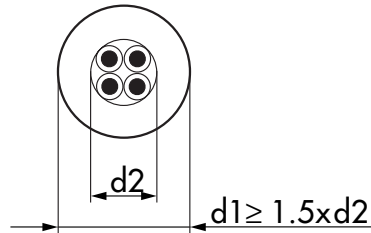
CORE-BALANCE TRANSFORMER FRI-WS, FIR-WR



MC900070



MC910305



SCHRACK INFO

The internal diameter of the transformer d_1 must be 1,5x wider than the average cross-section d_2 of the inserted conductors.

For load circuits with inrush current $> 4 \times I_n$, magnetic shielding is required (available upon request).

TECHNICAL DATA

Rectangular core-balance transformer

Type	A	B	C	D	E	F	G	H	I
FIR-WR-175	70	175	225	85	22	46	261	176	7,5
FIR-WR-305	115	305	360	116	25	55	402	240	8
FIR-WR-350	150	350	415	140	28	55	460	285	8

Round core-balance transformer

Max. nominal current		Diameter	
Power distribution (A)	Motor/capacitor (A)	Transformer type FIR-W-... d1	Maximum conductor cross-section (mm) d2
50	50	20	13
150	100	30	20
150	100	35	23
400	200	70	47
600	250	105	70
1200	630	140	93
1800	800	210	140

DESCRIPTION	TYPE	ORDER NO.
ROUND CORE-BALANCE TRANSFORMER		
Internal diameter 20 mm	FIR-WS-20	MC900020
Internal diameter 30 mm	FIR-WS-30	MC900030
Internal diameter 35 mm	FIR-WS-35	MC900035
Internal diameter 70 mm	FIR-WS-70	MC900070
Internal diameter 105 mm	FIR-WS-105	MC900105
Internal diameter 140 mm	FIR-WS-140	MC900140
Internal diameter 210 mm	FIR-WS-210	MC900210

RECTANGULAR CORE-BALANCE TRANSFORMER

70x175 mm	FIR-WR-175	MC910175
115x305 mm	FIR-WR-305	MC910305
150x350 mm	FIR-WR-350	MC910350

MO AIR CIRCUIT BREAKERS



NOMINAL CURRENT MAX 6300 A, 3 SWITCHING CAPACITY CLASSES, 6 ELECTRONIC RELEASES, 3- AND 4-POLE VERSIONS

MO air circuit breakers offer full coverage of the 630 - 6300A range with just three contact frame sizes. The nominal current of all contacts can be optimally adjusted to the expansion stage using rating plugs. The smallest rating plug has 250A and at that even with a setting range of 0.4 to 1xI_n.

STANDARD DIMENSIONS, EASY TO PLAN

The MO has a uniform frame height and -depth for all current ranges. Only the width of the circuit breaker varies, depending on the number of poles and the frame size. MOs for permanent installation and withdrawable models have identical widths.

CONNECTION SYSTEM

MO circuit breakers up to 5000A come with horizontal connections as standard. The MO 6300A is fitted with vertical connections. The following connections are available as optional extras: Vertical connections, front-side connections and flange connections.

RATED CURRENT MODULE

This replaceable module allows the user to reduce the nominal current of the device for optimal system adjustment, e.g. when commissioning a sub-system. The correct rating plug to choose is one which most closely matches the system's nominal current.

FRAME SIZE AND SHORT-CIRCUIT BREAKING CAPACITY

FRAME SIZE 1	FRAME SIZE 2	FRAME SIZE 3
250A	250A	
315A	315A	
400A	400A	
500A	500A	
630A	630A	
700A	700A	
800A	800A	
1000A	1000A	
1250A	1250A	1250A
1600A	1600A	1600A
	2000A	2000A
	2500A	2500A
	3200A	3200A
		4000A
		5000A
		6300A

RATED BREAKING CAPACITY

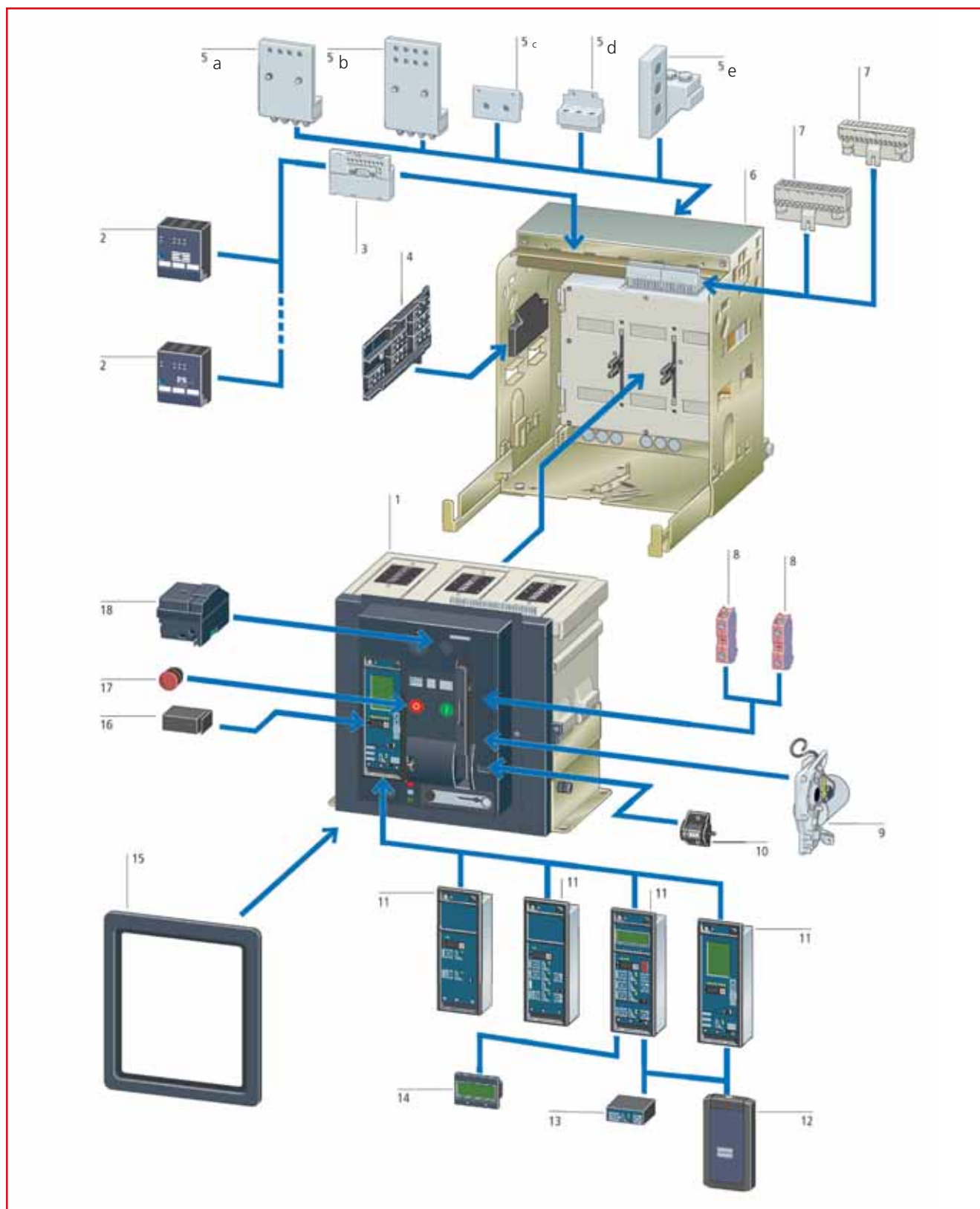
I_{cu} at AC 500V (kA) / I_{cs} at DC 300V (kA):

Frame Size 1: B = 55 kA, N = 66 kA

Frame Size 2: B = 66 kA, N = 80 kA

Frame Size 3: H = 100 kA

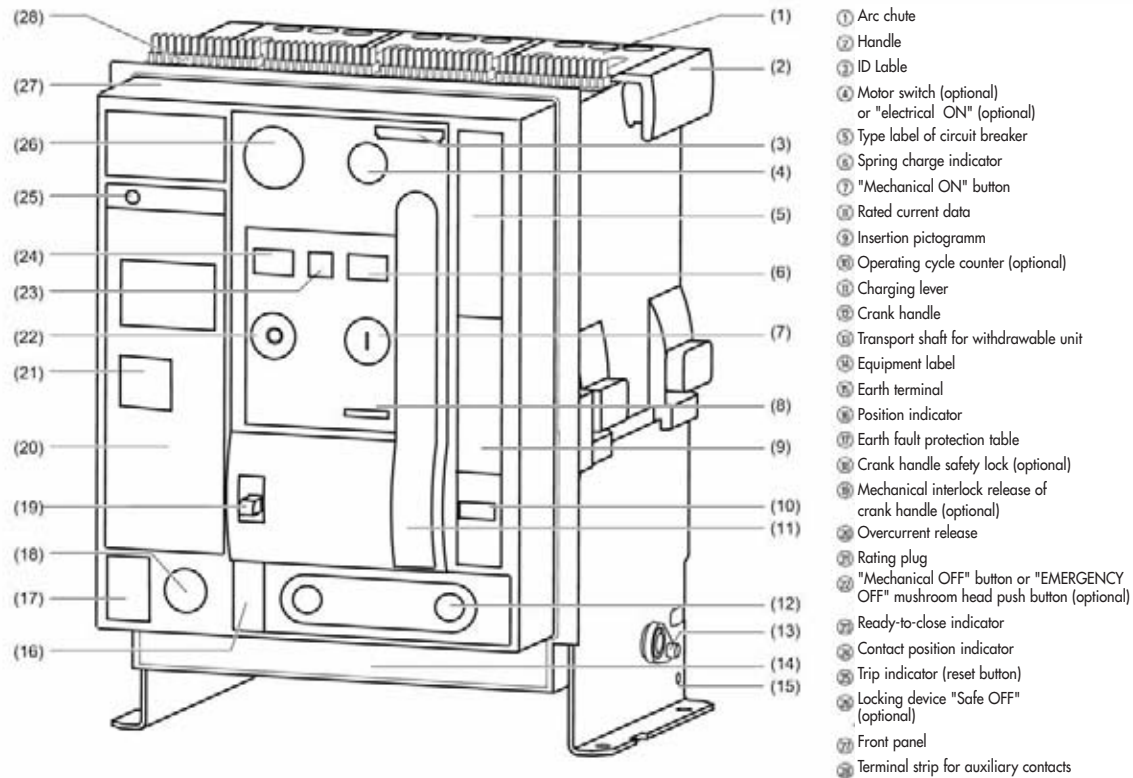
MO AIR CIRCUIT BREAKERS – SYSTEM OVERVIEW



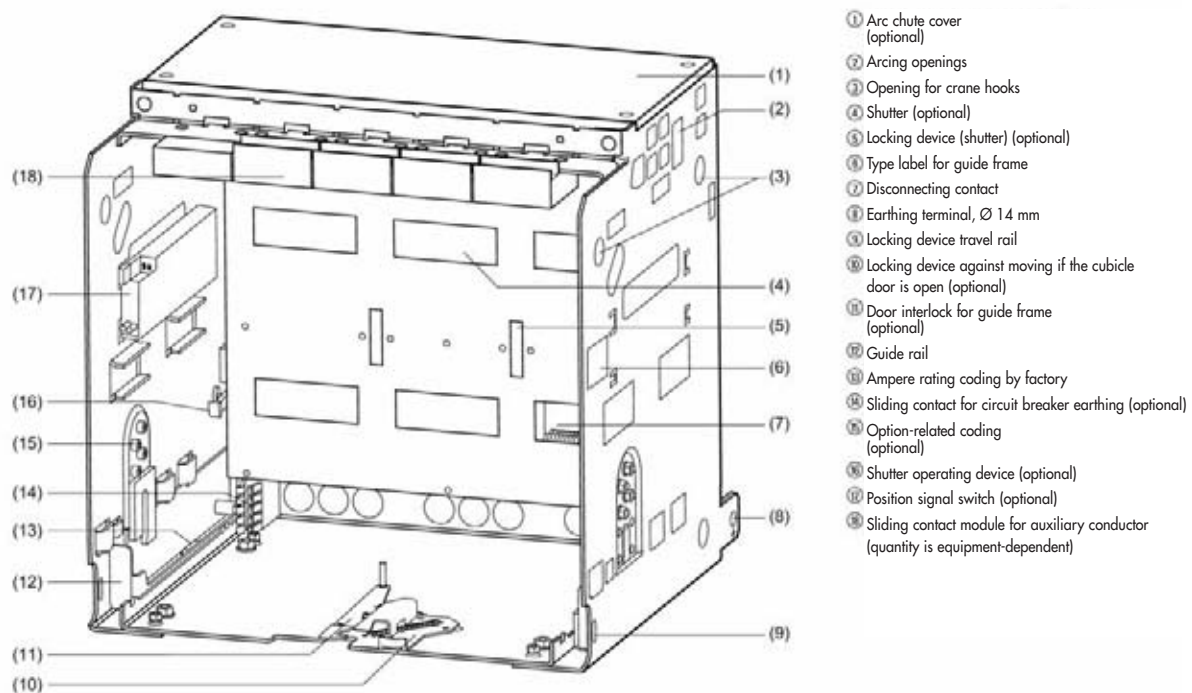
- | | | |
|--|-------------------------------------|--|
| 1. MO circuit breaker,
between 630A and 6.300 A | c. Flange connection | 12. Parametric device |
| 2. External expansion modules | d. Horizontal connection, rear-side | 13. Earth-fault protection module |
| 3. Communication module for PROFIBUS | e. Vertical connection, rear-side | 14. 4-line LCD display |
| 4. Position indicator contact:
Module for guide frame | 6. Guide frame | 15. Door sealing frame |
| 5. Main connection elements: | 7. Auxiliary plug connector | 16. Rating plug |
| a. Front connection | 8. Auxiliary contact | 17. EMERGENCY STOP mushroom
push button |
| b. Front connection, double bole | 9. Motor operator | 18. Closing magnet, voltage release |
| | 10. Operating cycle counter | |
| | 11. Electronic release | |

MO AIR CIRCUIT BREAKERS – BREAKDOWN OF FUNCTIONS

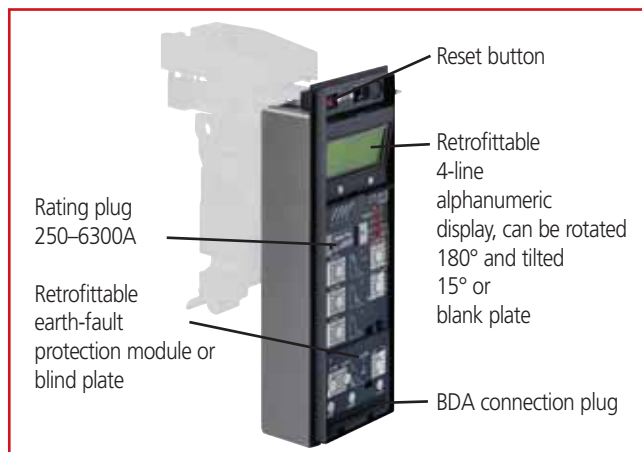
CIRCUIT BREAKERS



GUIDE FRAME



FUNCTIONS OF THE ETU (ELECTRONIC TRIP UNITS) OVERCURRENT RELEASE



FUNCTIONS OF THE OVERCURRENT RELEASE		ETU15B	ETU25B	ETU27B
BASIC PROTECTION FUNCTIONS				
Overload protection	L	✓	✓	✓
Short-time delayed short-circuit protection	S	--	✓	✓
Instantaneous short-circuit protection	I	✓	✓	✓
Neutral conductor protection	N	--	--	✓
Earth-fault protection	G	--	--	✓
ADDITIONAL FUNCTIONS				
Neutral conductor protection can be switched off		--	--	✓
Neutral conductor protection can be adjusted		--	--	--
Short-time-delayed short-circuit protection can be switched on/off		--	--	--
Instantaneous short-circuit protection can be switched on/off		--	--	--
Thermal memory can be switched on/off		--	--	--
Load monitoring		--	--	--
Short-time-delayed short-circuit protection can be switched to I^2t		--	--	--
Instantaneous short-circuit protection can be adjusted		✓	--	--
Overload protection switch-selectable I^4t		--	--	--
Overload protection can be switched on/off		--	--	--
Switch-selectable parameter sets		--	--	--
PARAMETERISATION AND DISPLAY				
Parameterisation by rotary switch (10 steps)		✓	✓	✓
Parameterisation by communication (absolute values)		--	--	--
Parameterisation by menu (absolute values)		--	--	--
Parameterisation of additional protection functions		--	--	--
LCD, alphanumeric		--	--	--
LCD, graphical		--	--	--

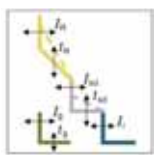
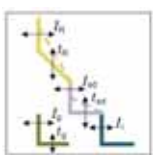
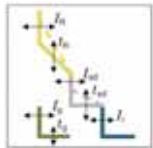
METERING FUNCTION

Metering function Plus	--	--	--
------------------------	----	----	----

COMMUNICATION

CubicleBUS	--	--	--
Communication via PROFIBUS-DP	--	--	--
Communication via Ethernet	--	--	--

✓ Standard -- not available □ optional

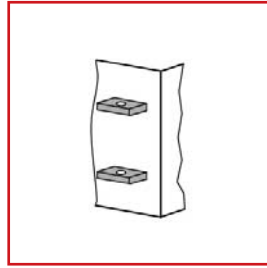


ETU45B	ETU55B	ETU76B
✓	✓	✓
✓	✓	✓
✓	✓	✓
✓	✓	✓
□	□	□
✓	✓	✓
✓	✓	✓
✓	✓	✓
✓	✓	✓
✓	✓	✓
✓	✓	✓
✓	✓	✓
✓	✓	✓
✓	✓	✓
--	--	✓
--	--	✓
✓	--	--
--	✓	✓
--	--	✓
□	□	□
□	--	--
--	--	✓
□	□	□
✓	✓	✓
□	□	□
□	□	□

FRAME SIZE 1 TO 1600A – REAR-SIDE CONNECTION, HORIZONTAL



MO116232



SCHRACK INFO

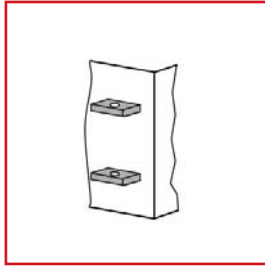
Basic unit without release, factory assembled with selected components and delivered as complete device.

DESCRIPTION	WEIGHT (kg)	I _{CU}	TYPE	ORDER NO.
3-POLE 55 kA				
800 A	43	55 kA	MO1B-800	MO108232
1000 A	43	55 kA	MO1B-1000	MO110232
1250 A	43	55kA	MO1B-1250	MO112232
1600 A	43	55 kA	MO1B-1600	MO116232
3-POLE 66 kA				
800 A	43	66 kA	MO1N-800	MO108332
1000 A	43	66 kA	MO1N-1000	MO110332
1250 A	43	66 kA	MO1N-1250	MO112332
1600 A	43	66 kA	MO1N-1600	MO116332
4-POLE 55 kA				
800 A	50	55 kA	MO1B-4-800	MO108242
1000 A	50	55 kA	MO1B-4-1000	MO110242
1250 A	50	55 kA	MO1B-4-1250	MO112242
1600 A	50	55 kA	MO1B-4-1600	MO116242
4 POLE 66 kA				
800 A	50	66 kA	MO1N-4-800	MO108342
1000 A	50	66 kA	MO1N-4-1000	MO110342
1250 A	50	66 kA	MO1N-4-1250	MO112342
1600 A	50	66 kA	MO1N-4-1600	MO116342

FRAME SIZE 2 TO 3200A – REAR-SIDE CONNECTION, HORIZONTAL



MO225232



Connection, rear view

SCHRACK INFO

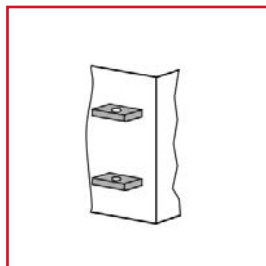
Basic unit without release, factory assembled with selected components and delivered as complete device.

DESCRIPTION	WEIGHT (kg)	I _{CU}	TYPE	ORDER NO.
3-POLE 55 kA				
2000 A	56	66 kA	MO2B-2000	MO220232
2500 A	59	66 kA	MO2B-2500	MO225232
3-POLE 80 kA				
800 A	56	80 kA	MO2N-800	MO208332
1000 A	56	80 kA	MO2N-1000	MO210332
1250 A	56	80 kA	MO2N-1250	MO212332
1600 A	56	80 kA	MO2N-1600	MO216332
2000 A	56	80 kA	MO2N-2000	MO220332
2500 A	59	80 kA	MO2N-2500	MO225332
3200 A	64	80 kA	MO2N-3200	MO232332
4-POLE 55 kA				
2000 A	67	66 kA	MO2B-4-2000	MO220242
2500 A	71	66 kA	MO2B-4-2500	MO225242
4-POLE 80 kA				
800 A	67	80 kA	MO2N-4-800	MO208342
1000 A	67	80 kA	MO2N-4-1000	MO210342
1250 A	67	80 kA	MO2N-4-1250	MO212342
1600 A	67	80 kA	MO2N-4-1600	MO216342
2000 A	67	80 kA	MO2N-4-2000	MO220342
2500 A	71	80 kA	MO2N-4-2500	MO225342
3200 A	77	80 kA	MO2N-4-3200	MO232342

FRAME SIZE 3 TO 6300A – REAR-SIDE CONNECTION, HORIZONTAL



MO340432



Connection, rear view

SCHRACK INFO

Basic unit without release, factory assembled with selected components and delivered as complete device.

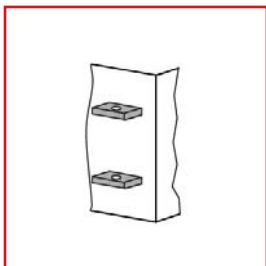
DESCRIPTION	WEIGHT (kg)	I _{CU}	TYPE	ORDER NO.
3-POLE 100 kA				
4000 A	82	100 kA	MO3H-4000	MO340432
5000 A	82	100 kA	MO3H-5000	MO350432
6300 A	90	100 kA	MO3H-6300	MO363432
4-POLE 100 kA				
4000 A	99	100 kA	MO3H-4-4000	MO340442
5000 A	99	100 kA	MO3H-4-5000	MO350442
6300 A	100	100 kA	MO3H-4-6300	MO363442

MO – FRAME SIZE 1 / WITHDRAWABLE MODELS

FRAME SIZE 1 TO 1600A – WITH GUIDE FRAME, REAR-SIDE CONNECTION, HORIZONTAL



MO116236



Connection, rear view

SCHRACK INFO

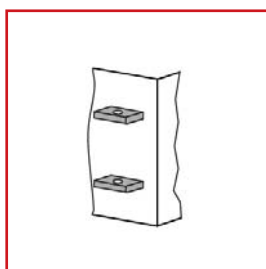
Basic unit without release, factory assembled with selected components and delivered as complete device.

DESCRIPTION	WEIGHT (kg)	I _{CU}	TYPE	ORDER NO.
3-POLE 55 kA				
800 A	70	55 kA	MO1B-800	MO108236
1000 A	70	55 kA	MO1B-1000	MO110236
1250 A	70	55kA	MO1B-1250	MO112236
1600 A	70	55 kA	MO1B-1600	MO116236
3-POLE 66 kA				
800 A	70	66 kA	MO1N-800	MO108336
1000 A	70	66 kA	MO1N-1000	MO110336
1250 A	70	66 kA	MO1N-1250	MO112336
1600 A	70	66 kA	MO1N-1600	MO116336
4-POLE 55 kA				
800 A	84	55 kA	MO1B-4-800	MO108246
1000 A	84	55 kA	MO1B-4-1000	MO110246
1250 A	84	55 kA	MO1B-4-1250	MO112246
1600 A	84	55 kA	MO1B-4-1600	MO116246
4-POLE 66 kA				
800 A	84	66 kA	MO1N-4-800	MO108346
1000 A	84	66 kA	MO1N-4-1000	MO110346
1250 A	84	66 kA	MO1N-4-1250	MO112346
1600 A	84	66 kA	MO1N-4-1600	MO116346

FRAME SIZE 2 TO 3200A – WITH GUIDE FRAME, REAR-SIDE CONNECTION, HORIZONTAL



MO220236



Connection, rear view

SCHRACK INFO

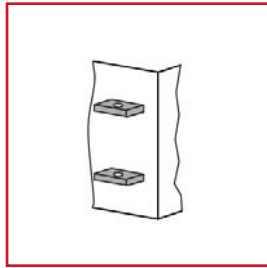
Basic unit without release, factory assembled with selected components and delivered as complete device.

DESCRIPTION	WEIGHT (kg)	I _{CU}	TYPE	ORDER NO.
3-POLE 55 kA				
2000 A	91	66 kA	MO2B-2000	MO220236
2500 A	102	66 kA	MO2B-2500	MO225236
3-POLE 80 kA				
800 A	91	80 kA	MO2N-800	MO208336
1000 A	91	80 kA	MO2N-1000	MO210336
1250 A	91	80 kA	MO2N-1250	MO212336
1600 A	91	80 kA	MO2N-1600	MO216336
2000 A	91	80 kA	MO2N-2000	MO220336
2500 A	102	80 kA	MO2N-2500	MO225336
3200 A	113	80 kA	MO2N-3200	MO232336
4-POLE 55 kA				
2000 A	109	66 kA	MO2B-4-2000	MO220246
2500 A	123	66 kA	MO2B-4-2500	MO225246
4-POLE 80 kA				
800 A	109	80 kA	MO2N-4-800	MO208346
1000 A	109	80 kA	MO2N-4-1000	MO210346
1250 A	109	80 kA	MO2N-4-1250	MO212346
1600 A	109	80 kA	MO2N-4-1600	MO216346
2000 A	109	80 kA	MO2N-4-2000	MO220346
2500 A	123	80 kA	MO2N-4-2500	MO225346
3200 A	136	80 kA	MO2N-4-3200	MO232346

FRAME SIZE 3 TO 6300A – WITH GUIDE FRAME, REAR-SIDE CONNECTION, HORIZONTAL



MO340436



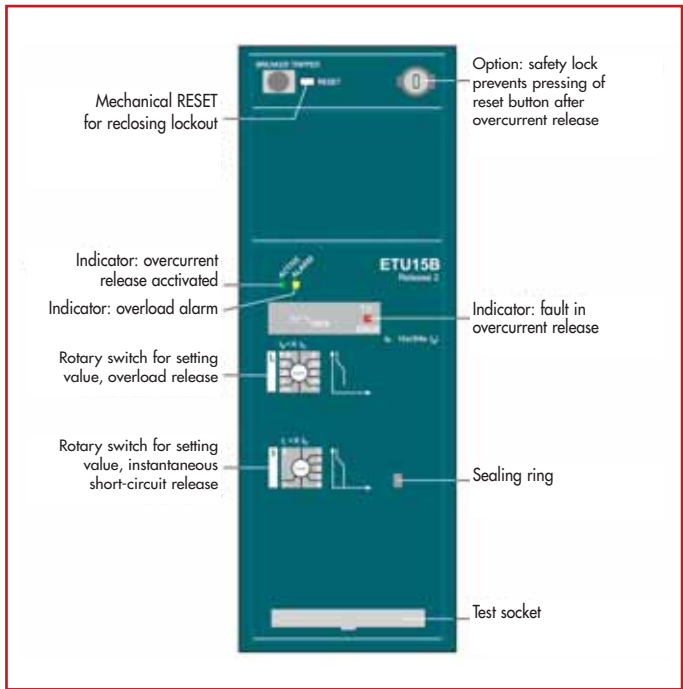
Connection, rear view

SCHRACK INFO

Basic unit without release, factory assembled with selected components and delivered as complete device.

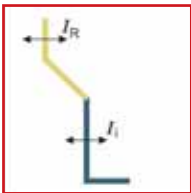
DESCRIPTION	WEIGHT (kg)	I_{CU}	TYPE	ORDER NO.
3-POLE 100 kA				
4000 A	148	100 kA	MO3H-4000	MO340436
5000 A	148	100 kA	MO3H-5000	MO350436
6300 A	160	100 kA	MO3H-6300	MO363436
4-POLE 100 kA				
4000 A	190	100 kA	MO3H-4-4000	MO340446
5000 A	190	100 kA	MO3H-4-5000	MO350446
6300 A	227	100 kA	MO3H-4-6300	MO363446

ELECTRONIC RELEASE ETU15B



SCHRACK INFO

Basic protection for installations and systems without time-selective grading up to 3200A.

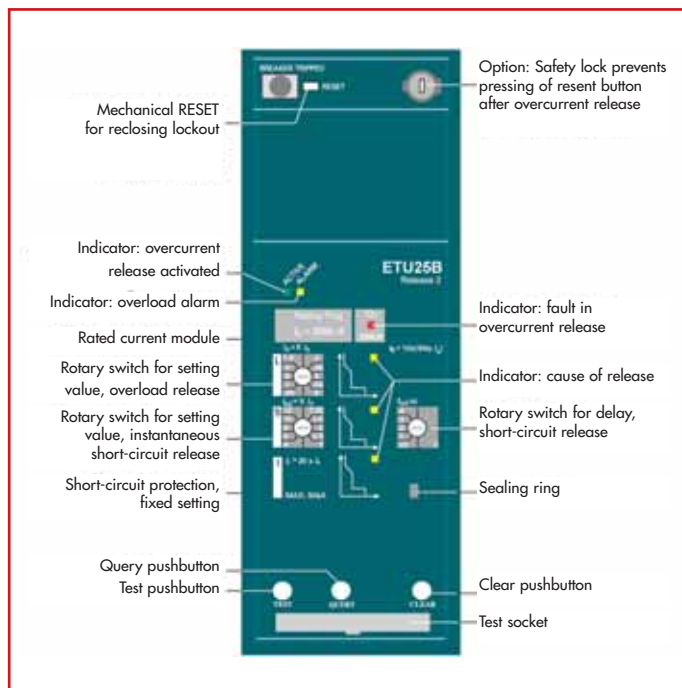


TECHNICAL DATA

- Adjustable overload release with I^2t characteristic with fixed time delay $t_R = 10$ seconds at $6 \times I_R$
- Instantaneous short-circuit protection, adjustable between $2 \dots 8 \times I_n$
- Overload indicator
- Setting of protective functions by means of rotary switch

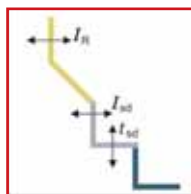
DESCRIPTION	TYPE	ORDER NO. FACTORY INSTALLED
ELECTRONIC RELEASE ETU15B		
With protection function LI	ETU15B	MO890150

ELECTRONIC RELEASE ETU25B



SCHRACK INFO

Classic protection for installations, motors and systems using time-selective grading up to 6300A.

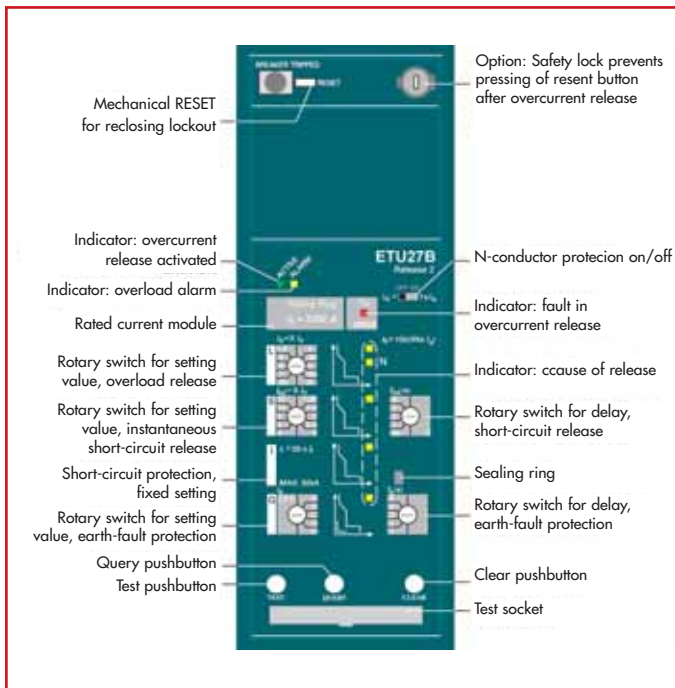


TECHNICAL DATA

- Adjustable overload release with I^2t characteristic with time delay $t_R = 10$ seconds at $6 \cdot I_R$
- Short time-delay short-circuit protection, adjustable from $1,25 \dots 12 \cdot I_n$ and
- Instantaneous short-circuit protection, fixed to $20 \cdot I_n$, max. 55kA
- Replaceable rating plug allows instant adaptability to the required system currents, thus ensuring overload protection of 100 A to 6300 A
- Overload indicator
- Display of cause of release through LED
- Option for testing the release
- Setting of protective functions by means of rotary switch

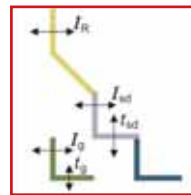
DESCRIPTION	TYPE	ORDER NO. FACTORY INSTALLED
ELECTRONIC RELEASE ETU25B		
With protection function LSI	ETU25B	MO890250

ELECTRONIC RELEASE ETU27B



SCHRACK INFO

Classic protection for installations, motors and systems using time-selective grading up to 6300A.



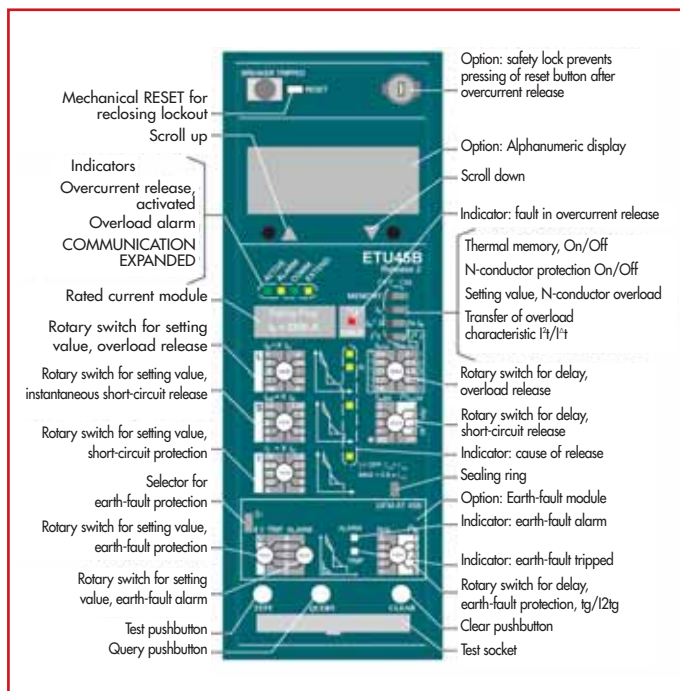
TECHNICAL DATA

Adjustable overload release with I^2t characteristic with fixed time delay $t_R = 10$ seconds at $6 \times I_R$

- Short-time delay short-circuit protection, adjustable from $1,25 \dots 12 \times I_n$
- Instantaneous short-circuit protection, fixed at $20 \times I_n$, max. 50 kA
- Replaceable rating plug allows instant adaptability to the required system currents, thus ensuring overload protection of 100 A to 6300 A
- Overload indicator
- Display of cause of release through LED
- Option for testing the release
- Connectable neutral conductor protection
- Permanently integrated earth-fault protection for the calculation of the earth-fault current through vectorial current summation
- Current transformer for N conductor has to be ordered separately
- Setting of protective functions by means of rotary switch

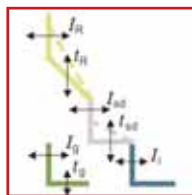
DESCRIPTION	TYPE	ORDER NO. FACTORY INSTALLED
ELECTRONIC RELEASE ETU27B		
With protection function LSING	ETU27B	MO890270

 ELECTRONIC RELEASE ETU45B



 SCHRACK INFO

An inexpensive allrounder for intelligent installations and all sorts of industrial applications – "Internal Cubicle BUS".



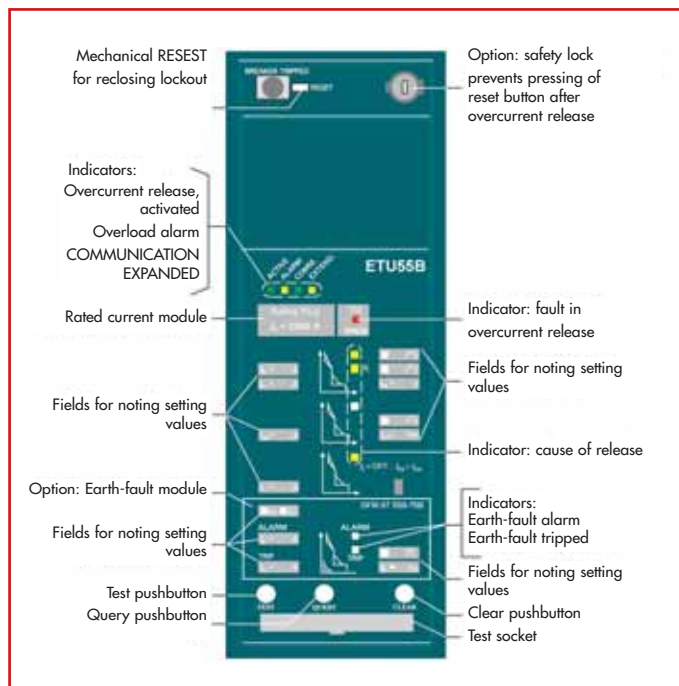
TECHNICAL DATA

- Adjustable overload release with I²t characteristic with fixed time delay $t_R = 10$ seconds at $6 \times I_n$
- Short-time delay short-circuit protection, adjustable from $1,25 \dots 12 \times I_n$
- Instantaneous short-circuit protection, fixed at $20 \times I_n$, max. 50 kA
- Replaceable rating plug allows instant adaptability to the required system currents, thus ensuring overload protection of 100 A to 6300 A
- Overload indicator
- Display of cause of release through LED
- Option for testing the release
- Adjustable time-lag class for overload protection
- Switch-selectable characteristic of the overload and short-time delay short-circuit range (current discriminate) for finer selectivity conditioning to downstream fuses or protective devices
- Thermal memory as restart protection in the case of tripped motor circuits
- Connectable and adjustable neutral conductor protection
- Modular earth-fault protection, with separately adjustable alarm and trip function
- Communication interface, metering function (Plus), connection of external modules as option or retrofit option
- Optional high-contrast display with viewing angle adjustment
- Setting of protective functions by means of rotary or slide switch

DESCRIPTION	TYPE	ORDER NO. FACTORY INSTALLED
ELECTRONIC RELEASE ETU45B		
With LSIN protective function, excl. display	ETU45B	MO890450
With LSING protective function incl.earth-fault protection unit, excl. display	ETU45B	MO89045G
With LSIN protective function, incl. display	ETU45B	MO89D450
With LSING protective function incl.earth-fault protection unit, incl. display	ETU45B	MO89D45G

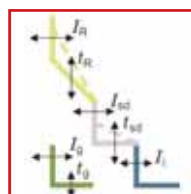
Order current converter for N conductor protection, and current converter for sensing ground fault current in earthed neutral conductor of transformer separately. The internal transformers for neutral conductors can be ordered by adding a "Z" and short order code "F23".

ELECTRONIC RELEASE ETU55B



SCHRACK INFO

The release for special safety requirements when it comes to adjustability with an exclusive external parameterisation input for generator- and motor protection, industrial applications – "internal Cubicle BUS".



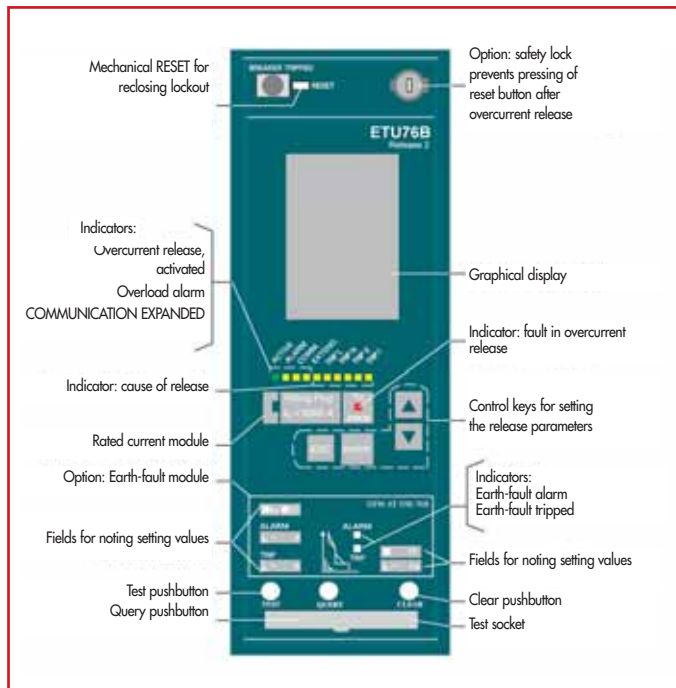
TECHNICAL DATA

- Adjustable overload release with I^2t characteristic with fixed time delay $t_R = 10$ seconds at $6 \times I_R$
- Short-time delay short-circuit protection, adjustable from $1,25 \dots 12 \times I_R$
- Instantaneous short-circuit protection, fixed at $20 \times I_R$, max. 50 kA
- Replaceable rating plug allows instant adaptability to the required system currents, thus ensuring overload protection of 100 A to 6300 A
- Overload indicator
- Display of cause of release through LED
- Option for testing the release
- Adjustable time-lag class for overload protection
- Switch-selectable characteristic of the overload and short-time delay short-circuit range (current discriminate) for finer selectivity conditioning to downstream fuses or protective devices
- Thermal memory as restart protection in the case of tripped motor circuits
- Connectable and adjustable neutral conductor protection
- Modular earth-fault protection, with separately adjustable alarm and trip function
- Communication interface, metering function (Plus), connection of external modules as option or retrofit option
- Optional high-contrast display with viewing angle adjustment
- Two protective parameter sets that can be stored separately in the release (switch selectable through external signal)
- Overload protection that can be switched off for use with modern operating mechanism technology
- Adjustable lag of the delayed short-circuit protection up to 4000 ms
- Neutral conductor protection adjustable to $I_N = 2 \times I_R$
- Setting of protective functions by means of Breaker Data Adapter or through communication interface

DESCRIPTION	TYPE	ORDER NO. FACTORY INSTALLED
ELECTRONIC RELEASE ETU45B		
With protection function LSIN	ETU55B	MO890455
With LSING protective function incl. earth-fault protection unit	ETU55B	MO89055G

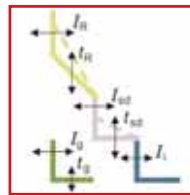
Order current converter for N conductor protection, and current converter for sensing ground fault current in earthed neutral conductor of transformer separately. The internal transformers for neutral conductors can be ordered by adding a "Z" and short order code "F23".

ELECTRONIC RELEASE ETU76B



SCHRACK INFO

The multitasking system with graphical display for network analysis – “integrated Cubicle BUS”.



TECHNICAL DATA

- Adjustable overload release with I^2t characteristic with fixed time delay $t_R = 10$ seconds at $6 \times I_n$
- Short-time delay short-circuit protection, adjustable from $1,25 \dots 12 \times I_n$
- Instantaneous short-circuit protection, fixed at $20 \times I_n$, max. 50 kA
- Replaceable rating plug allows instant adaptability to the required system currents, thus ensuring overload protection of 100 A to 6300 A
- Overload indicator
- Display of cause of release through LED
- Option for testing the release
- Adjustable time-lag class for overload protection
- Switch-selectable characteristic of the overload and short-time delay short-circuit range (current discriminate) for finer selectivity conditioning to downstream fuses or protective devices
- Thermal memory as restart protection in the case of tripped motor circuits
- Connectable and adjustable neutral conductor protection
- Modular earth-fault protection, with separately adjustable alarm and trip function
- Communication interface, metering function (Plus), connection of external modules as option or retrofit option
- Two protective parameter sets that can be stored separately in the release (switch selectable through external signal)
- Overload protection that can be switched off for use with modern operating mechanism technology
- Adjustable lag of the delayed short-circuit protection up to 4000 ms
- Neutral conductor protection adjustable to $I_N = 2 \times I_n$
- Setting of protective functions by means of Breaker Data Adapter or through communication interface
- Graphical display of all parameters and event/curve characteristics
- Storage of events and causes of release for specific error analysis
- High contrast, background-lit graphical display with sleep mode

DESCRIPTION	TYPE	ORDER NO. FACTORY INSTALLED
ELECTRONIC RELEASE ETU76B		
With protection function LSIN	ETU76B	MO890760
With LSING protective function incl. earth-fault protection unit	ETU76B	MO89076G

Order current converter for N conductor protection, and current converter for sensing ground fault current in earthed neutral conductor of transformer separately. The internal transformers for neutral conductors can be ordered by adding a “Z” and short order code “F23”.

TRANSFORMER FOR N CONDUCTOR

DESCRIPTION	ORDER NO. AS SPARE PART	ORDER NUMBER FACTORY INSTALLED
Internal transformers for Neutral conductor – includes wiring kit		
Frame size 1	MO90AA11	MO810F23
Frame size 2	MO90AA12	MO820F23
Frame size 3	MO90AA13	MO830F23
External transformer for N conductor		
Frame size 1	MO90AA21	–
Frame size 2	MO90AA22	–
Frame size 3	MO90AA23	–
External transformer for N conductor with connection pieces		
Frame size 1	MO90AA31	–
Frame size 2	MO90AA32	–
Frame size 3	MO90AA33	–

AUTOMATIC RESET OF THE RECLOSING LOCKOUT

SCHRACK INFO

If the ETU is released the circuit-breaker cannot be reclosed until the release has been either electrically or manually reset. With the option “automatic reset of the reclosing lockout”, the circuit-breaker is ready-to-close immediately after a release. The reset of the manual trip indicator is not contained in this option.

DESCRIPTION	ORDER NO. AS SPARE PART	ORDER NUMBER FACTORY INSTALLED
Lead sealable cover plate for ETU15B to ETU55B	MO90AT45	–
Lead-sealable cover plate for ETU76	MO90AT46	–
Automatic reset of the reclosing lock out	MO90AK21	MO800K01
Remote reset magnet – for mechanical trip display DC 24 V	MO90AK03	MO800K10
Remote reset magnet – for mechanical trip display AC 208-240 V/DC 220–250 V	MO900AK06	MO800K13
Retrofittable internal Cubicle BUS wiring for connection to Terminal X8 – (male connectors not included) for ETU45B to ETU76B	MO90AK30	–
Retrofittable internal wiring for connecting external N- and G transformers to Terminal X8 – (male connectors not included)	MO90AK31	–

LOCKING DEVICES

SCHRACK INFO

"Safe OFF" switch-independent interlock device to prevent unauthorised closing

This special feature available for draw-out circuit breakers prevents closing independently of the switch, thus satisfying main switch conditions to EN 60204 (VDE 0113) - Mains disconnecting equipment. Unauthorised closing is not possible after replacement of the circuit breaker. The circuit breaker must be switched off to activate the interlock. The interlock device is blocked when the circuit breaker is switched on. The blocking is only effective when the key has been removed. The safety key can only be removed in the "OFF" position.

DESCRIPTION	ORDER NO. AS SPARE PART	ORDER NUMBER FACTORY INSTALLED
Locking device against unauthorised closing, in operator panel		
Mains equipment meets EN 60204 (VDE 0113) regulations for main switches.		
Installation kit FORTRESS or CASTELL	MO900BA31	–
Made by Ronis	MO90BA33	MO800S08
Made by KIRK-Key	MO90BA34	–
Made by Profalux	MO90BA35	MO800S09
Made by CES	MO90BA36	MO800S01
Made by IKON	MO90BA38	MO800S03
Installation kit for padlocks	MO90BA41	MO800S07

Locking device against unauthorised closing, for draw-out circuit breaker

Mains equipment meets EN 60204 (VDE 0113) regulations for main switches, comprising lock in cabinet door, effective in operating position, the function remains the same when replacing the switch.

Made by CES	MO90BA51	MO800R61
Made by IKON	MO90BA53	–
Made by KIRK key	MO90BA57	–
Made by Ronis	MO90BA58	MO800R68
Made by Profalux	MO90BA50	MO800R60

Locking device for operator lever using padlock

Locking device for operating lever (padlock not included)	MO90BA71	MO800S33
---	----------	----------

Lock device to prevent movement of withdrawable circuit breaker – Safety lock for mounting on switch

Made by CES	MO90BA73	MO800S71
Made by IKON	MO90BA75	–
Made by Profalux	MO90BA76	MO800S75
Made by Ronis	MO90BA77	MO800S76

SEALING CAP FOR MECHANICAL ON/OFF

DESCRIPTION	ORDER NO. AS SPARE PART	ORDER NUMBER FACTORY INSTALLED
Protective covers for mechanical ON/OFF		
each comprising 2 transparent covers for sealing or attachment of padlocks, Cover with 6,35 mm bore (for tool actuation), lock mount for safety lock for key operation		
Lock not included	MO90BA21	–
Made by CES	MO90BA22	–
Made by IKON	MO90BA24	–

LOCKING MECHANISMS

SCHRACK INFO

Locking device against moving if the cubicle door is open for withdrawable circuit-breakers

The crank handle is blocked if the cubicle door is open and cannot be withdrawn. It is not possible to move withdrawable circuit-breakers. The blocking is only effective if the crank handle is inserted.

Interlocking of cubicle door

The cubicle door cannot be opened if the

- fixed-mounted circuit-breaker is closed (transmission of the locking signal by means of Bowden wire) or
- if the withdrawable circuit-breaker is in connected position

DESCRIPTION	ORDER NO.	ORDER NUMBER
	AS SPARE PART	FACTORY INSTALLED
Prevents movement of draw-out circuit breaker in disconnect position , comprising Bowden cable and lock in cabinet door		
Made by CES	MO90BA81	MO800R81
Made by IKON	MO90BA83	–
Made by Profalux	MO90BA85	MO800R85
Made by Ronis	MO90BA86	MO800R86
Installation kit for padlocks	MO90BA87	–

Prevents opening of cabinet door in ON position (defeatable)

For permanent installation	MO90BB12	MO800R30
----------------------------	----------	----------

Prevents opening of cabinet door in ON position (defeatable)

For guide frame	MO90BB13	MO800S30
-----------------	----------	----------

Prevents movement while cabinet door open

For guide frame	MO90BB15	MO800R50
-----------------	----------	----------

MECHANICAL INTERLOCK

SCHRACK INFO

Mutual mechanical circuit-breaker interlocking

The module for mutual mechanical interlocking can be implemented for two or three circuit-breakers and is simple to adapt to the respective version. Fixed-mounted and withdrawable circuit-breakers are compatible and can be implemented together in a single system.

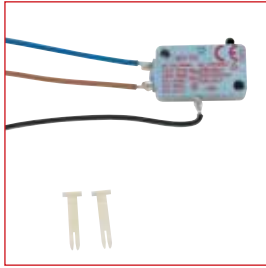
The circuit-breakers can be installed either next to one another or on top of one another, whereby the distance between circuit-breakers is determined only by the length of the Bowden wire.

DESCRIPTION	ORDER NO.	ORDER NUMBER
	AS SPARE PART	FACTORY INSTALLED
Mutual mechanical interlock , with Bowden cable 2000 mm (one required per circuit breaker)		
Module for fixed-mounted circuit breakers	MO90BB21	MO800S55
Module for draw-out circuit breaker with frame. To be ordered separately.	MO90BB24	MO800R55
Module for guide frame. To be ordered separately.	MO90BB22	MO800R56
Module for draw-out circuit breaker. To be ordered separately.	MO90BB23	MO800R57

Bowden cable

2000 mm	MO90BB45	–
3000 mm	MO90BB46	–
4500 mm	MO90BB47	–

SIGNALISATION AND CONTROL



MO90AH01

SCHRACK INFO

Ready-to-close signalling switch

MO circuit breaker come with a visual ready-to-close signal indicator as standard. The option is also available to indicate ready-to-close using a signalling switch. This signalling switch is included as standard for switches operated via a communications interface.

Signalling switch for auxiliary release

One signalling contact is available per auxiliary release for polling switch status of the auxiliary releases.

Tripped signal switch

In the event that the circuit breaker tripped due to an overload, short-circuit, earth-fault or extended protection function, this can be indicated with a tripped signal switch. This indicator switch is available as an option. This signalling switch is included as standard for circuit breakers operated via a communications interface.

Operating cycle counter

A 5-digit operating cycle counter is available in connection with the motor operator. The counter increments by "1" once the storage spring is fully charged.

"Electrical ON" button

Used for the electrical switch-on of the circuit breaker via a local, electrical "ON" or remote operation.

Sealable cap covers "Electrical ON" button

The "Electrical ON button" comes with a sealable cap as standard.

Motor cut off switch

Rotary switch for switching off (automatic charging) of motor operator.

DESCRIPTION	ORDER NO.	ORDER NUMBER
	AS SPARE PART	FACTORY INSTALLED
Ready-to-close signalling switch	MO90AH01	MO800C22
Signalling switch, 1st auxiliary release	MO90AH02	MO800C26
Signalling switch, 2nd auxiliary release	MO90AH03	MO800C27
Tripped signal switch	MO90AH04	MO800K07
Mechanical operating cycle counter	MO90AH07	MO800C01
Stored energy status signalling switch	MO90AH08	MO800C20
Position indicator switch for guide frame, 1st block (3rd microswitch)	MO90AH11	MO800R15
Position indicator switch for guide frame, 2nd block (6th microswitch)	MO90AH12	MO800R16
Electical ON button (button+wiring) with sealable cap	MO90AJ02	MO800C11
Electical ON button (button+wiring) with CES installation kit	MO90AJ03	MO800C12
Motor cut-off switch, assembly on operator panel	MO90AJ06	MO800S25
EMERGENCY OFF button, mushroom button instead of mechanical OFF button	MO90BA72	MO800S24

1ST AUXILIARY RELEASE AFTER ETU



MO90AD01

SCHRACK INFO

Up to two auxiliary release switches can be installed at the same time. The 1st release must always be a shunt release. 2nd auxiliary release see below

DESCRIPTION	ORDER NO. AS SPARE PART	ORDER NUMBER FACTORY INSTALLED
Shunt release		
DC 24 V – 100 % ED	MO90AD01	MO890B00
DC 30 V	MO90AD02	MO890C00
DC 48 V	MO90AD03	MO890D00
DC 60 V	MO90AD04	MO890E00
DC 110 V/AC 110 V	MO90AD05	MO890F00
DC 220 V/AC 230 V	MO90AD06	MO890G00

2ND AUXILIARY RELEASE AFTER ETU



MO90AD01

SCHRACK INFO

Possible combinations:

1 shunt release or 1 undervoltage release
or 2 shunt releases
or 1 shunt release + 1 undervoltage release.

DESCRIPTION	ORDER NO. AS SPARE PART	ORDER NUMBER FACTORY INSTALLED
Shunt release		
DC 24 V – 100 % ED	MO90AD01	MO8900B0
DC 30 V	MO90AD02	MO8900C0
DC 48 V	MO90AD03	MO8900D0
DC 60 V	MO90AD04	MO8900E0
DC 110 V/AC 110 V	MO90AD05	MO8900F0
DC 220 V/AC 230 V	MO90AD06	MO8900G0

Undervoltage release – undelayed ($\geq 80\text{ms}$), short time-delayed ($\leq 200\text{ms}$)

DC 24 V	MO90AE01	MO8900J0
DC 30 V	MO90AE02	MO8900K0
DC 48 V	MO90AE03	MO8900L0
DC 60 V	MO90AE07	MO8900U0
DC 110-125 V/AC 110-127 V	MO90AE04	MO8900M0
DC 220-250 V/AC 208-240 V	MO90AE05	MO8900N0
AC 380-415 V	MO90AE06	MO8900P0

Undervoltage release – time-delayable 0,2 s to 3,2 sec

DC 48 V	MO90AE11	MO8900Q0
DC 110-125 V/AC 110-127 V	MO90AE12	MO8900R0
DC 220-250 V/AC 208-240 V	MO90AE13	MO8900S0
AC 380-415 V	MO90AE14	MO8900T0

MOTOR OPERATOR



MO90AF04

SCHRACK INFO

For automatic charging of the stored energy mechanism.

Is switched on when the stored energy mechanism is released and the control voltage is available.

Automatically switches off after charging. Manual actuation of the storage can function independently

DESCRIPTION	ORDER NO.	ORDER NUMBER
	AS SPARE PART	FACTORY INSTALLED
Motor operator DC 220-250 V/AC 208-240 V	MO90AF04	MO894000
Motor operator DC 110-125 V/AC 110-127 V	MO90AF03	MO895000
Motor operator DC 24-30 V	MO90AF01	MO896000
Closing solenoid 110 V AC/DC	MO90AD05	MO892000
Closing solenoid 220 V AC/DC	MO90AD06	MO893000

AUXILIARY CONTACTS



MO90A401

SCHRACK INFO

- Always includes 2 N/O + 2 N/C

DESCRIPTION	ORDER NO.	ORDER NUMBER
	AS SPARE PART	FACTORY INSTALLED
2 N/O + 2 N/C additionally	MO90AG01	MO890004
4 N/O additionally	–	MO890007
3 N/O + 1 N/C additionally	–	MO890008
2 N/O additionally	MO90AG02	–
1 N/O + 1 N/C additionally	MO90AG03	–

DOOR SEALING FRAME, COVER



MO800T40

DESCRIPTION	ORDER NO.	ORDER NUMBER
	AS SPARE PART	FACTORY INSTALLED
Door sealing frame	MO90AP01	MO80T400
Safety cover IP55 is not for use in combination with door sealing frame, removable cover is opened from both sides	MO90AP02	–

SHUTTER

SCHRACK INFO

The cover strips of the shutter lock the laminated contacts of the guide frame if the withdrawable circuit-breaker is withdrawn so that they fulfil the function of a touch guard.

The cover strips can be manually opened with the strip lifter.

The cover strips can be fixed in different positions with padlocks and protected from unauthorized manipulation.

DESCRIPTION	ORDER NO. AS SPARE PART	ORDER NUMBER FACTORY INSTALLED
-------------	----------------------------	-----------------------------------

Shutter 3 pole

Frame size 1	MO90AP04	MO810R21
Frame size 2	MO90AP06	MO820R21
Frame size 3	MO90AP07	MO830R21

Shutter 4 pole

Frame size 1	MO90AP08	MO814R21
Frame size 2	MO90AP11	MO824R21
Frame size 3	MO90AP12	MO834R21

ARC CHUTE COVER/SHUTTER

DESCRIPTION	ORDER NO. AS SPARE PART	ORDER NUMBER FACTORY INSTALLED
-------------	----------------------------	-----------------------------------

Arc chute cover Parts set for guide frame, 3 pole

Frame size 1	MO90AS32	MO810R10
Frame size 2	MO90AS36	MO820R10
Frame size 3	MO90AS38	MO830R10

Arc chute cover Parts set for guide frame, 4 pole

Frame size 1	MO90AS42	MO814R10
Frame size 2	MO90AS44	MO824R10
Frame size 3	MO90AS46	MO834R10

SUPPORT BRACKET

SCHRACK INFO

For mounting fixed-installed circuit breakers vertically, for frame sizes 1 and 2 only (1 set = 2 pcs.).

DESCRIPTION	ORDER NO. AS SPARE PART	ORDER NUMBER FACTORY INSTALLED
Support bracket, frame size 1/2	MO90BB50	–

CUBICLE BUS MODULES

DESCRIPTION	ORDER NO. AS SPARE PART	ORDER NUMBER FACTORY INSTALLED
Digital output module with rotary coding switch, relay outputs	MO90AT26	–
Digital output module, configurable, relay outputs	MO90AT20	–
Digital input module	MO90AT27	–
Analogue output module	MO90AT23	–
ZSS module	MO90AT21	–

PARAMETERISATION SYSTEMS, COMMUNICATION

DESCRIPTION	ORDER NO.
Breaker Data Adapter (BDA)	
Parameterisation, operation, monitoring and diagnosis of SENTRON circuit breakers via the local interface:	
Breaker Data Adapter, connecting cable to SENTRON 3WL circuit breakers and to programming device (e.g. laptop); runs on Internet Explorer with JAVA2 VM 1.4.0-01	MO90AT28
BDA Plus	
Same as BDA, also with Ethernet interface for connection to Ethernet/Intranet/Internet	MO90AT33
Connecting cable for BDA Plus	
Connecting cable for connection of BDA Plus to Terminal X8 on SENTRON 3WL circuit breaker. Required when a COM 15 or other external CUBICLE BUS modules are not present, 2 m in length.	MO90BC21
Switch ES Power parameterisation software	
Parameterisation, operation, monitoring and diagnosis of SENTRON circuit breakers via the PROFIBUS DB;	
Runs on Windows95, Windows98, WindowsNT, Windows2000 and Windows XP Professional	
also requires additional PROFIBUS card, e.g. CP5613	MO90CC10

ACCESSORIES FOR COMMUNICATION

DESCRIPTION	ORDER NO.
Pre-assembled cables for Cubicle BUS modules	
0,2 m long, for connection to SENTRON 3WL with COM15	MO90BC04
1 m long, for connection to SENTRON 3WL with COM15	MO90BC02
2 m long, for connection to SENTRON 3WL with COM15	MO90BC03
2 m long, for connection to SENTRON 3WL without COM15	MO90BC05
Voltage transformer, 3-pole for SENTRON 3WL with Plus measurement function	
230 V/100 V, Class 0,5	MO90BB70
380–630 V/100 V, Class 0,5	MO90BB68

RETROFITTING AND REPLACEMENT PARTS

DESCRIPTION	ORDER NO.
PROFIBUS retrofit kit	
Retrofit kit for PROFIBUS communication includes COM15, BSS and cable kit for all MO circuit breakers of 3WL type with ETU45B, ETU55B and ETU76B releases	MO90AT12
COM15 PROFIBUS Module	MO90AT15
Breaker Status Sensor (BSS)	MO90AT16
Plus measurement function (requires voltage transformer)	MO90AT03

TOP-TECHNIC



MAINS ANALYSERS

TOP-TECHNIC



ANALOGUE MEASURING INSTRUMENTS
FOR CP

TOP-TECHNIC



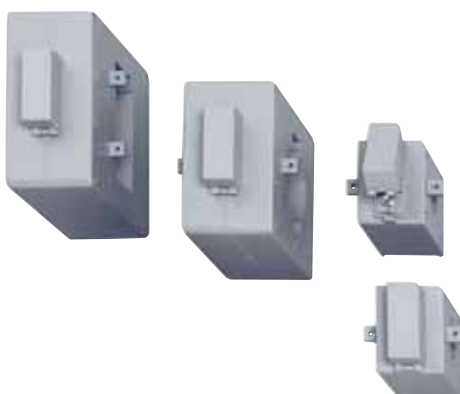
ELECTRONIC 1-PHASE/3-PHASE METERS

TOP-TECHNIC



MODULAR LOW-CURRENT TRANSFORMERS

TOP-TECHNIC



CURRENT TRANSFORMERS

TOP-TECHNIC



HOUR METER

COUNTERS & METERS

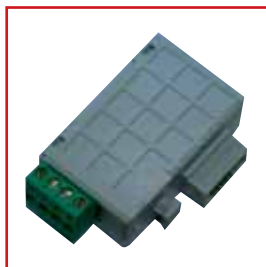
CONTENTS

MAINS ANALYSERS	Page 336
ANALOGUE MEASURING INSTRUMENTS FOR CP	Page 340
ELECTRONIC 1-PHASE/3-PHASE METERS	Page 345
MODULAR LOW-CURRENT TRANSFORMERS	Page 346
CURRENT TRANSFORMERS	Page 347
HOUR METER	Page 351

LOW VOLTAGE NETWORK MONITOR NA96



MGF39000



MGF3900A

TECHNICAL DATA

- Three-phase line 80...500V (phase - phase)
- Connection with external dedicated CT
- Programmable external CT-VT ratio

DISPLAY

- Type of display: LCD backlit, automatic backlit reduction off after 20 s that keyboard is not used
- N° of display points: 10.000, 4 digits (high digit 12 mm)
- Energy count: 8 digit counter (high digit 8 mm)
- Engineering units: automatic display according to the set VT and CT ratios
- Resolution: automatic, with the highest possible number of decimals
- Decimal point: automatic, with the highest possible resolution
- Reading update: 1,1 seconds
- Accuracy (of the reading):
 - Voltage: $\pm 0,5\%$ (80...500V phase - phase)
 - Current: $\pm 0,5\%$ (10...120% In)
 - Powers: $\pm 1\%$ (10...120% $P_n/Q_n/S_n \cos \varphi$ 0,5 ind...0,5 cap.)
 - Frequency: $\pm 0,2$ Hz
- Energy count (reference voltage 400 V):
 - Active energy: class 1 (EN62053-21)
 - Reactive energy: class 2 (EN62053-23)

DISPLAY PAGES

Display is divided into four menus which can be reached with the relevant function keys:
voltage / current / power three-phase / power factor

The total active or reactive energy (alternatively) is always displayed on all the display pages.

PROGRAMMING

- Parameters programming: front keyboard, 4 keys
- Programming access: protected by password
- Data and configuration parameters retention: non volatile memory (no battery)

PROGRAMMABLE PARAMETER

INPUT:

- Connection: single-phase and three-phase network, 3 and 4 wire
- Current rating: 1 – 5 A
- External VT ratio: 1...10 (max. VT primary 1200 V)
- External CT ratio: 1...9999 (max. CT primary 50 kA/5A – 10 kA/1A)

CURRENT DEMAND – POWER DEMAND:

- Average period: 5/8/10/15/20/30/60 min.

DISPLAY:

- Contrast: 4 selectable value
- Backlight: 0 – 30 – 70 – 100%
- Customized page: quantities which can be displayed when switches on

LOW VOLTAGE NETWORK MONITOR NA96 – continued

INPUT

- Single-phase network, three-phase network 3- and 4-wire
- Three-phase voltage: 80...500V (phase-phase)
- Single-phase voltage: 50...290V
- Connection with external dedicated current transformers
- Current rating In: 5A – 1A
- Max. current I_{max}: 1,2I_n
- Instantaneous overload: 20I_n/0,5 seconds
- Frequency rating f_n: 50Hz
- Tolerance: 47...63Hz
- Type of measurement: true RMS value
- Harmonic content: up to the 16th harmonic
- Voltage rated burden: ≤ 0,5VA (each phase)
- Current rated burden: ≤ 0,5VA (each phase)

AUXILIARY SUPPLY

- Rated value U_{aux} ac: 80...265V
- Rated frequency: 50Hz
- Working frequency: 47...63Hz
- Rated burden: ≤ 4VA (with modules)
- Rated value U_{aux} dc: 110...300VDC
- Rated burden: ≤ 3,5W (with modules)
- Protected against incorrect polarity

INSULATION (EN 61010-1)

- Installation category: III
- Pollution degree: 2
- Insulation voltage rating: 300V (phase neutral)
- Impulse voltage test: 6kV 1,2/50μs 0,5J
- Considered circuits: measure, aux. supply
- A.C. voltage test: 4kV r.m.s. value 50Hz/1min
- Considered circuits: all circuits and earth

TESTS FOR ELETROMAMAGNETIC COMPATIBILITY

- Emission and Immunity tests according to EN 62052-11

ENVIRONMENTAL CONDITIONS

- Reference temperature: 23°C ± 2°C
 - Specified operating range: -5...55°C
 - Limit range for storage and transport: -25...70°C
 - Variation to the class index: ≤ 0,1% /°C
 - Suitable for tropical climates
 - Max. power dissipation ¹⁾: ≤ 5W
- ¹⁾ For switchboard thermal calculation

HOUSING

- Housing: flush mounting (panel cutout 92 x 92mm)
- Front frame: 96 x 96 mm
- Depth: 61 mm
- Max. depth: 81 mm (with optional modules)
- Connections: screw terminals (input current) to plug out (input voltage)
- Volmetric terminals range: rigid cable max. 4,5 mm², flexible cable max. 2,4 mm²
- Ammetric terminals range: rigid cable max. 6 mm², flexible cable max. 4 mm²
- Housing material: self-extinguishing polycarbonate
- Protection degree (EN60529): IP54 front frame, IP20 terminals
- Weight: 285 grams

DESCRIPTION	ORDER NO.
Netanalyser	MGF39000
Modul for alarm contacts	MGF3900A
Modul for impulse contacts	MGF3900I
Modul for analog contacts	MGF3900M
Modul with RS485 interface	MGF3900R
Modul with profibus interface	MGF3900P

NETANALYSER MF7



MGF37000

TECHNICAL DATA

- Three-phase network 340...450V (phase - phase)
- Single-phase 195...260V (phase - neutral)
- Connection with dedicated CT
- Programmable primary CT 5...8000A (41 ranges)
- True RMS value measurement

DISPLAY PAGES

page	three-phase 4-wire S1000/227	single-phase S1000/228
1	phase current	current + frequency + voltage
2	phase voltage	current demand + current max. demand
3	phase-to-neutral voltage	working hours and minutes
4	neutral current + frequency	
5	current demand	
6	current max. demand	
7	working hours and minutes	

DISPLAY

- Phase and linked voltage
- Phase and neutral current
- Frequency
- Current demand
- Max. current demand
- Working hours and minutes (run hour meter)
- N° of display points: 10.000 (4 digits)
- Engineering units: automatic display
- Resolution: automatic, with the highest possible number of decimals
- Run hour meter: hours and minutes
- Reading update: 1,2 seconds
- Accuracy (of the reading):
 - Voltage: $\pm 0,5\%$ (80...600V phase - phase)
 - Current: $\pm 0,5\%$ (10...120% In)
 - Neutral current: $\pm 2\%$
 - Frequency: $\pm 0,2$ Hz

CURRENT DEMAND

- Display: Current demand and max. current demand
- Average period: 5/8/10/15/20/30/60 minutes selectable
- Calculation: average on a selected period
- Peak max. demand reset: by hand, by keyboard

PROGRAMMING

- Parameters programming: front keyboard, 2 keys
- Programming access: key combination
- Data and configuration parameters retention: non volatile memory (no battery)

PROGRAMMABLE PARAMETER

- Connection: single-phase - three-phase 4 wire
- External CT primay: 41 ranges (see table)

SELECTABLE PRIMARY CURRENT (A)

5					10			15		20	25	30		40
50	60	70	75	80	100	120	125	150	160	200	250	300		400
500	600	700	750	800	1000	1200	1250	1500	1600	2000	2500	3000	3200	4000
5000	6000	7000	7600	8000										

- Current max. demand: delay time, reset
- Working hours: reset

NET ANALYSER MF7 – continued

INPUT

- Single-phase and three-phase 4-wire network
- Three-phase voltage: 340...450V (phase-phase)
- Single-phase voltage: 195...260V
- Current rating In: 5A or 1A
- Continuous overload: 1,2In
- Instantaneous overload: 20In/0,5 seconds
- Connection with external dedicated current transformer
- Inputs have a common point
- Frequency rating fn: 50Hz
- Tolerance: 47...63Hz
- Type of measurement: true RMS
- Harmonic content: up to the 16th harmonic
- Voltage rated burden: $\leq 1\text{VA}$ (each phase)
- Current rated burden: $\leq 0,5\text{VA}$ (each phase)

AUXILIARY SUPPLY

- Taken from measurement (selfsupplied)

INSULATION (EN 60439-1)

- Installation category: III
- Pollution degree: 2
- Insulation voltage rating: 660V
- A.C. voltage test: 4kV r.m.s. value 50Hz/1min
- Considered circuits: all circuits and earth

TESTS FOR ELETROMAMAGNETIC COMPATIBILITY

- Emission tests according to EN 61000-6-3
- Immunity tests according to EN 61000-6-2

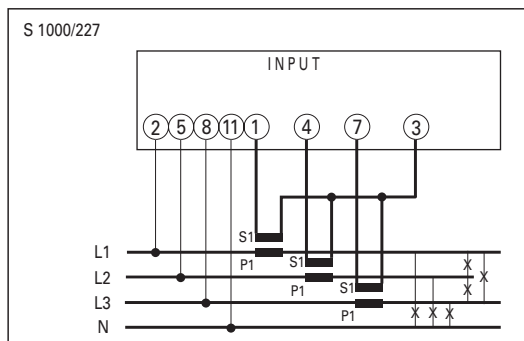
ENVIRONMENTAL CONDITIONS

- Reference temperature: $23^{\circ}\text{C} \pm 2^{\circ}\text{C}$
 - Specified operating range: $-5...55^{\circ}\text{C}$
 - Limit range for storage and transport: $-25...70^{\circ}\text{C}$
 - Variation to the class index: $\leq 0,1\% / ^{\circ}\text{C}$
 - Suitable for tropical climates
 - Max. power dissipation ¹⁾: $\leq 6,8\text{W}$
- ¹⁾ For switchboard thermal calculation

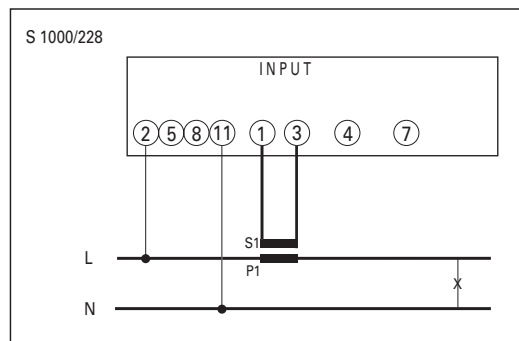
HOUSING

- Housing: flush mounting (panel cutout 68x68mm)
- Front frame: 72 x 72 mm
- Depth: 75 mm
- Ammetric terminals range: rigid cable min.0,05 mm² / max. 4 mm² flexible cable min.0,05 mm² / max. 2,5 mm²
- Volmetric terminals range: rigid cable min. 0,05 mm² / max. 4 mm² flexible cable min.0,05 mm² / max. 2,5 mm²
- Housing material: self-extinguishing makrolon
- Protection degree (EN60529): IP54 front frame, IP20 terminals
- Weight: 250 grams

WIRING DIAGRAMS

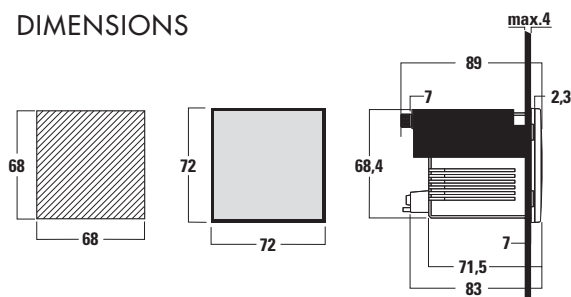


Three-phase network 4-wire



Single-phase network

DIMENSIONS



DESCRIPTION

Netanalyser MF7

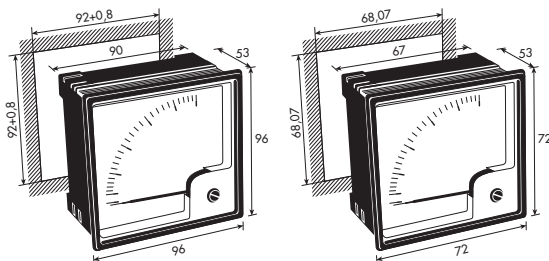
ORDER NO.

MGF37000

ANALOGUE MEASURING INSTRUMENTS FOR CONTROL PANEL INSERT



ANALOGUE MEASURING INSTRUMENTS FOR CONTROL PANEL INSERT



SCHRACK-INFO

In accordance with DIN 43700/43718, IEC 51,
Housing made from selfextinguishing plastic
Class V0 accord. to UL-94

- Class $\pm 1,5$
- Rated voltage max. 600 V
- 90° scale (240° scale on request)
- Degree of protection IP 52 (from front), IP 54 optional
- Test voltage 2 kV, 50 Hz, 1 Min.
- Vibration-proof

ACCESSORIES

Changeable scales
Terminal cover

Symbols and explanations for the measuring devices

Symbols for the functioning of the devices		Symbols for device connection	
Description	Symbol	Description	Symbol
Moving coil measuring device		Measuring device for DC	
Moving iron measuring device		Measuring device for AC single phased	
Electrodynamic measuring device		Measuring device for DC and AC single phased	
Induction measuring device		3-phase current general	
Bi-metal measuring device		3-phase current uneven load (general)	
Vibration measuring device		Measuring device for 3-conductor system	
Measuring device with electronics		Measuring device for 4-conductor system	
Electronics with auxiliary measuring device		Two measuring devices for 3-conductors, uneven load	
Shunt		Two measuring devices for 4-conductors, even load	
General accessories		Three measuring devices for 4-conductors, uneven load	

In case of (1) being marked with the symbol for measuring device, electronics is installed. In case of (1) being combined with (2), it means external parts

Symbols for accuracy classes		Symbols for service position		Safety symbols	
Description	Symbol	Description	Symbol	Description	Symbol
Class symbol (e.g. 1.5) with error expressed in % of the reference value, except when the reference value corresponds with the scale length or the real value. Indication error in % of the scale end value	1,5	Devices for perpendicular nominal position		Control voltage 500V	
Indication error in % of the rated value		Devices for horizontal nominal position		Control voltage over 500V e.g. 2kV	
Class symbol for a device without linear scale Used in case of reference value corresponding to scale length and indication error expressed in % of the real value, e.g. cl.1, relative error margin 5% (Par. 2.3.11.36)		Devices for inclined nominal position (e.g. 60° inclination)		No control voltage	
				High voltage on accessories or on device	

AMMETER AC 72x72, 96x96 mm



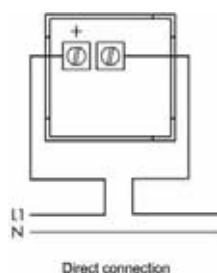
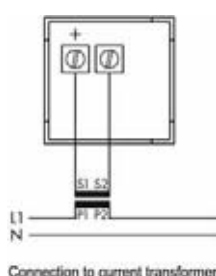
MG1BA000

SCHRACK-INFO

- Moving iron type, overcurrent range 2x I_n
- RI series 0,25 to 60 A AC direct, 10 A to 3000A via current transformer connection
- Frequency 45-65 Hz

TIPS & TRICKS

The instruments with a transformer connection are supplied with a scale. This is because the scale must be chosen in accordance with the transformer. Order the changeable scale separately.

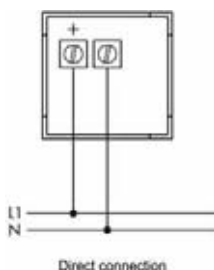


MEASUREMENT RANGE	DIM. (WxHxD) mm	ORDER NO.
AMMETER		
5 A	72x72x53	MGF57005
10 A	72x72x53	MGF57010
25 A	72x72x53	MGF57025
../5 A, transformer connection, w/o scale	72x72x53	MGF57000
5 A	96x96x53	MGF59005
10 A	96x96x53	MGF59010
15 A	96x96x53	MGF59015
25 A	96x96x53	MGF59025
50 A	96x96x53	MGF59050
../5 A, transformer connection, w/o scale	96x96x53	MGF59000
SCALE PLATE 72x72		
Scale plate, 50/100 A	72x72	MGS57050
Scale plate, 60/120 A	72x72	MGS57060
Scale plate, 80/160 A	72x72	MGS57080
Scale plate, 100/200 A	72x72	MGS57100
Scale plate, 150/300 A	72x72	MGS57150
Scale plate, 200/400 A	72x72	MGS57200
Scale plate, 250/500 A	72x72	MGS57250
Scale plate, 300/600 A	72x72	MGS57300
Scale plate, 400/800 A	72x72	MGS57400
Scale plate, 500/1000 A	72x72	MGS57500
Scale plate, 600/1200 A	72x72	MGS57600
Scale plate, 800/1600 A	72x72	MGS57800
Scale plate, 1000/2000 A	72x72	MGS571K0
Scale plate, 1500/3000 A	72x72	MGS571K5

AMMETER AC 72x72, 96x96 mm – continued

MEASUREMENT RANGE	DIM. (WxHxD) mm	ORDER NO.
SCALE PLATE 96x96		
Scale plate, 60/120 A	96x96	MGS59060
Scale plate, 80/160 A	96x96	MGS59080
Scale plate, 100/200 A	96x96	MGS59100
Scale plate, 150/300 A	96x96	MGS59150
Scale plate, 200/400 A	96x96	MGS59200
Scale plate, 250/500 A	96x96	MGS59250
Scale plate, 300/600 A	96x96	MGS59300
Scale plate, 400/800 A	96x96	MGS59400
Scale plate, 500/1000 A	96x96	MGS59500
Scale plate, 600/1200 A	96x96	MGS59600
Scale plate, 800/1600 A	96x96	MGS59800
Scale plate, 1000/2000 A	96x96	MGS591K0
Scale plate, 1500/3000 A	96x96	MGS591K5
Scale plate, 2000/4000 A	96x96	MGS592K0
Scale plate, 2500/5000 A	96x96	MGS592K5
Scale plate, 3000/6000 A	96x96	MGS593K0

VOLTMETER AC 72x72, 96x96 mm



SCHRACK-INFO

- RI series 6 to 500 V AC direct

MEASUREMENT RANGE	DIM. (WxHxD) mm	ORDER NO.
300 V	72x72x53	MGF67300
500 V	72x72x53	MGF67500
300 V	96x96x53	MGF69300
500 V	96x96x53	MGF69500

VOLTMETER AC WITH INTEGRATED SWITCH FOR PHASES 72x72, 96x96 mm



MGF77500

SCHRACK-INFO

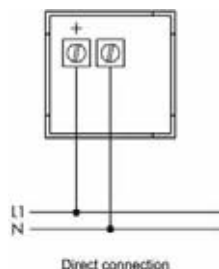
- 500 V AC direct
- With integrated switch
L1-L2, L2-L3, L3-L1, L1-N, L2-N, L3-N

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
500 V	72x72x53	MGF77500
500 V	96x96x53	MGF79500

■ FREQUENCY METER AC 72x72, 96x96 mm



MG3B705F



■ SCHRACK-INFO

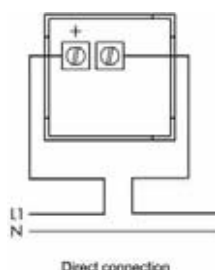
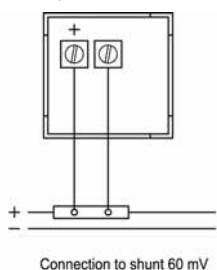
- Intrinsic consumption 1,5-3 VA
- 110-230-400 V
- Class 0,5

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Frequency meter, 45 to 65 Hz, 230 V	72x72x53	MGF87050
Frequency meter, 45 to 65 Hz, 230 V	96x96x53	MGF89050

■ AMMETER DC 72x72 mm



MG1BD000



■ SCHRACK-INFO

- RC series moving coil mechanism
- 1 to 60 A direct
- 10 A to 10 kA via shunt

■ TECHNICAL DATA

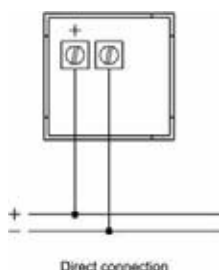
The instruments with a transformer connection are supplied with a scale.
This is because the scale must be chosen in accordance with the transformer.

MEASUREMENT RANGE	DIM. (WxHxD) mm	ORDER NO.
25 A	72x72x53	MGF17025
60 A	72x72x53	MGF17060
60mV, for shunt	72x72x53	MGF17000
Changeable scale, 60 A	72x72	MGS17060
Changeable scale, 100 A	72x72	MGS17100
Changeable scale, 200 A	72x72	MGS17200
Changeable scale, 300 A	72x72	MGS17300
Changeable scale, 400 A	72x72	MGS17400
Changeable scale, 500 A	72x72	MGS17500

■ VOLTMETER DC 72x72 mm



MG0B450F



■ SCHRACK-INFO

- RC series
- up to 300V DL direct

MEASUREMENT RANGE	DIM. (WxHxD) mm	ORDER NO.
15 V	72x72x53	MGF27015
30 V	72x72x53	MGF27030
60 V	72x72x53	MGF27060
300 V	72x72x53	MGF27300

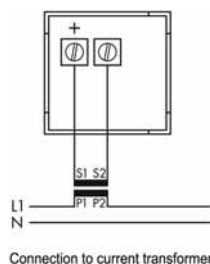
MAXIMUM BI-METAL MOVING-IRON AMMETER DC, 96x96 mm



MGF49005



MGF49200



SCHRACK-INFO

- These instruments are made from a bi-metal measuring mechanism which shows the maximum current fixed by a red slave pointer, and a moving iron mechanism used to measure momentary current.
- Moving iron mechanism, overcurrent range $2 \times I_n$, max. intrinsic consumption 1,2 VA, class 1,5
- Bi-metal measuring mechanism, overcurrent range $1,2 I_n$, intrinsic consumption 2,5 VA, class 3
- RBC series, response time 15 min., current-transformer connection $\dots/5A$, requires matching changeable scale
- Frequency 45-65 Hz
- Other changeable scales available upon request

MEASUREMENT RANGE	DIM. (WxHxD) mm	ORDER NO.
5 A, transformer connection, w/o scale	96x96x53	MGF49005
Changeable scale, 100-120-200/5 A	96x96	MGS49100
Changeable scale, 200-240-400/5 A	96x96	MGF49200
Changeable scale, 600-720-1200/5 A	96x96	MGF49600
Changeable scale, 1000-1200-2000/5 A	96x96	MGF491K0
Changeable scale, 1500-1800-3000/5 A	96x96	MGF491K5

ACCESSORIES DC



MG900011/IMG900015



MGZD0002

SCHRACK-INFO

- Terminal cover used to prevent accidental contact, fits all control panel devices

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
MG		
Terminal cover 72C	72x72x10	MG900011
Terminal cover 96C	96x96x10	MG900012
MOUNTING SET		
Additional mounting set (2 screws)		MGZ00001
Fast mounting set		MGZD0002
IP65 PROTECTION		
Front protection IP65 – 72C	72x72	MGZD7000
Front protection IP65 – 96C	96x96	MGZD9000

■ ELECTRONIC 1-PHASE METER



MGEI2125

■ SCHRACK-INFO

- 230V AC, 5 (25) A, 50 Hz with return stop
- Specification is equivalent EN 62052 / EN62053 CE
- Accuracy class 1
- Installation on DIN-Rail (DIN-EN 50022)
- 1 S U = 18 mm (DIN 43864)
- Regard of harmonic content up to 7kHz

■ TECHNICAL DATA

- S0-port: opto-electronic coupler (S0-DIN 43864)
- Rate of impulse: RA = 0,5 Wh/Imp.
- LED flash on, if power on the kW-meter without load and is blink synchronic 0,5 Wh/Imp. = RL
- Display: 5 counts for kWh with 1 decimal place
- Input energy / friction loss: appr. 0,5W
- Rated voltage: 195V up to 253V
- Rated current: 0,025A up to 25A
- Inrush current at $\cos \varphi = 1$ typical 22mA
- Temperature range: -20°C up to +50°C
- Air humidity max.: 75%, for a short time 95%

DESCRIPTION	ORDER NO.
Electronic 1-phase meter	MGEI2125

■ ELECTRONIC 3-PHASE METER



MGDZ063

■ SCHRACK-INFO

- Frequency: 50Hz, 60Hz, 16 $\frac{2}{3}$ Hz
- Accuracy: active energy, class 1 or 2 according to IEC 62053-21
- Measuring types: active energy, 1 tarif register with non-reverse ratchet
- Data retention time: without voltage in the FLASH/EEPROM, at least 20 years
- Relative humidity: 90% at 40°C, non-condensing
- Operation mechanical button for operation of display

■ TECHNICAL DATA

		TRANSFORMER OPERATED METER SII1A	DIRECT CONNECTED METER 5(65)A
Voltage	4-wire	3x230/400V	3x230/400V
Starting current		2mA	20mA
Display	LC-Display digit size in the value range number	8 digits, 3 with decimals digits	8 digits
Output (option)	Opto-MOSFET	4 x 6 mm maximum 1 maximum 250 V AC/DC, 100 mA for impulse transmission (fulfils S0-specifications)	
Energy supply	switched-mode power supply	3-phase from the measuring voltage	
Power consumption	voltage path	< 2.0 VA / < 1.0 W	
per phase	current path	< 0.5 VA < 2.5 VA	
EMC-characteristics	isolation resistance	Isolation: 4 kV AC, 50 Hz, 1 min	
	surge voltage	EMV: 4 kV, Impulse 1.2/50 μ s, 2 Ω ISO: 6 kV, Impulse 1.2/50 μ s, 500 Ω 10 V/m (under load)	
Temperature range	resistance against HF-fields	-25°C...+55°C / -40°C...+70°C	
Housing	operation / limit and storage dimensions class of protection degree of protection housing /terminal block housing material fire characteristics weight	6 pitch = 107.5 x 89.5 x 64.2 mm (B x H x D) 2 IP 20 polycarbonate flame-inhibiting (without halogen) approx. 400 g	
Connection-cross section	current / neutral conductor voltage / auxiliary terminals	maximum 4 mm ² maximum 2.5 mm ²	maximum 16 mm ² maximum 2.5 mm ²
Further features		buffer battery for reading the display without power measuring of instantaneous values of power, voltage and current	

DESCRIPTION	ORDER NO.
Electronic 3-phase meter	MGDZ005
Electronic 3-phase meter	MGDZ063

MODULAR, TCSM15 SERIES



MG900220

SCHRACK-INFO

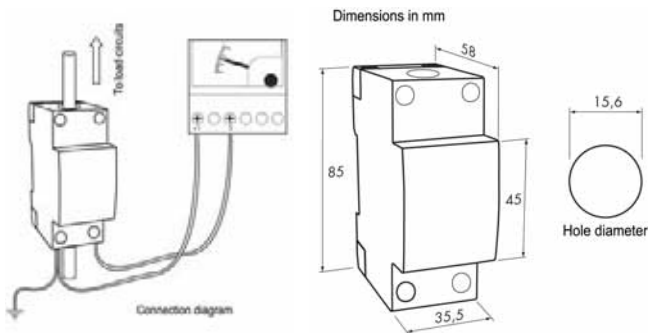
- 2 MW housing with primary max. 15 mm
- Fastenings: DIN rail
- Class 3, 40 - 80 A
- Class 1, 100 -150 A
- Power outputs 2 / 3 / 5 VA
- Secondary current 1 A upon request
- 75 A model upon request

RANGE OF APPLICATION

- Fits all DIN-rail mounted devices such as RCCB switches etc., 45 mm slit
- Easy to thread through
- For crude display of measured value
- Space saving - only 2 MW wide

TIPS & TRICKS

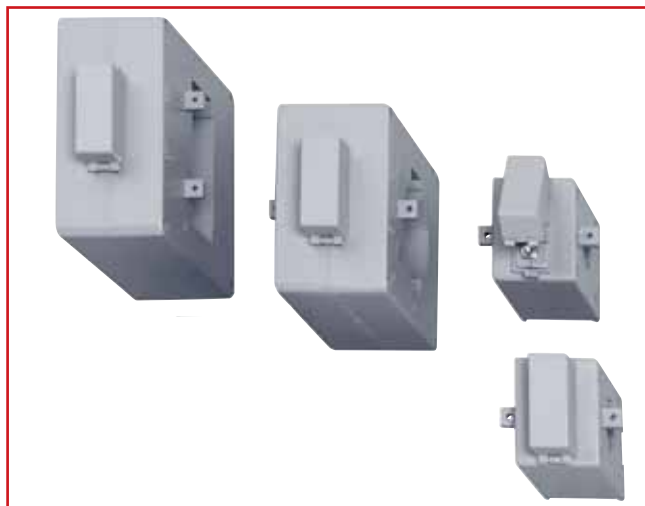
Do not mix up direct of current (energy flow) when pushing through. The secondary load (e.g. 2 VA) must match the measuring device usage!



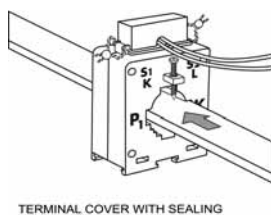
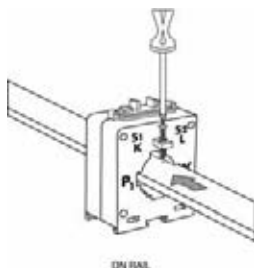
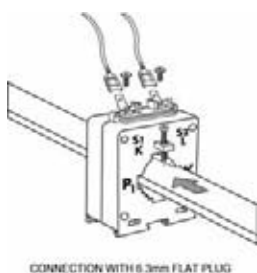
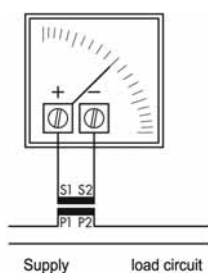
A	CLASS 1		CLASS 3	
	Secondary current 5A		Secondary current 5A	
Primary current	Type	VA	Type	VA
40			TCSM15 40 A	2
50			TCSM15 50 A	2
60			TCSM15 60A	3
80			TCSM15 80A	3
100	TCSM15 100A	3		
120	TCSM15 120A	5		
150	TCSM15 150A	5		

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
Low-current transformer 40 A	35,5x58x85	MG900220
Low-current transformer 50 A	35,5x58x85	MG900221
Low-current transformer 60 A	35,5x58x85	MG900222
Low-current transformer 80 A	35,5x58x85	MG900224
Low-current transformer 100 A	35,5x58x85	MG900225
Low-current transformer 120 A	35,5x58x85	MG900226
Low-current transformer 150 A	35,5x58x85	MG900227

CURRENT TRANSFORMER – TAR SERIES

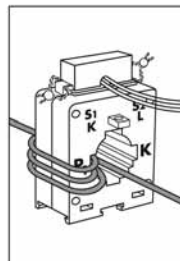
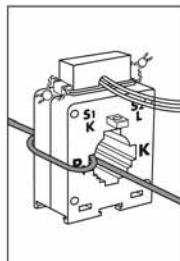
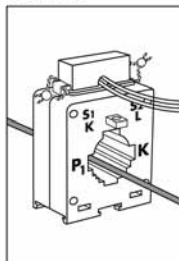


TAR



When winding the primary cable around the current transformer, you will obtain half of the primary current with each winding, while output and class remain unchanged.

EXAMPLE:



TECHNICAL DATA

- Observe current supply side P1/K, load side P2/L
- Before opening secondary circuit (e.g. to replace an instrument), firstly short-circuit secondary winding using jumpers S1/k and S2/l.
- Use class 0,5 for calibrated energy meters
Class 1 for display measuring devices and non-calibrated energy meters
Class 3 for relays and measuring devices w/o accuracy requirements (crude display)
- Observe load of measurement supply (e.g. 4m 1,5 mm² Cu conductors need 2,31 VA with 5A secondary current)

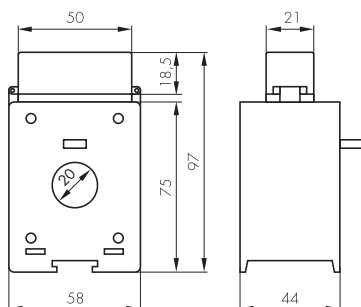
Current transformer

Series	TAR PD2	TAR 1D	TAR 3D	TAR 4D	TAR 6	TAR 8	TAR 12
Design	Winding transformer 25 x 3 (integrated)	Snap-on transformer					
WINDING	horiz. Rail	–	30 x 10	40 x 10	64 x 20	80 x 30	125 x 50
Cable	–	20	23	32	50	2 x 30	2 x 50
Primary current	Output (VA) Class 0,5	Output (VA) Class 0,5	Output (VA) Class 0,5	Output (VA) Class 0,5	Output (VA) Class 0,2	Output (VA) Class 0,5	Output (VA) Class 0,5
(A)							
40		3	2				
50	6	3	2				
60	6	3	3				
80	6	3	3				
100	6	3	3	3			
150		3	3	3			
200		3	3	4			
250		5	5	6	5 10		
300			5	6	5 10	5 10	
400			5	10	5 6 12	6 12	
500			6	10	5 6 12	10 20	
600			6	10	5 10 20	10 20	
800			6	10	5 10 20	10 20	
1000				20	5 20	40 10 20	
1200					20 40	15 30	
1500					30 60	20 40	
2000					30 60	20 40	30 60
2500					30 60	20 40	40 80
3000						20 40	40 80
4000							50 100

SCHRACK-INFO

- Enclosure in ABS plastic
- Secondary current: Standard 5 A
- Maximum operating voltage: 1.2 kV
- Test voltage: 6 kV at 50 Hz for 1 minute
- Thermic nominal short-time current (I_{th}): 40 I_{pN} /1 sec.
- Dynamic short-circuit current (I_{dyn}): 2,5 I_{th} /1 sec.
- Continuous overload: 1,2 I_{pN}
- Degree of protection IP30
- Rated frequency: 50/60 Hz
- Constructed in accordance with standards IEC 185, VDE 0414 and UN 21028
- Insulation class E (IEC 185)
- Tropic-proof, classes 0,2 upon request
- Safety/correction/overload current transformer upon request
- Including snap-on fastening on to foot of rail up to TAR 4D
- Other output-accuracy classes upon request

FOR CABLE, 20 mm Ø TAR 1D SERIES

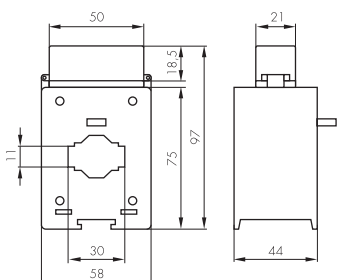


SCHRACK-INFO

- Also suitable for cable max. Ø 20 mm
- Including mounting-set for DIN-Rail

TRANSFORMER	DIM. (WxHxD) mm	ORDER NO.
50/5 A	58x97x44	MG952005
60/5 A	58x97x44	MG952006
80/5 A	58x97x44	MG952008
100/5 A	58x97x44	MG952010
150/5 A	58x97x44	MG952015
200/5 A	58x97x44	MG952020
250/5 A	58x97x44	MG952025

FOR AGGREGATE RAIL 30x10 mm, TAR 3D SERIES

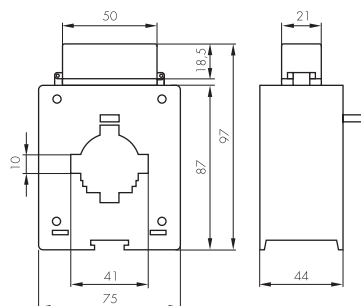


SCHRACK-INFO

- Also suitable for cable max. Ø 23 mm
- Including mounting-set for DIN-Rail

TRANSFORMER	DIM. (WxHxD) mm	ORDER NO.
50/5 A	58x97x44	MG954005
60/5 A	58x97x44	MG954006
100/5 A	58x97x44	MG954010
150/5 A	58x97x44	MG954015
200/5 A	58x97x44	MG954020
250/5 A	58x97x44	MG954025
300/5 A	58x97x44	MG954030
400/5 A	58x97x44	MG954040
500/5 A	58x97x44	MG954050
600/5 A	58x97x44	MG954060

FOR AGGREGATE RAIL 40x10 mm, TAR 4D SERIES

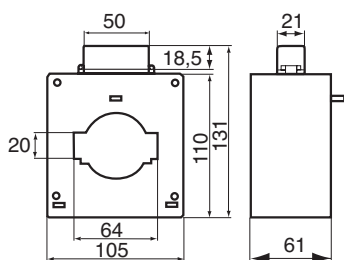


SCHRACK-INFO

- Also suitable for cable max. Ø 32 mm
- Including mounting-set for DIN-Rail

TRANSFORMER	DIM. (WxHxD) mm	ORDER NO.
400/5 A	75x97x44	MG955040
500/5 A	75x97x44	MG955050
600/5 A	75x97x44	MG955060
800/5 A	75x97x44	MG955080

FOR AGGREGATE RAIL 60x20 mm, TAR 6 SERIES

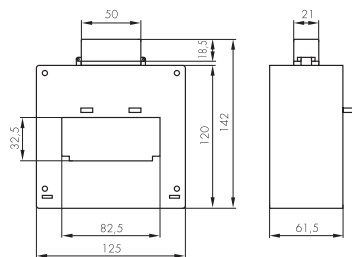


SCHRACK-INFO

- Also suitable for cable max. Ø 50 mm

TRANSFORMER	DIM. (WxHxD) mm	ORDER NO.
800/5 A	105x131x61	MG957080
1000/5 A	105x131x61	MG957100
1500/5 A	105x131x61	MG957150
2000/5 A	105x131x61	MG957200

FOR AGGREGATE RAIL 80x30 mm, TAR 8 SERIES



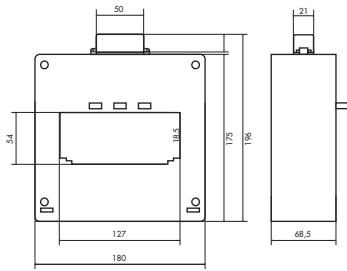
SCHRACK-INFO

- Also suitable for cable max. Ø 30 mm

TRANSFORMER	DIM. (WxHxD) mm	ORDER NO.
1000/5 A	125x142x61,5	MG958100
1500/5 A	125x142x61,5	MG958150
2000/5 A	125x142x61,5	MG958200
2500/5 A	125x142x61,5	MG958250

CURRENT TRANSFORMERS

■ FOR AGGREGATE RAIL 125X50 mm, TAR 12 SERIES



TRANSFORMER	DIM. (WxHxD) mm	ORDER NO.
2000/5 A	180x196x68,5	MG959200
2500/5 A	180x196x68,5	MG959250
3000/5 A	180x196x68,5	MG959300

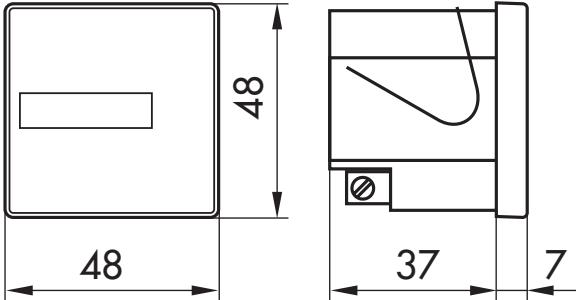
■ HOUR METER FOR CONTROL PANEL INSERT



BZ326413



BZ326415



■ SCHRACK-INFO

- Ambient temperature -20° C to +50° C
- Accuracy: Mains synchronous
- Degree of protection IP 20 or IP 54
- Protection class II
- 48 x 48 front plate with latch fastener
- Universal connection
- Power consumption 1A
- 10-50 V DC: round design
- Front panel cut-out 45 x 45 mm

■ RANGE OF APPLICATION

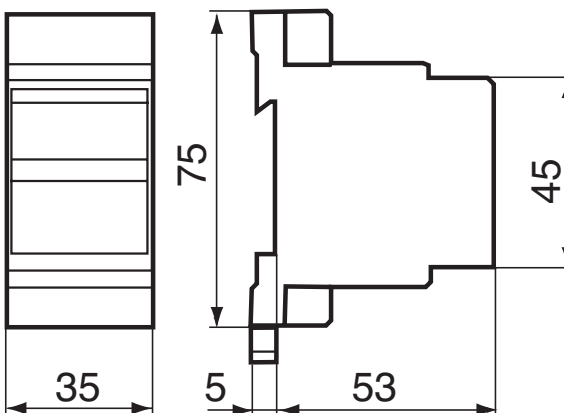
Used to measure operating time, down time, warranty time, switch time, working time, maintenance intervals, service life, etc.

RATED VOLTAGE	DIM. (WxHxD) mm	ORDER NO.
240 V AC IP 20	48x48x44	BZ326413
230 V AC IP 54	48x48x44	BZ326414
Shield	55x55	BZ326416

■ AS MODULAR INSERT/ WALL-MOUNTING



BZ326418



■ SCHRACK-INFO

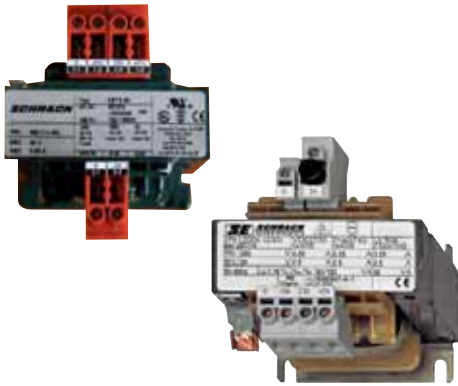
- Universal connection
- Ambient temperature -20° C to +50° C
- Accuracy: Mains synchronous
- Degree of protection IP 20
- Protection class II
- Power consumption 1A

■ RANGE OF APPLICATION

Used to measure operating time, down time, warranty time, switch time, working time, maintenance intervals, service life, etc.

RATED VOLTAGE	DIM. (WxHxD) mm	ORDER NO.
For 230 V AC	35x75x58	BZ326418

TOP-TECHNIC



TRANSFORMERS

TOP-TECHNIC



POWER SUPPLY UNITS

TRANSFORMERS, INDUCTORS, POWER SUPPLY UNITS

CONTENTS

TRANSFORMERS.....	Page 354
POWER SUPPLY UNITS	Page 357

CONTROL-, ISOLATING- AND SAFETY TRANSFORMERS



LP602006

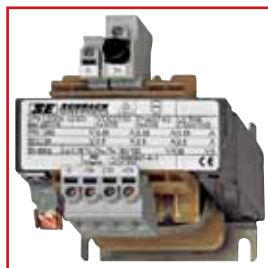
SCHRACK-INFO

- EN 61 558
- Taps, primary side $\pm 5\%$
- Finger-proof terminals according to VBG4
- Temperature class T 40/E
- Frequency 50/60 Hz
- Primary voltages: 400 V or 230 V, others upon request
- Secondary voltages: 230 V, 24 V, or 12 V, others upon request
- With optional fuse: LP 61....
- Optional snap-on fastening for DIN rail mounting (up to 200 VA): LP699001

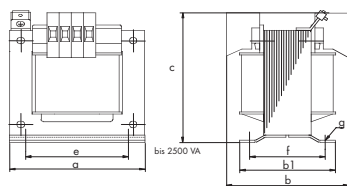
OVERVIEW TABLE

POWER RATING VA	400/230	400/24	230/230	230/24	230/12
30	-	LP603003	-	LP602003	LP601003
40	-	-	-	-	-
50	-	-	-	-	-
63	LP604006	-	-	LP602006	LP601006
100	LP604010	LP603010	LP605010	LP602010	LP601010
160	LP604016	LP603016	-	LP602016	LP601016
200	LP604020	LP603020	-	LP602020	LP601020
250	LP604025	LP603025	LP605025	LP602025	-
320	LP604032	-	-	LP602032	-
400	LP604040	LP603040	-	LP602040	LP601032
500	LP604050	LP603050	LP605050	LP602050	LP601050
630	LP604063	-	-	LP602063	-
700	-	-	-	-	-
800	-	-	LP605080	LP602080	-
1000	LP604100	-	LP605100	LP602100	-

SINGLE PHASE CONTROL TRANSFORMERS



LP612006



CERTIFICATIONS

EN 61 558

SCHRACK-INFO

- Primary voltage 400 V, others upon request
- Secondary voltage 230 V, others upon request
- With optional fuse: ... secondary (SIS)
- All transformers with a secondary voltage < 50 V have been designed and are labelled as safety transformers.
- No package screws, fastening holes freely accessible

Typ	P rated VA	a	b	c	e	f	g	Weight-kg
Dimensions in mm								
LP60x003	30	66	84	79	50	44	4,8	0,7
LP60x006	60	78	88	88	56	48	4,8	1,1
LP60x010	100	84	106	93	64	64	4,8	2
LP60x016	160	96	106	104	84	73	5,8	2,7
LP60x025	250	96	120	104	84	86	5,8	3,5
LP60x032	320	120	104	121	90	74	5,8	4
LP60x040	400	120	116	121	90	85	5,8	5,2
LP60x050	500	120	158	131	90	104	5,8	6,8
LP60x063	630	150	134	153	122	90	7	7,8
LP60x080	800	150	150	153	122	106	7	9,5
LP60x100	1000	150	176	153	122	130	7	12,9
LP60x130	1300	174	160	169	135	112	7	14
LP60x160	1600	174	180	169	135	142	7	18,5
LP60x200	2000	192	168	181	140	122	10	22,5
LP60x250	2500	192	190	181	140	144	10	24,6

DESCRIPTION	ORDER NO.
230/12 V	
230/12 V 30 VA	LP601003T
230/12 V 60 VA	LP601006T
230/12 V 100 VA	LP601010T
230/12 V 160 VA	LP601016T
230/12 V 200 VA	LP601020T
230/12 V 315 VA	LP601032T
230/12 V 500 VA	LP601050T
230/24 V	
230/24 V 30 VA	LP602003I
230/24 V 60 VA	LP602006I
230/24 V 100 VA	LP602010I
230/24 V 160 VA	LP602016I
230/24 V 250 VA	LP602025I
230/24 V 315 VA	LP602032I
230/24 V 400 VA	LP602040I
230/24 V 500 VA	LP602050I
230/24 V 630 VA	LP602063I
230/24 V 800 VA	LP602080I
230/24 V 1000 VA	LP602100I
400/24 V	
400/24 V 30 VA	LP603003I
400/24 V 100 VA	LP603010I
400/24 V 160 VA	LP603016I
400/24 V 250 VA	LP603025I
400/24 V 400 VA	LP603040I
400/24 V 500 VA	LP603050I

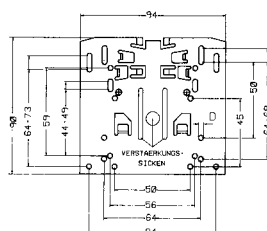
■ SINGLE PHASE CONTROL TRANSFORMERS – continued

DESCRIPTION	ORDER NO.
400/230 V	
400/230 V 60 VA	LP604006I
400/230 V 100 VA	LP604010I
400/230 V 160 VA	LP604016I
400/230 V 250 VA	LP604025I
400/230 V 320 VA	LP604032I
400/230 V 400 VA	LP604040I
400/230 V 500 VA	LP604050I
400/230 V 630 VA	LP604063I
400/230 V 1000 VA	LP604100I
400/230 V 1600 VA	LP604160I
400/230 V 2000 VA	LP604200I
400/230 V 2500 VA	LP604250I
400/230 V 3000 VA	LP604300I
400/230 V 4000 VA	LP604400T
230/230 V	
230/230 V 100 VA	LP605010I
230/230 V 250 VA	LP605025I
230/230 V 500 VA	LP605050I
230/230 V 800 VA	LP605080I
230/230 V 1000 VA	LP605100I
230/230 V 1300 VA	LP605130T
230/230 V 2000 VA	LP605200T
230/230 V 2500 VA	LP605250T
230/24 V	
230/24 V 30 VA sec. fuse	LP612003T
230/24 V 60 VA sec. fuse	LP612006T
230/24 V 100 VA sec. fuse	LP612010T
230/24 V 200 VA sec. fuse	LP612020T
230/24 V 250 VA sec. fuse	LP612025T

■ MOUNTING PLATE



LP699001T



■ SCHRACK-INFO

- Steel zinkplated

DESCRIPTION	ORDER NO.
Mounting plate 30 – 160 VA	LP699001T

STABILISED POWER SUPPLIES, INSTALLATION DESIGN TYPE



LP746101

CERTIFICATIONS

EN 60742

SCHRACK-INFO

- Supply voltage: 230 V AC
- Frequency range: 48-63 Hz
- Output voltage: 12 V DC or 24 V DC
- Power loss: 4 VA
- Storage temperature: -20 °C to +60 °C
- Ambient operating temperature: -20 °C to +40 °C
- Test voltage: 4 kV
- Degree of protection: IP 20
- Terminals: 2.5 mm²

OUTPUT CURRENT/MAX. POWER OUTPUT/ OUTPUT VOLTAGE	DIM. (WxHxD) mm	ORDER NO.
1,25 A/30 W/24 V DC	51x90x65	LP746101
2,5 A/30 W/12 V DC	51x90x65	LP7431C2

UNSTABILISED SINGLE-PHASE DC SUPPLY FULLY ENCAPSULATED, 1,5 TO 10 A



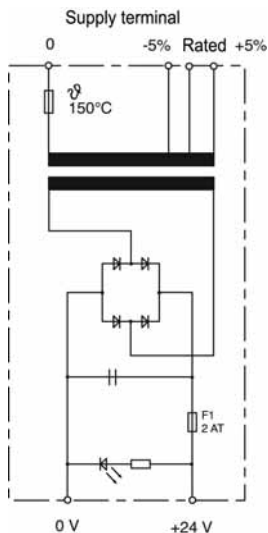
LP733103I

SCHRACK-INFO

- Taps, primary side $\pm 5\%$
- Input voltage 230 V 50/60 Hz, others upon request
- Output voltage 24 V DC according to EN 61558 & EN 61131, Other voltages upon request
- Residual ripple < 5%
- Primary protection: thermal release, secondary side: replaceable fuse
- Self-cooling
- LED function display
- With double insulation
- Operating temperature: -25 °C to +40 °C
- Storage temperature: -25 °C to +65 °C

CERTIFICATIONS

EN 60742 T2-6

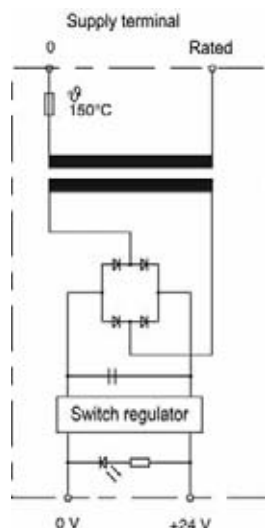


DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
230/24 V DC		
230/24 V 1,5 A unstabilised	121x100x77	LP7331B1I
230/24 V 3 A unstabilised	133x108x89	LP733103I
230/24 V 5 A unstabilised	133x121x89	LP733105I
230/24 V 10 A unstabilised	172x152x110	LP733110I
400/24 V DC		
400/24 V 3 A unstabilised	133x108x89	LP734103I
400/24 V 5 A unstabilised	133x121x89	LP734105I

STABILISED SINGLE-PHASE DC SUPPLY FULLY ENCAPSULATED, 1,5 TO 5 A



LP7231B1

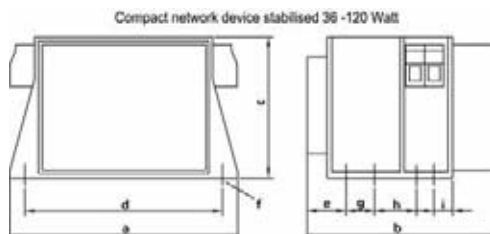


SCHRACK-INFO

- Stabilised supply voltage and current
- Input range from $0,9 U_n$ to $1,1 U_n$
- Input voltage 230 V 50/60 Hz or input voltage 400 V 50/60 Hz, others upon request
- Output voltage 24 V DC according to EN 61 558 / EN 61 131
- Residual ripple $< 150 \text{ mVpp}$
- Thermal release on primary side; electronic current limiter on secondary side
- With double insulation
- LED function display
- Short-circuit and tamper-proof
- Self-cooling
- Operating temperature: -25°C to $+40^\circ\text{C}$
- Storage temperature: -25°C to $+65^\circ\text{C}$

CERTIFICATIONS

EN 60,742 T2-6



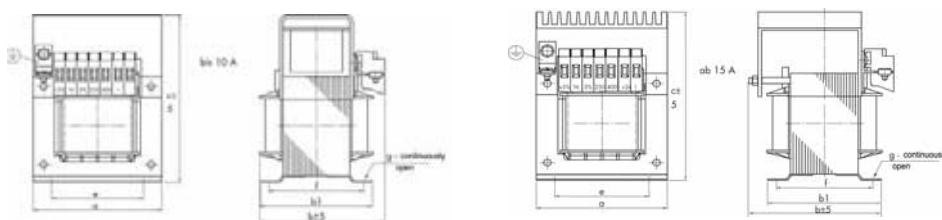
5,0 A	172	170	107	150	30	45,5	85	—	—
3,0 A	133	124	89	105	24	45,4x10	16,5	17,8	16,5
1,5 A	121	117	77	103	22	45,4x10	15	30	—
Size	a	b	c	d	e	f	g	h	i

DESCRIPTION	DIM. (WxHxD) MM	ORDER NO.
230/24 V 1,5 A stabilised	121x117x77	LP7231B1I
230/24 V 3 A stabilised	133x124x89	LP723103I
230/24 V 5 A stabilised	172x170x107	LP723105I

SINGLE-PHASE DC SUPPLY, FILTERED OUTPUT UP TO 25 A



LP702110



SCHRACK-INFO

- Output voltage 24 V DC according to DIN 19240
- Residual ripple $< 5\%$
- Self-cooling
- Taps, primary side $\pm 5\%$

CERTIFICATIONS

EN 61 558

■ SINGLE-PHASE DC SUPPLY, FILTERED OUTPUT UP TO 25 A – continued

Typ	Current A/ DC	a	b	c	d	e	f	Weight-kg
Dimensions in mm								
LP7021B1	1,5	78	68	123	56	47,5	M4	1,5
LP702103	3	84	85	125	64	65	M4	2,1
LP702105	6	96	92	135	84	75	M5	3,1
LP702108	8	105	105	145	80	86	M5	4,3
LP702110	11	120	113	165	90	94	M5	6,1
LP702115	18	135	135	185	104	106	M5	9,1
LP702125	25	151	147	248	122	125	7x13	14,8

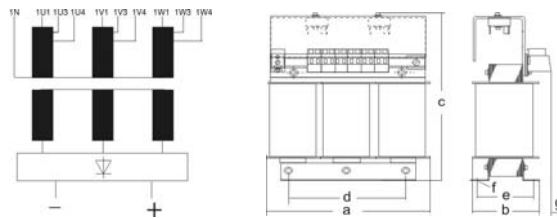
■ 230/400 V 50/60 Hz

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
230-400/24 V 1,5 A	78x123x68	LP7021B1I
230-400/24 V 3 A	84x125x85	LP702103I
230-400/24 V 6 A	96x135x92	LP702105I
230-400/24 V 8 A	105x145x105	LP702108I
230-400/24 V 11 A	120x165x113	LP702110I
230-400/24 V 18 A	135x185x135	LP702115I
230-400/24 V 25 A	151x248x147	LP702125T

■ THREE-PHASE DC POWER SUPPLY



LP701310I



■ SCHRACK-INFO

Dc power supply executed as three-phase safety transformer according to DIN EN 61558, VDE 0570, part 2-6 with silicon bridge rectifier. Residual ripple < 5%. Terminals with screwed and plug-in connection (6.3 x 0.8 mm), prepared for safety class I, 50/60 Hz, ta 40°C, dip impregnation, colour green RAL 6004.

Voltage and output power range: U_{PRI} : 400 V, U_{SEC} : 24 Vdc

Typ	Current A	a	b	c	d	e	f	Weight-kg
Dimensions in mm								
LP701310I	10	150	66	173	113	49	5,8x11,0	5,3
LP701315I	15	150	78	150	90	64	5,8x11,0	7,3
LP701320I	25	180	125	240	136	76	7,0x13,0	9,8
LP701330I	40	228	114	281	176	71	9,0x13,0	13,6

■ 3x400 V 50/60 Hz

DESCRIPTION	DIM. (WxHxD) mm	ORDER NO.
400/24 V DC 10 A	150x173x66	LP701310I
400/24 V DC 15 A	150x150x78	LP701315I
400/24 V DC 25 A	180x240x125	LP701320I
400/24 V DC 40 A	228x281x114	LP701330I

■ SUPPLY VOLTAGE 3 A STABILISED NG 12/3 A



YY494004

■ SCHRACK-INFO

The NG 12 supply voltage is a compact, dimensioned and good value module designed for rapid mounting using a snap-on fastening mountable on DIN rails. Upon request, the NG12 power supply can also be integrated into transformers.

- Input: 15 V AC/DC
- Output: Stabilised 12 V DC
- Max. 1% variance with current consumption $\leq 2,2$ A
- Short-circuit proof
- Fine-wire fuse 20 x 5, 6,3 A, quick-break
- Adjustable output voltage 5-15 V DC
- Ex-factory setting 12V DC
- Residual ripple $\leq 1\%$
- Design type for enclosures, can be snapped onto DIN rail
- Input voltage 28 V $\pm 15\%$ to 10%, 16 - 63 Hz
- Output voltage: continuously adjustable between 5 - 24 V using LED display
- Output current = 2,5 A

DIM. (WxHxD)	ORDER NO.
85x65x72	YY494012

■ SUPPLY VOLTAGE 3 A STABILISED NG 24/3 A



YY494004

■ SCHRACK-INFO

The NG 24 supply voltage is a compact, dimensioned and good value module designed for rapid mounting using a snap-on fastening mountable on DIN rails. Upon request, the NG 24 power supply can also be integrated into transformers.

- Input: max. 30 V AC/DC
- Output: Stabilised 24 V DC,
- Max. 1% variance with current consumption 3 A
- Short-circuit proof
- Fine-wire fuse 20 x 5, 6,3 A, quick-break
- Adjustable output voltage 16-28 V DC
- Ex-factory setting 24 V DC
- Residual ripple $\leq 1\%$

DIM. (WxHxD)	ORDER NO.
85x65x72	YY494004-A

PROTECTION TYPES FOR ELECTRICAL DEVICES

DEGREES OF PROTECTION: ACCIDENTAL CONTACT AND PROTECTION AGAINST FOREIGN BODIES

First characteristic IP	Protection area	
	Name	Declaration
0 	No protection	No protection for persons against direct contact of active or moving parts No protection of the devices against entering of foreign bodies.
1 	Protection against large foreign bodies	Protection against accidental touching of active and internal moving parts, e.g. by hand, but no protection against deliberate contact with these parts. Protection against entering of foreign bodies with a diameter larger than 50 mm.
2 	Protection against medium-sized foreign bodies	Protection against contact by finger of active or moving parts. Protection against entering of foreign bodies with a diameter larger than 12 mm.
3 	Protection against small foreign bodies	Protection against contact of active or moving parts by tools, wires or similar objects larger than 2.5 mm. Protection against entering of foreign bodies with a diameter larger than 2.5 mm.
4 	Protection against corn-like foreign bodies	Protection against contact of active or moving parts by tools, wires or similar objects larger than 1 mm.
5 	Protection against dust deposits	Total protection against contact of energised parts or moving parts Protection against damaging dust deposits. The entrance of dust is not prevented entirely, but dust is not allowed to enter in such quantities, so that it can alter the functioning.
6 	Protection against dust entrance	Total protection against contact of energised parts or moving parts. Protection against dust entrance.

DEGREES OF PROTECTION: AGAINST WATER

Second characteristic IP	Protection area	
	Name	Declaration
0 	No protection	No special protection.
	Protection against vertically dropping water	Water drops falling vertically may not have any damaging influence.
2 	Protection against inclined dropping water	Water drops falling at an angle up to 15°, may not have any damaging influence.
3 	Protection against spraying water	Water falling at an angle up to 60°, may not have any damaging influence.
4 	Protection against squirting water	Water spraying against the device from all directions may not have any damaging influence.
	Protection against water jet	A jet of water from a nozzle, being directed at the device from either side may not have any damaging influence.
6 	Protection against overflow	Water may not enter the device, in case of an overflow, in such an amount, that it will cause any damage.
	Protection in case of submerging.	Should the device be submerged under water, in given pressure and time conditions, water may not enter the device in such an amount that it will cause any damage.
8 	Protection in case of immersion	Should the device be immersed, water may not enter it in such an amount that it will cause any damage.



General Terms of Delivery

issued by the Austrian Electrical and Electronics Industry Association

1. Scope

- 1.1 These General Terms shall govern legal transactions between business enterprises, namely the delivery of commodities and, mutatis mutandis, the rendering of services. Software transactions are with precedence governed by the Software Conditions issued by the Austrian Electrical and Electronics Industry Association, assembly work by the Terms and Conditions for Assembly Work issued by the Austrian Power Current and Light Current Engineering Industry and or (where applicable) the Terms and Conditions for the Assembly of Electrical Equipment used in Medicine issued by the Austrian Electrical and Electronics Industry (the current versions are available at www.feei.at).
- 1.2 Any departure from the terms and conditions mentioned in 1.1 above shall be valid only if expressly accepted in writing by Seller.

2. Submission of offers

- 2.1 Seller's offers shall be deemed offers without engagement.
- 2.2 Tender documents and project documentation must not be duplicated nor made available to third parties without the permission of Seller. They may be claimed back at any time and shall be returned to Seller immediately if the order is placed elsewhere.

3. Conclusion of contract

- 3.1 The contract shall be deemed concluded upon written confirmation by Seller of an order received or upon dispatch of a delivery.
- 3.2 Particulars appearing in catalog, folders etc. as well as any oral or written statements shall only be binding if Seller makes express reference to them in the confirmation of the order.
- 3.3 Subsequent amendments of or additions to the contract shall be subject to written confirmation.

4. Prices

- 4.1 Prices shall be quoted ex works or ex Seller's warehouse without VAT, packing and packaging, loading, disassembly, take-back and proper recycling and disposal of waste electrical and electronic equipment for commercial purposes as defined by the Ordinance Regulating the Handling of Waste Electrical Equipment. Buyer shall be liable for any and all charges, taxes or other duties levied in respect of delivery. If the terms of delivery include transport to a destination designated by Buyer, transport costs as well as the cost of any transport insurance desired by Buyer shall be borne by the latter. Delivery does not, however, include unloading and subsequent handling. Packaging materials will be taken back only by express agreement.
- 4.2 Seller reserves the right to modify prices if the order placed is not in accordance with the offer submitted.
- 4.3 Prices are based on costs obtaining at the time of the first quotation. In the event that the costs have increased by the time of delivery, Seller shall have the right to adjust prices accordingly.
- 4.4 In carrying out repair orders, Seller shall provide all services deemed expedient and shall charge Buyer for the same on the basis of the work input and/or expenditures required. The same holds for any services or additional services the expediency of which becomes apparent only as the repair order is executed. In such an event special notification of Buyer shall not be required.
- 4.5 Expenses for estimates of costs of repair and maintenance or for expert valuations shall be invoiced to Buyer.

5. Delivery

- 5.1 The period allowed for delivery shall commence at the latest of the following dates:
- a) the date of order confirmation by Seller;
 - b) the date of fulfillment by Buyer of all the conditions, technical, commercial and other, for which he is responsible;
 - c) the date of receipt by Seller of a deposit or security due before delivery of the goods in question.
- 5.2 Buyer shall obtain whatever licences or approvals may be required from authorities or third parties for the construction of plant and equipment. If the granting of such licences or approvals is delayed for any reason the delivery period shall be extended accordingly.
- 5.3 Seller may carry out, and charge Buyer for, partial or advance deliveries. If delivery on call is agreed upon, the commodity shall be deemed called off at the latest one year after the order was placed.
- 5.4 In case of unforeseeable circumstances or circumstances beyond the parties control, such as all cases of force majeure, which impede compliance with the agreed period of delivery, the latter shall be extended in any case for the

duration of such circumstances; these include in particular armed conflicts, official interventions and prohibitions, delays in transport or customs clearance, damages in transit, energy shortage and raw materials scarcity, labor disputes, and default on performance by a major component supplier who is difficult to replace. The aforesaid circumstances shall be deemed to prevail irrespective of whether they affect Seller or his subcontractor(s).

- 5.5 If a contractual penalty for default of delivery was agreed upon by contracting parties when the contract was concluded, it shall be executed as follows, and any deviations concerning individual items shall not affect the remaining provisions: Where delay in performance can be shown to have occurred solely through the fault of Seller, Buyer may claim for each completed week of delay an indemnity of at most one half of one per cent, a total of no more than 5 %, however, of the value of that part of the goods to be delivered which cannot be used on account of Seller's failure to deliver an essential part thereof, provided the Buyer has suffered a damage to the aforesaid extent. Assertion of rights of damages exceeding this extent is precluded.

6. Passage of risk and Place of performance

- 6.1 Enjoyment and risk shall pass to Buyer at the time of departure of the goods ex works or ex warehouse regardless of the terms of quotation (such as carriage paid, C.I.F. etc.) agreed upon. This provision also includes the case of shipment being effected, organised and supervised by Seller and the case of delivery being made in connection with assembly work to be undertaken by Seller.
- 6.2 For services the place of performance shall be the place at which the service is rendered; the risk in respect of such services or any part thereof that may have been agreed upon shall pass to Buyer at the time the services have been rendered.

7. Payment

- 7.1 Unless otherwise agreed, one third of the purchase price shall fall due at the time of receipt by Buyer of the order confirmation of Seller, one third after half the delivery period has elapsed and the balance at the time of delivery. Irrespective thereof the turnover tax comprised in the amount of the invoice shall be paid within 30 days of the invoice date.
- 7.2 In the case of part settlements the individual part payments shall fall due upon receipt of the respective invoices. The same shall apply to amounts invoiced for additional deliveries or resulting from additional agreements beyond the scope of the original contract, irrespective of the terms of payment agreed upon for the principal delivery.
- 7.3 Payment shall be made without any discount free Seller's domicile in the agreed currency. Drafts and checks shall be accepted on account of payment only, with all interest, fees and charges in connection therewith (such as collection and discounting charges) to be borne by Buyer.
- 7.4 Buyer shall not be entitled to withhold or offset payment on the grounds of any warranty claims or other counterclaims.
- 7.5 Payment shall be deemed to have been effected on the date at which the amount in question is at Seller's disposal.
- 7.6 If Buyer fails to meet the terms of payment or any other obligation arising from this or other transactions, Seller may without prejudice to his other rights
- a) suspend performance of his own obligations until payments have been made or other obligations fulfilled, and exercise his right to extend the period of delivery to a reasonable extent,
 - b) call in debts arisen from this or any other transactions and charge default interest amounting to 1.25 % per month plus turnover tax for these amounts beginning with the due dates, unless Seller proves costs exceeding this.

In any case Seller has the right to invoice all expenses arising prior to a lawsuit, especially reminder charges and lawyer's fees.

- 7.7 Discounts or bonuses are subject to complete payment in due time.
- 7.8 Seller retains title to all goods delivered by him until receipt of all amounts invoiced including interests and charges.
- Buyer herewith assigns his claim out of a resale of conditional commodities, even if they are processed, transformed or combined with other commodities, to Seller to secure the latter's purchase money claim. In the case of resale granting respite Buyer shall have the power of disposal of the product under retention of ownership only with the proviso that upon reselling Buyer notifies the secondary buyer of the assignment for security or enters the assignment in his account books. Upon request Buyer has to notify the assigned claim and the debtor thereof to Seller, and to make all information and material required for his debt collection available and to notify the assignment to the third-party debtor. If the goods are attached or otherwise levied upon, Buyer shall draw attention to Seller's title and immediately inform Seller of the attachment or levy.

GENERAL TERMS OF DELIVERY

8. Warranty and acceptance of obligation to repair defects

- 8.1 Once the agreed terms of payment have been complied with, Seller shall, subject to the conditions hereunder, remedy any defect existing at the time of acceptance of the article in question whether due to faulty design, material or manufacture, that impairs the functioning of said article. From particulars appearing in catalogues, folders, promotional literature as well as written or oral statements which have not been included in the agreement no warranty obligations may be deduced.
- 8.2 Unless special warranty periods operate for individual items the warranty period shall be 12 months. These conditions shall also apply to any goods supplied, or services rendered in respect of goods supplied, that are firmly attached to buildings or the ground. The warranty period begins at the point of passage of risk acc. to paragraph 6.
- 8.3 The foregoing warranty obligations are conditional upon the Buyer giving immediate notice in writing of any defects that have occurred and such notice reaching the Seller. Buyer shall prove immediately the presence of a defect, in particular he shall make available immediately to Seller all material and data in his possession. Non-observance of Buyer's obligation to give immediate notice of the defect invalidates the right of claiming consequential harm caused by a defect. Upon receipt of such notice Seller shall, in the case of a defect covered by the warranty under 8.1 above, have the option to replace the defective goods or defective parts thereof or else to repair them on Buyer's premises or have them returned for repair, or to grant a fair and reasonable price reduction.
- 8.4 Any expenses incurred in connection with rectifying defects (e. g. expenses for assembly and disassembly, transport, waste disposal, travel and site-to-quarters time) shall be borne by Buyer. For warranty work on Buyer's premises Buyer shall make available free of charge any assistance, hoisting gear, scaffolding and sundry supplies and incidentals that may be required. Replaced parts shall become the property of Seller.
- 8.5 If an article is manufactured by Seller on the basis of design data, design drawings, models or other specifications supplied by Buyer, Seller's warranty shall be restricted to non-compliance with Buyer's specifications.
- 8.6 Seller's warranty obligation shall not extend to any defects due to assembly and installation work not undertaken by Seller, inadequate equipment, or due to non-compliance with installation requirements and operating conditions, overloading of parts in excess of the design values stipulated by Seller, negligent or faulty handling or the use of inappropriate materials, nor for defects attributable to material supplied by Buyer. Nor shall Seller be liable for damage due to acts of third parties, atmospheric discharges. Excess voltage and chemical influences. The warranty does not cover the replacement of parts subject to natural wear and tear. Seller accepts no warranty for the sale of used goods.
- 8.7 The warranty shall lapse immediately if, without written consent of Seller, Buyer himself or a third party not expressly authorised undertakes modifications or repairs on any items delivered.
- 8.8 Claims acc. to § 933b ABGB are struck by the statute of limitation with lapse of the period mentioned under point 8.2.
- 8.9 The provisions of sub-paragraphs 8.1 to 8.7 shall apply, mutatis mutandis, to all cases where the obligation to repair defects has to be accepted for other reasons laid down by law.

9. Withdrawal from contract

- 9.1 Buyer may withdraw from the contract only in the event of delays caused by gross negligence on the part of Seller and only after a reasonable period of grace has elapsed. Withdrawal from contract shall be notified in writing by registered mail.
- 9.2 Irrespective of his other rights Seller shall be entitled to withdraw from the contract
- a) if the execution of delivery or the inception or continuation of services to be rendered under the contract is made impossible for reasons within the responsibility of Buyer and if the delay is extended beyond a reasonable period of grace allowed;
 - b) if doubts have arisen as to Buyer's creditworthiness and if same fails, on Seller's request, to make an advance payment or to provide adequate security prior to delivery, or
 - c) if, for reasons mentioned in 5.4, the period allowed for delivery is extended by more than half of the period originally agreed or by at least 6 months.
- 9.3 For the reasons given above withdrawal from the contract shall also be possible in respect of any outstanding part of the delivery or service contracted for.
- 9.4 If bankruptcy proceedings are instituted against any contracting party or an application for bankruptcy proceedings against that party is not granted for insufficiency of assets, the other party may withdraw from the contract without allowing a period of grace.
- 9.5 Without prejudice to Seller's claim for damages including expenses arising prior to a lawsuit, upon withdrawal from contract any open accounts in respect of deliveries made or services rendered in whole or in part shall be settled according to contract. This provision also covers deliveries or services not yet accepted by Buyer as well as any preparatory acts performed by Seller. Seller shall, however, have the option alternatively to require the restitution of articles already delivered.

- 9.6 Withdrawal from contract shall have no consequences other than those stipulated above.

- 9.7 The assertion of claims on the ground of *laesio enormis*, error, or lapse of purpose by the Buyer is excluded.

10. Disposal of waste electrical and electronic equipment

- 10.1 The Buyer of electrical/electronic equipment for commercial purposes, incorporated in Austria, is responsible for the financing of the collection and treatment of waste electrical and electronic equipment as defined by the Ordinance Regulating the Handling of Waste Electrical Equipment, if he is himself the user of the electrical/electronic equipment. If the Buyer is not the end user, he shall transfer the full financial commitment to his customer by agreement and furnish proof thereof to the Seller.
- 10.2 The Buyer incorporated in Austria shall ensure that the Seller is provided with all information necessary to meet the Seller's obligations as manufacturer/importer, particularly according to §§ 11 and 24 of the Ordinance Regulating the Handling of Waste Electrical Equipment and the Waste Management Act.
- 10.3 The Buyer incorporated in Austria is liable vis-à-vis the Seller for any damage and other financial disadvantages incurred by Seller due to Buyer's failure to meet or fully meet his financing commitment or any other obligations according to Article 10. The Buyer shall bear the burden of proof of performance of this obligation.

11. Seller's liability

- 11.1 Outside the scope of the Product Liability Act, Seller shall be liable only if the damage in question is proved to be due to intentional acts or acts of gross negligence, within the limits of statutory provisions. Seller shall not be liable for damage due to acts of ordinary negligence nor for consequential damages or damages for pure economic loss, loss of profits, loss of savings or interest or damage resulting from third-party claims against buyer.
- 11.2 Seller shall not be liable for damages in case of non-compliance with instructions for assembly, commissioning and operation (such as are contained in instructions for use) or non-compliance with licensing requirements.
- 11.3 Claims that exceed the contractual penalties that were agreed on are excluded from the respective title.

12. Industrial property rights and copyrights

- 12.1 Buyer shall indemnify Seller and hold him harmless against any claims for any infringement of industrial property rights raised against him if Seller manufactures an article pursuant to any design data, design drawings, models or other specifications made available to him by Buyer.
- 12.2 Design documents such as plans and drawings and other technical specifications as well as samples, catalogues, prospectuses, pictures and the like shall remain the intellectual property of Seller and are subject to the relevant statutory provisions governing reproduction, imitation, competition etc. The provisions of 22 above shall also cover design documents.

13. General

- Should individual provisions of the contract or of these provisions be invalid the validity of the other provisions shall not be affected. The invalid provision shall be replaced by a valid one, which comes as close to the target goal as possible.

14. Jurisdiction and applicable law

- Any litigations arising under the contract including litigations over the existence or non-existence thereof shall fall within the exclusive jurisdiction of the competent court at Seller's domicile; the competent court of the Bezirksgericht Innere Stadt, Vienna, shall have exclusive jurisdiction if Seller is domiciled in Vienna. The contract is subject to Austrian law excluding the referral rules. Application of the UN Convention on Contracts for the International Sale of Goods is renounced.

Last revised in May 2007

THE COMPANY

HEADQUARTERS

SCHRACK TECHNIK GMBH
Seybelgasse 13, A-1230 Vienna
PHONE +43(0)1/866 85-0
FAX +43(0)1/866 85-1520
E-MAIL export@schrack.com



SCHRACK COMPANIES

BELGIUM

SCHRACK TECHNIK B.V.B.A
Twaalfapostelenstraat 14
BE-9051 St-Denijs-Westrem
PHONE +32 9/384 79 92
FAX +32 9/384 87 69
E-MAIL info@schrack.be

ROMANIA

SCHRACK TECHNIK SRL
Str. Simion Barnutiu nr. 15
RO-410204 Oradea
PHONE +40 259/435 887
FAX +40 259/412 892
E-MAIL schrack@schrack.ro

SLOVENIA

SCHRACK TECHNIK D.O.O.
Pameče 175
SI-2380 Slovenj Gradec
PHONE +386 2/883 92 00
FAX +386 2/884 34 71
E-MAIL schrack.sg@schrack.si

CROATIA

SCHRACK TECHNIK D.O.O.
Zavrtnica 17
HR-10000 Zagreb
PHONE +385 1/605 55 00
FAX +385 1/605 55 66
E-MAIL schrack@schrack.hr

SERBIA

SCHRACK TECHNIK D.O.O.
Kumodraska 260
RS-11000 Beograd
PHONE +381/11 309 2600
FAX +381/11 309 2620
E-MAIL office@schrack.co.yu

CZECH REPUBLIC

SCHRACK TECHNIK SPOL. SR.O.
Dolnomecholupska 2
CZ-10200 Praha 10 – Hostivar
PHONE +42(0)2/810 08 264
FAX +42(0)2/810 08 462
E-MAIL paha@schrack.cz

POLAND

SCHRACK TECHNIK
POLSKA SP.Z.O.O.
ul. Annopol 3
PL-03-236 Warszawa
PHONE +48 22/331 48 31
FAX +48 22/331 48 33
E-MAIL se@schrack.pl

SLOVAKIA

SCHRACK TECHNIK SPOL. SR.O.
Langsfeldova 2
SK-03601 Martin
PHONE +42 1/43 422 16 41
FAX +42 1/43 423 95 56
E-MAIL martin@schrack.sk

HUNGARY

SCHRACK TECHNIK KFT.
Vidor u.
H-1172 Budapest
PHONE +36 1/253 14 01
FAX +36 1/253 14 91
E-MAIL schrack@schrack.hu