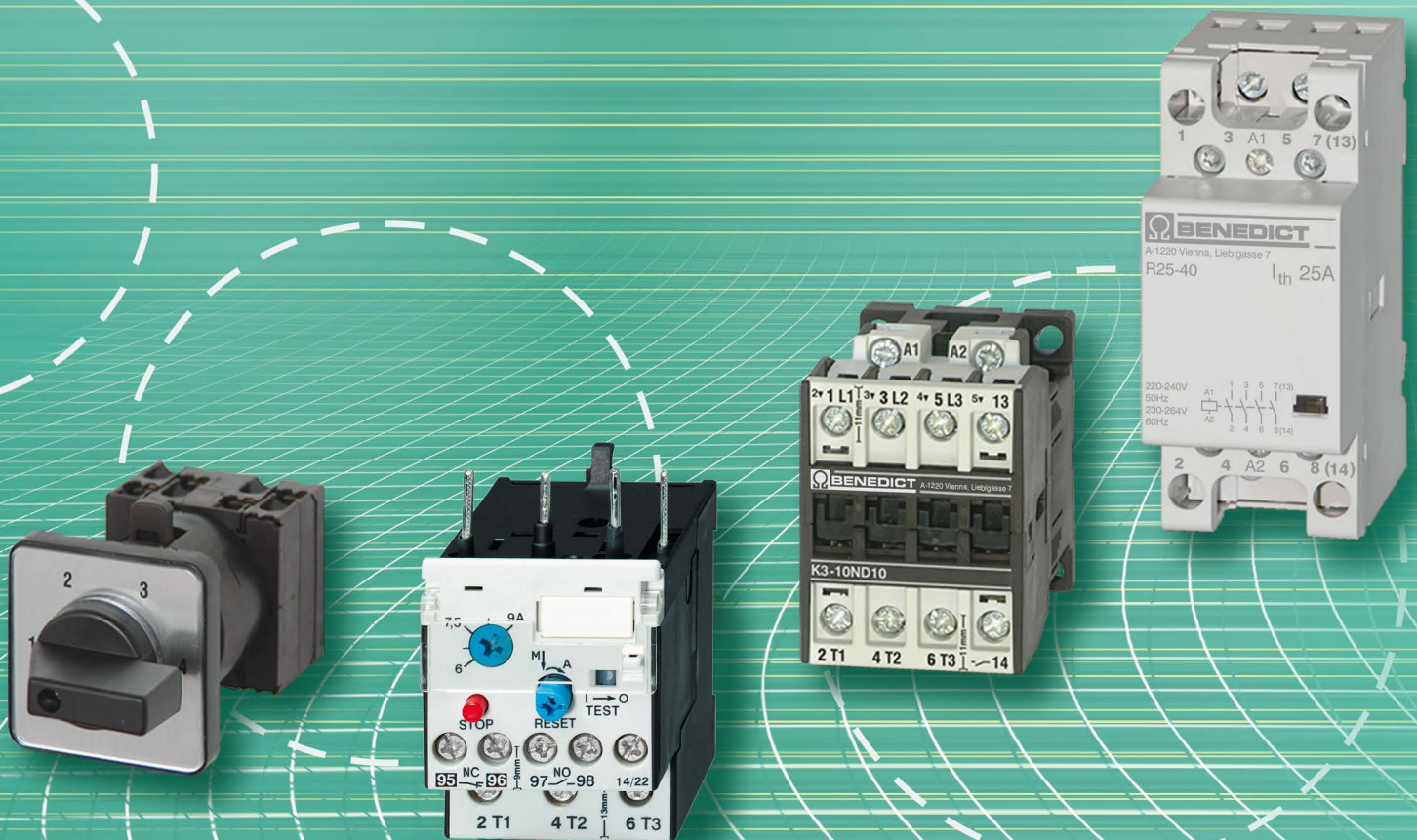










Low Voltage Control Gear



Quality made in



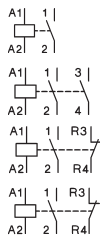
Short Form Catalogue D651E181

Modular Contactors		Modular Contactors 2
		Cam switches 4
		Main Switches 5
Contactors and Overload Relays		Mini-Contactors K1 6
		Mini-Reversing Starters K1W 6
		Micro-Contactors K0 6
		Contactors K3 8
		Reversing Starters 9
		Star Delta Starters 9
		Overload Relays for Contactors K1 7
		Overload Relays for Contactors K3 10
		D.O.L. Starters 11
Circuit Breakers for Motor Protection		Circuit Breakers 12
Manual Motor-Starters		Manual Motor-Starters 14
Push Buttons		Assembled Stations 15
		Push Button Sets 16
		Push Buttons 18
Switches		DC-Switch Disconnect 20
		Main Switches 21
	Cam switches 23	

Modular Contactors, low noise

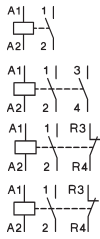
Rated Current 400V AC1 A	Power Rating		Motor AC3 400V 3~ kW	Type NO NC Coil V~	Pack Pcs..	Weight kg/pc.
	AC1 230V 1~ kW	400V 3~ kW				

1-, 2-pole 1 Module (17,5mm), low noise, AC-operated



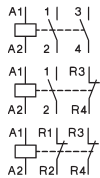
20	4,6	-	-	R20-10 230	12	0,12
20	4,6	-	-	R20-20 230	12	0,12
20	4,6	-	-	R20-20 24	12	0,12
20	4,6	-	-	R20-11 230	12	0,12
20	4,6	-	-	R20-11 24	12	0,12
20	4,6	-	-	R20-02 230	12	0,12
20	4,6	-	-	R20-02 24	12	0,12

1-, 2-pole 1 Module (17,5mm), humfree ²⁾, AC/DC-operated



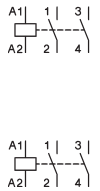
20	4,6	-	-	R20-10 230VM	12	0,12
20	4,6	-	-	R20-20 230VM	12	0,12
20	4,6	-	-	R20-20 24VM	12	0,12
20	4,6	-	-	R20-11 230VM	12	0,12
20	4,6	-	-	R20-11 24VM	12	0,12
20	4,6	-	-	R20-02 230VM	12	0,12
20	4,6	-	-	R20-02 24VM	12	0,12

2-pole 2 Modules (35mm), low noise, AC-operated



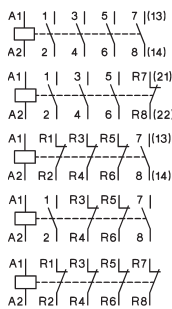
25	5,5	-	-	R25-20 230	12	0,14
25	5,5	-	-	R25-20 24	12	0,14
25	5,5	-	-	R25-11 230	12	0,14
25	5,5	-	-	R25-11 24	12	0,14
25	5,5	-	-	R25-02 230	12	0,14
25	5,5	-	-	R25-02 24	12	0,14

2-pole 2 Modules (35mm), low noise, AC-operated



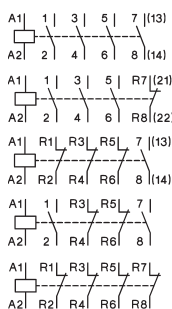
40	9	-	-	R40-20 230	6	0,23
63	14,3	-	-	R63-20 230	6	0,23

4-pole 2 Modules (35mm) ¹⁾, low noise, AC-operated



25	5,7	17	4	R25-40 230	6	0,21
25	5,7	17	4	R25-40 24	6	0,21
25	5,7	17	4	R25-31 230	6	0,21
25	5,7	17	4	R25-31 24	6	0,21
25	5,7	17	4	R25-13 230	6	0,21
25	5,7	17	4	R25-13 24	6	0,21
25	5,7	-	-	R25-22 230	6	0,21
25	5,7	-	-	R25-22 24	6	0,21
25	5,7	17	4	R25-04 230	6	0,21
25	5,7	17	4	R25-04 24	6	0,21

4-pole 2 Modules (35mm), humfree ²⁾, AC/DC operated



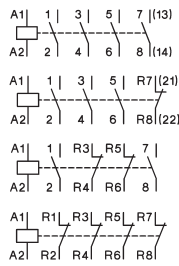
25	5,7	17	4	R25-40 230VM	6	0,22
25	5,7	17	4	R25-40 24VM	6	0,22
25	5,7	17	4	R25-31 230VM	6	0,22
25	5,7	17	4	R25-31 24VM	6	0,22
25	5,7	17	4	R25-13 230VM	6	0,22
25	5,7	17	4	R25-13 24VM	6	0,22
25	5,7	-	-	R25-22 230VM	6	0,22
25	5,7	-	-	R25-22 24VM	6	0,22
25	5,7	17	4	R25-04 230VM	6	0,22
25	5,7	17	4	R25-04 24VM	6	0,22

¹⁾ Sealable with Sealing Cover P721, available aux. contact block RH11

²⁾ Sealable with Sealing Cover P721, available aux. contact block RH11-1

Modular Contactors low noise

4-pole 3 Modules (52,5mm)¹⁾



Rated Current 400V AC1 A	Power Rating		Motor AC3 400V 3~ kW	Type	Pack	Weight
	AC1 230V 1~ kW	400V 3~ kW				
				NO NC Coil V~	Pcs.	kg/pc.
40	9	27,5	12,5	R40-40 230	4	0,35
40	9	27,5	12,5	R40-40 24	4	0,35
40	9	27,5	12,5	R40-31 230	4	0,35
40	9	27,5	12,5	R40-31 24	4	0,35
40	9	-	-	R40-22 230	4	0,35
40	9	-	-	R40-22 24	4	0,35
40	9	27,5	12,5	R40-04 230	4	0,35
40	9	27,5	12,5	R40-04 24	4	0,35
63	14,3	43	15	R63-40 230	4	0,36
63	14,3	43	15	R63-40 24	4	0,36
63	14,3	43	15	R63-31 230	4	0,36
63	14,3	43	15	R63-31 24	4	0,36
63	14,3	-	-	R63-22 230	4	0,36
63	14,3	-	-	R63-22 24	4	0,36
63	14,3	43	15	R63-04 230	4	0,36
63	14,3	43	15	R63-04 24	4	0,36

Accessories for Modular Contactors

Aux. Contact Block, for R25 to R63 4-pole



1 TE (8,75mm)

Rated current AC15 230V A	400V A	Therm. Current		Type	Pack	Weight
		lth	for contactor			
3	2	10	R25 ²⁾ , R40, R63	RH11	3	0,026

Sealing covers



for R25..	P721	10	0,84
for R40.. to R63..	P690	10	0,84

Suppressor unit



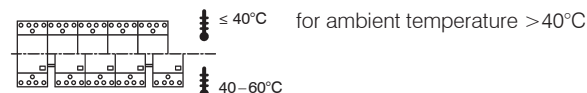
RC-unit for 12V to 250V AC~
1 Modul (17,5mm)

for 2x R20.. to R63..	RC-R 230	2	0,05
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Spacing piece



1 TE (8,75mm)

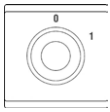


1) Sealable with Sealing Cover P690, available aux. contact block RH11
2) AC-operated R25-..., 4-pole

Cam Switches for Installation boards, 60mm

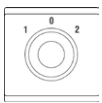


ON-OFF-Switches



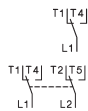
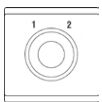
Pole	AC21 I_{th}	Motor 3x400V	Plate	Type	Pack Pcs.	Weight g/pc.
1	20A	-	52x45	M10H SMA A1	1	95
1	32A	-	52x45	M20 SMA A1	1	102
2	20A	-	52x45	M10H SMA A2	1	100
2	32A	-	52x45	M20 SMA A2	1	111
3	20A	5,5kW	52x45	M10H SMA A3	1	105
3	32A	11kW	52x45	M20 SMA A3	1	120
4	20A	5,5kW	52x45	M10H SMA A4	1	110
4	32A	11kW	52x45	M20 SMA A4	1	129

Changeover Switches with 0-Position



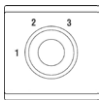
1	20A	-	52x45	M10H SMA U1	1	100
2	20A	-	52x45	M10H SMA U2	1	110
2	32A	-	52x45	M20 SMA U2	1	129
3	20A	-	52x45	M10H SMA U3	1	120

Changeover Switches without 0-Position



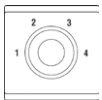
1	20A	-	52x45	M10H SMA W1	1	100
2	20A	-	52x45	M10H SMA W2	1	110
2	32A	-	52x45	M20 SMA W2	1	129

3 Step Switches without 0-Position



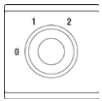
1	20A	-	52x45	M10H SMA ST31	1	105
1	32A	-	52x45	M20 SMA ST31	1	120

4 Step Switches without 0-Position



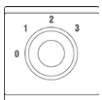
1	20A	-	52x45	M10H SMA ST41	1	110
1	32A	-	52x45	M20 SMA ST41	1	129

2 Step Switches with 0-Position



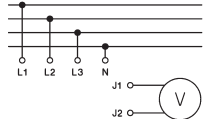
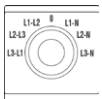
1	20A	-	52x45	M10H SMA ST021	1	110
1	32A	-	52x45	M20 SMA ST021	1	111

3 Step Switches with 0-Position



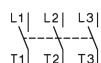
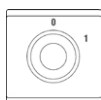
1	20A	-	52x45	M10H SMA ST031	1	105
1	32A	-	52x45	M20 SMA ST031	1	120

Voltmeter Selector Switch, 3 line voltages, 3 phase voltages



	20A		52x45	M10H SMA V1	1	120
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ON-OFF-Switches Key operated Lock Willenhal FT101



1	20A	-	52x45	M10H SMA A1+SA	1	117
1	32A	-	52x45	M20 SMA A1+SA	1	129
2	20A	-	52x45	M10H SMA A2+SA	1	122
2	32A	-	52x45	M20 SMA A2+SA	1	137
3	20A	5,5kW	52x45	M10H SMA A3+SA	1	142
3	32A	11kW	52x45	M20 SMA A3+SA	1	161

Emergency - Stop - Main Switch, lockable

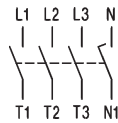
AC21 690V	AC23 3x400V	Plate	Type	Pack Pcs.	Weight kg/pc.
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3-pole, for Installation board, 60mm, IP40



20A	7,5kW	52x45	LTS20 SMAHN1 A3	1	0,15
25A	10kW	52x45	LTS25 SMAHN1 A3	1	0,15
32A	12,5kW	52x45	LTS32 SMAHN1 A3	1	0,15
40A	16kW	52x45	LTS40 SMAHN1 A3	1	0,15
63A	22kW	52x45	LTS63 SMAHN1 A3	1	0,18
80A	22kW	52x45	LTS80 SMAHN1 A3	1	0,18
85A	30kW	78x45	LTS85 SMAHN1 A3	1	0,37
100A	37kW	78x45	LTS100 SMAHN1 A3	1	0,37
125A	45kW	78x45	LTS125 SMAHN1 A3	1	0,37

4-pole, for Installation board, 60mm, IP40

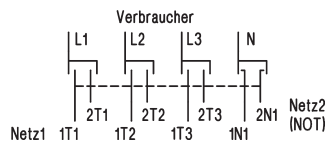


20A	7,5kW	52x45	LTS20 SMAHN1 A4	1	0,16
25A	10kW	52x45	LTS25 SMAHN1 A4	1	0,16
32A	12,5kW	52x45	LTS32 SMAHN1 A4	1	0,16
40A	16kW	52x45	LTS40 SMAHN1 A4	1	0,16
63A	22kW	52x45	LTS63 SMAHN1 A4	1	0,21
80A	22kW	52x45	LTS80 SMAHN1 A4	1	0,21
85A	30kW	78x45	LTS85 SMAHN1 A4	1	0,42
100A	37kW	78x45	LTS100 SMAHN1 A4	1	0,42
125A	45kW	78x45	LTS125 SMAHN1 A4	1	0,42

Net Changeover Switches for emergency power systems

AC21 690V	AC23 3x400V	Plate	Type	Pack Pcs.	Weight
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4-pole, for Installation board, 60mm, IP40



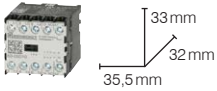
20A	7,5kW	97x45	LTS20 SMA U4 +841	1	1)
25A	10kW	97x45	LTS25 SMA U4 +841	1	1)
32A	12,5kW	97x45	LTS32 SMA U4 +841	1	1)
40A	16kW	97x45	LTS40 SMA U4 +841	1	1)
63A	22kW	126x45	LTS63 SMA U4 +841	1	1)

Other designs on request

1) Weight on request

Micro-Contactors K1, Mini-Contactors K0

Micro-Contactor, Coil AC



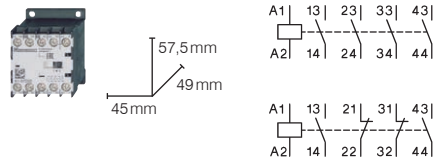
Motor AC2, AC3 kW	Therm. current I_{th}	to accept Overload Relay	Type	Pack Pcs.	Weight kg/pc.
2,2kW	12A	-	NO NC V Coil	1	0,07
2,2kW	12A	-	K0-05D10 230 K0-05D10 24	1	0,07

Snap-On Adapter



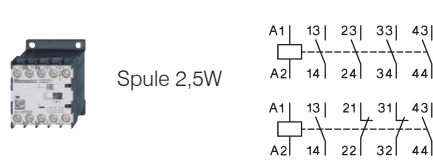
For Type	Specification	Type	Pack pcs..	Weight kg/pc.
K0	for snap-on mounting on 35mm DIN-rail acc. DIN EN 50022	P1039	10	0,0061

Mini-Contactor Relays, Coil AC A



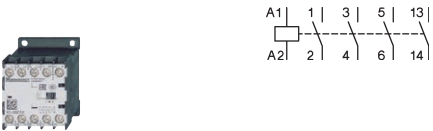
AC15 230V I_{th}	Rated Current max.	additionally aux. contacts	Type	Pack Pcs.	Weight kg/pc.
3A	10A	1 HK..	NO NC V Coil	1	0,16
3A	10A	1 HK..	K1-07D40 230 K1-07D40 24	1	0,16
3A	10A	1 HK..	K1-07D22 230 K1-07D22 24	1	0,16

Mini-Contactor Relays, Coil DC



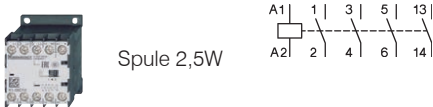
3A	10A	1 HK..	K1-07D40= 24	1	0,16
3A	10A	1 HK..	K1-07D22= 24	1	0,16

Mini-Contactors, Coil AC



Motor AC3 kW	Rated Current AC1	additionally aux. contacts max.	Type	Pack Pcs.	Weight kg/pc.
4kW	20A	1 HKM..	NO NC V Coil	1	0,16
4kW	20A	1 HKM..	K1-09D10 230 K1-09D10 24	1	0,16
5,5kW	20A	1 HKM..	K1-12D10 230 K1-12D10 24	1	0,16

Mini-Contactors, Coil DC



4kW	20A	1 HKM..	K1-09D10= 24	1	0,16
5,5kW	20A	1 HKM..	K1-12D10= 24	1	0,16

Mini-Reversing Starter, Coil AC 400V



Motor AC3 kW	Rated current AC1	to accept therm. Overload Relay	Type	Pack Pcs.	Weight kg/pc.
4kW	20A	U12/16E.. K1	V Coil	1	0,32
5,5kW	20A	U12/16E.. K1	K1W09D01MC 230 K1W12D01MC 230	1	0,32

Mini Contactors with Solder Pins

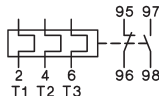


on request

Marking	Voltage range	Standard coil voltages: Coil AC	Standard coil voltages: Coil DC
24 230	24V 50/60Hz 220-230V 50Hz / 230-250V 60Hz Other coil voltages on request	24V=, 60V=, 110V= und 220V=	Other coil voltages on request

Overload Relays, Suppressor Units for Contactors K1

Overload Relays



Hand Reset
electric. insulated
auxiliary contacts
1NO + 1NC

Motor AC3 400V kW	Setting Range A	Fuse acc. coordination		Type	VPE Pcs.	Weight kg/pc.
		aM A	gL(gG) A "2"			
0,06 0,09	0,12–0,18	-	0,5	U12/16E 0,18 K1	1	0,10
	0,18–0,27	-	1,0	U12/16E 0,27 K1	1	0,10
	0,27–0,4	-	2	U12/16E 0,4 K1	1	0,10
0,12 0,18 0,25	0,4–0,6	-	2	U12/16E 0,6 K1	1	0,10
	0,6–0,9	-	4	U12/16E 0,9 K1	1	0,10
	0,8–1,2	2	4	U12/16E 1,2 K1	1	0,10
0,37 0,75 1,5	1,2–1,8	2	6	U12/16E 1,8 K1	1	0,10
	1,8–2,7	4	10	U12/16E 2,7 K1	1	0,10
	2,7–4	4	10	U12/16E 4 K1	1	0,10
2,2 3 4	4–6	6	16	U12/16E 6 K1	1	0,10
	6–9	10	25	U12/16E 9 K1	1	0,10
	8–11	16	25	U12/16E 11 K1	1	0,10
5,5	10–14	16	35	U12/16E 14 K1	1	0,10

Auxiliary Contact Blocks



for K1-07D...

AC15 230V A	Rated Current I_{th}	contacts		Type	Pack Pcs.	Weight kg/pc.
		NO 	NC 			
3A 3A 3A	10A	1	1	HK11	10	8,59
		0	2	HK02	10	8,59
		2	2	HK22	10	15,02
3A 3A	10A	0	4	HK04	10	15,02
		4	0	HK40	10	15,02



for K1-09D10,
K1-12D10

3A 3A 3A	10A	1	1	HKM11	10	8,59
		0	2	HKM02	10	8,59
		2	0	HKM20	10	8,59
3A 3A	10A	2	2	HKM22	10	15,02
		3	1	HKM31	10	15,02

Suppressor Units

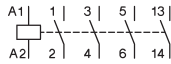


K1-07.. to K1-12..

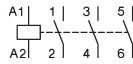
Voltage range	Execution	Type	Pack Pcs.	Weight kg/pc.
12 - 24V AC/DC 110-230V AC/DC	RC	RC-K1 24	10	0,01
	RC	RC-K1 230	10	0,01

Contactors K3

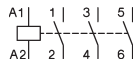
Contactor Relays, Coil AC



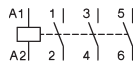
Motor AC3 400V	Rated Current I_{th}	additionally aux. contacts max.	Type	NO	NC	V Coil	Pack Pcs.	Weight kg/pc.
4kW	25A	4 HN..	K3-10ND10	230			1	0,23
4kW	25A	4 HN..	K3-10ND10	400			1	0,23
5,5kW	25A	4 HN..	K3-14ND10	230			1	0,23
5,5kW	25A	4 HN..	K3-14ND10	400			1	0,23
7,5kW	32A	4 HN..	K3-18ND10	230			1	0,23
7,5kW	32A	4 HN..	K3-18ND10	400			1	0,23
11kW	32A	4 HN..	K3-22ND10	230			1	0,23
11kW	32A	4 HN..	K3-22ND10	400			1	0,23
11	50	4 HN..+2 HB..	K3-24A00	230			1	0,48
15	65	4 HN..+2 HB..	K3-32A00	230			1	0,48
18,5	80	4 HN..+2 HB..	K3-40A00	230			1	0,48



22	110	4 HN..+2 HB..	K3-50A00	230			1	0,85
30	120	4 HN..+2 HB..	K3-62A00	230			1	0,85
37	130	4 HN..+2 HB..	K3-74A00	230			1	0,85



45	160	7 HN..+2 HB..	K3-90A00	230			1	2,2
55	200	7 HN..+2 HB..	K3-115A00	230			1	2,2



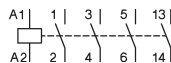
75 - 680kW

on request

Contactor Relays, Coil DC



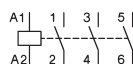
with integrated coil suppressor
Coil 3W



4	25	4 HN..	KG3-10A10	24			1	0,53
5,5	25	4 HN..	KG3-14A10	24			1	0,53
7,5	32	4 HN..	KG3-18A10	24			1	0,53
11	32	4 HN..	KG3-22A10	24			1	0,53



with integrated coil suppressor
Coil 4W



11	50	4 HN..+2 HB..	KG3-24A00	24			1	0,57
15	65	4 HN..+2 HB..	KG3-32A00	24			1	0,57
18,5	80	4 HN..+2 HB..	KG3-40A00	24			1	0,57

Auxiliary Contact Blocks



for K3-10.. to K3-115..
KG3-10.. to KG3-40..

AC15 230V	I_{th}	contacts	NO	NC	Type	Pack Pcs.	Weight kg/pc.
3A	10A	1	0		HN10	10	0,02
3A	10A	0	1		HN01	10	0,02



for K3-24.. to K3-115..
KG3-24.. to KG3-40..

3A	10A	1	1		HB11	10	0,02
3A	10A	0	2		HB02	10	0,02

Marking	Voltage range
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Standard coil voltages:
Coil AC
Other coil voltages
on request

24	24V 50/60Hz
110	110V 50Hz / 110-120V 60Hz
230	220-240V 50Hz / 230-240V 60Hz
400	380-415V 50Hz / 400-415V 60Hz

Standard coil voltages:
Coil DC

24V=, 60V=, 110V= und 220V=
Other coil voltages on request

Reversing Starter, Star-Delta Starter

Reversing Starter, Coil AC



Main- and Control lines are wired

Motor 400V	Therm. current	to accept Overload Relay	Type	V Coil	Pack Pcs.	Weight kg/pc.
4	10	U3/32..		K3WU10 230	1	0,6
7,5	18	U3/32..		K3WU18 230	1	0,6

Star-Delta Starter, Coil AC



Main- and Control lines are wired

Motor 400V	AC3 400V	to accept Overload Relay	Type	Pack	Weight
kW	A	YD-Setting Range $= 0,58 \times I_n$	V Coil AC	Pcs.	kg/pc.
7,5	16	U3/32..	K3Y15 230	1	0,9
15	30	U3/32..	K3Y26 230	1	0,9
22	45	U3/42..	K3Y40 230	1	1,4
30	60	U3/42..	K3Y52 230	1	1,8
45	85	U3/74..	K3Y80 230	1	3,5
55	109	U3/74..	K3Y100 230	1	3,7
75	150	U85..	K3Y140 230	1	6,6
110	205	U85..	K3Y200 230	1	7

Suppressor Units

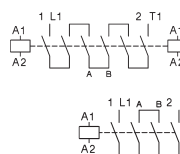
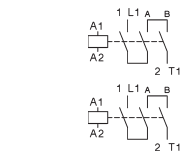


for K3-07.. to K3-74..

Voltage range	Execution	Type	Pcs.	kg/pc.
12 - 24V AC/DC	RC	RC-K3 24	10	0,01
110-230V AC/DC	RC	RC-K3 230	10	0,01
230-415V AC/DC	RC	RC-K3N 400	10	5,65

Contactors for DC-Switching, as remote controlled fire protection defeat device for Photovoltaic-installation

Contactors, coil AC



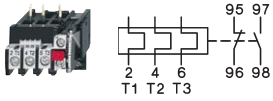
DC1	DC1	Additional Aux Contacts	Type	Pack	Weight
600V	1000V		V Coil	pcs.	kg/pc.
20A	-	2 HKA11	K3DC-20A00 230	1	0,45
48A	-	+1 HKT.	K3DC-48A00 230	1	0,45
80A	60A	2 HKA11	K3DC-80A00 230	1	1,17
100A	-	+1 HKT.	K3DC-100A00 230	1	1,8
30A	30A	2 HKA11	K3PV-30A00 230	1	0,9
60A	60A	+1 HKT.	K3PV-60A00 230	1	0,9
80A	80A	2 HKA11	K3PV-80A00 230	1	1,35
100A	100A	+1 HKT.	K3PV-100A00 230	1	2,3

Contactors, coil DC ... on request

Overload Relays, Suppressor Units for Contactors K3

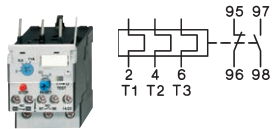
Motor AC3 400V kW	for contactor	Setting Range A	Fuse acc. coordination		Type	VPE Pcs.	Weight kg/pc.
			aM A	gL(gG) A "2"			

Overload Relays for hand reset

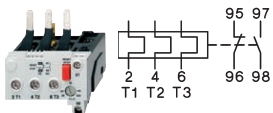


0,06	K(G)3-10..	0,12–0,18	-	0,5	U12/16E 0,18 K3	1	0,10
0,09	K(G)3-10..	0,18–0,27	-	1,0	U12/16E 0,27 K3	1	0,10
	K(G)3-10..	0,27–0,4	-	2	U12/16E 0,4 K3	1	0,10
0,12	K(G)3-10..	0,4–0,6	-	2	U12/16E 0,6 K3	1	0,10
0,18	K(G)3-10..	0,6–0,9	-	4	U12/16E 0,9 K3	1	0,10
0,25	K(G)3-10..	0,8–1,2	2	4	U12/16E 1,2 K3	1	0,10
0,37	K(G)3-10..	1,2–1,8	2	6	U12/16E 1,8 K3	1	0,10
0,75	K(G)3-10..	1,8–2,7	4	10	U12/16E 2,7 K3	1	0,10
1,5	K(G)3-10..	2,7–4	4	10	U12/16E 4 K3	1	0,10
2,2	K(G)3-10..	4–6	6	16	U12/16E 6 K3	1	0,10
3	K(G)3-10..	6–9	10	25	U12/16E 9 K3	1	0,10
4	K(G)3-10..	8–11	16	25	U12/16E 11 K3	1	0,10
5,5	K(G)3-14..	10–14	16	35	U12/16E 14 K3	1	0,10
7,5	K(G)3-18..	13–18	20	35	U12/16E 18 K3	1	0,10
11	K(G)3-22..	17–23	25	35	U12/16E 23 K3	1	0,10

Overload Relays for hand and automatic reset



0,06	K(G)3-10..	0,12–0,18	-	0,5	U3/32 0,18	1	0,14
0,09	K(G)3-10..	0,18–0,27	-	1,0	U3/32 0,27	1	0,14
	K(G)3-10..	0,27–0,4	-	2	U3/32 0,4	1	0,14
0,12	K(G)3-10..	0,4–0,6	-	2	U3/32 0,6	1	0,14
0,18	K(G)3-10..	0,6–0,9	-	4	U3/32 0,9	1	0,14
0,25	K(G)3-10..	0,8–1,2	2	4	U3/32 1,2	1	0,14
0,37	K(G)3-10..	1,2–1,8	2	6	U3/32 1,8	1	0,14
0,75	K(G)3-10..	1,8–2,7	4	10	U3/32 2,7	1	0,14
1,5	K(G)3-10..	2,7–4	4	10	U3/32 4	1	0,14
2,2	K(G)3-10..	4–6	6	16	U3/32 6	1	0,14
3	K(G)3-10..	6–9	10	25	U3/32 9	1	0,14
4	K(G)3-10..	8–11	16	25	U3/32 11	1	0,14
5,5	K(G)3-14..	10–14	16	35	U3/32 14	1	0,14
7,5	K(G)3-18..	13–18	20	35	U3/32 18	1	0,14
11	K(G)3-22..	17–24	25	35	U3/32 24	1	0,14
11	K(G)3-24A00	23–32	35	50	U3/32 32	1	0,14
15	K(G)3-32A00	23–32	35	50	U3/32 32	1	0,14
11	K3-24A00	20–28	35	50	U3/42 28	1	0,30
15	K3-32A00	28–42	50	50	U3/42 42	1	0,30
18,5	K3-40A00	28–42	50	50	U3/42 42	1	0,30
22	K3-50A00	40–52	63	100	U3/74 52	1	0,40
30	K3-62A00	52–65	50	125	U3/74 65	1	0,40
37	K3-74A00	60–74	80	125	U3/74 74	1	0,40



D.O.L. Starter

Motor AC3 400V kW	additionally attachable aux. contacts	Wired to accept Overload Relay (order separate)	Type Coil V AC	Pack Pcs.	Weight kg/pc.
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D.O.L. Starter with Selector Switch, IP65



4	2pcs. HN..	U12/16..K3	P1W10 230	1	0,6
4	2pcs. HN..	U12/16..K3	P1W10 400	1	0,6
7,5	2pcs. HN..	U12/16..K3	P1W18 230	1	0,6
7,5	2pcs. HN..	U12/16..K3	P1W18 400	1	0,6

D.O.L. Starter with Start-Stop / Reset Push Button, IP65



4	2pcs. HN..	U12/16..K3	P1T10 230	1	0,6
4	2pcs. HN..	U12/16..K3	P1T10 400	1	0,6
7,5	2pcs. HN..	U12/16..K3	P1T18 230	1	0,6
7,5	2pcs. HN..	U12/16..K3	P1T18 400	1	0,6

D.O.L. Starter for Swimming pools, IP65



7,5	2 Stk. HN..	U12/16..K3	P1W18P 230	1	0,6
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with selector switch and pneumatic switch
Pneumatic button and air pressure hose order separate

Pneumatic Button



			P1LT	1	
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Air Pressure Hose



Length: 5m			P1LS-5	1	
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Pneumatic Switch



for refit of D.O.L. Starter P1W.. to P1W..P			P1-LDR	1	0,02
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Circuit Breakers for Motor Control

Suitable for motors 3~400V kW ¹⁾	Setting range Thermal Overload Release A	Instantaneous Short Circuit Release A	Short Circuit Breaking Capacity at 3~400V kA	Rated Current I _n A	Type	Pack Pcs.	Weight kg/pc.
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Circuit Breaker M4-32T-..



switch type

-	0,10–0,16	2,1	100	0,16	M4-32T-0,16	1	0,32
0,06	0,16–0,25	3,3	100	0,25	M4-32T-0,25	1	0,32
0,09	0,25–0,4	5,2	100	0,4	M4-32T-0,4	1	0,32
0,12	0,40–0,63	8,2	100	0,63	M4-32T-0,63	1	0,32
0,25	0,63–1	13	100	1	M4-32T-1	1	0,32
0,55	1,0–1,6	20,8	100	1,6	M4-32T-1,6	1	0,32
0,75	1,6–2,5	32,5	100	2,5	M4-32T-2,5	1	0,32
1,5	2,5–4	52	100	4	M4-32T-4	1	0,32
2,2	4–6	78	100	6	M4-32T-6	1	0,32
3	5–8	104	100	8	M4-32T-8	1	0,32
4	6–10	130	50	10	M4-32T-10	1	0,32
5,5	9–13	169	50	13	M4-32T-13	1	0,32
7,5	11–17	221	20	17	M4-32T-17	1	0,32
7,5	14–22	286	15	22	M4-32T-22	1	0,32
11	18–26	338	15	26	M4-32T-26	1	0,32
15	22–32	416	15	32	M4-32T-32	1	0,32

Circuit Breaker M4-32R-..



rotary type

-	0,10–0,16	2,1	100	0,16	M4-32R-0,16	1	0,36
0,06	0,16–0,25	3,3	100	0,25	M4-32R-0,25	1	0,36
0,09	0,25–0,4	5,2	100	0,4	M4-32R-0,4	1	0,36
0,12	0,40–0,63	8,2	100	0,63	M4-32R-0,63	1	0,36
0,25	0,63–1	13	100	1	M4-32R-1	1	0,36
0,55	1,0–1,6	20,8	100	1,6	M4-32R-1,6	1	0,36
0,75	1,6–2,5	32,5	100	2,5	M4-32R-2,5	1	0,36
1,5	2,5–4	52	100	4	M4-32R-4	1	0,36
2,2	4–6	78	100	6	M4-32R-6	1	0,36
3	5–8	104	100	8	M4-32R-8	1	0,36
4	6–10	130	100	10	M4-32R-10	1	0,36
5,5	9–13	169	100	13	M4-32R-13	1	0,36
7,5	11–17	221	50	17	M4-32R-17	1	0,36
7,5	14–22	286	50	22	M4-32R-22	1	0,36
11	18–26	338	50	26	M4-32R-26	1	0,36
15	22–32	416	50	32	M4-32R-32	1	0,36

Circuit Breaker M4-63R-..



rotary type

11	18–26	338	50	26	M4-63R-26	1	1
15	22–32	416	50	32	M4-63R-32	1	1
18,5	28–40	520	50	40	M4-63R-40	1	1
22	34–50	650	50	50	M4-63R-50	1	1
30	45–63	819	50	63	M4-63R-63	1	1

Circuit Breaker M4-100R-..



rotary type

30	45–63	819	50	63	M4-100R-63	1	2,2
37	55–75	975	50	75	M4-100R-75	1	2,2
45	70–90	1170	50	90	M4-100R-90	1	2,2
-	80–100	1300	50	100	M4-100R-100	1	2,2

1) Approximate values of standard motors

Accessories for Circuit Breakers M4

contacts		Rated current			Type	Pack	Weight
NO	NC	AC15	AC1			Pcs.	kg/pc.
24V	240V	240V	240V				
A	A	A	A				

Auxiliary Contact Block, transverse mounting max. 1Pc. per circuit breaker



1	1	3	2	5	M4 HQ11	1	0,02
2	-	3	2	5	M4 HQ20	1	0,02

Auxiliary Contact Block, left hand side mounting, max. 1Pc. per circuit breaker



1	1	6	4	10	M4 HS11	1	0,03
2	-	6	4	10	M4 HS20	1	0,03
-	2	6	4	10	M4 HS02	1	0,03

Signalling Switch, left hand side mounting, max. 1Pc. per circuit breaker



1	1	6	4	10	M4 MA11	1	0,04
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Undervoltage release, right hand side mounting, max. 1Pc. per circuit breaker



Trips the circuit-breaker when the voltage is interrupted.
Prevents the motor from being restarted when voltage is restored suitable for EMERGENCY STOP (VDE0113)

24V 50Hz, 28V 60Hz	M4 U24	1	0,11
110-127V 50Hz, 120V 60Hz	M4 U110	1	0,11
220-230V 50Hz, 240-260V 60Hz	M4 U230	1	0,11
240V 50Hz, 277V 60Hz	M4 U240	1	0,11
380-400V 50Hz, 440-460V 60Hz	M4 U400	1	0,11
415-440V 50Hz, 460-480V 60Hz	M4 U415	1	0,11

Shunt release, right hand side mounting, max. 1Pc. per circuit breaker



Trips the circuit-breaker when the release coil energized.

24V 50Hz, 28V 60Hz	M4 A24	1	0,12
110-127V 50Hz, 120V 60Hz	M4 A110	1	0,12
220-230V 50Hz, 240-260V 60Hz	M4 A230	1	0,12
240V 50Hz, 277V 60Hz	M4 A240	1	0,12
380-400V 50Hz, 440-460V 60Hz	M4 A400	1	0,12
415-440V 50Hz, 460-480V 60Hz	M4 A415	1	0,12

Enclosure for circuit breaker M4 32R protection degree IP65



Plastic enclose with rotary operating mechanism black-grey lockable, with N- and PE-terminal space for 1 transverse and side aux. contact + release	M4 32R PFH4	1	0,53
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Enclose with rotary operating mechanism yellow - red, lockable with N- and PE-terminal space for 1 transverse and side aux. contact + release	M4 32R PFHN4	1	0,53
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Manual Motor Starters and Accessories

Manual Motor Starters



Thermal Overload release Setting Range A	Ratings AC3 400V/690V kW		Magnetic Short Circuit Trip A	Short Circuit Breaking Capacity at 3~400V	Type	Pack	Weight
	kW	kW				Pcs.	kg/pc.
0,1–0,16	0,02	0,06	1,92	100kA	MU25A-0,16	2	0,25
0,16–0,25	0,06	0,12	3,0	100kA	MU25A-0,25	2	0,25
0,25–0,4	0,09	0,18	4,8	100kA	MU25A-0,4	2	0,25
0,4–0,63	0,12	0,25	7,6	100kA	MU25A-0,63	2	0,25
0,63–1	0,25	0,55	12,0	100kA	MU25A-1	2	0,25
1–1,6	0,55	1,1	19,2	100kA	MU25A-1,6	2	0,25
1,6–2,5	1,1	1,5	30	100kA	MU25A-2,5	2	0,25
2,5–4	1,5	3	48	100kA	MU25A-4	2	0,25
4–6,3	2,5	4	75,6	100kA	MU25A-6,3	2	0,25
6,3–10	4	7,5	120	6kA	MU25A-10	2	0,25
10–16	7,5	11	192	6kA	MU25A-16	2	0,25
16–20	11	15	240	6kA	MU25A-20	2	0,25
20–25	12,5	18,5	300	6kA	MU25A-25	2	0,25
25–32	15	18,5	384	6kA	MU25A-32	2	0,25

Aux. Contact Blocks



13 | 21
14 | 22



11 | 23
12 | 24

AC15/230V A	I_{th} A	Mounting		Type	Pack Pcs.	Weight kg/pc.
1	5	snap-on, max. 1 pc.		MU25A-PA11	10	0,02
3,5	6	side, max. 2 pcs.		MU25A-PS11	10	0,03

Releases, mounting under the cover max. 1 pc.



Description	Control voltage	Type	Pack	Weight
Shunt release	220-240V 50Hz,	MU25A-A230	10	0,06
Undervoltage release	220-240V 50Hz	MU25A-U230	10	0,06

Moulded Enclosure



Moulded Enclosure	Protection to IP55	MU25A-O55	1	0,24
Moulded Front plate	Protection to IP55	MU25A-C55	1	0,16



Moulded Enclosure for CEE-Plug 5-pole with built-in Phase reversing	Protection to IP54;	MU25A-GC1	1	0,40
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Connectors
































Execution	Description	Type	Pack	Weight
Busbar	for 2 units, length 99mm	MU25A-D99	10	0,036
Busbar	for 3 units, length 154mm	MU25A-D154	10	0,06
Busbar	for 4 units, length 208mm	MU25A-D208	10	0,084
Busbar	for 5 units, length 262mm	MU25A-D262	10	0,107
Supply Block	isolated, U _i 690V, I _u 63A	MU25A-DB	10	0,034



Assembled Stations, IP66 and IP67

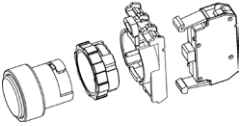
Knockout entries M20, up, left and right. Built-in contact blocks and lamp holders for base mounting (snapped into the rear shroud). Other combinations on request.



		Type	Pack Pcs.	Weight kg/pc.
	 14-13	ON push button, green	1	0,135
	 22-21	OFF push button, red	1	0,135
	X2-X1	Pilot light green Pilot light red	1 1	0,135 0,135
	 14-13	Key operated 0 - I Lock Ronis R455	1	0,165
	 14-13 24-23	Key operated I - 0 - II Lock Ronis R455	1	0,172
	 22-21	2 push buttons OFF - ON 0 - I	1	0,20
	 14-13	2 push buttons Up - Down with symbols ← →	1	0,20
	 22-21	3 push buttons Up - 0 - Down with symbols 0 ← →	1	0,283
	 14-13	3 push buttons I - 0 - II	1	0,283
	 X2-X1	2 push buttons OFF - ON with pilot light green	1	0,27
	 14-13	EMERGENCY STOP button unlock by turning mushroom button Ø 40mm	1	0,187
	 14-13	EMERGENCY STOP button according to EN418 unlock by pull	1	0,145
	 14-13	EMERGENCY STOP button according to EN418 unlock by key	1	0,145
	 14-13	EMERGENCY STOP button unlock by turning mushroom button Ø 70mm	1	0,178
	 14-13	Foot and Palm button grey mushroom button Ø 70mm	1	0,187

Push Buttons 22mm-Set, with Contact Block and Connector

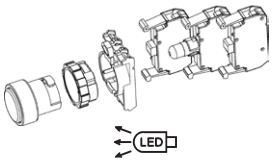
Aktuator colour	with	LED	Type	Pack pcs.	Weight kg/pc.
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Push Buttons, IP67



black	+ connector +1NO	-	BS3D SW/10	1	0,037
green	+ connector +1NO	-	BS3D GN/10	1	
yellow	+ connector +1NO	-	BS3D GE/10	1	0,037
blue	+ connector +1NO	-	BS3D BL/10	1	0,037
red	+ connector +1NC	-	BS3D RT/01	1	
green 	+ connector +1NO	-	BS3D GN-I/10	1	0,037
red 	+ connector +1NC	-	BS3D RT-0/01	1	0,037

Illuminated Push Buttons, IP66 and IP67



white	+ connector +1NO+1NC +LED	20-30V AC/DC	BS3DL WS/11/L24	1	0,054
green	+ connector +1NO+1NC +LED	20-30V AC/DC	BS3DL GN/11/L24	1	0,054
red	+ connector +1NO+1NC +LED	20-30V AC/DC	BS3DL RT/11/L24	1	0,054
yellow	+ connector +1NO+1NC +LED	20-30V AC/DC	BS3DL GE/11/L24	1	0,054
blue	+ connector +1NO+1NC +LED	20-30V AC/DC	BS3DL BL/11/L24	1	0,054
white	+ connector +1NO+1NC +LED	90-120V AC/DC	BS3DL WS/11/L110	1	0,054
green	+ connector +1NO+1NC +LED	90-120V AC/DC	BS3DL GN/11/L110	1	0,054
red	+ connector +1NO+1NC +LED	90-120V AC/DC	BS3DL RT/11/L110	1	0,054
yellow	+ connector +1NO+1NC +LED	90-120V AC/DC	BS3DL GE/11/L110	1	0,054
blue	+ connector +1NO+1NC +LED	90-120V AC/DC	BS3DL BL/11/L110	1	0,054
white	+ connector +1NO+1NC +LED	200-250V AC/DC	BS3DL WS/11/L230	1	0,054
green	+ connector +1NO+1NC +LED	200-250V AC/DC	BS3DL GN/11/L230	1	0,054
red	+ connector +1NO+1NC +LED	200-250V AC/DC	BS3DL RT/11/L230	1	0,054
yellow	+ connector +1NO+1NC +LED	200-250V AC/DC	BS3DL GE/11/L230	1	0,054
blue	+ connector +1NO+1NC +LED	200-250V AC/DC	BS3DL BL/11/L230	1	0,054

Double Push Buttons, IP65



green/ red	+ connector +1NO+1NC	-	BS3DT G/R/11	1	0,049
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Double Push Buttons with Pilot Light, IP65



green/ red	+ connector +1NO+1NC +LED	20-30V AC/DC	BS3DT G/R/11/L24	1	0,066
green/ red	+ connector +1NO+1NC +LED	90-120V AC/DC	BS3DT G/R/11/L110	1	0,066
green/ red	+ connector +1NO+1NC +LED	200-250V AC/DC	BS3DT G/R/11/L230	1	0,066

Pilot Lights, IP66 and IP67 with socket BA9S (without lamp)



white	+ connector +socket BA9S	-	B3R WS/0	1	0,037
green	+ connector +socket BA9S	-	B3R GN/0	1	0,037
red	+ connector +socket BA9S	-	B3R RT/0	1	0,037
yellow	+ connector +socket BA9S	-	B3R GE/0	1	0,037

Push Buttons 22mm-Set, with Contact Block and Connector

Aktuator colour	with	LED	Type	Pack pcs.	Weight kg/pc.
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Pilot Lights, IP66 and IP67 with LED



white	+ connector + socket BA9s	20–30V AC/DC	B3R WS/L24	1	0,042
green	+ connector + socket BA9s	20–30V AC/DC	B3R GN//L24	1	0,042
red	+ connector + socket BA9s	20–30V AC/DC	B3R RT/L24	1	0,042
yellow	+ connector + socket BA9s	20–30V AC/DC	B3R GE/L24	1	0,042
white	+ connector + socket BA9s	170–250V AC/DC	B3R WS/L230	1	0,042
green	+ connector + socket BA9s	170–250V AC/DC	B3R GN/L230	1	0,042
red	+ connector + socket BA9s	170–250V AC/DC	B3R RT/L230	1	0,042
yellow	+ connector + socket BA9s	170–250V AC/DC	B3R GE/L230	1	0,042

Monoblock LED IP65



red	-	20–30V AC/DC	B3-MB24 RTB	1	0,022
green	-	20–30V AC/DC	B3-MB24 GNB	1	0,022
blue	-	20–30V AC/DC	B3-MB24 BLB	1	0,022
yellow	-	20–30V AC/DC	B3-MB24 GEB	1	0,022
white	-	20–30V AC/DC	B3-MB24 WSB	1	0,022
red	-	170–250V AC	B3-MB230 RTB	1	0,022
green	-	170–250V AC	B3-MB230 GNB	1	0,022
blue	-	170–250V AC	B3-MB230 BLB	1	0,022
yellow	-	170–250V AC	B3-MB230 GEB	1	0,022
white	-	170–250V AC	B3-MB230 WSB	1	0,022

EMERGENCY STOP Push Buttons, IP66 and IP67 Ø40mm



pull to release acc. EN418	+ connector + 1NO + 1NC		BS3P44 RT/11	1	0,061
key release acc. EN418	+ connector + 1NO + 1NC		BS3P44S3 RT/11	1	0,083
twist release	+ connector + 1NO + 1NC		BS3P34 RT-0/11	1	0,053

Rotary Knobs, IP65



	+ connector + 1NO	-	BS3KN2/10	1	0,043
	+ connector + 1NO + 1NC	-	BS3KN2/11	1	0,053
	+ connector + 2NO	-	BS3KN3/20	1	0,053
	+ connector + 2NO	-	BS3KN1/20	1	0,053

Key Operated Rotary Switch with lock Ronis 455, IP65







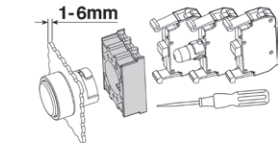




	key removeable in 0-position + connector + 1NO	-	BS3SAR 0/10	1	0,057
	key removeable in all positions + connector + 1NO	-	BS3SAR 01/10	1	0,057
	key removeable in 0-position + connector + 1NO	-	BS3SAT 0/10	1	0,057



	key removeable in all positions + connector + 2NO	-	BS3SARR 102/20	1	0,067
	key removeable in 0-position + connector + 2NO	-	BS3SARR 0/20	1	0,067

Control Units, Ø 22,5 mm, IP66 and IP67

		colour	Type	Pack	Weight
			 black ¹⁾	Pcs.	kg/pc.
Push Buttons  markable		red	BS3D RT	10	0,014
		green	BS3D GN	10	0,014
		blue	BS3D BL	10	0,014
		yellow	BS3D GE	10	0,014
		black	BS3D SW	10	0,014
Push Buttons, maintained  markable		red	BS3DR RT	10	0,014
		green	BS3DR GN	10	0,014
		blue	BS3DR BL	10	0,014
		yellow	BS3DR GE	10	0,014
		black	BS3DR SW	10	0,014
Push Buttons illuminated  markable		red	BS3DL RT	10	0,014
		green	BS3DL GN	10	0,014
		blue	BS3DL BL	10	0,014
		yellow	BS3DL GE	10	0,014
		white	BS3DL WS	10	0,014
Push Buttons illuminated, maintained  markable		red	BS3DLR RT	10	0,014
		green	BS3DLR GN	10	0,014
		blue	BS3DLR BL	10	0,014
		yellow	BS3DLR GE	10	0,014
		white	BS3DLR WS	10	0,014
Rotary Knob 		 maintained	BS3KN2	10	0,020
		 maintained	BS3KN3	10	0,020
		spring return 	BS3KN1	10	0,020
Key Operated Rotary Switch IP65  key removable in position 0		 maintained	BS3SAR 0	1	0,044
		 maintained	BS3SARR 0	1	0,044
		spring return 	BS3SATT 0	1	0,044
Double Push Buttons IP65  lamp max. 1,9 W		green/ red white/ black	BS3DT G/R BS3DT W/S	10 10	0,016 0,016
		green-I / red-0 white-I /black-0	BS3DT GI/R0 BS3DT WI/S0	10 10	0,016 0,016
NOT-AUS-Tasten Pilz Ø40mm 		release by turning	BS3P34 RT-0	10	0,020
		pull to release, according to EN418	BS3P44 RT	10	0,028
		release by key, according to EN418	BS3P44S3	1	0,050
		Yellow Disk Ø70 mm (markable)	B3-7603	10	0,004
Connector  for panel width 0,5–4mm snap-on mounting		 0,5-4mm	B3S	10	0,013
		 1-6mm	B3M	10	0,013
Contact Blocks max. 690V~ 		 1 NC	B3T01	10	0,020
		 1 NO	B3T10	10	0,020
Lamp holder max. 415V~  ... for all kind of lamps		 Socket: BA9s	B3F	10	0,012

1) ring in chrom and alu on request

Lens Caps, Lamps and Accessories

Lens Caps



	colour		Type	Pack Pcs.	Weight kg/pc.
markable	red		B3RF RT	10	0,09
	green		B3RF GN	10	0,09
	blue		B3RF BL	10	0,09
	yellow		B3RF GE	10	0,09
	white		B3RF WS	10	0,09
with Fresnell Lens for high intensity	red		B3R RT	10	0,09
	green		B3R GN	10	0,09
	blue		B3R BL	10	0,09
	yellow		B3R GE	10	0,09
	white		B3R WS	10	0,09

LED-Lamps, 10 years lifetime, Socket BA9S



Lamp voltage	for lens caps	Power consumption	Type	Pack Pcs.	Weight kg/pc.
20–30V AC/DC	red	0,4W	B3-L24 RTB	10	0,005
20–30V AC/DC	green	0,4W	B3-L24 GNB	10	0,005
20–30V AC/DC	blue	0,4W	B3-L24 BLB	10	0,005
20–30V AC/DC	yellow	0,4W	B3-L24 GEB	10	0,005
20–30V AC/DC	white	0,4W	B3-L24 WSB	10	0,005
170–250V AC/DC	red	0,9W	B3-L230 RTB	10	0,005
170–250V AC/DC	green	0,9W	B3-L230 GNB	10	0,005
170–250V AC/DC	blue	0,9W	B3-L230 BLB	10	0,005
170–250V AC/DC	yellow	0,9W	B3-L230 GEB	10	0,005
170–250V AC/DC	white	0,9W	B3-L230 WSB	10	0,005

Glow-discharged Lamps



220–250V AC	red yellow, white	0,3W	B4-GL230K	100	0,005
220–250V AC	green	0,3W	B4-GL230G	100	0,005

Filament Lamps



24V AC/DC	all	1,2W	B4-G24	100	0,005
48V AC/DC	all	1,2W	B4-G48	100	0,005

Enclosures



Enclosure - 1 unit			BG1	1	0,108
Enclosure - 2 units			BG2	1	0,145
Enclosure - 3 units			BG3	1	0,188

Wrench



for mounting of actuators, monoblocks, lens caps B3.. and Cam Switches with single hole mounting			J7049	1	0,020
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Lamp Installer



used to install or replace lamps BA9S			B4-7408	1	0,002
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Hole Plug






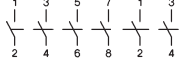
grey, for unused fixing holes Ø22,5mm			B3-DU GR	10	0,01
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Sealing Cover




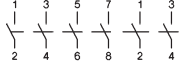


Protection against coarse, petrol-resitant, ambient temperature 0° - +50° C			P279-1	10	0,002
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


Modular DC-Switch Disconnecter, IP40

DC21B 600V DC 1000V DC	Poles in series	Number of Strings	Type	Pack pcs	Weighth kg/pcs.
   	2	1	LS16 E A2	1	0,20
	2	1	LS25 E A2	1	0,20
	2	1	LS32 E A2	1	0,20
	2	1	LS40 E A2	1	0,42
	2	1	LS55 E A2	1	0,42
	2	2	LS16 E A4	1	0,23
	2	2	LS25 E A4	1	0,23
	2	2	LS32 E A4	1	0,23
	2	2	LS40 E A4	1	0,48
	2	2	LS55 E A4	1	0,48
	2	4	LS16 E A8	1	0,42
	2	4	LS25 E A8	1	0,42
	2	4	LS32 E A8	1	0,42





Base mounting with Door Clutch for single hole mounting, escutcheon plate 64□, protection degree IP66

DC21B 600V DC 1000V DC	Poles in series	Number of Strings	Type	Pack pcs	Weighth kg/pcs.
   	2	1	LS16 VZV A2	1	0,22
	2	1	LS25 VZV A2	1	0,22
	2	1	LS32 VZV A2	1	0,22
	2	1	LS40 VZV A2	1	0,49
	2	1	LS55 VZV A2	1	0,49
	2	2	LS16 VZV A4	1	0,25
	2	2	LS25 VZV A4	1	0,25
	2	2	LS32 VZV A4	1	0,25
	2	2	LS40 VZV A4	1	0,54
	2	2	LS55 VZV A4	1	0,54
	2	4	LS16 VZV A8	1	0,43
	2	4	LS25 VZV A8	1	0,43
	2	4	LS32 VZV A8	1	0,43



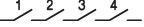
Modular, protection degree IP40

DC21B 600V DC 1000V DC	Poles in series	Number of Strings	Type	Pack pcs	Weighth kg/pcs.
   	2	1	LS16 SMA A2	1	0,19
	2	1	LS25 SMA A2	1	0,19
	2	1	LS32 SMA A2	1	0,19
	2	1	LS40 SMA A2	1	0,40
	2	1	LS55 SMA A2	1	0,40
	2	1	LS25 SMA A2+2	1	0,24
	2	1	LS32 SMA A2+2	1	0,24
	2	1	LS40 SMA A2+2	1	0,50
	2	1	LS55 SMA A2+2	1	0,50
	2	2	LS16 SMA A4	1	0,22
	2	2	LS25 SMA A4	1	0,22
	2	2	LS32 SMA A4	1	0,22
	2	2	LS40 SMA A4	1	0,47
	2	2	LS55 SMA A4	1	0,47
	2	4	LS16 SMA A8	1	0,41
2	4	LS25 SMA A8	1	0,41	
2	4	LS32 SMA A8	1	0,41	

Main Switch, in plastic enclosure, escutcheon plate 64□, protection degree IP65

DC21B 600V DC 1000V DC	Poles in series	Number of Strings	Type	Pack pcs	Weighth kg/pcs.
   	2	1	LS16 PFLH4 A2	1	0,43
	2	1	LS25 PFLH4 A2	1	0,43
	2	1	LS32 PFLH4 A2	1	0,43
	2	1	LS40 PFH4 A2	1	1,66
	2	1	LS55 PFH4 A2	1	1,66
	2	1	LS25 PFLH4 A2+2	1	0,49
	2	1	LS32 PFLH4 A2+2	1	0,49
	2	1	LS40 PFH4 A2+2	1	1,76
	2	1	LS55 PFH4 A2+2	1	1,76
	2	2	LS16 PFLH4 A4	1	0,46
	2	2	LS25 PFLH4 A4	1	0,46
	2	2	LS32 PFLH4 A4	1	0,46
	2	2	LS40 PFH4 A4	1	1,73
	2	2	LS55 PFH4 A4	1	1,73

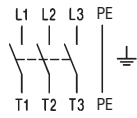
Technical data, according to IEC 60947-3, VDE0660

DC21B		LS16 ..			LS25..			LS32..			LS40..			LS55..		
		600V	800V	1000V	600V	800V	1000V	600V	800V	1000V	600V	800V	1000V	600V	800V	1000V
	 2 poles in series	16A	16A	9A	25A	20A	11A	32A	23A	13A	40A	30A	20A	55A	45A	25A
	 2 poles in series +2 parallel	29A	16A	9A	45A	20A	11A	50A	23A	13A	64A	30A	20A	80A	45A	38A
	 4 poles in series	16A	16A	16A	25A	25A	25A	32A	32A	32A	40A	40A	40A	55A	55A	55A

Main Switches, lockable, IP66

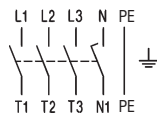
AC21 690V	AC23 3x400V	Plate	Type	Pack Pcs.	Weight kg/pc.
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3-pole Main Switch, in plastic enclosure, UV-protected, sealable, lockable, IP65



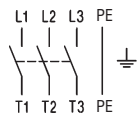
20A	7,5kW	64 □	LTS20 PFH4 A3	1	0,32
25A	10kW	64 □	LTS25 PFH4 A3	1	0,32
32A	12,5kW	64 □	LTS32 PFH4 A3	1	0,32
40A	16kW	64 □	LTS40 PFH4 A3	1	0,32
63A	22kW	64 □	LTS63 PFH4 A3	1	0,60
80A	22kW	64 □	LTS80 PFH4 A3	1	0,60
85A	30kW	64 □	LTS85 PFH4 A3	1	0,78
100A	37kW	64 □	LTS100 PFH4 A3	1	0,78
125A	45kW	64 □	LTS125 PFH4 A3	1	0,78

4-pole Main Switch, in plastic enclosure, UV-protected, sealable, lockable, IP65



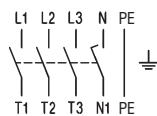
20A	7,5kW	64 □	LTS20 PFH4 A4	1	0,33
25A	10kW	64 □	LTS25 PFH4 A4	1	0,33
32A	12,5kW	64 □	LTS32 PFH4 A4	1	0,33
40A	16kW	64 □	LTS40 PFH4 A4	1	0,33
63A	22kW	64 □	LTS63 PFH4 A4	1	0,64
80A	22kW	64 □	LTS80 PFH4 A4	1	0,64
85A	30kW	64 □	LTS85 PFH4 A4	1	0,83
100A	37kW	64 □	LTS100 PFH4 A4	1	0,83
125A	45kW	64 □	LTS125 PFH4 A4	1	0,83

3-pole Maintenance and Safety Switch, in plastic enclosure, UV-protected, sealable, lockable, IP65



20A	7,5kW	64 □	LTS20 PFHN4 A3	1	0,32
25A	10kW	64 □	LTS25 PFHN4 A3	1	0,32
32A	12,5kW	64 □	LTS32 PFHN4 A3	1	0,32
40A	16kW	64 □	LTS40 PFHN4 A3	1	0,32
63A	22kW	64 □	LTS63 PFHN4 A3	1	0,60
80A	22kW	64 □	LTS80 PFHN4 A3	1	0,60
85A	30kW	64 □	LTS85 PFHN4 A3	1	0,78
100A	37kW	64 □	LTS100 PFHN4 A3	1	0,78
125A	45kW	64 □	LTS125 PFHN4 A3	1	0,78

4-pole Maintenance and Safety Switch, in plastic enclosure, UV-protected, sealable, lockable, IP65



20A	7,5kW	64 □	LTS20 PFHN4 A4	1	0,33
25A	10kW	64 □	LTS25 PFHN4 A4	1	0,33
32A	12,5kW	64 □	LTS32 PFHN4 A4	1	0,33
40A	16kW	64 □	LTS40 PFHN4 A4	1	0,33
63A	22kW	64 □	LTS63 PFHN4 A4	1	0,64
80A	22kW	64 □	LTS80 PFHN4 A4	1	0,64
85A	30kW	64 □	LTS85 PFHN4 A4	1	0,83
100A	37kW	64 □	LTS100 PFHN4 A4	1	0,83
125A	45kW	64 □	LTS125 PFHN4 A4	1	0,83

Add-on Switching Pole, attachable to 3- and 4-pole LTS.. Switches



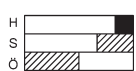
for Switches:

LTS20..., up to LTS40
LTS63..., LTS80..

LTS20..., up to LTS40
LTS63..., LTS80..

Panel mounting	Base mounting Installation board	Type	Pack Pcs.	Weight kg/pc.
yes	no	N40E	1	0,035
yes	no	N80E	1	0,042
no	yes	N40V	1	0,035
no	yes	N80V	1	0,042

Auxiliary Contact Block 1NO + 1NC, attachable to LTS.. Switches, compatible electronic signal



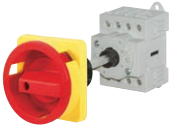
LTS20 - LTS125

yes	yes	LH11	1	0,02
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Emergency - Stop - Main Switch, lockable, IP65

AC21 690V	AC23 3x400V	Plate	Type	Pack Pcs.	Weight kg/pc.
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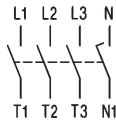
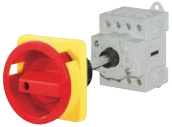
3-pole, Base mounting with Door Clutch *



Single-Hole mounting, Ø 22,5 mm ..VZV..

20A	7,5kW	64 □	LTS20 VZVHN4 A3	1	0,20
25A	10kW	64 □	LTS25 VZVHN4 A3	1	0,20
32A	12,5kW	64 □	LTS32 VZVHN4 A3	1	0,20
40A	16kW	64 □	LTS40 VZVHN4 A3	1	0,20
63A	22kW	64 □	LTS63 VZVHN4 A3	1	0,24
80A	22kW	64 □	LTS80 VZVHN4 A3	1	0,24
80A	30kW	64 □	LTS85 VZVHN4 A3	1	0,40
100A	37kW	64 □	LTS100 VZVHN4 A3	1	0,40
125A	45kW	64 □	LTS125 VZVHN4 A3	1	0,40

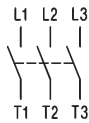
4-pole, Base mounting with Door Clutch *



Single-Hole mounting, Ø 22,5 mm ..VZV..

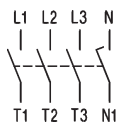
20A	7,5kW	64 □	LTS20 VZVHN4 A4	1	0,21
25A	10kW	64 □	LTS25 VZVHN4 A4	1	0,21
32A	12,5kW	64 □	LTS32 VZVHN4 A4	1	0,21
40A	16kW	64 □	LTS40 VZVHN4 A4	1	0,21
63A	22kW	64 □	LTS63 VZVHN4 A4	1	0,28
80A	22kW	64 □	LTS85 VZVHN4 A4	1	0,28
80A	30kW	64 □	LTS80 VZVHN4 A4	1	0,45
100A	37kW	64 □	LTS100 VZVHN4 A4	1	0,45
125A	45kW	64 □	LTS125 VZVHN4 A4	1	0,45

3-pole, Panel mounting, 4-Hole mounting, IP65



20A	7,5kW	64 □	LTS20 EHN4 A3	1	0,17
25A	10kW	64 □	LTS25 EHN4 A3	1	0,17
32A	12,5kW	64 □	LTS32 EHN4 A3	1	0,17
40A	16kW	64 □	LTS40 EHN4 A3	1	0,17
63A	22kW	64 □	LTS63 EHN4 A3	1	0,19
80A	22kW	64 □	LTS80 EHN4 A3	1	0,19
85A	30kW	64 □	LTS85 EHN4 A3	1	0,39
100A	37kW	64 □	LTS100 EHN4 A3	1	0,39
125A	45kW	64 □	LTS125 EHN4 A3	1	0,39

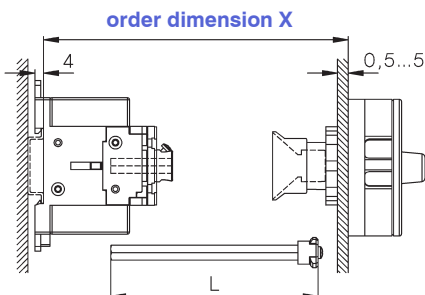
4-pole, Panel mounting, 4-Hole mounting, IP65



20A	7,5kW	64 □	LTS20 EHN4 A4	1	0,20
25A	10kW	64 □	LTS25 EHN4 A4	1	0,20
32A	12,5kW	64 □	LTS32 EHN4 A4	1	0,20
40A	16kW	64 □	LTS40 EHN4 A4	1	0,20
63A	22kW	64 □	LTS63 EHN4 A4	1	0,23
80A	22kW	64 □	LTS80 EHN4 A4	1	0,23
85A	30kW	64 □	LTS85 EHN4 A4	1	0,44
100A	37kW	64 □	LTS100 EHN4 A4	1	0,44
125A	45kW	64 □	LTS125 EHN4 A4	1	0,44

Ordering

Deviations from the Standard dimensions have to be indicated by order, max. 380 mm



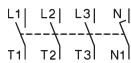
Standard dimensions (mm)

Type	X	Type	X
LTS20 VZV..	90 - 190	LTS63 VZV..	90 - 190
LTS25 VZV..	90 - 190	LTS80 VZV..	90 - 190
LTS32 VZV..	90 - 190	LTS85 VZV..	90 - 190
LTS40 VZV..	90 - 190	LTS100 VZV..	95 - 190
		LTS125 VZV..	95 - 190

Cam Switches for Panel mounting, 4-Hole mounting, IP65

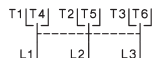


ON-OFF-Switches



Pole	AC21 I_{th}	Motor 3x400V	Plate	Type	Pack Pcs.	Weight g/pc.
1	20A	-	48 □	M10H E A1+G2	1	65
1	32A	-	48 □	M20 E A1+G2	1	72
2	20A	-	48 □	M10H E A2+G2	1	70
2	32A	-	48 □	M20 E A2+G2	1	80
3	20A	5,5kW	48 □	M10H E A3+G2	1	85
3	32A	11kW	48 □	M20 E A3+G2	1	107
3	50A	15kW	64 □	N33F E A3+G2	1	190
4	20A	5,5kW	48 □	M10H E A4+G2	1	90
4	32A	11kW	48 □	M20 E A4+G2	1	107
4	50A	15kW	64 □	N33F E A4+G2	1	208

Changeover Switches with 0-Position



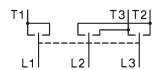
1	20A	-	48 □	M10H E U1+G2	1	70
1	32A	-	48 □	M20 E U1+G2	1	80
2	20A	-	48 □	M10H E U2+G2	1	90
2	32A	-	48 □	M20 E U2+G2	1	113
3	20A	5,5kW	48 □	M10H E U3+G2	1	112
3	32A	11kW	48 □	M20 E U3+G2	1	145
3	50A	15kW	64 □	N33F E U3+G2	1	270

Changeover Switches without 0-Position



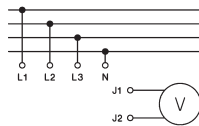
1	20A	-	48 □	M10H E W1+G2	1	70
1	32A	-	48 □	M20 E W1+G2	1	80
2	20A	-	48 □	M10H E W2+G2	1	90
2	32A	-	48 □	M20 E W2+G2	1	113

Reversing Switch



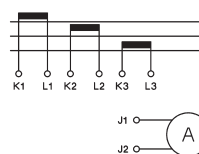
3	20A	5,5kW	48 □	M10H E WU3+G2	1	107
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Voltmeter Selector Switch, 3 line voltages, 3 phase voltages



	20A	-	48 □	M10H E V1+G2	1	112
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Ammeter Selector Switch



1	20A	-	48 □	M10H E M31+G2	1	113
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Cam Switches for Panel mounting, 4-Hole mounting, IP65



Start-Switch with spring return



Pole	AC21 I_{th}	Motor 3x400V	Plate	Type	Pack Pcs.	Weight g/pc.
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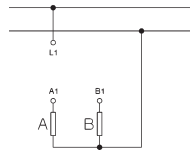
1	20A	-	48	M10H E SE+G2	1	65
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Stop-Switch with spring return



1	20A	-	48	M10H E SA+G2	1	65
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Gang Switches 1-pole



1	20A	-	48	M10H E GR11+G2	1	70
1	32A	-	48	M20 E GR11+G2	1	80

3 Step Switches without 0-Position



1	20A	-	48	M10H E ST31+G2	1	85
1	32A	-	48	M20 E ST31+G2	1	107

4 Step Switches without 0-Position



1	20A	-	48	M10H E ST41+G2	1	90
1	32A	-	48	M20 E ST41+G2	1	113

2 Step Switches with 0-Position



1	20A	-	48	M10H E ST021+G2	1	70
1	32A	-	48	M20 E ST021+G2	1	80

3 Step Switches with 0-Position

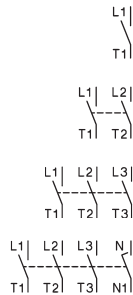


1	20A	-	48	M10H E ST031+G2	1	85
1	32A	-	48	M20 E ST031+G2	1	107

Cam Switches, Single Hole mounting Ø 22,5 mm, IP65

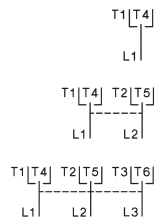


ON-OFF-Switches



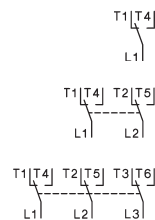
Pole	AC21 I_{th}	Motor 3x400V	Plate	Type	Pack Pcs.	Weight g/pc.
1	20A	-	48 □	M10H Z A1+G2	1	80
1	32A	-	48 □	M20 Z A1+G2	1	87
2	20A	-	48 □	M10H Z A2+G2	1	85
2	32A	-	48 □	M20 Z A2+G2	1	95
3	20A	5,5kW	48 □	M10H Z A3+G2	1	100
3	32A	11kW	48 □	M20 Z A3+G2	1	122
4	20A	5,5kW	48 □	M10H Z A4+G2	1	105
4	32A	11kW	48 □	M20 Z A4+G2	1	128

Changeover Switches with 0-Position



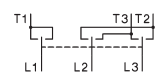
1	20A	-	48 □	M10H Z U1+G2	1	85
1	32A	-	48 □	M20 Z U1+G2	1	95
2	20A	-	48 □	M10H Z U2+G2	1	105
2	32A	-	48 □	M20 Z U2+G2	1	128
3	20A	5,5kW	48 □	M10H Z U3+G2	1	127
3	32A	11kW	48 □	M20 Z U3+G2	1	160

Changeover Switches without 0-Position



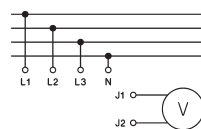
1	20A	-	48 □	M10H Z W1+G2	1	85
1	32A	-	48 □	M20 Z W1+G2	1	95
2	20A	-	48 □	M10H Z W2+G2	1	105
2	32A	-	48 □	M20 Z W2+G2	1	128
3	20A	5,5kW	48 □	M10H Z W3+G2	1	127
3	32A	11kW	48 □	M20 Z W3+G2	1	160

Reversing Switch



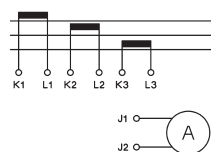
3	20A	5,5kW	48 □	M10H Z WU3+G2	1	122
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Voltmeter Selector Switch, 3 line voltages, 3 phase voltages



	20A	-	48 □	M10H Z V1+G2	1	127
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Ammeter Selector Switch



1	20A	-	48 □	M10H Z M31+G2	1	128
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Cam Switches, Single Hole mounting Ø 22,5 mm, IP65



Start-Switch with spring return



Pole	AC21 I_{th}	Motor 3x400V	Plate	Type	Pack Pcs.	Weight g/pc.
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1	20A	-	48 □	M10H Z SE+G2	1	80
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Stop-Switch with spring return



1	20A	-	48 □	M10H Z SA+G2	1	80
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3 Step Switches without 0-Position



1	20A	-	48 □	M10H Z ST31+G2	1	100
1	32A	-	48 □	M20 Z ST31+G2	1	122

4 Step Switches without 0-Position



1	20A	-	48 □	M10H Z ST41+G2	1	105
1	32A	-	48 □	M20 Z ST41+G2	1	128

2 Step Switches with 0-Position



1	20A	-	48 □	M10H Z ST021+G2	1	85
1	32A	-	48 □	M20 Z ST021+G2	1	95

3 Step Switches with 0-Position



1	20A	-	48 □	M10H Z ST031+G2	1	100
1	32A	-	48 □	M20 Z ST031+G2	1	122

ON-OFF-Switches Key operated Lock Ronis R455



1	20A	-	48 □	M10H Z A1+SA	1	95
1	32A	-	48 □	M20 Z A1+SA	1	102

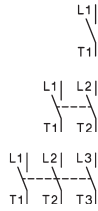
2	20A	-	48 □	M10H Z A2+SA	1	100
2	32A	-	48 □	M20 Z A2+SA	1	110

3	20A	5,5kW	48 □	M10H Z A3+SA	1	115
3	32A	11kW	48 □	M20 Z A3+SA	1	137

Cam Switches, Plastic enclosed, IP40 (IP65 on request)

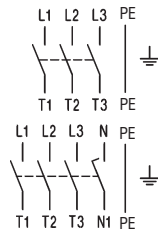


ON-OFF-Switches 20A



Pole	AC21 I_{th}	Motor 3x400V	Plate	Type	Pack Pcs.	Weight g/pc.
1	20A	-	48 □	M10 P A1+G2	1	107
2	20A	-	48 □	M10 P A2+G2	1	112
3	20A	5,5kW	48 □	M10 P A3+G2	1	132

ON-OFF-Switches 32A



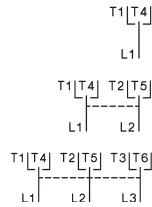
3	32A	-	48 □	LTS32 PF A3	1	315
4	32A	-	48 □	LTS32 PF A4	1	330

Heating EMERGENCY STOP Switch, 2-pole with red Handle



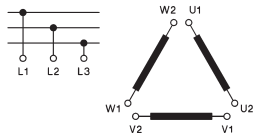
2	20A	-	48 □	M10 P A2+90446+G3	1	112
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Changeover Switches with 0-Position



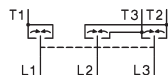
1	20A	-	48 □	M10 P U1+G2	1	112
2	20A	-	48 □	M10 P U2+G2	1	137
2	32A	-	64 □	N20 P U2+G2	1	233
3	20A	5,5kW	48 □	M10 P U3+G2	1	162
3	32A	11kW	64 □	N20 P U3+G2	1	285

Star-Delta-Switch



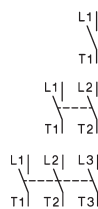
3	32A	15kW	64 □	N20 P SD+G2	1	335
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Reversing Switch with reciprocally spring return



3	20A	5,5kW	48 □	M10 P WU3R2+G2	1	156
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ON-OFF-Switches Key operated Lock Willenhal FT101

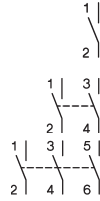


1	20A	-	48 □	M10 P A1+SA	1	165
1	32A	-	64 □	N20 P A1+SA	1	229
2	20A	-	48 □	M10 P A2+SA	1	169
2	32A	-	64 □	N20 P A2+SA	1	242
3	20A	5,5kW	48 □	M10 P A3+SA	1	188
3	32A	11kW	64 □	N20 P A3+SA	1	281

Mini-Cam Switches, Single Hole mounting Ø16 and 22,5mm, IP65



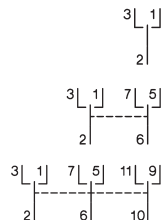
ON-OFF-Switches



Pole	AC21 I_{th}	Motor 3x400V	Plate	Type	Pack Pcs.	Weight g/pc.
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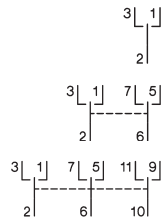
1	10A	-	30 □	M4H Z A1	1	36
2	10A	-	30 □	M4H Z A2	1	38
3	10A	-	30 □	M4H Z A3	1	45

Changeover Switches with 0-Position



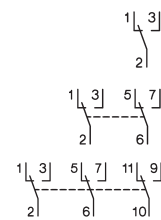
1	10A	-	30 □	M4H Z U1	1	38
2	10A	-	30 □	M4H Z U2	1	48
3	10A	-	30 □	M4H Z U3	1	58

Changeover Switches with 0-Position, plate HAND - 0 - AUTO



1	10A	-	30 □	M4H Z U1+009	1	38
2	10A	-	30 □	M4H Z U2+009	1	48
3	10A	-	30 □	M4H Z U3+009	1	58

Changeover Switches without 0-Position

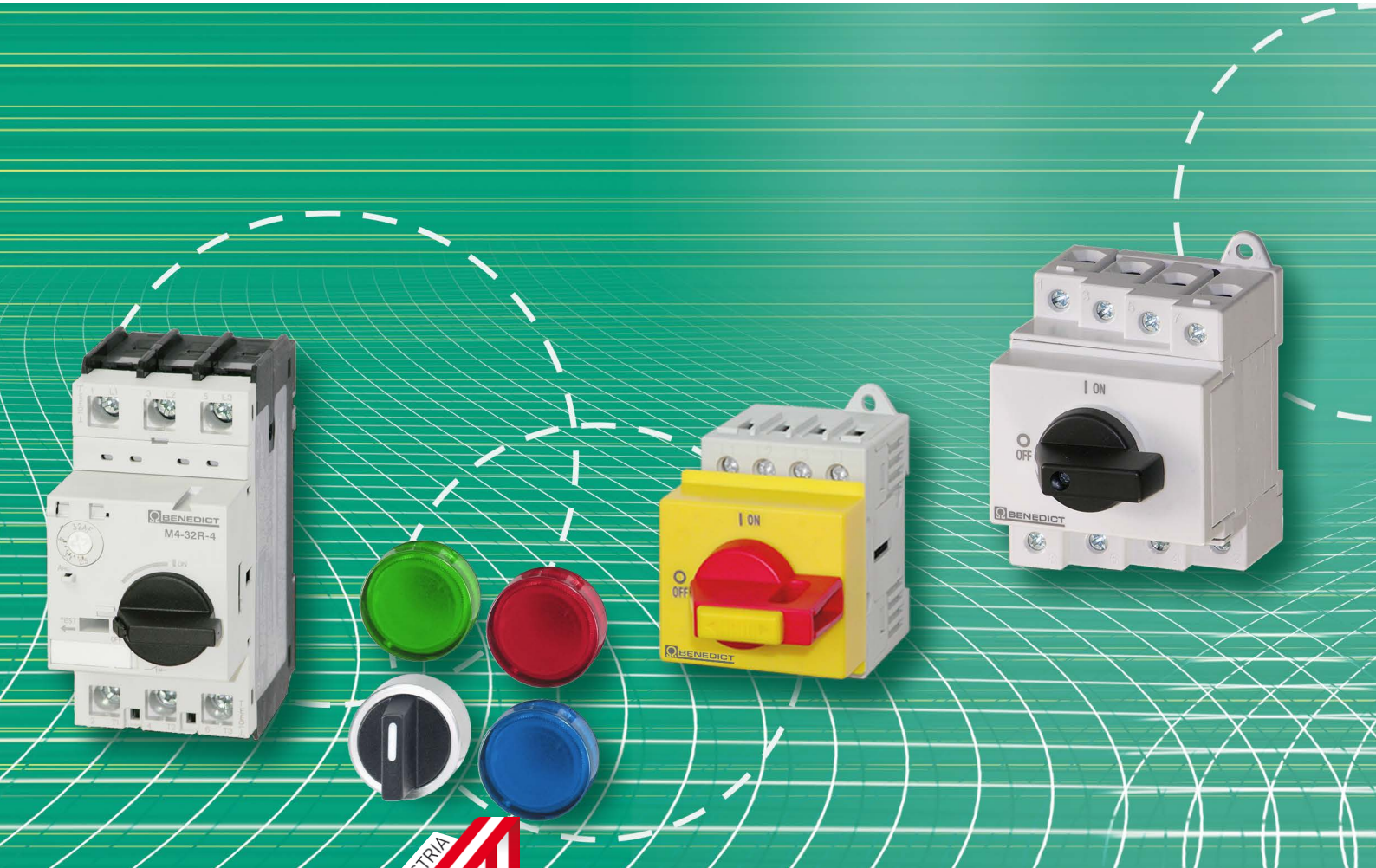


1	10A	-	30 □	M4H Z W1	1	38
2	10A	-	30 □	M4H Z W2	1	48
3	10A	-	30 □	M4H Z W3	1	58

Start-Switch with spring return



1	10A	-	30 □	M4H Z SE	1	36
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Quality made in 

Short Form Catalogue D651E181



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