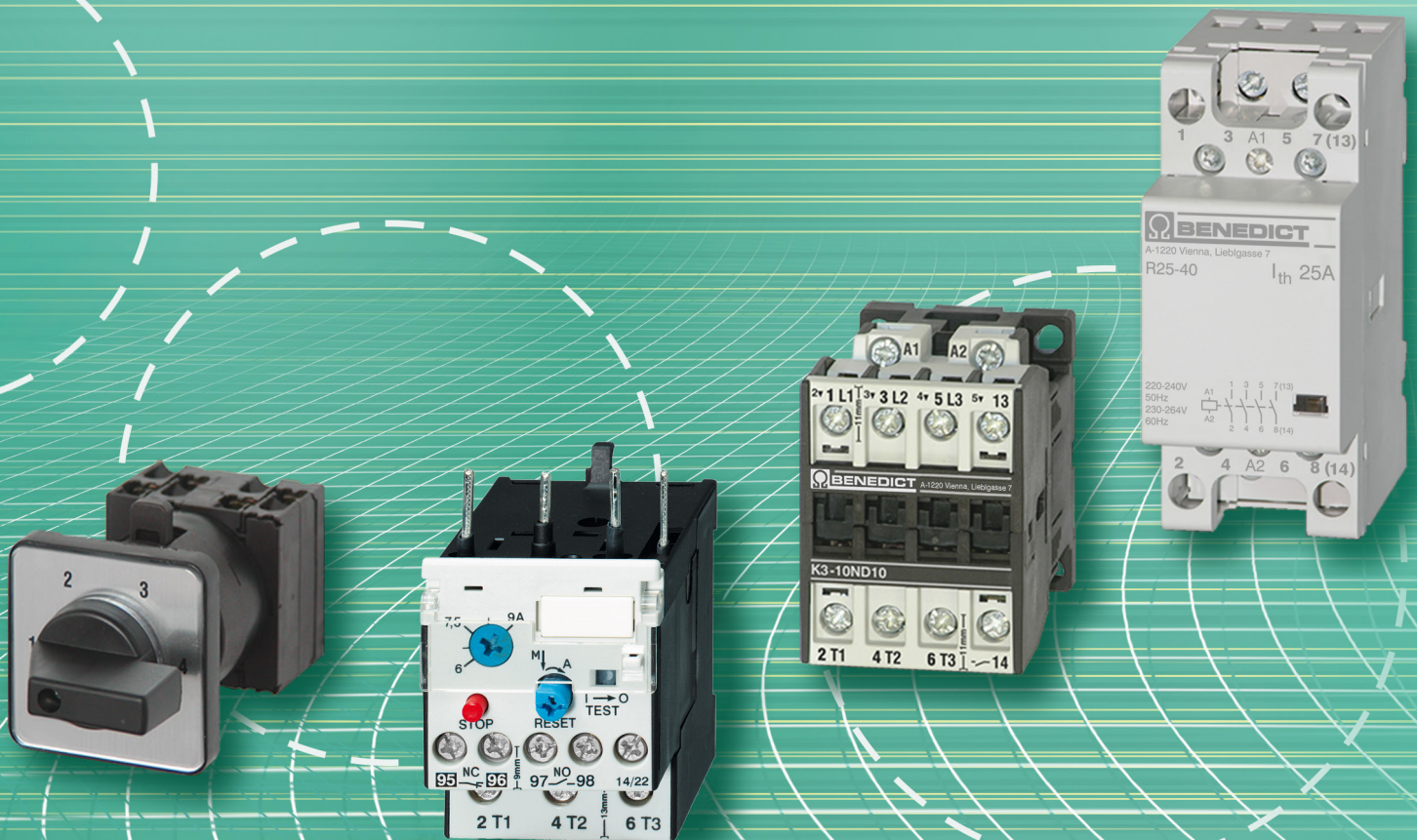


Low Voltage Control Gear



Quality made in



Short Form Catalogue D651E221

General Catalogue



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Complete Assortment
Technical Datas
Dimensions
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M4-100R.. up to 100A

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Switches



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On-Off-Switches
Changeover Switches
Motor Switches
Step Switches
Main Switches
Modular Switches
Key Operated Switches

Catalogue **D371E..**

Main Switches



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Emergency Off
Main Switches
On-Off-Switches
Add-On-Module

Catalogue **D656E..**

Capacitor Switching Contactors



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Manual Motorstarter



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MU25A up to 32A

Auxiliary Contact Blocks
Trip Alarm Auxiliary Switches
Busbar Connectors
Enclosure

Catalogue **D509E..**

Push Buttons

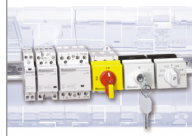


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Push Buttons
Emergency Stop
Key Operated Rotary Switches
Rotary Knobs
Illuminated Push Buttons
Assembled Stations

Catalogue **D580E..**

Modular Contactors



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Modular Contactors
Accessories
Emergency Off Switches
Main Switches
On-Off Switches
Control Switches

Catalogue **D681E..**

DC-Switchgear for Photovoltaic



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Main Switches
On-Off-Switches
Contactors for DC-Switching

Catalogue **D911E..**

Contactors Motor-Starter



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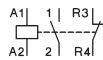
Mini-Contactors
Contactors
Overload Relays
Capacitor Switching Contactors
Motor-Starters
Modular Contactors

Catalogue **D677E..**

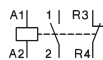
Modular Contactors		Modular Contactors	2
		Cam Switches	4
		Main Switches	5
Contactors and Overload Relays		Micro-Contactors K0	6
		Mini-Contactors K1	6
		Mini-Reversing Starters K1W	6
		Contactors K3	8
		Reversing Starters	9
		Star Delta Starters	9
		Contactors for DC Switching	9
		Overload Relays for 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 Buttos	18
Switches		DC-Switch Disconnectors	20
		Main Switches	21
		Cam Switches	23

Modular Contactors, low noise

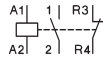
1-, 2-pole, 1 Modules (17,5mm)
low noise, AC operated



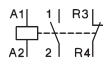
1-, 2-pole, 1 Modul (17,5mm)
hum free, AC/DC operated



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



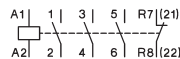
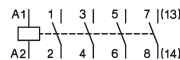
2-pole, 1 Modul (17,5mm)
hum free, AC/DC operated



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



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

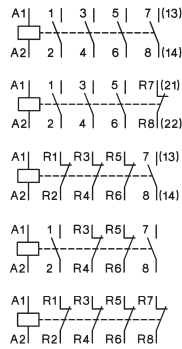


Rated current 400V AC1 A	Power Rating		Motor AC3 400V 3~ kW	Type	Pack Pcs.	Weight kg/Pcs.
	AC1 230V 1~ kW	400V 3~ kW				
20	4,6	-	-	NO NC coil V ~ R20-10 230	12	0,12
				R20-20 230 R20-20 24	12	0,12
20	4,6	-	-	R20-11 230 R20-11 24	12	0,12
				R20-02 230 R20-02 24	12	0,12
20	4,6	-	-	R20-10 230VM	12	0,12
				R20-20 230VM R20-20 24VM	12	0,12
20	4,6	-	-	R20-11 230VM R20-11 24VM	12	0,12
				R20-02 230VM R20-02 24VM	12	0,12
25	5,5	-	-	R25-20 230 R25-20 24	12	0,14
				R25-11 230 R25-11 24	12	0,14
25	5,5	-	-	R25-02 230 R25-02 24	12	0,14
				R25-20 230VM R25-20 24VM	12	0,14
25	5,5	-	-	R25-11 230VM R25-11 24VM	12	0,14
				R25-02 230VM R25-02 24VM	12	0,14
40	9	-	-	R40-20 230	6	0,23
63	14,3	-	-	R63-20 230	6	0,23
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

1) Sealable with the Sealing Cover P712, available aux. contact block RH11

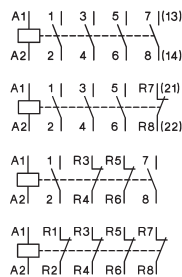
2) Sealable with the Sealing Cover P712, available aux. contact block RH11-1

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

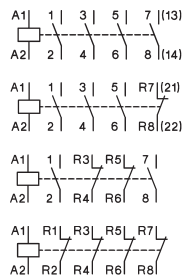


Rated current 400V AC1 A	Power Rating		Motor AC3 400V 3~ kW	Type	Pack Pcs.	Weight kg/Pcs.
	AC1 230V 1~ kW	400V 3~ kW				
25	5,7	17	4	NO R25-40 230VM	6	0,21
25	5,7	17	4	NC R25-40 24VM	6	0,21
25	5,7	17	4	coil V ~ R25-31 230VM	6	0,21
25	5,7	17	4	R25-31 24VM	6	0,21
25	5,7	17	4	R25-13 230VM	6	0,21
25	5,7	17	4	R25-13 24VM	6	0,21
25	5,7	-	-	R25-22 230VM	6	0,21
25	5,7	-	-	R25-22 24VM	6	0,21
25	5,7	17	4	R25-04 230VM	6	0,21
25	5,7	17	4	R25-04 24VM	6	0,21

4-pole, 3 Modules (52,5mm) ¹⁾
low noise, AC operated



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

Auxiliary Contact Block, ½ Module (8,75mm)



for R25 to R63 4-pole

for VM-Geräte



Rated current AC15 230V 400V A A		Thermal current Ith A	Type	Pack Pcs.	Weight kg/pcs.
3	2	10	RH11	3	0,03
3	2	10	RH11-1	3	0,03

Sealing covers



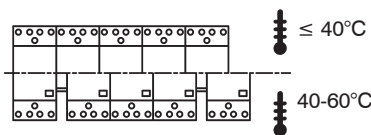
for R25.. (4-pole, 2 Modules)	P721	10	0,002
for R40.. und R63.. (4-pole, 3 Modules)	P690	10	0,002

suppressor unit, 1 Module (17,5mm)



for 2x R20.. and R63.. RC-Unit for 12V - 250V~	RC-R 230	2	0,05
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Spacing piece, ½ Module (8,75mm)



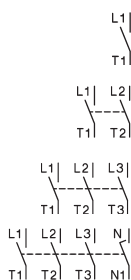
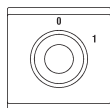
für R20.. und R63..	P730	10	0,01
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for ambient temperature >40°C
we recommend to use spacing peaces

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

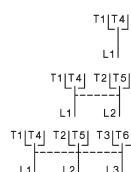
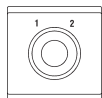
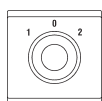
Cam Switches for Installation boards, 60mm

ON-OFF-Switches



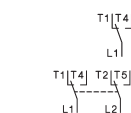
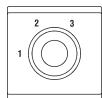
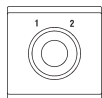
Pole	AC21 I_{th} A	Motor 3x400V kW	Plate mm	Type	Pack Pcs.	Weight kg/pcs.
1	20	-	52x45	M10H SMA A1	1	0,09
1	32	-	52x45	M20 SMA A1	1	0,10
2	20	-	52x45	M10H SMA A2	1	0,10
2	32	-	52x45	M20 SMA A2	1	0,11
3	20	5,5	52x45	M10H SMA A3	1	0,10
3	32	11	52x45	M20 SMA A3	1	0,12
4	20	5,5	52x45	M10H SMA A4	1	0,11
4	32	11	52x45	M20 SMA A4	1	0,13

Changeover Switches with 0-Position



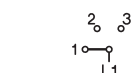
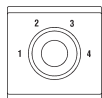
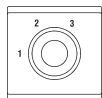
1	20	-	52x45	M10H SMA U1	1	0,10
2	20	-	52x45	M10H SMA U2	1	0,11
2	32	-	52x45	M20 SMA U2	1	0,13
3	20	-	52x45	M10H SMA U3	1	0,12

Changeover Switches without 0-Position



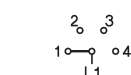
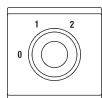
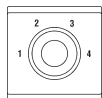
1	20	-	52x45	M10H SMA W1	1	0,10
2	20	-	52x45	M10H SMA W2	1	0,11
2	32	-	52x45	M20 SMA W2	1	0,13

3 Step Switches without 0-Position



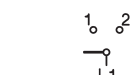
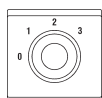
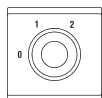
1	20	-	52x45	M10H SMA ST31	1	0,10
1	32	-	52x45	M20 SMA ST31	1	0,12

4 Step Switches without 0-Position



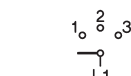
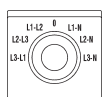
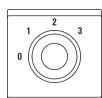
1	20	-	52x45	M10H SMA ST41	1	0,11
1	32	-	52x45	M20 SMA ST41	1	0,13

2 Step Switches with 0-Position



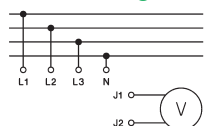
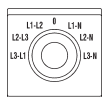
1	20	-	52x45	M10H SMA ST021	1	0,11
1	32	-	52x45	M20 SMA ST021	1	0,11

3 Step Switches with 0-Position



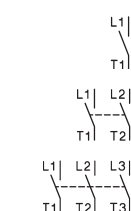
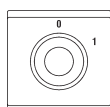
1	20	-	52x45	M10H SMA ST031	1	0,10
1	32	-	52x45	M20 SMA ST031	1	0,12

Voltmeter Selector Switch, 3 line voltages, 3 phase voltages



	20	-	52x45	M10H SMA V1	1	0,12
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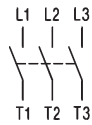
ON-OFF-Switches Key operated Lock Willenhal FT101



1	20	-	52x45	M10H SMA A1+SA	1	0,12
1	32	-	52x45	M20 SMA A1+SA	1	0,13
2	20	-	52x45	M10H SMA A2+SA	1	0,12
2	32	-	52x45	M20 SMA A2+SA	1	0,14
3	20	5,5	52x45	M10H SMA A3+SA	1	0,14
3	32	11	52x45	M20 SMA A3+SA	1	0,16

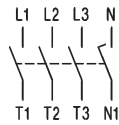
Emergency - Stop - Main Switch, lockable

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



AC21 690V A	AC23 3x400V kW	Plate mm	Type	Pack Pcs.	Weight kg/pcs.
20	7,5	52x45	LTS20 SMAHN1 A3	1	0,15
25	10	52x45	LTS25 SMAHN1 A3	1	0,15
32	12,5	52x45	LTS32 SMAHN1 A3	1	0,15
40	16	52x45	LTS40 SMAHN1 A3	1	0,15
63	22	52x45	LTS63 SMAHN1 A3	1	0,18
80	22	52x45	LTS80 SMAHN1 A3	1	0,18
85	30	78x45	LTS85 SMAHN1 A3	1	0,37
100	37	78x45	LTS100 SMAHN1 A3	1	0,37
125	45	78x45	LTS125 SMAHN1 A3	1	0,37

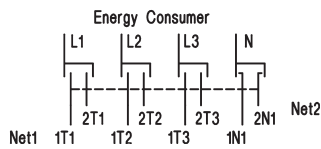
4-pole, for Installation board, 60mm, IP40



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

Net Changeover Switches for emergency power systems

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



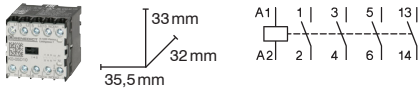
AC21 690V A	AC23 3x400V kW	Plate mm	Type	Pack Pcs.	Weight kg/pcs.
20	7,5	97x45	LTS20 SMA U4+841	1	¹⁾
25	10	97x45	LTS25 SMA U4+841	1	¹⁾
32	12,5	97x45	LTS32 SMA U4+841	1	¹⁾
40	16	97x45	LTS40 SMA U4+841	1	¹⁾
63	22	126x45	LTS63 SMA U4+841	1	¹⁾

Other designs on request

¹⁾ Weight on request

Micro-Contactors K0, Mini-Contactors K1

Micro-Contactor, Coil AC



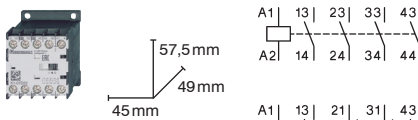
Motor AC2,AC3 kW	AC1 I_{th} A	additionally Type of auxilliary contact blocks max.	Type NO NC V Coil	Pack Pcs.	Weight kg/pcs.
2,2 2,2	12 12	- -	K0-05D10 230 K0-05D10 24	1 1	0,07 0,07

Micro-Contactor, Coil DC



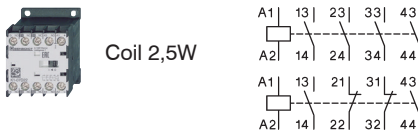
2,2	12	-	K0-05D10= 24	1	0,09
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Mini-Contactor Relays, Coil AC



AC15 230V A	AC1 I_{th} A	Type of additionally auxilliary contact blocks max.	Type NO NC V coil	Pack Pcs.	Weight kg/pcs.
3 3	10 10	1 HK.. 1 HK..	K1-07D40 230 K1-07D40 24	1 1	0,16 0,16
3 3	10 10	1 HK.. 1 HK..	K1-07D22 230 K1-07D22 24	1 1	0,16 0,16

Mini-Contactors, Coil AC



Coil 2,5W

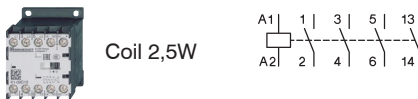
3	10	1 HK..	K1-07D40= 24	1	0,16
3	10	1 HK..	K1-07D22= 24	1	0,16

Mini-Contactors, Coil DC



Motor AC2,AC3 kW	AC1 I_{th} A	additionally Type of auxilliary contact blocks max.	Type NO NC V coil	Pack Pcs.	Weight kg/pcs.
4 4	20 20	1 HKM.. 1 HKM..	K1-09D10 230 K1-09D10 24	1 1	0,16 0,16
5,5 5,5	20 20	1 HKM.. 1 HKM..	K1-12D10 230 K1-12D10 24	1 1	0,16 0,16

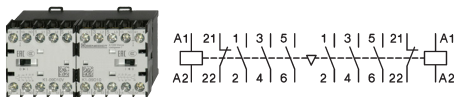
Mini-Contactors, Coil DC



Coil 2,5W

4 5,5	20 20	1 HKM.. 1 HKM..	K1-09D10= 24 K1-12D10= 24	1 1	0,16 0,16
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Mini-Reversing Starter, Coil AC



Motor AC2,AC3 kW	AC1 I_{th} A	to accept Overload Relay	Type NO NC V coil	Pack Pcs.	Weight kg/pcs.
4 5,5	20 20	U12/16E.. K1	K1W09D01MC 230 K1W12D01MC 230	1 1	0,32 0,32

Mini Contactors with Solder Pins

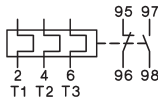


on request

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= and 220V= Other coil voltages on request	

Accessories for Micro-Contactors K0, Mini-Contactors K1

Overload Relays for K1



Hand reset
electrically insulated
auxiliary contacts: 1NO + 1NC

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



for K1-07D...

AC15 230V A	Rated Current I _{th}	Contacts		Type	Pack Pcs.	Weight kg/pcs.
		NO	NC			
3	10	1	1	HK11	10	0,04
3	10	0	2	HK02	10	0,04
3	10	2	2	HK22	10	0,04
3	10	0	4	HK04	10	0,04
3	10	4	0	HK40	10	0,04



for K1-09D10,
K1-12D10

3	10	1	1	HKM11	10	0,04
3	10	0	2	HKM02	10	0,04
3	10	2	0	HKM20	10	0,04
3	10	2	2	HKM22	10	0,04
3	10	3	1	HKM31	10	0,04

Suppressor Units for K1



for K1-07.. to K1-12..

Voltage range	Execution	Type	Pack Pcs.	Weight kg/pcs.
12 - 24V~/=	RC	RC-K1 24	10	0,01
110-230V~/=	RC	RC-K1 230	10	0,01

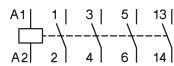
Snap-On Adapter for K0 for DIN-rail 35 mm



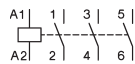
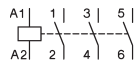
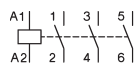
for Type	Description	Type	Pack Pcs.	Weight kg/pcs.
K0	for snap-on mounting	P1039	10	0,01

Contactors K3

Contactors, Coil AC



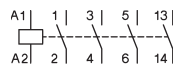
Motor AC2, AC3 kW	AC1 I _{th} A	Type of additionally auxilliary contacts max.	Type NO NC V Coil	Pack Pcs.	Weight kg/pcs.
4	25	4 HN..	K3-10ND10 230	1	0,23
4	25	4 HN..	K3-10ND10 400	1	0,23
5,5	25	4 HN..	K3-14ND10 230	1	0,23
5,5	25	4 HN..	K3-14ND10 400	1	0,23
7,5	32	4 HN..	K3-18ND10 230	1	0,23
7,5	32	4 HN..	K3-18ND10 400	1	0,23
11	32	4 HN..	K3-22ND10 230	1	0,23
11	32	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	2,20
55	200	7 HN..+2 HB..	K3-115A00 230	1	2,20
75–680kW				on request	



Contactors, Coil DC



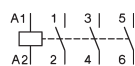
with integrated
coil suppressor
Coil 3W



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 A	AC1 I _{th} A	Contacts NO NC	Type	Pack Pcs.	Weight kg/pcs.
3	10	1 0	HN10	10	0,02
3	10	0 1	HN01	10	0,02



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

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

	Marking	Voltage range		
Standard coil voltages: Coil AC	24 110 230 400	24V 50/60Hz 110V 50Hz /110-120V 60Hz 220-240V 50Hz / 230-240V 60Hz 380-415V 50Hz / 400-415V 60Hz	Standard coil voltages: Coil DC	24V=, 60V=, 110V= and 220V=

Other coil voltages on request

Reversing Starter, Star-Delta Starter

Reversing Starter, Coil AC



Main- and Control lines are wired

Motor 400V kW	AC3 400V A	to accept Overload Relay	Type V Coil ↓	Pack Pcs.	Weight kg/pcs.
4	10	U3/32..	K3NWU10 230	1	0,60
7,5	18	U3/32..	K3NWU18 230	1	0,60

Star-Delta Starter, Coil AC



Main- and Control lines are wired

Motor 400V kW	AC3 400V A	to accept Overload Relay YD-Setting Range = 0,58 x I _n	Type V Coil ↓	Pack Pcs.	Weight kg/pcs.
7,5	16	U3/32..	K3NY15 230	1	0,90
15	30	U3/32..	K3NY26 230	1	0,90
22	45	U3/42..	K3Y40 230	1	1,40
30	60	U3/42..	K3Y52 230	1	1,80
45	85	U3/74..	K3Y80 230	1	3,50
55	109	U3/74..	K3Y100 230	1	3,70
75	150	U85..	K3Y140 230	1	6,60
110	205	U85..	K3Y200 230	1	7,00

Suppressor Units

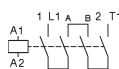
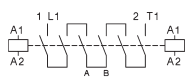
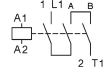
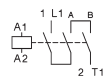


for K3-07N.. to K3-74..

Voltage range	Execution	Type	Pack Pcs.	Weight kg/pcs.
12 – 24V~/=	RC	RC-K3N 24	10	0,01
110-230V~/=	RC	RC-K3N 230	10	0,01
230-415V~/=	RC	RC-K3N 400	10	0,01

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

Contactors, coil AC



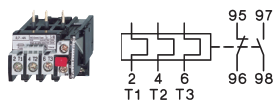
DC1 600V A	DC1 1000V A	Type of additionally auxilliary contacts max.	Type V Coil ↓	Pack Pcs.	Weight kg/pcs.
20	-	2 HKA11	K3DC-20A00 230	1	0,45
48	-	+1 HKT.	K3DC-48A00 230	1	0,45
80	60	2 HKA11	K3DC-80A00 230	1	1,17
100	-	+1 HKT.	K3DC-100A00 230	1	1,80
30	30	2 HKA11	K3PV-30A00 2301	1	0,90
60	60	+1 HKT.	K3PV-60A00 2301	1	0,90
80	80	2 HKA11	K3PV-80A00 2301	1	1,35
100	100	+1 HKT.	K3PV-100A00 230	1	2,30

Contactors, Coil DC .. on request

Overload Relays, for Contactors K3

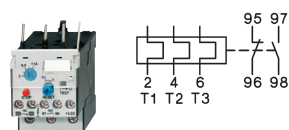
Motor AC3 400V kW	for contactor	Setting Range	Fuse acc. coordination aM A	gL(gG) A "2"	Type	Pack Pcs.	Weight kg/pcs.
		A					

Overload Relays for hand reset



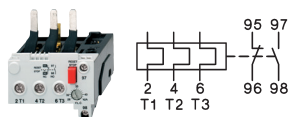
-	K(G)3-10..	0,12–0,18	-	0,5	U12/16E 0,18 K3	1	0,10
0,06	K(G)3-10..	0,18–0,27	-	1,0	U12/16E 0,27 K3	1	0,10
0,09	K(G)3-10..	0,27–0,4	-	2	U12/16E 0,4 K3	1	0,10
0,12	K(G)3-10..	0,4–0,6	-	2	U12/16E 0,6 K3	1	0,10
0,18	K(G)3-10..	0,6–0,9	-	4	U12/16E 0,9 K3	1	0,10
0,25	K(G)3-10..	0,8–1,2	2	4	U12/16E 1,2 K3	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

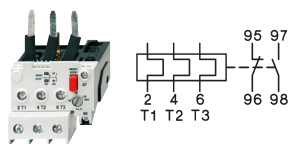


sealable

-	K(G)3-10..	0,12–0,18	-	0,5	U3/32 0,18	1	0,14
0,06	K(G)3-10..	0,18–0,27	-	1,0	U3/32 0,27	1	0,14
0,09	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	Type of additionally aux. contacts max	to accept Overload Relay (order separate)	Type V Coil	Pack Pcs.	Weight kg/pcs.
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D.O.L. Starter with Selector Switch, IP65



4	2 HN..	U12/16..K3	P1W10 230	1	0,60
4	2 HN..	U12/16..K3	P1W10 400	1	0,60
7,5	2 HN..	U12/16..K3	P1W18 230	1	0,60
7,5	2 HN..	U12/16..K3	P1W18 400	1	0,60

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



4	2 HN..	U12/16..K3	P1T10 230	1	0,60
4	2 HN..	U12/16..K3	P1T10 400	1	0,60
7,5	2 HN..	U12/16..K3	P1T18 230	1	0,60
7,5	2 HN..	U12/16..K3	P1T18 400	1	0,60

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



7,5	2 HN..	U12/16..K3	P1W18P 230	1	0,60
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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



Lenth: 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

Setting range Thermal Overload Release A	Suitable for motors AC3 400V kW	Instantaneous Short Circuit Release A	Short Circuit Breaking Capacity at 3~400V kA	Rated current I _n A	Type	Pack Pcs.	Weight kg/pcs.
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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
0,16–0,25	0,06	3,3	100	0,25	M4-32T-0,25	1	0,32
0,25–0,4	0,09	5,2	100	0,4	M4-32T-0,4	1	0,32
0,40–0,63	0,12	8,2	100	0,63	M4-32T-0,63	1	0,32
0,63–1	0,25	13	100	1	M4-32T-1	1	0,32
1,0–1,6	0,55	20,8	100	1,6	M4-32T-1,6	1	0,32
1,6–2,5	0,75	32,5	100	2,5	M4-32T-2,5	1	0,32
2,5–4	1,5	52	100	4	M4-32T-4	1	0,32
4–6	2,2	78	100	6	M4-32T-6	1	0,32
5–8	3	104	100	8	M4-32T-8	1	0,32
6–10	4	130	50	10	M4-32T-10	1	0,32
9–13	5,5	169	50	13	M4-32T-13	1	0,32
11–17	7,5	221	20	17	M4-32T-17	1	0,32
14–22	7,5	286	15	22	M4-32T-22	1	0,32
18–26	11	338	15	26	M4-32T-26	1	0,32
22–32	15	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
0,16–0,25	0,06	3,3	100	0,25	M4-32R-0,25	1	0,36
0,25–0,4	0,09	5,2	100	0,4	M4-32R-0,4	1	0,36
0,40–0,63	0,12	8,2	100	0,63	M4-32R-0,63	1	0,36
0,63–1	0,25	13	100	1	M4-32R-1	1	0,36
1,0–1,6	0,55	20,8	100	1,6	M4-32R-1,6	1	0,36
1,6–2,5	0,75	32,5	100	2,5	M4-32R-2,5	1	0,36
2,5–4	1,5	52	100	4	M4-32R-4	1	0,36
4–6	2,2	78	100	6	M4-32R-6	1	0,36
5–8	3	104	100	8	M4-32R-8	1	0,36
6–10	4	130	100	10	M4-32R-10	1	0,36
9–13	5,5	169	100	13	M4-32R-13	1	0,36
11–17	7,5	221	50	17	M4-32R-17	1	0,36
14–22	7,5	286	50	22	M4-32R-22	1	0,36
18–26	11	338	50	26	M4-32R-26	1	0,36
22–32	15	416	50	32	M4-32R-32	1	0,36

Circuit Breaker M4-63R-..



rotary type

18–26	11	338	50	26	M4-63R-26	1	1,00
22–32	15	416	50	32	M4-63R-32	1	1,00
28–40	18,5	520	50	40	M4-63R-40	1	1,00
34–50	22	650	50	50	M4-63R-50	1	1,00
45–63	30	819	50	63	M4-63R-63	1	1,00

Circuit Breaker M4-100R-..



rotary type

45–63	30	819	50	63	M4-100R-63	1	2,20
55–75	37	975	50	75	M4-100R-75	1	2,20
70–90	45	1170	50	90	M4-100R-90	1	2,20
80–100	-	1300	50	100	M4-100R-100	1	2,20

Accessories for Circuit Breakers M4

contacts NO NC	Rated current			Type	Pack Pcs.	Weight kg/pcs.
	AC15		AC1			
	24V A	240V A	240V 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	0,02
2	-	6	4	10	M4 HS20	1	0,02
-	2	6	4	10	M4 HS02	1	0,02

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 pretection degree IP65



Plastic enclose with redary 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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Plastic enclose with redary 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 kW		Magnetic Short Circuit Trip A	Short Circuit Breaking Capacity at 3~400V in kA	Type	Pack Pcs.	Weight kg/pcs.
0,1–0,16	0,02	0,06	1,92	100	MU25-0,16	1	0,25
0,16–0,25	0,06	0,12	3,0	100	MU25-0,25	1	0,25
0,25–0,4	0,09	0,18	4,8	100	MU25-0,4	1	0,25
0,4–0,63	0,12	0,25	7,6	100	MU25-0,63	1	0,25
0,63–1	0,25	0,55	12,0	100	MU25-1	1	0,25
1–1,6	0,55	1,1	19,2	100	MU25-1,6	1	0,25
1,6–2,5	1,1	1,5	30	100	MU25-2,5	1	0,25
2,5–4	1,5	3	48	100	MU25-4	1	0,25
4–6,3	2,5	4	75,6	100	MU25-6,3	1	0,25
6,3–10	4	7,5	120	6	MU25-10	1	0,25
10–16	7,5	11	192	6	MU25-16	1	0,25
16–20	11	15	240	6	MU25-20	1	0,25
20–25	12,5	18,5	300	6	MU25-25	1	0,25
25–32	15	18,5	384	6	MU25-32	1	0,25

Aux. Contact Blocks



L11 | 23
L12 | 24

AC15/230V A	I _{th} A	Mounting	Type Pcs.	Pack Pcs.	Weight kg/pcs.
3,5	6	side, max 2Stk.	MU25-PS11	10	0,03

Releases, mounting under the cover max. 1 pc.



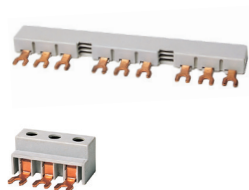
Description	Control voltage	Type	Pack	Weight
Undervoltage release	220-240V 50Hz	MU25-U230	10	0,06

Moulded Enclosure



Moulded Enclosure	Predection to IP55	MU25-O55	1	0,24
Moulded Front plate	Predection to IP55	MU25-C55	1	0,16

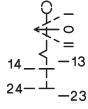
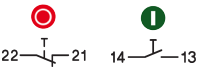
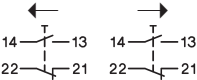
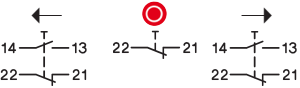
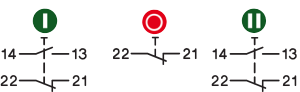
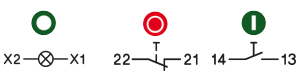
Connectors



Execution	Description	Type	Pack	Weight
Busbar	for 2 units, length 99mm	MU25-D99	10	0,04
Busbar	for 3 units, length 154mm	MU25-D154	10	0,06
Busbar	for 4 units, length 208mm	MU25-D208	10	0,08
Busbar	for 5 units, length 262mm	MU25-D262	10	0,11
Supply Block	isolated, U, 690V, I _u 63A	MU25-DB	10	0,03

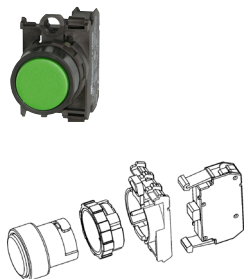
Assembled Stations, IP66 and IP67

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.

		Description	Type	Pack Pcs.	Weight kg/pcs.
		ON push button, green	BG10 GN	1	0,14
		OFF push button, red	BG10 RT	1	0,14
		Pilot light green Pilot light red	BG01 GN BG01 RT	1 1	0,14 0,14
		Key operated 0 - I, IP65 Lock Ronis R455	BG10SAR 0	1	0,17
		Key operated I - 0 - II, IP65 Lock Ronis R455	BG10SARR 0	1	0,17
		2 push buttons OFF - ON 0-I	BG20	1	0,20
		2 push buttons Up - Down with symbols (arrow left - arrow right)	BG20PF	1	0,20
		3 push buttons Up - 0 - Down with symbols (arrow left - 0 - arrow right)	BG30PF	1	0,28
		3 push buttons I - 0 - II	BG30	1	0,28
		2 push buttons OFF - ON with pilot light green	BG21 GN	1	0,27
		EMERGENCY STOP button unlock by turning Pilz Ø 40mm	BG10P34-11	1	0,19
		EMERGENCY STOP button acc. to EN418 unlock by pull	BG10P44-11	1	0,15
		EMERGENCY STOP button acc. EN418 unlock by key	BG10P44S3-11	1	0,15
		EMERGENCY STOP button unlock by turning Pilz Ø 70mm	BG10P34P-11	1	0,18
		Foot and Palm button grey mushroom button Ø 70mm	BG10P14P GR	1	0,18

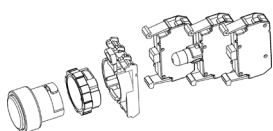
Push Buttons 22mm-Set, with Contact Block and Connector

Push Buttons, IP67



Actuator colour	complete with	LED	Type	Pack Pcs.	Weight kg/pcs.
black	+ connector +1NO	-	BS3D SW/10	1	0,04
green	+ connector +1NO	-	BS3D GN/10	1	0,04
yellow	+ connector +1NO	-	BS3D GE/10	1	0,04
blue	+ connector +1NO	-	BS3D BL/10	1	0,04
red	+ connector +1NC	-	BS3D RT/01	1	0,04
green 	+ connector +1NO	-	BS3D GN-I/10	1	0,04
red 	+ connector +1NC	-	BS3D RT-0/01	1	0,04

Illuminated Push Buttons, IP66 and IP67



white	+ connector +1NO +1NC +LED	20-30V AC/DC	BS3DL WS/11/L24	1	0,05
green	+ connector +1NO +1NC +LED	20-30V AC/DC	BS3DL GN/11/L24	1	0,05
red	+ connector +1NO +1NC +LED	20-30V AC/DC	BS3DL RT/11/L24	1	0,05
yellow	+ connector +1NO +1NC +LED	20-30V AC/DC	BS3DL GE/11/L24	1	0,05
blue	+ connector +1NO +1NC +LED	20-30V AC/DC	BS3DL BL/11/L24	1	0,05
white	+ connector +1NO +1NC +LED	90-120V AC/DC	BS3DL WS/11/L110	1	0,05
green	+ connector +1NO +1NC +LED	90-120V AC/DC	BS3DL GN/11/L110	1	0,05
red	+ connector +1NO +1NC +LED	90-120V AC/DC	BS3DL RT/11/L110	1	0,05
yellow	+ connector +1NO +1NC +LED	90-120V AC/DC	BS3DL GE/11/L110	1	0,05
blue	+ connector +1NO +1NC +LED	90-120V AC/DC	BS3DL BL/11/L110	1	0,05
white	+ connector +1NO +1NC +LED	200-250V AC/DC	BS3DL WS/11/L230	1	0,05
green	+ connector +1NO +1NC +LED	200-250V AC/DC	BS3DL GN/11/L230	1	0,05
red	+ connector +1NO +1NC +LED	200-250V AC/DC	BS3DL RT/11/L230	1	0,05
yellow	+ connector +1NO +1NC +LED	200-250V AC/DC	BS3DL GE/11/L230	1	0,05
blue	+ connector +1NO +1NC +LED	200-250V AC/DC	BS3DL BL/11/L230	1	0,05

Double Push Buttons, IP65



green / red	+ connector +1NO +1NC	-	BS3DT G/R/11	1	0,05
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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	0,07
green / red	+ connector +1NO +1NC +LED	90-120V AC/DC	BS3DT G/R/11/L110	1	0,07
green / red	+ connector +1NO +1NC +LED	200-250V AC/DC	BS3DT G/R/11/L230	1	0,07

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

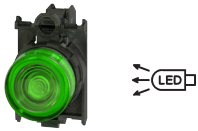


white	+ connector +socket BA9S	-	B3R WS/0	1	0,04
green	+ connector +socket BA9S	-	B3R GN/0	1	0,04
red	+ connector +socket BA9S	-	B3R RT/0	1	0,04
yellow	+ connector +socket BA9S	-	B3R GE/0	1	0,04

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

Actuator colour	complete with	LED	Type	Pack Pcs.	Weight kg/pcs.
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Pilot Lights, IP66 and IP67 with LED



white	+ connector + socket BA9S	20–30V AC/DC	B3R WS/L24	1	0,04
green	+ connector + socket BA9S	20–30V AC/DC	B3R GN//L24	1	0,04
red	+ connector + socket BA9S	20–30V AC/DC	B3R RT/L24	1	0,04
yellow	+ connector + socket BA9S	20–30V AC/DC	B3R GE/L24	1	0,04
white	+ connector + socket BA9S	170–250V AC/DC	B3R WS/L230	1	0,04
green	+ connector + socket BA9S	170–250V AC/DC	B3R GN/L230	1	0,04
red	+ connector + socket BA9S	170–250V AC/DC	B3R RT/L230	1	0,04
yellow	+ connector + socket BA9S	170–250V AC/DC	B3R GE/L230	1	0,04

Monoblock LED, IP65



red	-	20–30V AC/DC	B3-MB24 RTB	1	0,02
green	-	20–30V AC/DC	B3-MB24 GNB	1	0,02
blue	-	20–30V AC/DC	B3-MB24 BLB	1	0,02
yellow	-	20–30V AC/DC	B3-MB24 GEB	1	0,02
white	-	20–30V AC/DC	B3-MB24 WSB	1	0,02
red	-	170–250V AC	B3-MB230 RTB	1	0,02
green	-	170–250V AC	B3-MB230 GNB	1	0,02
blue	-	170–250V AC	B3-MB230 BLB	1	0,02
yellow	-	170–250V AC	B3-MB230 GEB	1	0,02
white	-	170–250V AC	B3-MB230 WSB	1	0,02

EMERGENCY STOP Push Buttons, IP66 and IP67 Ø40mm



pull to release acc. EN418	+ connector + 1NO + 1NC	BS3P44 RT/11	1	0,06
key release acc. EN418	+ connector + 1NO + 1NC	BS3P44S3 RT/11	1	0,08
twist release	+ connector + 1NO + 1NC	BS3P34 RT-0/11	1	0,05

Rotary Knobs, IP65



	+ connector + 1NO	-	BS3KN2/10	1	0,04
	+ connector + 1NO + 1NC	-	BS3KN2/11	1	0,05
	+ connector + 2NO	-	BS3KN3/20	1	0,05
	+ connector + 2NO	-	BS3KN1/20	1	0,05

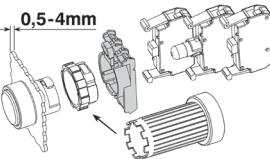
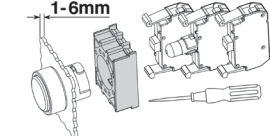
Key Operated Rotary Switch with lock Ronis 455, IP65



	key removeable in 0-position + connector + 1NO	BS3SAR 0/10	1	0,06
	key removeable in all positions + connector + 1NO	BS3SAR 01/10	1	0,06
	key removeable in 0-position + connector + 1NO	BS3SAT 0/10	1	0,06
	key removeable in all positions + connector + 2NO	BS3SARR 102/20	1	0,07
	key removeable in 0-position + connector + 2NO	BS3SARR 0/20	1	0,07



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

	Colour	Type  black ¹⁾	Pack Pcs.	Weight kg/pcs.
Push Buttons  markable	red	BS3D RT	10	0,0
	green	BS3D GN	10	0,01
	blue	BS3D BL	10	0,01
	yellow	BS3D GE	10	0,01
	black	BS3D SW	10	0,01
Push Buttons, maintained  markable	red	BS3DR RT	10	0,01
	green	BS3DR GN	10	0,01
	blue	BS3DR BL	10	0,01
	yellow	BS3DR GE	10	0,01
	black	BS3DR SW	10	0,01
Push Buttons illuminated  markable	red	BS3DL RT	10	0,01
	green	BS3DL GN	10	0,01
	blue	BS3DL BL	10	0,01
	yellow	BS3DL GE	10	0,01
	white	BS3DL WS	10	0,01
Push Buttons illuminated, maintained  markable	red	BS3DLR RT	10	0,01
	green	BS3DLR GN	10	0,01
	blue	BS3DLR BL	10	0,01
	yellow	BS3DLR GE	10	0,01
	white	BS3DLR WS	10	0,01
Rotary Knob 	maintained 	BS3KN2	10	0,02
	maintained 	BS3KN3	10	0,02
	spring return 	BS3KN1	10	0,02
Key Operated Rotary Switch IP65  key removable in position 0	maintained 	BS3SAR 0	1	0,04
	maintained 	BS3SARR 0	1	0,04
	spring return 	BS3SATT 0	1	0,04
Double Push Buttons IP65  lamp BA9s max. 1,9 W	green / red	BS3DT G/R	10	0,02
	white / black	BS3DT W/S	10	0,02
	green-I / red-0	BS3DT GI/R0	10	0,02
	white-I / black-0	BS3DT WI/S0	10	0,02
Emergency Stop Button Ø40mm 	release by turning	BS3P34 RT-0	10	0,02
	pull to release, according to EN418	BS3P44 RT	10	0,03
	release by key, according to EN418	BS3P44S3	1	0,05
	Yellow Disk Ø70 mm (markable)	B3-7603	10	0,01
Connector  for panel width 0,5–4mm snap-on mounting  for panel width 1–6mm screw mounting		B3S	10	0,01
		B3M	10	0,01
Contact Blocks max. 690V~ 	1 NC 	B3T01	10	0,02
	1 NO 	B3T10	10	0,02
Lamp holder max. 415V~  for all kind of lamps	Socket: BA9s 	B3F	10	0,01

1) Ring in chrome and alu on request

Lens Caps, Lamps and Accessories

Lens Caps



	Colour		Type	Pack Pcs.	Weight kg/pcs.
markable	red		B3RF RT	10	0,10
	green		B3RF GN	10	0,10
	blue		B3RF BL	10	0,10
	yellow		B3RF GE	10	0,10
	white		B3RF WS	10	0,10
with Fresnel-Lense for high intensity	red		B3R RT	10	0,10
	green		B3R GN	10	0,10
	blue		B3R BL	10	0,10
	yellow		B3R GE	10	0,10
	white		B3R WS	10	0,10

LED-Lamps, 10 years lifetime, Socket BA9S



Lamp voltage	for lens caps	Power consumption W	Type	Pack Pcs.	Weight kg/pcs.
20–30V AC/DC	red	0,4	B3-L24 RTB	10	0,01
20–30V AC/DC	green	0,4	B3-L24 GNB	10	0,01
20–30V AC/DC	blue	0,4	B3-L24 BLB	10	0,01
20–30V AC/DC	yellow	0,4	B3-L24 GEB	10	0,01
20–30V AC/DC	white	0,4	B3-L24 WSB	10	0,01
170–250V AC/DC	red	0,9	B3-L230 RTB	10	0,01
170–250V AC/DC	green	0,9	B3-L230 GNB	10	0,01
170–250V AC/DC	blue	0,9	B3-L230 BLB	10	0,01
170–250V AC/DC	yellow	0,9	B3-L230 GEB	10	0,01
170–250V AC/DC	white	0,9	B3-L230 WSB	10	0,01

Glow-discharged Lamps, Socket BA9s



220-250V AC	red, yellow, white	0,3	B4-GL230K	100	0,01
220-250V AC	green	0,3	B4-GL230G	100	0,01

Filament Lamps, Socket BA9s



24V AC/DC	all	1,2	B4-G24	100	0,01
48V AC/DC	all	1,2	B4-G48	100	0,01

Enclosures



Enclosure - 1 unit	BG1	1	0,11
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Enclosure - 2 units	BG2	1	0,15
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Enclosure - 3 units	BG3	1	0,19
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Wrench



for mounting of actuators, monoblocks, lens caps B3.. and Cam Switches with single hole mounting	J7049	1	0,02
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Lamp Installer



used to install or replace lamps BA9S	B4-7408	1	0,01
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Hole Plug



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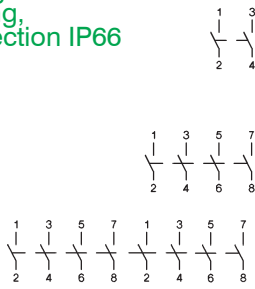
Sealing Cover



Protection against coarse, petrol-resitant, ambient temperature 0° C to +50° C	P279-1	10	0,01
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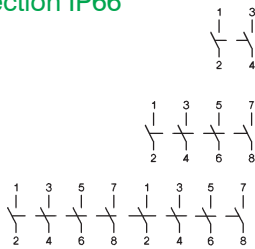
DC-Switch Disconnecter, IP40

Panel mounting
4-Hole mounting,
plate 64□, protection IP66



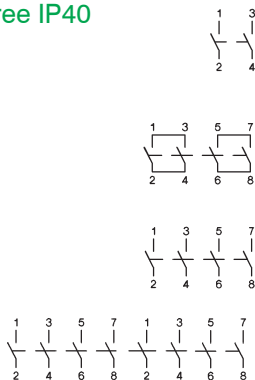
DC21B / PV1 600V DC 1000V DC A A		Poles in series	Number of Strings	Type	Pack Pcs.	Weight kg/pcs.
16	10	2	1	LS16 EH4 A2	1	0,22
25	11,5	2	1	LS25 EH4 A2	1	0,22
32	13	2	1	LS32 EH4 A2	1	0,22
40	29	2	1	LS40 EH4 A2	1	0,48
55	36	2	1	LS55 EH4 A2	1	0,48
16	10	2	2	LS16 EH4 A4	1	0,29
25	11,5	2	2	LS25 EH4 A4	1	0,29
32	13	2	2	LS32 EH4 A4	1	0,29
40	29	2	2	LS40 EH4 A4	1	0,55
55	36	2	2	LS55 EH4 A4	1	0,55
16	10	2	4	LS16 EH4 A8	1	0,50
25	11,5	2	4	LS25 EH4 A8	1	0,50
32	13	2	4	LS32 EH4 A8	1	0,50

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



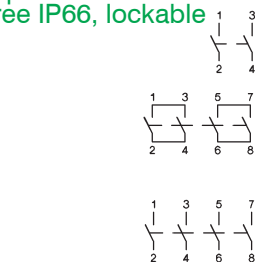
16	10	2	1	LS16 VZVH4 A2	1	0,22
25	11,5	2	1	LS25 VZVH4 A2	1	0,22
32	13	2	1	LS32 VZVH4 A2	1	0,22
16	10	2	2	LS16 VZVH4 A4	1	0,31
25	11,5	2	2	LS25 VZVH4 A4	1	0,31
32	13	2	2	LS32 VZVH4 A4	1	0,31
40	29	2	2	LS40 VZVH4 A4	1	0,58
55	36	2	2	LS55 VZVH4 A4	1	0,58
16	10	2	4	LS16 VZVH4 A8	1	0,51
25	11,5	2	4	LS25 VZVH4 A8	1	0,51
32	13	2	4	LS32 VZVH4 A8	1	0,51

Modular
protection degree IP40



16	10	2	1	LS16 SMAH1 A2	1	0,19
25	11,5	2	1	LS25 SMAH1 A2	1	0,19
32	13	2	1	LS32 SMAH1 A2	1	0,19
40	29	2	1	LS40 SMAH1 A2	1	0,44
36	11,5	2	1	LS25 SMAH1 A2+2	1	0,28
55	13	2	1	LS32 SMAH1 A2+2	1	0,28
68	29	2	1	LS40 SMAH1 A2+2	1	0,54
85	36	2	1	LS55 SMAH1 A2+2	1	0,54
16	10	2	2	LS16 SMAH1 A4	1	0,25
25	11,5	2	2	LS25 SMAH1 A4	1	0,25
32	13	2	2	LS32 SMAH1 A4	1	0,25
40	29	2	2	LS40 SMAH1 A4	1	0,50
55	36	2	2	LS55 SMAH1 A4	1	0,50
40	29	2	4	LS40 SMAH1 A8	1	1,01

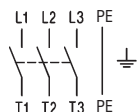
Main Switch, in plastic enclosure
protection degree IP66, lockable



16	10	2	1	LS16 PFLH4 A2	1	0,49
25	11,5	2	1	LS25 PFLH4 A2	1	0,49
32	13	2	1	LS32 PFLH4 A2	1	0,49
36	11,5	2	1	LS25 PFLH4 A2+2	1	0,58
55	13	2	1	LS32 PFLH4 A2+2	1	0,58
16	10	2	2	LS16 PFLH4 A4	1	0,54
25	11,5	2	2	LS25 PFLH4 A4	1	0,54
32	13	2	2	LS32 PFLH4 A4	1	0,54
40	29	2	2	LS40 PFLH4 A4	1	1,40
55	36	2	2	LS55 PFLH4 A4	1	1,40

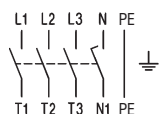
Main Switches, lockable, IP66

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



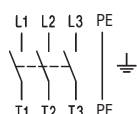
AC21 690V A	AC23 3x400V kW	Plate mm	Type	Pack Pcs.	Weight kg/pcs.
20	7,5	-	LTS20 PFH4 A3	1	0,32
25	10	-	LTS25 PFH4 A3	1	0,32
32	12,5	-	LTS32 PFH4 A3	1	0,32
40	16	-	LTS40 PFH4 A3	1	0,32
63	22	-	LTS63 PFH4 A3	1	0,60
80	22	-	LTS80 PFH4 A3	1	0,60
85	30	-	LTS85 PFH4 A3	1	0,78
100	37	-	LTS100 PFH4 A3	1	0,78
125	45	-	LTS125 PFH4 A3	1	0,78

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



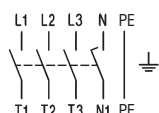
20	7,5	-	LTS20 PFH4 A4	1	0,33
25	10	-	LTS25 PFH4 A4	1	0,33
32	12,5	-	LTS32 PFH4 A4	1	0,33
40	16	-	LTS40 PFH4 A4	1	0,33
63	22	-	LTS63 PFH4 A4	1	0,64
80	22	-	LTS80 PFH4 A4	1	0,64
85	30	-	LTS85 PFH4 A4	1	0,83
100	37	-	LTS100 PFH4 A4	1	0,83
125	45	-	LTS125 PFH4 A4	1	0,83

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



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

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



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

Add-on Switching Pole, attachable to 3- and 4-pole LTS.. Switches (max. 1 pole left and right)



for switches:

LTS20...-LTS40..
LTS63..., LTS80..

LTS20...-LTS40
LTS63..., LTS80..

Panel mounting	Base mounting Installation board	Type	Pack Pcs.	Weight kg/pcs.
yes	no	N40E	1	0,04
yes	no	N80E	1	0,04
no	yes	N40V	1	0,04
no	yes	N80V	1	0,04

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, Front IP66

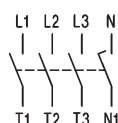
3-pole, Base mounting with Door Clutch



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

AC21 690V A	AC23 3x400V kW	Plate mm	Type	Pack Pcs.	Weight kg/pcs.
20	7,5	64 □	LTS20 VZVHN4 A3	1	0,20
25	10	64 □	LTS25 VZVHN4 A3	1	0,20
32	12,5	64 □	LTS32 VZVHN4 A3	1	0,20
40	16	64 □	LTS40 VZVHN4 A3	1	0,20
63	22	64 □	LTS63 VZVHN4 A3	1	0,24
80	22	64 □	LTS80 VZVHN4 A3	1	0,24
80	30	64 □	LTS85 VZVHN4 A3	1	0,40
100	37	64 □	LTS100 VZVHN4 A3	1	0,40
125	45	64 □	LTS125 VZVHN4 A3	1	0,40

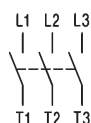
4-pole, Base mounting with Door Clutch



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

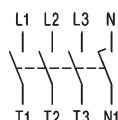
20	7,5	64 □	LTS20 VZVHN4 A4	1	0,21
25	10	64 □	LTS25 VZVHN4 A4	1	0,21
32	12,5	64 □	LTS32 VZVHN4 A4	1	0,21
40	16	64 □	LTS40 VZVHN4 A4	1	0,21
63	22	64 □	LTS63 VZVHN4 A4	1	0,28
80	22	64 □	LTS80 VZVHN4 A4	1	0,28
80	30	64 □	LTS85 VZVHN4 A4	1	0,45
100	37	64 □	LTS100 VZVHN4 A4	1	0,45
125	45	64 □	LTS125 VZVHN4 A4	1	0,54

3-pole, Panel mounting, 4-Hole mounting



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

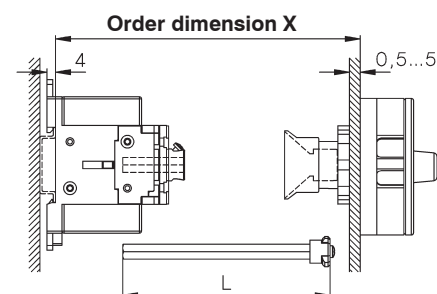
4-pole, Panel mounting, 4-Hole mounting



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

Ordering

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

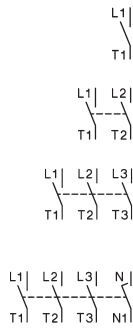


Standard dimensions (mm)

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..	95 – 190
LTS40 VZV..	90 – 190	LTS100 VZV..	95 – 190
		LTS125 VZV..	95 – 190

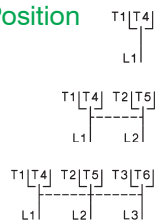
Cam Switches for Panel mounting, 4-Hole mounting, IP65

ON-OFF-Switches



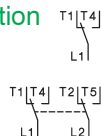
Pole	AC21 I_{th} A	Motor 3x400V kW	Plate mm	Type	VPE. Pcs.	Weight kg/pcs.
1	20	-	48 □	M10H E A1+G2	1	0,07
1	32	-	48 □	M20 E A1+G2	1	0,07
2	20	-	48 □	M10H E A2+G2	1	0,07
2	32	-	48 □	M20 E A2+G2	1	0,08
3	20	5,5	48 □	M10H E A3+G2	1	0,09
3	32	11	48 □	M20 E A3+G2	1	0,11
3	50	15	64 □	N33F E A3+G2	1	0,21
4	20	5,5	48 □	M10H E A4+G2	1	29,47
4	32	11	48 □	M20 E A4+G2	1	39,97
4	50	15	64 □	N33F E A4+G2	1	69,43

Changeover Switches with 0-Position



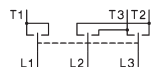
1	20	-	48 □	M10H E U1+G2	1	0,07
1	32	-	48 □	M20 E U1+G2	1	0,08
2	20	-	48 □	M10H E U2+G2	1	0,09
2	32	-	48 □	M20 E U2+G2	1	0,11
3	20	5,5	48 □	M10H E U3+G2	1	0,11
3	32	11	48 □	M20 E U3+G2	1	0,15
3	50	15	64 □	N33F E U3+G2	1	0,27

Changeover Switches without 0-Position



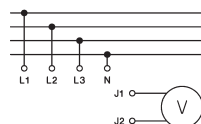
1	20	-	48 □	M10H E W1+G2	1	0,07
1	32	-	48 □	M20 E W1+G2	1	0,08
2	20	-	48 □	M10H E W2+G2	1	0,09
2	32	-	48 □	M20 E W2+G2	1	0,11

Reversing Switch



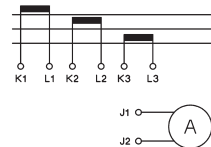
3	20	5,5	48 □	M10H E WU3+G2	1	0,11
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Voltmeter Selector Switch 3 line voltages, 3 phase voltages



	20	-	48 □	M10H E V1+G2	1	0,11
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Ammeter Selector Switch



1	20	-	48 □	M10H E M31+G2	1	0,11
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Cam Switches for Panel mounting, 4-Hole mounting, IP65

Start-Switch with spring return



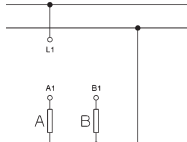
Pole	AC21 I_{th} A	Motor 3x400V kW	Plate mm	Type	VPE. Pcs.	Weight kg/pcs.
1	20	-	48 □	M10H E SE+G2	1	0,07

Start-Switch with spring return



1	20	-	48 □	M10H E SA+G2	1	0,07
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Gang Switches 1-pole



1	20	-	48 □	M10H E GR11+G2	1	0,07
1	32	-	48 □	M20 E GR11+G2	1	0,08

3 Step Switches without 0-Position



1	20	-	48 □	M10H E ST31+G2	1	0,09
1	32	-	48 □	M20 E ST31+G2	1	0,11

4 Step Switches without 0-Position



1	20	-	48 □	M10H E ST41+G2	1	0,09
1	32	-	48 □	M20 E ST41+G2	1	0,11

2 Step Switches with 0-Position



1	20	-	48 □	M10H E ST021+G2	1	0,07
1	32	-	48 □	M20 E ST021+G2	1	0,08

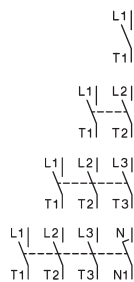
3 Step Switches with 0-Position



1	20	-	48 □	M10H E ST031+G2	1	0,09
1	32	-	48 □	M20 E ST031+G2	1	0,11

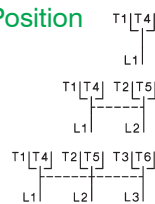
Cam Switches, Single Hole mounting Ø 22,5 mm, IP65

ON-OFF-Switches



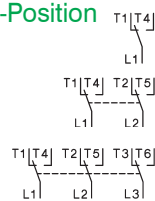
Pole	AC21 I_{th} A	Motor 3x400V kW	Plate mm	Type	VPE. Pcs.	Weight kg/pcs.
1	20	-	48 □	M10H Z A1+G2	1	0,08
1	32	-	48 □	M20 Z A1+G2	1	0,09
2	20	-	48 □	M10H Z A2+G2	1	0,09
2	32	-	48 □	M20 Z A2+G2	1	0,10
3	20	5,5	48 □	M10H Z A3+G2	1	0,10
3	32	11	48 □	M20 Z A3+G2	1	0,12
4	20	5,5	48 □	M10H Z A4+G2	1	0,11
4	32	11	48 □	M20 Z A4+G2	1	0,13

Changeover Switches with 0-Position



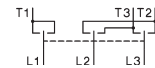
1	20	-	48 □	M10H Z U1+G2	1	0,09
1	32	-	48 □	M20 Z U1+G2	1	0,10
2	20	-	48 □	M10H Z U2+G2	1	0,11
2	32	-	48 □	M20 Z U2+G2	1	0,13
3	20	5,5	48 □	M10H Z U3+G2	1	0,13
3	32	11	48 □	M20 Z U3+G2	1	0,16

Changeover Switches without 0-Position



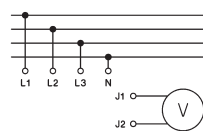
1	20	-	48 □	M10H Z W1+G2	1	0,09
1	32	-	48 □	M20 Z W1+G2	1	0,10
2	20	-	48 □	M10H Z W2+G2	1	0,11
2	32	-	48 □	M20 Z W2+G2	1	0,13
3	20	5,5	48 □	M10H Z W3+G2	1	0,12
3	32	11	48 □	M20 Z W3+G2	1	0,16

Reversing Switch



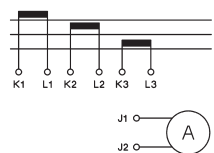
3	20	5,5	48 □	M10H Z WU3+G2	1	0,12
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Voltmeter Selector Switch 3 line voltages, 3 phase voltages



	20	-	48 □	M10H Z V1+G2	1	0,13
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Ammeter Selector Switch



1	20	-	48 □	M10H Z M31+G2	1	0,13
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Cam Switches, Single Hole mounting Ø 22,5 mm, IP65

Start-Switch with spring return



Pole	AC21 I _{th} A	Motor 3x400V kW	Plate mm	Type	VPE. Pcs.	Weight kg/pcs.
1	20	-	48 □	M10H Z SE+G2	1	0,08

Stop-Switch with spring return



1	20	-	48 □	M10H Z SA+G2	1	0,08
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3 Step Switches without 0-Position



1	20	-	48 □	M10H Z ST31+G2	1	0,10
1	32	-	48 □	M20 Z ST31+G2	1	0,12

4 Step Switches without 0-Position



1	20	-	48 □	M10H Z ST41+G2	1	0,11
1	32	-	48 □	M20 Z ST41+G2	1	0,13

2 Step Switches with 0-Position



1	20	-	48 □	M10H Z ST021+G2	1	0,09
1	32	-	48 □	M20 Z ST021+G2	1	0,10

3 Step Switches with 0-Position



1	20	-	48 □	M10H Z ST031+G2	1	0,10
1	32	-	48 □	M20 Z ST031+G2	1	0,12

ON-OFF-Switches Key operated Lock Ronis R455



1	20	-	48 □	M10H Z A1+SA	1	0,10
1	32	-	48 □	M20 Z A1+SA	1	0,10



2	20	-	48 □	M10H Z A2+SA	1	0,10
2	32	-	48 □	M20 Z A2+SA	1	0,11



3	20	5,5	48 □	M10H Z A3+SA	1	0,12
3	32	11	48 □	M20 Z A3+SA	1	0,14

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

ON-OFF-Switches 20A

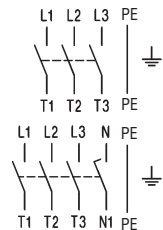


Pole	AC21 I_{th} A	Motor 3x400V kW	Plate mm	Type	VPE. Pcs.	Weight kg/pcs.
1	20	-	48 □	M10 P A1+G2	1	0,11

2	20	-	48 □	M10 P A2+G2	1	0,11
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3	20	5,5	48 □	M10 P A3+G2	1	0,13
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ON-OFF-Switches 32A



3	32	-	48 □	LTS32 PF A3	1	0,32
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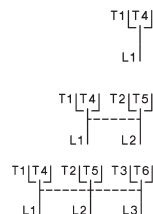
4	32	-	48 □	LTS32 PF A4	1	0,33
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Heating EMERGENCY STOP Switch 2-pole with red Handle



2	20	-	48 □	M10 P A2+90446+G3	1	0,11
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Changeover Switches with 0-Position

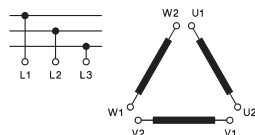


1	20	-	48 □	M10 P U1+G2	1	0,11
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2	20	-	48 □	M10 P U2+G2	1	0,14
2	32	-	64 □	N20 P U2+G2	1	0,23

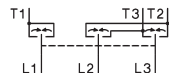
3	20	5,5	48 □	M10 P U3+G2	1	0,16
3	32	11	64 □	N20 P U3+G2	1	0,29

Star-Delta-Switch



3	32	15	64 □	N20 P SD+G2	1	0,34
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Reversing Switch with reciprocally spring return



3	20	5,5	48 □	M10 P WU3R2+G2	1	0,16
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ON-OFF-Switches Key operated Lock Willenhal FT101



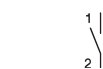
1	20	-	48 □	M10 P A1+SA	1	0,17
1	32	-	64 □	N20 P A1+SA	1	0,23

2	20	-	48 □	M10 P A2+SA	1	0,17
2	32	-	64 □	N20 P A2+SA	1	0,24

3	20	5,5	48 □	M10 P A3+SA	1	0,19
3	32	11	64 □	N20 P A3+SA	1	0,28

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

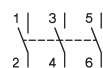
ON-OFF-Switches



Pole	AC21 I _{th} A	Motor 3x400V kW	Plate mm	Type	VPE. Pcs.	Weight kg/pcs.
1	10	-	30 □	M4H Z A1	1	0,04



2	10	-	30 □	M4H Z A2	1	0,04
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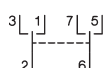


3	10	-	30 □	M4H Z A3	1	0,05
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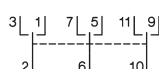
Changeover Switches with 0-Position



1	10	-	30 □	M4H Z U1	1	0,04
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2	10	-	30 □	M4H Z U2	1	0,05
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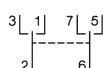


3	10	-	30 □	M4H Z U3	1	0,06
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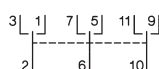
Changeover Switches with 0-Position plate HAND - 0 - AUTO



1	10	-	30 □	M4H Z U1+009	1	0,04
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2	10	-	30 □	M4H Z U2+009	1	0,05
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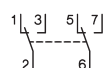


3	10	-	30 □	M4H Z U3+009	1	0,06
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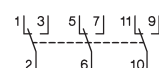
Changeover Switches without 0-Position



1	10	-	30 □	M4H Z W1	1	0,04
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2	10	-	30 □	M4H Z W2	1	0,05
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3	10	-	30 □	M4H Z W3	1	0,06
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Start-Switch with spring return



1	10	-	30 □	M4H Z SE	1	0,04
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Notice:



Quality made in



Short Form Catalogue D651E221



Lieblgasse 7, A-1220 Vienna
Phone: +43 1 251 51- 0
Fax: +43 1 251 51-89
e-mail: sales@benedict.at
www.benedict.at



quick access to www.benedict.at