






















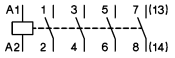
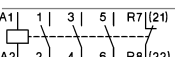
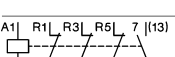
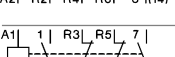
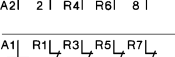
<b>Modular Contactors</b>		Modular Contactors	2	
		Cam switches	4	
		Main Switches	5	
<b>Contactors and Overload Relays</b>		Mini-Contactors K1	6	
		Mini-Reversing Starters K1W	6	
		Contactors K3	8	
			Contactors K3-..ND..	9
			Reversing Starters	9
	Star Delta Starters		9	
		Overload Relays for Contactors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

# Modular Contactors low noise

	Rated Current	Power Rating		Motor AC3	Type	Pack	Weight
		AC1	400V				
1-, 2-pole 1 Module (17,5mm)	A	1~	3~	400V	NO NC Coil V~	Pcs.	kg/pc.
		kW	kW				


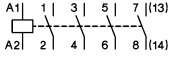
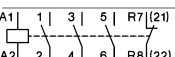
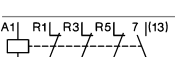
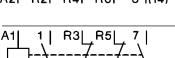
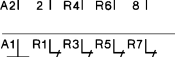
		<b>20</b>	4,6	-	-	<b>R20-10 230</b>	12	0,12
		<b>20</b>	4,6	-	-	<b>R20-20 230</b>	12	0,12
		<b>20</b>	4,6	-	-	<b>R20-20 24</b>	12	0,12
		<b>20</b>	4,6	-	-	<b>R20-11 230</b>	12	0,12
		<b>20</b>	4,6	-	-	<b>R20-11 24</b>	12	0,12
		<b>20</b>	4,6	-	-	<b>R20-02 230</b>	12	0,12
		<b>20</b>	4,6	-	-	<b>R20-02 24</b>	12	0,12
		<b>25</b>	5,5	-	-	<b>R25-20 230</b>	12	0,14
		<b>25</b>	5,5	-	-	<b>R25-20 24</b>	12	0,14
		<b>25</b>	5,5	-	-	<b>R25-11 230</b>	12	0,14
		<b>25</b>	5,5	-	-	<b>R25-11 24</b>	12	0,14
		<b>25</b>	5,5	-	-	<b>R25-02 230</b>	12	0,14
<b>25</b>		5,5	-	-	<b>R25-02 24</b>	12	0,14	

## 4-pole 2 Modules (35mm) <sup>1)</sup>

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

## 4-pole , AC/DC-operated <sup>2)</sup>


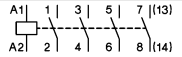
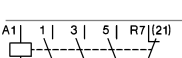
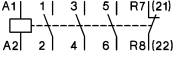
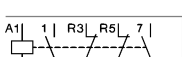
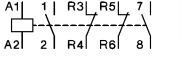
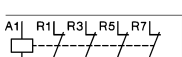
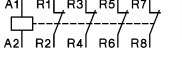

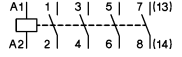
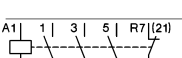
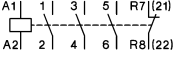
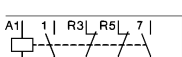
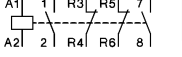
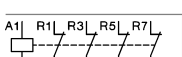
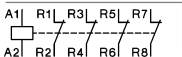
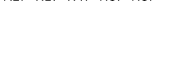
### 2 Modules (35mm)

								Coil V = / ~ AC/DC	
		<b>25</b>	5,7	17	4	<b>R25-40 230VM</b>	6	0,22	↓
		<b>25</b>	5,7	17	4	<b>R25-40 24VM</b>	6	0,22	
		<b>25</b>	5,7	17	4	<b>R25-31 230VM</b>	6	0,22	↓
		<b>25</b>	5,7	17	4	<b>R25-31 24VM</b>	6	0,22	
		<b>25</b>	5,7	17	4	<b>R25-13 230VM</b>	6	0,22	↓
		<b>25</b>	5,7	17	4	<b>R25-13 24VM</b>	6	0,22	
		<b>25</b>	5,7	-	-	<b>R25-22 230VM</b>	6	0,22	↓
		<b>25</b>	5,7	-	-	<b>R25-22 24VM</b>	6	0,22	
		<b>25</b>	5,7	17	4	<b>R25-04 230VM</b>	6	0,22	↓
		<b>25</b>	5,7	17	4	<b>R25-04 24VM</b>	6	0,22	

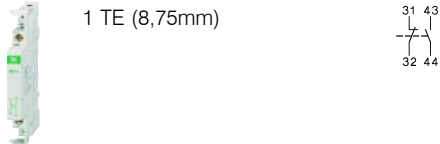
1) Sealable with Sealing Cover P721, available aux. contact block (see page 3)

2) Sealable with Sealing Cover P721

# Modular Contactors low noise

4-pole 3 Modules (52,5mm)	Rated Current 400V AC1 <b>A</b>	Power Rating		Motor AC3 400V 3~ kW	Type	Pack	Weight	
		AC1 1~ kW	AC3 3~ kW					
		<b>40</b>	9	27,5	12,5	<b>R40-40 230</b>	4	0,35
		<b>40</b>	9	27,5	12,5	<b>R40-40 24</b>	4	0,35
		<b>40</b>	9	27,5	12,5	<b>R40-31 230</b>	4	0,35
		<b>40</b>	9	27,5	12,5	<b>R40-31 24</b>	4	0,35
		<b>40</b>	9	-	-	<b>R40-22 230</b>	4	0,35
		<b>40</b>	9	-	-	<b>R40-22 24</b>	4	0,35
		<b>40</b>	9	27,5	12,5	<b>R40-04 230</b>	4	0,35
		<b>40</b>	9	27,5	12,5	<b>R40-04 24</b>	4	0,35
		<b>63</b>	14,3	43	15	<b>R63-40 230</b>	4	0,36
		<b>63</b>	14,3	43	15	<b>R63-40 24</b>	4	0,36
		<b>63</b>	14,3	43	15	<b>R63-31 230</b>	4	0,36
		<b>63</b>	14,3	43	15	<b>R63-31 24</b>	4	0,36
		<b>63</b>	14,3	-	-	<b>R63-22 230</b>	4	0,36
		<b>63</b>	14,3	-	-	<b>R63-22 24</b>	4	0,36
		<b>63</b>	14,3	43	15	<b>R63-04 230</b>	4	0,36
		<b>63</b>	14,3	43	15	<b>R63-04 24</b>	4	0,36

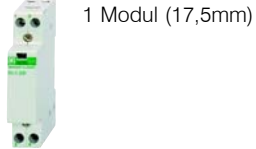
Accessories	Rated current AC15 230V <b>A</b>	Therm. Current $I_{th}$ for contactor <b>A</b>	Type	Pack	Weight	
<b>Aux. Contact Block</b> , for R25 to R63 4-pole	2	10	R25 <sup>2)</sup> , R40, R63	<b>RH11</b>	3	0,026



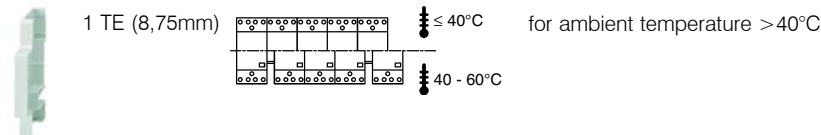
<b>Sealing cover</b> for R25..	<b>P721</b>	10	0,002
<b>Sealing cover</b> for R40.. and R63..	<b>P690</b>	10	0,003



<b>Suppressor unit</b> for 2x R20.. to R63..	RC-unit for 12V to 250V AC~	<b>RC-R 230</b>	2	0,05
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<b>Spacing piece</b> for R20.. to R63..	<b>P730</b>	10	0,012
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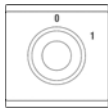
1) Sealable with Sealing Cover P690, available aux. contact block RH11  
 2) AC-operated R25-..., 4-pole

## Cam Switches for Installation boards, 60mm



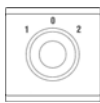
Pole	AC21 $I_{th}$	Motor 3x400V	Plate	Type	Pack Pcs.	Weight g/pc.
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### ON-OFF-Switches



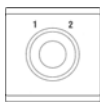
	1	20A	-	52x45	<b>M10H SMA A1</b>	1	95
	1	32A	-	52x45	<b>M20 SMA A1</b>	1	102
	2	20A	-	52x45	<b>M10H SMA A2</b>	1	100
	2	32A	-	52x45	<b>M20 SMA A2</b>	1	111
	3	20A	5,5kW	52x45	<b>M10H SMA A3</b>	1	105
	3	32A	11kW	52x45	<b>M20 SMA A3</b>	1	120
	4	20A	5,5kW	52x45	<b>M10H SMA A4</b>	1	110
	4	32A	11kW	52x45	<b>M20 SMA A4</b>	1	129

### Changeover Switches with 0-Position



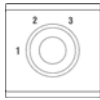
	1	20A	-	52x45	<b>M10H SMA U1</b>	1	100
	2	20A	-	52x45	<b>M10H SMA U2</b>	1	110
	2	20A	-	52x45	<b>M10H SMA U2</b>	1	110
	2	32A	-	52x45	<b>M20 SMA U2</b>	1	129
	3	20A	-	52x45	<b>M10H SMA U3</b>	1	120

### Changeover Switches without 0-Position



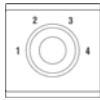
	1	20A	-	52x45	<b>M10H SMA W1</b>	1	100
	2	20A	-	52x45	<b>M10H SMA W2</b>	1	110
	2	20A	-	52x45	<b>M10H SMA W2</b>	1	110
	2	32A	-	52x45	<b>M20 SMA W2</b>	1	129

### 3 Step Switches without 0-Position



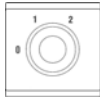
	1	20A	-	52x45	<b>M10H SMA ST31</b>	1	105
	1	32A	-	52x45	<b>M20 SMA ST31</b>	1	120

### 4 Step Switches without 0-Position



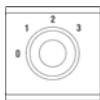
	1	20A	-	52x45	<b>M10H SMA ST41</b>	1	110
	1	32A	-	52x45	<b>M20 SMA ST41</b>	1	129

### 2 Step Switches with 0-Position



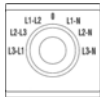
	1	20A	-	52x45	<b>M10H SMA ST021</b>	1	110
	1	32A	-	52x45	<b>M20 SMA ST021</b>	1	111

### 3 Step Switches with 0-Position



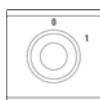
	1	20A	-	52x45	<b>M10H SMA ST031</b>	1	105
	1	32A	-	52x45	<b>M20 SMA ST031</b>	1	120

### Voltmeter Selector Switch, 3 line voltages, 3 phase voltages



		20A		52x45	<b>M10H SMA V1</b>	1	120
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### ON-OFF-Switches Key operated Lock Willenhal FT101

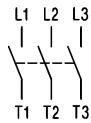


	1	20A	-	52x45	<b>M10H SMA A1+SA</b>	1	117
	1	32A	-	52x45	<b>M20 SMA A1+SA</b>	1	129
	2	20A	-	52x45	<b>M10H SMA A2+SA</b>	1	122
	2	32A	-	52x45	<b>M20 SMA A2+SA</b>	1	137
	3	20A	5,5kW	52x45	<b>M10H SMA A3+SA</b>	1	142
	3	32A	11kW	52x45	<b>M20 SMA A3+SA</b>	1	161

## Emergency - Stop - Main Switch, lockable

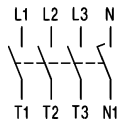
AC21 690V	AC23 3x400V	Plate	Type	Pack Pcs.	Weight kg/pc.
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3-pole, for Installation board, 60mm, IP40



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

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

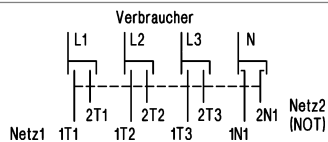


20A	<b>7,5kW</b>	52x45	<b>LTS20 SMAHN1 A4</b>	1	0,16
25A	<b>10kW</b>	52x45	<b>LTS25 SMAHN1 A4</b>	1	0,16
32A	<b>12,5kW</b>	52x45	<b>LTS32 SMAHN1 A4</b>	1	0,16
40A	<b>16kW</b>	52x45	<b>LTS40 SMAHN1 A4</b>	1	0,16
63A	<b>22kW</b>	52x45	<b>LTS63 SMAHN1 A4</b>	1	0,21
80A	<b>22kW</b>	52x45	<b>LTS80 SMAHN1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

## Net Changeover Switches for emergency power systems

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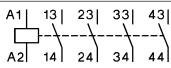
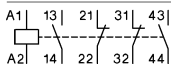
4-pole, for Installation board, 60mm, IP40




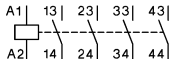
20A	<b>7,5kW</b>	97x45	<b>LTS20 SMA U4 +841</b>	1	
25A	<b>10kW</b>	97x45	<b>LTS25 SMA U4 +841</b>	1	
32A	<b>12,5kW</b>	97x45	<b>LTS32 SMA U4 +841</b>	1	
40A	<b>16kW</b>	97x45	<b>LTS40 SMA U4 +841</b>	1	
63A	<b>22kW</b>	126x45	<b>LTS63 SMA U4 +841</b>	1	
80A	<b>22kW</b>	126x45	<b>LTS80 SMA U4 +841</b>	1	


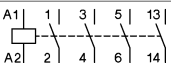

Other designs on request

## Mini-Contactors K1


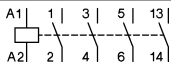
		AC15 230V A	Rated Current $I_{th}$	additionally aux. contacts max.	Type	NO NC V Coil	Pack Pcs.	Weight kg/pc.
		<b>3A</b>	10A	1 HK..	<b>K1-07D40</b>	<b>230</b>	10	0,16
		<b>3A</b>	10A	1 HK..	<b>K1-07D40</b>	<b>24</b>	10	0,16
		<b>3A</b>	10A	1 HK..	<b>K1-07D22</b>	<b>230</b>	10	0,16
		<b>3A</b>	10A	1 HK..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


### Mini-Contactor Relays , Coil DC

	Spule 3W 	<b>3A</b>	10A	1 HK..	<b>K1-07D40=</b>	<b>24</b>	10	0,16
		<b>3A</b>	10A	1 HK..	<b>K1-07D22=</b>	<b>24</b>	10	0,16

		Motor AC3 kW	Rated Current A	additionally aux. contacts max.	Type	NO NC V Coil	Pack Pcs.	Weight kg/pc.
		<b>4kW</b>	20A	1 HKM..	<b>K1-09D10</b>	<b>230</b>	10	0,16
		<b>4kW</b>	20A	1 HKM..	<b>K1-09D10</b>	<b>24</b>	10	0,16
		<b>5,5kW</b>	20A	1 HKM..	<b>K1-12D10</b>	<b>230</b>	10	0,16
		<b>5,5kW</b>	20A	1 HKM..	<b>K1-12D10</b>	<b>24</b>	10	0,16

### Mini-Contactors , Coil DC

	Spule 3W 	<b>4kW</b>	20A	1 HKM..	<b>K1-09D10=</b>	<b>24</b>	10	0,16
		<b>5,5kW</b>	20A	1 HKM..	<b>K1-12D10=</b>	<b>24</b>	10	0,16

		Motor 400V	Therm. current	to accept Overload Relay	Type	V Coil	Pack Pcs.	Weight kg/pc.
		<b>4</b>	20	U12/16E.. K1	<b>K1W09D01MC</b>	<b>230</b>	1	0,32
		<b>5,5</b>	20	U12/16E.. K1	<b>K1W12D01MC</b>	<b>230</b>	1	0,32


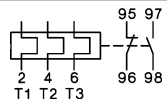
Standard coil voltages :  
Coil AC



**24** 24V 50/60Hz  
**230** 220-230V 50Hz / 230-250V 60Hz  
Other coil voltages on request

Standard coil voltages :  
Coil DC

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

# Overload Relays , Suppressor Units for Contactors K1

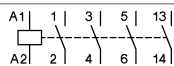
Overload Relays	Motor AC3 400V kW	Setting Range A	Fuse acc. coordination		Type	VPE Pcs.	Weight kg/pc.
			aM A	gL(gG) A "2"			
  <p>Hand Reset electric. insulated auxiliary contacts 1NO + 1NC</p>	<b>0,06</b>	0,12 - 0,18	-	0,5	<b>U12/16E 0,18 K1</b>	1	0,10
	<b>0,09</b>	0,18 - 0,27	-	1,0	<b>U12/16E 0,27 K1</b>	1	0,10
	<b>0,09</b>	0,27 - 0,4	-	2	<b>U12/16E 0,4 K1</b>	1	0,10
	<b>0,12</b>	0,4 - 0,6	-	2	<b>U12/16E 0,6 K1</b>	1	0,10
	<b>0,18</b>	0,6 - 0,9	-	4	<b>U12/16E 0,9 K1</b>	1	0,10
	<b>0,25</b>	0,8 - 1,2	2	4	<b>U12/16E 1,2 K1</b>	1	0,10
	<b>0,37</b>	1,2 - 1,8	2	6	<b>U12/16E 1,8 K1</b>	1	0,10
	<b>0,75</b>	1,8 - 2,7	4	10	<b>U12/16E 2,7 K1</b>	1	0,10
	<b>1,5</b>	2,7 - 4	4	10	<b>U12/16E 4 K1</b>	1	0,10
	<b>2,2</b>	4 - 6	6	16	<b>U12/16E 6 K1</b>	1	0,10
	<b>3</b>	6 - 9	10	25	<b>U12/16E 9 K1</b>	1	0,10
	<b>4</b>	8 - 11	16	25	<b>U12/16E 11 K1</b>	1	0,10
	<b>5,5</b>	10 - 14	16	35	<b>U12/16E 14 K1</b>	1	0,10

Auxiliary Contact Blocks	AC15 230V	I <sub>th</sub>	contacts		Type	Pack Pcs.	Weight kg/pc.
			NO	NC			
 <p>for K1-07D...</p>	3A	10A	1	1	<b>HK11</b>	10	0,04
	3A	10A	0	2	<b>HK02</b>	10	0,04
	3A	10A	2	2	<b>HK22</b>	10	0,04
	3A	10A	0	4	<b>HK04</b>	10	0,04
	3A	10A	4	0	<b>HK40</b>	10	0,04
 <p>for K1-09D10, K1-12D10</p>	3A	10A	1	1	<b>HKM11</b>	10	0,04
	3A	10A	0	2	<b>HKM02</b>	10	0,04
	3A	10A	2	0	<b>HKM20</b>	10	0,04
	3A	10A	2	2	<b>HKM22</b>	10	0,04
	3A	10A	3	1	<b>HKM31</b>	10	0,04

Suppressor Units	Voltage range	Execution	Type	Pack Pcs.	Weight kg/pc.
	110-230V AC/DC	RC	<b>RC-K1 230</b>	10	0,01

## Contactors K3

### Contactor Relays , Coil AC



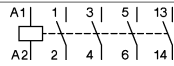
Replaced with range K3...ND starting from March 2012

AC15 230V A	Rated Current $I_{th}$	additionally aux. contacts max.	Type	NO		Pack Pcs.	Weight kg/pc.						
				NC	V Coil								
<b>4</b>	25	4 HN..	<b>K3-10A10</b>	<b>230</b>	1	0,23							
				<b>400</b>	1	0,23							
<b>5,5</b>	25	4 HN..	<b>K3-14A10</b>	<b>230</b>	1	0,23							
				<b>400</b>	1	0,23							
<b>7,5</b>	32	4 HN..	<b>K3-18A10</b>	<b>230</b>	1	0,23							
				<b>400</b>	1	0,23							
<b>11</b>	32	4 HN..	<b>K3-22A10</b>	<b>230</b>	1	0,23							
				<b>400</b>	1	0,23							
<b>11</b>	50	4 HN..+2 HB..	<b>K3-24A00</b>	<b>230</b>	1	0,48							
				<b>15</b>	65	4 HN..+2 HB..	<b>K3-32A00</b>	230	1	0,48			
											<b>18,5</b>	80	4 HN..+2 HB..
<b>22</b>	110	4 HN..+2 HB..	<b>K3-50A00</b>	230	1	0,85							
							<b>30</b>	120	4 HN..+2 HB..	<b>K3-62A00</b>	230	1	0,85
<b>45</b>	160	7 HN..+2 HB..	<b>K3-90A00</b>	230	1	2,2							
							<b>55</b>	200	7 HN..+2 HB..	<b>K3-115A00</b>	230	1	2,2
<b>75 - 680kW</b>						on request							

### Contactor Relays , Coil DC



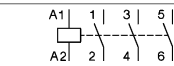
Entstörung  
integriert  
Spule 3W



<b>4</b>	25	4 HN..	<b>KG3-10A10</b>	<b>24</b>	1	0,53
				<b>KG3-14A10</b>	24	1
<b>7,5</b>	32	4 HN..	<b>KG3-18A10</b>	<b>24</b>	1	0,53
				<b>KG3-22A10</b>	24	1



Entstörung  
integriert  
Spule 4W



<b>11</b>	50	4 HN..+2 HB..	<b>KG3-24A00</b>	<b>24</b>	1	0,57				
				<b>15</b>	65	4 HN..+2 HB..	<b>KG3-32A00</b>	24	1	0,57

### Auxiliary Contact Blocks



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

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



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

3A	10A	1	1	<b>HB11</b>	10	0,02
		0	2	<b>HB02</b>		

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

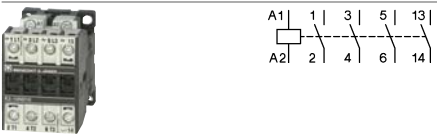
Standard coil voltages : **24V=**, **60V=**, **110V=** and **220V=**  
Coil DC Other coil voltages on request




**NEW** Contactors K3-..ND..

New Contactor Range K3-..ND.. replaces Contactor Range K3-..A.. starting from March 2012 with the same price


- Coil terminals better accessible
- Coils are changeable without tools
- integrated aux. contact for electronic circuits
- K3-Accessories compatible

Contactor Relays , Coil AC	AC15	Rated	additionally	Type	NO	Pack	Weight
	230V	Current	aux. contacts			Pcs.	kg/pc.
	A	$I_{th}$	max.		NC		
					V		
					Coil		
	4	25	4 HN..	K3-10A10	230	1	0,23
	4	25	4 HN..	K3-10A10	400	1	0,23
	5,5	25	4 HN..	K3-14A10	230	1	0,23
	5,5	25	4 HN..	K3-14A10	400	1	0,23
	7,5	32	4 HN..	K3-18A10	230	1	0,23
	7,5	32	4 HN..	K3-18A10	400	1	0,23
	11	32	4 HN..	K3-22A10	230	1	0,23
	11	32	4 HN..	K3-22A10	400	1	0,23



Reversing Starter , Star-Delta Starter

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

Main- and Control lines are wired

Star-Delta Starter	Motor	AC3	to accept	Type	Pack	Weight	
	400V	400V	Overload Relay		Pcs.	kg/pc.	
	kW	A	YD-Setting Range				
			= 0,58 x I <sub>n</sub>	Coil	V AC		
	7,5	16	U3/32..	K3Y15	230	1	1 0,9
	15	30	U3/32..	K3Y26	230	1	1 0,9
	22	45	U3/42..	K3Y40	230	1	1 1,4
	30	60	U3/42..	K3Y52	230	1	1 1,8
	45	85	U3/74..	K3Y80	230	1	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

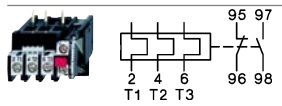
Main- and Control lines are wired

Suppressor Units	Voltage range	Execution	Type	Pcs.	kg/pc.	
	K3-07...to K3-22..	12 - 24V AC/DC	Varistor	K2-E24	10	0,01
		110 - 230V AC/DC	Varistor	K2-E230	10	0,01
	K3-07.. to K3-74..	12 - 24V AC/DC	RC	RC-K3 24	10	0,01
		110-230V AC/DC	RC	RC-K3 230	10	0,01

# Overload Relays , Suppressor Units for Contactors K3

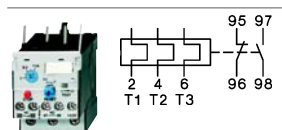
Motor AC3 400V kW	Setting Range A	Fuse acc. coordination aM gL(gG) A A "2"	Type	VPE Pcs.	Weight kg/pc.
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## Overload Relays for hand reset



Setting Range A	Fuse acc. coordination aM gL(gG) A A "2"	Type	VPE Pcs.	Weight kg/pc.
0,06	0,12 - 0,18	- 0,5	U12/16E 0,18 K3	1 0,10
0,09	0,18 - 0,27	- 1,0	U12/16E 0,27 K3	1 0,10
0,12	0,27 - 0,4	- 2	U12/16E 0,4 K3	1 0,10
0,18	0,4 - 0,6	- 2	U12/16E 0,6 K3	1 0,10
0,25	0,6 - 0,9	- 4	U12/16E 0,9 K3	1 0,10
0,37	0,8 - 1,2	2 4	U12/16E 1,2 K3	1 0,10
0,75	1,2 - 1,8	2 6	U12/16E 1,8 K3	1 0,10
1,5	1,8 - 2,7	4 10	U12/16E 2,7 K3	1 0,10
2,2	2,7 - 4	4 10	U12/16E 4 K3	1 0,10
3	4 - 6	6 16	U12/16E 6 K3	1 0,10
4	6 - 9	10 25	U12/16E 9 K3	1 0,10
5,5	8 - 11	16 25	U12/16E 11 K3	1 0,10
7,5	10 - 14	16 35	U12/16E 14 K3	1 0,10
11	13 - 18	20 35	U12/16E 18 K3	1 0,10
	17 - 23	25 35	U12/16E 23 K3	1 0,10

## Overload Relays for hand and automatic reset



0,06	0,12 - 0,18	- 0,5	U3/32 0,18	1 0,14
0,09	0,18 - 0,27	- 1,0	U3/32 0,27	1 0,14
0,12	0,27 - 0,4	- 2	U3/32 0,4	1 0,14
0,18	0,4 - 0,6	- 2	U3/32 0,6	1 0,14
0,25	0,6 - 0,9	- 4	U3/32 0,9	1 0,14
0,37	0,8 - 1,2	2 4	U3/32 1,2	1 0,14
0,75	1,2 - 1,8	2 6	U3/32 1,8	1 0,14
1,5	1,8 - 2,7	4 10	U3/32 2,7	1 0,14
2,2	2,7 - 4	4 10	U3/32 4	1 0,14
3	4 - 6	6 16	U3/32 6	1 0,14
4	6 - 9	10 25	U3/32 9	1 0,14
5,5	8 - 11	16 25	U3/32 11	1 0,14
7,5	10 - 14	16 35	U3/32 14	1 0,14
11	13 - 18	20 35	U3/32 18	1 0,14
11	17 - 24	25 35	U3/32 24	1 0,14
11	23 - 32	35 50	U3/32 32	1 0,14
15	23 - 32	35 50	U3/32 32	1 0,14
11	20 - 28	35 50	U3/42 28	1 0,30
15	28 - 42	50 50	U3/42 42	1 0,30
18,5	28 - 42	50 50	U3/42 42	1 0,30
22	40 - 52	63 100	U3/74 52	1 0,40
30	52 - 65	50 125	U3/74 65	1 0,40
37	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		Pack Pcs.	Weight kg/pc.
			Coil	V AC		

### D.O.L. Starter with Selector Switch, IP65



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

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



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

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



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

#### Pneumatic Button



			<b>P1LT</b>	1	
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#### Air Pressure Hose



Length: 5m			<b>P1LS-5</b>	1	
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#### Pneumatic Switch



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

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



Wippschalter-  
betätigung

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

### Circuit Breaker M4-32R-..



Drehgriff-  
betätigung

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

### Circuit Breaker M4-63R-..



Drehgriff-  
betätigung

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

### Circuit Breaker M4-100R-..



Drehgriff-  
betätigung

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

1) Approximate values of standard motors


## Accessories for Circuit Breakers M4

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

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

	1	1	3	2	5	<b>M4 HQ11</b>	1	0,02
	2	-	3	2	5	<b>M4 HQ20</b>	1	0,02



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

	1	1	6	4	10	<b>M4 HS11</b>	1	0,03
	2	-	6	4	10	<b>M4 HS20</b>	1	0,03
	-	2	6	4	10	<b>M4 HS02</b>	1	0,03



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

	1	1	6	4	10	<b>M4 MA11</b>	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		<b>M4 U24</b>	1	0,11		
		110-127V 50Hz, 120V 60Hz		<b>M4 U110</b>	1	0,11		
		220-230V 50Hz, 240-260V 60Hz		<b>M4 U230</b>	1	0,11		
		240V 50Hz, 277V 60Hz		<b>M4 U240</b>	1	0,11		
		380-400V 50Hz, 440-460V 60Hz		<b>M4 U400</b>	1	0,11		
		415-440V 50Hz, 460-480V 60Hz		<b>M4 U415</b>	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		<b>M4 A24</b>	1	0,12		
		110-127V 50Hz, 120V 60Hz		<b>M4 A110</b>	1	0,12		
		220-230V 50Hz, 240-260V 60Hz		<b>M4 A230</b>	1	0,12		
		240V 50Hz, 277V 60Hz		<b>M4 A240</b>	1	0,12		
		380-400V 50Hz, 440-460V 60Hz		<b>M4 A400</b>	1	0,12		
		415-440V 50Hz, 460-480V 60Hz		<b>M4 A415</b>	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	<b>M4 32R PFH4</b>	1	0,53
	Enclose with rotary operating mechanism yellow - red, lockable with N- and PE-terminal space for 1 transverse and side aux. contact + release	<b>M4 32R PFHN4</b>	1	0,53

## Manual Motor Starters and Accessories

Manual Motor Starters	Thermal Overload release Setting Range	Ratings AC3		Magnetic Short Circuit Trip	Short Circuit Breaking Capacity at 3~400V	Type	Pack	Weight
	A	kW	kW	A			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	

Auxiliary Contact Blocks	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
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Description	Type	Pack	Weight
Shunt release	MU25A-A230	10	0,06
Undervoltage release	MU25A-U230	10	0,06





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



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

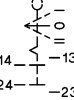






















Execution	Description	Type	Pack Pcs.	Weight kg/pc.	
Connectors	Busbar	for 2 units, length 99mm	MU25A-D99	10	0,036
	Busbar	for 3 units, length 154mm	MU25A-D154	10	0,06
	Busbar	for 4 units, length 208mm	MU25A-D208	10	0,084
	Busbar	for 5 units, length 262mm	MU25A-D262	10	0,107
	Supply Block	isolated, $U_i$ 690V, $I_u$ 63A	MU25A-DB	10	0,034
	Protection Cover	for unused busbar terminals	MU25A-BS	10	0,003

## 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.

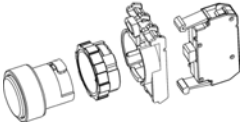
### Push Buttons and Pilot Lights in Enclosures



		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
	 14 — 13	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 eaccording 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

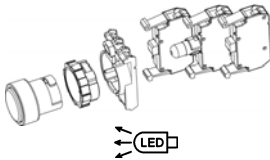
Aktuator colour      with      LED      Type      Pack pcs.      Weight kg/pc.

### Push Buttons, IP67



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

### Illuminated Push Buttons, IP66 and IP67



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

### Double Push Buttons, IP65



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



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

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



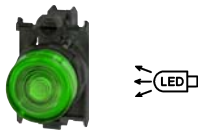
white	+connector	+socket BA9S	-	<b>B3R WS/0</b>	1	0,037
green	+connector	+socket BA9S	-	<b>B3R GN/0</b>	1	0,037
red	+connector	+socket BA9S	-	<b>B3R RT/0</b>	1	0,037
yellow	+connector	+socket BA9S	-	<b>B3R GE/0</b>	1	0,037



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

### Monoblock Multi-LED IP65



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

### EMERGENCY STOP Push Buttons, IP66 and IP67 Ø40mm



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

### Rotary Knobs, IP65



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

### Key Operated Rotary Switch with lock Ronis 455, IP65



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




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


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

						black <sup>1)</sup>	Pack Pcs.
 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			
 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		BS3DT G/R	10	0,016		
	white/ black		BS3DT W/S	10	0,016		
	green-I / red-0		BS3DT GI/R0	10	0,016		
	white-I / black-0		BS3DT WI/SO	10	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		
 Connector for panel width 1 - 6mm screw mounting	 1-6mm		B3M	10	0,013		
 Contact Blocks max. 690V~	 .1 -7 .2	1 NC	B3T01	10	0,020		
	 .3 -4 .4	1 NO	B3T10	10	0,020		
 Lamp holder max. 415V~ .... for all kind of lamps	 x1 ⊗ x2	Socket: BA9s	B3F	10	0,012		

1) ring in chrom and alu on request

## Lens Caps, Lamps and Accessories

	colour	Type	Pack Pcs.	Weight kg/pc.
 Lens Caps, markable	red	<b>B3RF RT</b>	10	0,09
	green	<b>B3RF GN</b>	10	0,09
	blue	<b>B3RF BL</b>	10	0,09
	yellow	<b>B3RF GE</b>	10	0,09
	white	<b>B3RF WS</b>	10	0,09

	colour	Type	Pack Pcs.	Weight kg/pc.
 Lens Caps, with Fresnell Lense for high intensity	red	<b>B3R RT</b>	10	0,09
	green	<b>B3R GN</b>	10	0,09
	blue	<b>B3R BL</b>	10	0,09
	yellow	<b>B3R GE</b>	10	0,09
	white	<b>B3R WS</b>	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	<b>B3-L24 RTB</b>	10	0,005
	20 - 30V AC/DC	green	0,4W	<b>B3-L24 GNB</b>	10	0,005
	20 - 30V AC/DC	blue	0,4W	<b>B3-L24 BLB</b>	10	0,005
	20 - 30V AC/DC	yellow	0,4W	<b>B3-L24 GEB</b>	10	0,005
	20 - 30V AC/DC	white	0,4W	<b>B3-L24 WSB</b>	10	0,005
	170 - 250V AC/DC	red	0,9W	<b>B3-L230 RTB</b>	10	0,005
	170 - 250V AC/DC	green	0,9W	<b>B3-L230 GNB</b>	10	0,005
	170 - 250V AC/DC	blue	0,9W	<b>B3-L230 BLB</b>	10	0,005
	170 - 250V AC/DC	yellow	0,9W	<b>B3-L230 GEB</b>	10	0,005
	170 - 250V AC/DC	white	0,9W	<b>B3-L230 WSB</b>	10	0,005


### Glow-discharged Lamps

	220-250V AC	red yellow, white	0,3W	<b>B4-GL230K</b>	100	0,005
	220-250V AC	green	0,3W	<b>B4-GL230G</b>	100	0,005


### Filament Lamps

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


### Enclosures

	Enclosure - 1 unit			<b>BG1</b>	1	0,108
	Enclosure - 2 units			<b>BG2</b>	1	0,145
	Enclosure - 3 units			<b>BG3</b>	1	0,188

### Wrench

	for mounting of actuators, monoblocks, lens caps B3.. and Cam Switches with single hole mounting			<b>J7049</b>	1	
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### Lamp Installer

	used to install or replace lamps BA9S			<b>B4-7408</b>	1	
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### Hole Plug

	grey, for unused fixing holes Ø22,5mm			<b>B3-DU GR</b>	10	
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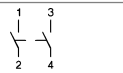
### Sealing Cover

	Protection against coarse, petrol-resitant, ambient temperature 0° - +50° C			<b>P279-1</b>	10	
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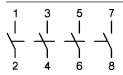
## Modular DC-Switch Disconnecter, IP40

DC21B  
600V DC 1000V DC Poles in series Number of Strings **Type** Pack pcs Weight kg/pcs.

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

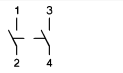


16A	9A	2	1	<b>LS16 E A2</b>	1	0,20
25A	11A	2	1	<b>LS25 E A2</b>	1	0,20
32A	13A	2	1	<b>LS32 E A2</b>	1	0,20

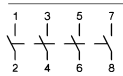


16A	9A	2	2	<b>LS16 E A4</b>	1	0,23
25A	11A	2	2	<b>LS25 E A4</b>	1	0,23
32A	13A	2	2	<b>LS32 E A4</b>	1	0,23

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

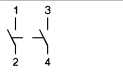


16A	9A	2	1	<b>LS16 VZV A2</b>	1	0,22
25A	11A	2	1	<b>LS25 VZV A2</b>	1	0,22
32A	13A	2	1	<b>LS32 VZV A2</b>	1	0,22

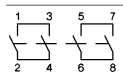


16A	9A	2	2	<b>LS16 VZV A4</b>	1	0,25
25A	11A	2	2	<b>LS25 VZV A4</b>	1	0,25
32A	13A	2	2	<b>LS32 VZV A4</b>	1	0,25

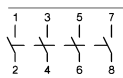
Modular, protection degree IP40



16A	9A	2	1	<b>LS16 SMA A2</b>	1	0,19
25A	11A	2	1	<b>LS25 SMA A2</b>	1	0,19
32A	13A	2	1	<b>LS32 SMA A2</b>	1	0,19

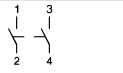


45A	11A	2	1	<b>LS25 SMA A2+2</b>	1	0,24
50A	13A	2	1	<b>LS32 SMA A2+2</b>	1	0,24

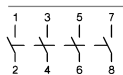


16A	9A	2	2	<b>LS16 SMA A4</b>	1	0,22
25A	11A	2	2	<b>LS25 SMA A4</b>	1	0,22
32A	13A	2	2	<b>LS32 SMA A4</b>	1	0,22

**NEW** Plastic enclosure, escutcheon plate 64□, protection degree IP65

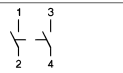


16A	9A	2	1	<b>LS16 PFL A2</b>	1	0,42
25A	11A	2	1	<b>LS25 PFL A2</b>	1	0,42
32A	13A	2	1	<b>LS32 PFL A2</b>	1	0,42

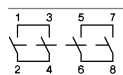


16A	9A	2	2	<b>LS16 PFL A4</b>	1	0,45
25A	11A	2	2	<b>LS25 PFL A4</b>	1	0,45
32A	13A	2	2	<b>LS32 PFL A4</b>	1	0,45

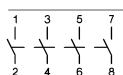
**NEW** Main Switch, in plastic enclosure, escutcheon plate 64□, protection degree IP65



16A	9A	2	1	<b>LS16 PFLH4 A2</b>	1	0,43
25A	11A	2	1	<b>LS25 PFLH4 A2</b>	1	0,43
32A	13A	2	1	<b>LS32 PFLH4 A2</b>	1	0,43



45A	11A	2	1	<b>LS25 PFLH4 A2+2</b>	1	0,49
50A	13A	2	1	<b>LS32 PFLH4 A2+2</b>	1	0,49



16A	9A	2	2	<b>LS16 PFLH4 A4</b>	1	0,46
25A	11A	2	2	<b>LS25 PFLH4 A4</b>	1	0,46
32A	13A	2	2	<b>LS32 PFLH4 A4</b>	1	0,46

Padlock device SV4

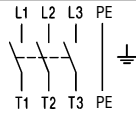
## Technical data, according to IEC 60947-3, VDE0660

DC21B	LS16 .. 600V	800V	1000V	LS25.. 600V	800V	1000V	LS32.. 600V	800V	1000V
2 poles in series	16A	13A	9A	25A	20A	11A	32A	23A	13A
2 poles in series+2 parallel	29A	13A	9A	45A	20A	11A	50A	23A	13A
4 poles in series	16A	16A	16A	25A	25A	25A	32A	32A	32A

## Main Switches, lockable, IP65

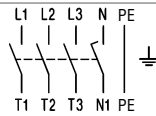
AC21 690V	AC23 3x400V	Plate	Type	Pack Pcs.	Weight kg/pc.
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3-pole Main Switch, in plastic enclosure, UV-protected, sealable, lockable, IP65



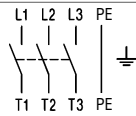
20A	<b>7,5kW</b>	64 □	LTS20 PFH4 A3	1	0,32
25A	<b>10kW</b>	64 □	LTS25 PFH4 A3	1	0,32
32A	<b>12,5kW</b>	64 □	LTS32 PFH4 A3	1	0,32
40A	<b>16kW</b>	64 □	LTS40 PFH4 A3	1	0,32
63A	<b>22kW</b>	64 □	LTS63 PFH4 A3	1	0,60
80A	<b>22kW</b>	64 □	LTS80 PFH4 A3	1	0,60
85A	<b>30kW</b>	64 □	LTS85 PFH4 A3	1	0,78
100A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

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



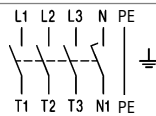
20A	<b>7,5kW</b>	64 □	LTS20 PFH4 A4	1	0,33
25A	<b>10kW</b>	64 □	LTS25 PFH4 A4	1	0,33
32A	<b>12,5kW</b>	64 □	LTS32 PFH4 A4	1	0,33
40A	<b>16kW</b>	64 □	LTS40 PFH4 A4	1	0,33
63A	<b>22kW</b>	64 □	LTS63 PFH4 A4	1	0,64
80A	<b>22kW</b>	64 □	LTS80 PFH4 A4	1	0,64
85A	<b>30kW</b>	64 □	LTS85 PFH4 A4	1	0,83
100A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

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



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

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



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

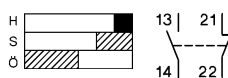
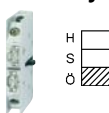
Add-on Switching Pole, attachable to 3- and 4-pole LTS.. Switches

for Switches:	Panel mounting	Base mounting Installation board	Type	Pack Pcs.	Weight kg/pc.
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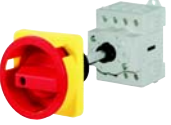
LTS20..., LTS25..., LTS32..., LTS40 LTS63..., LTS80..	yes yes	no no	<b>N40E</b> <b>N80E</b>	1 1	0,035 0,042
LTS20..., LTS25..., LTS32..., LTS40 LTS63..., LTS80..	no no	yes yes	<b>N40V</b> <b>N80V</b>	1 1	0,035 0,042

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



LTS20 - LTS125	yes	yes	<b>LH11</b>	1	0,02
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## Emergency - Stop - Main Switch, lockable, IP65

	AC21 690V	AC23 3x400V	Plate	Type	Pack Pcs.	Weight kg/pc.
<b>3-pole, Base mounting with Door Clutch *</b>						
 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 □	LTS80 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 \*

	AC21 690V	AC23 3x400V	Plate	Type	Pack Pcs.	Weight kg/pc.
<b>4-pole, Base mounting with Door Clutch *</b>						
 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 □	LTS80 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

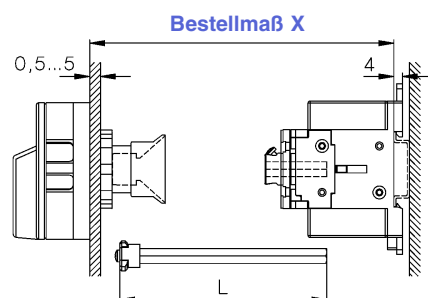
	AC21 690V	AC23 3x400V	Plate	Type	Pack Pcs.	Weight kg/pc.
<b>3-pole, Panel mounting, 4-Hole mounting, IP65</b>						
 						
	20A	7,5kW	64 □	LTS20 EHN4 A3	1	0,17
	25A	10kW	64 □	LTS25 EHN4 A3	1	0,17
	32A	12,5kW	64 □	LTS32 EHN4 A3	1	0,17
	40A	16kW	64 □	LTS40 EHN4 A3	1	0,17
	63A	22kW	64 □	LTS63 EHN4 A3	1	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

	AC21 690V	AC23 3x400V	Plate	Type	Pack Pcs.	Weight kg/pc.
<b>4-pole, Panel mounting, 4-Hole mounting, IP65</b>						
 						
	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)

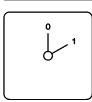
Type	X	Type	X
LTS20 VZV..	90 - 190	LTS63 VZV..	90 - 190
LTS25 VZV..	90 - 190	LTS80 VZV..	90 - 190
LTS32 VZV..	90 - 190	LTS85 VZV..	90 - 190
LTS40 VZV..	90 - 190	LTS100 VZV..	95 - 190
		LTS125 VZV..	95 - 190

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



Pole	AC21 $I_{th}$	Motor 3x400V	Plate	Type	Pack Pcs.	Weight g/pc.
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## ON-OFF-Switches



	1	20A	-	48 □	<b>M10H E A1+G2</b>	1	65
	1	32A	-	48 □	<b>M20 E A1+G2</b>	1	72
	2	20A	-	48 □	<b>M10H E A2+G2</b>	1	70
	2	32A	-	48 □	<b>M20 E A2+G2</b>	1	80
	3	20A	5,5kW	48 □	<b>M10H E A3+G2</b>	1	85
	3	32A	11kW	48 □	<b>M20 E A3+G2</b>	1	107
	3	50A	15kW	64 □	<b>N33F E A3+G2</b>	1	190
	4	20A	5,5kW	48 □	<b>M10H E A4+G2</b>	1	90
	4	32A	11kW	48 □	<b>M20 E A4+G2</b>	1	107
	4	50A	15kW	64 □	<b>N33F E A4+G2</b>	1	208

## Changeover Switches with 0-Position



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

## Changeover Switches without 0-Position



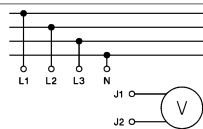
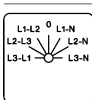
	1	20A	-	48 □	<b>M10H E W1+G2</b>	1	70
	1	32A	-	48 □	<b>M20 E W1+G2</b>	1	80
	2	20A	-	48 □	<b>M10H E W2+G2</b>	1	90
	2	32A	-	48 □	<b>M20 E W2+G2</b>	1	113

## Reversing Switch



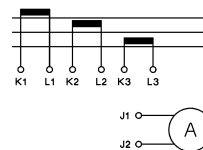
	3	20A	5,5kW	48 □	<b>M10H E WU3+G2</b>	1	107
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## Voltmeter Selector Switch, 3 line voltages, 3 phase voltages



		20A	-	48 □	<b>M10H E V1+G2</b>	1	112
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## Ammeter Selector Switch



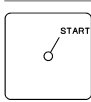
	1	20A	-	48 □	<b>M10H E M31+G2</b>	1	113
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## Cam Switches for Panel mounting, 4-Hole mounting, IP65



Pole	AC21 $I_{th}$	Motor 3x400V	Plate	Type	Pack Pcs.	Weight g/pc.
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### Start-Switch with spring return



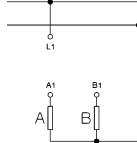
1	20A	-	48 □	<b>M10H E SE+G2</b>	1	65
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### Stop-Switch with spring return



1	20A	-	48 □	<b>M10H E SA+G2</b>	1	65
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### Gang Switches 1-pole



1	20A	-	48 □	<b>M10H E GR11+G2</b>	1	70
1	32A	-	48 □	<b>M20 E GR11+G2</b>	1	80

### 3 Step Switches without 0-Position



1	20A	-	48 □	<b>M10H E ST31+G2</b>	1	85
1	32A	-	48 □	<b>M20 E ST31+G2</b>	1	107

### 4 Step Switches without 0-Position



1	20A	-	48 □	<b>M10H E ST41+G2</b>	1	90
1	32A	-	48 □	<b>M20 E ST41+G2</b>	1	113

### 2 Step Switches with 0-Position



1	20A	-	48 □	<b>M10H E ST021+G2</b>	1	70
1	32A	-	48 □	<b>M20 E ST021+G2</b>	1	80

### 3 Step Switches with 0-Position



1	20A	-	48 □	<b>M10H E ST031+G2</b>	1	85
1	32A	-	48 □	<b>M20 E ST031+G2</b>	1	107



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



	Pole	AC21 $I_{th}$	Motor 3x400V	Plate	Type	Pack Pcs.	Weight g/pc.
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## ON-OFF-Switches



	1	20A	-	48 □	<b>M10H Z A1+G2</b>	1	80
	1	32A	-	48 □	<b>M20 Z A1+G2</b>	1	87
	2	20A	-	48 □	<b>M10H Z A2+G2</b>	1	85
	2	32A	-	48 □	<b>M20 Z A2+G2</b>	1	95
	3	20A	5,5kW	48 □	<b>M10H Z A3+G2</b>	1	100
	3	32A	11kW	48 □	<b>M20 Z A3+G2</b>	1	122
	4	20A	5,5kW	48 □	<b>M10H Z A4+G2</b>	1	105
	4	32A	11kW	48 □	<b>M20 Z A4+G2</b>	1	128

## Changeover Switches with 0-Position



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

## Changeover Switches without 0-Position



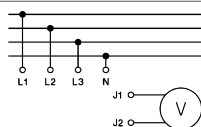
	1	20A	-	48 □	<b>M10H Z W1+G2</b>	1	85
	1	32A	-	48 □	<b>M20 Z W1+G2</b>	1	95
	2	20A	-	48 □	<b>M10H Z W2+G2</b>	1	105
	2	32A	-	48 □	<b>M20 Z W2+G2</b>	1	128
	3	20A	5,5kW	48 □	<b>M10H Z W3+G2</b>	1	127
	3	32A	11kW	48 □	<b>M20 Z W3+G2</b>	1	160

## Reversing Switch



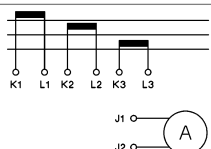
	3	20A	5,5kW	48 □	<b>M10H Z WU3+G2</b>	1	122
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## Voltmeter Selector Switch, 3 line voltages, 3 phase voltages



		20A	-	48 □	<b>M10H Z V1+G2</b>	1	127
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## Ammeter Selector Switch



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



Pole	AC21 $I_{th}$	Motor 3x400V	Plate	Type	Pack Pcs.	Weight g/pc.
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### Start-Switch with spring return



<b>1</b>	20A	-	48 □	<b>M10H Z SE+G2</b>	1	80
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### Stop-Switch with spring return



<b>1</b>	20A	-	48 □	<b>M10H Z SA+G2</b>	1	80
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### 3 Step Switches without 0-Position



<b>1</b>	20A	-	48 □	<b>M10H Z ST31+G2</b>	1	100
<b>1</b>	32A	-	48 □	<b>M20 Z ST31+G2</b>	1	122

### 4 Step Switches without 0-Position



<b>1</b>	20A	-	48 □	<b>M10H Z ST41+G2</b>	1	105
<b>1</b>	32A	-	48 □	<b>M20 Z ST41+G2</b>	1	128

### 2 Step Switches with 0-Position



<b>1</b>	20A	-	48 □	<b>M10H Z ST021+G2</b>	1	85
<b>1</b>	32A	-	48 □	<b>M20 Z ST021+G2</b>	1	95

### 3 Step Switches with 0-Position



<b>1</b>	20A	-	48 □	<b>M10H Z ST031+G2</b>	1	100
<b>1</b>	32A	-	48 □	<b>M20 Z ST031+G2</b>	1	122

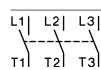
### ON-OFF-Switches Key operated Lock Ronis R455



<b>1</b>	20A	-	48 □	<b>M10H Z A1+SA</b>	1	95
<b>1</b>	32A	-	48 □	<b>M20 Z A1+SA</b>	1	102



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



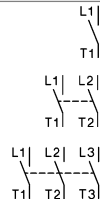
<b>3</b>	20A	5,5kW	48 □	<b>M10H Z A3+SA</b>	1	115
<b>3</b>	32A	11kW	48 □	<b>M20 Z A3+SA</b>	1	137

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



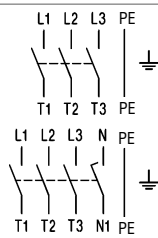
Pole	AC21 $I_{th}$	Motor 3x400V	Plate	Type	Pack Pcs.	Weight g/pc.
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### ON-OFF-Switches 20A



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



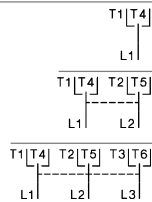
3	32A	-	48 □	LTS32 PF A3	1	315
4	32A	-	48 □	LTS32 PF A4	1	330

### Heating EMERGENCY STOP Switch, 2-pole with red Handle



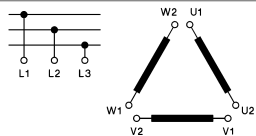
2	20A	-	48 □	M10 P A2+90446+G3	1	112
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### Changeover Switches with 0-Position



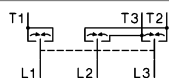
1	20A	-	48 □	M10 P U1+G2	1	112
2	20A	-	48 □	M10 P U2+G2	1	137
2	32A	-	64 □	N20 P U2+G2	1	233
3	20A	5,5kW	48 □	M10 P U3+G2	1	162
3	32A	11kW	64 □	N20 P U3+G2	1	285

### Star-Delta-Switch



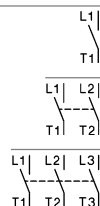
3	32A	15kW	64 □	N20 P SD+G2	1	335
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### Reversing Switch with reciprocally spring return



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



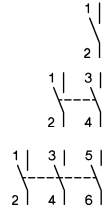
1	20A	-	48 □	M10 P A1+SA	1	165
1	32A	-	64 □	N20 P A1+SA	1	229
2	20A	-	48 □	M10 P A2+SA	1	169
2	32A	-	64 □	N20 P A2+SA	1	242
3	20A	5,5kW	48 □	M10 P A3+SA	1	188
3	32A	11kW	64 □	N20 P A3+SA	1	281

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



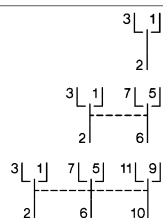
Pole	AC21 $I_{th}$	Motor 3x400V	Plate	Type	Pack Pcs.	Weight g/pc.
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## ON-OFF-Switches



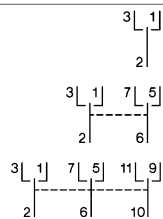
<b>1</b>	10A	-	30 □	<b>M4H Z A1</b>	1	36
<b>2</b>	10A	-	30 □	<b>M4H Z A2</b>	1	38
<b>3</b>	10A	-	30 □	<b>M4H Z A3</b>	1	45

## Changeover Switches with 0-Position



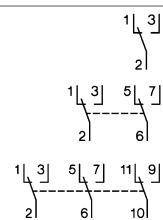
<b>1</b>	10A	-	30 □	<b>M4H Z U1</b>	1	38
<b>2</b>	10A	-	30 □	<b>M4H Z U2</b>	1	48
<b>3</b>	10A	-	30 □	<b>M4H Z U3</b>	1	58

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



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

## Changeover Switches without 0-Position



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

## Start-Switch with spring return



<b>1</b>	10A	-	30 □	<b>M4H Z SE</b>	1	36
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