

# Star-delta switchFlush mounting

Powering Business Worldwide™

Part no. T0-5-15876/E Article no. 000893

**Delivery programme** 

Production grainer and the several grainer and the sev	Delivery programme			
Part group reference  Design  Protection type  Emergency stop  Contact sequence  Front plate no.  Main conducting paths  No. of poles  Max. motor rating  A-23A  Protection type  Front plate  To Plush mounting  Flush mounting  Front plate  Front plate  With black thumb grip and fr	Product range			Switch-disconnectors
Protection type  Emergency stop  Contact sequence  Front plate no.  Main conducting paths  No. of poles  Max. motor rating  AC 23A  P	Basic function			Reversing star-delta switches
Protection type Emergency stop Contact sequence  Contact sequence  Front plate no.  Main conducting paths No. of poles  Mo. of poles AC-23A  400/415 V 50-60 Hz  Protection type Front ple5 Front ple5 with black thumb grip and front plate two-way operating direction with black thumb grip and front plate two-way operating direction  With black thumb grip and front plate two-way operating direction  With black thumb grip and front plate two-way operating direction  With black thumb grip and front plate two-way operating direction  With black thumb grip and front plate two-way operating direction  With black thumb grip and front plate two-way operating direction  With black thumb grip and front plate two-way operating direction  With black thumb grip and front plate two-way operating direction  With black thumb grip and front plate two-way operating direction  With black thumb grip and front plate two-way operating direction  With black thumb grip and front plate two-way operating direction  With black thumb grip and front plate two-way operating direction  With black thumb grip and front plate two-way operating direction  With black thumb grip and front plate two-way operating direction  With black thumb grip and front plate two-way operating direction  With black thumb grip and front plate two-way operating direction  With black thumb grip and front plate two-way operating direction  With black thumb grip and front plate two-way operating direction  With black thumb grip and front plate two-way operating direction  With black thumb grip and front plate two-way operating direction  With black thumb grip and front plate two-way operating direction  With black thumb grip and front plate two-way operating direction  With black thumb grip and front plate two-way operating direction  With black thumb grip and front plate two-way operating direction  With black thumb grip and front plate two-way operating direction  With black thumb grip and front plate two-way operating direction  With black thumb grip and front plate t	Part group reference			
Emergency stop       without emergency switching off/emergency stop function         Contact sequence       with black thumb grip and front plate two-way operating direction         Front plate no.       Image: Contact sequence in the property switching off/emergency stop function         Main conducting paths       FS 638         No. of poles       M       3         Max. motor rating       M       3         AC-23A       FS 638         400/415 V 50-80 Hz       FS 638	Design			Flush mounting
Emergency stop       without emergency switching off/emergency stop function         Contact sequence       with black thumb grip and front plate two-way operating direction         Front plate no.       Image: Contact sequence in the property switching off/emergency stop function         Main conducting paths       FS 638         No. of poles       M       3         Max. motor rating       M       3         AC-23A       FS 638         400/415 V 50-80 Hz       FS 638				
Contact sequence  Front plate no.  Main conducting paths  No. of poles  Max. motor rating  AC-23A  400/415 V 50-60 Hz  with black thumb grip and front plate two-way operating direction  With black thumb grip and front plate two-way operating direction  Front plate no.  FS 638  With black thumb grip and front plate two-way operating direction  FS 638  With black thumb grip and front plate two-way operating direction  FS 638  With black thumb grip and front plate two-way operating direction  FS 638  FS 638  FS 638	Protection type			Front IP65
Contact sequence  Front plate no.  Main conducting paths No. of poles No. of poles AC-23A  400/415 V 50-60 Hz  Kwo-way operating direction  two-way operating direction  wow-way operating direction  two-way operating direction  wow-way operating direction  Wow-way operating direction  Wow-way operating direction  Wow-way operating direction  AT OF THE WOW-WAY OPERATING STATES AND ADDRESS AND AD	Emergency stop			without emergency switching off/emergency stop function
Front plate no.  Front plate no.  Main conducting paths  No. of poles  No. of poles  Max. motor rating  AC-23A  400/415 V 50-60 Hz  P  KW  6.5				with black thumb grip and front plate two-way operating direction
Main conducting paths   No. of poles   M   3	Contact sequence			
Main conducting paths       M       3         No. of poles       M       3         Max. motor rating       V       V         AC-23A       V       V         400/415 V 50-60 Hz       P       kW       6.5	Front plate no.			Y Y Y
No. of poles         M         3           Max. motor rating         V         V           AC-23A         V         V           400/415 V 50-60 Hz         P         kW         6.5				FS 638
Max. motor rating  AC-23A  400/415 V 50-60 Hz  P kW 6.5				
AC-23A  400/415 V 50-60 Hz  P kW 6.5			М	3
400/415 V P kW 6.5 50-60 Hz	Max. motor rating			
50-60 Hz	AC-23A			
Rated uninterrupted current I <sub>u</sub> A 20		Р	kW	6.5
	Rated uninterrupted current	l <sub>u</sub>	Α	20

Approvals
Product Standards
UL File No.
UL CCN CSA File No. CSA Class No. NA Certification Suitable for Degree of Protection

UL 508; CSA-C22.2 No. 14-05; IEC/EN 60947-3; CE marking E36332

NLRV 12528 3211-05

UL listed, CSA certified

Branch circuits, suitable as motor disconnect IEC: IP65; UL/CSA Type 3R, 12

General			
Standards			IEC/EN 60947, VDE 0660, IEC/EN 60204, CSA, UL Switch-disconnectors to IEC/EN 60947-3 Load-break switches to IEC/EN 60947-3
Lifespan, mechanical	Operations	x 10 <sup>6</sup>	0.5
Maximum operating frequency		Operation h	on\$ 000
Climatic proofing			Damp heat, constant, to IEC 60068-2-78; Damp heat, cyclical, to IEC 60068-2-30
Ambient temperature		°C	
Open		°C	- 25 - 50
Enclosed		°C	- 25 - 40

Mounting position			As required
Mechanical shock resistance to IEC 60068-2-27	Half- sinusoidal shock 20	g	>15
	ms		
Contacts			
Rated operational voltage	U <sub>e</sub>	V AC	690
Rated impulse withstand voltage	U <sub>imp</sub>	V AC	6000
Overvoltage category/pollution degree			III/3
Rated uninterrupted current	l <sub>u</sub>	Α	
open	Iu	Α	20
Enclosed	Iu	Α	20
Load rating with intermittent operation, class 12			
AB 25 % DF		x I <sub>e</sub>	2
AB 40 % DF		x I <sub>e</sub>	1.6
AB 60 % DF		x I <sub>e</sub>	1.3
Short-circuit rating			
Fuse		A gG/ gL	20
Rated short-time withstand current (1 s current)	I <sub>cw</sub>	A <sub>rms</sub>	320
Safe isolation to VDE 0106 Part 101 and Part 101/A1			
between the contacts		V AC	440
Switching angles		0	90 60 45 30
Contact units			11
Double-break contacts			max. 22
Current heat loss per contact at I <sub>e</sub>		W	0.6
Terminal capacities			
Solid or stranded		mm <sup>2</sup>	1 x (1 - 2.5) 2 x (1 - 2.5)
Flexible with ferrule to DIN 46228		mm <sup>2</sup>	1 x (0.75 - 1.5) 2 x (0.75 - 1.5)
Terminal screw			M3.5
Tightening torque		Nm	1
Switching capacity			
AC		x U <sub>s</sub>	400
Rated making capacity cos φ = 0.35		A	130
Rated breaking capacity, motor load switch cos φ = 0.35		Α	100
230 V 400 V		A A	100 110
500 V		A	80
690 V		A	60
Rated operational current 440 V load-break switch AC-21A	l <sub>e</sub>	A	20
Rating, AC-3 motor load switch	P	kW	
220 V 230 V	P	kW	4
230 V Star-delta	P	kW	4
380 V 400 V	Р	kW	5.5
400 V Star-delta	Р	kW	5.5
500 V	Р	kW	5.5
500 V Star-delta	Р	kW	7.5
660 V 690 V	Р	kW	5.5
690 V Star-delta	Р	kW	5.5
AC-23A Motor load switches (main switches maintenance switches)	Р	kW	

MOV				
Rated operational current control switch AC-15	400 V	P	kW	6.5
1	500 V	P	kW	7.5
Box   400 V 415 V   I	Rated operational current control switch AC-15			
1	220 V 230 V 240 V	I <sub>e</sub>	Α	6
DC   DC-1, Load-break switches L/R = 1 ms	380 V 400 V 415 V	I <sub>e</sub>	Α	4
DC-1, Load-break switches L/R = 1 ms	500 V	I <sub>e</sub>	Α	2
Rated operational current	DC		$x U_s$	
Voltage per contact pair in series   V   60     DC-21A	DC-1, Load-break switches L/R = 1 ms			
DC-21A	Rated operational current	I <sub>e</sub>	Α	10
Rated operational current 240 V   Ie	Voltage per contact pair in series		V	60
240 V Contacts  DC-23A, motor load switch L/R = 15 ms  24 V  Rated operational current  48 V  Rated operational current  Le A 10 Contacts  Quantity 1  48 V  Rated operational current  Le A 10 Contacts  Quantity 2  60 V  Rated operational current  Le A 10 Contacts  Quantity 3  120 V  Rated operational current  Le A 5 Contacts  Quantity 3  240 V  Rated operational current  Le A 5 Contacts  Quantity 5  DC-13, Control switches L/R = 50 ms  Rated operational current  Le A 5 Contacts  Quantity 5  Contacts  DC-13, Control switches L/R = 50 ms  Rated operational current  Le A 10 Voltage per contact pair in series  V 32  Control circuit reliability at 24 V DC, 10 mA  Fault  He Control circuit reliability at 24 V DC, 10 mA	DC-21A	I <sub>e</sub>	Α	
DC-23A, motor load switch L/R = 15 ms  24 V  Rated operational current  48 V  Rated operational current  Le A 10  Contacts  48 V  Rated operational current  Le A 10  Contacts  Quantity  Rated operational current  Le A 10  Contacts  Quantity  Rated operational current  Le A 10  Contacts  Quantity  3  120 V  Rated operational current  Le A 5  Quantity  Rated operational current  Le A 5  Contacts  Quantity  Rated operational current  Le A 5  Contacts  DC-13, Control switches L/R = 50 ms  Rated operational current  Le A 10  Voltage per contact pair in series  Control circuit reliability at 24 V DC, 10 mA  Fault  Fault  He  Le A 10  Contacts  A 10  Contacts  Contacts  Contacts  Fault	Rated operational current 240 V	I <sub>e</sub>	Α	1
24 V Rated operational current  48 V Rated operational current  Contacts  Rated operational current  R	240 V Contacts		Quantity	1
Rated operational current   Ie	DC-23A, motor load switch L/R = 15 ms			
Contacts  48 V  Rated operational current  Le A 10 Contacts Quantity 2  60 V  Rated operational current Le A 10 Contacts Quantity 3  120 V  Rated operational current Le A 5 Contacts Quantity 3  240 V  Rated operational current Le A 5 Contacts Quantity 3  240 V  Rated operational current Le A 5 Contacts Quantity 3  Contacts Quantity 3  Contacts Quantity 3  Contacts Quantity 3  Contacts Quantity 5  Contacts Quantity 10  Contacts Q	24 V			
A8 V Rated operational current  Contacts  Quantity  Rated operational current  Ie A 10  Contacts  Quantity 3  120 V  Rated operational current  Ie A 5  Contacts  Quantity 3  240 V  Rated operational current  Ie A 5  Contacts  Quantity 3  Contacts  Quantity 3  EACH OPERATION SWITCHES LIFE = 50 ms  Rated operational current  Ie A 5  Contacts  Quantity 5  Contacts  Quantity 5  Contacts  Part operational current  Ie A 10  Voltage per contact pair in series  V 32  Control circuit reliability at 24 V DC, 10 mA  Fault  Fault  HF  Control Control Switches Life = 50 ms  Fault  F	Rated operational current	I <sub>e</sub>	Α	10
Rated operational current  Contacts  Rated operational current  Rated operational current  Contacts  120 V  Rated operational current  Rated operational current  Ie A 5 Contacts  Quantity 3  240 V  Rated operational current  Ie A 5 Contacts  Quantity 5  DC-13, Control switches L/R = 50 ms  Rated operational current  Ie A 5 Contacts  Quantity 5  Contacts  Contacts  Contacts  Quantity 5  Contacts  Contact	Contacts		Quantity	1
Contacts  60 V  Rated operational current  Contacts  Quantity  Quantity  Quantity  Quantity  Quantity  Quantity  Quantity  Quantity  Rated operational current  Ie A 5 Contacts  Quantity  A 5 Contacts  Quantity  Rated operational current  Ie A 5 Contacts  Quantity  S Contacts  Quantity  A 5 Contacts  Quantity  A 5 Contacts  Quantity  A 5 Contacts  Quantity  A 5 Contacts  Contacts  Quantity  A 5 Contacts  Quantity  A 5 Contacts  Quantity  A 5 Contacts  Contacts  Quantity  A 5 Contacts  Contacts  Quantity  A 5 Contacts  Contacts  Contacts  A 10 Contacts  Contacts  Contacts  A 10 Contacts  Con	48 V			
Rated operational current  Contacts  120 V  Rated operational current  Contacts  120 V  Rated operational current  Contacts  Quantity  Quantity  Quantity  A 5  Contacts  Quantity  B 4 10  Voltage per contact pair in series  Voltage per contact pair in series  Control circuit reliability at 24 V DC, 10 mA  Fault  He < 10 -5 < 1 fault in 100000 operations	Rated operational current	I <sub>e</sub>	Α	10
Rated operational current  Contacts  Quantity  Rated operational current  Ie A 5  Contacts  Quantity 3  240 V  Rated operational current  Ie A 5  Contacts  Quantity 3  240 V  Rated operational current  Ie A 5  Contacts  Quantity 5  DC-13, Control switches L/R = 50 ms  Rated operational current  Ie A 10  Voltage per contact pair in series  V 32  Control circuit reliability at 24 V DC, 10 mA  Fault  He  Fault  He  Contacts  He  A 10  10  10  10  10  10  10  10  10	Contacts		Quantity	2
Contacts  Rated operational current  Contacts  Contacts  Rated operational current  Rated operational current  Ie  A  5  Cuantity  Rated operational current  Ie  A  5  Cuantity  5  DC-13, Control switches L/R = 50 ms  Rated operational current  Ie  A  10  Voltage per contact pair in series  V  32  Control circuit reliability at 24 V DC, 10 mA  Fault  He  A  10  V  32  Control circuit reliability at 24 V DC, 10 mA  Fault  He  Contacts  Contacts  Rated operational current  V  32  Control circuit reliability at 24 V DC, 10 mA  Fault  He  Contacts  Conta	60 V			
120 V  Rated operational current  Ie A 5  Contacts  Quantity  Rated operational current  Ie A 5  Contacts  Quantity  Fault  Ie A 10  Voltage per contact pair in series  Control circuit reliability at 24 V DC, 10 mA  Fault  He A 5  Quantity  T Contacts  Quantity  T Contacts  V 32  Control circuit reliability at 24 V DC, 10 mA  Fault  He Contacts  Ie A 10 Control circuit reliability at 24 V DC, 10 mA  Fault  He Control circuit reliability at 24 V DC, 10 mA	Rated operational current	I <sub>e</sub>	Α	10
Rated operational current  Contacts  Quantity  Rated operational current  Rated operational current  Ie  A  5  Contacts  Quantity  5  DC-13, Control switches L/R = 50 ms  Rated operational current  Ie  A  10  Voltage per contact pair in series  V  32  Control circuit reliability at 24 V DC, 10 mA  Fault  HE	Contacts		Quantity	3
Contacts  Quantity 3  240 V  Rated operational current  Contacts  Contacts  DC-13, Control switches L/R = 50 ms  Rated operational current  I <sub>e</sub> A  5  Control switches L/R = 50 ms  Rated operational current  Voltage per contact pair in series  V  32  Control circuit reliability at 24 V DC, 10 mA  Fault  H <sub>F</sub> < 10 -5 < 1 fault in 100000 operations	120 V			
Rated operational current  Contacts  DC-13, Control switches L/R = 50 ms  Rated operational current  I <sub>e</sub> A  5  Cuantity  5  Voltage per contact pair in series  V  32  Control circuit reliability at 24 V DC, 10 mA  Fault  HE  Control con	Rated operational current	I <sub>e</sub>	Α	5
Rated operational current  Contacts  DC-13, Control switches L/R = 50 ms  Rated operational current  Voltage per contact pair in series  Control circuit reliability at 24 V DC, 10 mA  Fault  Ie  A  5  Quantity  5  V  32  Control circuit reliability at 24 V DC, 10 mA  Fault  HF  <10 -5 < 1 fault in 100000 operations	Contacts		Quantity	3
Contacts  DC-13, Control switches L/R = 50 ms  Rated operational current  Voltage per contact pair in series  Control circuit reliability at 24 V DC, 10 mA  Fault  Pault  Quantity  5   Quantity  5  V  32	240 V			
DC-13, Control switches L/R = 50 ms  Rated operational current  Voltage per contact pair in series  V 32  Control circuit reliability at 24 V DC, 10 mA  Fault  HF  <10 -5 < 1 fault in 100000 operations	Rated operational current	I <sub>e</sub>	Α	5
Rated operational current  Voltage per contact pair in series  V 32  Control circuit reliability at 24 V DC, 10 mA  Fault  HF  <10 -5 < 1 fault in 100000 operations	Contacts		Quantity	5
Voltage per contact pair in series V 32  Control circuit reliability at 24 V DC, 10 mA Fault HF < 10 -5 < 1 fault in 100000 operations	DC-13, Control switches L/R = 50 ms			
Control circuit reliability at 24 V DC, 10 mA Fault H <sub>F</sub> < 10 <sup>-5</sup> < 1 fault in 100000 operations	Rated operational current	I <sub>e</sub>	Α	10
	Voltage per contact pair in series		V	32
	Control circuit reliability at 24 V DC, 10 mA		H <sub>F</sub>	$<$ 10 $^{-5}$ , $<$ 1 fault in 100000 operations

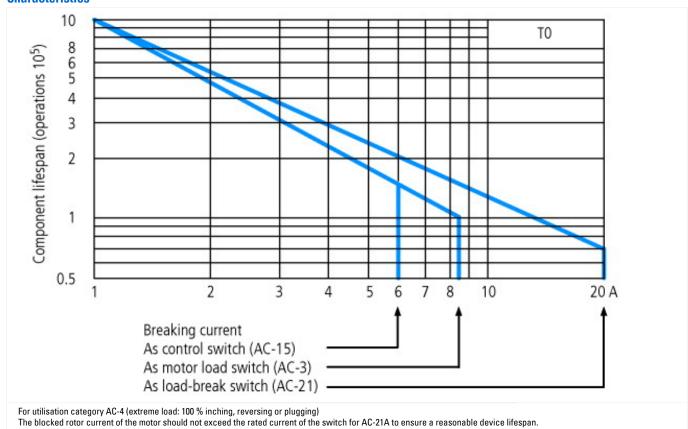
## **Notes**

**Notes** The following applies for solid, multiwire, and flexible terminal capacities: If 2 conductors are being used, a max. difference of 2 cross-section categories is permissible

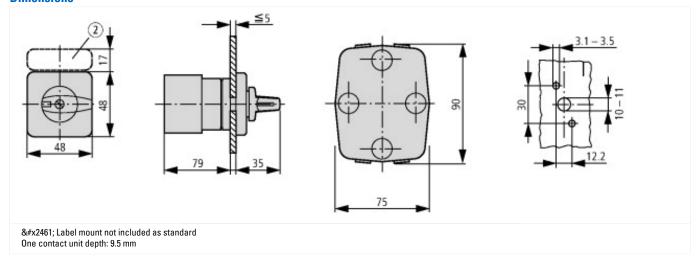
# **Technical data ETIM 4.0**

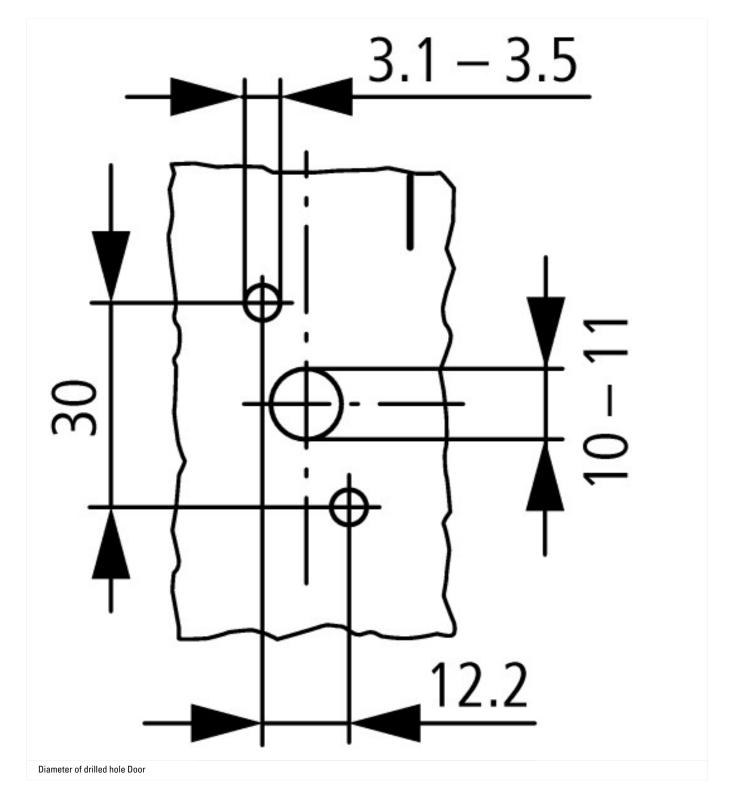
Number of auxiliary contacts as N/Cs		0
With 0 (off) position		YES
Туре		Star-delta switches
Motor rating at AC-3, 400 V	kWh	5.5
Number of auxiliary contacts as N/Os		0
Suitable for front mounting		YES
Protection type (IP), at front		IP65
Rated uninterrupted current lu	Α	20
Suitable for base fixing		No
Number of auxiliary contacts as changeover contacts		0
Suitable for distribution board installation		No
Suitable for rear mounting		No
Complete device in housing		No
Type of control element		Toggle
Number of poles		3
Connection type main circuit		Screw connection

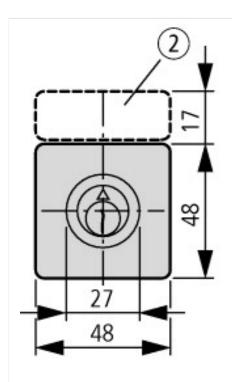
### **Characteristics**

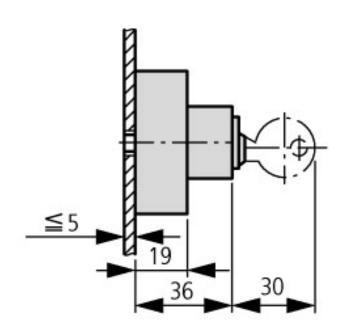


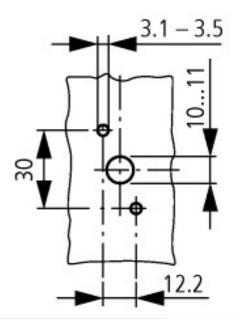
### **Dimensions**











Key operation lock mechanism T0.../E + S-(SOND-)T0

## **Additional product information (links)**

IL03801020Z (AWA1150-0586) Cam switch: Mounting

IL03801020Z (AWA1150-0586) Cam switch: Mounting

ftp://ftp.moeller.net/DOCUMENTATION/AWA\_INSTRUCTIONS/IL03801020Z2011\_06.pdf

http://ecat.moeller.net/flip-cat/?edition=HPLEN&startpage=4.87

http://ecat.moeller.net/flip-cat/?edition=K115A&startpage=52