

## Contacts: 1, 20 A, front plate: 0-1-0-1, 90 °, rear mounting, Basic switch

Powering Business Worldwide<sup>™</sup>

T0-1-8001/XZ Part no. Article no. 009394

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Product range			Control switches
Part group reference			ТО
Contacts			1
Design			rear mounting Basic switch
Contact sequence			$\begin{bmatrix} 1 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 &$
Switching angle		0	90
Front plate no.			0 1 → 1 0 FS 925
front plate			0-1-0-1
Motor rating AC-23A, 50 - 60 Hz			
400 V	P	kW	5.5
Rated uninterrupted current	l <sub>u</sub>	Α	20
Number of contact units		contact unit(s)	1

## **Technical data**

General			
Standards			IEC/EN 60947, VDE 0660, IEC/EN 60204 Switch-disconnector according to IEC/EN 60947-3
Climatic proofing			Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
Ambient temperature			
Open		°C	-25 - +50
Enclosed		°C	-25 - +40
Overvoltage category/pollution degree			III/3
Rated impulse withstand voltage	$U_{imp}$	V AC	6000
Mechanical shock resistance		g	15
Mounting position			As required
Protection against direct contact when actuated from front (EN 50274)			Finger and back-of-hand proof
Contacts			
Electrical characteristics			
Rated operational voltage	U <sub>e</sub>	V AC	690

Electrical characteristics			
Rated operational voltage	U <sub>e</sub>	V AC	690
Rated uninterrupted current	I <sub>u</sub>	Α	20
Note on rated uninterrupted current $\mathbf{I}_{\mathbf{u}}$			Rated uninterrupted current lu is specified for max. cross-section.
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>	$A_{rms}$	320
Note on rated short-time withstand current lcw			Current for a time of 1 second

Switching capacity  cos φ rated making capacity as per IEC 60947-3  Rated breaking capacity cos φ to IEC 60947-3  230 V  400/415 V  500 V  690 V  Safe isolation to EN 61140  between the contacts		A A A A	130 100 110 80
Rated breaking capacity cos φ to IEC 60947-3  230 V  400/415 V  500 V  690 V  Safe isolation to EN 61140		A A A A	100 110 80
230 V 400/415 V 500 V 690 V Safe isolation to EN 61140		A A A	110 80
400/415 V 500 V 690 V Safe isolation to EN 61140		A A A	110 80
500 V 690 V Safe isolation to EN 61140		A A	80
690 V Safe isolation to EN 61140		A	
Safe isolation to EN 61140			60
Safe isolation to EN 61140			
		V AC	
			440
Current heat loss per contact at I <sub>e</sub>		W	0.6
Current heat loss per auxiliary circuit at I <sub>e</sub> (AC-15/230 V)			0.6
	Inorationa		> 0.4
		A 10	
	Operations/h		1200
AC			
AC-3			
Rating, motor load switch	)	kW	
220 V 230 V P	•	kW	3
230 V Star-delta		kW	5.5
400 V 415 V	)	kW	5.5
400 V Star-delta P	•	kW	7.5
500 V P	•	kW	5.5
500 V Star-delta P		kW	7.5
690 V	•	kW	4
690 V Star-delta P	•	kW	5.5
Rated operational current motor load switch			
230 V I <sub>e</sub>	e	Α	11.5
230 V star-delta		Α	20
400V 415 V			11.5
			20
500 V I <sub>e</sub>		Α	9
500 V star-delta	е	Α	15.6
690 V	e	Α	4.9
690 V star-delta	е	Α	8.5
AC-21A			
Rated operational current switch			
440 V	e	Α	20
AC-23A			
Motor rating AC-23A, 50 - 60 Hz	)	kW	
230 V P			3
400 V 415 V P			5.5
500 V P			7.5
690 V P			5.5
Rated operational current motor load switch			
		A	13.3
	-		
400 V 415 V I <sub>e</sub>	-		13.3
500 V	•		13.3
690 V	е	Α	7.6
DC			
DC-1, Load-break switches L/R = 1 ms			
Rated operational current	e	Α	10
Voltage per contact pair in series		٧	60
DC-21A	e	Α	
Rated operational current I <sub>e</sub>		Α	1
	-		

Contacts				
Rated operational current	1	Quantity		Contacts
Rated operational current   Ie				DC-23A, motor load switch L/R = 15 ms
Contacts  48 V  Rated operational current  Contacts  60 V  Rated operational current  Contacts				24 V
Rated operational current Contacts GO V  Rated operational current Ie A 10  Contacts Quantity 2  Contacts Quantity 3  120 V  Rated operational current Ie A 5  Contacts Quantity 3  240 V  Rated operational current Ie A 5  Contacts Quantity 5  Contacts Quantity 5  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 probability Fault probability From In a Contacts  Solid or stranded  Rexible with ferrules to DIN 46228  Terminal screw  M3.5	10	Α	I <sub>e</sub>	Rated operational current
Rated operational current Contacts 60 V  Rated operational current Contacts 120 V  Rated operational current Rated operational current  Contacts 120 V  Rated operational current Le A 5 Contacts 240 V  Rated operational current Le A 5 Contacts 240 V  Rated operational current Le A 5 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 probability  Ferminal capacities  Solid or stranded  Fix (1 - 2.5) 2 x (1 - 2.5) 2 x (0.75 - 2.5) 3 x (0.75	1	Quantity		Contacts
Contacts 60 V  Rated operational current Contacts 120 V  Rated operational current Voltage per contact pair in series Rated operational current Rate				48 V
Rated operational current  Contacts  Contacts  Rated operational current  Pe A 5 Contacts  Contacts  DC-13, Control switches L/R = 50 ms Rated operational current  Voltage per contact pair in series  Voltage per contact pair in series  Control circuit reliability at 24 V DC, 10 mA  Fault probability  Fe  mm² 1×(1-2,5) 2×(1-2,5) 2×(0.75 - 2.5) 2×(0.75 - 2.5) 2×(0.75 - 2.5) 2×(0.75 - 2.5) 2×(0.75 - 2.5) 2×(0.75 - 2.5) M3.5	10	Α	I <sub>e</sub>	Rated operational current
Rated operational current  Contacts  120 V  Rated operational current  Poc-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 probability  Fexiliar operational current  Fexiliar operational current  Rated operational current  Voltage per contact pair in series  Control circuit reliability at 24 V DC, 10 mA  Fault probability  Fault probability  Rated operational current  Voltage per contact pair in series  Voltage per conta	2	Quantity		Contacts
Contacts  Rated operational current  Part operational current  Rated operational current  Part operational current  Rated operational current  Part operational current  Voltage per contact pair in series  Control circuit reliability at 24 V DC, 10 mA  Pault probability  Pault probability  Pault probability  Pault probability  Rated operational current  Pault probability  Pault pro				60 V
Rated operational current  Contacts Quantity  Rated operational current  Contacts  Contacts  Contacts  DC-13, Control switches L/R = 50 ms  Rated operational current  Voltage per contact pair in series  Voltage per contact pair in series  Control circuit reliability at 24 V DC, 10 mA  Fault probability  Feminal capacities  Solid or stranded  Final therefore the contact pair in series  Final therefore the contact pair in series  Mm² 1×(1 - 2,5) 2×(1 - 2,5) 2×(0.75 - 2.5) 2×(0.75	10	Α	l <sub>e</sub>	Rated operational current
Rated operational current  Contacts  Quantity  Rated operational current  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 probability  Feult probability  Terminal capacities  Solid or stranded  Fix (1 - 2,5) 2 x (1 - 2,5) 2 x (0.75 - 2.5) 3 mm²  Terminal screw  Rated operational current  I e  A  5  Quantity  6  Quantity  7  A  10  Quantity  10  A  10  A	3	Quantity		Contacts
Contacts Quantity Rated operational current    Contacts				120 V
240 V 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 probability  Terminal capacities  Solid or stranded  Flexible with ferrules to DIN 46228  Terminal screw  Rated operational current  I e  A  10  22  40  5  40  10  5  40  10  5  22  10  5  12  12  12  12  12  12  12  12  13  13	5	Α	le	Rated operational current
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  Terminal capacities  Solid or stranded  Flexible with ferrules to DIN 46228  Terminal screw  I e  A  10  Voltage per contact pair in series  V  32  Control circuit reliability at 24 V DC, 10 mA  Fault probability  MF  Control circuit reliability at 24 V DC, 10 mA  mm²  1 x (1 - 2,5) 2 x (1 - 2,5) 1 x (0.75 - 2.5) 2 x (0.75 - 2.5) 2 x (0.75 - 2.5) M3.5	3	Quantity		Contacts
Contacts  DC-13, Control switches L/R = 50 ms  Rated operational current  Voltage per contact pair in series  Vontrol circuit reliability at 24 V DC, 10 mA  Fault probability  Terminal capacities  Solid or stranded  Flexible with ferrules to DIN 46228  Terminal screw  Terminal screw  Duantity  5  Quantity  5  Quantity  5  10  A  10  A  10  10  10  10  10  10				240 V
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 probability  Terminal capacities  Solid or stranded  Flexible with ferrules to DIN 46228  Terminal screw  Terminal sc	5	Α	I <sub>e</sub>	Rated operational current
Rated operational current  Voltage per contact pair in series  Control circuit reliability at 24 V DC, 10 mA  Fault probability  Fault probability	5	Quantity		Contacts
Voltage per contact pair in series  Voltage per contact pair in se				DC-13, Control switches L/R = 50 ms
Control circuit reliability at 24 V DC, 10 mA  Fault probability  Fault probability  H <sub>F</sub> < 10 -5, < 1 fault in 100000 operations  Terminal capacities  Solid or stranded  mm² 1 x (1 - 2,5) 2 x (1 - 2,5) 2 x (1 - 2,5) 2 x (0.75 - 2.5) 2 x (0.75 - 2.5) 4 x (0.75 - 2.5) 2 x (0.75 - 2.5) 4 x (0.75 - 2.5) 2 x (0.75 - 2.5) 4 x (0.75 - 2.5)	10	Α	I <sub>e</sub>	Rated operational current
Terminal capacities  Solid or stranded $ mm^2 = \frac{1 \times (1 - 2.5)}{2 \times (1 - 2.5)} $ Flexible with ferrules to DIN 46228 $ mm^2 = \frac{1 \times (0.75 - 2.5)}{2 \times (0.75 - 2.5)} $ Terminal screw $ M3.5 $	32	V		Voltage per contact pair in series
Solid or stranded $mm^2$ $1 \times (1 - 2.5)$ $2 \times (1 - 2.5)$ Flexible with ferrules to DIN 46228 $mm^2$ $1 \times (0.75 - 2.5)$ $2 \times (0.75 - 2.5)$ Terminal screw       M3.5	$< 10^{-5}$ , $< 1$ fault in 100000 operations	H <sub>F</sub>		Control circuit reliability at 24 V DC, 10 mA
2 x (1 - 2,5)				erminal capacities
2 x (0.75 - 2.5)  Terminal screw  M3.5		mm <sup>2</sup>		Solid or stranded
		mm <sup>2</sup>		Elexible with ferrules to DIN 46228
Max. tightening torque Nm 1	M3.5			Ferminal screw
	1	Nm		
Technical safety parameters:				echnical safety parameters:
Notes B10 <sub>d</sub> values as per EN ISO 13849-1, table C1	B10 <sub>d</sub> values as per EN ISO 13849-1, table C1			
Rating data for approved types				
Terminal capacity				erminal capacity
Terminal screw M3.5	M3.5			Terminal screw

### Design verification as per IEC/EN 61439

echnical data for design verification			
Rated operational current for specified heat dissipation	In	Α	20
Heat dissipation per pole, current-dependent	P <sub>vid</sub>	W	0.6
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	0
Static heat dissipation, non-current-dependent	$P_{vs}$	W	0
Heat dissipation capacity	P <sub>diss</sub>	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	50
C/EN 61439 design verification			
10.2 Strength of materials and parts			
10.2.2 Corrosion resistance			Meets the product standard's requirements.
10.2.3.1 Verification of thermal stability of enclosures			Meets the product standard's requirements.
10.2.3.2 Verification of resistance of insulating materials to normal heat			Meets the product standard's requirements.
10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects $$			Meets the product standard's requirements.
10.2.4 Resistance to ultra-violet (UV) radiation			Please enquire
10.2.5 Lifting			Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact			Does not apply, since the entire switchgear needs to be evaluated.
10.2.7 Inscriptions			Meets the product standard's requirements.
10.3 Degree of protection of ASSEMBLIES			Does not apply, since the entire switchgear needs to be evaluated.
10.4 Clearances and creepage distances			Meets the product standard's requirements.

10.5 Protection against electric shock	Does not apply, since the entire switchgear needs to be evaluated.
10.6 Incorporation of switching devices and components	Does not apply, since the entire switchgear needs to be evaluated.
10.7 Internal electrical circuits and connections	Is the panel builder's responsibility.
10.8 Connections for external conductors	Is the panel builder's responsibility.
10.9 Insulation properties	
10.9.2 Power-frequency electric strength	Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage	Is the panel builder's responsibility.
10.9.4 Testing of enclosures made of insulating material	Is the panel builder's responsibility.
10.10 Temperature rise	The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
10.11 Short-circuit rating	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.12 Electromagnetic compatibility	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.13 Mechanical function	The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

## **Technical data ETIM 6.0**

Low-voltage industrial components (EG000017) / Voltmeter selector switch (EC000911)

Electric engineering, automation, process control engineering / Low-voltage switch technology / Off-load switch, circuit breaker, control switch / Volt meter switch (ecl@ss8.1-27-37-14-11 [AKF068010])

No
Yes
Yes
-
No
IP65
No

# **Additional product information (links)**

Display flip catalog page. http://ecat.moeller.net/flip-cat/?edition=K115A&startpage=94