



Overload relay, ZB12, Ir= 12 - 16 A, 1 N/O, 1 N/C, Direct mounting, IP20

Part no.

EL Number  
(Norway)

ZB12-16

290168

4110005

General specifications		
Product name		Eaton Moeller® series ZB Thermal overload relay
Part no.		ZB12-16
EAN		4015082901684
Product Length/Depth		88 millimetre
Product height		67 millimetre
Product width		45 millimetre
Product weight		0.145 kilogram
Certifications		CSA-C22.2 No. 60947-4-1-14 UL File No.: E29184 CE IEC/EN 60947-4-1 IEC/EN 60947 CSA File No.: 012528 UL 60947-4-1 CSA UL CSA Class No.: 3211-03 VDE 0660 UL Category Control No.: NKCR
Product Tradename		ZB
Product Type		Thermal overload relay
Product Sub Type		None
Catalog Notes		Ambient air temperature: Operating range to IEC/EN 60947, PTB: -5°C to +55°C Ambient operating temperature (according to IEC/EN 60947) PTB: -5 °C - +55 °C Rated operational current: Switch-on and switch-off conditions based on DC-13, time constant as specified.
Features & Functions		
Features		Test/off button Trip-free release Reset pushbutton manual/auto Phase-failure sensitivity (according to IEC/EN 60947, VDE 0660 Part 102)
General information		
Ambient operating temperature - min		-25 °C
Ambient operating temperature - max		55 °C
Ambient operating temperature (enclosed) - min		25 °C
Ambient operating temperature (enclosed) - max		40 °C
Class		CLASS 10 A
Climatic proofing		Damp heat, cyclic, to IEC 60068-2-30 Damp heat, constant, to IEC 60068-2-78
Degree of protection		IP20
Frame size		ZB12
Mounting method		Direct mounting
Overload release current setting - min		12 A
Overload release current setting - max		16 A
Overvoltage category		III
Pollution degree		3
Product category		Overload relay ZB up to 150 A
Protection		Finger and back-of-hand proof, Protection against direct contact when actuated from front (EN 50274)
Rated impulse withstand voltage (Uimp)		6000 V AC 4000 V (auxiliary and control circuits)
Shock resistance		10 g, Mechanical, Sinusoidal, Shock duration 10 ms
Suitable for		Branch circuits, (UL/CSA)
Temperature compensation		Continuous ≤ 0.25 %/K, residual error for T > 40°

<b>Terminal capacities</b>		
Terminal capacity (flexible with ferrule)		1 x (0.75 - 2.5) mm <sup>2</sup> , Control circuit cables 2 x (1 - 4) mm <sup>2</sup> , Main cables 2 x (0.75 - 2.5) mm <sup>2</sup> , Control circuit cables 1 x (1 - 4) mm <sup>2</sup> , Main cables
Terminal capacity (solid)		2 x (0.75 - 4) mm <sup>2</sup> , Control circuit cables 2 x (1 - 6) mm <sup>2</sup> , Main cables 1 x (1 - 6) mm <sup>2</sup> , Main cables 1 x (0.75 - 4) mm <sup>2</sup> , Control circuit cables
Terminal capacity (solid/stranded AWG)		18 - 8, Main cables 2 x (18 - 14), Control circuit cables
Stripping length (main cable)		10 mm
Stripping length (control circuit cable)		8 mm
Screw size		M4, Terminal screw M3.5, Terminal screw, Control circuit cables
Screwdriver size		2, Terminal screw, Pozidriv screwdriver 1 x 6 mm, Terminal screw, Standard screwdriver
Tightening torque		1.8 Nm, Screw terminals, Main cables 1.2 Nm, Screw terminals, Control circuit cables
<b>Electrical rating</b>		
Conventional thermal current <i>I</i> <sub>th</sub> of auxiliary contacts (1-pole, open)		6 A
Rated operational current ( <i>I</i> <sub>e</sub> ) at AC-15, 120 V		1.5 A
Rated operational current ( <i>I</i> <sub>e</sub> ) at AC-15, 220 V, 230 V, 240 V		1.5 A
Rated operational current ( <i>I</i> <sub>e</sub> ) at AC-15, 380 V, 400 V, 415 V		0.9 A
Rated operational current ( <i>I</i> <sub>e</sub> ) at DC-13, 110 V		0.4 A
Rated operational current ( <i>I</i> <sub>e</sub> ) at DC-13, 220 V, 230 V		0.2 A
Rated operational current ( <i>I</i> <sub>e</sub> ) at DC-13, 24 V		0.9 A
Rated operational current ( <i>I</i> <sub>e</sub> ) at DC-13, 60 V		0.75 A
Rated operational voltage ( <i>U</i> <sub>e</sub> ) - max		690 V
Safe isolation		440 V AC, Between main circuits, According to EN 61140 240 V AC, Between auxiliary contacts, According to EN 61140 440 V, Between auxiliary contacts and main contacts, According to EN 61140
Switching capacity (auxiliary contacts, pilot duty)		R300, DC operated (UL/CSA) B600 at opposite polarity, AC operated (UL/CSA) B300 at opposite polarity, AC operated (UL/CSA)
Voltage rating - max		600 V AC
<b>Short-circuit rating</b>		
Short-circuit current rating (high fault at 600 V)		100 kA, Fuse, SCCR (UL/CSA) 30 A, Class J/CC, max. Fuse, SCCR (UL/CSA)
Short-circuit protection rating		25 A gG/gL, Fuse, Type "2" coordination Max. 6 A gG/gL, fuse, Without welding, Auxiliary and control circuits 50 A gG/gL, Fuse, Type "1" coordination
<b>Contacts</b>		
Number of auxiliary contacts (change-over contacts)		0
Number of auxiliary contacts (normally closed contacts)		1
Number of auxiliary contacts (normally open contacts)		1
Number of contacts (normally closed contacts)		1
Number of contacts (normally open contacts)		1
<b>Design verification</b>		
Equipment heat dissipation, current-dependent <i>P</i> <sub>vid</sub>		5.4 W
Heat dissipation capacity <i>P</i> <sub>diss</sub>		0 W
Heat dissipation per pole, current-dependent <i>P</i> <sub>vid</sub>		1.8 W
Rated operational current for specified heat dissipation ( <i>I</i> <sub>n</sub> )		16 A
Static heat dissipation, non-current-dependent <i>P</i> <sub>vs</sub>		0 W
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 Resist. of insul. mat. to abnormal heat/fire by internal elect. effects		Meets the product standard's requirements.
10.2.4 Resistance to ultra-violet (UV) radiation		Meets the product standard's requirements.
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.
10.9.2 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 9.0

Low-voltage industrial components (EG000017) / Thermal overload relay (EC000106)			
Electric engineering, automation, process control engineering / Low-voltage switch technology / Overload protection device / Thermal overload relay (ecl@ss13-27-37-15-01 [AKF075019])			
Adjustable current range		A	12 - 16
Max. rated operation voltage Ue		V	690
Mounting method			Direct attachment
Type of electrical connection of main circuit			Screw connection
Number of auxiliary contacts as normally closed contact			1
Number of auxiliary contacts as normally open contact			1
Number of auxiliary contacts as change-over contact			0
Release class			CLASS 10 A
Reset function input			No
Reset function automatic			Yes
Reset function push-button			Yes