

Overload relay, Direct mounting, Earth-fault protection: none, Ir= 9 - 45 A,  
1 N/O, 1 N/C

**Part no.** ZEB65-45  
**136502**  
**EL Number** 4137371  
**(Norway)**

<b>General specifications</b>	
Product name	Eaton Moeller® series ZEB Electronic overload Relay
Part no.	ZEB65-45
EAN	4015081332823
Product Length/Depth	108 millimetre
Product height	110 millimetre
Product width	45 millimetre
Product weight	0.267 kilogram
Certifications	CSA Class No.: 3211-03 UL 508 UL CSA-C22.2 No. 14 CSA File No.: 2290956 VDE 0660 UL File No.: E1230 UL Category Control No.: NKCR CE CSA IEC/EN 60947 IEC/EN 60947-4-1
Product Tradename	ZEB
Product Type	Electronic overload Relay
Product Sub Type	None
Catalog Notes	Rated operational current: Switch-on and switch-off conditions based on DC-13, time constant as specified.
<b>Features &amp; Functions</b>	
Earth fault protection	None
Features	Phase-failure sensitivity (according to IEC/EN 60947, VDE 0660 Part 102)
Functions	Filament bulb (24 V)
<b>General information</b>	
Class	Adjustable
Degree of protection	IP20
Mounting method	Direct mounting Direct attachment
Overload release current setting - min	9 A
Overload release current setting - max	45 A
Overvoltage category	III
Pollution degree	3
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 6000 V (auxiliary circuits)
Shock resistance	Mechanical, According to IEC/EN 60068-2-27 15 g, Mechanical, According to IEC/EN 60068-2-27, Shock duration 10 ms
Suitable for	Branch circuits, (UL/CSA)
Voltage type	Self powered
<b>Climatic environmental conditions</b>	
Ambient operating temperature - min	-25 °C
Ambient operating temperature - max	65 °C
Ambient operating temperature (enclosed) - max	45 °C
Climatic proofing	Damp heat, cyclic, to IEC 60068-2-30 Damp heat, constant, to IEC 60068-2-78
<b>Terminal capacities</b>	

Terminal capacity (flexible with ferrule)		2 x (0.75 - 2.5) mm <sup>2</sup> , Control circuit cables
Terminal capacity (solid)		2 x (0.75 - 4) mm <sup>2</sup> , Control circuit cables 1 x (4 - 16) mm <sup>2</sup> , Main cables
Terminal capacity (solid/stranded AWG)		1 x (14 - 4), Main cables 2 x (18 - 12), Control circuit cables
Stripping length (main cable)		13 mm
Stripping length (control circuit cable)		8 mm
Screw size		M3.5, Terminal screw, Control circuit cables
Screwdriver size		1 x 6 mm, Terminal screw, Standard screwdriver 2, Terminal screw, Pozidriv screwdriver
Tightening torque		0.8 - 1.2 Nm, Screw terminals, Control circuit cables 7 lb-in, Screw terminals
<b>Electrical rating</b>		
Conventional thermal current $I_{th}$ of auxiliary contacts (1-pole, open)		5 A
Rated control supply voltage (Us) at AC, 50 Hz - min		0 V
Rated control supply voltage (Us) at AC, 50 Hz - max		0 V
Rated control supply voltage (Us) at AC, 60 Hz - min		0 V
Rated control supply voltage (Us) at AC, 60 Hz - max		0 V
Rated control supply voltage (Us) at DC - min		0 V
Rated control supply voltage (Us) at DC - max		0 V
Rated frequency - min		50 Hz
Rated frequency - max		60 Hz
Rated operational current (Ie) at AC-15, 120 V		1.5 A
Rated operational current (Ie) at AC-15, 220 V, 230 V, 240 V		1.5 A
Rated operational current (Ie) at AC-15, 380 V, 400 V, 415 V		0.9 A
Rated operational current (Ie) at DC-13, 110 V		0.4 A
Rated operational current (Ie) at DC-13, 220 V, 230 V		0.2 A
Rated operational current (Ie) at DC-13, 24 V		0.9 A
Rated operational current (Ie) at DC-13, 60 V		0.75 A
Rated operational voltage (Ue) at AC - max		690 V
Safe isolation		240 V AC, Between auxiliary contacts, According to EN 61140 600 V AC, Between main circuits, According to EN 61140 440 V, Between auxiliary contacts and main contacts, According to EN 61140
Short-circuit protection rating		Max. 6 A gG/gL, fuse, Without welding, Auxiliary and control circuits
Short-circuit current rating (high fault at 600 V)		100 kA, Fuse, SCCR (UL/CSA) 180 A, Class J, max. Fuse, SCCR (UL/CSA)
Switching capacity (auxiliary contacts, pilot duty)		B600, AC operated (UL/CSA) R300, DC operated (UL/CSA)
Voltage rating - max		600 V
<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 P <sub>vid</sub>		4.3 W
Heat dissipation capacity P <sub>diss</sub>		0 W
Heat dissipation per pole, current-dependent P <sub>vid</sub>		1.43 W
Rated operational current for specified heat dissipation (I <sub>n</sub> )		45 A
Static heat dissipation, non-current-dependent P <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) / Electronic overload relay (EC001080)		
Electric engineering, automation, process control engineering / Low-voltage switch technology / Overload protection device / Electronic overload relay (ecl@ss13-27-37-15-02 [AKF076019])		
Mounting method		Direct attachment
Type of electrical connection of main circuit		Screw connection
Adjustable current range	A	9 - 45
External power supply required		No
Rated control supply voltage AC 50 Hz	V	0 - 0
Rated control supply voltage AC 60 Hz	V	0 - 0
Rated control supply voltage DC	V	0 - 0
Voltage type for actuating		
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
Voltage type (operating voltage)		AC
Operating voltage AC 50 Hz	V	230 - 690
Operating voltage AC 60 Hz	V	230 - 690
Operating voltage DC	V	0 - 0
Rated switch current	A	
Release class		Adjustable
Reset function automatic		Yes
Reset function input		No
Reset function push-button		Yes
Width	mm	45
Height	mm	110
Depth	mm	108