

# Specifications



Photo is representative

## Eaton 136480

Eaton Moeller® series ZEB Overload relay, Direct mounting, Earth-fault protection: none,  $I_r = 0.33 - 1.65$  A, 1 N/O, 1 N/C ZEB12-1,65

### General Specifications

<b>PRODUCT NAME</b>	Eaton Moeller® series ZEB Electronic overload relay
<b>CATALOG NUMBER</b>	136480
<b>EAN</b>	4015081332601
<b>PRODUCT LENGTH/DEPTH</b>	108 mm
<b>PRODUCT HEIGHT</b>	110 mm
<b>PRODUCT WIDTH</b>	45 mm
<b>PRODUCT WEIGHT</b>	0.235 kg
<b>CERTIFICATIONS</b>	CSA-C22.2 No. 14 CSA Class No.: 3211-03 UL Category Control No.: NKCR CE VDE 0660 CSA UL File No.: E1230 CSA File No.: 2290956 IEC/EN 60947-4-1 UL IEC/EN 60947 UL 508
<b>CATALOG NOTES</b>	Rated operational current: Switch-on and switch-off conditions based on DC-13, time constant as specified.
<b>MODEL CODE</b>	ZEB12-1,65



Powering Business Worldwide

## Features & Functions

<b>EARTH FAULT PROTECTION</b>	None
<b>FEATURES</b>	Phase-failure sensitivity (according to IEC/EN 60947, VDE 0660 Part 102)
<b>FUNCTIONS</b>	Filament bulb (24 V)

## Climatic environmental conditions

<b>AMBIENT OPERATING TEMPERATURE - MIN</b>	-25 °C
<b>AMBIENT OPERATING TEMPERATURE - MAX</b>	65 °C
<b>AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MAX</b>	65 °C
<b>CLIMATIC PROOFING</b>	Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30

## General

<b>CLASS</b>	Adjustable
<b>DEGREE OF PROTECTION</b>	IP20
<b>MOUNTING METHOD</b>	Direct mounting Direct attachment
<b>OVERLOAD RELEASE CURRENT SETTING - MIN</b>	0.33 A
<b>OVERLOAD RELEASE CURRENT SETTING - MAX</b>	1.65 A
<b>OVERVOLTAGE CATEGORY</b>	III
<b>POLLUTION DEGREE</b>	3
<b>PRODUCT CATEGORY</b>	Electronic overload relays ZEB
<b>PROTECTION</b>	Finger and back-of-hand proof, Protection against direct contact when actuated from front (EN 50274)
<b>RATED IMPULSE WITHSTAND VOLTAGE (UIMP)</b>	6000 V AC 6000 V (auxiliary circuits)
<b>SHOCK RESISTANCE</b>	Mechanical, According to IEC/EN 60068-2-27 15 g, Mechanical, According to IEC/EN 60068-2-27, Shock duration 10 ms
<b>SUITABLE FOR</b>	Branch circuits, (UL/CSA)
<b>VOLTAGE TYPE</b>	Self powered

## Terminal capacities

<b>TERMINAL CAPACITY (FLEXIBLE WITH FERRULE)</b>	2 x (0.75 - 2.5) mm <sup>2</sup> , Control circuit cables
<b>TERMINAL CAPACITY (SOLID)</b>	1 x (1.5 - 16) mm <sup>2</sup> , Main cables 2 x (0.75 - 4) mm <sup>2</sup> , Control circuit cables
<b>TERMINAL CAPACITY (SOLID/STRANDED AWG)</b>	1 x (14 - 4), Main cables 2 x (18 - 12), Control circuit cables
<b>STRIPPING LENGTH (MAIN CABLE)</b>	13 mm
<b>STRIPPING LENGTH (CONTROL CIRCUIT CABLE)</b>	8 mm
<b>SCREW SIZE</b>	M3.5, Terminal screw, Control circuit cables

<b>SCREWDRIVER SIZE</b>	2, Terminal screw, Pozidriv screwdriver 1 x 6 mm, Terminal screw, Standard screwdriver
<b>TIGHTENING TORQUE</b>	7 lb-in, Screw terminals 0.8 - 1.2 Nm, Screw terminals, Control circuit cables

## Electrical rating

<b>CONVENTIONAL THERMAL CURRENT ITH OF AUXILIARY CONTACTS (1-POLE, OPEN)</b>	5 A
--	-----

<b>RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MIN</b>	0 V
---	-----

<b>RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MAX</b>	0 V
---	-----

<b>RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MIN</b>	0 V
---	-----

<b>RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MAX</b>	0 V
---	-----

<b>RATED CONTROL SUPPLY VOLTAGE (US) AT DC - MIN</b>	0 V
--	-----

<b>RATED CONTROL SUPPLY VOLTAGE (US) AT DC - MAX</b>	0 V
--	-----

<b>RATED FREQUENCY - MIN</b>	50 Hz
------------------------------	-------

<b>RATED FREQUENCY - MAX</b>	60 Hz
------------------------------	-------

<b>RATED OPERATIONAL CURRENT (IE) AT AC-15, 120 V</b>	1.5 A
---	-------

<b>RATED OPERATIONAL CURRENT (IE) AT AC-15, 220 V, 230 V, 240 V</b>	1.5 A
---	-------

<b>RATED OPERATIONAL CURRENT (IE) AT AC-15, 380 V, 400 V, 415 V</b>	0.9 A
---	-------

<b>RATED OPERATIONAL CURRENT (IE) AT DC-13, 110 V</b>	0.4 A
---	-------

<b>RATED OPERATIONAL CURRENT (IE) AT DC-13, 220 V, 230 V</b>	0.2 A
--	-------

<b>RATED OPERATIONAL CURRENT (IE) AT DC-13, 24 V</b>	0.9 A
--	-------

<b>RATED OPERATIONAL CURRENT (IE) AT DC-13, 60 V</b>	0.75 A
--	--------

<b>RATED OPERATIONAL VOLTAGE (UE) AT AC - MAX</b>	690 V
---	-------

<b>SHORT-CIRCUIT PROTECTION RATING</b>	Max. 6 A gG/gL, fuse, Without welding, Auxiliary
--	--

## Contacts

<b>NUMBER OF AUXILIARY CONTACTS (CHANGE-OVER CONTACTS)</b>	0
--	---

<b>NUMBER OF AUXILIARY CONTACTS (NORMALLY CLOSED CONTACTS)</b>	1
--	---

<b>NUMBER OF AUXILIARY CONTACTS (NORMALLY OPEN CONTACTS)</b>	1
--	---

<b>NUMBER OF CONTACTS (NORMALLY CLOSED CONTACTS)</b>	1
--	---

<b>NUMBER OF CONTACTS (NORMALLY OPEN CONTACTS)</b>	1
--	---

	and control circuits
<b>SHORT-CIRCUIT CURRENT RATING (BASIC RATING)</b>	1 kA, SCCR (UL/CSA) 6 A RK5, max. Fuse, SCCR (UL/CSA)
<b>SWITCHING CAPACITY (AUXILIARY CONTACTS, PILOT DUTY)</b>	B600, AC operated (UL/CSA) R300, DC operated (UL/CSA)
<b>VOLTAGE RATING - MAX</b>	600 V

## Design verification

<b>EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID</b>	0.51 W
<b>HEAT DISSIPATION CAPACITY PDISS</b>	0 W
<b>HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID</b>	0.17 W
<b>RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)</b>	1.65 A
<b>STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS</b>	0 W
<b>10.2.2 CORROSION RESISTANCE</b>	Meets the product standard's requirements.
<b>10.2.3.1 VERIFICATION OF THERMAL STABILITY OF ENCLOSURES</b>	Meets the product standard's requirements.
<b>10.2.3.2 VERIFICATION OF RESISTANCE OF INSULATING MATERIALS TO NORMAL HEAT</b>	Meets the product standard's requirements.
<b>10.2.3.3 RESIST. OF INSUL. MAT. TO ABNORMAL HEAT/FIRE BY INTERNAL ELECT. EFFECTS</b>	Meets the product standard's requirements.
<b>10.2.4 RESISTANCE TO ULTRA-VIOLET (UV) RADIATION</b>	Meets the product standard's requirements.
<b>10.2.5 LIFTING</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.2.6 MECHANICAL IMPACT</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.2.7 INSCRIPTIONS</b>	Meets the product standard's requirements.
<b>10.3 DEGREE OF PROTECTION OF ASSEMBLIES</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.4 CLEARANCES AND CREEPAGE DISTANCES</b>	Meets the product standard's requirements.
<b>10.5 PROTECTION AGAINST ELECTRIC SHOCK</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.6 INCORPORATION OF SWITCHING DEVICES AND COMPONENTS</b>	Does not apply, since the entire switchgear needs to be evaluated.

## ETIM only

<b>ELECTRICAL CONNECTION TYPE OF MAIN CIRCUIT</b>	Screw connection
<b>ADJUSTABLE CURRENT RANGE - MIN</b>	0.33 A
<b>ADJUSTABLE CURRENT RANGE - MAX</b>	1.65 A
<b>RESET FUNCTION</b>	Push-button Automatic

<b>10.7 INTERNAL ELECTRICAL CIRCUITS AND CONNECTIONS</b>	Is the panel builder's responsibility.
<b>10.8 CONNECTIONS FOR EXTERNAL CONDUCTORS</b>	Is the panel builder's responsibility.
<b>10.9.2 POWER-FREQUENCY ELECTRIC STRENGTH</b>	Is the panel builder's responsibility.
<b>10.9.3 IMPULSE WITHSTAND VOLTAGE</b>	Is the panel builder's responsibility.
<b>10.9.4 TESTING OF ENCLOSURES MADE OF INSULATING MATERIAL</b>	Is the panel builder's responsibility.
<b>10.10 TEMPERATURE RISE</b>	The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
<b>10.11 SHORT-CIRCUIT RATING</b>	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
<b>10.12 ELECTROMAGNETIC COMPATIBILITY</b>	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
<b>10.13 MECHANICAL FUNCTION</b>	The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

## Resources

BROCHURES [eaton-motor-starters-system-xstart-brochure-br03407001en-en-us.pdf](#)

[Electronic overload relay ZEB](#)

DRAWINGS [eaton-tripping-devices-zeb-overload-relay-characteristic-curve.eps](#)

[eaton-tripping-devices-zeb-overload-relay-dimensions.eps](#)

[eaton-tripping-devices-zeb-overload-relay-3d-drawing-004.eps](#)

ECAD MODEL [ETN.ZEB12-1,65](#)

INSTALLATION INSTRUCTIONS [IL04210002E](#)

MCAD MODEL [zeb12.stp](#) [zeb12.dwg](#)

WIRING DIAGRAMS [eaton-general-release-zeb-overload-relay-wiring-diagram.eps](#)

[eaton-tripping-devices-overload-relay-zb-overload-relay-wiring-diagram.eps](#)

---

**PROJECT NAME:**

**PROJECT NUMBER:**

**PREPARED BY:**

**DATE:**

---



**Eaton Corporation plc**  
Eaton House  
30 Pembroke Road  
Dublin 4, Ireland  
Eaton.com

Follow us on social media to get the latest product and support information.

