# Specifications

## Eaton 136508

Eaton Moeller® series ZEB Overload relay, Separate mounting, Earth-fault protection: none, Ir= 20 - 100 A, 1 N/O, 1 N/C

| General specifications | |
|---|---|
| **PRODUCT NAME** | Eaton Moeller® series ZEB Electronic overload relay |
| **CATALOG NUMBER** | 136508 |
| **EAN** | 4015081332885 |
| **MODEL CODE** | ZEB150-100/KK |
| **PRODUCT LENGTH/DEPTH** | 140.5 mm |
| **PRODUCT HEIGHT** | 120 mm |
| **PRODUCT WIDTH** | 56 mm |
| **PRODUCT WEIGHT** | 0.84 kg |
| **CERTIFICATIONS** | IEC/EN 60947<br>CE<br>UL<br>IEC/EN 60947-4-1<br>UL 508<br>CSA File No.: 2290956<br>CSA Class No.: 3211-03<br>UL Category Control No.: NKCR<br>VDE 0660<br>CSA-C22.2 No. 14<br>CSA<br>UL File No.: E1230 |
| **CATALOG NOTES** | Rated operational current: Switch-on and switch-off conditions based on DC-13, time constant as specified. |

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## Features & Functions

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

## General

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| **CLASS** | Adjustable |
| **DEGREE OF PROTECTION** | IP20 |
| **MOUNTING METHOD** | Separate mounting<br>Separate positioning |
| **OVERLOAD RELEASE CURRENT SETTING - MIN** | 20 A |
| **OVERLOAD RELEASE CURRENT SETTING - MAX** | 100 A |
| **OVERVOLTAGE CATEGORY** | III |
| **POLLUTION DEGREE** | 3 |
| **PRODUCT CATEGORY** | Electronic overload relays ZEB |
| **PROTECTION** | Finger and back-of-hand proof, Protection against direct contact when actuated from front (EN 50274) |
| **RATED IMPULSE WITHSTAND VOLTAGE (UIMP)** | 6000 V (auxiliary circuits)<br>6000 V AC |
| **SHOCK RESISTANCE** | Mechanical, According to IEC/EN 60068-2-27<br>15 g, Mechanical, According to IEC/EN 60068-2-27, Shock duration 10 ms |
| **SUITABLE FOR** | Branch circuits, (UL/CSA) |
| **VOLTAGE TYPE** | Self powered |

## Climatic environmental conditions

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| **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<br>Damp heat, constant, to IEC 60068-2-78 |

## Terminal capacities

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| **TERMINAL CAPACITY (FLEXIBLE WITH FERRULE)** | 2 x (0.75 - 2.5) mm², Control circuit cables |
| **TERMINAL CAPACITY (SOLID)** | 2 x (0.75 - 4) mm², Control circuit cables<br>1 x (16 - 50) mm², Main cables |
| **TERMINAL CAPACITY (SOLID/STRANDED AWG)** | 1 x (6 - 1), Main cables<br>2 x (18 - 12), Control circuit cables |
| **STRIPPING LENGTH (MAIN CABLE)** | 14 mm |
| **STRIPPING LENGTH (CONTROL CIRCUIT CABLE)** | 8 mm |
| **SCREW SIZE** | M3.5, Terminal screw, Control circuit cables |

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

## Electrical rating

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| **CONVENTIONAL THERMAL CURRENT ITH 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 |
| **SHORT-CIRCUIT PROTECTION RATING** | Max. 6 A gG/gL, fuse, Without welding, Auxiliary |

## Contacts

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| **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 |

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| | and control circuits |
| **SHORT-CIRCUIT CURRENT RATING (HIGH FAULT AT 600 V)** | 100 kA, Fuse, SCCR (UL/CSA)<br>200 A, Class J, max. Fuse, SCCR (UL/CSA) |
| **SWITCHING CAPACITY (AUXILIARY CONTACTS, PILOT DUTY)** | R300, DC operated (UL/CSA)<br>B600, AC operated (UL/CSA) |
| **VOLTAGE RATING - MAX** | 600 V |

## Design verification

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| **EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID** | 25.4 W |
| **HEAT DISSIPATION CAPACITY PDISS** | 0 W |
| **HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID** | 8.47 W |
| **RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)** | 100 A |
| **STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS** | 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. |

## ETIM only

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| **ELECTRICAL CONNECTION TYPE OF MAIN CIRCUIT** | Screw connection |
| **ADJUSTABLE CURRENT RANGE - MIN** | 20 A |
| **ADJUSTABLE CURRENT RANGE - MAX** | 100 A |
| **RESET FUNCTION** | Automatic<br>Push-button |

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| **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. |

## Resources

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| BROCHURES | eaton-motor-starters-system-xstart-brochure-br03407001en-en-us.pdf<br><br>Electronic overload relay ZEB |
| DRAWINGS | eaton-tripping-devices-zeb-overload-relay-dimensions-004.eps<br><br>eaton-tripping-devices-zeb-overload-relay-characteristic-curve.eps<br><br>eaton-tripping-devices-zeb-overload-relay-3d-drawing-008.eps |
| ECAD MODEL | ETN.136508.edz |
| INSTALLATION INSTRUCTIONS | IL04210002E |
| MCAD MODEL | zeb150_100_kk.dwg<br><br>zeb150_100_kk.stp |
| WIRING DIAGRAMS | eaton-tripping-devices-overload-relay-zeb-overload-relay-wiring-diagram.eps<br><br>eaton-general-release-zeb-overload-relay-wiring-diagram.eps |

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| **PROJECT NAME:** | |
| **PROJECT NUMBER:** | |
| **PREPARED BY:** | |
| **DATE:** | |

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