

Specifications



Eaton 164304

Eaton Moeller® series ZEB Overload relay,
Direct mounting, Earth-fault protection:
with, $I_r = 35 - 175$ A, 1 N/O, 1 N/C ZEB150-
175-GF

General specifications

PRODUCT NAME	Eaton Moeller® series ZEB Electronic overload relay
CATALOG NUMBER	164304
EAN	4015081608355
PRODUCT LENGTH/DEPTH	157 mm
PRODUCT HEIGHT	208 mm
PRODUCT WIDTH	108 mm
PRODUCT WEIGHT	1.915 kg
CERTIFICATIONS	IEC/EN 60947 VDE 0660 CE CSA File No.: 2290956 UL File No.: E1230 UL 508 UL Category Control No.: NKCR IEC/EN 60947-4-1 CSA Class No.: 3211-03 UL CSA CSA-C22.2 No. 14
CATALOG NOTES	Rated operational current: Switch-on and switch-off conditions based on DC- 13, time constant as specified.
MODEL CODE	ZEB150-175-GF

Features & Functions

EARTH FAULT PROTECTION	Trip at approx. > 0.5 x I _r in 2 s Trip at approx. > 1.5 x I _r in 1 s Yes
FEATURES	Phase-failure sensitivity (according to IEC/EN 60947, VDE 0660 Part 102)
FUNCTIONS	Filament bulb (24 V)

Climatic environmental conditions

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

General

CLASS	Adjustable
DEGREE OF PROTECTION	IP20
MOUNTING METHOD	Direct attachment Direct mounting
OVERLOAD RELEASE CURRENT SETTING - MIN	35 A
OVERLOAD RELEASE CURRENT SETTING - MAX	175 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) 6000 V AC
SHOCK RESISTANCE	15 g, Mechanical, According to IEC/EN 60068-2-27, Shock duration 10 ms Mechanical, According to IEC/EN 60068-2-27
SUITABLE FOR	Branch circuits, (UL/CSA)
VOLTAGE TYPE	Self powered

Terminal capacities

TERMINAL CAPACITY (COPPER BAND)	6 x 18 x 0.8 mm Number of segments x width x thickness, Main cables
TERMINAL CAPACITY (FLEXIBLE WITH FERRULE)	2 x (0.75 - 2.5) mm ² , Control circuit cables
TERMINAL CAPACITY (SOLID)	2 x (0.75 - 4) mm ² , Control circuit cables 1 x (10 - 95) mm ² , Main cables
TERMINAL CAPACITY (SOLID/STRANDED AWG)	2 x (18 - 12), Control circuit cables 1 x (8 - 4/0), Main cables
STRIPPING LENGTH (MAIN CABLE)	22 mm
STRIPPING LENGTH (CONTROL CIRCUIT)	8 mm

CABLE)	
SCREW SIZE	M3.5, Terminal screw, Control circuit cables
SCREWDRIVER SIZE	1 x 6 mm, Terminal screw, Control circuit cables, Standard screwdriver 2, Terminal screw, Control circuit cables, Pozidriv screwdriver
TIGHTENING TORQUE	7 lb-in, Screw terminals 0.8 - 1.2 Nm, Screw terminals, Control circuit cables

Electrical rating

**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

**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

	and control circuits
SHORT-CIRCUIT CURRENT RATING (HIGH FAULT AT 600 V)	100 kA, Fuse, SCCR (UL/CSA) 400 A, Class J, max. Fuse, SCCR (UL/CSA)
SWITCHING CAPACITY (AUXILIARY CONTACTS, PILOT DUTY)	R300, DC operated (UL/CSA) B600, AC operated (UL/CSA)
VOLTAGE RATING - MAX	600 V

Design verification

EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID	35.6 W
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HEAT DISSIPATION CAPACITY PDISS	0 W
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HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	11.86 W
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RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	175 A
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STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	0 W
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10.2.2 CORROSION RESISTANCE	Meets the product standard's requirements.
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10.2.3.1 VERIFICATION OF THERMAL STABILITY OF ENCLOSURES	Meets the product standard's requirements.
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10.2.3.2 VERIFICATION OF RESISTANCE OF INSULATING MATERIALS TO NORMAL HEAT	Meets the product standard's requirements.
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10.2.3.3 RESIST. OF INSUL. MAT. TO ABNORMAL HEAT/FIRE BY INTERNAL ELECT. EFFECTS	Meets the product standard's requirements.
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10.2.4 RESISTANCE TO ULTRA-VIOLET (UV) RADIATION	Meets the product standard's requirements.
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10.2.5 LIFTING	Does not apply, since the entire switchgear needs to be evaluated.
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10.2.6 MECHANICAL IMPACT	Does not apply, since the entire switchgear needs to be evaluated.
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10.2.7 INSCRIPTIONS	Meets the product standard's requirements.
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10.3 DEGREE OF PROTECTION OF ASSEMBLIES	Does not apply, since the entire switchgear needs to be evaluated.
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10.4 CLEARANCES AND CREEPAGE DISTANCES	Meets the product standard's requirements.
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10.5 PROTECTION AGAINST ELECTRIC SHOCK	Does not apply, since the entire switchgear needs to be evaluated.
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10.6 INCORPORATION OF SWITCHING DEVICES AND COMPONENTS	Does not apply, since the entire switchgear needs to be evaluated.
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ETIM only

ELECTRICAL CONNECTION TYPE OF MAIN CIRCUIT	Screw connection
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ADJUSTABLE CURRENT RANGE - MIN	0 A
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ADJUSTABLE CURRENT RANGE - MAX	175 A
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RESET FUNCTION	Automatic 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

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-overload-relay-zeb-overload-relay-dimensions.eps](#)

[eaton-tripping-devices-zeb-overload-relay-3d-drawing-003.eps](#)

ECAD MODEL

[DA-CE-ETN.ZEB150-175-GF](#)

INSTALLATION INSTRUCTIONS

[IL04210002E](#)

MCAD MODEL

[zeb150_175_gf.dwg](#)

[zeb150_175_gf.stp](#)

WIRING DIAGRAMS

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

PROJECT NAME:

PROJECT NUMBER:

PREPARED BY:

DATE:



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