Specifications

Photo is representative

Eaton 136503

Eaton Moeller® series ZEB Overload relay, Direct mounting, Earth-fault protection: with, Ir= 9 - 45 A, 1 N/O, 1 N/C ZEB65-45-GF

General specifications

PRODUCT NAME	Eaton Moeller® series ZEB Electronic overload relay
CATALOG NUMBER	136503
EAN	4015081332830
PRODUCT LENGTH/DEPTH	108 mm
PRODUCT HEIGHT	110 mm
PRODUCT WIDTH	45 mm
PRODUCT WEIGHT	0.295 kg
CERTIFICATIONS	CE CSA Class No.: 3211-03 IEC/EN 60947-4-1 UL Category Control No.: NKCR CSA-C22.2 No. 14 UL File No.: E1230 CSA File No.: 2290956 IEC/EN 60947 UL 508 VDE 0660 CSA UL
CATALOG NOTES	Rated operational current: Switch-on and switch-off conditions based on DC-13, time constant as specified.
MODEL CODE	ZEB65-45-GF

Powering Business Worldwide

Features & Functions

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

General

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
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	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

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, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30

Terminal capacities

TERMINAL CAPACITY (FLEXIBLE WITH FERRULE)	2 x (0.75 - 2.5) mm², Control circuit cables
TERMINAL CAPACITY (SOLID)	1 x (4 - 16) mm², Main cables 2 x (0.75 - 4) mm², Control circuit cables
TERMINAL CAPACITY (SOLID/STRANDED AWG)	2 x (18 - 12), Control circuit cables 1 x (14 - 4), Main 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	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) 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

Design verification

EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID	4.3 W
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	1.43 W
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	45 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

ELECTRICAL CONNECTION TYPE OF MAIN CIRCUIT	Screw connection
ADJUSTABLE CURRENT RANGE - MIN	9 A
ADJUSTABLE CURRENT RANGE - MAX	45 A
RESET FUNCTION	Automatic Push-button

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-dimensions-003.eps eaton-tripping-devices-zeb-overload-relay-characteristic-curve.eps eaton-tripping-devices-zeb-overload-relay-3d-drawing-006.eps
ECAD MODEL	ETN.ZEB65-45-GF
INSTALLATION INSTRUCTIONS	IL04210002E
MCAD MODEL	zeb65-45.dwg zeb65-45.stp
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:	

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