



136503
ZEB65-45-GF

Overview

Specifications

Resources



Delivery program

Technical data

Design verification as
per IEC/EN 61439

Technical data ETIM 7.0

Approvals

Characteristics

Dimensions

DELIVERY PROGRAM

Product range
Electronic overload relays ZEB

Phase-failure sensitivity
IEC/EN 60947, VDE 0660 Part 102

Description
Test/off button
Reset pushbutton
Manual/auto reset selectable
Protection in the case of starting under load (class 10 to class 20)

Mounting type
Direct mounting

Earth-fault protection

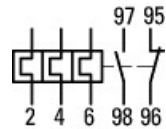
Earth-fault protection
with

Trip at approx.
> 0.5 x I_r in 2 s
> 1.5 x I_r in 1 s

Setting range

Overload releases  [I_r]
9 - 45 A

Contact sequence



Auxiliary contacts

N/O = Normally open
1 NO

N/C = Normally closed
1 NC

For use with
DILM40
DILM50
DILM65
DILM72
DIULM40
DIULM50
DIULM65
SDAINLM70
SDAINLM90
SDAINLM115

Conformity, Approval

Explosion protection (according to ATEX 94/9/EC)
II(2)GD [Ex d] [Ex e] [Ex tb]

EC-prototype test certification
SIRA 13 ATEX 9348X

TECHNICAL DATA

General

Standards
IEC/EN 60947, VDE 0660, UL, CSA

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

Ambient temperature
Open
-25 - +65 °C

Ambient temperature
Ambient temperature open max.
65 °C

Ambient temperature
Enclosed
Ambient temperature enclosed max.
45 °C

Mechanical shock resistance
15
Shock duration 10 ms
according to IEC 60068-2-27 g

Degree of Protection
IP20

Protection against direct contact when actuated
from front (EN 50274)
Finger and back-of-hand proof

Altitude
Max. 2000 m

Main conducting paths

Rated impulse withstand voltage [U_{imp}]
6000 V AC

Overvoltage category/pollution degree

III/3

Rated insulation voltage [U_i]
690 V AC

Rated operational voltage [U_e]
690 V AC

Rated frequency [f]
50/60 Hz

Safe isolation to EN61140
Between auxiliary contacts and main contacts
600 V AC

Safe isolation to EN61140
Between main circuits
600 V AC

Terminal capacities
Solid
1 x 4 - 16 mm²

Terminal capacities
Solid or stranded
1 x 14 - 4 AWG

Stripping length
13 mm

Auxiliary and control circuits

Rated impulse withstand voltage [U_{imp}]
6000 V

Overvoltage category/pollution degree
III/3

Terminal capacities
Solid
2 x (0.75 - 4) mm²

Terminal capacities
Flexible with ferrule
2 x (0.75 - 2.5) mm²

Terminal capacities
Solid or stranded
2 x (18 - 12) AWG

Terminal screw
M3.5

Tightening torque
0.8 - 1.2 Nm

Tightening torque
7 lb-in

Stripping length
8 mm

Tools
Pozidriv screwdriver
2 Size

Tools
Standard screwdriver
1 x 6 mm

Rated insulation voltage [U_i]
500 V AC

Rated operational voltage [U_e]
500 V AC

Safe isolation to EN61140
between the auxiliary contacts
240 V AC

Conventional thermal current [I_{th}]
5 A

Rated operational current [I_e]
AC-15
Make contact
120 V [I_e]
1.5 A

Rated operational current [I_e]
AC-15

Make contact
220 V 230 V 240 V [I_e]
1.5 A

Rated operational current [I_e]
AC-15
Make contact
380 V 400 V 415 V [I_e]
0.5 A

Rated operational current [I_e]
AC-15
Make contact
500 V [I_e]
0.5 A

Rated operational current [I_e]
AC-15
Break contact
120 V [I_e]
1.5 A

Rated operational current [I_e]
AC-15
Break contact
220 V 230 V 240 V [I_e]
1.5 A

Rated operational current [I_e]
AC-15
Break contact
380 V 400 V 415 V [I_e]
0.9 A

Rated operational current [I_e]
AC-15
Break contact
500 V [I_e]
0.8 A

Rated operational current [I_e]
DC L/R $\square$ 15 ms
Switch-on and switch-off conditions based on
DC-13, time constant as specified.

Rated operational current [I_e]
DC L/R $\square$ 15 ms
24 V [I_e]
0.9 A

Rated operational current [I_e]
DC L/R $\square$ 15 ms

60 V [I_e]
0.75 A

Rated operational current [I_e]
DC L/R $\square$ 15 ms
110 V [I_e]
0.4 A

Rated operational current [I_e]
DC L/R $\square$ 15 ms
220 V [I_e]
0.2 A

Short-circuit rating without welding
max. fuse
6 A gG/gL

Rating data for approved types

Auxiliary contacts
Pilot Duty
AC operated
B600

Auxiliary contacts
Pilot Duty
DC operated
R300

Short Circuit Current Rating
600 V High Fault
SOCR (fuse)
100 kA

Short Circuit Current Rating
600 V High Fault
max. Fuse
180 Class J A

DESIGN VERIFICATION AS PER IEC/EN 61439

Technical data for design verification

Rated operational current for specified heat
dissipation [I_n]
45 A

Heat dissipation per pole, current-dependent [P_{vd}]
1.43 W

Equipment heat dissipation, current-dependent
[P_{vd}]
4.3 W

Static heat dissipation, non-current-dependent [P_{vs}]
0 W

Heat dissipation capacity [P_{diss}]
0 W

Operating ambient temperature min.
-25 °C

Operating ambient temperature max.
+65 °C

IEC/EN 61439 design verification

10.2 Strength of materials and parts
10.2.2 Corrosion resistance
Meets the product standard's requirements.

10.2 Strength of materials and parts
10.2.3.1 Verification of thermal stability of enclosures
Meets the product standard's requirements.

10.2 Strength of materials and parts
10.2.3.2 Verification of resistance of insulating materials to normal heat
Meets the product standard's requirements.

10.2 Strength of materials and parts
10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects
Meets the product standard's requirements.

10.2 Strength of materials and parts
10.2.4 Resistance to ultra-violet (UV) radiation
Meets the product standard's requirements.

10.2 Strength of materials and parts

10.2.5 Lifting

Does not apply, since the entire switchgear needs to be evaluated.

10.2 Strength of materials and parts

10.2.6 Mechanical impact

Does not apply, since the entire switchgear needs to be evaluated.

10.2 Strength of materials and parts

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 Insulation properties

10.9.2 Power-frequency electric strength

Is the panel builder's responsibility.

10.9 Insulation properties

10.9.3 Impulse withstand voltage

Is the panel builder's responsibility.

10.9 Insulation properties

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 7.0

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@ss10.0.1-27-37-15-02 [AKF076014])

Adjustable current range

9 - 45 A

Mounting method

Direct attachment

Type of electrical connection of main circuit

Screw connection

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

Rated control supply voltage U_s at AC 50HZ
0 - 0 V

Rated control supply voltage U_s at AC 60HZ
0 - 0 V

Rated control supply voltage U_s at DC
0 - 0 V

Release class
Adjustable

Voltage type for actuating
Self powered

Reset function automatic
Yes

Reset function input
No

Reset function push-button
Yes

APPROVALS

Product Standards
UL 508; CSA-C22.2 No. 14; IEC/EN 60947-4-1; CE
marking

UL File No.
E1230

UL Category Control No.
NKCR

CSA File No.

2290956

CSA Class No.
3211-03

North America Certification
UL listed, CSA certified

Specially designed for North America
No

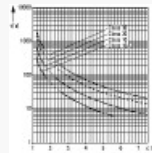
Suitable for
Branch circuits

Max. Voltage Rating
600 V AC

Degree of Protection
IEC: IP20, UL/CSA Type: -

CHARACTERISTICS

Characteristic curve



DIMENSIONS

