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Z5-160/FF250 - Overload relay, Ir= 120 - 160 A, 1 N/O, 1 N/C, For use with: DILM250

210073 Z5-160/FF250

Overview Specifications Resources

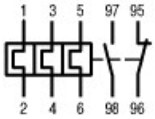
210073 Z5-160/FF250

Overload relay, Ir= 120 - 160 A, 1 N/O, 1 N/C, For use with: DILM250
Alternate Catalog No. XTOB160LC1
Overload relay, Product range: Overload relay Z5, Phase-failure sensitivity: IEC/EN 60947, VDE 0660 Part 102, Description: Test/off button, Reset pushbutton manual/auto, Trip-free release, Mounting type: Direct mounting, Separate mounting, Auxiliary contacts N/O = Normally open: 1 N/O, Auxiliary contacts N/C = Normally closed: 1 N/C, For use with: DILM250, Standards: IEC/EN 60947, VDE 0660, UL, CSA, Degree of Protection: IP00

- Delivery program
- Technical data
- Design verification as per IEC/EN 61439
- Technical data ETIM 7.0
- Approvals
- Characteristics
- Dimensions

Delivery program

Product range
Overload relay Z5
Phase-failure sensitivity
IEC/EN 60947, VDE 0660 Part 102
Description
Test/off button
Reset pushbutton manual/auto
Trip-free release
Mounting type
Direct mounting
Separate mounting
Setting range
Overload releases [I]
120 - 160 A
Contact sequence



Auxiliary contacts
N/O = Normally open
1 N/O
N/C = Normally closed
1 N/C

For use with
DILM250
Short-circuit protection
Type “1” coordination, [gG/gL]
400 A
Type “2” coordination, [gG/gL]
250 A
Notes
Overload release: tripping class 10 A

Short-circuit protection: Observe the maximum permissible fuse of the contactor with direct device mounting.

Notes

Fitted directly to the contactor	
1 Contactor	

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 - +60 °C
Ambient temperature Enclosed
- 25 - 40 °C
Temperature compensation
Continuous
Weight
1.55 kg
Mechanical shock resistance
10
Sinusoidal
Shock duration 10 ms g
Degree of Protection
IP00
Protection against direct contact when actuated from front (EN 50274)
With terminal cover
Altitude
Max. 2000 m
Main conducting paths
Rated impulse withstand voltage [U_{imp}]
8000 V AC
Overvoltage category/pollution degree
III/3
Rated insulation voltage [U_i]
1000 V
Rated operational voltage [U_e]
1000 V AC
Safe isolation to EN 61140 Between auxiliary contacts and main contacts
500 V AC
Safe isolation to EN 61140 Between main circuits
500 V AC
Temperature compensation residual error > 40°C
0.25 %/K
Current heat loss (3 conductors) Lower value of the setting range
11 W
Current heat loss (3 conductors) Maximum setting
20 W
Terminal capacities Flexible with cable lug
185 mm^2
Terminal capacities Stranded with cable lug
185 mm^2
Terminal capacities Solid or stranded
2/0 - 500 MCM AWG
Terminal capacities Busbar [Width]

25 mm
Terminal screw
M10 x 35
Tightening torque
18 Nm
ToolsHexagon head spanner [SW]
16 mm
Auxiliary and control circuits
Rated impulse withstand voltage [U_{imp}]
4000 V
Overvoltage category/pollution degree
III/3
Terminal capacitiesSolid
1 x (0.75 - 4)
2 x (0.75 - 4) mm^2
Terminal capacitiesFlexible with ferrule
1 x (0.75 - 2.5)
2 x (0.75 - 2.5) mm^2
Terminal capacitiesSolid or stranded
2 x (18 - 14) AWG
Terminal screw
M3.5
Tightening torque
1.2 Nm
Stripping length
8 mm
ToolsPozidriv screwdriver
2 Size
ToolsStandard screwdriver
1 x 6 mm
Rated insulation voltage [U_i]
500 V AC
Rated operational voltage [U_e]
500 V AC
Safe isolation to EN61140between the auxiliary contacts
240 V AC
Conventional thermal current [I_{th}]
6 A
Rated operational current [I_e]AC-15Make contact120 V [I_e]
1.5 A
Rated operational current [I_e]AC-15Make contact220 V 230 V 240 V [I_e]
1.5 A
Rated operational current [I_e]AC-15Make contact380 V 400 V 415 V [I_e]
0.5 A
Rated operational current [I_e]AC-15Make contact500 V [I_e]
0.5 A
Rated operational current [I_e]AC-15Break contact120 V [I_e]
1.5 A
Rated operational current [I_e]AC-15Break contact220 V 230 V 240 V [I_e]
1.5 A
Rated operational current [I_e]AC-15Break contact380 V 400 V 415 V [I_e]
0.9 A
Rated operational current [I_e]AC-15Break contact500 V [I_e]
0.8 A
Rated operational current [I_e]DC L/R □ 15 ms
Switch-on and switch-off conditions based on DC-13, time constant as specified.
Rated operational current [I_e]DC L/R □ 15 ms24 V [I_e]
0.9 A
Rated operational current [I_e]DC L/R □ 15 ms60 V [I_e]
0.75 A
Rated operational current [I_e]DC L/R □ 15 ms110 V [I_e]
0.4 A
Rated operational current [I_e]DC L/R □ 15 ms220 V [I_e]
0.2 A
Short-circuit rating without weldingmax. fuse
6 A gG/gL
Notes
Notes
Ambient air temperature: Operating range to IEC/EN 60947

Rating data for approved types
Auxiliary contacts Pilot Duty AC operated
B300 at opposite polarity
B600 at same polarity
Auxiliary contacts Pilot Duty DC operated
R300
Short Circuit Current Rating Basic Rating SCCR
10 kA
Short Circuit Current Rating Basic Rating max. Fuse
600 Class J A
Short Circuit Current Rating Basic Rating max. CB
600 A

Design verification as per IEC/EN 61439

Technical data for design verification
Rated operational current for specified heat dissipation [I_n]
160 A
Heat dissipation per pole, current-dependent [P_{vid}]
8 W
Equipment heat dissipation, current-dependent [P_{vid}]
24 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.
+60 °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) / Thermal overload relay (EC000106)
Electric engineering, automation, process control engineering / Low-voltage switch technology / Overload protection device / Thermal overload relay (ecl@ss10.0.1-27-37-15-01 [AKF075014])
Adjustable current range
120 - 160 A
Max. rated operation voltage Ue
1000 V
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
Release class
CLASS 10
Reset function input
No
Reset function automatic
Yes
Reset function push-button
Yes

Approvals

Product Standards
IEC/EN 60947-4-1; UL 60947-4-1; CSA - C22.2 No. 60947-4-1-14; CE marking
UL File No.
E29184
UL Category Control No.
NKCR
CSA File No.
12528
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: IP00, UL/CSA Type: -

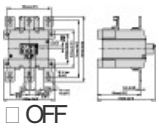
Characteristics

Characteristic curve

These tripping characteristics are mean values of the spreads at 20 °C ambient air temperature in a cold state.
Tripping time depends on response current.
When the devices are at operational temperature the tripping time of the overload relay falls to approx. 25 % of the read off value.
Characteristic curve

Dimensions

Dimensions



OFF
Reset/ON

CAD data

- Product-specific CAD data
  (Web)
- 3D Preview
  (Web)

DWG files

- DA-CD-z5_ff250
  File
  (Web)

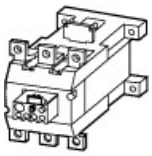
edz files

- DA-CE-ETN.Z5-160_FF250
  File
  (Web)

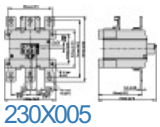
Step files

- DA-CS-z5_ff250
  File
  (Web)

3D drawing

- 
  230I006
  Line drawing
  Overload relay direct mounting

Dimensions single product

- 
  230X005
  Line drawing
  Overload relays
  OFF
  Reset/ON

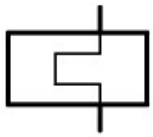
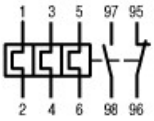
Characteristic curve

- 2310DIA-3
  Coordinate visualization
  Tripping characteristic of the overload relay
- 2310DIA-7
  Coordinate visualization
  Tripping characteristic of the overload relay

Product photo

- 
  2300PIC-14
  Photo

Wiring diagram

- 
  000S015
  Line drawing
  Overload release symbol
- 

  230S005
  Line drawing
  Overload relay circuit symbol

Manual

- Z00, Z1, Z5 motor-protective relays - Overload monitoring of EEx e motors (DA-MN-h1476dgb)
  Asset
  (PDF, 03/2004, de, en)

Instruction Leaflet

- Z5, ZB150 Overload relay (IL03407006Z)
  Asset
  former AWA2300-2115, AWA23-1276, Pub51185, Pub51233
  (PDF, 09/2020, multilingual)
- Z5-FF250-XK-CNA NA terminal (IL03407081Z)
  Asset
  former AWA2300-1901
  (PDF, 05/2018, multilingual)
- Z5-160 Tripping Characteristic (IL03407141Z)
  Asset
  (PDF, 10/2010, multilingual)

Declaration of Conformity

EU

- Z5 (DA-DC-00004079)
  Asset
  (PDF)

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