

# Specifications



## Eaton 139577

Eaton Moeller® series Z5 Overload relay, Ir= 200 - 250 A, 1 N/O, 1 N/C, For use with: DILM185A, DILM225A

### General specifications

<b>PRODUCT NAME</b>	Eaton Moeller® series Z5 Thermal overload relay
<b>CATALOG NUMBER</b>	139577
<b>MODEL CODE</b>	Z5-250/FF225A
<b>EAN</b>	4015081363551
<b>PRODUCT LENGTH/DEPTH</b>	146 mm
<b>PRODUCT HEIGHT</b>	164 mm
<b>PRODUCT WIDTH</b>	128 mm
<b>PRODUCT WEIGHT</b>	1.5 kg
<b>CERTIFICATIONS</b>	CE IEC/EN 60947 UL IEC/EN 60947-4-1 UL 60947-4-1 UL File No.: E29184 CSA-C22.2 No. 60947-4-1-14 UL Category Control No.: NKCR CSA Class No.: 3211-03 CSA File No.: 012528 VDE 0660 CSA



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## Features & Functions

### FEATURES

Reset pushbutton  
manual/auto  
Trip-free release  
Phase-failure sensitivity  
(according to IEC/EN  
60947, VDE 0660 Part 102)  
Test/off button

## General information

<b>AMBIENT OPERATING TEMPERATURE - MIN</b>	-25 °C
<b>AMBIENT OPERATING TEMPERATURE - MAX</b>	60 °C
<b>AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MIN</b>	25 °C
<b>AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MAX</b>	40 °C
<b>CLASS</b>	CLASS 10 A
<b>CLIMATIC PROOFING</b>	Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
<b>DEGREE OF PROTECTION</b>	IP00
<b>MOUNTING METHOD</b>	Separate mounting Direct mounting Direct attachment
<b>OVERLOAD RELEASE CURRENT SETTING - MIN</b>	200 A
<b>OVERLOAD RELEASE CURRENT SETTING - MAX</b>	250 A
<b>OVERVOLTAGE CATEGORY</b>	III
<b>POLLUTION DEGREE</b>	3
<b>PRODUCT CATEGORY</b>	Overload relay Z5
<b>PROTECTION</b>	With terminal cover, Protection against direct contact when actuated from front (EN 50274)
<b>RATED IMPULSE WITHSTAND VOLTAGE (UIMP)</b>	8000 V AC 4000 V (auxiliary and control circuits)
<b>SHOCK RESISTANCE</b>	10 g, Mechanical, Sinusoidal, Shock duration 10 ms
<b>SUITABLE FOR</b>	Branch circuits, (UL/CSA)
<b>TEMPERATURE COMPENSATION</b>	≤ 0.25 %/K, residual error for T > 40° Continuous

## Terminal capacities

<b>TERMINAL CAPACITY (BUSBAR)</b>	25 mm width, Main connection
<b>TERMINAL CAPACITY (FLEXIBLE WITH CABLE LUG)</b>	185 mm <sup>2</sup>
<b>TERMINAL CAPACITY (FLEXIBLE WITH FERRULE)</b>	2 x (0.75 - 2.5) mm <sup>2</sup> , Control circuit cables 1 x (0.75 - 2.5) mm <sup>2</sup> , Control circuit cables
<b>TERMINAL CAPACITY (SOLID)</b>	2 x (0.75 - 4) mm <sup>2</sup> , Control circuit cables 1 x (0.75 - 4) mm <sup>2</sup> , Control circuit cables
<b>TERMINAL CAPACITY (SOLID/STRANDED AWG)</b>	2/0 - 500 MCM, Main cables 2 x (18 - 14), Control circuit cables
<b>TERMINAL CAPACITY (STRANDED WITH CABLE LUG)</b>	185 mm <sup>2</sup>
<b>WIDTH ACROSS FLATS</b>	16 mm (Hexagon head spanner SW)
<b>STRIPPING LENGTH (CONTROL CIRCUIT CABLE)</b>	8 mm
<b>SCREW SIZE</b>	M10 x 35, Terminal screw, Main connections M3.5, Terminal screw, Control circuit cables
<b>SCREWDRIVER SIZE</b>	2, Terminal screw, Control circuit cables, Pozidriv screwdriver 1 x 6 mm, Terminal screw, Control circuit cables, Standard screwdriver
<b>TIGHTENING TORQUE</b>	18 Nm, Main cable connection screw/bolt 1.2 Nm, Screw terminals, Control circuit cables

## Electrical rating

<b>CONVENTIONAL THERMAL CURRENT ITH OF AUXILIARY CONTACTS (1-POLE, OPEN)</b>	6 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-15, 120 V</b>	1.5 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-15, 220 V, 230 V, 240 V</b>	1.5 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-15, 380 V, 400 V, 415 V</b>	0.9 A
<b>RATED OPERATIONAL CURRENT (IE) AT DC-13, 110 V</b>	0.4 A
<b>RATED OPERATIONAL CURRENT (IE) AT DC-13, 220 V, 230 V</b>	0.2 A
<b>RATED OPERATIONAL CURRENT (IE) AT DC-13, 24 V</b>	0.9 A
<b>RATED OPERATIONAL CURRENT (IE) AT DC-13, 60 V</b>	0.75 A
<b>RATED OPERATIONAL VOLTAGE (UE) - MAX</b>	1000 V
<b>SAFE ISOLATION</b>	240 V AC, Between auxiliary contacts, According to EN 61140 440 V, Between auxiliary contacts and main contacts, According to EN 61140 500 V AC, Between main circuits, According to EN 61140
<b>SWITCHING CAPACITY (AUXILIARY CONTACTS, PILOT DUTY)</b>	B600 at opposite polarity, AC operated (UL/CSA) R300, DC operated (UL/CSA) B300 at opposite polarity, AC operated (UL/CSA)
<b>VOLTAGE RATING - MAX</b>	600 VAC

## Short-circuit rating

### SHORT-CIRCUIT CURRENT RATING (BASIC RATING)

1200 A Class L, max. Fuse, SCCR (UL/CSA)  
18 kA, SCCR (UL/CSA)  
1200 A, max. CB, SCCR (UL/CSA)

### SHORT-CIRCUIT PROTECTION RATING

Max. 6 A gG/gL, fuse, Without welding, Auxiliary and control circuits  
500 A gG/gL, Fuse, Type "1" coordination  
500 A gG/gL, Fuse, Type "2" coordination

## 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

## Design verification

<b>EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID</b>	45 W
<b>HEAT DISSIPATION CAPACITY PDISS</b>	0 W
<b>HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID</b>	15 W
<b>RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)</b>	250 A
<b>STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS</b>	0 W
<b>10.2.2 CORROSION RESISTANCE</b>	Meets the product standard's requirements.
<b>10.2.3.1 VERIFICATION OF THERMAL STABILITY OF ENCLOSURES</b>	Meets the product standard's requirements.
<b>10.2.3.2 VERIFICATION OF RESISTANCE OF INSULATING MATERIALS TO NORMAL HEAT</b>	Meets the product standard's requirements.
<b>10.2.3.3 RESIST. OF INSUL. MAT. TO ABNORMAL HEAT/FIRE BY INTERNAL ELECT. EFFECTS</b>	Meets the product standard's requirements.
<b>10.2.4 RESISTANCE TO ULTRA-VIOLET (UV) RADIATION</b>	Meets the product standard's requirements.
<b>10.2.5 LIFTING</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.2.6 MECHANICAL IMPACT</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.2.7 INSCRIPTIONS</b>	Meets the product standard's requirements.
<b>10.3 DEGREE OF PROTECTION OF ASSEMBLIES</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.4 CLEARANCES AND CREEPAGE DISTANCES</b>	Meets the product standard's requirements.
<b>10.5 PROTECTION AGAINST ELECTRIC SHOCK</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.6 INCORPORATION OF SWITCHING DEVICES AND COMPONENTS</b>	Does not apply, since the entire switchgear needs to be evaluated.

## Resources

CATALOGUES	<a href="#">eaton-product-overview-for-machinery-catalogue-ca08103003zen-en-us.pdf</a> <a href="#">Product Range Catalog Switching and protecting motors</a>
CHARACTERISTIC CURVE	<a href="#">eaton-tripping-devices-z5-overload-relay-characteristic-curve-003.eps</a> <a href="#">eaton-tripping-z5-overload-relay-characteristic-curve.eps</a>
DECLARATIONS OF CONFORMITY	<a href="#">eaton-thermal-overload-relay-declaration-of-conformity-uk251268en.pdf</a> <a href="#">eaton-thermal-overload-relay-declaration-of-conformity-eu250785en.pdf</a>
DRAWINGS	<a href="#">eaton-tripping-devices-overload-relay-z5-overload-relay-dimensions.eps</a> <a href="#">eaton-tripping-devices-z5-overload-relay-3d-drawing.eps</a>
ECAD MODEL	<a href="#">ETN.139577.edz</a>
INSTALLATION INSTRUCTIONS	<a href="#">eaton-overload-relays-z5-zb150-il03407006z.pdf</a> <a href="#">IL026005ZU</a>
MCAD MODEL	<a href="#">z5_100_ff225a.dwg</a> <a href="#">z5_100_ff225a.stp</a>
SYSTEM OVERVIEW	<a href="#">eaton-contactors-system55-dilm-explosion-drawing.eps</a>
WIRING DIAGRAMS	<a href="#">eaton-tripping-devices-overload-relay-zeb-overload-relay-wiring-diagram.eps</a> <a href="#">eaton-general-release-zeb-overload-relay-wiring-diagram.eps</a>

<b>10.7 INTERNAL ELECTRICAL CIRCUITS AND CONNECTIONS</b>	Is the panel builder's responsibility.
<b>10.8 CONNECTIONS FOR EXTERNAL CONDUCTORS</b>	Is the panel builder's responsibility.
<b>10.9.2 POWER-FREQUENCY ELECTRIC STRENGTH</b>	Is the panel builder's responsibility.
<b>10.9.3 IMPULSE WITHSTAND VOLTAGE</b>	Is the panel builder's responsibility.
<b>10.9.4 TESTING OF ENCLOSURES MADE OF INSULATING MATERIAL</b>	Is the panel builder's responsibility.
<b>10.10 TEMPERATURE RISE</b>	The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
<b>10.11 SHORT-CIRCUIT RATING</b>	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
<b>10.12 ELECTROMAGNETIC COMPATIBILITY</b>	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
<b>10.13 MECHANICAL FUNCTION</b>	The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

<b>PROJECT NAME:</b>
<b>PROJECT NUMBER:</b>
<b>PREPARED BY:</b>
<b>DATE:</b>



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