DATASHEET - Z5-220/FF225A

Overload relay, Ir= 160 - 220 A, 1 N/O, 1 N/C, For use with: DILM185A, DILM225A

Part no.	**Z5-220/FF225A**
	139576
EL Number (Norway)	**4137391**

General specifications

Product name	Eaton Moeller® series Z5 Thermal overload relay
Part no.	Z5-220/FF225A
EAN	4015081363544
Product Length/Depth	146 millimetre
Product height	164 millimetre
Product width	128 millimetre
Product weight	1.5 kilogram
Certifications	IEC/EN 60947 UL File No.: E29184 CSA Class No.: 3211-03 VDE 0660 CSA-C22.2 No. 60947-4-1-14 CE CSA CSA File No.: 012528 UL Category Control No.: NKCR UL 60947-4-1 IEC/EN 60947-4-1 UL
Product Tradename	Z5
Product Type	Thermal overload relay
Product Sub Type	None
Catalog Notes	Ambient air temperature: Operating range to IEC/EN 60947 Rated operational current: Switch-on and switch-off conditions based on DC-13, time constant as specified.

Features & Functions

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

General information

Ambient operating temperature - min	-25 °C
Ambient operating temperature - max	60 °C
Ambient operating temperature (enclosed) - min	25 °C
Ambient operating temperature (enclosed) - max	40 °C
Class	CLASS 10 A
Climatic proofing	Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
Degree of protection	IP00
Mounting method	Direct mounting Separate mounting Direct attachment
Overload release current setting - min	160 A
Overload release current setting - max	220 A
Overvoltage category	III
Pollution degree	3
Product category	Overload relay Z5
Protection	With terminal cover, Protection against direct contact when actuated from front (EN 50274)
Rated impulse withstand voltage (Uimp)	4000 V (auxiliary and control circuits) 8000 V AC
Shock resistance	10 g, Mechanical, Sinusoidal, Shock duration 10 ms
Suitable for	Branch circuits, (UL/CSA)
Temperature compensation	Continuous ≤ 0.25 %/K, residual error for T > 40°

Terminal capacities

Terminal capacity (busbar)	25 mm width, Main connection
Terminal capacity (flexible with cable lug)	185 mm^2
Terminal capacity (flexible with ferrule)	1 x (0.75 - 2.5) mm^2, Control circuit cables 2 x (0.75 - 2.5) mm^2, Control circuit cables
Terminal capacity (solid)	1 x (0.75 - 4) mm^2, Control circuit cables 2 x (0.75 - 4) mm^2, Control circuit cables
Terminal capacity (solid/stranded AWG)	2/0 - 500 MCM, Main cables 2 x (18 - 14), Control circuit cables
Terminal capacity (stranded with cable lug)	185 mm^2
Width across flats	16 mm (Hexagon head spanner SW)
Stripping length (control circuit cable)	8 mm
Screw size	M3.5, Terminal screw, Control circuit cables M10 x 35, Terminal screw, Main connections
Screwdriver size	1 x 6 mm, Terminal screw, Control circuit cables, Standard screwdriver 2, Terminal screw, Control circuit cables, Pozidriv screwdriver
Tightening torque	18 Nm, Main cable connection screw/bolt 1.2 Nm, Screw terminals, Control circuit cables

Electrical rating

Conventional thermal current ith of auxiliary contacts (1-pole, open)	6 A
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) - max	1000 V
Safe isolation	500 V AC, Between main circuits, According to EN 61140 240 V AC, Between auxiliary contacts, According to EN 61140 440 V, Between auxiliary contacts and main contacts, According to EN 61140
Switching capacity (auxiliary contacts, pilot duty)	B600 at opposite polarity, AC operated (UL/CSA) R300, DC operated (UL/CSA) B300 at opposite polarity, AC operated (UL/CSA)
Voltage rating - max	600 V AC

Short-circuit rating

Short-circuit current rating (basic rating)	800 A Class L, max. Fuse, SCCR (UL/CSA) 800 A, max. CB, SCCR (UL/CSA) 10 kA, SCCR (UL/CSA)
Short-circuit protection rating	400 A gG/gL, Fuse, Type “2” coordination Max. 6 A gG/gL, fuse, Without welding, Auxiliary and control circuits 400 A gG/gL, Fuse, Type “1” coordination 315 A gG/gL, Fuse, Type “2” coordination 500 A gG/gL, Fuse, Type “1” 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

Equipment heat dissipation, current-dependent Pvid	37.8 W
Heat dissipation capacity Pdiss	0 W
Heat dissipation per pole, current-dependent Pvid	12.6 W
Rated operational current for specified heat dissipation (In)	220 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.
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.

Technical data ETIM 9.0

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@ss13-27-37-15-01 [AKF075019])			
Adjustable current range		A	160 - 220
Max. rated operation voltage Ue		V	1000
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 A
Reset function input			No
Reset function automatic			Yes
Reset function push-button			Yes

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