



Overload relay, 120-160A, 1N/0+1N/C

Part no. Z5-160/FF225A
Catalog No. 139575
Eaton Catalog No. XTOB160HC1
EL-Nummer (Norway) 4137390

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_r	A	120 - 160
Contact sequence			

Auxiliary contacts

N/O = Normally open			1 N/O
N/C = Normally closed			1 N/C
For use with			DILM185A DILM225A

Short-circuit protection

Type "1" coordination	gG/gL	A	400 400
Type "2" coordination	gG/gL	A	250 250

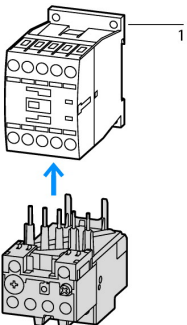
Notes

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	°C	-25 - +60
Enclosed	°C	- 25 - 40
Temperature compensation		Continuous
Weight	kg	1.55
Mechanical shock resistance	g	10 Sinusoidal Shock duration 10 ms
Degree of Protection		IP00
Protection against direct contact when actuated from front (EN 50274)		With terminal cover

Main conducting paths

Rated impulse withstand voltage	U _{imp}	V AC	8000
Overvoltage category/pollution degree			III/3
Rated insulation voltage	U _i	V	1000
Rated operational voltage	U _e	V AC	1000
Safe isolation to EN 61140			
Between auxiliary contacts and main contacts		V AC	500
Between main circuits		V AC	500
Temperature compensation residual error > 40°C			 0.25 %/K
Current heat loss (3 conductors)			
Lower value of the setting range		W	11
Maximum setting		W	20
Terminal capacities		mm ²	
Flexible with cable lug		mm ²	185
Stranded with cable lug		mm ²	185
Solid or stranded		AWG	2/0 - 500 MCM
Flat conductor	Lamellenzahl x Breite x Dicke	mm	6 x 16 x 0.8
Busbar	Width	mm	25
Terminal screw			M10 x 35
Tightening torque		Nm	18
Tools			
Hexagon head spanner	SW	mm	16

Auxiliary and control circuits

Rated impulse withstand voltage	U _{imp}	V	4000
Overvoltage category/pollution degree			III/3
Terminal capacities		mm ²	
Solid		mm ²	1 x (0.75 - 4) 2 x (0.75 - 4)
Flexible with ferrule		mm ²	1 x (0.75 - 2.5) 2 x (0.75 - 2.5)
Solid or stranded		AWG	2 x (18 - 14)
Terminal screw			M3.5
Tightening torque		Nm	0.8 - 1.2
Stripping length		mm	8
Tools			
Pozidriv screwdriver		Size	2
Standard screwdriver		mm	1 x 6
Rated insulation voltage	U _i	V AC	500
Rated operational voltage	U _e	V AC	500
Safe isolation to EN 61140			
between the auxiliary contacts		V AC	240
Conventional thermal current	I _{th}	A	6
Rated operational current	I _e	A	
AC-15			
Make contact			

120 V	I_e	A	1.5
220 V 230 V 240 V	I_e	A	1.5
380 V 400 V 415 V	I_e	A	0.5
500 V	I_e	A	0.5
Break contact			
120 V	I_e	A	1.5
220 V 230 V 240 V	I_e	A	1.5
380 V 400 V 415 V	I_e	A	0.9
500 V	I_e	A	0.8
DC-13 L/R - 15 ms			
24 V	I_e	A	0.9
60 V	I_e	A	0.75
110 V	I_e	A	0.4
220 V	I_e	A	0.2
Short-circuit rating without welding			
max. fuse		A gG/gL	6

Notes

Notes Ambient air temperature: Operating range to IEC/EN 60947
Rated operational current: Making and breaking conditions to DC-13, time constant as stated

Rating data for approved types

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

Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	I_n	A	160
Heat dissipation per pole, current-dependent	P_{vid}	W	8
Equipment heat dissipation, current-dependent	P_{vid}	W	24
Static heat dissipation, non-current-dependent	P_{vs}	W	0
Heat dissipation capacity	P_{diss}	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	60
IEC/EN 61439 design verification			
10.2 Strength of materials and parts			
10.2.2 Corrosion resistance			Meets the product standard's requirements.
10.2.3.1 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 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric 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 Insulation properties			
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.

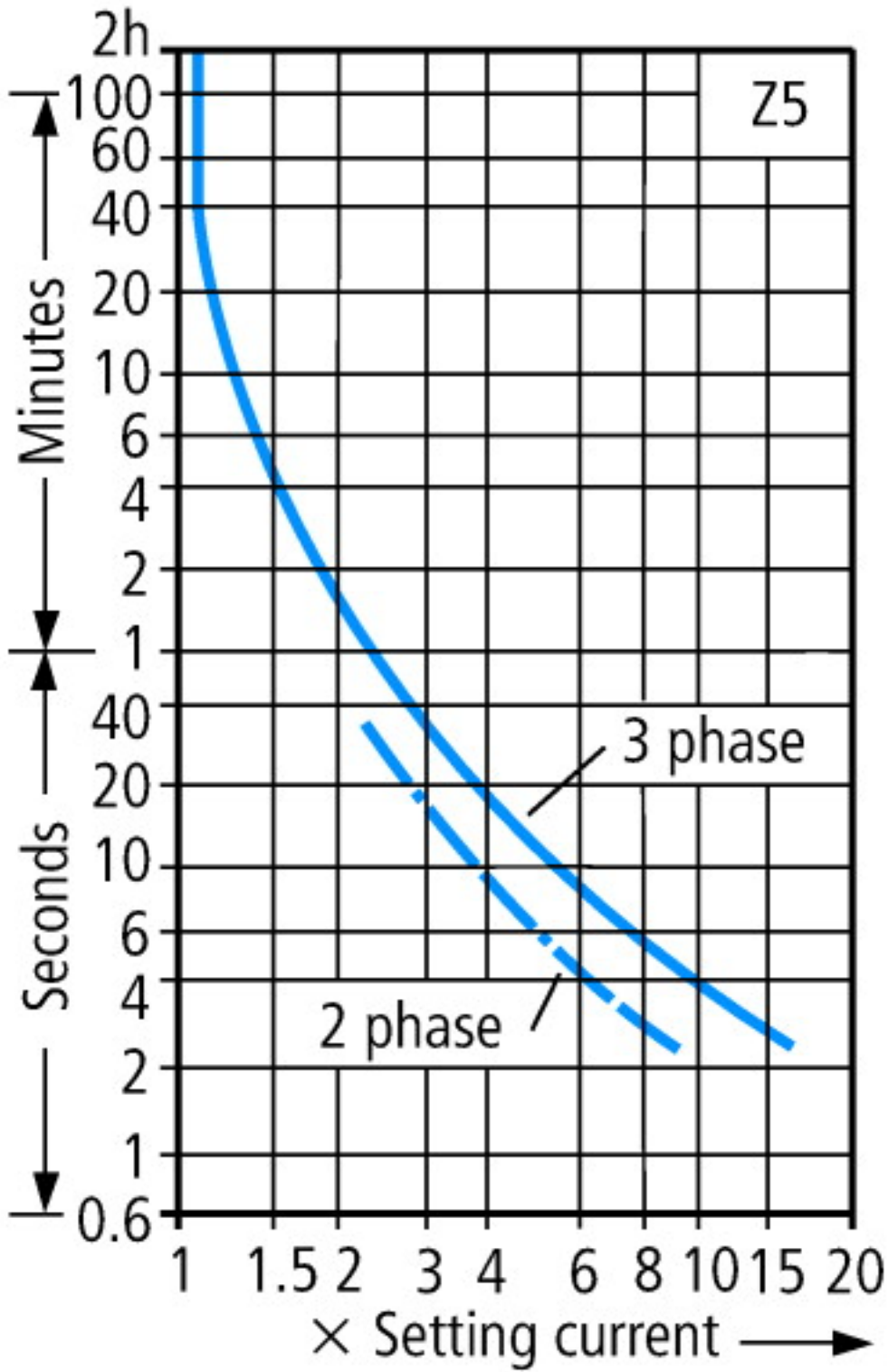
Technical data ETIM 6.0

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@ss8.1-27-37-15-01 [AKF075011])			
Adjustable current range		A	120 - 160
Max. rated operation voltage U _e		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			-

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



These tripping characteristics are mean values of the spread at 20 °C ambient temperature in a cold state. Tripping time depends on response current. On devices at operating temperature the tripping time of the overload relay drops to approx. 25 % of the read value. Specific characteristics for each individual setting range can be found in the manual.

