DATASHEET - ZB150-50

Overload relay, ZB150, Ir= 35 - 50 A, 1 N/O, 1 N/C, Direct mounting, IP00

Powering Business Worldwide™

Part no.	**ZB150-50**
Catalog No.	**278462**
Alternate Catalog No.	**XTOB050GC1**
EL-Nummer (Norway)	**4134232**

Delivery program

Product range			Overload relay ZB up to 150 A
Product range			Accessories
Accessories			Overload relays
Frame size			ZB150
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
	I_r	A	35 - 50
Contact sequence			
Auxiliary contacts			
N/O = Normally open			1 N/O
N/C = Normally closed			1 N/C
For use with			DILM80 DILM95 DILM115 DILM150 DILM170 DILMF80 DILMF95 DILMF115 DILMF150 DIULM80 DIULM95 DIULM115 DIULM150 SDAINLM140 SDAINLM165 SDAINLM200 SDAINLM260
Short-circuit protection			
Type “1” coordination	gG/gL	A	160
Type “2” coordination	gG/gL	A	125

Notes

Overload trigger: tripping class 10 A

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

Suitable for protection of Ex e-motors.

II(2)G [Ex d] [Ex e] [Ex px], II(2)D [Ex p] [Ex t]

PTB 10 ATEX 3010

Observe manual MN03407005Z-DE/EN.

Notes

Fitted directly to the contactor

1 Contactor
2 Bases

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			
			Operating range to IEC/EN 60947 PTB: -5 °C - +55 °C
Open		°C	-25 - +55
Enclosed		°C	- 25 - 40
Temperature compensation			Continuous
Weight		kg	1.193
Mechanical shock resistance		g	10 Sinusoidal Shock duration 10 ms
Degree of Protection			IP00
Protection against direct contact when actuated from front (EN 50274)			Finger and back-of-hand proof
Altitude		m	Max. 2000

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	440
Between main circuits		V AC	440
Temperatur compensation residual error > 40 °C			≦ 0.25 %/K
Current heat loss (3 conductors)			
Lower value of the setting range		W	10.6
Maximum setting		W	21.6
Terminal capacities		mm^2	
Solid		mm^2	1 x (4 - 16) 2 x (4 - 16)
Flexible with ferrule		mm^2	1 x (4 - 70) 2 x (4 - 70)
Stranded		mm^2	1 x (16 - 70) 2 x (16 - 70)
Solid or stranded		AWG	3/0
Terminal screw			M10
Tightening torque		Nm	10
Stripping length		mm	24
Tools			
Hexagon socket-head spanner	SW	mm	5

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	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 L/R ≦ 15 ms			
			Switch-on and switch-off conditions based on DC-13, time constant as specified.
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, PTB: -5°C to +55°C
Main circuits terminal capacity solid and flexible conductors with ferrules: When using 2 conductors use equal cross-sections.

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	5
max. Fuse		A	225
max. CB		A	200

Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	I_n	A	50
Heat dissipation per pole, current-dependent	P_{vid}	W	7.2
Equipment heat dissipation, current-dependent	P_{vid}	W	21.6
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	55
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 8.0

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	A	35 - 50
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

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.

Dimensions

① OFF
② Reset/ON

Additional product information (links)

IL03407006Z (AWA2300-1276) Overload relay	
IL03407006Z (AWA2300-1276) Overload relay	https://es-assets.eaton.com/DOCUMENTATION/AWA_INSTRUCTIONS/IL03407006Z2021_11.pdf
MN03407005Z (AWB2300-1545) ZB65 and ZB150 overload relays - overload monitoring of Ex e motors	
MN03407005Z (AWB2300-1545) ZB65 and ZB150 overload relays - overload monitoring of Ex e motors - Deutsch / English	https://es-assets.eaton.com/DOCUMENTATION/AWB_MANUALS/MN03407005Z_DE_EN.pdf