DATASHEET - ZB12-4



Overload relay, ZB12, Ir= 2.4 - 4 A, 1 N/O, 1 N/C, Direct mounting, IP20



Part no.	ZB12-4
Catalog No.	278438
Alternate Catalog	XTOB004BC1
No.	
EL-Nummer	4131833
(Norway)	

Similar to illustration

Delivery program

Product rangeOverload relay 28 up to 150 AProduct rangeAccessoriesAccessoriesOverload relay 38 up to 150 AAccessoriesOverload relay 38 up to 150 AFrame sizeImage: AccessoriesPhase-failure sensitivityImage: AccessoriesDescriptionImage: AccessoriesMounting typeImage: AccessoriesMounting typeImage: AccessoriesContact sequenceImage: AccessoriesNO = Normally openImage: AccessoriesNO = Normally closedImage: AccessoriesFor use withImage: AccessoriesNO = Normally closedImage: AccessoriesFor use withImage: AccessoriesImage: Acces				
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Frame size Image: Size Size Phase-failure sensitivity Image: Size Image: Size Description Image: Size Image: Size Mounting type Image: Size Image: Size Image: Size Image: Size Image: Size Contact sequence Image: Size Image: Size Image: Size Image: Size Image: Size NO = Normally open Image: Size Image: Size NO = Normally closed Image: Size Image: Size For use with Image: Size Image: Size Stort-circuit protection Image: Size Image: Size Type "1" coordination Image: Size Image: Size Type "1" coordination Image: Size Image: Size	Product range			Accessories
Phase-failure sensitivity ECK 80947, VDE 0660 Part 102 Description Isolation Mounting type Isolation Image: sensitivity Image: sensitivity Mounting type Image: sensitivity Image: sensitivity Image: sensitivity Image: sensitivity Image: sensitivity Mounting type Image: sensitivity Image: sensitivity Image: sensitivity <t< td=""><td>Accessories</td><td></td><td></td><td>Overload relays</td></t<>	Accessories			Overload relays
Description Ised of button Reset pushbutton manual/auto Mounting type Direct mounting Image: Sequence Image: Sequence Image: Sequence Contact sequence Image: Sequence Image: Sequence N/0 = Normally open Image: Sequence Image: Sequence N/0 = Normally open Image: Sequence Image: Sequence N/0 = Normally open Image: Sequence Image: Sequence For use with Image: Sequence Image: Sequence Short-circuit protection Image: Sequence Image: Sequence Type "1" coordination Sed of the time of time of the time of the time of time	Frame size			ZB12
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Ir A 24-4 Contact sequence Ir A Auxiliary contacts Ir Ir N/0 = Normally open Ir Ir N/C = Normally closed Ir Ir For use with Ir Ir Short-circuit protection Ir Ir Ir Graduate Ir Ir Ir Ir Short-circuit protection Ir Ir Ir Graduate Ir Ir Graduate Ir Ir Ir Ir <td>Description</td> <td></td> <td></td> <td>Reset pushbutton manual/auto</td>	Description			Reset pushbutton manual/auto
Contact sequence Image: Second sequence Contact sequence Image: Second sequence Auxiliary contacts Image: Second sequence N/0 = Normally open 1N/0 N/C = Normally closed 1N/C For use with Image: Second sequence Short-circuit protection Image: Second sequence Type "1" coordination G/gL A Sfort - ircuit protection Second sequence	Mounting type			Direct mounting
Auxiliary contacts Image: Contact of the second of the s	द	l _r	A	2.4 - 4
N/O = Normally openI N/ON/C = Normally closedI N/CFor use withJILM7, DILM9, DILM12, DILM15, DIULM7, DIULM9, DIULM12, SDAINLM12, SDAINLM14, SDAINLM12, SD	Contact sequence			
N/C = Normally closedI/CFor use withI/I/CShort-circuit protectionIII/CType "1" coordinationIIII To coordinationIIIII CoordinationIIIIII CoordinationIIIIII CoordinationIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Auxiliary contacts			
For use withIILM7, DILM9, DILM12, DILM15, DILM15, DILM12, DIL	N/O = Normally open			1 N/O
Short-circuit protection gG/gL A 25	N/C = Normally closed			1 N/C
Type "1" coordination gG/gL A 25	For use with			DIULM7, DIULM9, DIULM12, SDAINLM12, SDAINLM16, SDAINLM22
ф	Short-circuit protection			
Type "2" coordination gG/gL A 16		gG/gL	А	25
Ψ	Type "2" coordination	gG/gL	A	16

Notes

Overload release: tripping class 10 A

short-circuit protective device: Observe the maximum permissible fuse of the contactor with direct device mounting.

Suitable for protection of Ex e-motors.

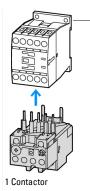


II(2)G [Ex d] [Ex e] [Ex px], II(2)D [Ex p] [Ex t]

PTB 10 ATEX 3010

Observe manual MN03407005Z-DE/EN.

Notes Fitted directly to the contactor



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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	0.142
Mechanical shock resistance		g	10 Sinusoidal Shock duration 10 ms
Degree of Protection			IP20
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	6000
Overvoltage category/pollution degree			111/3
Rated insulation voltage	Ui	V	690
Rated operational voltage	U _e	V AC	690
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 $^{\rm o}{\rm C}$			≦ 0.25 %/K
Current heat loss (3 conductors)			
Lower value of the setting range		W	2.2
Maximum setting		W	6
Terminal capacities		mm ²	
Solid		mm ²	1 x (1 - 6) 2 x (1 - 6)
Flexible with ferrule		mm ²	1 x (1 - 4) 2 x (1 - 4)
Solid or stranded		AWG	18 - 8
Terminal screw			M4
Tightening torque		Nm	1.8
Stripping length		mm	10
Tools			
Pozidriv screwdriver		Size	2
Standard screwdriver		mm	1 x 6
Auxiliary and control circuits			
Rated impulse withstand voltage	U _{imp}	V	4000
Overvoltage category/pollution degree			111/3
Terminal capacities		mm ²	
Solid		mm ²	1 x (0.75 - 4)

			2 × (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	Ui	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}	А	6
Rated operational current	le	А	
AC-15			
Make contact			
120 V	le	А	1.5
220 V 230 V 240 V	Ι _e	А	1.5
380 V 400 V 415 V	le	А	0.5
500 V	le	А	0.5
Break contact			
120 V	۱ _e	А	1.5
220 V 230 V 240 V	le	А	1.5
380 V 400 V 415 V	le	A	0.9
500 V	l _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	le	A	0.9
60 V	Ι _e	A	0.75
110 V	Ι _e	A	0.4
220 V	Ι _e	A	0.2
Short-circuit rating without welding			
max. fuse		A gG/gL	6
Notes			

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	
600 V High Fault		
SCCR (fuse)	kA	100
max. Fuse	А	6 Class J/CC

Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	l _n	А	4
Heat dissipation per pole, current-dependent	P _{vid}	W	2
Equipment heat dissipation, current-dependent	P _{vid}	W	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 7.0

Low-voltage industrial components (EG000017) / Thermal overload relay (EC000106)

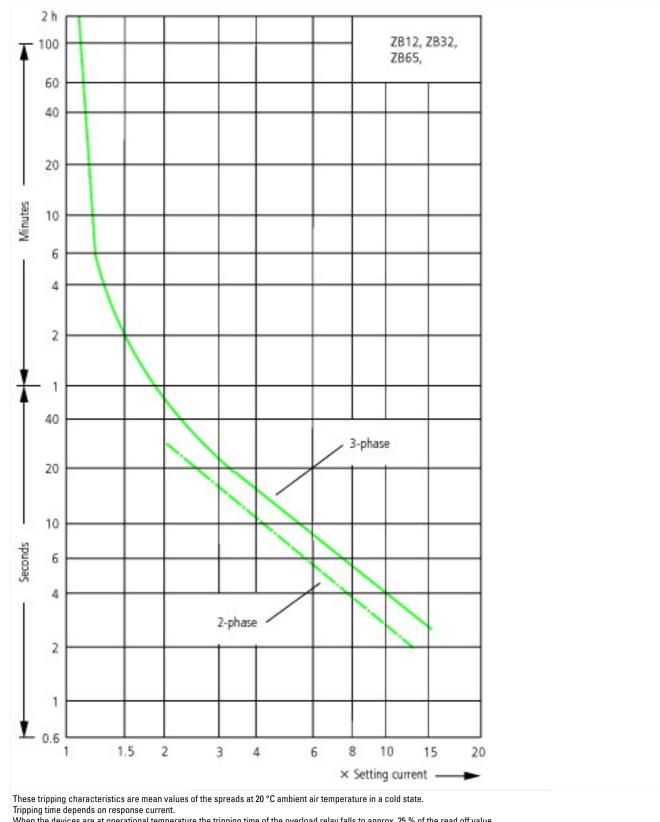
Electric engineering, automation, process control engineering / Low-voltage switch technology / Overload protection device / Thermal overload relay (ecl@ss10.0.1-27-37-15-01 [AKF075014])				
Adjustable current range		Α	2.4 - 4	
Max. rated operation voltage Ue		V	690	
Mounting method			Direct attachment	
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	D V AC
Degree of Protection	IEC:	C: IP20, UL/CSA Type: -

Characteristics



When the devices are at operational temperature the tripping time of the overload relay falls to approx. 25 % of the read off value.

1: Minimum level, 3-phase

2: Maximum level, 3-phase

3: Minimum marker, 2-phase 4: Highest marker, 2-phase

Dimensions

