DATASHEET - ZB12-0,16



Overload relay, ZB12, Ir= 0.1 - 0.16 A, 1 N/O, 1 N/C, Direct mounting, IP20



Part no.	ZB12-0.16
Catalog No.	278431
Alternate Catalog	XTOBP16BC1
No.	
EL-Nummer	0004131826
(Norway)	

Similar to illustration

Delivery program

Product range			Overload relay ZB up to 150 A
Product range			Accessories
Accessories			Overload relays
Frame size			ZB12
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
с‡	l _r	A	0.1 - 0.16
Contact sequence			$\begin{array}{c c} & 97 & 95 \\ \hline \\ \hline \\ 2 & 4 & 6 & 98 & 96 & A2 \\ 2 & 4 & 6 & 98 & 96 & A2 \\ 2 & 2 & 4 & 6 \end{array}$
Auxiliary contacts			
N/O = Normally open			1 N/O
N/C = Normally closed			1 N/C
For use with			DILM7, DILM9, DILM12, DILM15, DIULM7, DIULM9, DIULM12, SDAINLM12, SDAINLM16, SDAINLM22
Short-circuit protection			
Type "1" coordination	gG/gL	A	25
Type "2" coordination	gG/gL	A	0.5

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.

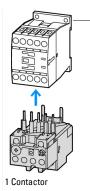


II(2)G [Ex d] [Ex e] [Ex px], II(2)D [Ex p] [Ex t]

PTB 10 ATEX 3010

Observe manual MN03407005Z-DE/EN.

Notes Fitted directly to the contactor



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Technical data

Rated impulse withstand voltage Uimp V 400 Overvoltage category/pollution degree III/3 III/3 Terminal capacities mm ² III/3	General			
Ambient Ampositor partially interfaction (Constraints in ECCEN 6004) Ambient Ampositor Prime is the constraints (Constraints in ECCEN 6004) Bignen Constraints in ECCEN 6004) Bignen Since 6004 Bignen	Standards			IEC/EN 60947, VDE 0660, UL, CSA
Image: Procession and and controls in the section of the sectin of the section of the section of the section of the se	Climatic proofing			
Open FBL 5°C FBL 5°C Open FBL 5°C SPC Enclosed FC S-S-S Temperature composition FC S-S-A Weight FR Second Second Mechnical block resistance FR Second Second Degree of Protection FR Second Second Patterion sequestification contract Weight contract (FBMS274) FR Second Second Patterion sequestification contract Weight contract (FBMS274) FR Second Second Patterion sequestification contract Weight contract (FBMS274) FR Second Second Patterion sequestification contract Weight contract (FBMS274) FR Second Second Patterion Second Patterion S	Ambient temperature			
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Temperature compensation Image: section <	Open		°C	-25 - +55
WeightIsIsIsIsMechanical shock resistanceIsIsIsIsIsDerare of ProtectionIsIsIsIsIsProtection against first contact when actuated from from (EN 50224)ImIs <td< td=""><td>Enclosed</td><td></td><td>°C</td><td>- 25 - 40</td></td<>	Enclosed		°C	- 25 - 40
Markanical abok resistance Name Name <th< td=""><td>Temperature compensation</td><td></td><td></td><td>Continuous</td></th<>	Temperature compensation			Continuous
Image: set of the set of th	Weight		kg	0.141
Protection against direct contact when actuated from from FIQN 502244Final and back-of-hand proofAiture does a contact from from FIQN 502244Nax 2000Main contact from from FIQN 502244VampVampVampReter from from from from FIQN 502244VampVampVampReter from from from from FIQN 502244VampVampVampReter from from from from from from from fro	Mechanical shock resistance		g	Sinusoidal
Altide n Max 200 Hater conducting paths 500 Read insultor voltage 600 Overvoltage catagory/pollution degree 90 Read insultor voltage Va 90 Read insultor voltage Va 90 Read insultor voltage Va 90 Sate voltage interview Va 90 Sate voltage interview Va 90 Current heat loss 12 conductors) Va 90 Lower value of the sating range Ma 90 Satid Sate voltage Na 11 Sate voltage Na 90 12 Inversitiem Na Na 11 Sate voltage interview Na 12 12 Sate voltage interview Na 12 12 Sate voltage interview Na 13 12 Sate	Degree of Protection			IP20
Anic orducting pathsVanoVanoVanoVanoMonoRetad impulse withstand voltageImportImportImportImportRetad insultation voltageImportImportImportImportRetad insultation voltageImportImportImportImportRetad insultation voltageImportImportImportRetad insultation voltageImport	Protection against direct contact when actuated from front (EN 50274)			Finger and back-of-hand proof
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Overvitege extegory/polution degreeImage: solution degreeIm				
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Reted operational voltage Ue VAC 60 Setives auxiliary contacts and main contacts VAC 40 Between auxiliary contacts and main contacts VAC 40 Between main circuits VAC 505 %K Temperatur compensation residual error > 40 °C VAC 505 %K Current bat loss (3 conductors) VAC 505 %K Maximum setting VAC 70 70 Maximum setting range VAC 70 70 Solid Maximum setting WA 70 Solid or stranded VAC 81-8 Stranded recentrier Maximum setting Maximum setting Solid or stranded Maximum setting Maximum setting	Overvoltage category/pollution degree			III/3
Safe isolation to EN 61140 Feed VAC 40 Between main circuits VAC 40 Temperatur compensation residual error > 40 °C VAC 40 Current heat loss (3 conductors) VAC 40 Lower value of the setting range VAC 40 Maximum setting VAC 40 Terminal capacities VAC 40 Solid Marin VAC 40 Solid or stranded VAC 40 40 Terminal carge Marin VAC 40 Solid or stranded VAC 40 50 Solid or stranded VAC Marin 50 Terminal carge VAC Marin 50 Solid or stranded VAC 40 50 Solid or stranded VAC Marin 50 Terminal carge VAC Marin 50 Solid or stranded VAC Marin 50 Terminal carge VAC Marin 50 Solid or stranded VAC Marin 50 Terminal carge VAC Marin 50 Solid or stranded VAC 50 50 Pacitiry screwdriver Solid or stranded </td <td>Rated insulation voltage</td> <td>Ui</td> <td>V</td> <td>690</td>	Rated insulation voltage	Ui	V	690
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Between main circuits VAC 40 Temperatur compensation residual error > 40 °C 52 %/K Current heat loss (3 conductors) VM 1 Lower value of the setting range VM 5.4 Maximum setting mn2 1.4 (1.6) Solid mn2 1.4 (1.6) Solid or stranded VM 8.8 Terminal screw MM 1.8 (1.6) Total screwdriver Size mn2 1.4 (1.6) Total screwdriver Size MA MA Total screwdriver Size MM 1.8 (1.6) Total screwdriver Size Size MM Total screwdriver Size Size 1.6 Total screwdriver Size 1.6 1.6 Total screwdriver Size 1.6 1.6 Coervoltage category/pollution degree Mm 1.6 1.6	Safe isolation to EN 61140			
Imperatur compensation residual error > 40°C Imperatur compensation residual error >	Between auxiliary contacts and main contacts		V AC	440
Current heat los (3 conductors) Image:	Between main circuits		V AC	440
Lover value of the setting range N 2 Maximum setting Solid Solid Solid Terminal capacities mmail Image: Solid Solid Solid mmail Solid Solid Solid Flexible with ferrule mmail Solid Soli	Temperatur compensation residual error > 40 $^{\rm o}{\rm C}$			≦ 0.25 %/K
Maximum setting Maximum setting 54 Terminal capacities ma ² x11 - 6) Solid ma ² x11 - 6) Flexible with ferrule ma ² x11 - 4) Solid or stranded AWG 8-8 Terminal screw Maximum setting Maximum setting Toting forque Maximum setting Maximum setting Toting forque Maximum setting Maximum setting Toting screwdriver Maximum setting Maximum setting Toting screwdriver Maximum setting Maximum setting Totard screwdriver Maximum setting Maximum setting Auxiliary and control circuits Maximum setting Maximum setting Auxing setting set	Current heat loss (3 conductors)			
Terminal capacities Image:	Lower value of the setting range		W	2.1
Solid mm ² x(1 - 6) Flexible with ferrule mm ² x(1 - 4) Solid or stranded AWG 8-8 Terminal screw MM 8-8 Tightening torque MM 8-8 Tightening torque MM 8-8 Torping length MM 8-8 Tools MM 18-0 Pozidriv screwdriver MM 19-0 Standard screwdriver MM 19-0 Atkliary and control circuits Mm 19-0 Read impulse withstand voltage Ming Ym Overvoltage category/pollution degree Ming Ym Imming capacities Mm ² MM	Maximum setting		W	5.4
Image:	Terminal capacities		mm ²	
Solid or stranded Solid or stran	Solid		mm ²	
Terminal screwMainMainTightening torqueNm1.8Stripping lengthnm0ToolsNm1.8Pozidriv screwdriverNm1.8Standard screwdriverSize1Rated impulse withstand voltageMain1.8Overvoltage category/pollution degreeMain1/10Immain LapacitiesMainMain	Flexible with ferrule		mm ²	
Tightening torque Nm 18 Stripping length mm 10 Tools nm 10 Pozidriv screwdriver Size Nm 1x6 Standard screwdriver mm 1x6 Auxiliary and control circuits Vimp Vimp 400 Overvoltage category/pollution degree Mm 11/3 Terminal capacities mm ² 11/3	Solid or stranded		AWG	18 - 8
Stripping length mm 10 Tools Mm 10 Pozidriv screwdriver Size 2 Standard screwdriver mm 1x6 Auxiliary and control circuits Imp 400 Overvoltage category/pollution degree Imp 11/3 Terminal capacities Imp Imp	Terminal screw			M4
Tools Image: Marcine stream of the stream	Tightening torque		Nm	1.8
Pozidriv screwdriver Size Size Standard screwdriver mm 1 × 6 Auxiliary and control circuits Vimp V 4000 Overvoltage category/pollution degree III/3 III/3	Stripping length		mm	10
Standard screwdriver mm 1 x 6 Auxiliary and control circuits I x 6 Rated impulse withstand voltage Vimp V Overvoltage category/pollution degree III/3 Terminal capacities mm ²	Tools			
Auxiliary and control circuits Rated impulse withstand voltage Vimp V 4000 Overvoltage category/pollution degree III/3 III/3	Pozidriv screwdriver		Size	2
Rated impulse withstand voltage Uimp V 400 Overvoltage category/pollution degree III/3 III/3 Terminal capacities mm ² III/3	Standard screwdriver		mm	1 x 6
Overvoltage category/pollution degree III/3 Terminal capacities III/3	Auxiliary and control circuits			
Terminal capacities mm ²	Rated impulse withstand voltage	U _{imp}	V	4000
	Overvoltage category/pollution degree			111/3
Solid 1 x (0.75 - 4)	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	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	Ι _e	А	1.5
220 V 230 V 240 V	Ι _e	А	1.5
380 V 400 V 415 V	۱ _e	А	0.5
500 V	Ι _e	А	0.5
Break contact			
120 V	Ie	A	1.5
220 V 230 V 240 V	Ie	A	1.5
380 V 400 V 415 V	Ι _e	A	0.9
500 V	le	A	0.8
DC L/R ≦ 15 ms			
			Switch-on and switch-off conditions based on DC-13, time constant as specified.
24 V	۱ _e	A	0.9
60 V	Ι _e	A	0.75
110 V	I _e	A	0.4
220 V	Ι _e	А	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	1 Class J/CC

Design verification as per IEC/EN 61439

•			
Technical data for design verification			
Rated operational current for specified heat dissipation	I _n	А	0.16
Heat dissipation per pole, current-dependent	P _{vid}	W	1.8
Equipment heat dissipation, current-dependent	P _{vid}	W	5.4
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 leafiet (IL) is observed.

Technical data ETIM 7.0

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

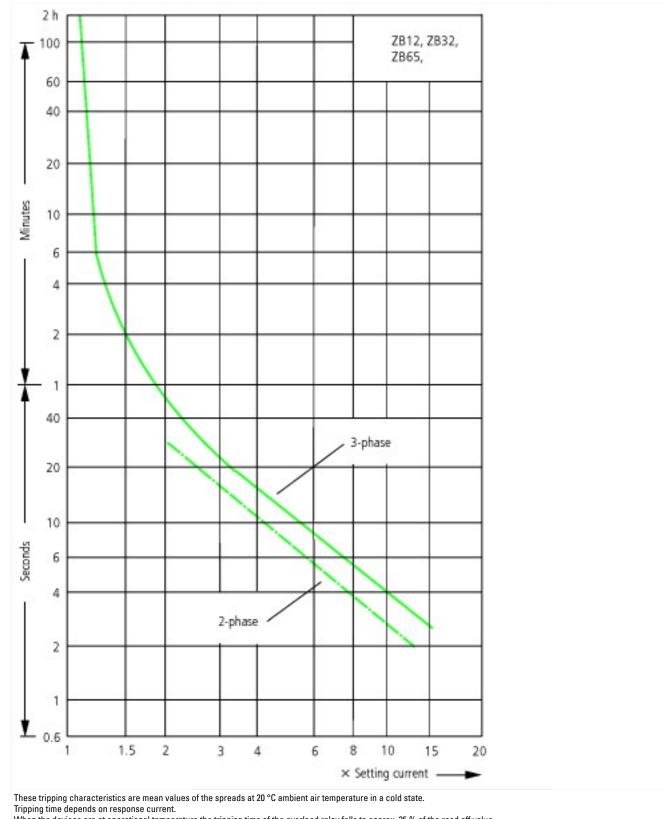
Electric engineering, automation, process control engineering / Low-voltage switch technology / Overload protection device / Thermal overload relay (ecl@ss10.0.1-27-37-15-01 [AKF075014])				
Adjustable current range		А	0.1 - 0.16	
Max. rated operation voltage Ue		V	690	
Mounting method			Direct attachment	
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

