

Overload relay, 6 - 10 A, 1N/O+1N/C

Part no. ZB12-10 Article no. 278440 Catalog No. XTOB010BC1



Delivery program

Donvoly 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
中	I _r	А	6 - 10
Contact sequence			97 95 2 4 6 98 96 A2 14/ 22
Auxiliary contacts			
N/0 = Normally open			1 N/0
N/C = Normally closed			1 N/C
For use with			DILM7, DILM9, DILM12, DILM15, DIULM7, DIULM9, DIULM12, SDAINLM12, SDAINLM16, SDAINLM22 DS7-34SX007 DS7-34SX009
Short-circuit protection			
Type "1" coordination	gG/gL	Α	50
Type "2" coordination	gG/gL	Α	25

Notes

Overload release: tripping class 10 A

 $short\text{-}circuit\ protective\ device:}\ Observe\ the\ maximum\ permissible\ fuse\ of\ the\ contactor\ with\ direct\ device\ mounting.$

Suitable for protection of EEx $\ensuremath{^\circ} e\text{-motors}.$



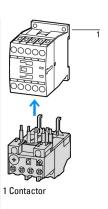
II(2)G [Ex d] [Ex e] [Ex px], II(2)D [Ex p] [Ex t]

PTB 04 ATEX 3022

Observe manual AWB2300-1527D/GB.

Notes

Fitted directly to the contactor



Technical data

Standards Climatic proofing Climatic proofing Ambient temperature Popen Open Open Open Climatic proofing Open Open Open Open Open Open Open Open	General			
Climatic protoing				IFC/FN 60947 VDF 0660 LII CSA
Depen				Damp heat, constant, to IEC 60068-2-78
Open	Ambient temperature			
Professional				
Temperature componsation Weighet Machanical shock resistance Machanical shock resistance Degree of Protection Protection against direct contact when actuated from front (61 50274) Marked implies withstand voltage Retad implies withstand voltage Retad operational voltage Retad o	Open		°C	-25 - +55
	Enclosed		°C	- 25 - 40
Mechanical shock resistance Degree of Protestion Degree of Protestion Degree of Protestion Main conducting paths Medic impulse withstand voltage Devrolage actagory/pollution degree Rated impulse withstand voltage Devrolage actagory/pollution degree Rated operational voltage Rated	Temperature compensation			Continuous
Degree of Protection Final Security of Protection against direct contact when actuated from front (EN 50274) Final Conduction against direct contact when actuated from front (EN 50274) Final Conduction against direct contact when actuated from front (EN 50274) Final Conduction against direct contact when actuated from front (EN 50274) Final Conduction against direct contact when actuated from front (EN 50274) Final Conduction against direct contact when actuated from front (EN 50274) Jeach conduction against direct contact when actuated from front (EN 50274) Jeach conduction against direct contact contact against an including contact and main contacts Jeach conduction against and front contacts Jeach conduction against an including contact and main contacts Jeach conduction against against and front contacts Jeach conduction against against against an including contact and main contacts Jeach conduction against again	Weight		kg	0.15
Protection against direct contact when actuated from front (EN 50274) Image: Ima	Mechanical shock resistance		g	Sinusoidal
Main conducting paths Vimp path with stand voltage Vimp path with stand voltage Vimp path path path path path path path pat	Degree of Protection			IP20
Reted impulse withstand voltage Ump VAC 000 Overvoltage category/pollution degree U1 V2 103 Rated parational voltage U2 VAC 900 Reture parational voltage U2 VAC 900 Sele isolation to EN 61140 W2 44 440 Between auxiliary contacts and main contacts VAC 400 400 Elever namic circuits VAC 400 400 Temperatur compensation residual error > 40 °C VAC 400 400 Lower value of the setting range VAC 40 22 Maximum setting VAC 40 40 Solid Mary 2 2 Solid of straw VAC 40 40 Tempinal capacities VAC 40 40 Tempinal straw VAC 40 40 Tempinal capacities VAC 40 40 Tempinal capacities rewerdiner VAC X1-4 40 Tempinal capacities rewerdiner				Finger and back-of-hand proof
Overvoltage category/pollution degree Ui V 699 Rated insulation voltage Ue VAC 690 Safe isolation to RN 61140 VAC 690 Between auxiliary contacts and main contacts VAC 440 Between main circuits VAC 440 Temperatur compensation residual error > 40 °C VAC 40 Current heat loss (3 conductors) W 2.2 Maximum setting W 2.2 Terminal capacities mm² 2.4 °L · 6) Flexible with ferrule mm² 2.4 °L · 6) Solid or stranded mm² 2.4 °L · 6) Solid or stranded mm² 2.4 °L · 6) Terminal screw mm² 1.8 °R Solid screwdriver<	Main conducting paths			
Rated insulation voltage U _I V AC 890 Safe isolation to EN 61140 V AC 40 Between auxiliary contacts and main contacts V AC 40 Between main circuits V AC 40 Temperatur compensation residual error > 40°C V AC 40 Current heat loss (3 conductors) V AC 525 %/K Current heat loss (3 conductors) W 6 Maximum setting W 6 Tominal capacities mm² 2 × (1 - 6) Flexible with ferrule mm² 2 × (1 - 4) Solid or stranded mm² 1 - 8 Tominal capacities mm² 2 × (1 - 4) Terminal screw mm² 1 - 8 Tominal prorque Nm 1 - 8 Tominal prorque Size 2 × (1 - 4) Terminal screw Size 3 × (2 - 4) Tominal capacities Nm 1 × (2 - 4) Tominal capacities Size 3 × (2 - 4) Tominal capacities Nm 2 × (2 - 4) Tomina	Rated impulse withstand voltage	U _{imp}	V AC	6000
Rated operational voltage Safe isolation to EN 61140 Between auxiliary contacts and main contacts Between main circuits Temperatur compensation residual error > 40 °C Current heat loss (3 conductors) Lower value of the setting range Maximum setting Terminal capacities Solid Flexible with ferrule Solid or stranded Temperatur compensation Flexible with facture Pozidiri s crewdriver Standard s crewdriver Rated impulse withstand voltage Overottage category/pollution degree Terminal capacities Rated impulse with ferrule Solid Solid Pozidiry and control circuits Rated impulse with stand voltage Overottage category/pollution degree Flexible with ferrule Solid Flexible with ferrule Solid	Overvoltage category/pollution degree			111/3
Safe isolation to EN 61140 V AC 440 Between auxiliary contacts and main contacts V AC 440 Between main circuits V AC 440 Temperatur compensation residual error > 40 °C ✓ AC 440 Current heat loss (3 conductors) ✓ V AC ✓ V Lower value of the setting range W 2.2 Maximum setting W 6 Terminal capacities mm² 2 × (1 - 6) Flexible with ferrule mm² 2 × (1 - 4) Solid or stranded AVVG 18 - 8 Terminal screw M4 440 Tightening torque Nm 1.8 Tools Nm 1.8 Pozidriv screwdriver Size 2 Standard screwdriver mm 1 x 6 Standard screwdriver mm 1 x 6 Auxiliary and control circuits mm² 1 x 6 Terminal capacities mm² 2 x (0.75 - 4) Flexible with ferrule mm² 2 x (0.75 - 4) Auxiliary and control circuits	Rated insulation voltage	Ui	V	690
Between auxiliary contacts and main contacts Between main circuits Temperatur compensation residual error > 40 °C Current heat loss (3 conductors) Lower value of the setting range Maximum setting Terminal capacities Solid Flexible with ferrule Solar crewdriver Standard screwdriver Standard screwdriver Standard screwdriver Rated impulse withstand voltage Overvoltage category/pollution degree Flexible with ferrule Solid Flexible with ferrule Solid Solid Flexible with ferrule Solid Flexible with ferrule Solid Flexible with ferrule Solid Solid Flexible with ferrule Flexible with ferrule Solid Flexible with ferrule Flexible with flexible with ferrule F	Rated operational voltage	U _e	V AC	690
Between main circuits V AC 440 Temperatur compensation residual error > 40 °C ≤ 0.25 %/K Current heat loss (3 conductors) ✓ 22 Lower value of the setting range ✓ 6 Maximum setting ✓ 6 Terminal capacities mm² 2 × (1 - 6) Solid mm² 2 × (1 - 4) Flexible with ferrule AWG 18 Solid or stranded Nm 1.8 Torminal screw Nm 1.8 Tools Vm 5 ize 2 Pozidriv screwdriver Size 2 Standard screwdriver mm 1 × 6 Auxiliary and control circuits III/3 Terminal capacities mm² 5000 Terminal capacities mm² 2 × (0.75 - 4) Flexible with ferrule mm² 2 × (0.75 - 2.5)	Safe isolation to EN 61140			
Temperatur compensation residual error > 40 °C Current heat loss (3 conductors) Lower value of the setting range Maximum setting W 22 Maximum setting W 6 Terminal capacities mm² 2x(1-6) Flexible with ferrule Solid or stranded Flexible with ferrule Solid or stranded Terminal screw M4 Tightening torque Tools Pozidriv screwdriver Standard screwdriver Standard screwdriver M4 Standard screwdriver M6 Standard screwdriver Standard screwdriver M9 Standard screwdriver M9 Standard screwdriver M9 Standard screwdriver M9 Standard screwdriver Standard screwdriver M9 Stan	Between auxiliary contacts and main contacts		V AC	440
Current heat loss (3 conductors) W 2.2 Maximum setting W 6 Terminal capacities mm²	Between main circuits		V AC	440
Lower value of the setting range W 2.2 Maximum setting W 6 Terminal capacities mm²	Temperatur compensation residual error > 40 $^{\circ}$ C			≤ _{0.25 %/K}
Maximum setting Terminal capacities Solid Mm² Solid Flexible with ferrule Solid or strended Terminal screw Tools Pozidriv screwdriver Standard screwdriver Standard screwdriver Standard screwdriver Standard screwdriver Standard screwdriver Standard screwdriver Auxiliary and control circuits Rated impulse withstand voltage Overvoltage category/pollution degree Terminal capacities Solid Flexible with ferrule Solid Flexible with ferrule Solid Ma 2x (1 - 6) M4 4 Auxiliary 1.8 6 6 6 6 7 8 8 9 9 9 9 9 9 9 9 9 9 9	Current heat loss (3 conductors)			
Terminal capacities mm² Solid mm² 2 x (1 - 6) Flexible with ferrule mm² 2 x (1 - 4) Solid or stranded AWG 18 - 8 Terminal screw M4 Tightening torque Nm 1.8 Tools Viang 1 x 6 Pozidriv screwdriver Size 2 Standard screwdriver mm 1 x 6 Auxiliary and control circuits Vimp V 6000 Overvoltage category/pollution degree III/3 III/3 Terminal capacities mm² 2 x (0.75 - 4) Solid mm² 2 x (0.75 - 2.5)	Lower value of the setting range		W	2.2
Solid mm² 2 x (1 - 6) Flexible with ferrule mm² 2 x (1 - 4) Solid or stranded AWG 18 - 8 Terminal screw M4 Tightening torque Nm 1.8 Tools Size 2 Pozidriv screwdriver Size 2 Standard screwdriver mm 1 x 6 Auxiliary and control circuits Nate of the properties	Maximum setting		W	6
Flexible with ferrule Solid or stranded AWG 18 - 8 Terminal screw M4 Tightening torque Mm 1.8 Tools Pozidriv screwdriver Standard screwdriver Auxiliary and control circuits Rated impulse withstand voltage Overvoltage category/pollution degree Solid Flexible with ferrule Flexible with ferrule Mm 2 × (0.75 - 2.5)	Terminal capacities		mm ²	
Solid or stranded AWG 18 - 8 Terminal screw M4 Tightening torque Pozidriv screwdriver Pozidriv screwdriver Standard screwdriver Standard screwdriver Auxiliary and control circuits Rated impulse withstand voltage Overvoltage category/pollution degree Terminal capacities Solid Flexible with ferrule AWG 18 - 8 M4 600 1.8 600 1.8 600 600 600 600 600 600 600 6	Solid		mm ²	2 x (1 - 6)
Terminal screw Tightening torque Tools Pozidriv screwdriver Size 2 Standard screwdriver mm 1 x 6 Auxiliary and control circuits Rated impulse withstand voltage Uimp V 6000 Overvoltage category/pollution degree Terminal capacities Solid mm² 2 x (0.75 - 4) Flexible with ferrule M4 M4 M5 M6 M6 M6 M7 1.8 Color 1.8 6 6 6 1.8 1.8 6 6 6 1.8 1.8	Flexible with ferrule		mm ²	2 x (1 - 4)
Tightening torque Tools Pozidriv screwdriver Size 2 Standard screwdriver mm 1 x 6 Auxiliary and control circuits Rated impulse withstand voltage Uimp V 6000 Overvoltage category/pollution degree Terminal capacities Solid Flexible with ferrule Nm 1.8 1.8 C 2 C 2 Mm 1 x 6 Mm 2 V 6000 Varyoltage category/pollution degree Ill/3 Terminal capacities mm² 2 x (0.75 - 4) mm² 2 x (0.75 - 2.5)	Solid or stranded		AWG	18 - 8
Tools Pozidriv screwdriver Size 2 Standard screwdriver mm 1 x 6 Auxiliary and control circuits Rated impulse withstand voltage Uimp V 6000 Overvoltage category/pollution degree III/3 Terminal capacities mm² Solid mm² 2 x (0.75 - 4) Flexible with ferrule Terminal capacities mm² 2 x (0.75 - 2.5)	Terminal screw			M4
Pozidriv screwdriver Size 2 Standard screwdriver mm 1 x 6 Auxiliary and control circuits Rated impulse withstand voltage Uimp V 6000 Overvoltage category/pollution degree III/3 Terminal capacities mm² Solid mm² 2 x (0.75 - 4) Flexible with ferrule mm² 2 x (0.75 - 2.5)	Tightening torque		Nm	1.8
Standard screwdriver Auxiliary and control circuits Rated impulse withstand voltage Overvoltage category/pollution degree Terminal capacities Solid Flexible with ferrule In the standard screwdriver Mmm 1 x 6 6000 III/3 III/3 Flexible with ferrule Mmm 2 2 x (0.75 - 4) mm 2 2 x (0.75 - 2.5)	Tools			
Auxiliary and control circuits Rated impulse withstand voltage Overvoltage category/pollution degree Terminal capacities Solid Flexible with ferrule Uimp V 6000 III/3 mm² mm² 2 x (0.75 - 4) mm² 2 x (0.75 - 2.5)	Pozidriv screwdriver		Size	2
Rated impulse withstand voltage Overvoltage category/pollution degree Terminal capacities Solid Flexible with ferrule V 6000 III/3 III/3 Terminal capacities mm² 2 x (0.75 - 4) mm² 2 x (0.75 - 2.5)	Standard screwdriver		mm	1 x 6
Overvoltage category/pollution degree III/3 Terminal capacities mm² Solid mm² 2 x (0.75 - 4) Flexible with ferrule mm² 2 x (0.75 - 2.5)	Auxiliary and control circuits			
Terminal capacities mm^2 Solid $mm^2 = 2 \times (0.75 - 4)$ Flexible with ferrule $mm^2 = 2 \times (0.75 - 2.5)$	Rated impulse withstand voltage	U_{imp}	V	6000
Solid mm² 2 x (0.75 - 4) Flexible with ferrule mm² 2 x (0.75 - 2.5)	Overvoltage category/pollution degree			III/3
Flexible with ferrule $2 \times (0.75 - 2.5)$	Terminal capacities		mm ²	
	Solid		mm ²	2 x (0.75 - 4)
Solid or stranded AWG 2 x (18 - 14)	Flexible with ferrule		mm^2	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
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}	Α	6
Rated operational current	l _e	Α	
AC-15			
Make contact			
120 V	l _e	Α	1.5
220 V 230 V 240 V	I _e	Α	1.5
380 V 400 V 415 V	l _e	Α	0.5
500 V	l _e	Α	0.5
Break contact			
120 V	l _e	Α	1.5
220 V 230 V 240 V	le	Α	1.5
380 V 400 V 415 V	l _e	Α	0.9
500 V	Ie	Α	0.8
DC-13 L/R - 15 ms			
24 V	l _e	Α	0.9
60 V	l _e	Α	0.75
110 V	l _e	Α	0.4
220 V	le	Α	0.2
Notes			Rated operational current DC-13, 60 V: N/O auxiliary contact 0.6 A
Short-circuit rating without welding			
max. fuse		A gG/gL	6

Design verification as per IEC/EN 61439

Design vernication as per icc/civ 01459			
Technical data for design verification			
Rated operational current for specified heat dissipation	In	Α	10
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.

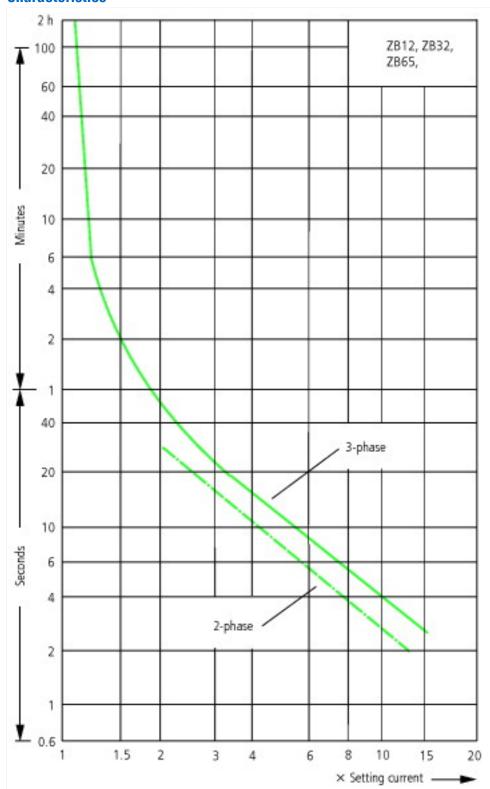
Technical data ETIM 6.0

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	Α	6 - 10	
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	

Approvals

Product Standards	UL 508; CSA-C22.2 No. 14; IEC/EN 60947-4-1; IEC/EN 60947-5-1; 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: IP20, UL/CSA Type: -

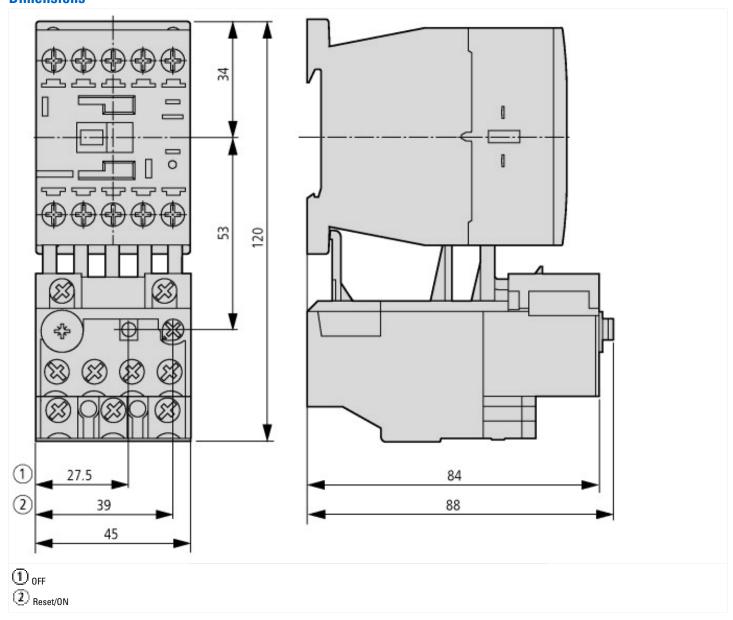
Characteristics



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



Additional product information (links)

	-	
II 02/070167 / A\A/A	2200_211/I\ Overless	d rolay

IL03407015Z (AWA2300-2114) Overload relay

ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03407015Z2014_08.pdf

IL03407195Z Sealable shroud

IL03407195Z Sealable shroud

ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03407195Z2011_06.pdf

MN03407004Z (AWB2300-1527D/GB) ZB12/XT0B...BC1 and ZB32/XT0B...CC1 overload relays, overload monitoring of Ex e motors

MN03407004Z (AWB2300-1527D/GB) ZB12/ XTOB...BC1 and ZB32/XTOB...CC1 overload relays, overload monitoring of Ex e motors -Deutsch / English ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN03407004Z_DE_EN.pdf