

Part no.

Article no.

Catalog No.

ZB12-2,4 278437 XTOB2P4BC1



Delivery program

Product range			Overload relay ZB up to 150 A
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
द	I _r	A	1.6 - 2.4
Contact sequence			$\begin{array}{c c} & & & & & & & & \\ \hline & & & & & & \\ 2 & 4 & 6 & 98 & 96 & A2 & 14/ \\ & & & & & & & \\ 2 & 2 & 4 & 6 & 98 & 96 & A2 & 14/ \\ & & & & & & \\ & & & & & & \\ \end{array}$
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	10
Notes			

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 EEx°e-motors.



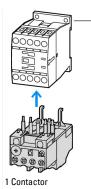
II(2)G [Ex d] [Ex e] [Ex px], II(2)D [Ex p] [Ex t]

PTB 04 ATEX 3022

Observe manual AWB2300-1527D/GB.

Notes

Fitted directly to the contactor



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Technical data

Rated impulse withstand voltage Ump VAC 600 Overvoltage category/pollution degree III/3 III/3 Rated oneration voltage V V Sed Rated operational voltage V V Sed Safe isolation to EN 61140 V VAC VAC Between auxiliary contacts and main contacts VAC VAC VAC Between auxiliary contacts and main contacts VAC VAC VAC Between auxiliary contacts and main contacts VAC VAC VAC Tomperatur compensation residual error > 40 °C VAC VAC Sed Current heat loss (3 conductors) VAC VAC Sed Maximum setting ange VAC VAC Sed Solid Solid Mar Sed Solid or stranded Mar Mar Sed Solid or strande Mar Sed Sed Tominia screwdriver Mar Sed Sed Solid or strande Mar Sed Sed Tom	General			
Anisotie constructionAnisotie constructio	Standards			IEC/EN 60947, VDE 0660, UL, CSA
Image: state of the state of	Climatic proofing			
Image:	Ambient temperature			
Enclosed Constraints Enclosed Constraints Weight Constraints Weight Sint Conductions Protection Sint Conductions Protection Protection Protection Protection Protection Protection Read insulator votage Prote				
Temperature compensationImage: set of the	Open		°C	-25 - +55
Weight Is Is Mechanical shock resistance Invasidad Sinus addation to main Sinus addation to main sector against direct contextwhen sector from (FM 9222) and Protection against direct contextwhen sector from (Enclosed		°C	- 25 - 40
Machanical abook resistance Namidad Shack Auration 10 ms Degree of Protection Protection 10 ms Protection appliant direct catact when actuated from from (EN 9227) Protection 10 ms Main controlled protection Protection 10 ms Main controlled protection Protection 10 ms Overvoltage catagory/sellution degree Num Self and back-schand protection Reted perational voltage Van Self and Self an	Temperature compensation			Continuous
Image: sear of Protection Im	Weight		kg	0.15
Producting paths Image: Second	Mechanical shock resistance		g	Sinusoidal
Marcing paths Vane Vane Vane Mode Mod Mode Mode	Degree of Protection			IP20
Rated insulation voltage Value Va	-			Finger and back-of-hand proof
Nevolage actegory/polution degreeIndexIndexBated operational voltageValue90Bated operational voltageValue80Safe solation te M S1140Value80Between auxiliary contacts and main contactsValue40Between main circuitusValue40Imperatur compensation residual error > 40°CValue50Between main circuitusValue50Imperatur compensation residual error > 40°CValue50Inversitue for solation te for solation error solati	Main conducting paths			
Retinuitation voltage V,I VI Bit Mathematical Strength Strengt Strengt Strengt Strength Strength Strength Strengt Strength Stre	Rated impulse withstand voltage	U _{imp}	V AC	6000
Ret operational voltage Let VAC Bio Selectionation EX STATA VAC	Overvoltage category/pollution degree			111/3
Seleisation to EN 61140 Image: Contracts and main contacts VAC 40 Between main circuits VAC VAC Sold Between main circuits VAC Sold Sold Temperatur compansation residual error > 40°C VAC Sold Sold Current heat loss (3 conductors) VAC Sold Sold Maximum setting VAC Sold Sold Maximum setting VAC Sold Sold Solid or stranded VAC Maria Sold Betweine wirking company VAC Sold Sold Solid or stranded VAC Maria Sold Terminal screw VAC Maria Sold Tople VAC Name Sold Tople VAC Sold Sold Sold or stranded VAC Sold Sold Tople VAC Sold Sold Sold Tople VAC Sold Sold Sold Sold or stranded VAC Sold Sold Sold Tople VAC Sold Sold Sold Sold or stranded screwdriver VAC Sold Sold Sold or stranded screwdriver <t< td=""><td>Rated insulation voltage</td><td>Ui</td><td>V</td><td>690</td></t<>	Rated insulation voltage	Ui	V	690
Between audiary contacts and main contactsVAC40Between main circuitsVAC50Temperatur compensation residual error > 40 °CVAC50Lower value of the setting rangeVAC50Maximus ettingVAC70Terminal capacitiesMax70SolidMax70Terminal capacitiesMax70Solid or strandedMax70Terminal caractMax70Pozich resortierMax80Terminal caractMax80Terminal caractMax70Pozich resortierMax81Terminal caractifierMax81Terminal caractifierMax81Terminal caractifierMax16Terminal caractifierMax16Termi	Rated operational voltage	U _e	V AC	690
Between main circuitsKAC40Temperatur compensation residual error > 40 °C55Lower value of the setting rangeKK5Maximum settingKK5Maximum settingKK5Terminal capacitiesMaximum settingKKSolidMaximum settingKKKSolid or strandedMaximum settingKKKTerminal capacitiesMaximum settingKKKTerminal caracutKMaximum settingKKTerminal caracutKMaximum settingKKPozidriv screwdriverKKKKPozidriv screwdriverKKKKAuthility and control circuitsKKKKAuthility and control circuitsKKKKSolidKKKKKAuthility and control circuitsKKKKFirminal capacitiesKKKKSolidKKKKKSolidKKKKKSolidKKKKKSolidKKKKKSolidKKKKKSolidKKKKKSolidKKKKKSolidKKKKKSolid	Safe isolation to EN 61140			
Important compensation residual error > 40 °C Important error > 40 °C <t< td=""><td>Between auxiliary contacts and main contacts</td><td></td><td>V AC</td><td>440</td></t<>	Between auxiliary contacts and main contacts		V AC	440
Current heat loss (3 conductors)Membrane	Between main circuits		V AC	440
Lower value of the setting rangeMSMaximum settingW5Maximum settingW5Terminal capacitiesMmVSolidmmVVSolidMmVVFexible with furuleMmVVSolid or strandedMmVVSolid or strandedMMSVTerminal screwMNSTerminal screwMmSizeNPoldriv screwdriverNSizeSizeSolid viscrewdriverMmSizeSizePoldriv screwdriverMmSizeSizeAustilargand control circuitsMmSizeSizeReting log with furuleMmSizeSizeSolidMmSizeSizeSolid catage with schedingMmSizeSolid schedingMmSizeSolidMmSizeSolidMmSizeSolidMmSizeSolidMmSizeSolidSizeSizeSolidSizeSizeSolidSizeSizeSolidSizeSizeSolidSizeSizeSolidSizeSizeSolidSizeSizeSolidSizeSizeSolidSizeSizeSolidSizeSizeSolidSizeSizeSolidSizeSizeSolidSize	Temperatur compensation residual error > 40 °C			≦ _{0.25 %/K}
Maximum settingMaximum settingMaximum settingSolid <t< td=""><td>Current heat loss (3 conductors)</td><td></td><td></td><td></td></t<>	Current heat loss (3 conductors)			
Terminal capacities pm2 Solid pm2 Solid or stranded pm2 Solid or stranded pm2 Solid or stranded pm2 Solid or stranded pm2 Terminal screw AWG Topice Ma Topice ma Pozichrix screwdriver ma Pozichrix screwdriver ma Auxiliary and control circuits ma Retei mpulse withstand voltage Mag Porindic capacities ma Solid ma Solid screwdriver Retei mpulse withstand voltage ma Solid ma Solid screwdriver Ferminal capacities ma Solid ma Solid screwdriver Solid ma Solid screwdriver Solid screwdriver Solid screwdriver Solid screwdriver Solid screwdriver Solid screwdriver Solid screwdriver <td>Lower value of the setting range</td> <td></td> <td>W</td> <td>2.5</td>	Lower value of the setting range		W	2.5
Solid nm Solid nm ² Flexible with ferrule nm ² Solid or stranded AWG Solid or stranded AWG Terrinal screw Nm Totle Nm Pozidriv screwdriver Nm Standard screwdriver Nm Standard screwdriver Nm Autiliary and control circuits Nm Rete impulse withstand voltage Mm Overvoltage category/pollution degree Nm Solid Nm Solid Solid Solid Nm Solid Solid Solid Solid Solid Solid Solid Solid Solid Solid Solid Solid	Maximum setting		W	5.7
Flexible with ferrule nmm 2 × 1 + 4 Solid or stranded 2 × 1 + 4 Solid or stranded AWG 18 - 8 Terminal screw M4 M4 Tothening torque Mmm 18 - 8 Auxiliary and control circuits Mmm 18 - 8 Auxiliary and control circuits Mmm 18 - 8 Terminal capacities Mmm 18 - 8 Tothening torque Mmm 18 - 8 Solid Mmm 18 - 8 Tothening torque Mmm 18 - 8 Overvoltage category/pollution degree Mmm 18 - 8 Solid Mmm Mmm 18 - 8 Solid Mmm Mmm 18 - 8 Fexible with ferrule Mmm Mmm 18 - 8	Terminal capacities		mm ²	
Solid or stranded AWG Ref Terminal screw MWG 18-8 Terminal screw Mu 18-8 Toplating torque Mu 18 Pozidriv screwdriver Mu 18 Standard screwdriver Size 2 Standard screwdriver mu 1x Auxiliary and control circuits Min 1x Read impulse withstand voltage Min Min Overvoltage category/pollution degree Min Min Solid Solid man Solid Solid Min Solid Solid Flexible with ferrule Min Solid Solid	Solid		mm ²	2 x (1 - 6)
Terminal screw Metal Metal Metal Terminal screw Metal Metal Metal Terminal screw Metal Metal Metal Pozidriv screwdriver Size Size Size Standard screwdriver Metal Metal Metal Auxtinerration Metal Metal Metal Auxtinerration Metal Metal Metal Standard screwdriver Metal Metal Metal Auxtinerration Metal Metal Metal Auxtinerration Metal Metal Metal Standard screwdriver Metal Metal Metal Auxtinerration Metal Metal Metal Auxtinerration Metal Metal Metal Standard screwdriver Metal Metal Metal Auxtinerration Metal Metal Metal Auxtinerration Metal Metal Metal Standard screwdriver Metal Metal Metal	Flexible with ferrule		mm ²	2 x (1 - 4)
Tightening torque Nm Balance Tools Forditives Size Size Pozidriv screwdriver Size Size Size Standard screwdriver mm 16 Auxiliary and control circuits mm 16 Reted implies withstand voltage Mm 900 Overvoltage category/pollution degree mm ² 103 Solid mm ² screwdriver Flexible with ferrule mm ² screwdriver	Solid or stranded		AWG	18 - 8
Tools Image: Marcine and	Terminal screw			M4
Pozidriv screwdriver Size Size Standard screwdriver mm 1x6 Auxiliary and control circuits Wing Mag Mol Red inpulse withstand voltage Ming Mol Mol Overvoltage category/pollution degree Ming Ming Ming Solid mm ² Ming Ming Flexible with ferrule Ming Ming Ming	Tightening torque		Nm	1.8
Standard screwdriver mm 1x 6 Auxiliary and control circuits Imp Imp Imp Rated impulse withstand voltage Imp Imp Imp Overvoltage category/pollution degree Imp Imp Imp Solid mm ² Imp Imp Flexible with ferrule mm ² Imp Imp	Tools			
Auxiliary and control circuits Rated impulse withstand voltage Vimp Vimp 600 Overvoltage category/pollution degree In/3 In/3 Terminal capacities mm ² x (0.5 - 4) Solid mm ² x (0.5 - 4)	Pozidriv screwdriver		Size	2
Rated impulse withstand voltage Ump V 600 Overvoltage category/pollution degree III/3 III/3 Terminal capacities mm ² \$ x 0.75 - 4\$ Solid mm ² \$ x 0.75 - 2\$	Standard screwdriver		mm	1 x 6
Overvoltage category/pollution degree Image: Comparison of the sector	Auxiliary and control circuits			
Terminal capacities mm ² Solid mm ² Flexible with ferrule mm ²	Rated impulse withstand voltage	U _{imp}	V	6000
Solid mm ² 2 x (0.75 - 4) Flexible with ferrule mm ² 2 x (0.75 - 2.5)	Overvoltage category/pollution degree			111/3
Flexible with ferrule mm ² 2 x (0.75 - 2.5)	Terminal capacities		mm ²	
	Solid		mm ²	2 × (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	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	Ι _e	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	Ie	А	0.5
500 V	Ie	А	0.5
Break contact			
120 V	Ι _e	А	1.5
220 V 230 V 240 V	le	А	1.5
380 V 400 V 415 V	Ι _e	А	0.9
500 V	le	А	0.8
DC-13 L/R - 15 ms			
24 V	le	А	0.9
60 V	le	А	0.75
110 V	Ι _e	А	0.4
220 V	le	А	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 vermeation as per 120/214 01455			
Technical data for design verification			
Rated operational current for specified heat dissipation	In	А	2.4
Heat dissipation per pole, current-dependent	P _{vid}	W	1.9
Equipment heat dissipation, current-dependent	P _{vid}	W	5.7
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.

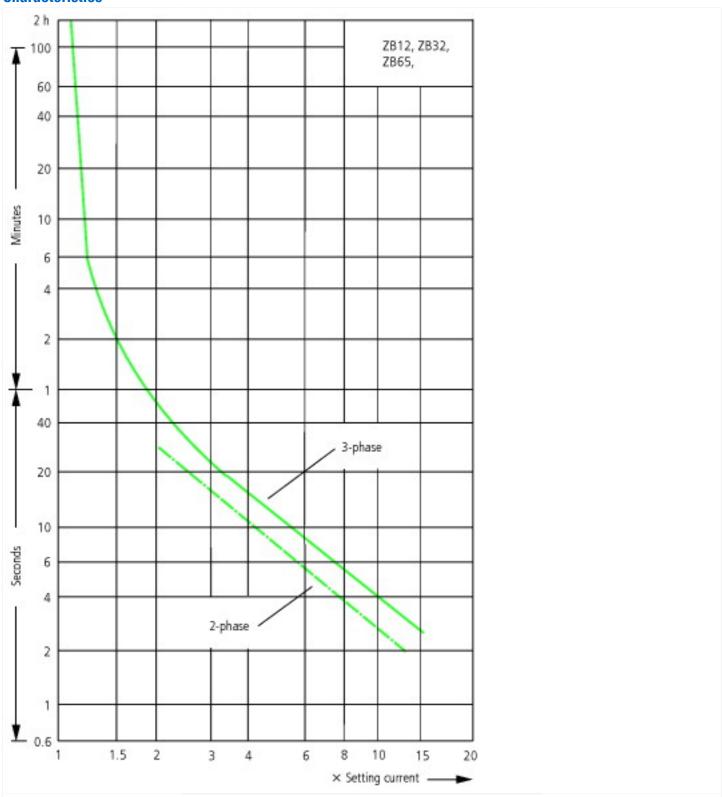
Technical data ETIM 6.0

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	А	1.6 - 2.4
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

Approvals

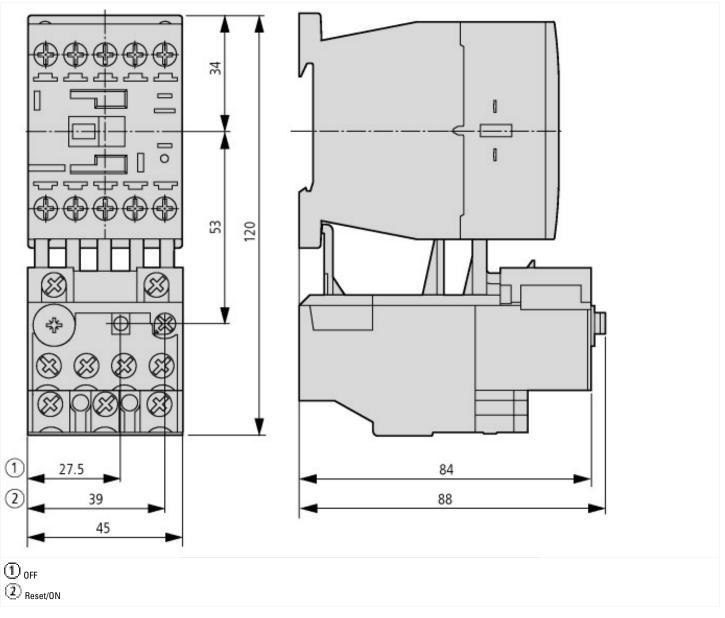
Product Standards	UL 508; CSA-C22.2 No. 14; IEC/EN 60947-4-1; IEC/EN 60947-5-1; CE marking
UL File No.	E29184
UL Category Control No.	NKCR
CSA File No.	12528
CSA Class No.	3211-03
North America Certification	UL listed, CSA certified
Specially designed for North America	No
Suitable for	Branch circuits
Max. Voltage Rating	600 V AC
Degree of Protection	IEC: IP20, UL/CSA Type: -





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)

IL03407015Z (AWA2300-2114) Overload relay

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/XTOB...BC1 and ZB32/XTOB...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