

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

Part no. ZB32-10
Article no. 278451
Catalog No. XTOB010CC1



Delivery programme

Delivery programme			
Product range			Overload relay ZB up to 150 A
Frame size			ZB32
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
4	I <sub>r</sub>	Α	6 - 10
Contact sequence			97 95 2 4 6 98 96 14/ 22
Auxiliary contacts			
N/O = Normally open			1 N/O
N/C = Normally closed			1 N/C
For use with			DILM17, DILM25, DILM32, DILM38, DILMF8, DILMF11, DILMF14, DILMF17, DILMF25, DILMF25, DILMF32, DIULM17, DIULM25, DIULM32, SDAINLM30, SDAINLM45, SDAINLM55
Short-circuit protection			
Type "1" coordination	gG/gL	A	50
Type "2" coordination	gG/gL	A	25
Natos			

#### Notes

Overload release: 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.



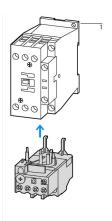
PTB 10 ATEX 3010

Observe manual MN03407004Z-DE/EN.

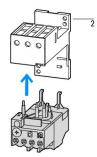
#### Notes

Fitted directly to the contactor

Separate mounting







IEC/EN 60947, VDE 0660, UL, CSA

Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30

1 Contactor 2 Bases

# Technical data

General
Standards

Climatic proofing

Depen 1				
PTEL - 9 TC - 155 TC	Ambient temperature			
Tenclosed				
Temperature compensation Weight Mechanical shock resistance Weight Mechanical shock resistance Protection Pertection against direct contact when actuated from front (EN 50274)  Protection against direct contact when actuated from front (EN 50274)  Weight Main conducting paths  Rated impulse withstand voltage Over-voltage category/pollution degree Rated impulse vithstand voltage Que Que Que Que Que Que Que Que Que Qu	Open		°C	-25 - +55
Weight         kg         0.15           Mechanical shock resistance         g         10 Sinusoidal Shock duration 10 ms           Degree of Protection         1 P20         Protection against direct contact when actuated from front (EN 50274)         1 P20           Main conducting paths         6000         6000           Rated impulse withstand voltage         U <sub>limp</sub> V AC         6000           Overvoltage category/pollution degree         U <sub>li</sub> V AC         690           Rated operational voltage         U <sub>l</sub> V AC         690           Sale isolation to EN 61140         V AC         440         440           Between auxiliary contacts and main contacts         V AC         440         440           Temperatur compensation residual error > 40 °C         V AC         440         440           Current heat loss (3 conductors)         W         5         5         5 K/K           Current presenting residual error > 40 °C         W         5         2 × 10 × 10         4	Enclosed		°C	- 25 - 40
Mechanical shock resistance  Degree of Protection  Protection against direct contact when actuated from front (EN 50274)  Main conducting paths  Rated impulse withstand voltage  Overvoltage category/pollution degree  Rated insulation voltage  Rated operational voltage  Rated operational voltage  Rated pollution to EN 61140  Between auxiliary contacts and main contacts  Between main circuits  Between main circuits  Current heat loss [3 conductors)  Lower value of the setting range  Maximum setting  Terminal capacities  Solid  Flexible with ferrule  Solid stranded  Flexible with ferrule  Solid or stranded  Terminal screw  Flexible with ferrule  Flexible with ferrule  Flexible with ferrule  Pozidriv screwdriver  Tools  Pozidriv screwdriver  Solid Solid  Flexible with ferrule  Pozidriv screwdriver  Flexible with ferrule  Pozidriv screwdriver  Flexible with ferrule	Temperature compensation			Continuous
Degree of Protection Protection against direct contact when actuated from front (EN 50274)  Mair conducting paths  Materia insuluse withstand voltage Overvoltage category/pollution degree Rated insulation voltage Rated operational voltage Rated operational voltage Rated operational voltage Rated operational voltage Retween auxiliary contacts and main contacts Between auxiliary contacts and main contacts Retween suitin contacts Retween suitin contacts Routen suiting Routen setting range Maximum setting  Lower value of the setting range Maximum setting  Solid Fernihal capacities  Solid Filexible with ferrule  Solid or stranded Fernihal screw Tightening torque  Poziciriv screwdriver  Poziciriv screwdriver  Solids  Poziciriv screwdriver  Poxiciriv screwdriver  Poxiciri (EN 50274)  Poxiciriv screwdriver  Poxiciri (EN 50274)  Poxiciriv screwdriver  Poxiciriv screwdriver  Poxiciri (EN 50274)  Poxiciriv screwdriver  Poxiciri (EN 50274)  Poxiciriv screwdriver  Poxiciri (EN 50274)  Poxiciri (EN 5027	Weight		kg	0.15
Protection against direct contact when actuated from front (EN 50274)         Finger and back-of-hand proof           Main conducting paths         Finder and back-of-hand proof           Rated impulse withstand voltage         U <sub>limp</sub> V AC         6000           Overvoltage category/pollution degree         U <sub>i</sub> V         690           Rated insulation voltage         U <sub>a</sub> V AC         690           Rated operational voltage         V AC         690           Safe isolation to EN 61140         V AC         440           Between auxiliary contacts and main contacts         V AC         440           Temperatur compensation residual error > 40 °C         V AC         440           Current heat loss (3 conductors)         V AC         V AC           Maximum setting         W         25           Maximum setting range         W         25           Solid         mm²         2 x (1 · 6)           Solid or stranded         mm²         2 x (1 · 6)           Flexible with ferrule         mm²         2 x (1 · 4)           Solid or stranded         M         4           Terminal capcew         M         4           Pozidriv screwdriver         M         4	Mechanical shock resistance		g	Sinusoidal
Main conducting paths         VAC         6000           Overvoltage category/pollution degree         III/3           Rated insulation voltage         Ui         VAC         690           Rated operational voltage         Ue         VAC         690           Safe isolation to EN 61140         VAC         440           Between auxiliary contacts and main contacts         VAC         440           Between main circuits         VAC         440           Temperatur compensation residual error > 40 °C         Solid (anductors)         Solid (anductors)           Lower value of the setting range         W         2.5           Maximum setting         mm²         2 x (1 - 6)           Solid         mm²         2 x (1 - 6)           Flexible with ferrule         mm²         2 x (1 - 6)           Solid or stranded         AWG         14 - 8           Terminal screw         M4         440           Tightening torque         NM         1.8           Pozidriv screwdriver         Size         2	Degree of Protection			IP20
Rated impulse withstand voltage Overvoltage category/pollution degree Rated insulation voltage Rated operational voltage  V V C 690 Rated operational voltage Rated operational voltage  V V C 440 Retween auxiliary contacts and main contacts Retween auxiliary contacts and main contacts Retween 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  Flexible with ferrule  Solid or stranded  Flexible with ferrule  Terminal screw  Total capacities  Pozidriv screwdriver  Solize	Protection against direct contact when actuated from front (EN 50274)			Finger and back-of-hand proof
Overvoltage category/pollution degree         Vi         V         690           Rated insulation voltage         Ue         VAC         690           Safe isolation to EN 61140         VAC         440           Between auxiliary contacts and main contacts         VAC         440           Between main circuits         VAC         440           Temperatur compensation residual error > 40 °C         VAC         440           Current heat loss (3 conductors)         VAC         450           Lower value of the setting range         W         2.5           Maximum setting         W         6           Terminal capacities         mm²         2 x (1 - 6)           Flexible with ferrule         mm²         2 x (1 - 4)           Solid or stranded         AWG         14 - 8           Terminal screw         M4         M4           Tightening torque         Nm         1.8           Tools         Size         2	Main conducting paths			
Rated insulation voltage  Rated operational voltage  Safe isolation to EN 61140  Between auxiliary contacts and main contacts  Between main circuits  Setween main circuits  Lower value of the setting range  Maximum setting  Solid  Flexible with ferrule  Solid or stranded  Solid or stranded  Flexible with ferrule  Terminal screw  Pozidriv screwdriver  Solid  Pozidriv screwdriver  Pozidriv screwdriver  Pozidriv screwdriver  Posidriv screwdriver  Safe isolation to EN 61140  V AC 440  440  440  440  440  440  450  460  46	Rated impulse withstand voltage	U <sub>imp</sub>	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  Solid  Flexible with ferrule  Solid or stranded  Solid or stranded  Solid or stranded  Flexible main circuits  Pozidriv screwdriver  Pozidriv screwdriver  Pozidriv screwdriver	Overvoltage category/pollution degree			111/3
Safe isolation to EN 61140  Between auxiliary contacts and main contacts  Between main circuits  VAC 440  Temperatur compensation residual error > 40 °C  Current heat loss (3 conductors)  Lower value of the setting range  Maximum setting  Maximum setting  Solid  Flexible with ferrule  Solid or stranded  Flexible with ferrule  Solid or stranded  Terminal screw  Terminal screw  Flexible grange  MACC	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  Solid  Flexible with ferrule  Solid or stranded  Solid or stranded  Terminal screw  Terminal screw  Pozidriv screwdriver  Auxiliary contacts and main contacts  V AC  440  440  440  440  440  440  440  4	Rated operational voltage	U <sub>e</sub>	V AC	690
Between main circuits  VAC  440  Temperatur compensation residual error > 40 °C  Current heat loss (3 conductors)  Lower value of the setting range  Maximum setting  Maximum setting  Solid  mm²  Solid  mm²  2×(1 - 6)  Flexible with ferrule  mm²  2×(1 - 4)  with ferrules to DIN 46228  Solid or stranded  AWG  14 - 8  Terminal screw  M4  Tightening torque  Nm  18  Pozidriv screwdriver  Size  2  2	Safe isolation to EN 61140			
Temperatur compensation residual error > 40 °C  Current heat loss (3 conductors)  Lower value of the setting range  Maximum setting  Maximum setting  Solid  Flexible with ferrule  Flexible with ferrule  Solid or stranded  AWG  14 - 8  Terminal screw  Tools  Pozidriv screwdriver  Size  Size  2   Lower value of the setting range  W  2.5  6  6  Current heat loss (3 conductors)  W  2.5  6  Current heat loss (3 conductors)  W  2.5  6  AWG  4  4  4  4  4  4  4  4  4  4  4  4  4	Between auxiliary contacts and main contacts		V AC	440
Current heat loss (3 conductors)  Lower value of the setting range  Maximum setting  Maximum setting  Minum  Solid  Solid  Flexible with ferrule  Solid or stranded  Awa	Between main circuits		V AC	440
Lower value of the setting range  Maximum setting  W 6  Terminal capacities  mm²  Solid  mm²  2 x (1 - 6)  Flexible with ferrule  mm²  2 x (1 - 4)  With ferrules to DIN 46228  Solid or stranded  AWG  4 - 8  Terminal screw  M4  Tightening torque  Nm  1.8  Tools  Pozidriv screwdriver  Size  2 2	Temperatur compensation residual error > 40 °C			≦ <sub>0.25 %/K</sub>
Maximum setting  Maximu	Current heat loss (3 conductors)			
Terminal capacities mm²  Solid mm² 2 x (1 - 6)  Flexible with ferrule  Solid or stranded AWG 14 - 8  Terminal screw M4  Tightening torque Nm 1.8  Tools  Pozidriv screwdriver Size 2	Lower value of the setting range		W	2.5
Solid mm² 2 x (1 - 6)  Flexible with ferrule mm² 2 x (1 - 4) With ferrules to DIN 46228  Solid or stranded AWG 14 - 8  Terminal screw M4  Tightening torque Nm 1.8  Tools Pozidriv screwdriver Size 2	Maximum setting		W	6
Flexible with ferrule  mm² 2 x (1 - 4) With ferrules to DIN 46228  Solid or stranded  AWG 14 - 8  Terminal screw  M4  Tightening torque  Nm 1.8  Tools  Pozidriv screwdriver  Size 2	Terminal capacities		$\mathrm{mm}^2$	
Solid or stranded  AWG 14 - 8  Terminal screw  M4  Tightening torque  Nm 1.8  Tools  Pozidriv screwdriver  Size 2	Solid		$\text{mm}^2$	2 x (1 - 6)
Terminal screw M4 Tightening torque Nm 1.8 Tools Pozidriv screwdriver Size 2	Flexible with ferrule		mm <sup>2</sup>	
Tightening torque Nm 1.8  Tools Pozidriv screwdriver Size 2	Solid or stranded		AWG	14 - 8
Tools Pozidriv screwdriver Size 2	Terminal screw			M4
Pozidriv screwdriver Size 2	Tightening torque		Nm	1.8
	Tools			
Standard screwdriver mm 1 x 6	Pozidriv screwdriver		Size	2
	Standard screwdriver		mm	1 x 6

#### Auxiliary and control circuits

Auxiliary and control circuits			
Rated impulse withstand voltage	$U_{\text{imp}}$	V	4000
Overvoltage category/pollution degree			III/3
Terminal capacities		$\mathrm{mm}^2$	
Solid		mm <sup>2</sup>	2 x (0.754)
Flexible with ferrule		mm <sup>2</sup>	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 <sub>e</sub>	V AC	500
Safe isolation to EN 61140			
between the auxiliary contacts		V AC	240
Conventional thermal current	I <sub>th</sub>	Α	6
Rated operational current	I <sub>e</sub>	Α	
AC-15			
Make contact			
120 V	l <sub>e</sub>	Α	1.5
220 V 230 V 240 V	I <sub>e</sub>	Α	1.5
380 V 400 V 415 V	l <sub>e</sub>	Α	0.5
500 V	I <sub>e</sub>	Α	0.5
Break contact			
120 V	I <sub>e</sub>	Α	1.5
220 V 230 V 240 V	I <sub>e</sub>	Α	1.5
380 V 400 V 415 V	I <sub>e</sub>	Α	0.9
500 V	I <sub>e</sub>	Α	0.8
DC-13 L/R - 15 ms			
24 V	I <sub>e</sub>	Α	0.9
60 V	I <sub>e</sub>	Α	0.75
110 V	I <sub>e</sub>	Α	0.4
220 V	I <sub>e</sub>	Α	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
Rated operational current: Making and breaking conditions to DC-13, time constant as stated
Main circuits terminal capacity solid and flexible conductors with ferrules: When using 2 conductors use equal cross-sections
See overlay "Fuses" for short-circuit strength time/current characteristic (please enquire)
6 mm flexible with ferrules to DIN 46228
Rated operational current DC-13, 60 V: N/O auxiliary contact 0.6 A

# Design verification as per IEC/EN 61439

1 .			
echnical data for design verification			
Rated operational current for specified heat dissipation	In	Α	10
Heat dissipation per pole, current-dependent	P <sub>vid</sub>	W	2
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	6
Static heat dissipation, non-current-dependent	$P_{vs}$	W	0
Heat dissipation capacity	P <sub>diss</sub>	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	55
C/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.

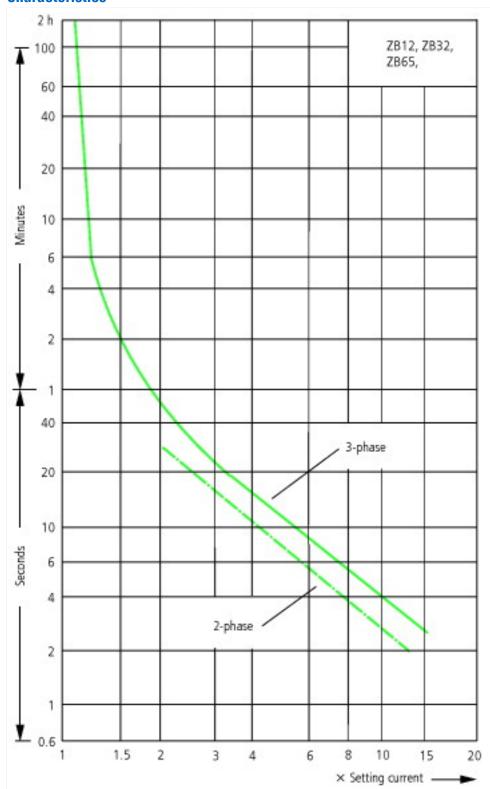
### **Technical data ETIM 6.0**

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]) Α 6 - 10 Adjustable current range ٧ Max. rated operation voltage Ue 690 Mounting method Direct attachment Type of electrical connection of main circuit Screw connection Number of auxiliary contacts as normally closed contact Number of auxiliary contacts as normally open contact 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: -

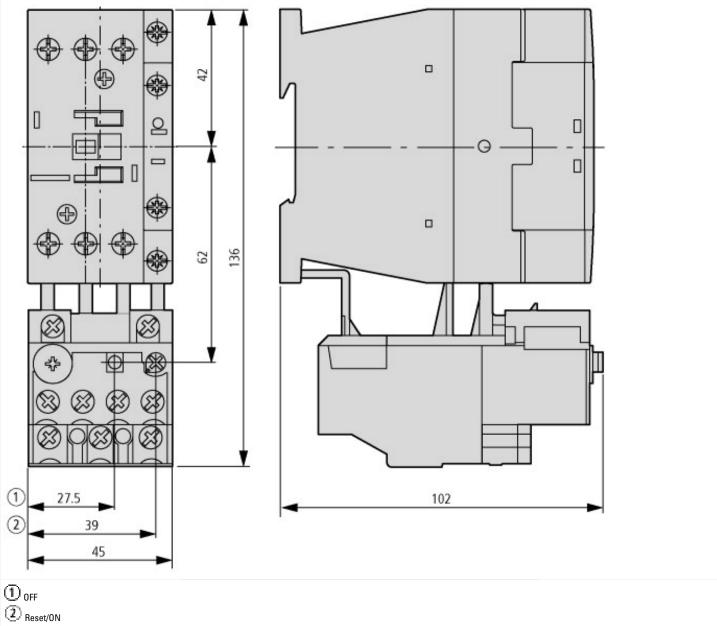
### **Characteristics**

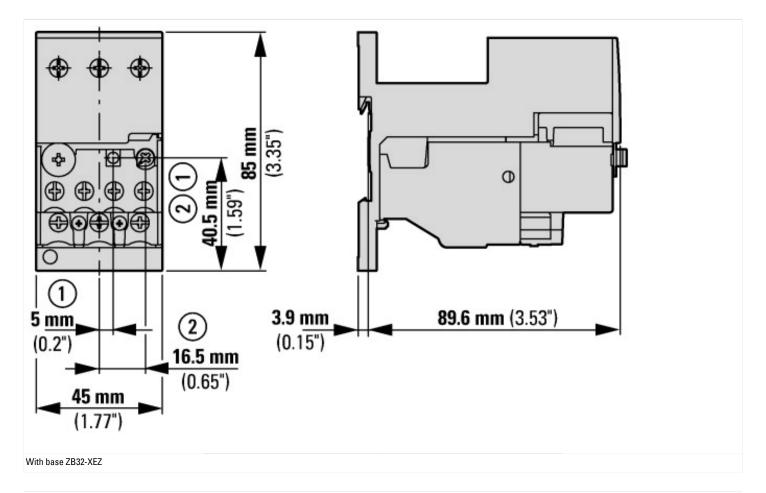


These tripping characteristics are mean values of the spread at 20 °C ambient temperature in a cold state. Tripping time depends on response current.

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)**

IL03407015Z (AWA2300-2114) Overload relay

IL03407015Z (AWA2300-2114) Overload relay

ftp://ftp.moeller.net/DOCUMENTATION/AWA\_INSTRUCTIONS/IL03407015Z2014\_08.pdf