## DATASHEET - ZB150-35



Overload relay, ZB150, Ir= 25 - 35 A, 1 N/O, 1 N/C, Direct mounting, IP00



Part no. ZB150-35 Catalog No. 278461 Alternate Catalog XTOB035GC1 No. EL-Nummer 4134231 (Norway)

### Delivery program

Product range			Overload relay ZB up to 150 A
Product range			Accessories
Accessories			Overload relays
Frame size			ZB150
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 <sub>r</sub>	A	25 - 35
Contact sequence			97 95 $ \begin{array}{c} 97 95 \\ 1 \\ 1 \\ 1 \\ 1 \\ 2 \\ 4 \\ 6 \\ 98 96 \end{array}$
Auxiliary contacts			
N/O = Normally open			1 N/0
N/C = Normally closed			1 N/C
For use with			DILM80 DILM95 DILM15 DILM150 DILM150 DILM70 DILM795 DILMF95 DILMF95 DILMF150 DIULM80 DIULM80 DIULM80 DIULM80 DIULM95 DIULM15 DIULM155 SDAINLM140 SDAINLM140 SDAINLM165 SDAINLM260
Short-circuit protection			
Type "1" coordination	gG/gL	A	125
Type "2" coordination	gG/gL	A	100
Notes			
Overload trigger: tripping class 10 A			
Chart size it watestime shows the maximum norminable for a father and	the discontration of the		_

Short circuit protection: observe the maximum permissible fuse of the contactor with direct device mounting.

Suitable for protection of Ex e-motors.



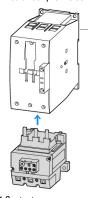
### II(2)G [Ex d] [Ex e] [Ex px], II(2)D [Ex p] [Ex t]

PTB 10 ATEX 3010

Observe manual MN03407005Z-DE/EN.



Notes Fitted directly to the contactor



1 Contactor 2 Bases

# **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	1.211
Mechanical shock resistance		g	10 Sinusoidal Shock duration 10 ms
Degree of Protection			IP00
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 <sub>imp</sub>	V AC	8000
Overvoltage category/pollution degree			111/3
Rated insulation voltage	Ui	V	1000
Rated operational voltage	U <sub>e</sub>	V AC	1000
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 °C			≦ 0.25 %/K
Current heat loss (3 conductors)			
Lower value of the setting range		W	10.7
Maximum setting		W	21
Terminal capacities		mm <sup>2</sup>	
Solid		mm <sup>2</sup>	1 x (4 - 16) 2 x (4 - 16)
Flexible with ferrule		mm <sup>2</sup>	1 x (4 - 70) 2 x (4 - 70)
Stranded		mm <sup>2</sup>	1 x (16 - 70) 2 x (16 - 70)

Solid or stranded		AWG	3/0
Terminal screw			M10
Tightening torque		Nm	10
Stripping length		mm	24
Tools			
Hexagon socket-head spanner	sw	mm	5
Auxiliary and control circuits			
Rated impulse withstand voltage	U <sub>imp</sub>	V	4000
Overvoltage category/pollution degree			111/3
Terminal capacities		mm <sup>2</sup>	
Solid		mm <sup>2</sup>	1 x (0.75 - 4) 2 x (0.75 - 4)
Flexible with ferrule		mm <sup>2</sup>	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	1×6
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>	А	6
Rated operational current	۱ <sub>e</sub>	А	
AC-15			
Make contact			
120 V	le	А	1.5
220 V 230 V 240 V	Ι <sub>e</sub>	A	1.5
380 V 400 V 415 V	Ι <sub>e</sub>	A	0.5
500 V	Ι <sub>e</sub>	A	0.5
Break contact			
120 V	le	A	1.5
220 V 230 V 240 V	l <sub>e</sub>	A	1.5
380 V 400 V 415 V	l <sub>e</sub>	A	0.9
500 V	l <sub>e</sub>	A	0.8
DC L/R ≦ 15 ms	·e		
			Switch-on and switch-off conditions based on DC-13, time constant as specified.
24 V	l <sub>e</sub>	A	0.9
60 V	l <sub>e</sub>	A	0.75
110 V		A	0.4
	l <sub>e</sub>		
220 V	Ie	A	0.2
Short-circuit rating without welding		A 011	
max. fuse		A gG/gL	D
Notes Notes Ambient air temperature: Operating range to IEC/EN 60947,			

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.

Main circuits terminal capacity solid and nexible conductors with leftules. 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	

Basic Rating		
SCCR	kA	5
max. Fuse	А	125
max. CB	А	125

### **Design verification as per IEC/EN 61439**

Rate operational current for specified heat dissipation     I,     A     S       Heat dissipation current-dependent     Paid     W     7       Excipment heat dissipation, current-dependent     Paid     W     1       Operating misting temperature ends     Pain     W     1       Operating misting temperature ends     Pain     W     1       Operating misting temperature ends     Pain     W     1       Operating misting endities and parts     Paint     W     1       10.2 Strong to materials and parts     Paint     W     1       10.2 Strong to materials and parts     Paint     Meets the product standard's requirements.       10.2 Strong to materials on of mainting materials to normal heat     Meets the product standard's requirements.       10.2 Strong to mainting materials to normal heat     Meets the product standard's requirements.       10.2 Strong to mainting materials to normal heat     Meets the product standard's requirements.       10.2 Strong to mainting materials to normal heat     Meets the product standard's requirements.       10.2 Strong to mainting materials to normal heat     Meets the product standard's requirements.       10.2 Meeta missiphice to interarmal heat	Design verification as per IEC/EN 61439			
Heat dissipation per pole, current-dependent     Poid     Wei     Parameter       Equipment heat dissipation, current-dependent     Poid     Wei     0       Static heat dissipation, current-dependent     Poid     Wei     0       Operating ambient temperature min.     °C     -25       Operating ambient temperature max.     °C     -25       10.2 Strength of materials and parts     °C     468t the product standard's requirements.       10.2.2 Correston resistance     Mest the product standard's requirements.     °C       10.2.3 Verification of resistance of insulating materials to abnormal heat and fire docu internal objects' of enclasses     Mest the product standard's requirements.       10.2.3 Verification of resistance of insulating materials to abnormal heat and fire docu internal objects' of enclasses     Mest the product standard's requirements.       10.2.3 Verification of resistance of insulating materials to abnormal heat and fire docu internal objects' of enclasses     Mest the product standard's requirements.       10.2.3 Userification of resistance of insulating materials to abnormal heat     Mest the product standard's requirements.       10.2.4 Resistance to ultra-violet (UV) radiation     Does not apply, since the entire switchgar needs to be evaluated.       10.2.5 Userificions     So and saphy, since the entire switchgar needs	Technical data for design verification			
Eupipment heat dissipation, current-dependent     Put     W     21       Static heat dissipation, current-dependent     Put     W     0       Hoat dissipation capacity     Put     W     0       Operating mithein temperature min.     *C     25       Operating mithein temperature max.     *C     55       102.2 Correction resistance     Meets the product standard's requirements.     Total Standard's requirements.       102.2 Correction resistance     Final stability of enclosures     Meets the product standard's requirements.       102.3 Verification of resistance of insulating materials to abnormal heat     Meets the product standard's requirements.       102.3 Verification of resistance of insulating materials to abnormal heat     Meets the product standard's requirements.       102.3 Verification of resistance of insulating materials to abnormal heat     Meets the product standard's requirements.       102.3 Unification of resistance of insulating materials to abnormal heat     Meets the product standard's requirements.       102.3 Unification of resistance of insulating materials to abnormal heat     Meets the product standard's requirements.       102.3 Unification of resistance of insulating materials to abnormal heat     Meets the product standard's requirements.       102.4 Resistance to uitra-violet (UV) ra	Rated operational current for specified heat dissipation	I <sub>n</sub>	А	35
Suic heat dissipation, non-current-dependent     Pus     W     0       Heat dissipation, capacity     Paiss     W     0       Operating ambient temperature min.     "C     -25       Operating ambient temperature max.     "C     -26       102.5 trong of metraisle and parts     "C     -26       102.2 Corrosion resistance     -46     -46       102.3 Lordification of thermal stability of enclosures     -46     -46       102.3 Lordification or feasibance of insulating materials to normal heat     -46     -46       102.3 Lordification or resistance of insulating materials to abhormal heat     -46     -46       102.3 Lordification or resistance of insulating materials to abhormal heat     -46     -46       102.3 Lordification or resistance of insulating materials to abhormal heat     -46     -46       102.4 Resistance to ultra-violet (UV) radiation     -46     -46     -46       102.4 Resistance to ultra-violet (UV) radiation     -46     -46     -46     -46     -46     -46     -46     -46     -46     -46     -46     -46     -46     -46     -46     -46     -46     -46 <td>Heat dissipation per pole, current-dependent</td> <td>P<sub>vid</sub></td> <td>W</td> <td>7</td>	Heat dissipation per pole, current-dependent	P <sub>vid</sub>	W	7
Heat dissipation capacity     Pairs     W     0       Operating ambient temperature min.     *C     25       Operating ambient temperature max.     *C     55       IECEX 61438 design verification     *C     55       10.2 Strongth of materials and parts     *C     *C       10.2 Strongth of materials and parts     *C     *C       10.2.2 Verification of resistance of insulating materials to normal heat and fird due to internal electric effects     *C     *C       10.2.3 Verification of resistance of insulating materials to normal heat and fird due to internal electric effects     *C     *C       10.2.3 Verification of resistance of insulating materials to normal heat and fird due to internal electric effects     *C     *C     *C       10.2.3 Verification of resistance of insulating materials to normal heat and fird due to internal electric effects     *C     *C <td< td=""><td>Equipment heat dissipation, current-dependent</td><td>P<sub>vid</sub></td><td>W</td><td>21</td></td<>	Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	21
Concreting ambient temperature min.     Concreting ambient temperature max.     Concreting ambient temperature max. <thconcreiint ambient="" max.<="" temperature="" th="">     Concreint</thconcreiint>	Static heat dissipation, non-current-dependent	P <sub>vs</sub>	W	0
Operating ambient temperature max.     Image: Construct temperature max.	Heat dissipation capacity	P <sub>diss</sub>	W	0
LECK 94 Has design verification     Image: Comparison of the mail stability of enclosures     Image: Comparison of the mail enclosures <td< td=""><td>Operating ambient temperature min.</td><td></td><td>°C</td><td>-25</td></td<>	Operating ambient temperature min.		°C	-25
102.Strength of materials and parts   Meets the product standard's requirements.     102.21 Verification of thermal stability of enclosures   Meets the product standard's requirements.     102.32.32 Verification of resistance of insulating materials to normal heat and fire due to internal electric effects   Meets the product standard's requirements.     102.32 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects   Meets the product standard's requirements.     102.42 Resistance to ultra-violet (UV) radiation   Meets the product standard's requirements.     102.52 Iffing   Does not apply, since the entire switchgear needs to be evaluated.     102.51 Resignations   Does not apply, since the entire switchgear needs to be evaluated.     102.52 Nechanical impact   Does not apply, since the entire switchgear needs to be evaluated.     102.52 Nechanical impact   Does not apply, since the entire switchgear needs to be evaluated.     103.52 Nechanical impact   Does not apply, since the entire switchgear needs to be evaluated.     104.52 Forection against electric shock   Does not apply, since the entire switchgear needs to be evaluated.     104.51 Internal electrical circuits and connpotents   Does not apply, since the entire switchgear needs to be evaluated.     104.51 Internal electrical circuits and connpotents   Is the panel builder's responsibility.     104.52 Nechanice of externa	Operating ambient temperature max.		°C	55
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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   Is the panel builder's responsibility.     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   Is the panel builder's responsibility.     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	10.5 Protection against electric shock			Does not apply, since the entire switchgear needs to be evaluated.
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10.9 Insulation propertiesImage: Constraint of the panel builder's responsibility.10.9.2 Power-frequency electric strengthImage: Constraint of the panel builder's responsibility.10.9.3 Impulse withstand voltageImage: Constraint of the panel builder's responsibility.10.9.4 Testing of enclosures made of insulating materialImage: Constraint of the panel builder's responsibility.10.10 Temperature riseImage: Constraint of the panel builder's responsibility.10.11 Short-circuit ratingImage: Constraint of the devices.10.12 Electromagnetic compatibilityImage: Constraint of the panel builder's responsibility. The specifications for the switchgear must be observed.10.13 Mechanical functionImage: Constraint of the device meets the requirements, provided the information in the instruction	10.7 Internal electrical circuits and connections			Is the panel builder's responsibility.
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   Is the panel builder's responsibility.     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   It evice meets the requirements, provided the information in the instruction	10.8 Connections for external conductors			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   Is the panel builder's responsibility.     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	10.9 Insulation properties			
10.9.4 Testing of enclosures made of insulating material   Is the panel builder's responsibility.     10.10 Temperature rise   Is the panel builder's responsibility.     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	10.9.2 Power-frequency electric strength			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, provide the information in the instruction	10.9.3 Impulse withstand voltage			Is the panel builder's responsibility.
10.11 Short-circuit rating   Image: Compatibility of the system of the	10.9.4 Testing of enclosures made of insulating material			Is the panel builder's responsibility.
10.12 Electromagnetic compatibility   Is the panel builder's responsibility. The specifications for the switchgear must be observed.     10.13 Mechanical function   Image: Compatibility of the information in the instruction of the information of the instruction of the instruction of the information of the instruction of the information of the instruction of the instructinon of the instructinon of the instruction of the instruction of t	10.10 Temperature rise			
10.13 Mechanical function Image: Construction of the information in the instruction of the information in the instruction of the information in the instruction of the information of the inform	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			

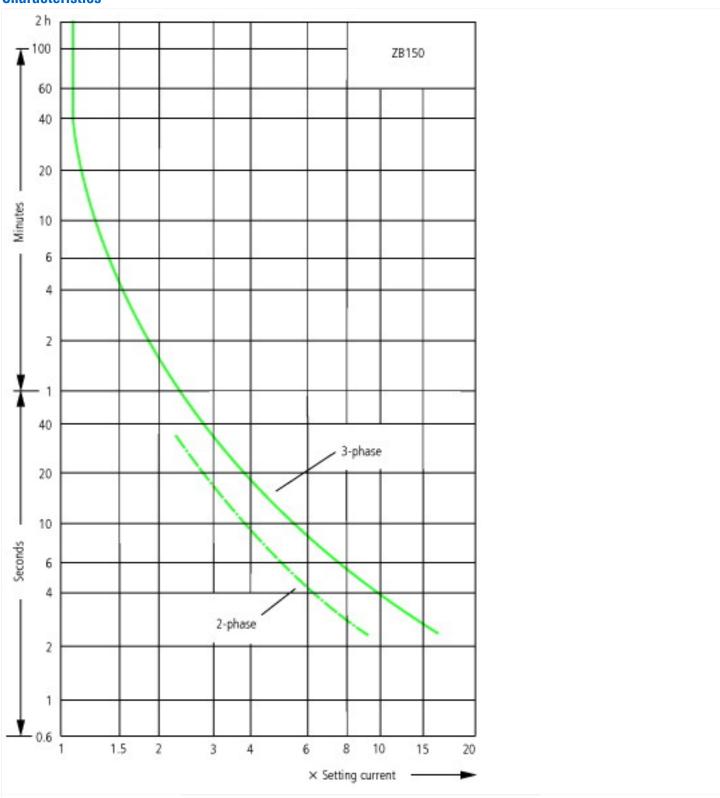
#### **Technical data ETIM 7.0**

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 25 - 35 v Max. rated operation voltage Ue 1000 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

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 V AC
Degree of Protection	IEC: IP00, 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**

