



Overload relay, ZB150, Ir= 70 - 100 A, 1 N/O, 1 N/C, Direct mounting, IP00



Part no. ZB150-100  
 Catalog No. 278464  
 Alternate Catalog No. XTOB100GC1  
 EL-Nummer (Norway) 4134234

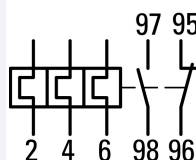
## Delivery program

|                           |  |  |                                                                      |
|---------------------------|--|--|----------------------------------------------------------------------|
| 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<br>Reset pushbutton manual/auto<br>Trip-free release |
| Mounting type             |  |  | Direct mounting                                                      |



$I_r$  A 70 - 100

Contact sequence



## Auxiliary contacts

|                       |  |  |       |
|-----------------------|--|--|-------|
| N/O = Normally open   |  |  | 1 N/O |
| N/C = Normally closed |  |  | 1 N/C |

For use with

DILM80  
 DILM95  
 DILM115  
 DILM150  
 DILM170  
 DILMF80  
 DILMF95  
 DILMF115  
 DILMF150  
 DIULM80  
 DIULM95  
 DIULM115  
 DIULM150  
 SDAINLM140  
 SDAINLM165  
 SDAINLM200  
 SDAINLM260

## Short-circuit protection

|                       |       |   |     |
|-----------------------|-------|---|-----|
| Type "1" coordination | gG/gL | A | 315 |
| Type "2" coordination | gG/gL | A | 200 |



## Notes

Overload trigger: 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.



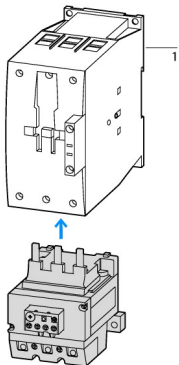
II(2)G [Ex d] [Ex e] [Ex px], II(2)D [Ex p] [Ex t]

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<br>Damp heat, cyclic, to IEC 60068-2-30 |
| Ambient temperature                                                   |  |    |                                                                                |
|                                                                       |  |    | Operating range to IEC/EN 60947<br>PTB: -5 °C - +55 °C                         |
| Open                                                                  |  | °C | -25 - +55                                                                      |
| Enclosed                                                              |  | °C | - 25 - 40                                                                      |
| Temperature compensation                                              |  |    | Continuous                                                                     |
| Weight                                                                |  | kg | 1.219                                                                          |
| Mechanical shock resistance                                           |  | g  | 10<br>Sinusoidal<br>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                | $U_{imp}$ | V AC            | 8000                           |
| Overvoltage category/pollution degree          |           |                 | III/3                          |
| Rated insulation voltage                       | $U_i$     | V               | 1000                           |
| Rated operational voltage                      | $U_e$     | 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 |           |                 | $\leq 0.25 \text{ \%}/K$       |
| Current heat loss (3 conductors)               |           |                 |                                |
| Lower value of the setting range               |           | W               | 12.3                           |
| Maximum setting                                |           | W               | 25.2                           |
| Terminal capacities                            |           | mm <sup>2</sup> |                                |
| Solid                                          |           | mm <sup>2</sup> | 1 x (4 - 16)<br>2 x (4 - 16)   |
| Flexible with ferrule                          |           | mm <sup>2</sup> | 1 x (4 - 70)<br>2 x (4 - 70)   |
| Stranded                                       |           | mm <sup>2</sup> | 1 x (16 - 70)<br>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       | $U_{imp}$ | V               | 4000                                                                            |
| Overvoltage category/pollution degree |           |                 | III/3                                                                           |
| Terminal capacities                   |           | mm <sup>2</sup> |                                                                                 |
| Solid                                 |           | mm <sup>2</sup> | 1 x (0.75 - 4)<br>2 x (0.75 - 4)                                                |
| Flexible with ferrule                 |           | mm <sup>2</sup> | 1 x (0.75 - 2.5)<br>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              | $U_i$     | 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          | $I_{th}$  | A               | 6                                                                               |
| Rated operational current             | $I_e$     | A               |                                                                                 |
| AC-15                                 |           |                 |                                                                                 |
| Make contact                          |           |                 |                                                                                 |
| 120 V                                 | $I_e$     | A               | 1.5                                                                             |
| 220 V 230 V 240 V                     | $I_e$     | A               | 1.5                                                                             |
| 380 V 400 V 415 V                     | $I_e$     | A               | 0.5                                                                             |
| 500 V                                 | $I_e$     | A               | 0.5                                                                             |
| Break contact                         |           |                 |                                                                                 |
| 120 V                                 | $I_e$     | A               | 1.5                                                                             |
| 220 V 230 V 240 V                     | $I_e$     | A               | 1.5                                                                             |
| 380 V 400 V 415 V                     | $I_e$     | A               | 0.9                                                                             |
| 500 V                                 | $I_e$     | A               | 0.8                                                                             |
| DC L/R ≤ 15 ms                        |           |                 |                                                                                 |
|                                       |           |                 | Switch-on and switch-off conditions based on DC-13, time constant as specified. |
| 24 V                                  | $I_e$     | A               | 0.9                                                                             |
| 60 V                                  | $I_e$     | A               | 0.75                                                                            |
| 110 V                                 | $I_e$     | A               | 0.4                                                                             |
| 220 V                                 | $I_e$     | A               | 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  
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<br>B600 at same polarity |
| DC operated                  |  |      | R300                                               |
| Short Circuit Current Rating |  | SCCR |                                                    |

|              |    |             |
|--------------|----|-------------|
| Basic Rating |    |             |
| SCCR         | kA | 10          |
| max. Fuse    | A  | 400 Class J |
| max. CB      | A  | 400         |

## Design verification as per IEC/EN 61439

|                                                                                                                        |                   |    |                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------|-------------------|----|----------------------------------------------------------------------------------------------------------------------------------|
| Technical data for design verification                                                                                 |                   |    |                                                                                                                                  |
| Rated operational current for specified heat dissipation                                                               | I <sub>n</sub>    | A  | 100                                                                                                                              |
| Heat dissipation per pole, current-dependent                                                                           | P <sub>vid</sub>  | W  | 8.4                                                                                                                              |
| Equipment heat dissipation, current-dependent                                                                          | P <sub>vid</sub>  | W  | 25.2                                                                                                                             |
| Static heat dissipation, non-current-dependent                                                                         | P <sub>vs</sub>   | W  | 0                                                                                                                                |
| Heat dissipation capacity                                                                                              | P <sub>diss</sub> | 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 7.0

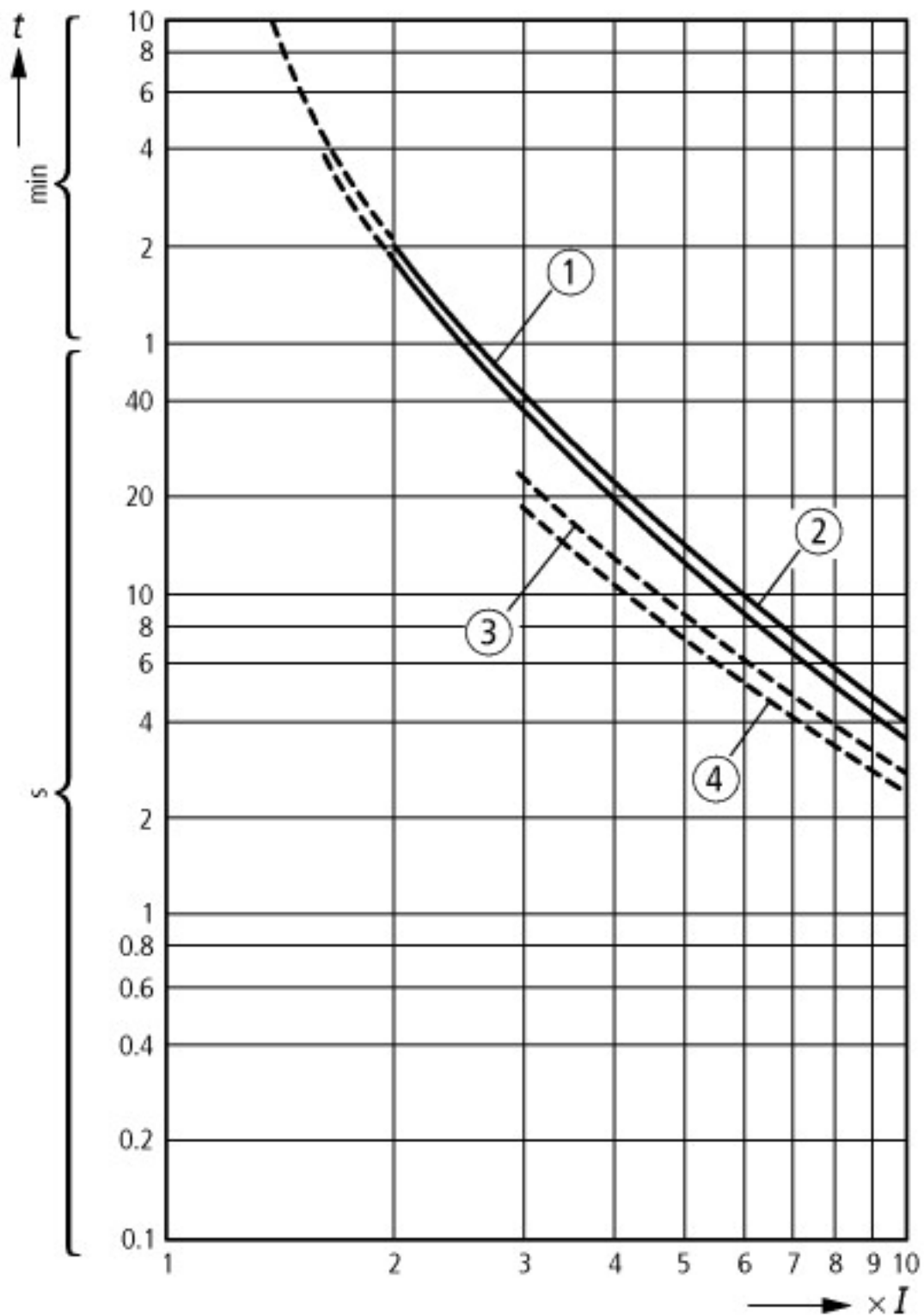
|                                                                                                                                                                                            |  |   |                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---|-------------------|
| 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                                                                                                                                                                   |  | A | 70 - 100          |
| Max. rated operation voltage U <sub>e</sub>                                                                                                                                                |  | V | 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               |

|                            |  |     |
|----------------------------|--|-----|
| 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 V AC                                                                 |
| Degree of Protection                 |  | IEC: IP00, UL/CSA Type: -                                                |

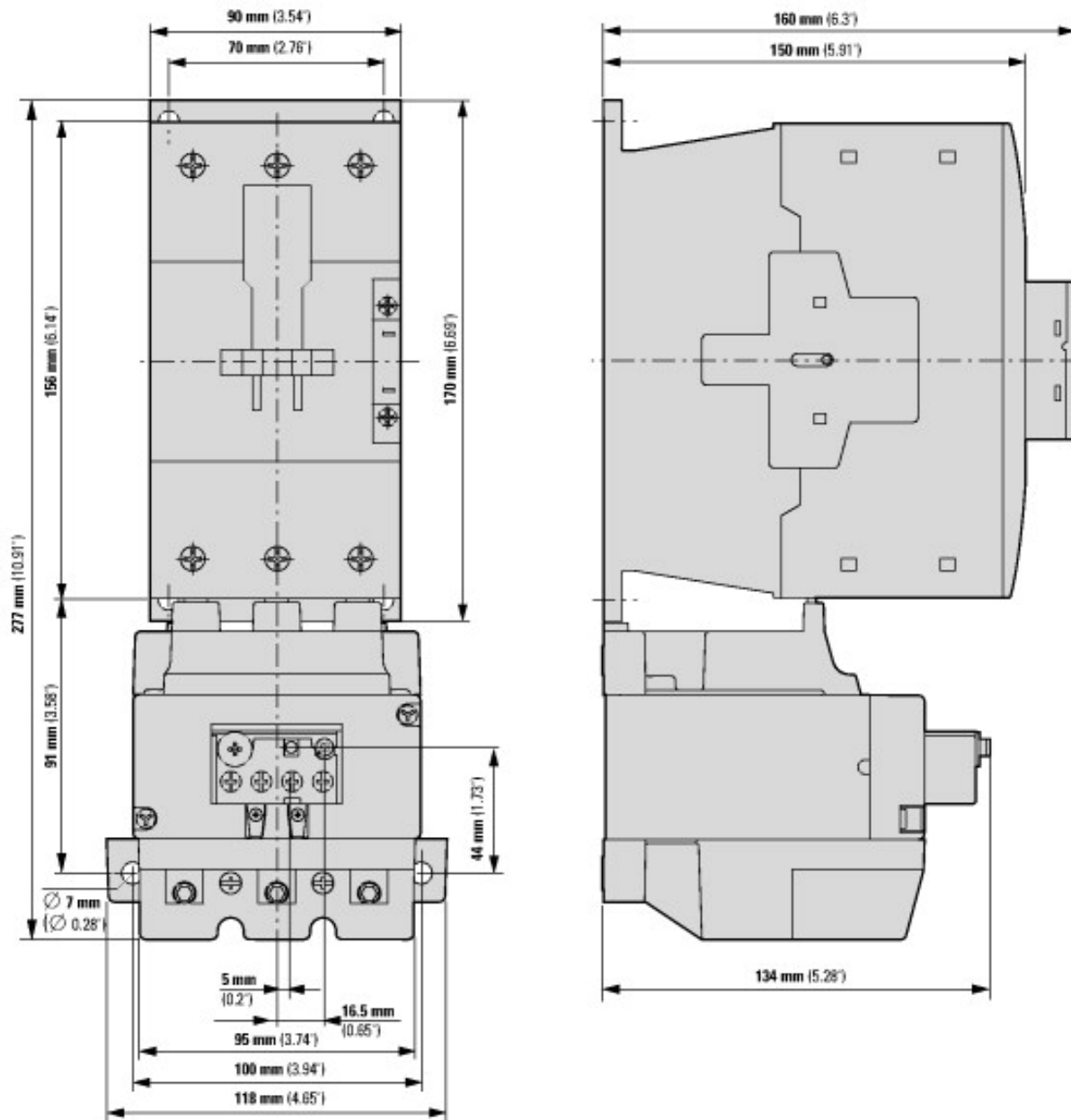
## Characteristics



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



- ① OFF
- ② Reset/ON

## Additional product information (links)

### IL03407006Z (AWA2300-1276) Overload relay

IL03407006Z (AWA2300-1276) Overload relay [ftp://ftp.moeller.net/DOCUMENTATION/AWA\\_INSTRUCTIONS/IL03407006Z2018\\_03.pdf](ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03407006Z2018_03.pdf)

### MN03407005Z (AWB2300-1545) ZB65 and ZB150 overload relays - overload monitoring of Ex e motors

MN03407005Z (AWB2300-1545) ZB65 and ZB150 [ftp://ftp.moeller.net/DOCUMENTATION/AWB\\_MANUALS/MN03407005Z\\_DE\\_EN.pdf](ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN03407005Z_DE_EN.pdf)  
 overload relays - overload monitoring of Ex e  
 motors - Deutsch / English