
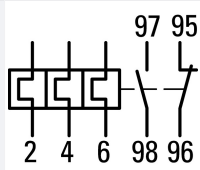




**Overload relay, Direct mounting, Earth-fault protection: with, I<sub>r</sub>= 20 - 100 A, 1 N/O, 1 N/C**

**Part no.** ZEB65-100-GF  
**Catalog No.** 136505  
**Alternate Catalog No.** XTOE100DGS  
**EL-Nummer (Norway)** 4137374

### Delivery program

|                               |   |   |   |
|-------------------------------|---|---|---|
| Product range                 |   |   | Electronic overload relays ZEB  |
| Phase-failure sensitivity     |   |   | IEC/EN 60947, VDE 0660 Part 102   |
| Description                   |   |   | Test/off button<br>Reset pushbutton<br>Manual/auto reset selectable<br>Protection in the case of starting under load (class 10 to class 20) |
| Mounting type                 |   |   | Direct mounting   |
| <b>Earth-fault protection</b> |   |   |   |
| Earth-fault protection        |   |   | with  |
| Trip at approx.               |   |   | > 0.5 x I <sub>r</sub> in 2 s<br>> 1.5 x I <sub>r</sub> in 1 s  |
| <b>Setting range</b>          |   |   |   |
| Overload releases             | I <sub>r</sub>  | A | 20 - 100  |
|                               |  |   |   |
| Contact sequence              |   |   |    |
| <b>Auxiliary contacts</b>     |   |   |   |
| N/O = Normally open           |   |   | 1 N/O   |
| N/C = Normally closed         |   |   | 1 N/C   |
| For use with                  |   |   | DILM40<br>DILM50<br>DILM65<br>DILM72<br>DIULM40<br>DIULM50<br>DIULM65<br>SDAINLM70<br>SDAINLM90<br>SDAINLM115                               |

### Technical data

|   |  |    |  |
|---|--|----|--|
| <b>General</b>  |  |    |  |
| 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   |  |    |  |
| Open  |  | °C | -25 - +65  |
| Ambient temperature open max.   |  | °C | 65   |
| Enclosed  |  | °C |  |
| Ambient temperature enclosed max.                                     |  | °C | 45   |
| Mechanical shock resistance   |  | g  | 15<br>Shock duration 10 ms<br>according to IEC 60068-2-27                      |
| Degree of Protection  |  |    | IP20   |
| 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            | 6000        |
| Overvoltage category/pollution degree        |           |                 | III/3       |
| Rated insulation voltage                     | $U_i$     | V AC            | 690         |
| Rated operational voltage                    | $U_e$     | V AC            | 690         |
| Rated frequency                              | f         | Hz              | 50/60       |
| Safe isolation to EN 61140                   |           |                 |             |
| Between auxiliary contacts and main contacts |           | V AC            | 600         |
| Between main circuits                        |           | V AC            | 600         |
| Terminal capacities                          |           | mm <sup>2</sup> |             |
| Solid  |           | mm <sup>2</sup> | 1 x 16 - 50 |
| Solid or stranded                            |           | AWG             | 1 x 6 - 1   |
| Stripping length                             |           | mm              | 14          |

## Auxiliary and control circuits

|                                       |           |                 |   |
|---------------------------------------|-----------|-----------------|---|
| Rated impulse withstand voltage       | $U_{imp}$ | V               | 6000  |
| Overvoltage category/pollution degree |           |                 | III/3   |
| Terminal capacities                   |           | mm <sup>2</sup> |   |
| Solid                                 |           | mm <sup>2</sup> | 2 x (0.75 - 4)  |
| Flexible with ferrule                 |           | mm <sup>2</sup> | 2 x (0.75 - 2.5)  |
| Solid or stranded                     |           | AWG             | 2 x (18 - 12)   |
| Terminal screw                        |           |                 | M3.5  |
| Tightening torque                     |           | Nm              | 0.8 - 1.2   |
| Tightening torque                     |           | lb-in           | 7   |
| 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               | 5   |
| 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   |

## Rating data for approved types

|                              |  |      |             |
|------------------------------|--|------|-------------|
| Auxiliary contacts           |  |      |             |
| Pilot Duty                   |  |      |             |
| AC operated                  |  |      | B600        |
| DC operated                  |  |      | R300        |
| Short Circuit Current Rating |  | SCCR |             |
| 600 V High Fault             |  |      |             |
| SCCR (fuse)                  |  | kA   | 100         |
| max. Fuse                    |  | A    | 200 Class J |

## Design verification as per IEC/EN 61439

|  |            |    |  |
|--|------------|----|--|
| Technical data for design verification   |            |    |  |
| Rated operational current for specified heat dissipation   | $I_n$      | A  | 100  |
| Heat dissipation per pole, current-dependent   | $P_{vid}$  | W  | 8.47   |
| Equipment heat dissipation, current-dependent  | $P_{vid}$  | W  | 25.4   |
| 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 | 65   |
| 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

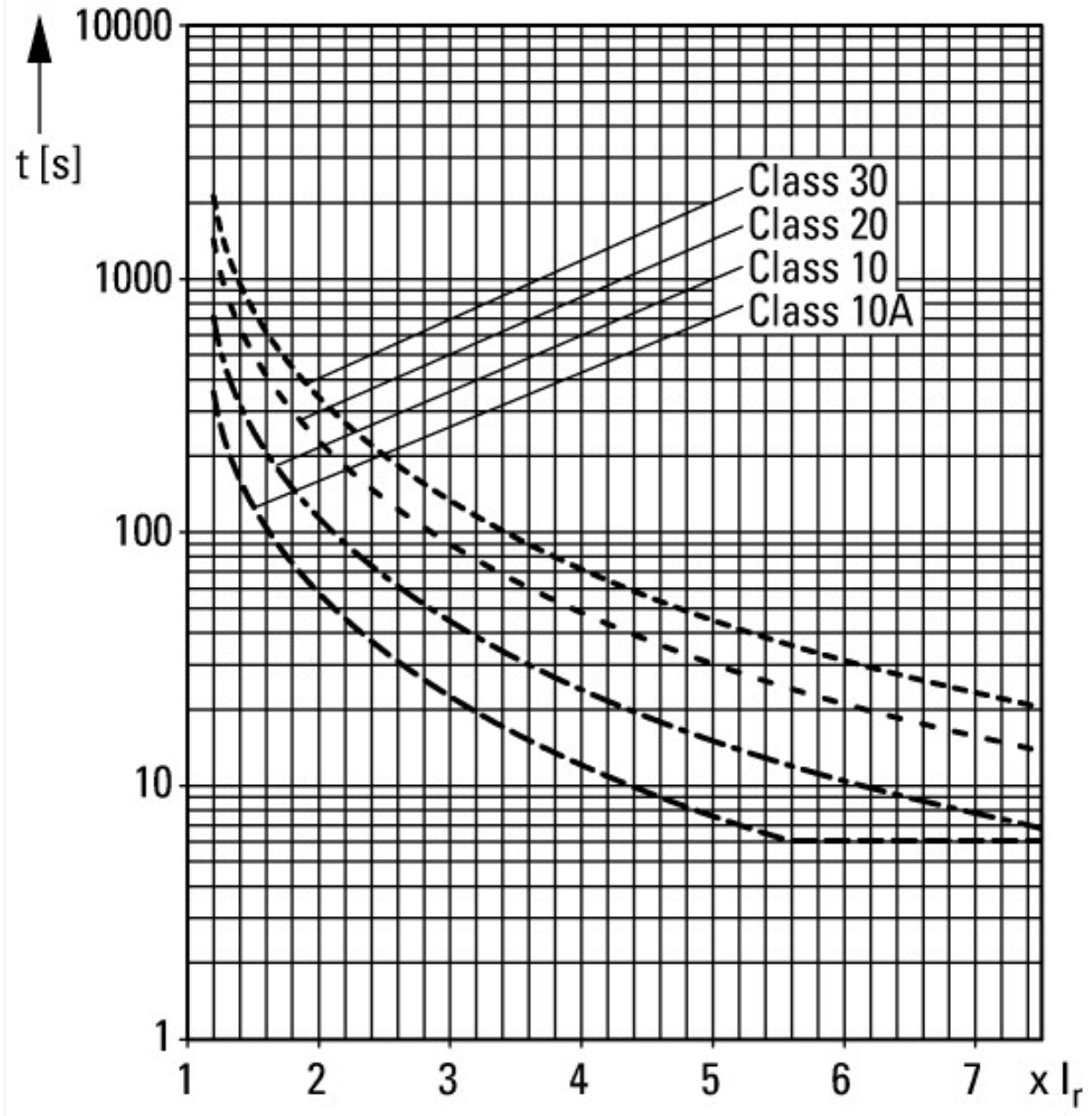
|   |  |   |                   |
|---|--|---|-------------------|
| Low-voltage industrial components (EG000017) / Electronic overload relay (EC001080)   |  |   |                   |
| Electric engineering, automation, process control engineering / Low-voltage switch technology / Overload protection device / Electronic overload relay (ecl@ss10.0.1-27-37-15-02 [AKF076014]) |  |   |                   |
| Adjustable current range  |  | A | 20 - 100          |
| 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            |
| Rated control supply voltage Us at AC 50HZ          | V | 0 - 0        |
| Rated control supply voltage Us at AC 60HZ          | V | 0 - 0        |
| Rated control supply voltage Us at DC               | V | 0 - 0        |
| Release class                                       |   | Adjustable   |
| Voltage type for actuating                          |   | Self powered |
| Reset function automatic                            |   | Yes          |
| Reset function input                                |   | No           |
| Reset function push-button                          |   | Yes          |

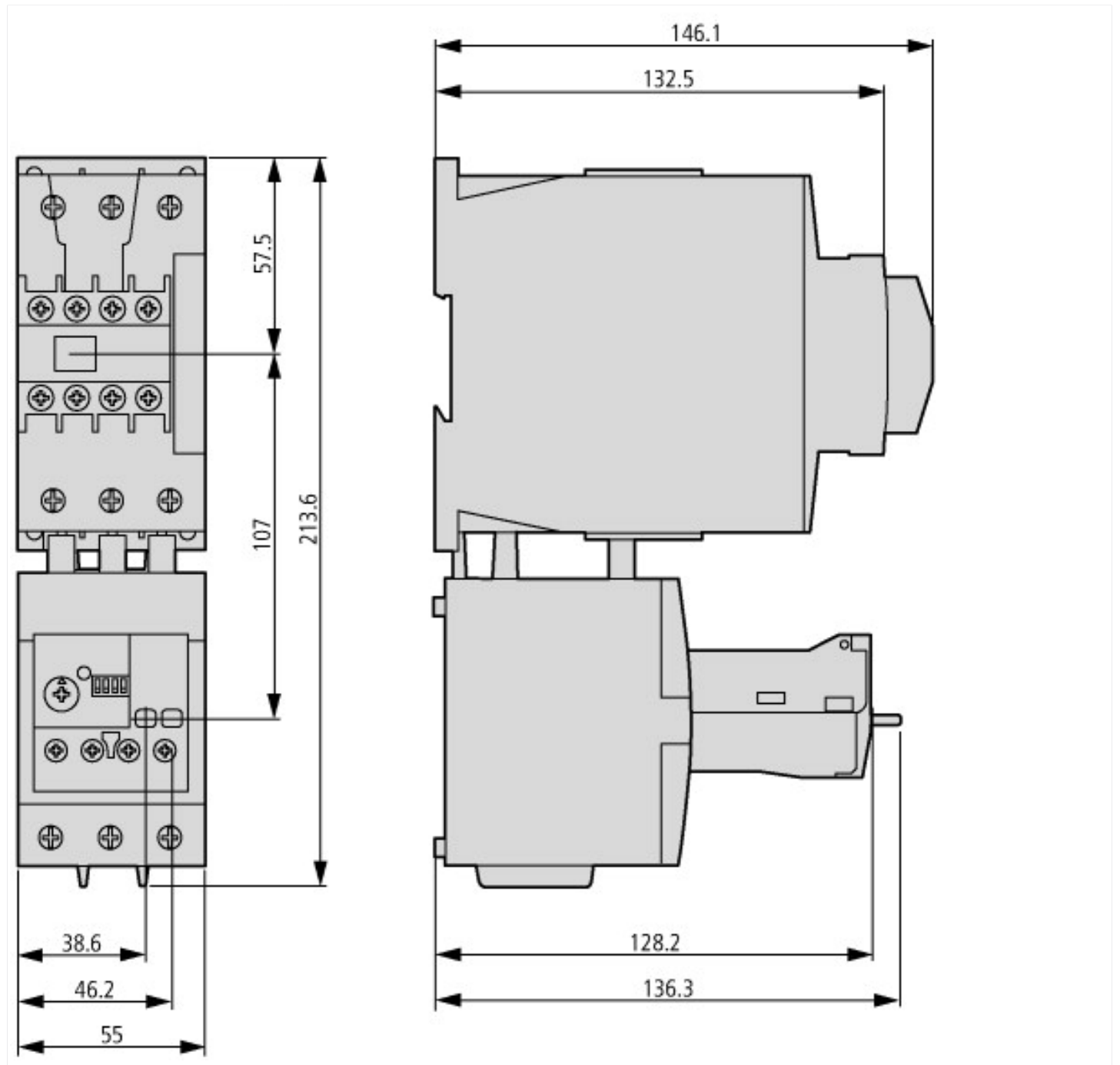
## Approvals

|                                      |  |  |
|--------------------------------------|--|--|
| Product Standards                    |  | UL 508; CSA-C22.2 No. 14; IEC/EN 60947-4-1; CE marking |
| UL File No.                          |  | E1230  |
| UL Category Control No.              |  | NKCR   |
| CSA File No.                         |  | 2290956  |
| 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



## Dimensions



## Assets (links)

### Declaration of CE Conformity

00003052

### Instruction Leaflets

IL04210002E2018\_08

## Additional product information (links)

### IL04210002E Solid-state motor protection relay

IL04210002E Solid-state motor protection relay [ftp://ftp.moeller.net/DOCUMENTATION/AWA\\_INSTRUCTIONS/IL04210002E2018\\_08.pdf](ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL04210002E2018_08.pdf)