

## Overload relay, ZB65, Ir= 50 - 65 A, 1 N/O, 1 N/C, Direct mounting, IP00

**Part no.**                   **ZB65-65**  
                                   **278460**  
**EL Number**               **4131855**  
**(Norway)**

| <b>General specifications</b>                  |  |
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| Product name                                   | Eaton Moeller® series ZB Thermal overload relay  |
| Part no.                                       | ZB65-65  |
| EAN  | 4015082784607  |
| Product Length/Depth                           | 88 millimetre  |
| Product height                                 | 75 millimetre  |
| Product width                                  | 60 millimetre  |
| Product weight                                 | 0.23 kilogram  |
| Certifications                                 | UL 60947-4-1<br>IEC/EN 60947-4-1<br>CE<br>CSA-C22.2 No. 60947-4-1-14<br>CSA Class No.: 3211-03<br>UL File No.: E29184<br>CSA<br>UL Category Control No.: NKCR<br>VDE 0660<br>CSA File No.: 012528<br>IEC/EN 60947<br>UL  |
| Product Tradename                              | ZB   |
| Product Type                                   | Thermal overload relay   |
| Product Sub Type                               | None   |
| Catalog Notes                                  | Ambient air temperature: Operating range to IEC/EN 60947, PTB: -5°C to +55°C<br>Ambient operating temperature (according to IEC/EN 60947)<br>PTB: -5 °C - +55 °C<br>Rated operational current: Switch-on and switch-off conditions based on DC-13, time constant as specified. |
| <b>Features &amp; Functions</b>                |  |
| Features                                       | Phase-failure sensitivity (according to IEC/EN 60947, VDE 0660 Part 102)<br>Reset pushbutton manual/auto<br>Test/off button<br>Trip-free release   |
| <b>General information</b>                     |  |
| Ambient operating temperature - min            | -25 °C   |
| Ambient operating temperature - max            | 55 °C  |
| Ambient operating temperature (enclosed) - min | 25 °C  |
| Ambient operating temperature (enclosed) - max | 40 °C  |
| Class  | CLASS 10 A   |
| Climatic proofing                              | Damp heat, cyclic, to IEC 60068-2-30<br>Damp heat, constant, to IEC 60068-2-78   |
| Degree of protection                           | IP00   |
| Frame size                                     | ZB65   |
| Mounting method                                | Direct mounting<br>Direct attachment   |
| Overload release current setting - min         | 50 A   |
| Overload release current setting - max         | 65 A   |
| Overvoltage category                           | III  |
| Pollution degree                               | 3  |
| Product category                               | Accessories<br>Overload relay ZB up to 150 A   |
| Protection                                     | Finger and back-of-hand proof, Protection against direct contact when actuated from front (EN 50274)   |
| Rated impulse withstand voltage (Uimp)         | 4000 V (auxiliary and control circuits)<br>6000 V AC   |
| Shock resistance                               | 10 g, Mechanical, Sinusoidal, Shock duration 10 ms   |
| Suitable for                                   | Branch circuits, (UL/CSA)  |

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| Temperature compensation   |  | $\leq 0.25\%/K$ , residual error for $T > 40^\circ$<br>Continuous  |
| <b>Terminal capacities</b>   |  |  |
| Terminal capacity (flexible with ferrule)                                  |  | 1 x (1 - 25) mm <sup>2</sup> , Main cables<br>2 x (1 - 25) mm <sup>2</sup> , Main cables<br>2 x (0.75 - 2.5) mm <sup>2</sup> , Control circuit cables<br>1 x (0.75 - 2.5) mm <sup>2</sup> , Control circuit cables |
| Terminal capacity (solid)  |  | 2 x (1 - 16) mm <sup>2</sup> , Main cables<br>2 x (0.75 - 4) mm <sup>2</sup> , Control circuit cables<br>1 x (1 - 16) mm <sup>2</sup> , Main cables<br>1 x (0.75 - 4) mm <sup>2</sup> , Control circuit cables     |
| Terminal capacity (solid/stranded AWG)                                     |  | 14 - 2, Main cables<br>2 x (18 - 14), Control circuit cables   |
| Terminal capacity (stranded)   |  | 1 x (16 - 25) mm <sup>2</sup> , Main cables  |
| Stripping length (main cable)  |  | 11 mm  |
| Stripping length (control circuit cable)                                   |  | 8 mm   |
| Screw size   |  | M3.5, Terminal screw, Control circuit cables<br>M6, Terminal screw, Main cables  |
| Screwdriver size   |  | 1 x 6 mm, Terminal screw, Standard screwdriver<br>2, Terminal screw, Pozidriv screwdriver  |
| Tightening torque  |  | 1.2 Nm, Screw terminals, Control circuit cables<br>3.5 Nm, Screw terminals, Main cables  |
| <b>Electrical rating</b>   |  |  |
| Conventional thermal current $I_{th}$ of auxiliary contacts (1-pole, open) |  | 6 A  |
| Rated operational current ( $I_e$ ) at AC-15, 120 V                        |  | 1.5 A  |
| Rated operational current ( $I_e$ ) at AC-15, 220 V, 230 V, 240 V          |  | 1.5 A  |
| Rated operational current ( $I_e$ ) at AC-15, 380 V, 400 V, 415 V          |  | 0.9 A  |
| Rated operational current ( $I_e$ ) at DC-13, 110 V                        |  | 0.4 A  |
| Rated operational current ( $I_e$ ) at DC-13, 220 V, 230 V                 |  | 0.2 A  |
| Rated operational current ( $I_e$ ) at DC-13, 24 V                         |  | 0.9 A  |
| Rated operational current ( $I_e$ ) at DC-13, 60 V                         |  | 0.75 A   |
| Rated operational voltage ( $U_e$ ) - max                                  |  | 690 V  |
| Safe isolation   |  | 440 V AC, Between main circuits, According to EN 61140<br>240 V AC, Between auxiliary contacts, According to EN 61140<br>440 V, Between auxiliary contacts and main contacts, According to EN 61140                |
| Switching capacity (auxiliary contacts, pilot duty)                        |  | B300 at opposite polarity, AC operated (UL/CSA)<br>R300, DC operated (UL/CSA)<br>B600 at opposite polarity, AC operated (UL/CSA)   |
| Voltage rating - max   |  | 600 V AC   |
| <b>Short-circuit rating</b>  |  |  |
| Short-circuit current rating (basic rating)                                |  | 150 A, max. CB, SCCR (UL/CSA)<br>10 kA, SCCR (UL/CSA)<br>200 A, max. Fuse, SCCR (UL/CSA)   |
| Short-circuit current rating (high fault at 480 V)                         |  | 100 kA, Fuse, SCCR (UL/CSA)<br>100 A, max. CB, SCCR (UL/CSA)<br>125 A, Class J/CC, max. Fuse, SCCR (UL/CSA)<br>65 kA, CB, SCCR (UL/CSA)  |
| Short-circuit current rating (high fault at 600 V)                         |  | 125 A, Class J/CC, max. Fuse, SCCR (UL/CSA)<br>100 kA, Fuse, SCCR (UL/CSA)   |
| Short-circuit protection rating  |  | Max. 6 A gG/gL, fuse, Without welding, Auxiliary and control circuits<br>160 A gG/gL, Fuse, Type "1" coordination<br>100 A gG/gL, Fuse, Type "2" coordination  |
| <b>Contacts</b>  |  |  |
| Number of auxiliary contacts (change-over contacts)                        |  | 0  |
| Number of auxiliary contacts (normally closed contacts)                    |  | 1  |
| Number of auxiliary contacts (normally open contacts)                      |  | 1  |
| Number of contacts (normally closed contacts)                              |  | 1  |
| Number of contacts (normally open contacts)                                |  | 1  |
| <b>Design verification</b>   |  |  |
| Equipment heat dissipation, current-dependent $P_{vid}$                    |  | 13.5 W   |
| Heat dissipation capacity $P_{diss}$                                       |  | 0 W  |
| Heat dissipation per pole, current-dependent $P_{vid}$                     |  | 4.5 W  |
| Rated operational current for specified heat dissipation ( $I_n$ )         |  | 65 A   |
| Static heat dissipation, non-current-dependent $P_{vs}$                    |  | 0 W  |

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| 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 Resist. of insul. mat. to abnormal heat/fire by internal elect. 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.   |
| 10.9.2 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 8.0

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| 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 | 50 - 65           |
| Max. rated operation voltage U <sub>e</sub>  | 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 A        |
| Reset function input   |   | No                |
| Reset function automatic   |   | Yes               |
| Reset function push-button   |   | Yes               |