

Type: **DILM12-10(24V50HZ)**  
 Article No.: **276817**



**Ordering information**

|   |       |    |     |
|---|-------|----|-----|
| Rated operational current AC-3 400 V                      | $I_e$ | A  | 12  |
| Max. rating for three-phase motors, 50 – 60 Hz AC-3 230 V | $P$   | kW | 3.5 |
| Max. rating for three-phase motors, 50 – 60 Hz AC-3 400 V | $P$   | kW | 5.5 |
| Max. rating for three-phase motors, 50 – 60 Hz AC-3 690 V | $P$   | kW | 6.5 |
| Max. rating for three-phase motors, 50 – 60 Hz AC-4 230 V | $P$   | kW | 2   |
| Max. rating for three-phase motors, 50 – 60 Hz AC-4 400 V | $P$   | kW | 3   |
| Max. rating for three-phase motors, 50 – 60 Hz AC-4 690 V | $P$   | kW | 4.4 |

**General**

|                                 |              |               |  |
|---------------------------------|--------------|---------------|--|
| Standards                       |              |               | IEC/EN 60947, VDE 0660, UL, CSA  |
| Lifespan, mechanical            |              |               |  |
| AC operated                     | Operations   | $\times 10^6$ | 10   |
| DC operated                     | Operations   | $\times 10^6$ | 10   |
| Operating frequency, mechanical |              |               |  |
| AC operated                     | Operations/h |               | 9000   |
| DC operated                     | Operations/h |               | 9000   |
| Climatic proofing               |              |               | Damp heat, constant, to IEC 60068-2-78<br>Damp heat, cyclical, to IEC 60068-2-30 |
| Ambient temperature             |              |               |  |
| Open                            |              | °C            | -25/60   |
| Enclosed                        |              | °C            | -25/40   |
| Storage                         |              | °C            | -40/80   |

|  |  |                 |                                      |
|--|--|-----------------|--------------------------------------|
| Mechanical shock resistance (IEC/EN 60068-2-27)                      |  |                 |                                      |
| Half-sinusoidal shock, 20 ms   |  |                 |                                      |
| Main contacts  |  |                 |                                      |
| Make contact   |  | g               | 10                                   |
| Auxiliary contacts   |  |                 |                                      |
| Make contact   |  | g               | 7                                    |
| Break contact  |  | g               | 5                                    |
| Protection type  |  |                 | IP20                                 |
| Protection against direct contact when actuated from front (IEC 536) |  |                 | Finger- and back-of-hand proof       |
| Weight   |  |                 |                                      |
| AC operated  |  | kg              | 0,23                                 |
| DC operated  |  | kg              | 0,28                                 |
| Terminal capacity Main cable   |  |                 |                                      |
| Solid  |  | mm <sup>2</sup> | 1 × (0.75 – 4)<br>2 × (0.75 – 2.5)   |
| Flexible with ferrule  |  | mm <sup>2</sup> | 1 × (0.75 – 2.5)<br>2 × (0.75 – 2,5) |
| Solid or stranded  |  | AWG             | 18 – 14                              |
| Anschlussschraube Hauptleiter  |  |                 | M3.5                                 |
| Tightening torque  |  | Nm              | 1.2                                  |
| Terminal capacity Control circuit cables                             |  |                 |                                      |
| Solid  |  | mm <sup>2</sup> | 1 × (0.75 – 4)<br>2 × (0.75 – 2.5)   |
| Flexible with ferrule  |  | mm <sup>2</sup> | 1 × (0.75 – 2.5)<br>2 × (0.75 – 2.5) |
| Solid or stranded  |  | AWG             | 18 – 14                              |
| Anschlussschraube Hilfsleiter  |  |                 | M3.5                                 |
| Tightening torque  |  | Nm              | 1.2                                  |
| Tool   |  |                 |                                      |
| Main cable   |  |                 |                                      |
| Pozidriv screwdriver   |  | Size            | 2                                    |
| Standard screwdriver   |  | mm              | 0.8 × 5.5<br>1 × 6                   |
| Control circuit cables   |  |                 |                                      |
| Pozidriv screwdriver   |  | Size            | 2                                    |
| Standard screwdriver   |  | mm              | 0.8 × 5.5<br>1 × 6                   |
| Terminal capacity Main cable   |  |                 |                                      |
| Solid  |  | mm <sup>2</sup> | 0.75 – 2.5                           |
| flexible   |  | mm <sup>2</sup> | 0.75 – 2.5                           |
| flexible with ferrules   |  | mm <sup>2</sup> | 0.75 – 2.5                           |
| Solid or stranded  |  | AWG             | 18 – 14                              |
| Terminal capacity Control circuit cables                             |  |                 |                                      |
| Solid  |  | mm <sup>2</sup> | 0.75 – 2.5                           |
| Flexible   |  | mm <sup>2</sup> | 0.75 – 2.5                           |
| Flexible with ferrule  |  | mm <sup>2</sup> | 0.75 – 2.5                           |

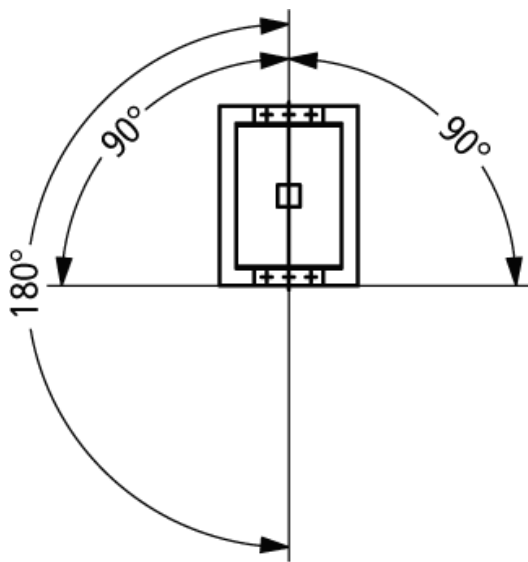
|   |             |       |                          |
|---|-------------|-------|--------------------------|
| Solid or stranded   |             | AWG   | 18 – 14                  |
| Tool  |             |       |                          |
| Stripping length  |             | mm    | 10                       |
| Screwdriver blade width                                     |             | mm    | 3,5                      |
| <b>Main conducting paths</b>                                |             |       |                          |
| Rated impulse withstand voltage                             | $U_{imp}$   | V AC  | 8000                     |
| Overvoltage category/pollution degree                       |             |       | III/3                    |
| Rated insulation voltage                                    |             |       |                          |
| AC  | $U_i$       | V AC  | 690                      |
| Rated operational voltage                                   | $U_e$       | V AC  | 690                      |
| Safe isolation to VDE 0106 Part 101 and Part 101/A1         |             |       |                          |
| between coil and contacts                                   |             | V AC  | 400                      |
| between the contacts  |             | V AC  | 400                      |
| Making capacity (cos $\bar{O}$ to IEC/EN 60947) up to 690 V |             | A     | 144                      |
| Breaking capacity   |             |       |                          |
| 220/230 V   |             | A     | 120                      |
| 380/400 V   |             | A     | 120                      |
| 500 V   |             | A     | 100                      |
| 660/690 V   |             | A     | 70                       |
| Component lifespan  |             |       |                          |
| AC-3/AC-4   |             |       | Tripping characteristics |
| Maximum operating frequency                                 |             |       |                          |
| AC-1; 400 V   | $I_e$       | Ops/h | 800                      |
| AC-3; 400 V   | $I_e$       | Ops/h | 1000                     |
| AC-4; 400 V   | $I_e$       | Ops/h | 300                      |
| Short-circuit rating  |             |       |                          |
| Short-circuit protection Maximum fuse                       |             |       |                          |
| Type "2" coordination                                       |             |       |                          |
| 400 V   | gG/gL 500 V | A     | 20                       |
| 690 V   | gG/gL 690 V | A     | 20                       |
| Type "1" coordination                                       |             |       |                          |
| 400 V   | gG/gL 500 V | A     | 35                       |
| 690 V   | gG/gL 690 V | A     | 25                       |
| <b>AC</b>   |             |       |                          |
| AC-1 duty   |             |       |                          |
| conv. therm. current 3-pole 50 – 60 Hz                      |             |       |                          |
| open  |             |       |                          |
| at 40 °C  | $I_{th}$    | A     | 22                       |
| at 50 °C  | $I_{th}$    | A     | 21                       |
| at 55 °C  | $I_{th}$    | A     | 21                       |
| at 60 °C  | $I_{th}$    | A     | 20                       |
| Enclosed  | $I_{th}$    | A     | 18                       |
| Conventional free air thermal current, 1-pole               |             |       |                          |

|   |          |    |     |
|---|----------|----|-----|
| open  | $I_{th}$ | A  | 50  |
| Enclosed  | $I_{th}$ | A  | 45  |
| AC-3 duty   |          |    |     |
| Rated operational current AC-3 open, 50 – 60 Hz, 3-pole |          |    |     |
| 220/230 V   | $I_e$    | A  | 12  |
| 240 V   | $I_e$    | A  | 12  |
| 380/400 V   | $I_e$    | A  | 12  |
| 415 V   | $I_e$    | A  | 12  |
| 440V  | $I_e$    | A  | 12  |
| 500 V   | $I_e$    | A  | 10  |
| 660/690 V   | $I_e$    | A  | 7   |
| Motor rating  |          |    |     |
| 220/230 V   | $P$      | kW | 3,5 |
| 240V  | $P$      | kW | 4   |
| 380/400 V   | $P$      | kW | 5,5 |
| 415 V   | $P$      | kW | 7   |
| 440 V   | $P$      | kW | 7,5 |
| 500 V   | $P$      | kW | 7   |
| 660/690 V   | $P$      | kW | 6,5 |
| AC-4 duty   |          |    |     |
| Rated operational current AC-4 open, 50 – 60 Hz, 3-pole |          |    |     |
| 220/230 V   | $I_e$    | A  | 7   |
| 240 V   | $I_e$    | A  | 7   |
| 380/400 V   | $I_e$    | A  | 7   |
| 415 V   | $I_e$    | A  | 7   |
| 440 V   | $I_e$    | A  | 7   |
| 500 V   | $I_e$    | A  | 6   |
| 660/690 V   | $I_e$    | A  | 5   |
| Motor rating  |          |    |     |
| 220/230 V   | $P$      | kW | 2   |
| 240 V   | $P$      | kW | 2,2 |
| 380/400 V   | $P$      | kW | 3   |
| 415 V   | $P$      | kW | 3,4 |
| 440 V   | $P$      | kW | 3,6 |
| 500 V   | $P$      | kW | 3,5 |
| 660/690 V   | $P$      | kW | 4,4 |
| <b>DC</b>   |          |    |     |
| of three-phase capacitors open                          |          |    |     |
| DC-1 operation  |          |    |     |
| 60 V  | $I_e$    | A  | 20  |
| 110 V   | $I_e$    | A  | 20  |
| 220 V   | $I_e$    | A  | 15  |
| 440 V   | $I_e$    | A  | 1,3 |
| DC-3 operation  |          |    |     |
| 60 V  | $I_e$    | A  | 20  |

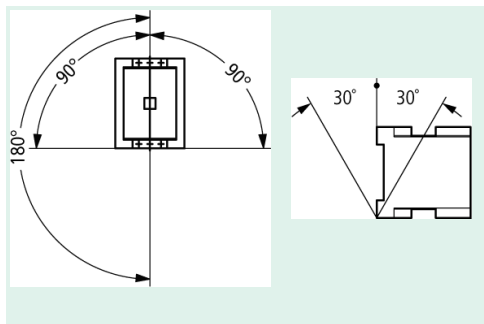
|  |         |              |            |
|--|---------|--------------|------------|
| 110 V  | $I_e$   | A            | 20         |
| 220 V  | $I_e$   | A            | 1,5        |
| 440 V  | $I_e$   | A            | 0,2        |
| DC-5 operation   |         |              |            |
| 60 V   | $I_e$   | A            | 20         |
| 110 V  | $I_e$   | A            | 20         |
| 220 V  | $I_e$   | A            | 1,5        |
| 440 V  | $I_e$   | A            | 0,2        |
| <b>Current heat loss (3-pole)</b>                                  |         |              |            |
| Current heat loss at $I_{th}$                                      |         | W            | 4,7        |
| Current heat loss at $I_e$ to AC-3/400 V                           |         | W            | 1,1        |
| Impedance per pole   |         | mΩ           | 2,5        |
| <b>Magnet systems</b>  |         |              |            |
| Voltage tolerance  |         |              |            |
| AC operated  |         |              |            |
| AC operated  | Pick-up | $\times U_c$ | 0,8 – 1,1  |
| Drop-out voltage AC operated                                       |         |              |            |
| Drop-out voltage AC operated                                       | Abfall  | $\times U_c$ | 0,3 – 0,6  |
| DC operated  |         |              |            |
| DC operated  | Pick-up | $\times U_c$ | 0,8 – 1,1  |
| DC operated  |         |              |            |
| DC operated  | Abfall  | $\times U_c$ | 0,15–0,6   |
| Power consumption of the coil in a cold state and $1.0 \times U_c$ |         |              |            |
| 50 Hz  | Pick-up | VA           | 24         |
| 50 Hz  | Pick-up | W            | 19         |
| 50 Hz  | Sealing | VA           | 4          |
| 50 Hz  | Sealing | W            | 1,2        |
| 60 Hz  | Pick-up | VA           | 29         |
| 60 Hz  | Pick-up | W            | 23         |
| 60 Hz  | Sealing |              | 4,4        |
| 60 Hz  | Sealing | VA           | 1,3        |
| 50/60 Hz   | Pick-up | VA           | 28<br>26   |
| 50/60 Hz   | Pick-up | W            | 22<br>21   |
| 50/60 Hz   | Sealing | VA           | 4,6<br>3,9 |
| 50/60 Hz   | Sealing | W            | 1,4<br>1,2 |
| DC operated  | Pick-up | W            | 4.5        |
| DC operated  | Sealing | W            | 4.5        |
| Duty factor  |         | % DF         | 100        |
| Switching times at 100 % $U_c$ (approximate values)                |         |              |            |
| Main contacts  |         |              |            |
| AC operated  |         |              |            |
| Closing delay  |         | ms           | 20         |

|  |  |    |               |
|--|--|----|---------------|
| Opening delay                              |  | ms | 15            |
| DC operated                                |  |    |               |
| Closing delay                              |  | ms | 35            |
| Opening delay                              |  | ms | 15            |
| Arcing time                                |  | ms | 10            |
| <b>Electromagnetic compatibility (EMC)</b> |  |    |               |
| Emitted interference                       |  |    | to EN 60947-1 |
| Interference immunity                      |  |    | to EN 60947-1 |

## Mounting position



## Mounting position, AC- and DC operated



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