



Contactor, 3p+1N/C, 7.5kW/400V/AC3

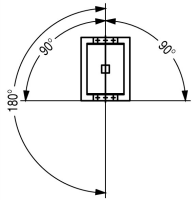
Part no. **DILM15-01(TVC100)**  
Article no. **290103**  
Catalog No. **XTCE015B01E6**

## Delivery programme

|   |                |    |  |
|---|----------------|----|--|
| Product range   |                |    | Contactors   |
| Application   |                |    | Contactors for Motors  |
| Subrange  |                |    | Contactors up to 170 A, 3 pole   |
| Utilization category                                      |                |    | AC-1: Non-inductive or slightly inductive loads, resistance furnaces<br>NAC-3: Normal AC induction motors: starting, switch off during running<br>AC-4: Normal AC induction motors: starting, plugging, reversing, inching |
| Notes   |                |    | Not suitable for motors with efficiency class IE3.   |
| Connection technique                                      |                |    | Screw terminals  |
| Pole  |                |    | 3 pole   |
| <b>Rated operational current</b>                          |                |    |  |
| AC-3  |                |    |  |
| 380 V 400 V   | $I_e$          | A  | 15.5   |
| AC-1  |                |    |  |
| Conventional free air thermal current, 3 pole, 50 - 60 Hz |                |    |  |
| Open  |                |    |  |
| at 40 °C  | $I_{th} = I_e$ | A  | 22   |
| enclosed  | $I_{th}$       | A  | 18   |
| Conventional free air thermal current, 1 pole             |                |    |  |
| open  | $I_{th}$       | A  | 50   |
| enclosed  | $I_{th}$       | A  | 45   |
| <b>Max. rating for three-phase motors, 50 - 60 Hz</b>     |                |    |  |
| AC-3  |                |    |  |
| 220 V 230 V   | P              | kW | 4  |
| 380 V 400 V   | P              | kW | 7.5  |
| 660 V 690 V   | P              | kW | 7  |
| AC-4  |                |    |  |
| 220 V 230 V   | P              | kW | 2  |
| 380 V 400 V   | P              | kW | 3  |
| 660 V 690 V   | P              | kW | 4.4  |
| <b>Contacts</b>   |                |    |  |
| N/C = Normally closed                                     |                |    | 1 NC   |
| Contact sequence  |                |    |  |
| <strong>Instructions</strong>                             |                |    | Contacts to EN 50012.<br>with mirror contact.  |
| Can be combined with auxiliary contact                    |                |    | DILA-XHI(V)..  |
| Voltage AC/DC   |                |    | AC operation   |

## Technical data

|                                 |              |               |                                 |
|---------------------------------|--------------|---------------|---------------------------------|
| <b>General</b>                  |              |               |                                 |
| 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 |               | 5000                            |

|   |                 |  |
|---|-----------------|--|
| DC operated   | Operations/h    | 5000   |
| Climatic proofing   |                 | Damp heat, constant, to IEC 60068-2-78<br>Damp heat, cyclic, to IEC 60068-2-30     |
| Ambient temperature   | °C              |  |
| Open  | °C              | -25 - +60  |
| Enclosed  | °C              | - 25 - 40  |
| Storage   | °C              | - 40 - 80  |
| Mounting position   |                 |  |
| Mechanical shock resistance (IEC/EN 60068-2-27)                       |                 |  |
| Half-sinusoidal shock, 10 ms  |                 |  |
| Main contacts   |                 |  |
| N/O contact   | g               | 10   |
| Auxiliary contacts  |                 |  |
| N/O contact   | g               | 7  |
| N/C contact   | g               | 5  |
| Mechanical shock resistance (IEC/EN 60068-2-27) when tabletop-mounted |                 |  |
| Half-sinusoidal shock, 10 ms  |                 |  |
| Main contacts   |                 |  |
| N/O contact   | g               | 5.7  |
| Auxiliary contacts  |                 |  |
| N/O contact   | g               | 3.4  |
| N/C contact   | g               | 3.4  |
| Degree of Protection  |                 | IP20   |
| Protection against direct contact when actuated from front (EN 50274) |                 | 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 x (0.75 - 4)<br>2 x (0.75 - 2.5)   |
| Flexible with ferrule   | mm <sup>2</sup> | 1 x (0.75 - 2.5)<br>2 x (0.75 - 2,5)   |
|   |                 | Also without ferrule.  |
| Solid or stranded   | AWG             | 18 - 10  |
| Main cable connection screw/bolt                                      |                 | M3.5   |
| Tightening torque   | Nm              | 1.2  |
| Terminal capacity control circuit cables                              |                 |  |
| Solid   | mm <sup>2</sup> | 1 x (0.75 - 4)<br>2 x (0.75 - 2.5)   |
| Flexible with ferrule   | mm <sup>2</sup> | 1 x (0.75 - 2.5)<br>2 x (0.75 - 2.5)   |
| Solid or stranded   | AWG             | 18 - 10  |
| Control circuit cable connection screw/bolt                           |                 | M3.5   |
| Tightening torque   | Nm              | 1.2  |
| Tool  |                 |  |
| Main cable  |                 |  |
| Pozidriv screwdriver  | Size            | 2  |
| Standard screwdriver  | mm              | 0.8 x 5.5<br>1 x 6   |
| Control circuit cables  |                 |  |
| Pozidriv screwdriver  | Size            | 2  |
| Standard screwdriver  | mm              | 0.8 x 5.5<br>1 x 6   |

|  |  |                 |                                      |
|--|--|-----------------|--------------------------------------|
| Terminal capacity main cable             |  |                 |                                      |
| Solid                                    |  | mm <sup>2</sup> | 1 x (0.75 - 2.5)<br>2 x (0.75 - 2.5) |
| flexible                                 |  | mm <sup>2</sup> | 1 x (0.75 - 2.5)<br>2 x (0.75 - 2.5) |
| flexible with ferrules                   |  | mm <sup>2</sup> | 1 x (0.75 - 1.5)<br>2 x (0.75 - 1.5) |
| Solid or stranded                        |  | AWG             | 18 - 14                              |
| Terminal capacity control circuit cables |  |                 |                                      |
| Solid                                    |  | mm <sup>2</sup> | 1 x (0.75 - 2.5)<br>2 x (0.75 - 2.5) |
| Flexible                                 |  | mm <sup>2</sup> | 1 x (0.75 - 2.5)<br>2 x (0.75 - 2.5) |
| Flexible with ferrule                    |  | mm <sup>2</sup> | 1 x (0.75 - 1.5)<br>2 x (0.75 - 1.5) |
| Solid or stranded                        |  | AWG             | 18 - 14                              |
| Tool                                     |  |                 |                                      |
| Stripping length                         |  | mm              | 10                                   |
| Screwdriver blade width                  |  | mm              | 3.5                                  |

### Main conducting paths

|  |                |      |       |
|--|----------------|------|-------|
| Rated impulse withstand voltage        | $U_{imp}$      | V AC | 8000  |
| Overvoltage category/pollution degree  |                |      | III/3 |
| Rated insulation voltage               | $U_i$          | V AC | 690   |
| Rated operational voltage              | $U_e$          | V AC | 690   |
| Safe isolation to EN 61140             |                |      |       |
| between coil and contacts              |                | V AC | 400   |
| between the contacts                   |                | V AC | 400   |
| Making capacity (p.f. to IEC/EN 60947) |                |      |       |
|  | $U_p$ to 690 V | A    | 155   |
| Breaking capacity                      |                |      |       |
| 220 V 230 V                            |                | A    | 124   |
| 380 V 400 V                            |                | A    | 124   |
| 500 V                                  |                | A    | 100   |
| 660 V 690 V                            |                | A    | 70    |
| 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    | 63    |
| 690 V                                  | gG/gL 690 V    | A    | 50    |

### AC

|   |                |   |    |
|---|----------------|---|----|
| AC-1  |                |   |    |
| Rated operational current                                 |                |   |    |
| Conventional free air thermal current, 3 pole, 50 - 60 Hz |                |   |    |
| Open  |                |   |    |
| at 40 °C  | $I_{th} = I_e$ | A | 22 |
| at 50 °C  | $I_{th} = I_e$ | A | 21 |
| at 55 °C  | $I_{th} = I_e$ | A | 21 |
| at 60 °C  | $I_{th} = I_e$ | 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  |                |   |    |
| Rated operational current                                 |                |   |    |

|                                 |       |     |      |
|---------------------------------|-------|-----|------|
| Open, 3-pole: 50 – 60 Hz        |       |     |      |
| 220 V 230 V                     | $I_e$ | A   | 15.5 |
| 240 V                           | $I_e$ | A   | 15.5 |
| 380 V 400 V                     | $I_e$ | A   | 15.5 |
| 415 V                           | $I_e$ | A   | 15.5 |
| 440V                            | $I_e$ | A   | 15.5 |
| 500 V                           | $I_e$ | A   | 12.5 |
| 660 V 690 V                     | $I_e$ | A   | 9    |
| 380 V 400 V                     | $I_e$ | A   | 15.5 |
| Motor rating                    | P     | kWh |      |
| 220 V 230 V                     | P     | kW  | 4    |
| 240V                            | P     | kW  | 4.6  |
| 380 V 400 V                     | P     | kW  | 7.5  |
| 415 V                           | P     | kW  | 8    |
| 440 V                           | P     | kW  | 8.4  |
| 500 V                           | P     | kW  | 7.5  |
| 660 V 690 V                     | P     | kW  | 7    |
| <b>AC-4</b>                     |       |     |      |
| Open, 3-pole: 50 – 60 Hz        |       |     |      |
| 220 V 230 V                     | $I_e$ | A   | 7    |
| 240 V                           | $I_e$ | A   | 7    |
| 380 V 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 V 690 V                     | $I_e$ | A   | 5    |
| Motor rating                    | P     | kWh |      |
| 220 V 230 V                     | P     | kW  | 2    |
| 240 V                           | P     | kW  | 2.2  |
| 380 V 400 V                     | P     | kW  | 3    |
| 415 V                           | P     | kW  | 3.4  |
| 440 V                           | P     | kW  | 3.6  |
| 500 V                           | P     | kW  | 3.5  |
| 660 V 690 V                     | P     | kW  | 4.4  |
| <b>DC</b>                       |       |     |      |
| Rated operational current, open |       |     |      |
| <b>DC-1</b>                     |       |     |      |
| 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  |
| <b>DC-3</b>                     |       |     |      |
| 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>DC-5</b>                     |       |     |      |
| 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</b>        |       |     |      |
| 3-pole at $I_{th}$              |       | W   | 3    |

|  |            |     |
|--|------------|-----|
| Current heat loss at $I_g$ to AC-3/400 V | W          | 1.8 |
| Impedance per pole                       | m $\Omega$ | 2.5 |

## Magnet systems

|  |          |               |   |
|--|----------|---------------|---|
| Voltage tolerance  |          | $\times U_c$  |   |
| AC operated  | Pick-up  | $\times U_c$  | 0.8 - 1.1   |
| Drop-out voltage AC operated                                       | Drop-out | $\times U_c$  | 0.3 - 0.6   |
| DC operated  | Pick-up  | $\times U_c$  | 0.8 - 1.1   |
| DC operated  | Drop-out | $\times U_c$  | 0.15 - 0.6  |
| Notes  |          |               | at least smoothed two-phase bridge rectifier or three-phase rectifier               |
| Power consumption of the coil in a cold state and $1.0 \times U_c$ |          |               |   |
| 50 Hz  | Pick-up  | VA            | 24  |
| 50 Hz  | Sealing  | VA            | 3.4   |
| 50 Hz  | Sealing  | W             | 1.2   |
| 60 Hz  | Pick-up  | VA            | 30  |
| 60 Hz  | Sealing  | VA            | 4.4   |
| 60 Hz  | Sealing  | W             | 1.4   |
| 50/60 Hz   | Pick-up  | VA            | 27<br>25  |
| 50/60 Hz   | Sealing  | VA            | 4.2<br>3.3  |
| 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            | 15 - 21   |
| Opening delay  |          | ms            | 9 - 18  |
| DC operated  |          | ms            |   |
| Closing delay  |          | ms            | 31  |
| Opening delay  |          | ms            | 12  |
| Arcing time  |          | ms            | 10  |
| Lifespan, mechanical; Coil 50/60 Hz                                |          | $\times 10^6$ | Mechanical lifespan at 50 Hz approx. 30% lower than under "Technical data, general" |

## Electromagnetic compatibility (EMC)

|                       |  |  |               |
|-----------------------|--|--|---------------|
| Emitted interference  |  |  | to EN 60947-1 |
| Interference immunity |  |  | to EN 60947-1 |

## Design verification as per IEC/EN 61439

|  |            |                    |  |
|--|------------|--------------------|--|
| Technical data for design verification   |            |                    |  |
| Rated operational current for specified heat dissipation   | $I_n$      | A                  | 15.5                                       |
| Heat dissipation per pole, current-dependent   | $P_{vid}$  | W                  | 0.5  |
| Equipment heat dissipation, current-dependent  | $P_{vid}$  | W                  | 0  |
| Static heat dissipation, non-current-dependent   | $P_{vs}$   | W                  | 1.4  |
| Heat dissipation capacity  | $P_{diss}$ | W                  | 0  |
| Operating ambient temperature min.   |            | $^{\circ}\text{C}$ | -25  |
| Operating ambient temperature max.   |            | $^{\circ}\text{C}$ | 60   |
| 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.                         |

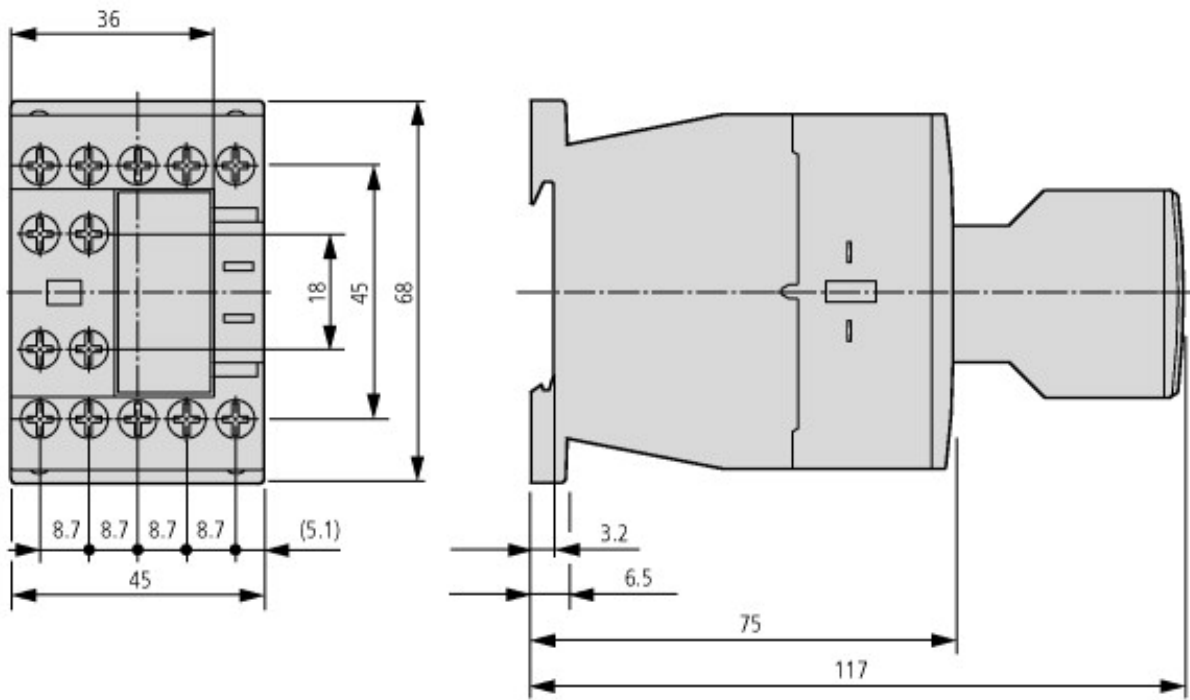
## Technical data ETIM 5.0

|  |    |                  |
|--|----|------------------|
| Low-voltage industrial components (EG000017) / Magnet contactor, AC-switching (EC000066)   |    |                  |
| Electric engineering, automation, process control engineering / Low-voltage switch technology / Contactor (LV) / Power contactor, AC switching (ecl@ss8-27-37-10-03 [AAB718011]) |    |                  |
| Rated control supply voltage $U_s$ at AC 50HZ  | V  | 100 - 100        |
| Rated control supply voltage $U_s$ at AC 60HZ  | V  | 100 - 110        |
| Rated control supply voltage $U_s$ at DC   | V  | 0 - 0            |
| Voltage type for actuating   |    | AC               |
| Rated operation current $I_e$ at AC-1, 400 V   | A  | 18               |
| Rated operation current $I_e$ at AC-3, 400 V   | A  | 15.5             |
| Rated operation power at AC-3, 400 V   | kW | 7.5              |
| Rated operation current $I_e$ at AC-4, 400 V   | A  | 7                |
| Rated operation power $I_e$ at AC-4, 400 V   | kW | 3                |
| Modular version  |    | No               |
| Number of auxiliary contacts as normally open contact  |    | 0                |
| Number of auxiliary contacts as normally closed contact  |    | 1                |
| Connection type main current circuit   |    | Screw connection |
| Number of normally closed contacts as main contact   |    | 0                |
| Number of main contacts as normally open contact   |    | 3                |



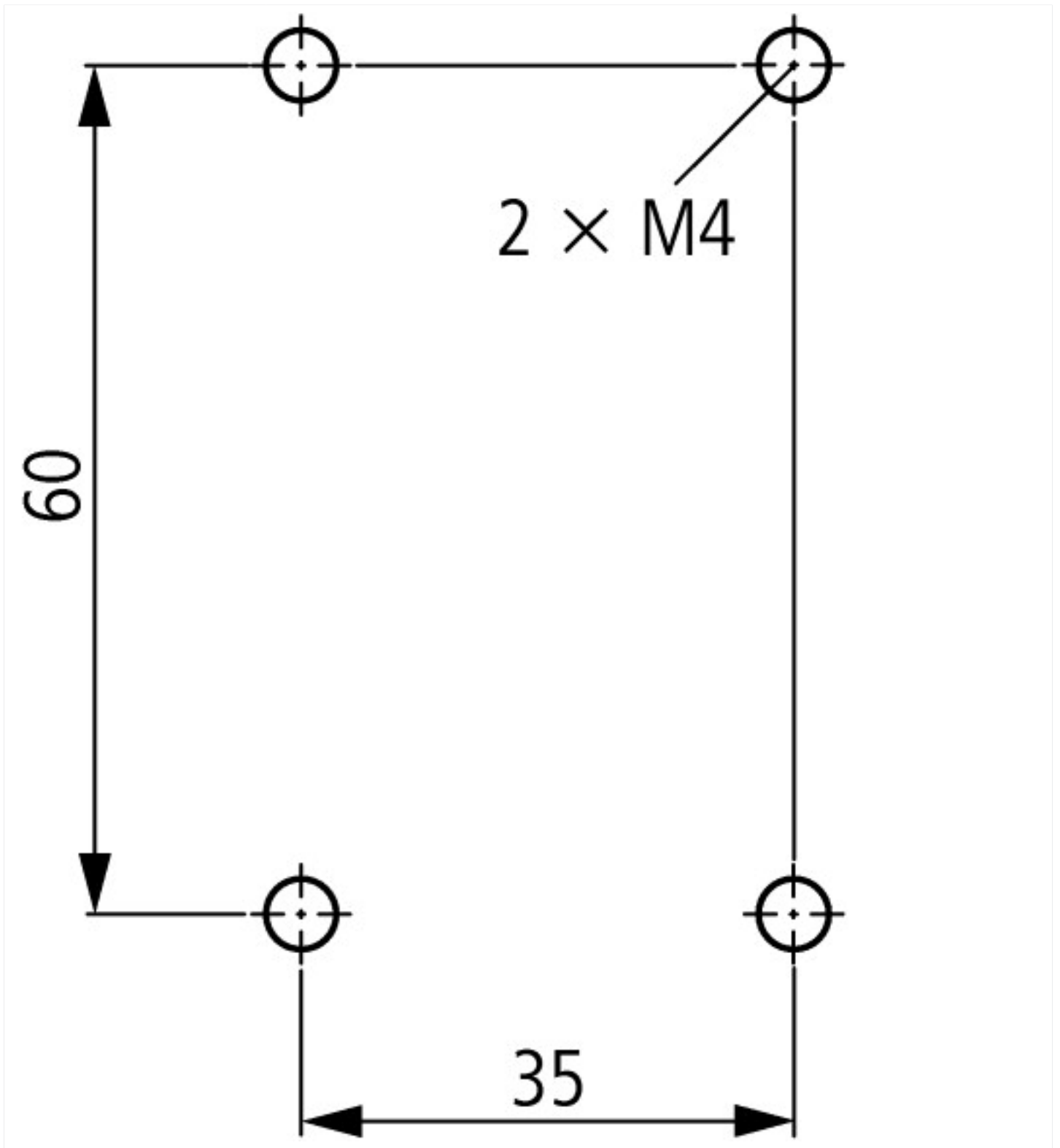
- 1: Overload relay
- 2: Suppressor
- 3: Auxiliary contact modules

## Dimensions



Contacteur avec module de contact auxiliaire





### Additional product information (links)

|  |   |
|--|---|
| UL/CSA: Approved rating data   | <a href="http://de.ecat.moeller.net/flip-cat/?edition=HPLTE&amp;startpage=5.84">http://de.ecat.moeller.net/flip-cat/?edition=HPLTE&amp;startpage=5.84</a> |
| UL/CSA: UL/CSA: Special Purpose Rating   | <a href="http://de.ecat.moeller.net/flip-cat/?edition=HPLTE&amp;startpage=5.85">http://de.ecat.moeller.net/flip-cat/?edition=HPLTE&amp;startpage=5.85</a> |
| UL/CSA: UL/CSA: Short Circuit Current Rating (SCCR)  | <a href="http://de.ecat.moeller.net/flip-cat/?edition=HPLTE&amp;startpage=5.86">http://de.ecat.moeller.net/flip-cat/?edition=HPLTE&amp;startpage=5.86</a> |
| Switchgear of Power Factor Correction Systems  | <a href="http://www.moeller.net/binary/ver_techpapers/ver934en.pdf">http://www.moeller.net/binary/ver_techpapers/ver934en.pdf</a>                         |
| X-Start - Modern Switching Installations Efficiently Fitted and Wired Securely                 | <a href="http://www.moeller.net/binary/ver_techpapers/ver938en.pdf">http://www.moeller.net/binary/ver_techpapers/ver938en.pdf</a>                         |
| Mirror Contacts for Highly-Reliable Information Relating to Safety-Related Control Functions   | <a href="http://www.moeller.net/binary/ver_techpapers/ver944en.pdf">http://www.moeller.net/binary/ver_techpapers/ver944en.pdf</a>                         |
| Effect of the Cabel Capacitance of Long Control Cables on the Actuation of Contactors          | <a href="http://www.moeller.net/binary/ver_techpapers/ver949en.pdf">http://www.moeller.net/binary/ver_techpapers/ver949en.pdf</a>                         |
| Motor starters and "Special Purpose Ratings" for the North American market                     | <a href="http://www.moeller.net/binary/ver_techpapers/ver953en.pdf">http://www.moeller.net/binary/ver_techpapers/ver953en.pdf</a>                         |
| Switchgear for Luminaires  | <a href="http://www.moeller.net/binary/ver_techpapers/ver955en.pdf">http://www.moeller.net/binary/ver_techpapers/ver955en.pdf</a>                         |
| Standard Compliant and Functionally Safe Engineering Design with Mechanical Auxiliary Contacts | <a href="http://www.moeller.net/binary/ver_techpapers/ver956en.pdf">http://www.moeller.net/binary/ver_techpapers/ver956en.pdf</a>                         |

|  |   |
|--|---|
| The Interaction of Contactors with PLCs                        | <a href="http://www.moeller.net/binary/ver_techpapers/ver957en.pdf">http://www.moeller.net/binary/ver_techpapers/ver957en.pdf</a> |
| Busbar Component Adapters for modern Industrial control panels | <a href="http://www.moeller.net/binary/ver_techpapers/ver960en.pdf">http://www.moeller.net/binary/ver_techpapers/ver960en.pdf</a> |