



Contactor relay, 3N/O+1N/C, AC



Part no. DILA-31(190V50HZ,220V60HZ)  
 Catalog No. 276362  
 Eaton Catalog No. XTRE10B31G

**Delivery program**

|                                               |       |   |                                                                   |
|-----------------------------------------------|-------|---|-------------------------------------------------------------------|
| Product range                                 |       |   | DILA relays                                                       |
| Application                                   |       |   | Contactor relays                                                  |
| Description                                   |       |   | Basic devices with positive operation contacts                    |
| Connection technique                          |       |   | Screw terminals                                                   |
| <b>Rated operational current</b>              |       |   |                                                                   |
| AC-15                                         |       |   |                                                                   |
| 220 V 230 V 240 V                             | $I_e$ | A | 4                                                                 |
| 380 V 400 V 415 V                             | $I_e$ | A | 4                                                                 |
| <b>Contacts</b>                               |       |   |                                                                   |
| N/O = Normally open                           |       |   | 3 N/O                                                             |
| N/C = Normally closed                         |       |   | 1 NC                                                              |
| Contact sequence                              |       |   |                                                                   |
| <b>Code number and version of combination</b> |       |   |                                                                   |
| Distinctive number                            |       |   | 31E                                                               |
| Can be combined with auxiliary contact module |       |   | DILA-XHI(V)...                                                    |
| Actuating voltage                             |       |   | 190 V 50 Hz, 220 V 60 Hz                                          |
| Voltage AC/DC                                 |       |   | AC operation                                                      |
| <b>Instructions</b>                           |       |   | Contact numbers to EN 50011<br>Coil terminal markings to EN 50005 |

**Technical data**

|                                                 |              |               |                                                                                |
|-------------------------------------------------|--------------|---------------|--------------------------------------------------------------------------------|
| <b>General</b>                                  |              |               |                                                                                |
| Standards                                       |              |               | IEC/EN 60947, EN 60947-5-1, VDE 0660, UL, CSA                                  |
| Lifespan, mechanical                            |              |               |                                                                                |
| AC operated                                     | Operations   | $\times 10^6$ | 20                                                                             |
| Maximum operating frequency                     | Operations/h |               | 9000                                                                           |
| Climatic proofing                               |              |               | Damp heat, constant, to IEC 60068-2-78<br>Damp heat, cyclic, to IEC 60068-2-30 |
| Ambient temperature                             |              |               |                                                                                |
| Open                                            |              | °C            | -25 - +60                                                                      |
| Enclosed                                        |              | °C            | - 25 - 40                                                                      |
| Ambient temperature, storage                    |              | °C            | - 40 - 80                                                                      |
| Mounting position                               |              |               |                                                                                |
| Mounting position                               |              |               |                                                                                |
| Mechanical shock resistance (IEC/EN 60068-2-27) |              |               |                                                                                |
| Half-sinusoidal shock, 10 ms                    |              |               |                                                                                |
| Basic unit with auxiliary contact module        |              | g             |                                                                                |
| N/O contact                                     |              | g             | 7                                                                              |
| N/C contact                                     |              | g             | 5                                                                              |
| Degree of Protection                            |              |               | IP20                                                                           |

|                                                                       |  |                 |                                      |
|-----------------------------------------------------------------------|--|-----------------|--------------------------------------|
| Protection against direct contact when actuated from front (EN 50274) |  |                 | Finger and back-of-hand proof        |
| Weight                                                                |  |                 |                                      |
| AC operated                                                           |  | kg              | 0.24                                 |
| Terminal capacities                                                   |  | mm <sup>2</sup> |                                      |
| Screw terminals                                                       |  |                 |                                      |
| 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 - 14                              |
| Stripping length                                                      |  | mm              | 10                                   |
| Terminal screw                                                        |  |                 | M3.5                                 |
| Pozidriv screwdriver                                                  |  | Size            | 2                                    |
| Standard screwdriver                                                  |  | mm              | 0.8 x 5.5<br>1 x 6                   |
| Max. tightening torque                                                |  | Nm              | 1.2                                  |

## Contacts

|                                                                             |                |           |                                                                                                                    |
|-----------------------------------------------------------------------------|----------------|-----------|--------------------------------------------------------------------------------------------------------------------|
| Positive operating contacts to ZH 1/457, including auxiliary contact module |                |           | Yes                                                                                                                |
| Rated impulse withstand voltage                                             | $U_{imp}$      | V AC      | 6000                                                                                                               |
| Overtoltage 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 auxiliary contacts                                         |                | V AC      | 400                                                                                                                |
| between the auxiliary contacts                                              |                | V AC      | 400                                                                                                                |
| Rated operational current                                                   |                | A         |                                                                                                                    |
| Conventional free air thermal current, 1 pole                               |                |           |                                                                                                                    |
| Open                                                                        |                |           |                                                                                                                    |
| at 60 °C                                                                    | $I_{th} = I_e$ | A         | 16                                                                                                                 |
| AC-15                                                                       |                |           |                                                                                                                    |
| 220 V 230 V 240 V                                                           | $I_e$          | A         | 4                                                                                                                  |
| 380 V 400 V 415 V                                                           | $I_e$          | A         | 4                                                                                                                  |
| 500 V                                                                       | $I_e$          | A         | 1.5                                                                                                                |
| DC current                                                                  |                |           |                                                                                                                    |
| Notes                                                                       |                |           | Switch-on and switch-off conditions based on DC-13, time constant as specified.                                    |
| DC L/R $\leq$ 15 ms                                                         |                |           |                                                                                                                    |
| Contacts in series:                                                         |                | A         |                                                                                                                    |
| 1                                                                           | 24 V           | A         | 10                                                                                                                 |
| 1                                                                           | 60 V           | A         | 6                                                                                                                  |
| 2                                                                           | 60 V           | A         | 10                                                                                                                 |
| 1                                                                           | 110 V          | A         | 3                                                                                                                  |
| 3                                                                           | 110 V          | A         | 6                                                                                                                  |
| 1                                                                           | 220 V          | A         | 1                                                                                                                  |
| 3                                                                           | 220 V          | A         | 5                                                                                                                  |
| DC L/R $\leq$ 50 ms                                                         |                |           |                                                                                                                    |
| Contacts in series:                                                         |                | A         |                                                                                                                    |
| 3                                                                           | 24 V           | A         | 4                                                                                                                  |
| 3                                                                           | 60 V           | A         | 4                                                                                                                  |
| 3                                                                           | 110 V          | A         | 2                                                                                                                  |
| 3                                                                           | 220 V          | A         | 1                                                                                                                  |
| Control circuit reliability                                                 | Failure rate   | $\lambda$ | $<10^{-8}$ , < one failure at 100 million operations<br>(at $U_e = 24$ V DC, $U_{min} = 17$ V, $I_{min} = 5.4$ mA) |
| Short-circuit rating without welding                                        |                |           |                                                                                                                    |
| Maximum overcurrent protective device                                       |                |           |                                                                                                                    |
| 220 V 230 V 240 V                                                           |                | PKZM0     | 4                                                                                                                  |
| 380 V 400 V 415 V                                                           |                | PKZM0     | 4                                                                                                                  |

|                                       |  |         |      |
|---------------------------------------|--|---------|------|
| Short-circuit protection maximum fuse |  |         |      |
| 500 V                                 |  | A gG/gL | 10   |
| Current heat loss at $I_{th}$         |  |         |      |
| AC operated                           |  | W       | 0.53 |

### Magnet systems

|                                                                                                      |         |         |         |
|------------------------------------------------------------------------------------------------------|---------|---------|---------|
| Voltage tolerance                                                                                    |         |         |         |
| AC operated                                                                                          |         |         |         |
| Single-voltage coil 50 Hz and dual-voltage coil 50 Hz, 60 Hz                                         | Pick-up | $x U_c$ |         |
| Voltage tolerance Single-voltage coil 50 Hz and dual-voltage coil 50 Hz, 60 Hz Pick-up voltage, min. |         | $x U_c$ | 0.8     |
| Voltage tolerance Single-voltage coil 50 Hz and dual-voltage coil 50 Hz, 60 Hz Pick-up voltage, max. |         | $x U_c$ | 1.1     |
| Power consumption                                                                                    |         |         |         |
| AC operation                                                                                         |         |         |         |
| Single-voltage coil 50 Hz and dual-voltage coil 50 Hz, 60 Hz                                         | Pick-up | VA      | 24      |
| Single-voltage coil 50 Hz and dual-voltage coil 50 Hz, 60 Hz                                         | Sealing | VA      | 3.4     |
| Single-voltage coil 50 Hz and dual-voltage coil 50 Hz, 60 Hz                                         | Sealing | W       | 1.4     |
| duty factor                                                                                          |         | % DF    | 100     |
| Changeover time at 100 % $U_S$ (recommended value)                                                   |         |         |         |
| AC operated closing delay                                                                            |         | ms      | 15 - 21 |
| AC operated N/O contact opening delay                                                                |         | ms      | 9 - 18  |

### Rating data for approved types

|                    |  |   |      |
|--------------------|--|---|------|
| Auxiliary contacts |  |   |      |
| Pilot Duty         |  |   |      |
| AC operated        |  |   | A600 |
| DC operated        |  |   | P300 |
| General Use        |  |   |      |
| AC                 |  | V | 600  |
| AC                 |  | A | 15   |
| DC                 |  | V | 250  |
| DC                 |  | A | 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 max.                                                                                     |            | °C | -25                                                                |
| Operating ambient temperature max.                                                                                     |            | °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 6.0

|                                                                                                                                                                      |   |                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|------------------|
| Low-voltage industrial components (EG000017) / Contactor relay (EC000196)                                                                                            |   |                  |
| Electric engineering, automation, process control engineering / Low-voltage switch technology / Contactor (LV) / Contactor relay (ecl@ss8.1-27-37-10-01 [AAB716011]) |   |                  |
| Rated control supply voltage Us at AC 50HZ                                                                                                                           | V | 190 - 190        |
| Rated control supply voltage Us at AC 60HZ                                                                                                                           | V | 220 - 220        |
| Rated control supply voltage Us at DC                                                                                                                                | V | 0 - 0            |
| Voltage type for actuating                                                                                                                                           |   | AC               |
| Rated operation current Ie , 400 V                                                                                                                                   | A | 4                |
| Connection type auxiliary circuit                                                                                                                                    |   | Screw connection |
| Mounting method                                                                                                                                                      |   | DIN-rail/screw   |
| Interface                                                                                                                                                            |   | No               |
| Number of auxiliary contacts as normally closed contact                                                                                                              |   | 1                |
| Number of auxiliary contacts as normally open contact                                                                                                                |   | 3                |
| Number of auxiliary contacts as normally closed contact, delayed switching                                                                                           |   | 0                |
| Number of auxiliary contacts as normally open contact, leading                                                                                                       |   | 0                |
| With LED indication                                                                                                                                                  |   | No               |
| Number of auxiliary contacts as change-over contact                                                                                                                  |   | 0                |
| Manual operation possible                                                                                                                                            |   | No               |

## Approvals

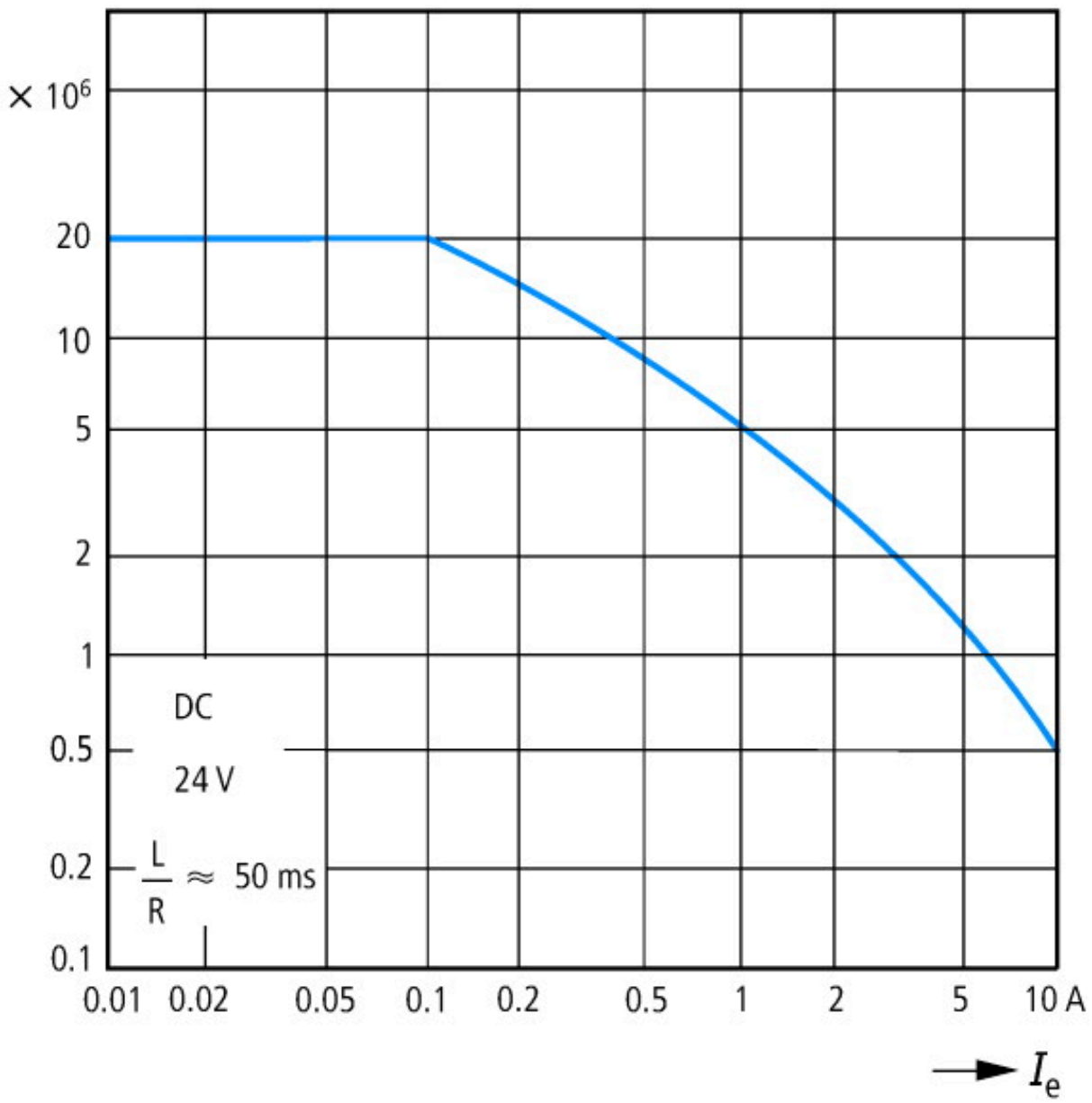
|                                      |  |                                                                          |
|--------------------------------------|--|--------------------------------------------------------------------------|
| Product Standards                    |  | IEC/EN 60947-4-1; UL 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.                         |  | 012528                                                                   |
| CSA Class No.                        |  | 3211-03                                                                  |
| North America Certification          |  | UL listed, CSA certified                                                 |
| Specially designed for North America |  | No                                                                       |



1: Suppressor  
2: Auxiliary contact module

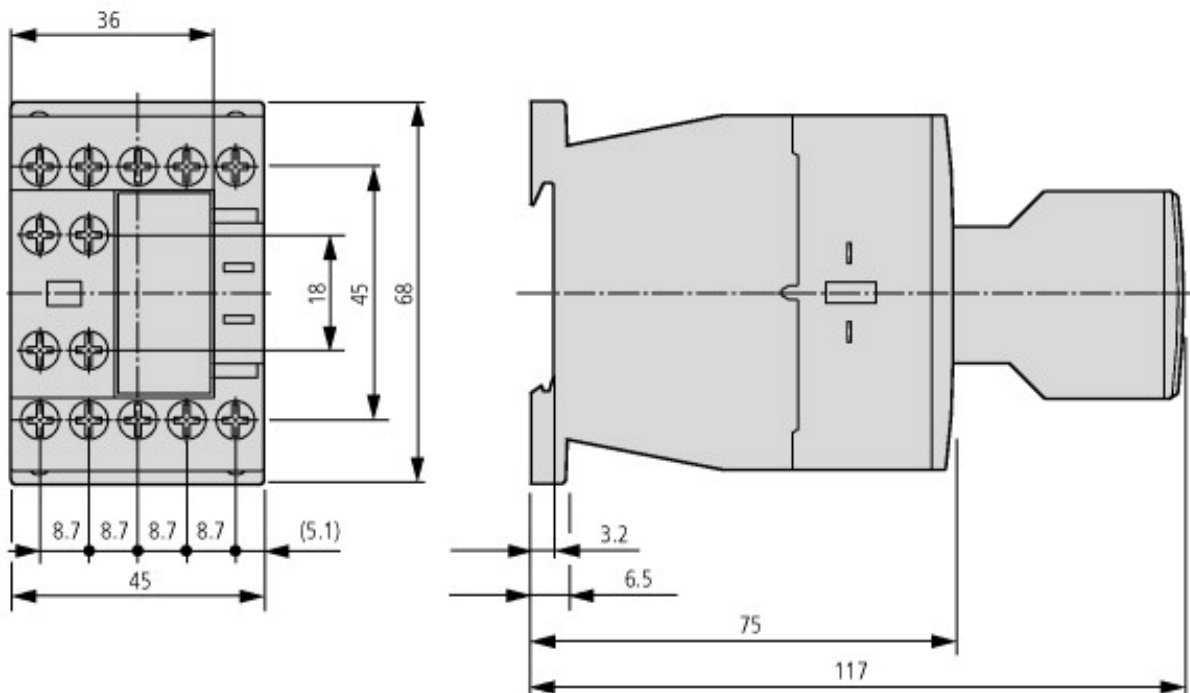


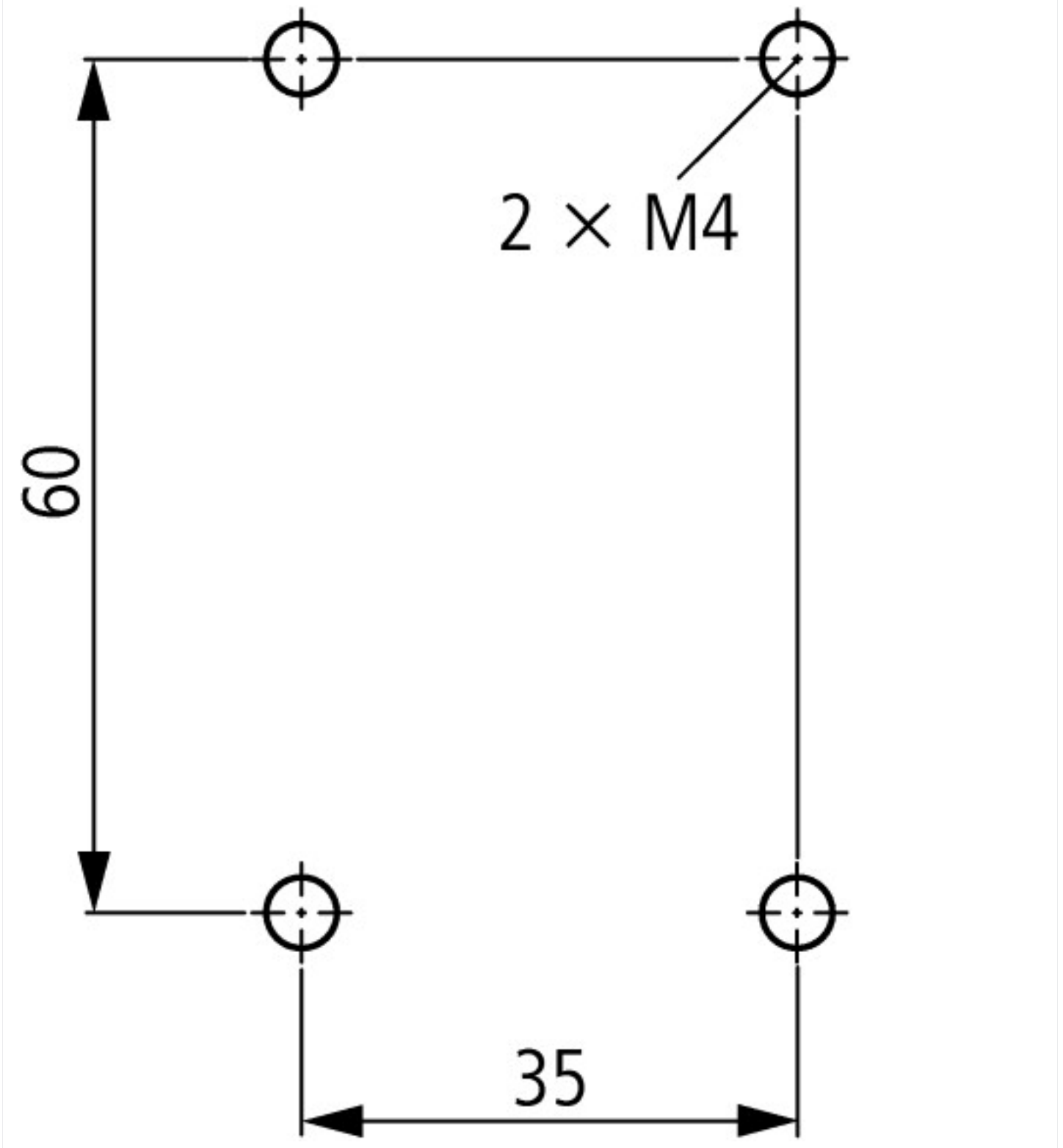
Component lifespan (operations)  
 $I_e$  = Rated operational current



Component lifespan (operations)  
 $I_e$  = Rated operational current

## Dimensions





### Additional product information (links)

IL03407013Z (AWA2100-2126) Contactors

IL03407013Z (AWA2100-2126) Contactors

[ftp://ftp.moeller.net/DOCUMENTATION/AWA\\_INSTRUCTIONS/IL03407013Z2012\\_03.pdf](ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03407013Z2012_03.pdf)

UL/CSA: Approved rating data

<http://de.ecat.moeller.net/flip-cat/?edition=HPLTE&startpage=5.84>