# DATASHEET - 31DILE

**Auxiliary contact module, 4 pole, 3 N/O, 1 NC, Screw terminals**

| | |
|---|---|
| **Part no.** | **31DILE** |
| **Catalog No.** | **048912** |
| **Alternate Catalog No.** | **XTMCXFA31** |
| **EL-Nummer (Norway)** | **4130367** |

## Delivery program

| | | | |
|---|---|---|---|
| Accessories | | | Auxiliary contact modules |
| Description | | | with interlocked opposing contacts<br>Switching elements according to EN 50005<br>Switching elements according to EN 50012 are to be preferred.<br>Version E combinations correspond to EN 50011 and are to be preferred. |
| Function | | | for standard applications |
| Number of poles | | | 4 pole |
| Connection technique | | | Screw terminals |
| **Rated operational current** | | | |
| AC-15 | | | |
| 220 V 230 V 240 V | $I_e$ | A | 4 |
| 380 V 400 V 415 V | $I_e$ | A | 2 |
| **Contacts** | | | |
| N/O = Normally open | | | 3 N/O |
| N/C = Normally closed | | | 1 NC |
| Mounting type | | | Front fixing |
| Contact sequence | | | 53 61 73 83 / 54 62 74 84 |
| For use with | | | DILEM-10(-G)(…)<br>DILEM-01(-G)(…)<br>DILEM-4(-G)(…)<br>DILER40(-G)<br>DILER31(-G)<br>DILER22<br>DILEEM-10(-G)(…)<br>DILEEM-01(-G)(…)<br>DILEM12-10(-G)(…)<br>DILEM12-01(-G)(…) |
| **Instructions** | | | Interlocked opposing contacts according to IEC/EN 60947-5-1 appendix L, inside the auxiliary contact modules, also for the integrated auxiliary contacts of the DILE(E)M Auxiliary contacts used as mirror contacts according to IEC/EN 60947-4-1 Appendix F (not N/C late open) |
| **Code number and version of combination** | | | |
| Distinctive number | | | 71E |
| with basic device | | | DILER-40(-G) |
| | | | 62 |
| with basic device | | | DILER-31(-G) |
| | | | 53 |
| with basic device | | | DILER-22 |

## Technical data

### General

| | | | |
|---|---|---|---|
| Standards | | | IEC/EN 60947, VDE 0660, UL, CSA |
| Lifespan, mechanical | | | |
| AC operated | Operations | x 10$^6$ | 10 |
| DC operated | Operations | x 10$^6$ | 20 |
| Component lifespan at $U_e$ = 240 V | | | |
| AC-15 | Operations | x 10$^6$ | 0.2 |
| DC | | | |

| | | | |
|---|---|---|---|
| L/R = 50 ms: 2 contacts in series at $I_e$ = 0.5 A | Operations | x $10^6$ | 0.15 |
| 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 - +50 |
| Enclosed | | °C | - 25 - 40 |
| Ambient temperature, storage | | °C | - 40 - 80 |
| Mounting position | | | |
| Mounting position | | | As required, except vertical with terminals A1/A2 at the bottom |
| Mechanical shock resistance (IEC/EN 60068-2-27) | | | |
| Half-sinusoidal shock, 10 ms | | | |
| Basic unit with auxiliary contact module | | g | |
| N/O contact | | g | 10 |
| N/C contact | | g | 8 |
| Degree of Protection | | | IP20 |
| Protection against direct contact when actuated from front (EN 50274) | | | Finger and back-of-hand proof |
| Weight | | kg | 0.04 |
| Terminal capacities | | $mm^2$ | |
| Screw terminals | | | |
| Solid | | $mm^2$ | 1 x (0.75 - 2.5)<br>2 x (0.75 - 2.5) |
| Flexible with ferrule | | $mm^2$ | 1 x (0.75 - 1.5)<br>2 x (0.75 - 1.5) |
| Solid or stranded | | AWG | Single 18 – 14/Double 18 – 14 |
| 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

| | | | |
|---|---|---|---|
| Interlocked opposing contacts within an auxiliary contact module (to IEC 60947-5-1 Annex L) | | | Yes |
| 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 | 600 |
| Safe isolation to EN 61140 | | | |
| between coil and auxiliary contacts | | V AC | 300 |
| between the auxiliary contacts | | V AC | 300 |
| Rated operational current | | A | |
| Conventional free air thermal current, 1 pole | | | |
| Notes | | | At maximum permissible ambient air temperature. |
| Conv. thermal current | $I_{th}$ | A | 10 |
| AC-15 | | | |
| 220 V 230 V 240 V | $I_e$ | A | 4 |
| 380 V 400 V 415 V | $I_e$ | A | 2 |
| 500 V | $I_e$ | A | 1.5 |
| DC current | | | |
| | | | Switch-on and switch-off conditions based on DC-13, time constant as specified. |
| DC L/R ≦ 15 ms | | | |
| Contacts in series: | | A | |
| 1 | 24 V | A | 2.5 |
| 2 | 60 V | A | 2.5 |
| 3 | 110 V | A | 1.5 |
| 3 | 220 V | A | 0.5 |
| Control circuit reliability | Failure rate | λ | $<10^{-8}$, < one failure at 100 million operations |

| | | | (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 | 6 |
| 500 V | | A fast | 10 |
| Current heat loss at $I_{th}$ | | | |
| AC operated | | W | 1.5 |
| DC operated | | W | 1.5 |
| Current heat loss per auxiliary circuit at $I_e$ (AC-15/230 V) | | CO | 0.24 |

## Rating data for approved types

| | | | |
|---|---|---|---|
| Auxiliary contacts | | | |
| Pilot Duty | | | |
| AC operated | | | A600 |
| DC operated | | | P300 |
| General Use | | | |
| AC | | V | 600 |
| AC | | A | 10 |
| DC | | V | 250 |
| DC | | A | 0.5 |

# Design verification as per IEC/EN 61439

| | | | |
|---|---|---|---|
| Technical data for design verification | | | |
| Rated operational current for specified heat dissipation | $I_n$ | A | 4 |
| Heat dissipation per pole, current-dependent | $P_{vid}$ | W | 0.24 |
| Equipment heat dissipation, current-dependent | $P_{vid}$ | W | 0 |
| 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 | 50 |
| 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) / Auxiliary contact block (EC000041) | | | |
|---|---|---|---|
| Electric engineering, automation, process control engineering / Low-voltage switch technology / Component for low-voltage switching technology / Auxiliary switch block (ecl@ss10.0.1-27-37-13-02 [AKN342013]) | | | |
| Number of contacts as change-over contact | | | 0 |
| Number of contacts as normally open contact | | | 3 |
| Number of contacts as normally closed contact | | | 1 |
| Number of fault-signal switches | | | 0 |
| Rated operation current Ie at AC-15, 230 V | | A | 4 |
| Type of electric connection | | | Screw connection |
| Model | | | Top mounting |
| Mounting method | | | Front fastening |
| Lamp holder | | | None |

## Approvals

| Product Standards | | | IEC/EN 60947-4-1; UL 508; CSA-C22.2 No. 14-05; 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 |

# Characteristics

AC-1/400 V

Breaking current [A]

Component lifespan [millions of operations]
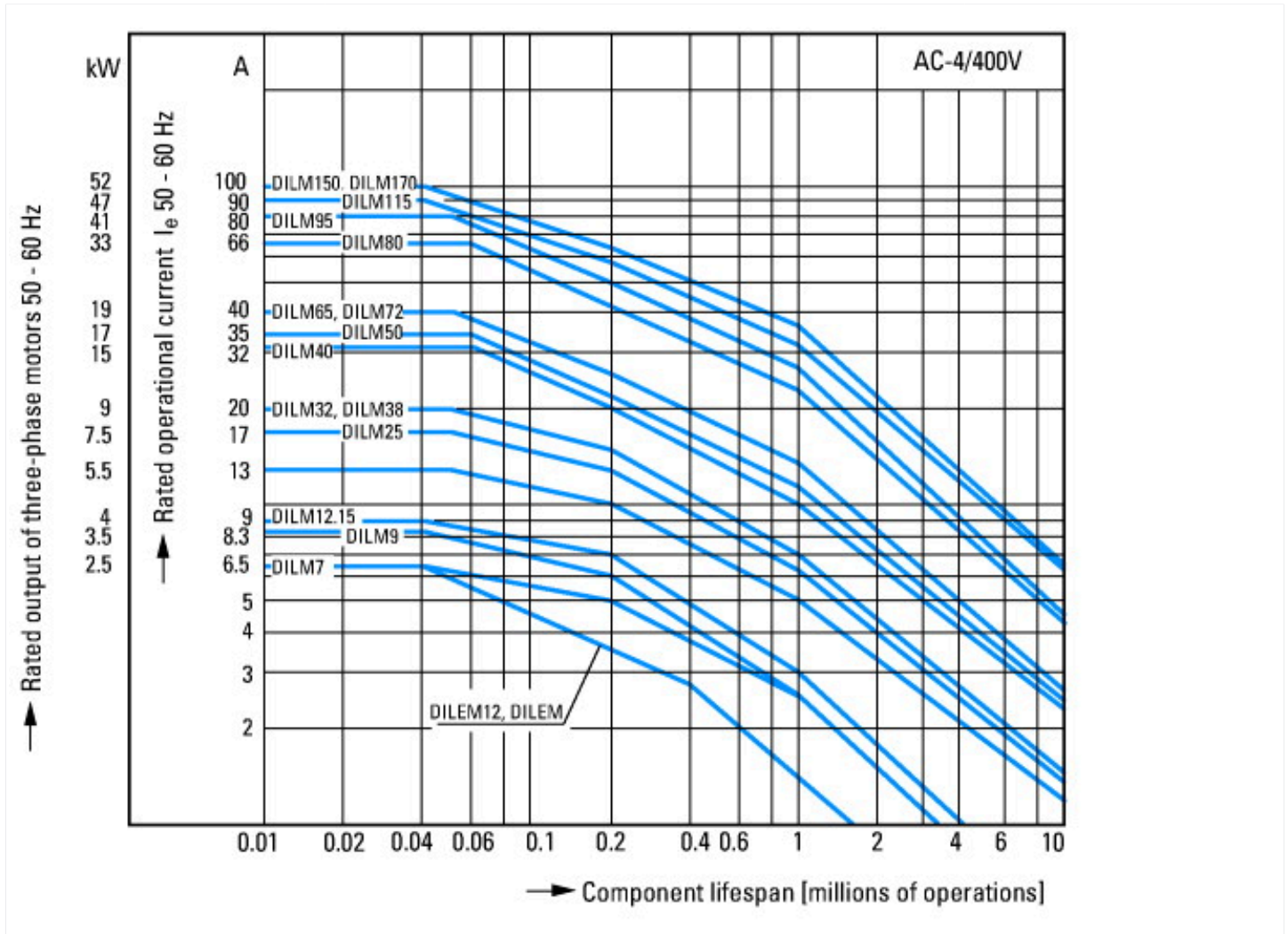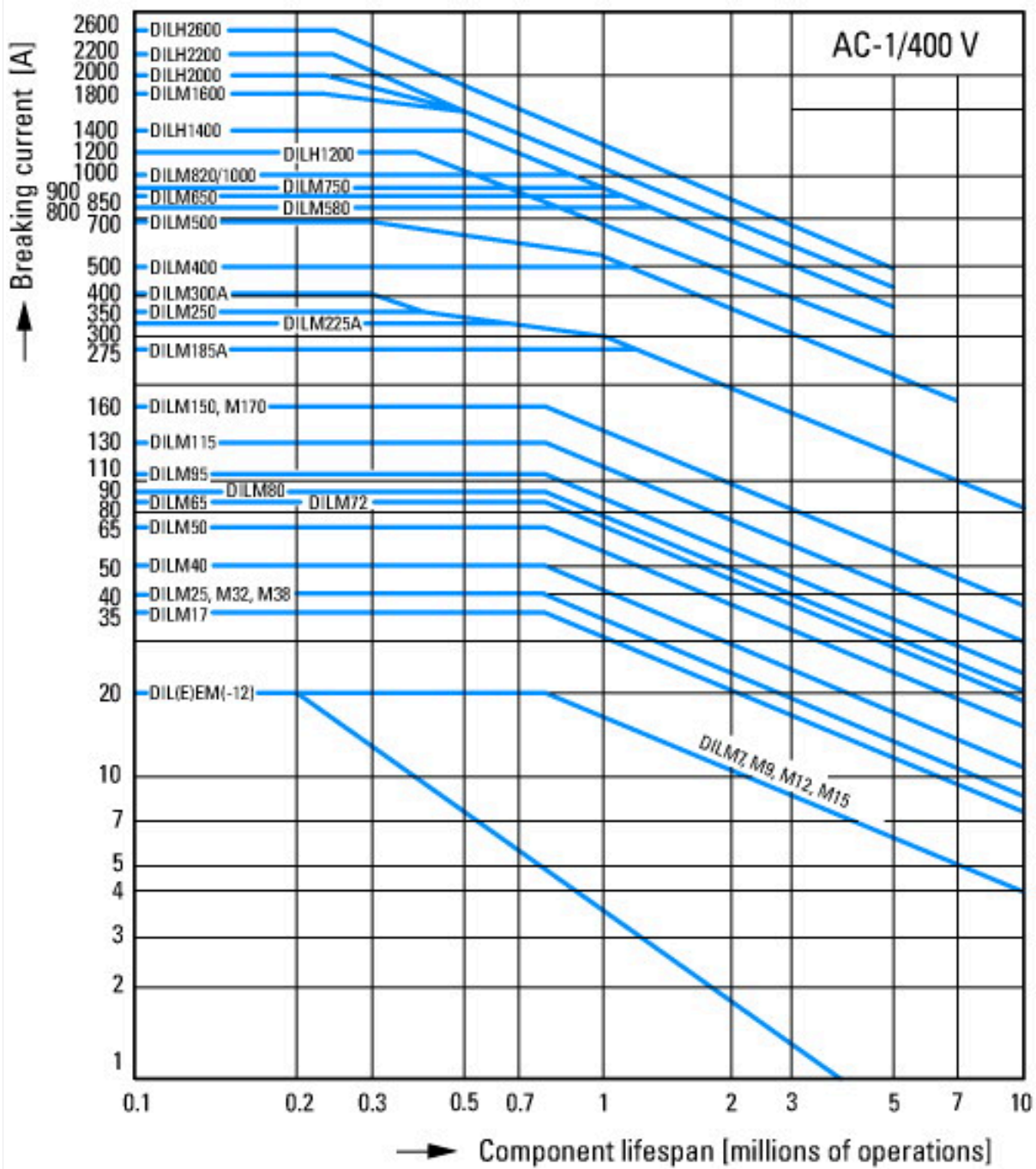
Switching duty for non-motor loads, 3-pole, 4-pole
Operating characteristics
Non-inductive or slightly inductive loads
Electrical characteristics
Make: 1 x rated current
Break: 1 x rated current
Utilization category
100 % AC-1
Typical applications
Electric heat
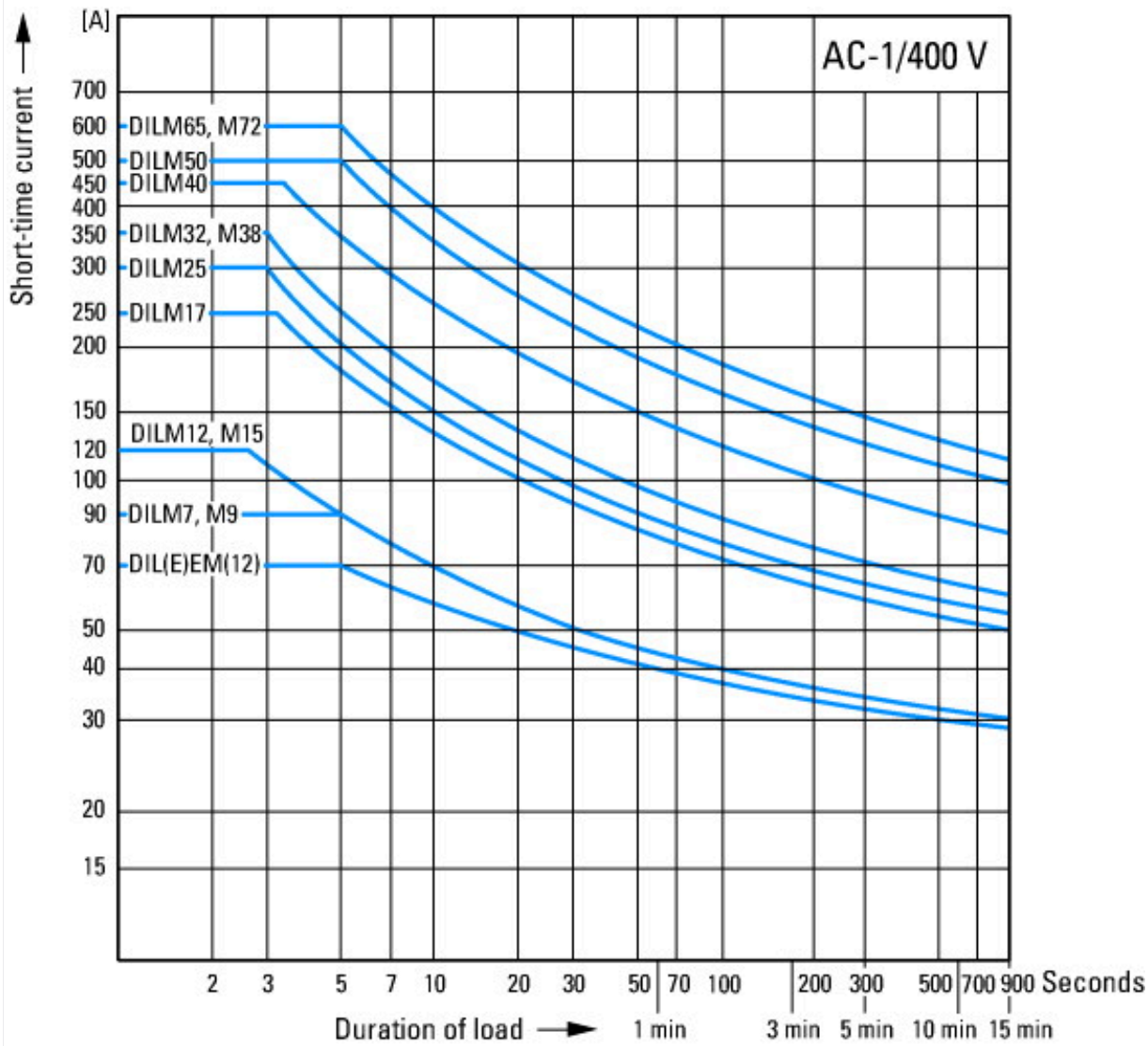
Short-time loading, 3-pole
Time interval between two loading cycles: 15 minutes

## Dimensions



83 mm: DILE… + …DILE(M)
86 mm: DILE…-C… + …DILE(M)
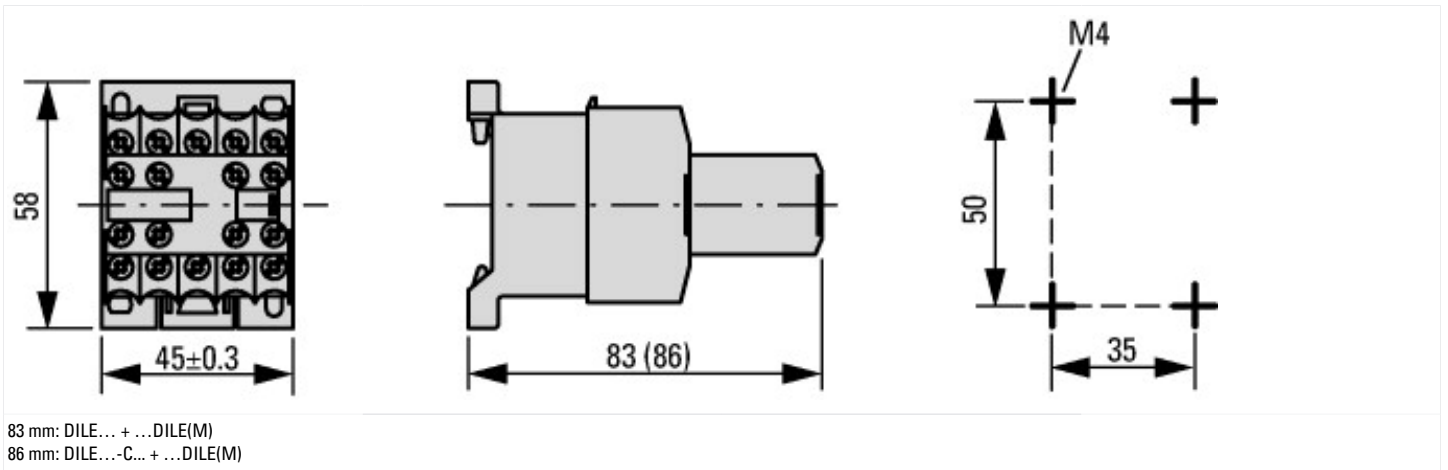
## Assets (links)

**Declaration of CE Conformity**
00003110

**Instruction Leaflets**
IL03407009Z2018_04

## Additional product information (links)

**IL03407009Z (AWA2100-0882) Mini contactor relay**