



**Contactor, 5,5kW/400V, DC-operated**

**Part no.**

**DILM12-10(24VDC)**

**Article no.**

**276845**



## Delivery programme

|                                                           |                |    |                                                                                      |
|-----------------------------------------------------------|----------------|----|--------------------------------------------------------------------------------------|
| Product range                                             |                |    | Contactors                                                                           |
| Application                                               |                |    | Contactors for Motors                                                                |
| Subrange                                                  |                |    | Contactors up to 170 A, 3 pole                                                       |
| Connection technique                                      |                |    | Screw terminals                                                                      |
| Pole                                                      |                |    | 3 pole                                                                               |
| Rated operational current                                 |                |    |                                                                                      |
| AC-3                                                      |                |    |                                                                                      |
| 380 V 400 V                                               | $I_e$          | A  | 12                                                                                   |
| AC-1                                                      |                |    |                                                                                      |
| Conventional free air thermal current, 3 pole, 50 - 60 Hz |                |    |                                                                                      |
| Open                                                      |                |    |                                                                                      |
| at 60 °C                                                  | $I_{th} = I_e$ | A  | 20                                                                                   |
| Max. rating for three-phase motors, 50 - 60 Hz            |                |    |                                                                                      |
| AC-3                                                      |                |    |                                                                                      |
| 220 V 230 V                                               | P              | kW | 3.5                                                                                  |
| 380 V 400 V                                               | P              | kW | 5.5                                                                                  |
| 660 V 690 V                                               | P              | kW | 6.5                                                                                  |
| AC-4                                                      |                |    |                                                                                      |
| 220 V 230 V                                               | P              | kW | 2                                                                                    |
| 380 V 400 V                                               | P              | kW | 3                                                                                    |
| 660 V 690 V                                               | P              | kW | 4.4                                                                                  |
| Contacts                                                  |                |    |                                                                                      |
| N/O = Normally open                                       |                |    | 1 N/O                                                                                |
| Contact sequence                                          |                |    |                                                                                      |
| <b>Instructions</b>                                       |                |    | Contacts to EN 50012.<br>Integrated varistor suppressor circuit with mirror contact. |
| Can be combined with auxiliary contact                    |                |    | DILM32-XHI..<br>DILA-XHI(V)..                                                        |
| Voltage AC/DC                                             |                |    | DC operation                                                                         |

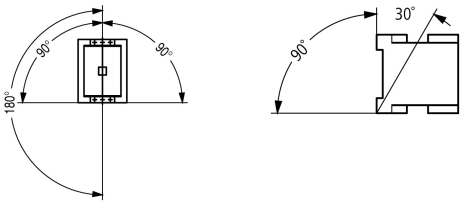
## Approbatoren

Product Standards  
UL File No.  
UL CCN  
CSA File No.  
CSA Class No.  
NA Certification  
Specially designed for NA

IEC/EN 60947-4-1; UL 508; CSA-C22.2 No. 14-05; CE marking  
E29096  
NLDX  
012528  
2411-03, 3211-04  
UL Listed, CSA certified  
No

## 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 |               | 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, AC- and DC operated                                |  |                 |  |
| 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                                                                                 |
| Protection type                                                       |  |                 | IP00                                                                                |
| Protection against direct contact when actuated from front (EN 90274) |  |                 | 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 - 1.5)<br>2 x (0.75 - 1.5)                                                |
| Solid or stranded                                                     |  | AWG             | 18 - 14                                                                             |
| 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 VDE 0106 Part 101 and Part 101/A1 |                |      |       |
| 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    | 144   |
| Breaking capacity                                   |                |      |       |
| 220/230 V                                           |                | A    | 120   |
| 380/400 V                                           |                | A    | 120   |
| 500 V                                               |                | A    | 100   |
| 660/690 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    | 35    |
| 690 V                                               | gG/gL 690 V    | A    | 25    |

## AC

|                                                           |                |   |    |
|-----------------------------------------------------------|----------------|---|----|
| AC-1 duty                                                 |                |   |    |
| 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 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                                            | P     | kWh |     |
| 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 | $I_e$ |     |     |
| 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                                            | P     | kWh |     |
| 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 |

## DC

|                                 |       |   |     |
|---------------------------------|-------|---|-----|
| Rated operational current, 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 |

## Current heat loss (3 pole)

|                                          |  |            |     |
|------------------------------------------|--|------------|-----|
| Current heat loss at $I_{th}$            |  | W          | 3   |
| Current heat loss at $I_e$ to AC-3/400 V |  | W          | 1.1 |
| Impedance per pole                       |  | m $\Omega$ | 2.5 |

## Magnet systems

|                   |  |         |  |
|-------------------|--|---------|--|
| Voltage tolerance |  | x $U_c$ |  |
|-------------------|--|---------|--|

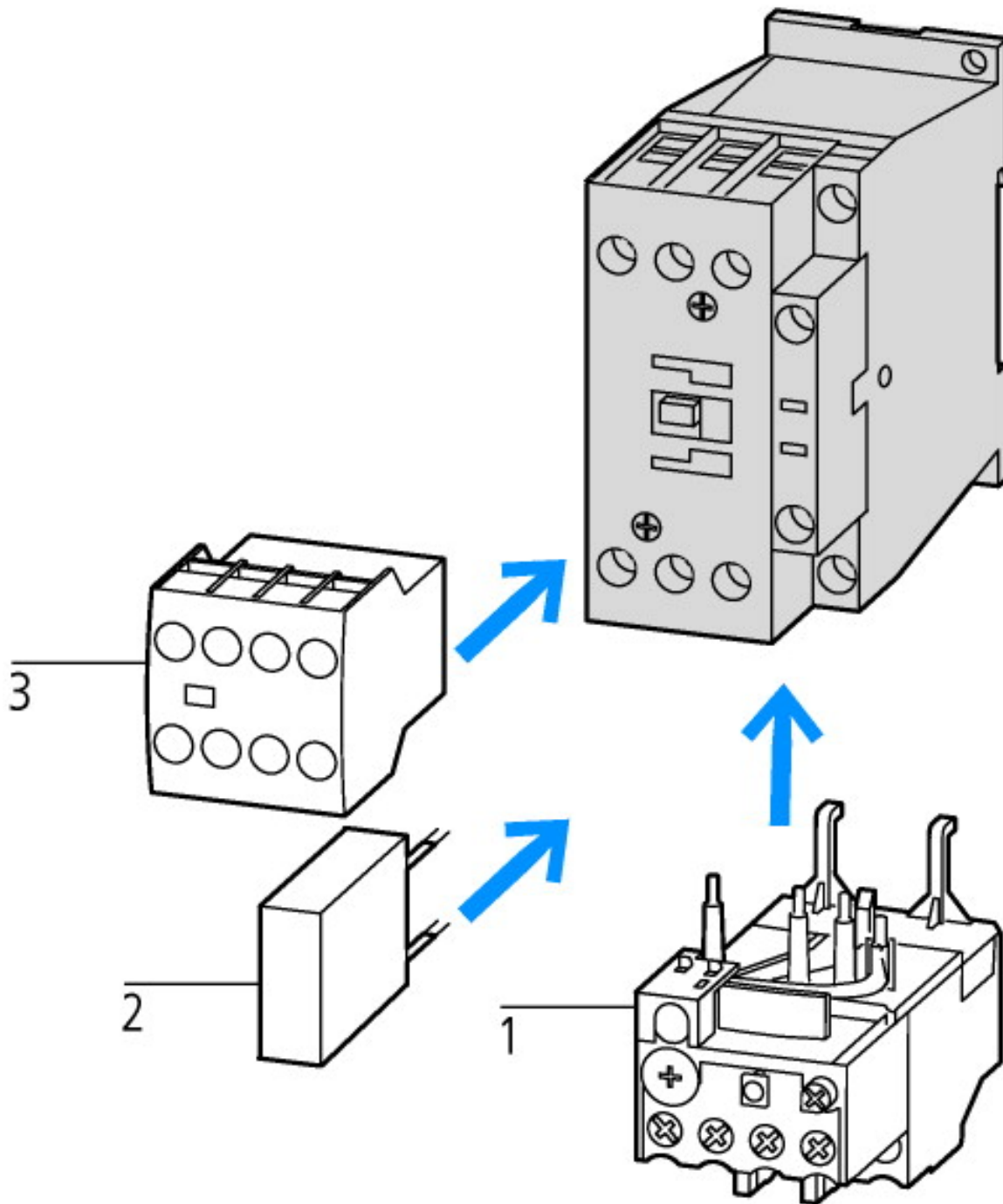
|                                                                    |          |         |                                                                                     |
|--------------------------------------------------------------------|----------|---------|-------------------------------------------------------------------------------------|
| AC operated                                                        | Pick-up  | $x U_c$ | 0.8 - 1.1                                                                           |
| Drop-out voltage AC operated                                       | Drop-out | $x U_c$ | 0.3 - 0.6                                                                           |
| Notes                                                              |          |         | 0.7 – 1.3 without auxiliary contact module and at ambient air temperature + 40 °C   |
| DC operated                                                        | Pick-up  | $x U_c$ | 0.7 - 1.2                                                                           |
| Notes                                                              |          |         | at least smoothed two-phase bridge rectifier or three-phase rectifier               |
| DC operated                                                        | Drop-out | $x U_c$ | 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                                                              | 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                                                        |          |         |                                                                                     |
| Closing delay                                                      |          | ms      | 31                                                                                  |
| Opening delay                                                      |          | ms      | 12                                                                                  |
| Arcing time                                                        |          | ms      | 10                                                                                  |
| Lifespan, mechanical; Coil 50/60 Hz                                | at 50 Hz |         | 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 |

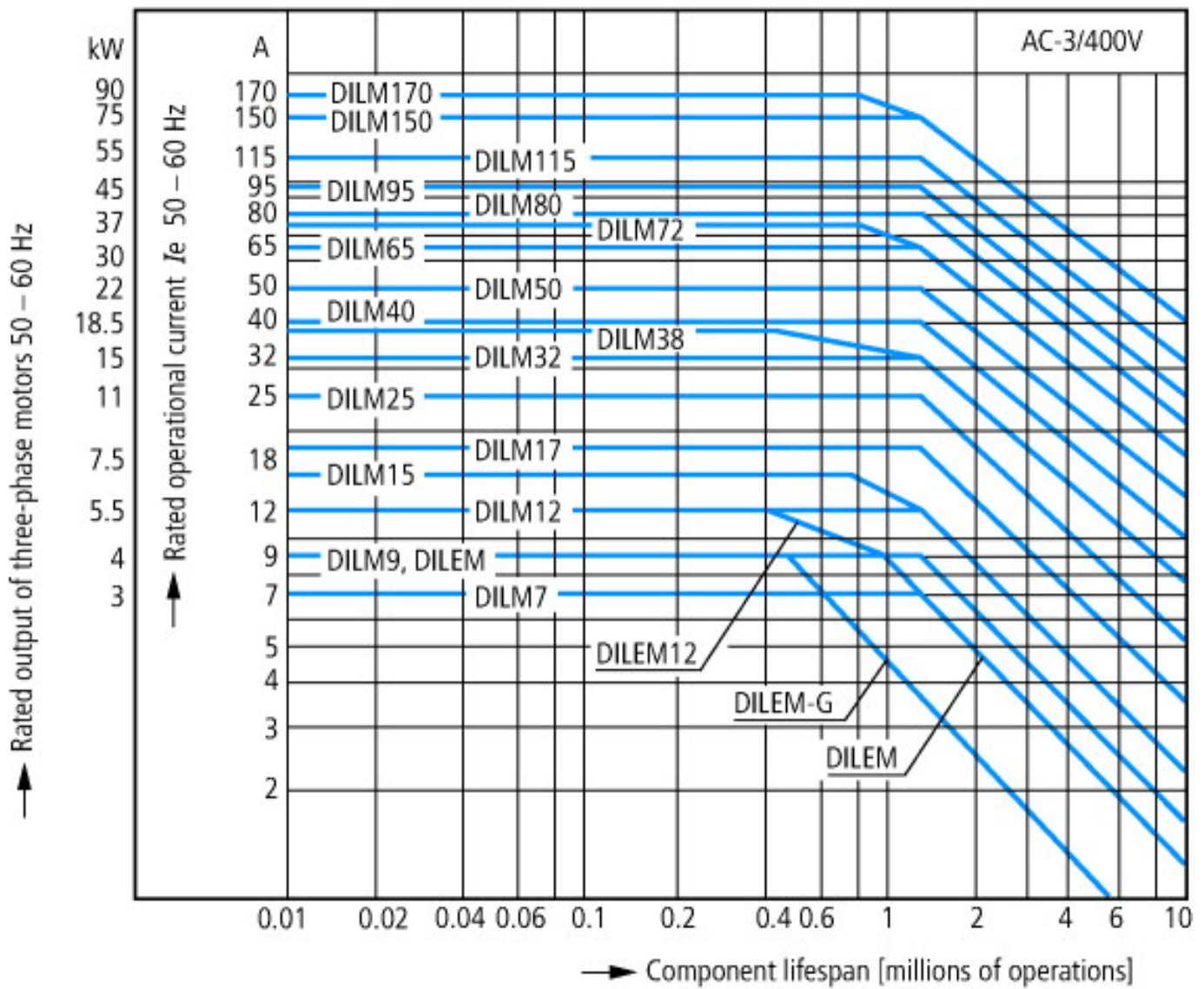
## Technische Daten nach ETIM 4.0

|                                              |  |     |                  |
|----------------------------------------------|--|-----|------------------|
| Number of main contacts as N/Os              |  |     | 3                |
| Rated operation current $I_e$ at AC-1, 400 V |  |     | 14               |
| Connection type main circuit                 |  |     | Screw connection |
| Rated control voltage $U_s$ at AC 60HZ       |  | V   | 0                |
| Number of auxiliary contacts as N/Os         |  |     | 1                |
| Rated control voltage $U_s$ at AC 50HZ       |  | V   | 0                |
| Number of auxiliary contacts as N/Cs         |  |     | 0                |
| Suitable for rail-mounting                   |  |     | No               |
| Rated control voltage $U_s$ at DC            |  | V   | 24               |
| Voltage type for actuation                   |  |     | DC               |
| Rated operation current $I_e$ at AC-3, 400 V |  | A   | 12               |
| Number of N/Cs as main contact               |  |     | 0                |
| Motor rating at AC-3, 400 V                  |  | kWh | 5.5              |

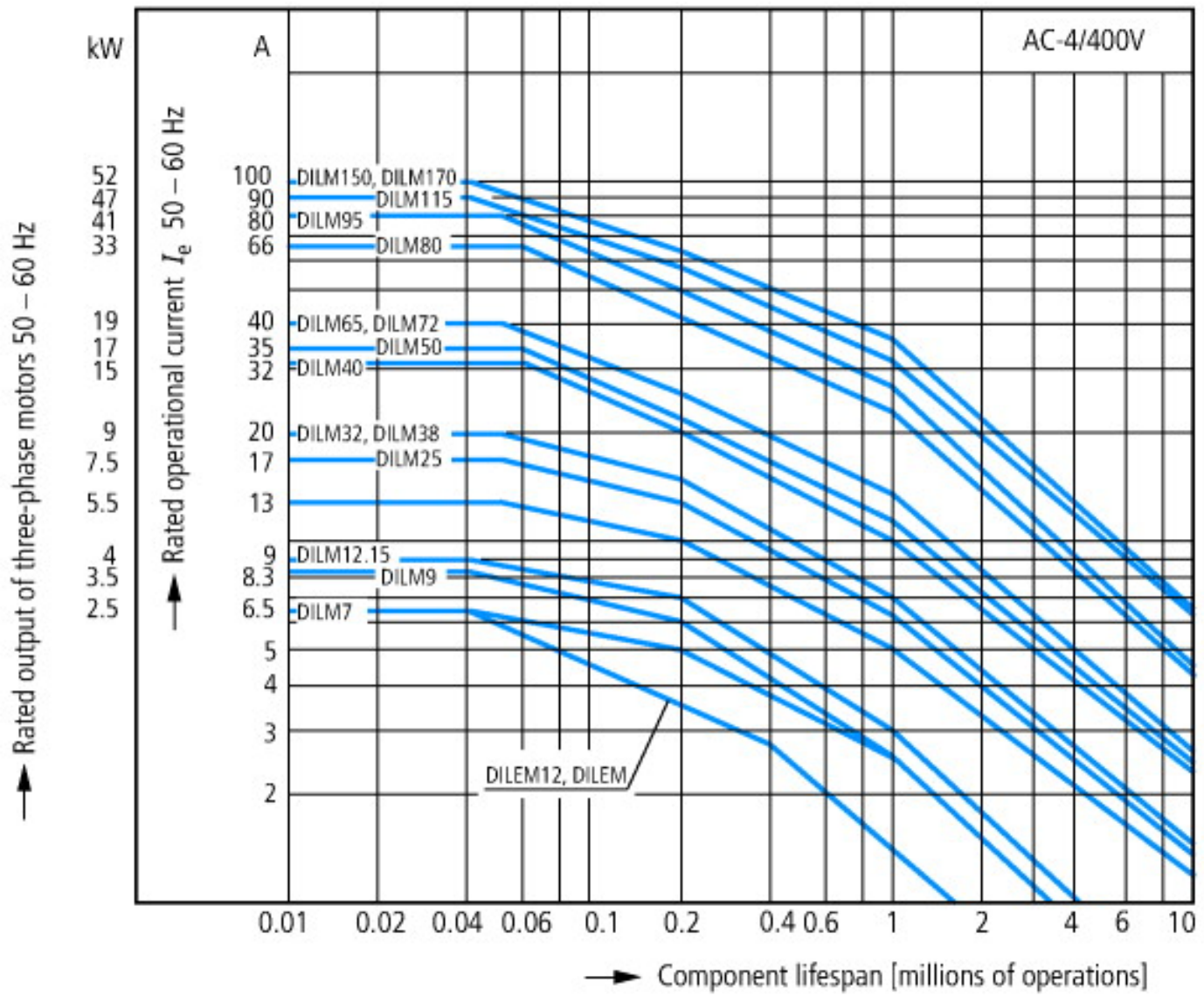


- 1: Overload relay
- 2: Suppressor
- 3: Auxiliary contact modules

Projektieren



- Squirrel-cage motor
- Operating characteristics
- Starting: from rest
- Stopping: after attaining full running speed
- Electrical characteristics
- Make: up to 6 x rated motor current
- Break: up to 1 x rated motor current
- Utilization category
- 100 % AC-3
- Typical applications
- Compressors
- Lifts
- Mixers
- Pumps
- Escalators
- Agitators
- Fans
- Conveyor belts
- Centrifuges
- Hinged flaps
- Bucket-elevators
- Air conditioning system
- General drives in manufacturing and processing machines



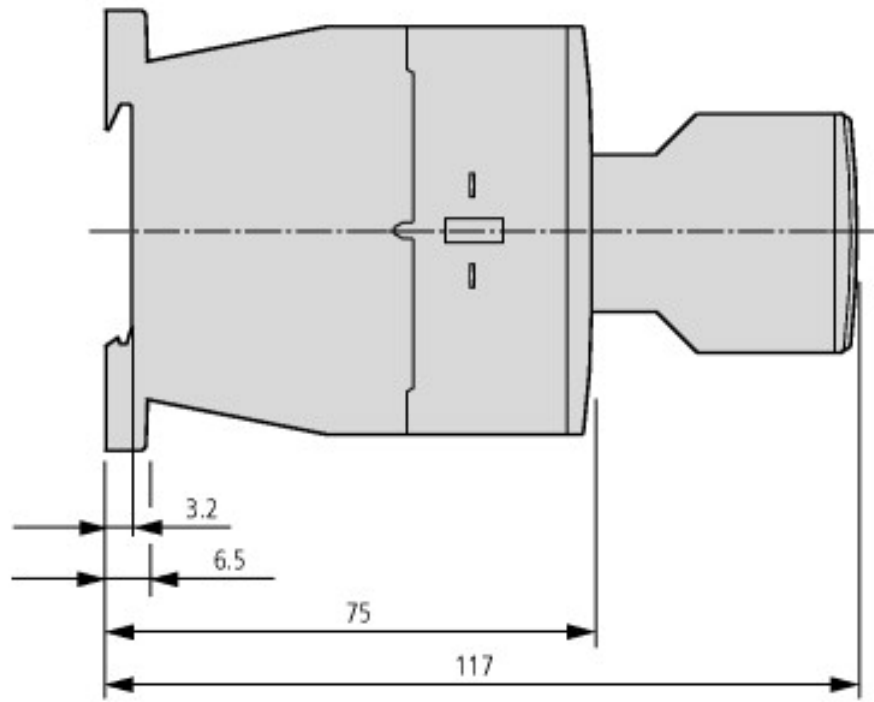
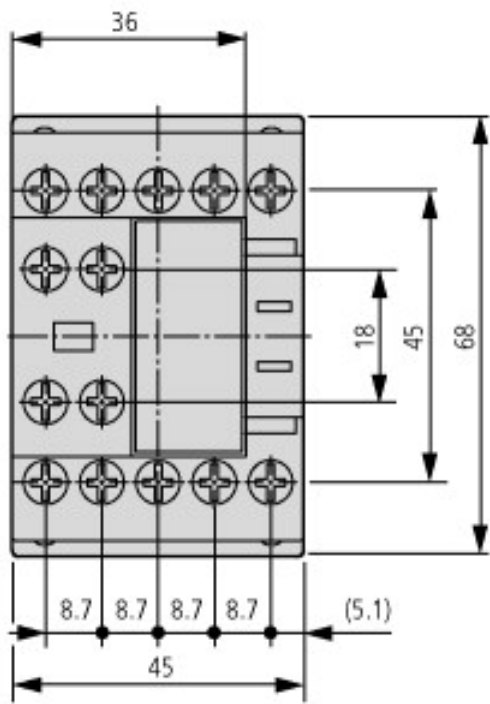
- Extreme switching duty
- Squirrel-cage motor
- Operating characteristics
- Inching, plugging, reversing
- Electrical characteristics
- Make: up to 6 x rated motor current
- Break: up to 6 x rated motor current
- Utilization category
- 100 % AC-4
- Typical applications
- Printing presses
- Wire-drawing machines
- Centrifuges
- Special drives for manufacturing and processing machines

### CAD-Daten

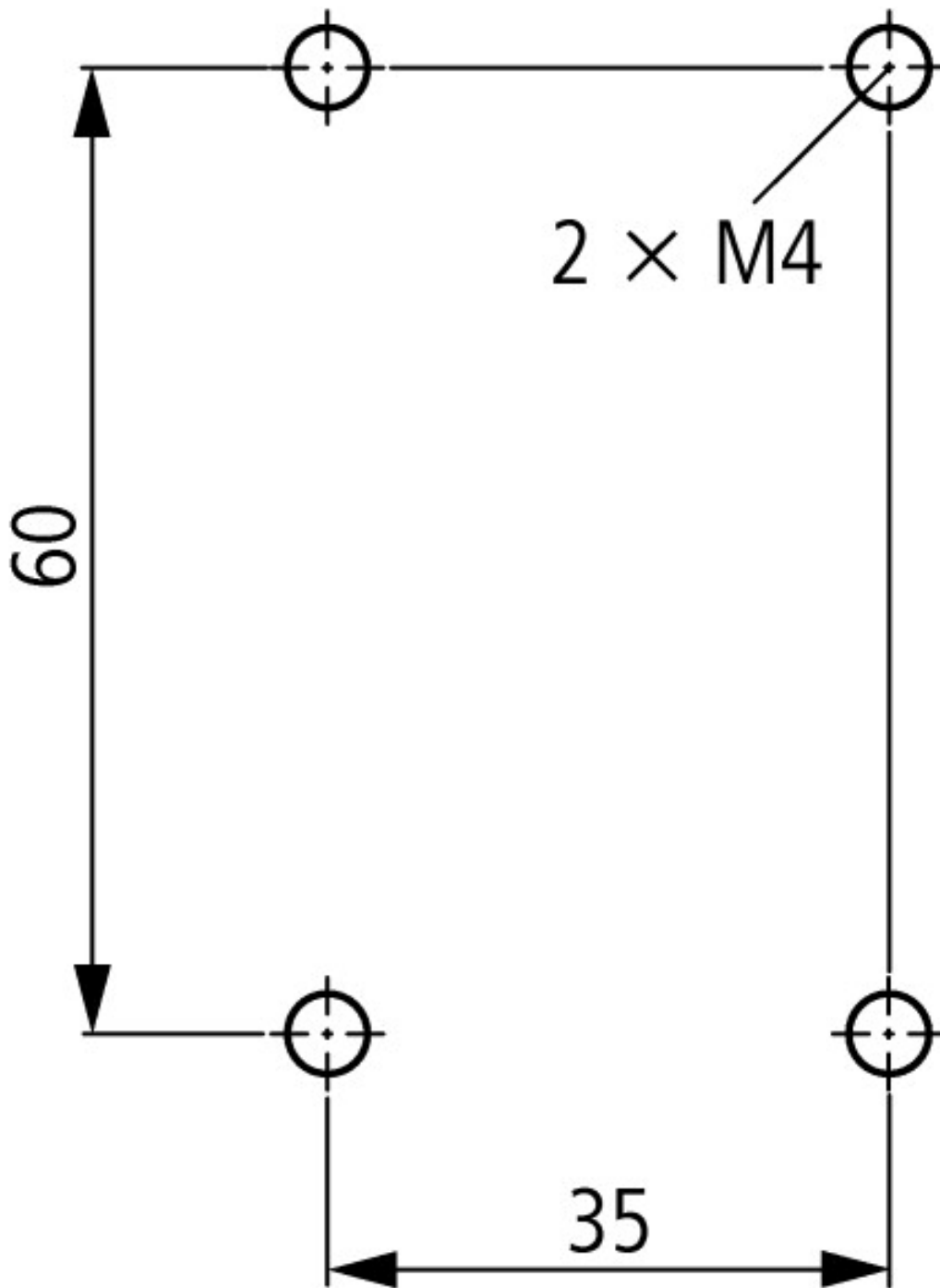
Product standards CAD data:

<http://eaton-moeller.partcommunity.com>

### Dimensions



Contacteur with auxiliary contact module



**Additional product information (links)**

IL03407013Z (AWA2100-2126) contactors

[ftp://ftp.moeller.net/DOCUMENTATION/AWA\\_INSTRUCTIONS/IL03407013Z2010\\_10.pdf](ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03407013Z2010_10.pdf)