



Contactor,3kW/400V,AC-operated

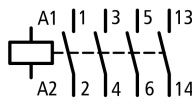
EATON

Powering Business Worldwide™

Part no. DILM7-10(110V50/60HZ)

Article no. 276556

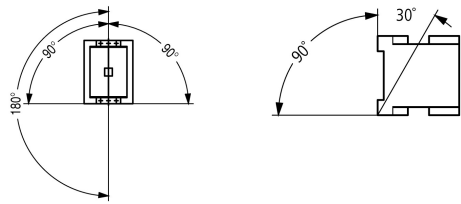
Delivery programme

| | | | | |
|---|----------------|----|-----|--|
| 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 AC-3: Squirrel-cage motors: starting, switching off during running AC-4: Squirrel-cage motors: starting, plugging, reversing, inching |
| Connection technique | | | | Screw terminals |
| Pole | | | | 3 pole |
| Rated operational current | | | | |
| AC-3 | | | | |
| 380 V 400 V | I_e | A | 7 | |
| AC-1 | | | | |
| 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 | |
| Max. rating for three-phase motors, 50 - 60 Hz | | | | |
| AC-3 | | | | |
| 220 V 230 V | P | kW | 2.2 | |
| 380 V 400 V | P | kW | 3 | |
| 660 V 690 V | P | kW | 3.5 | |
| AC-4 | | | | |
| 220 V 230 V | P | kW | 1 | |
| 380 V 400 V | P | kW | 2.2 | |
| 660 V 690 V | P | kW | 2.9 | |
| Contacts | | | | |
| N/O = Normally open | | | | 1 N/O |
| Contact sequence | | | |  |
| Instructions | | | | Contacts to EN 50012. |
| Can be combined with auxiliary contact | | | | DILM32-XHI.. DILA-XHI(V).. |
| Voltage AC/DC | | | | AC operation |

Approbationen

| | |
|---------------------------|---|
| UL approval | Yes |
| CSA approval | Yes |
| Product Standards | IEC/EN 60947-4-1; UL 508; CSA-C22.2 No. 14-05; CE marking |
| UL File No. | E29096 |
| UL CCN | NLDX |
| CSA File No. | 012528 |
| CSA Class No. | 2411-03, 3211-04 |
| NA Certification | UL listed, CSA certified |
| Specially designed for NA | No |

General

| | | | |
|---|--------------|----------------------|--|
| Standards | | | IEC/EN 60947, VDE 0660, UL, CSA |
| Lifespan, mechanical | | | |
| AC operated | Operations | x 10 ⁶ | 10 |
| DC operated | Operations | x 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 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 | | | 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 ² | 1 x (0.75 - 4) 2 x (0.75 - 2.5) |
| Flexible with ferrule | | mm ² | 1 x (0.75 - 2.5) 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 ² | 1 x (0.75 - 4) 2 x (0.75 - 2.5) |
| Flexible with ferrule | | mm ² | 1 x (0.75 - 1.5) 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 1 x 6 |
| Control circuit cables | | | |
| Pozidriv screwdriver | | Size | 2 |
| Standard screwdriver | | mm | 0.8 x 5.5 1 x 6 |
| Terminal capacity main cable | | | |
| Solid | | mm ² | 1 x (0.75 - 2.5) 2 x (0.75 - 2.5) |
| flexible | | mm ² | 1 x (0.75 - 2.5) 2 x (0.75 - 2.5) |
| flexible with ferrules | | mm ² | 1 x (0.75 - 1.5) 2 x (0.75 - 1.5) |
| Solid or stranded | | AWG | 18 - 14 |
| Terminal capacity control circuit cables | | | |
| Solid | | mm ² | 1 x (0.75 - 2.5) 2 x (0.75 - 2.5) |
| Flexible | | mm ² | 1 x (0.75 - 2.5) 2 x (0.75 - 2.5) |
| Flexible with ferrule | | mm ² | 1 x (0.75 - 1.5) 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 | 112 |
| Breaking capacity | | | |
| 220/230 V | | A | 70 |
| 380/400 V | | A | 70 |
| 500 V | | A | 50 |
| 660/690 V | | A | 40 |
| 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 | 16 |
| Type "1" coordination | | | |
| 400 V | gG/gL 500 V | A | 35 |
| 690 V | gG/gL 690 V | A | 20 |

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 | | | |
| offen, 3-polig, 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 |
| 440V | I_e | A | 7 |
| 500 V | I_e | A | 5 |
| 660 V 690 V | I_e | A | 4 |
| Motor rating | | | |
| 220/230 V | P | kWh | 2.2 |
| 240V | P | kWh | 2.2 |
| 380/400 V | P | kWh | 3 |
| 415 V | P | kWh | 4 |
| 440 V | P | kWh | 4.5 |
| 500 V | P | kWh | 3.5 |
| 660/690 V | P | kWh | 3.5 |
| AC-4 | | | |
| offen, 3-polig, 50 - 60 Hz | | | |
| 220/230 V | I_e | A | 5 |
| 240 V | I_e | A | 5 |
| 380/400 V | I_e | A | 5 |
| 415 V | I_e | A | 5 |
| 440 V | I_e | A | 5 |
| 500 V | I_e | A | 4.5 |
| 660/690 V | I_e | A | 4 |
| Motor rating | | | |
| 220/230 V | P | kWh | 1 |
| 240 V | P | kWh | 1.5 |
| 380/400 V | P | kWh | 2.2 |
| 415 V | P | kWh | 2.3 |
| 440 V | P | kWh | 2.4 |
| 500 V | P | kWh | 2.5 |
| 660/690 V | P | kWh | 2.9 |

DC

| | | | |
|---------------------------------|-------|---|----|
| Rated operational current, open | | | |
| DC-1 | | | |
| 60 V | I_e | A | 20 |
| 110 V | I_e | A | 20 |
| 220 V | I_e | A | 15 |

| | | | |
|-------|-------|---|-----|
| 440 V | I_e | A | 1 |
| DC-3 | | | |
| 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 | | | |
| 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 at I_{th} | | W | 3 |
| Current heat loss at I_e to AC-3/400 V | | W | 0.37 |
| Impedance per pole | | m Ω | 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 | $\times U_c$ | 0.7 - 1.2 |
| Notes | | | at least smoothed two-phase bridge rectifier or three-phase rectifier |
| DC operated | Drop-out | $\times U_c$ | 0.15 - 0.6 |
| Power consumption of the coil in a cold state and $1.0 \times U_c$ | | | |
| 50 Hz | Pick-up | VA | 24 |
| 50 Hz | 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 25 |
| 50/60 Hz | Sealing | VA | 4.2 3.3 |
| 50/60 Hz | Sealing | W | 1.4 1.2 |
| DC operated | Pick-up | W | 3 |
| DC operated | Sealing | W | 3 |
| 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 | at 50 Hz | | Mechanical lifespan at 50 Hz approx. 30% lower than under "Technical data, general" |

Electromagnetic compatibility (EMC)

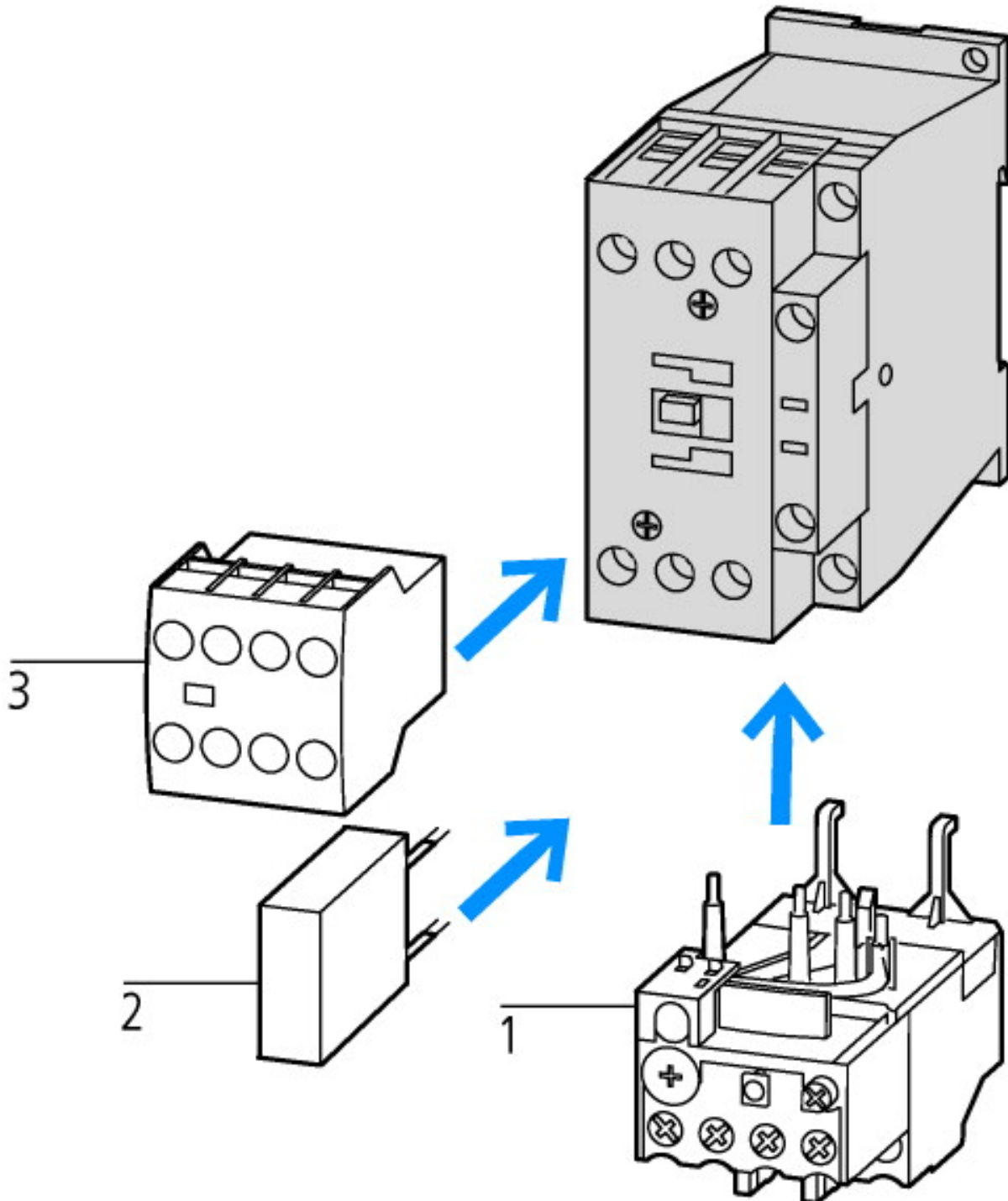
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|-----------------------|--|--|---------------|
| Emitted interference | | | to EN 60947-1 |
| Interference immunity | | | to EN 60947-1 |

Technical data 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 | | 110 |
| Number of auxiliary contacts as N/Os | | | 1 |
| Rated control voltage U _s at AC 50HZ | V | | 110 |
| Number of auxiliary contacts as N/Cs | | | 0 |
| Suitable for rail-mounting | | | No |
| Rated control voltage U _s at DC | V | | 0 |
| Voltage type for actuation | | | AC |
| Rated operation current I _e at AC-3, 400 V | A | | 7 |
| Number of N/Cs as main contact | | | 0 |
| Motor rating at AC-3, 400 V | kWh | | 3 |

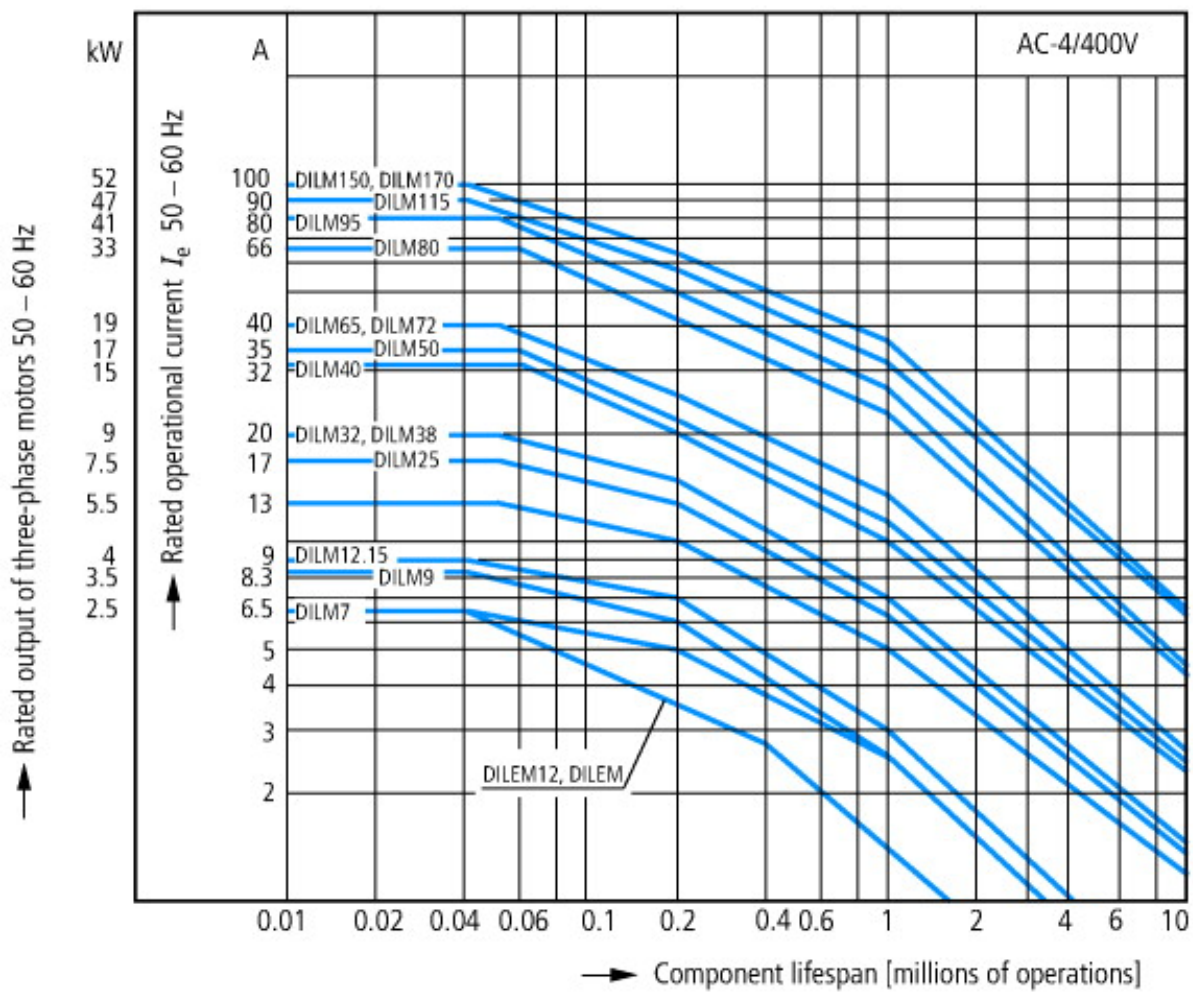
Characteristics



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



- 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

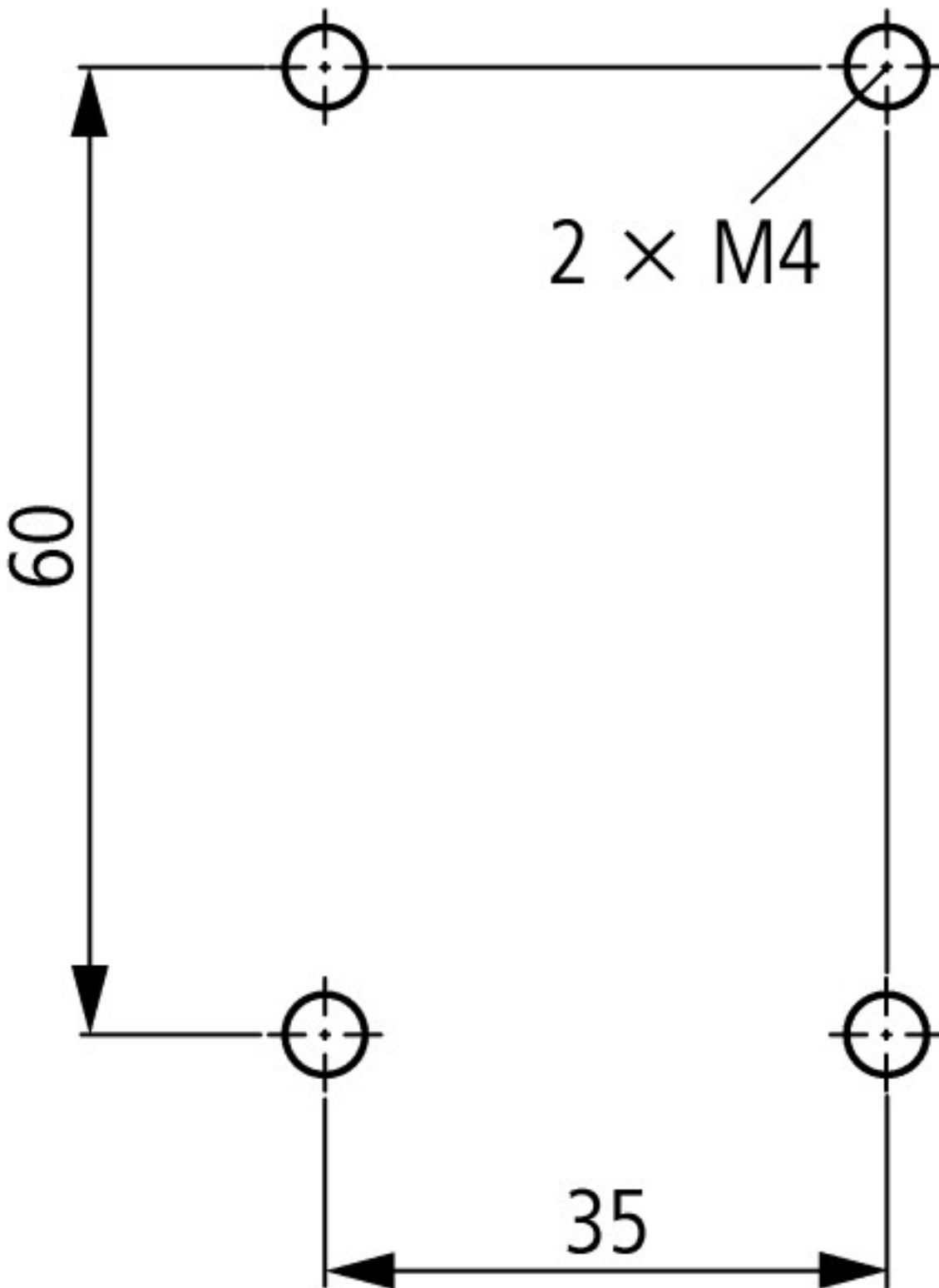


- Extreme switching duty
- Squirrel-cage motor
- Operating characteristics
- Inching, plugging, reversing
- Electrical characteristics
- Make: up to 6 x rated motor current
- Break: up to 6 x rated motor current
- Utilization category
- 100 % AC-4
- Typical applications
- Printing presses
- Wire-drawing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

Dimensions



Contacteur avec module de contact auxiliaire



DILM7...DILM15
 DILA...
 Contactor with auxiliary contact module

Additional product information (links)

IL03407013Z (AWA2100-2126) Contactors

IL03407013Z (AWA2100-2126)
 Contactors

ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03407013Z2012_03.pdf

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

<http://de.ecat.moeller.net/flip-cat/?edition=HPLTE&startpage=5.85>

<http://de.ecat.moeller.net/flip-cat/?edition=HPLTE&startpage=5.86>

Switchgear of Power Factor Correction
 Systems

http://www.moeller.net/binary/ver_techpapers/ver934en.pdf

X-Start - New Generation: 100 years
 of Moeller contactors - Continuous
 Progress-

http://www.moeller.net/binary/ver_techpapers/ver937en.pdf

| | |
|--|---|
| X-Start - Modern Switching Installations Efficiently Fitted and Wired Securely | http://www.moeller.net/binary/ver_techpapers/ver938en.pdf |
| Mirror Contacts for Highly-Reliable Information Relating to Safety-Related Control Functions | http://www.moeller.net/binary/ver_techpapers/ver944en.pdf |
| Effect of the Cabel Capacitance of Long Control Cables on the Actuation of Contactors | http://www.moeller.net/binary/ver_techpapers/ver949en.pdf |
| Motor starters and "Special Purpose Ratings" for the North American market | http://www.moeller.net/binary/ver_techpapers/ver953en.pdf |
| Switchgear for Luminaires | http://www.moeller.net/binary/ver_techpapers/ver955en.pdf |
| Standard Compliant and Functionally Safe Engineering Design with Mechanical Auxiliary Contacts | http://www.moeller.net/binary/ver_techpapers/ver956en.pdf |
| The Interaction of Contactors with PLCs | http://www.moeller.net/binary/ver_techpapers/ver957en.pdf |
| Busbar Component Adapters for modern Industrial control panels | http://www.moeller.net/binary/ver_techpapers/ver960en.pdf |