

DATASHEET - DILEM-10(24V50HZ)



Contactor, 24 V 50 Hz, 3 pole, 380 V 400 V, 4 kW, Contacts N/O = Normally open= 1 N/O, Screw terminals, AC operation



Part no. DILEM-10(24V50HZ)
Catalog No. 010005
Alternate Catalog No. XTMC9A10U
EL-Nummer (Norway) 4130377

Delivery program

| | | | |
|---|--------------|----|---|
| Product range | | | Contactors |
| Application | | | Mini Contactors for Motors and Resistive Loads |
| Subrange | | | DILEM contactors |
| Utilization category | | | AC-1: Non-inductive or slightly inductive loads, resistance furnaces AC-3/AC-3e: Normal AC induction motors: Starting, switching off while running AC-4: Normal AC induction motors: starting, plugging, reversing, inching |
| | | | |
| Notes | | | Also suitable for motors with efficiency class IE3. Also tested according to AC-3e. |
| Connection technique | | | Screw terminals |
| Description | | | With auxiliary contact |
| Number of poles | | | 3 pole |
| Rated operational current | | | |
| AC-3 | | | |
| 380 V 400 V | I_e | A | 9 |
| AC-1 | | | |
| Conventional free air thermal current, 3 pole, 50 - 60 Hz | | | |
| Open | | | |
| at 40 °C | $I_{th}=I_e$ | A | 22 |
| 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 | 4 |
| 660 V 690 V | P | kW | 4 |
| AC-4 | | | |
| 220 V 230 V | P | kW | 1.5 |
| 380 V 400 V | P | kW | 3 |
| 660 V 690 V | P | kW | 3 |
| Contacts | | | |
| N/O = Normally open | | | 1 N/O |
| Contact sequence | | | |
| For use with | | | ...DILEM ...DILE |
| Actuating voltage | | | 24 V 50 Hz |
| Voltage AC/DC | | | AC operation |

Technical data

| | | | |
|-------------------------------------|------------|---------------|---------------------------------|
| General | | | |
| Standards | | | IEC/EN 60947, VDE 0660, CSA, UL |
| Lifespan, mechanical; Coil 50/60 Hz | Operations | $\times 10^6$ | 7 |
| Lifespan, mechanical | Operations | $\times 10^6$ | 10 |

| | | | |
|---|------------------|--|-----------|
| Maximum operating frequency | | | |
| Mechanical | Ops./h | 9000 | |
| electrical (Contactors without overload relay) | Operations/h | Page 05/070 | |
| Climatic proofing | | Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30 | |
| Ambient temperature | | | |
| Open | °C | -25 - +50 | |
| Enclosed | °C | - 25 - 40 | |
| Storage | °C | | |
| Min. ambient temperature, storage | °C | - 40 | |
| Ambient temperature, storage max. | °C | + 80 | |
| Mounting position | | As required, except vertical with terminals A1/A2 at the bottom | |
| Mounting position | |  | |
| Mechanical shock resistance (IEC/EN 60068-2-27) | | | |
| Half-sinusoidal shock, 10 ms | | | |
| Basic unit without auxiliary contact module | | | |
| Main contacts, make contacts | g | 10 | |
| Main contacts Make/break contacts | g | | |
| Make | g | 8 | |
| Basic unit with auxiliary contact module | | | |
| Main contacts make contact | g | | |
| Make | g | 10 | |
| Auxiliary contacts Make/break contacts | g | 20 / 20 | |
| Degree of Protection | | IP20 | |
| Protection against direct contact when actuated from front (EN 50274) | | Finger and back-of-hand proof | |
| Altitude | | m | Max. 2000 |
| Weight | | kg | 0.17 |
| Terminal capacity of auxiliary and main contacts | | | |
| Screw terminals | | | |
| Solid | 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 | |
| Stripping length | mm | 8 | |
| Terminal screw | | M3.5 | |
| Pozidriv screwdriver | Size | 2 | |
| Standard screwdriver | mm | 0.8 x 5.5 1 x 6 | |
| Max. tightening torque | | Nm | 1.2 |
| Main conducting paths | | | |
| 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 | 690 |
| Safe isolation to EN 61140 | | | |
| between coil and contacts | | V AC | 300 |
| between the contacts | | V AC | 300 |

| | | | |
|---|-------|---|-----|
| Making capacity (cos φ to IEC/EN 60947) | | A | 110 |
| Breaking capacity | | | |
| 220 V 230 V | | A | 90 |
| 380 V 400 V | | A | 90 |
| 500 V | | A | 64 |
| 660 V 690 V | | A | 42 |
| Short-circuit protection maximum fuse | | | |
| Type "2", 500 V | gL/gG | A | 10 |
| Type "1", 500 V | gL/gG | 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 | 20 |
| at 55 °C | $I_{th} = I_e$ | A | 19 |
| enclosed | I_{th} | A | 16 |
| Notes | | | At maximum permissible ambient air temperature. |
| Conventional free air thermal current, 1 pole | | | |
| Notes | | | At maximum permissible ambient air temperature. |
| open | I_{th} | A | 50 |
| enclosed | I_{th} | A | 40 |
| AC-3 | | | |
| Rated operational current | | | |
| Open, 3-pole: 50 – 60 Hz | | | |
| Notes | | | At maximum permissible ambient temperature (open.) Also tested according to AC-3e. |
| 220 V 230 V | I_e | A | 9 |
| 240 V | I_e | A | 9 |
| 380 V 400 V | I_e | A | 9 |
| 415 V | I_e | A | 9 |
| 440V | I_e | A | 9 |
| 500 V | I_e | A | 6.4 |
| 660 V 690 V | I_e | A | 4.8 |
| Motor rating | P | kWh | |
| 220 V 230 V | P | kW | 2.2 |
| 240V | P | kW | 2.5 |
| 380 V 400 V | P | kW | 4 |
| 415 V | P | kW | 4.3 |
| 440 V | P | kW | 4.6 |
| 500 V | P | kW | 4 |
| 660 V 690 V | P | kW | 4 |
| AC-4 | | | |
| Rated operational current | | | |
| Open, 3-pole: 50 – 60 Hz | | | |
| Notes | | | At maximum permissible ambient air temperature. |
| 220 V 230 V | I_e | A | 6.6 |
| 240 V | I_e | A | 6.6 |
| 380 V 400 V | I_e | A | 6.6 |
| 415 V | I_e | A | 6.6 |
| 440 V | I_e | A | 6.6 |
| 500 V | I_e | A | 5 |
| 660 V 690 V | I_e | A | 3.4 |

| | | | |
|--------------|---|-----|-----|
| Motor rating | P | kWh | |
| 220 V 230 V | P | kW | 1.5 |
| 240 V | P | kW | 1.8 |
| 380 V 400 V | P | kW | 3 |
| 415 V | P | kW | 3.1 |
| 440 V | P | kW | 3.3 |
| 500 V | P | kW | 3 |
| 660 V 690 V | P | kW | 3 |

DC

| | | | |
|--------------------------------|----------------|---|----|
| Rated operational current open | | | |
| DC-1 | | | |
| 12 V | I _e | A | 20 |
| 24 V | I _e | A | 20 |
| 60 V | I _e | A | 20 |
| 110 V | I _e | A | 20 |
| 220 V | I _e | A | 20 |

Magnet systems

| | | | |
|--|---------|------------------|-----------|
| Voltage tolerance | | | |
| AC operated | | | |
| Single-voltage coil 50 Hz and dual-voltage coil 50 Hz, 60 Hz | Pick-up | x U _c | 0.8 - 1.1 |
| Dual-frequency coil 50/60 Hz | Pick-up | x U _c | |
| Voltage tolerance Dual-frequency coil 50/60 Hz, max. pick-up voltage | | 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 | 25 |
| Single-voltage coil 50 Hz and dual-voltage coil 50 Hz, 60 Hz | Pick-up | W | 22 |
| Single-voltage coil 50 Hz and dual-voltage coil 50 Hz, 60 Hz | Sealing | VA | 4.6 |
| Single-voltage coil 50 Hz and dual-voltage coil 50 Hz, 60 Hz | Sealing | W | 1.8 |
| Duty factor | | % DF | 100 |
| Switching times at 100 % U _c | | | |
| Make contact | | ms | |
| Closing delay | | ms | |
| Closing delay min. | | ms | 14 |
| Closing delay max. | | ms | 21 |
| Opening delay | | ms | |
| Opening delay min. | | ms | 8 |
| Opening delay max. | | ms | 18 |
| Closing delay with top mounting auxiliary contact | | ms | 45 |
| Reversing contactors | | | |
| Changeover time at 110 % U _c | | | |
| Changeover time min. | | ms | 16 |
| Changeover time max. | | ms | 21 |
| Arcing time at 690 V AC | | ms | 12 |

Current heat losses (3- or 4-pole)

| | | | |
|---------------------------------|--|----|------|
| at I _{th} , 50 °C | | W | 5.9 |
| at I _e to AC-3/400 V | | W | 1.2 |
| Impedance per pole | | mΩ | 9.18 |

Auxiliary contacts

| | | | |
|--|------------------|------|-------|
| Positive operating contacts to EN 60947-5-1 appendix L, including auxiliary contact module | | | 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 | | | |
| AC-15 | | | |
| 220 V 240 V | I _e | A | 6 |
| 380 V 415 V | I _e | A | 3 |
| 500 V | I _e | A | 1.5 |
| DC L/R ≤ 15 ms | | | |
| Contacts in series: | | A | |
| 1 | 24 V | A | 2.5 |
| 2 | 60 V | A | 2.5 |
| 3 | 100 V | A | 1.5 |
| 3 | 220 V | A | 0.5 |
| Conv. thermal current | I _{th} | A | 10 |
| 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) |
| Component lifespan at U _e = 240 V | | | |
| AC-15 | Operations | x 10 ⁶ | 0.2 |
| DC current | | | |
| L/R = 50 ms: 2 contacts in series at I _e = 0.5 A | Operations | x 10 ⁶ | 0.15 |
| Notes | | | Switch-on and switch-off conditions based on DC-13, time constant as specified |
| Short-circuit rating without welding | | | |
| Maximum overcurrent protective device | | | |
| Short-circuit protection only | | | PKZM0-4 |
| Short-circuit protection maximum fuse | | | |
| 500 V | | A gG/gL | 6 |
| 500 V | | A fast | 10 |
| Current heat loss at a load of I _{th} per contact | | W | 1.1 |
| Rating data for approved types | | | |
| Switching capacity | | | |
| Maximum motor rating | | | |
| Three-phase | | | |
| 200 V 208 V | | HP | 2 |
| 230 V 240 V | | HP | 3 |
| 460 V 480 V | | HP | 5 |
| 575 V 600 V | | HP | 5 |
| Single-phase | | | |
| 115 V 120 V | | HP | 0.5 |
| 230 V 240 V | | HP | 1.5 |
| General use | | A | 15 |
| 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 |
| Short Circuit Current Rating | | SCCR | |
| Basic Rating | | | |

| | | |
|-----------|----|----|
| SCCR | kA | 5 |
| max. Fuse | A | 45 |

Design verification as per IEC/EN 61439

| | | | |
|--|-------------------|----|--|
| Technical data for design verification | | | |
| Rated operational current for specified heat dissipation | I _n | A | 9 |
| Heat dissipation per pole, current-dependent | P _{vid} | W | 0.4 |
| Equipment heat dissipation, current-dependent | P _{vid} | W | 1.2 |
| Static heat dissipation, non-current-dependent | P _{vs} | W | 1.8 |
| 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 8.0

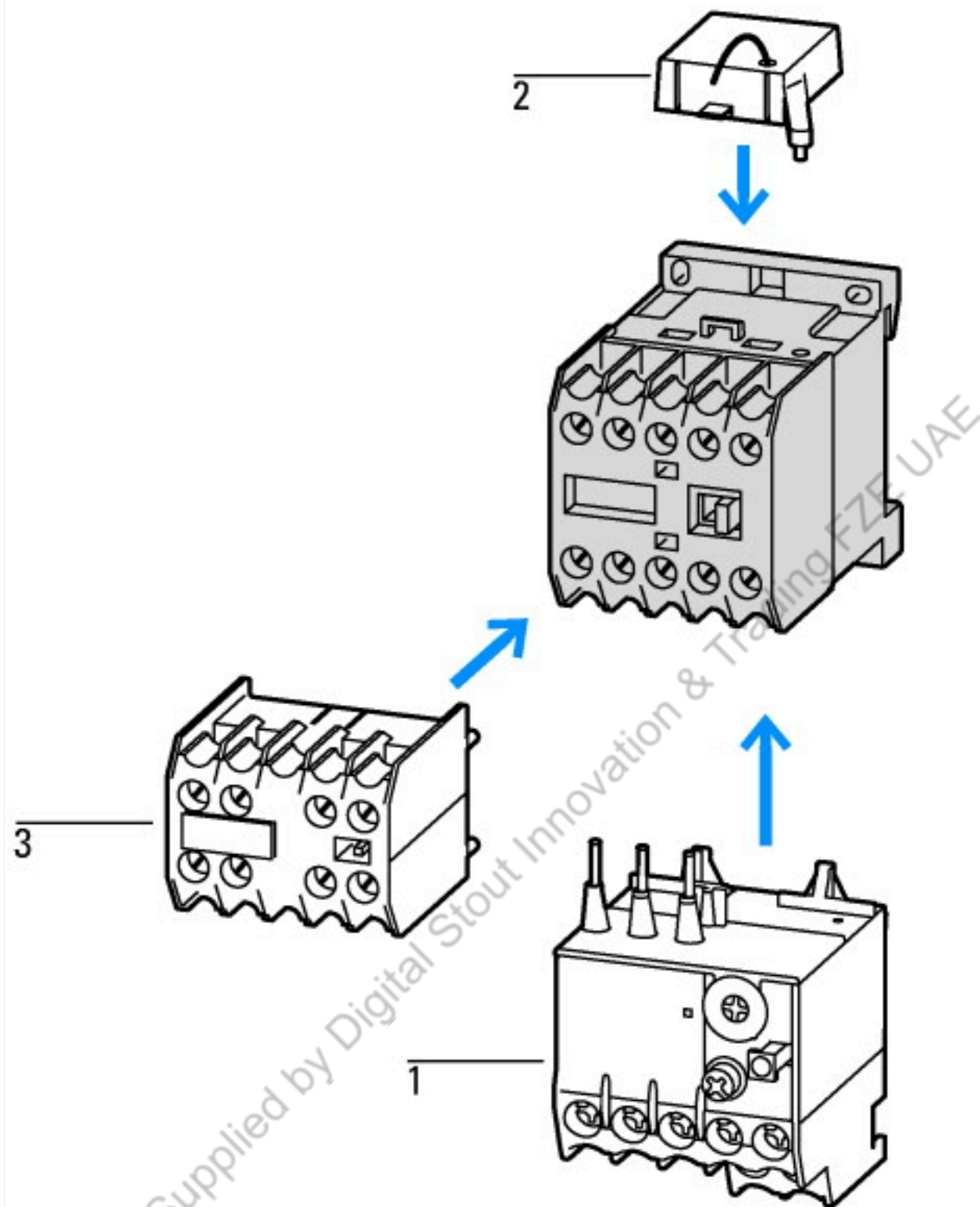
| | | |
|---|----|---------|
| Low-voltage industrial components (EG000017) / Power contactor, AC switching (EC000066) | | |
| Electric engineering, automation, process control engineering / Low-voltage switch technology / Contactor (LV) / Power contactor, AC switching (ecl@ss10.0.1-27-37-10-03 [AAB718015]) | | |
| Rated control supply voltage U _s at AC 50HZ | V | 24 - 24 |
| Rated control supply voltage U _s at AC 60HZ | V | 0 - 0 |
| Rated control supply voltage U _s at DC | V | 0 - 0 |
| Voltage type for actuating | | AC |
| Rated operation current I _e at AC-1, 400 V | A | 22 |
| Rated operation current I _e at AC-3, 400 V | A | 9 |
| Rated operation power at AC-3, 400 V | kW | 4 |
| Rated operation current I _e at AC-4, 400 V | A | 6.6 |
| Rated operation power at AC-4, 400 V | kW | 3 |
| Rated operation power NEMA | kW | 3.7 |
| Modular version | | No |
| Number of auxiliary contacts as normally open contact | | 1 |

| | | | |
|---|--|--|------------------|
| Number of auxiliary contacts as normally closed contact | | | 0 |
| Type of electrical connection of main circuit | | | Screw connection |
| Number of normally closed contacts as main contact | | | 0 |
| Number of normally open contacts as main contact | | | 3 |

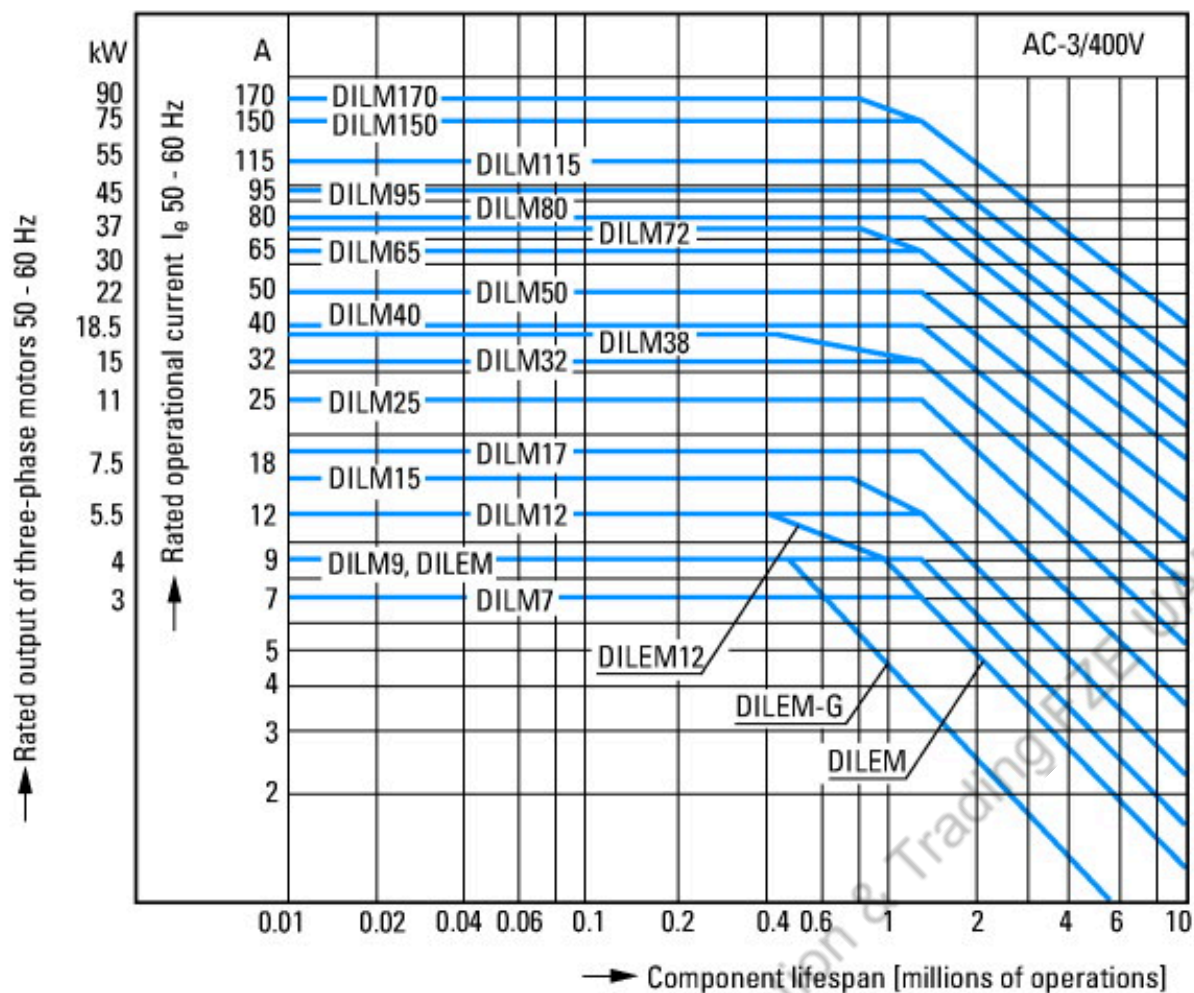
Approvals

| | | | |
|--------------------------------------|--|--|---|
| Product Standards | | | IEC/EN 60947-4-1; UL 508; CSA-C22.2 No. 14-05; CE marking |
| UL File No. | | | E29096 |
| UL Category Control No. | | | NLDX |
| CSA File No. | | | 012528 |
| CSA Class No. | | | 3211-04 |
| North America Certification | | | UL listed, CSA certified |
| Specially designed for North America | | | No |

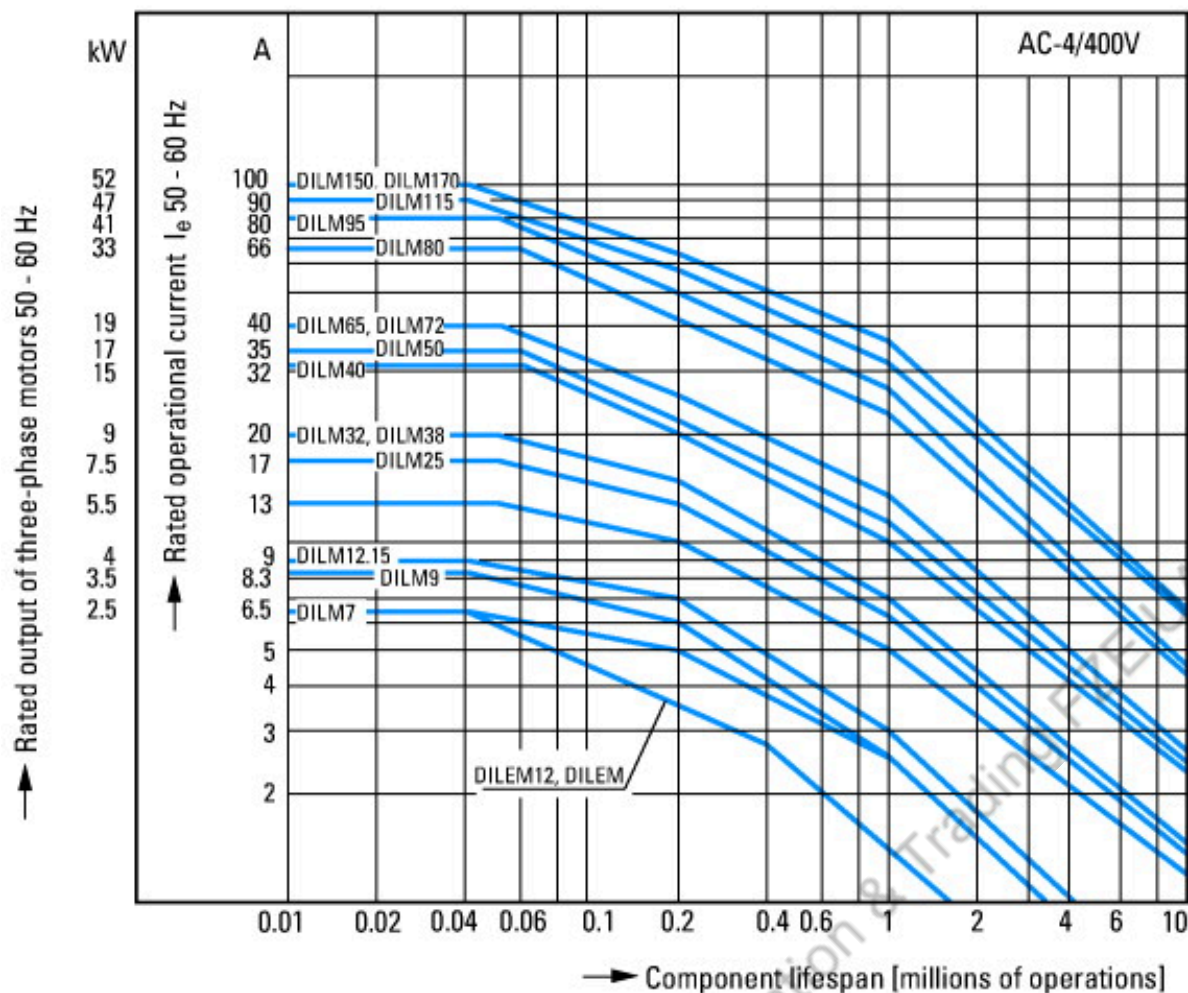
Supplied by Digital Stout Innovation & Trading FZE UAE



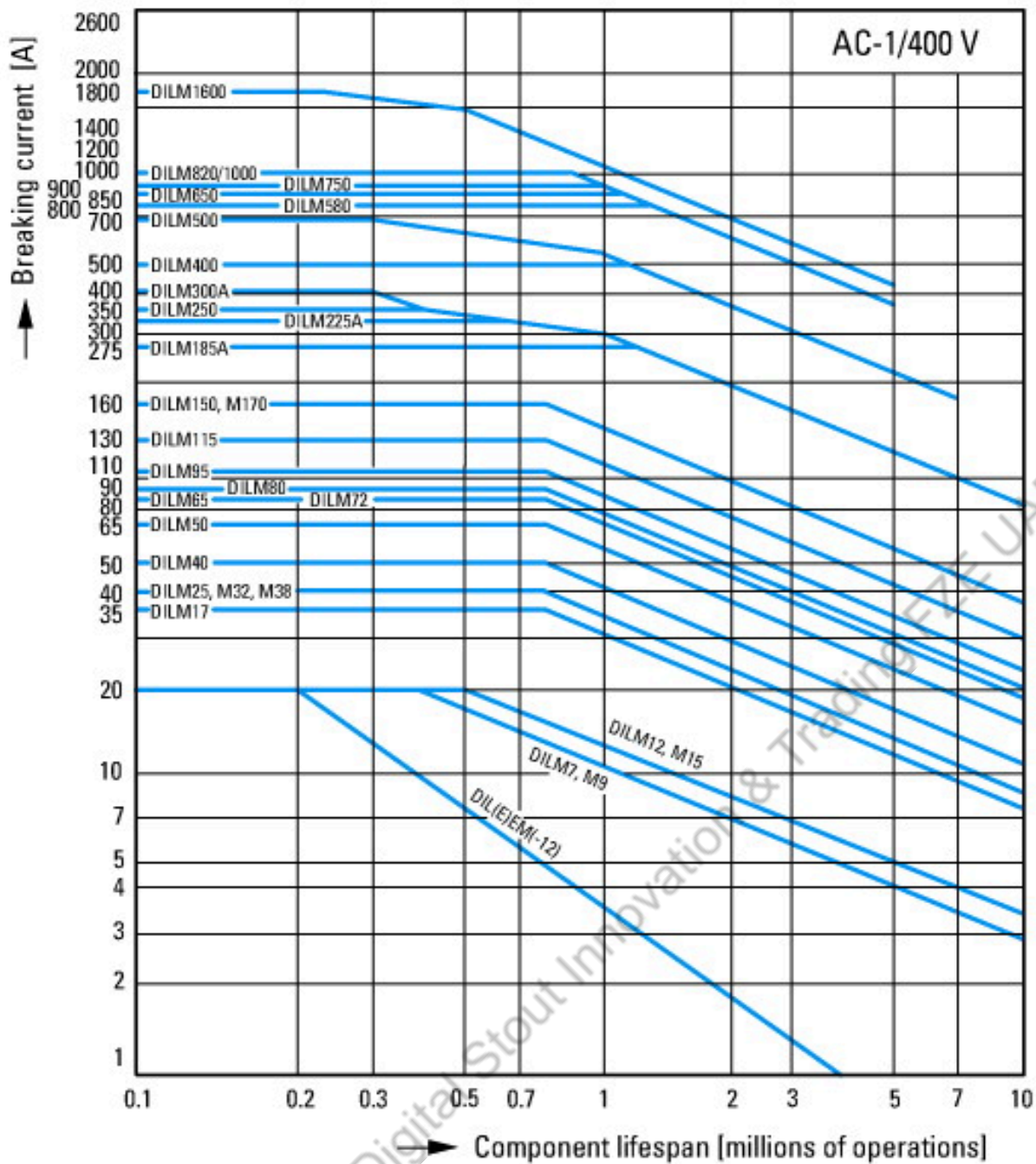
- 1: Overload relay
 - 2: Suppressor
 - 3: Auxiliary contact modules
- Enclosure totally insulated



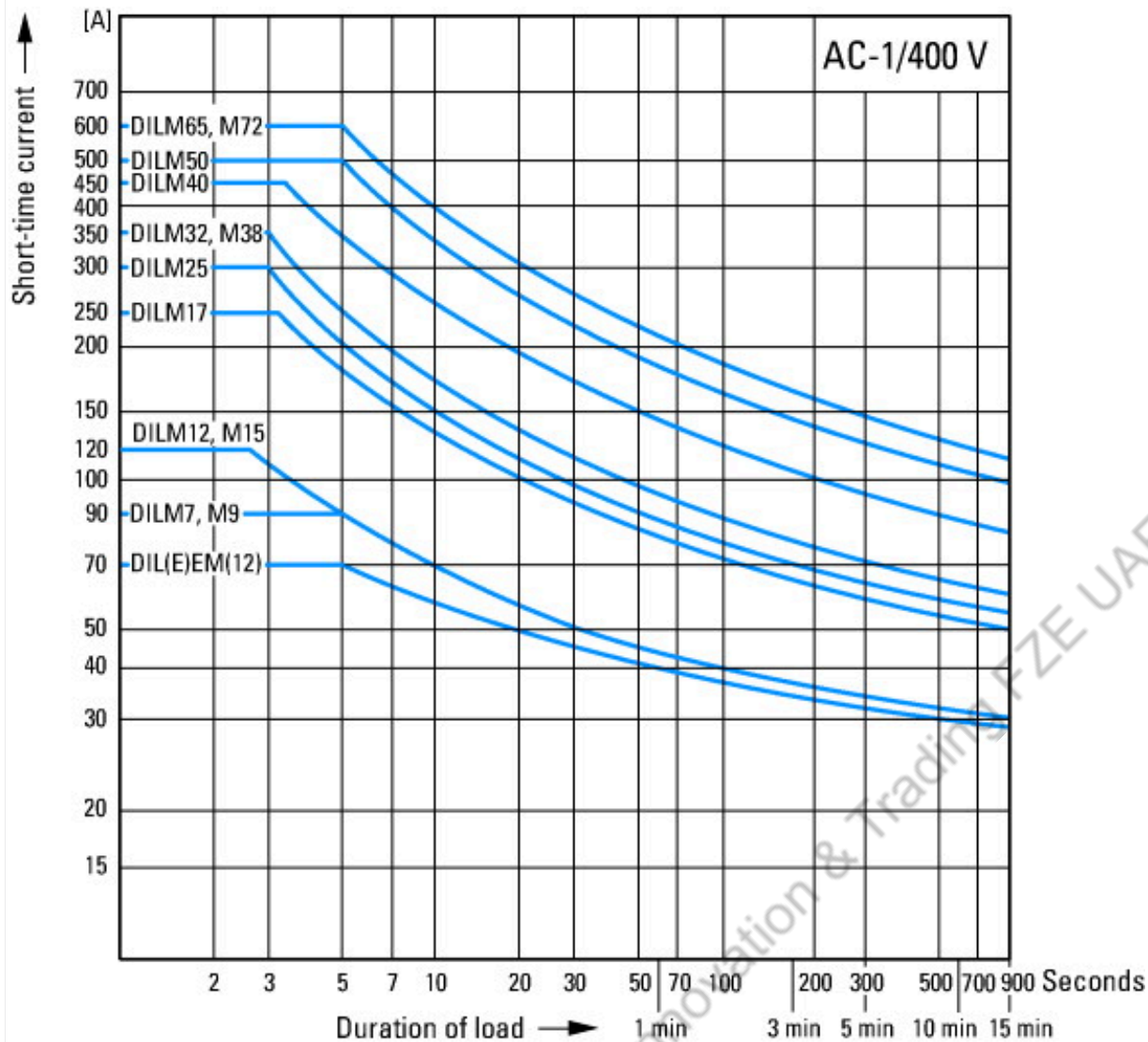
Squirrel-cage motor
 Operating characteristics
 Starting: from rest
 Stopping: after attaining full running speed
 Electrical characteristics
 Make: up to 6 x rated motor current
 Break: up to 1 x rated motor current
 Utilization category
 100 % AC-3
 Typical applications
 Compressors
 Lifts
 Mixers
 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

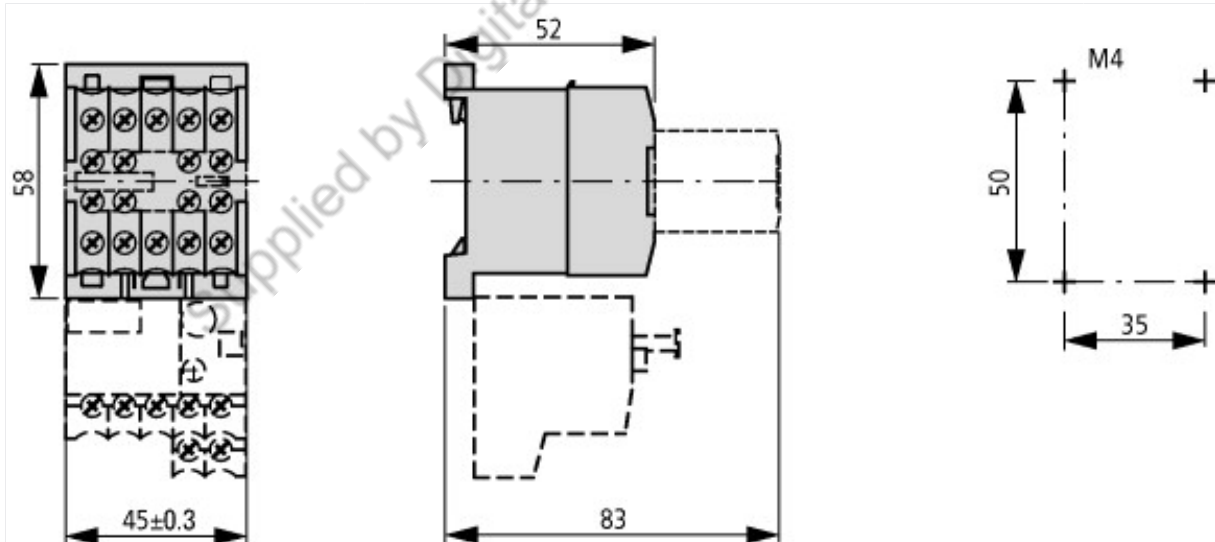


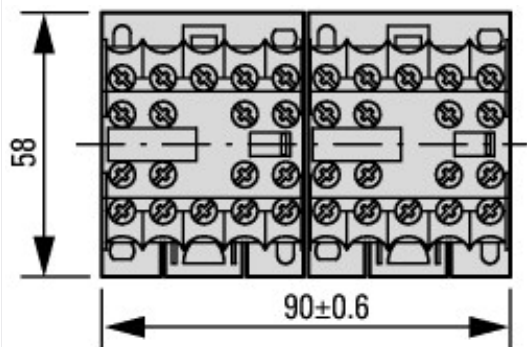
Switching duty for non-motor loads, 3-pole, 4-pole
 Operating characteristics
 Non-inductive or slightly inductive loads
 Electrical characteristics
 Make: 1 x rated current
 Break: 1 x rated current
 Utilization category
 100 % AC-1
 Typical applications
 Electric heat



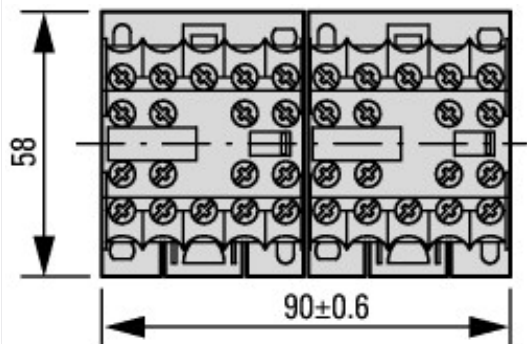
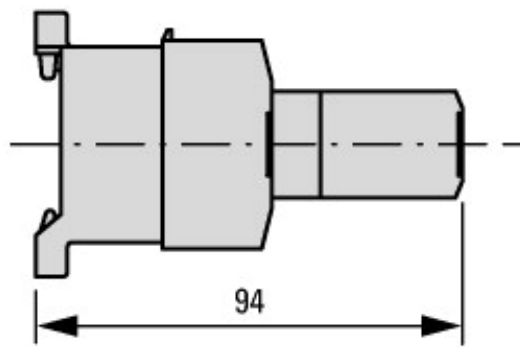
Short-time loading, 3-pole
Time interval between two loading cycles: 15 minutes

Dimensions

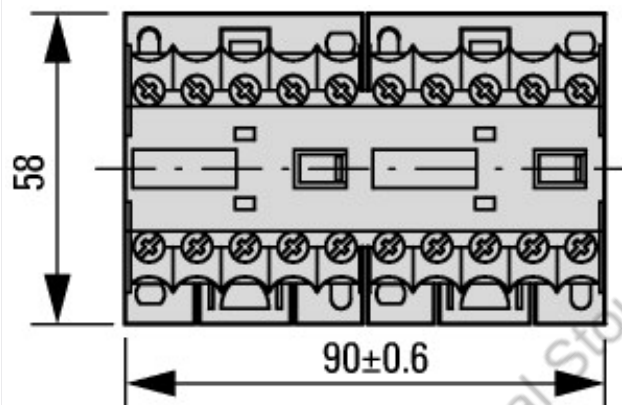
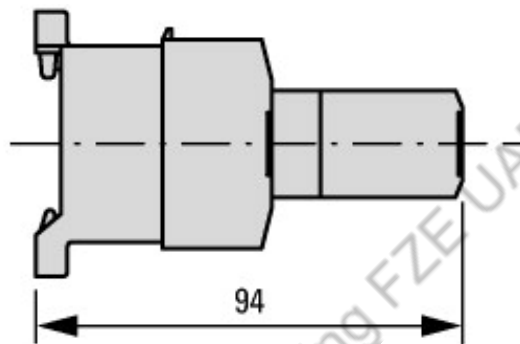




2DILE-... + MVDILE + ...DILE
2DILE-...-G + MVDILE + ...DILE



2DILE-... + MVDILE + ...DILE
2DILE-...-G + MVDILE + ...DILE



2DILE-... + MVDILE
2DILE-...-G + MVDILE

