



## Contactor, 3kW/400V, DC operated



Powering Business Worldwide™

Part no.

**DILEEM-10-G(24VDC)**

Article no.

**051643**

勝特力材料 886-3-5753170  
 勝特力电子(上海) 86-21-34970699  
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[Http://www.100y.com.tw](http://www.100y.com.tw)

### Program

|   |                |    |     |  |
|---|----------------|----|-----|--|
| Product range   |                |    |     | Contactors                                     |
| Subrange  |                |    |     | Contactors DILEEM                              |
| Application   |                |    |     | Mini Contactors for Motors and Resistive Loads |
| Description   |                |    |     | With auxiliary contact                         |
| Pole  |                |    |     | 3 pole   |
| Connection technique                                      |                |    |     | Screw terminals                                |
| Rated operational current                                 |                |    |     |  |
| AC-3  |                |    |     |  |
| 400 V   | $I_e$          | A  | 6.6 |  |
| AC-1  |                |    |     |  |
| Conventional free air thermal current, 3 pole, 50 - 60 Hz |                |    |     |  |
| Open  |                |    |     |  |
| at 50 °C  | $I_{th} = I_e$ | A  | 20  |  |
| enclosed  | $I_{th}$       | A  | 16  |  |
| Max. rating for three-phase motors, 50 - 60 Hz            |                |    |     |  |
| AC-3  |                |    |     |  |
| 220 V 230 V   | P              | kW | 1.5 |  |
| 380 V 400 V   | P              | kW | 3   |  |
| 660 V 690 V   | P              | kW | 3   |  |
| AC-4  |                |    |     |  |
| 220 V 230 V   | P              | kW | 1.1 |  |
| 380 V 400 V   | P              | kW | 2.2 |  |
| 660 V 690 V   | P              | kW | 2.2 |  |
| Contacts  |                |    |     |  |
| N/O = Normally open                                       |                |    |     | 1 N/O  |
| Contact sequence  |                |    |     |  |
| For use with  |                |    |     | ...DILEM<br>...DILE                            |
| Actuating voltage   |                |    |     | 24 V DC  |
| Voltage AC/DC   |                |    |     | DC operation                                   |

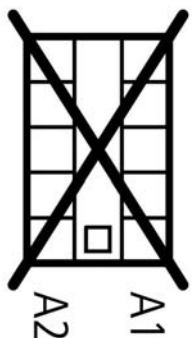
### Approbationen

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

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

### General

|                             |            |             |      |  |
|-----------------------------|------------|-------------|------|--|
| Standards                   |            |             |      | IEC/EN 60947, VDE 0660, CSA, UL  |
| Lifespan, mechanical        | Operations | x<br>$10^6$ | 20   |  |
| Maximum operating frequency |            | Ops./<br>h  |      |  |
| Mechanical                  |            | Ops./<br>h  | 9000 |  |
| 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 - 50   |
| Enclosed  |                  | °C              | - 25 - 40   |
| Mounting position   |                  |                 | As required except vertical with terminals A1/A2 at the bottom<br> |
| 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 without auxiliary contact module                           |                  |                 |   |
| Main contacts, make contacts  |                  | g               | 10  |
| Main contacts Make/break contacts                                     |                  | g               | 10 / 8  |
| Basic unit with auxiliary contact module                              |                  |                 |   |
| Main contacts make contact  |                  | g               |   |
| Make  |                  | g               | 10  |
| Auxiliary contacts Make/break contacts                                |                  | g               | 20 / 20   |
| Protection type   |                  |                 | IP20  |
| Protection against direct contact when actuated from front (EN 90274) |                  |                 | Finger and back-ofhand proof  |
| Weight  |                  | kg              | 0.17  |
| Terminal capacity of auxiliary and main contacts                      |                  |                 |   |
| Solid   |                  | 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   |
| 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   |
| Terminal capacity springloaded terminals main and control circuits    |                  |                 |   |
| Solid   |                  | mm <sup>2</sup> | 1 x (1 - 2.5)<br>2 x (1 - 2.5)  |
| Flexible with ferrule   |                  | mm <sup>2</sup> | 1 x (1 - 2.5)<br>2 x (1 - 2.5)  |
| Standard screwdriver  |                  | mm              | 0.6 x 3.5   |
| <b>Main conducting paths</b>  |                  |                 |   |
| Rated impulse withstand voltage                                       | U <sub>imp</sub> | V<br>AC         | 6000  |
| Overvoltage category/pollution degree                                 |                  |                 | III/3   |
| Rated insulation voltage  | U <sub>i</sub>   | V<br>AC         | 690   |
| Rated operational voltage   | U <sub>e</sub>   | V<br>AC         | 690   |
| Safe isolation to VDE 0106 Part 101 and Part 101/A1                   |                  |                 |   |
| between coil and contacts   |                  | V<br>AC         | 300   |
| between the contacts  |                  | V<br>AC         | 300   |
| Making capacity (cos φ to IEC/EN 60947)                               |                  | A               | 110   |
| Breaking capacity   |                  |                 |   |
| 220/230 V   |                  | A               | 90  |
| 380/400 V   |                  | A               | 90  |

|   |              |     |   |
|---|--------------|-----|---|
| 500 V   |              | A   | 64  |
| 660/690 V   |              | A   | 42  |
| Short-circuit protection maximum fuse                     |              |     |   |
| Type "2" coordination                                     | gL/gG        | A   | 10  |
| Type "1" coordination                                     | gL/gG        | A   | 20  |
| <b>AC</b>   |              |     |   |
| 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   | 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 duty   |              |     |   |
| Rated operational current AC-3 open, 50 - 60 Hz, 3 pole   |              |     |   |
| Notes   | $I_e$        |     | At maximum permissible ambient air temperature. |
| 220/230 V   | $I_e$        | A   | 6.6   |
| 240 V   | $I_e$        | A   | 6.6   |
| 380/400 V   | $I_e$        | A   | 6.6   |
| 415 V   | $I_e$        | A   | 6.6   |
| 440V  | $I_e$        | A   | 6.6   |
| 500 V   | $I_e$        | A   | 5   |
| 660/690 V   | $I_e$        | A   | 3.5   |
| Motor rating  |              |     |   |
| 220/230 V   | P            | kWh | 1.5   |
| 240V  | P            | kW  | 1.8   |
| 380/400 V   | P            | kW  | 3   |
| 415 V   | P            | kW  | 3.1   |
| 440 V   | P            | kW  | 3.3   |
| 500 V   | P            | kW  | 3   |
| 660/690 V   | P            | kW  | 3   |
| AC-4 duty   |              |     |   |
| Rated operational current AC-4 open, 50 - 60 Hz, 3 pole   |              |     |   |
| Notes   | $I_e$        |     | At maximum permissible ambient air temperature. |
| 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   | 3.7   |
| 660/690 V   | $I_e$        | A   | 2.9   |
| Motor rating  |              |     |   |
| 220/230 V   | P            | kWh | 1.1   |
| 240 V   | P            | kW  | 1.3   |
| 380/400 V   | P            | kW  | 2.2   |
| 415 V   | P            | kW  | 2.3   |
| 440 V   | P            | kW  | 2.4   |
| 500 V   | P            | kW  | 2.2   |
| 660/690 V   | P            | kW  | 2.2   |

## DC

|                                    |       |   |     |
|------------------------------------|-------|---|-----|
| Rated operational current, open    | $I_e$ |   |     |
| 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  |
| DC - 3                             |       |   |     |
| 12 V                               | $I_e$ | A | 6   |
| 24 V                               | $I_e$ | A | 6   |
| 60 V                               | $I_e$ | A | 3   |
| 110 V                              | $I_e$ | A | 2   |
| DC - 5                             |       |   |     |
| 12 V                               | $I_e$ | A | 1.8 |
| 24 V                               | $I_e$ | A | 1.8 |
| 60 V                               | $I_e$ | A | 1.8 |
| 110 V                              | $I_e$ | A | 1.8 |
| 220 V                              | $I_e$ | A | 0.2 |
| Current heat losses (3- or 4-pole) |       |   |     |
| to $I_{th}$                        |       | W | 3.5 |
| at $I_e$ to AC-3/400 V             |       | W | 0.7 |

## Magnet systems

|   |         |          |   |
|---|---------|----------|---|
| Voltage tolerance                                 |         | $x U_c$  |   |
| DC operated                                       | Pick-up | $x U_c$  | 0.8 - 1.1   |
| Power consumption                                 |         |          |   |
| DC operation                                      |         |          |   |
| Power consumption Pick-up = Sealing               |         | VA/<br>W | 2.6   |
| Notes   |         |          | Smoothed DC voltage or three-phase bridge rectifier |
| Duty factor                                       |         | %<br>DF  | 100   |
| Switching times at 100 % $U_c$                    |         |          |   |
| Make contact                                      |         | ms       |   |
| Closing delay                                     |         | ms       |   |
| Closing delay min.                                |         | ms       | 26  |
| Closing delay max.                                |         | ms       | 35  |
| Opening delay                                     |         | ms       |   |
| Opening delay min.                                |         | ms       | 15  |
| Opening delay max.                                |         | ms       | 25  |
| Closing delay with top mounting auxiliary contact |         | ms       | max. 70   |
| Reversing contactors                              |         |          |   |
| Changeover time at 110 % $U_c$                    |         | ms       |   |
| Changeover time min.                              |         | ms       | 40  |
| Changeover time max.                              |         | ms       | 50  |
| Arcing time at 690 V AC                           |         | ms       | max. 12   |

## Auxiliary contacts

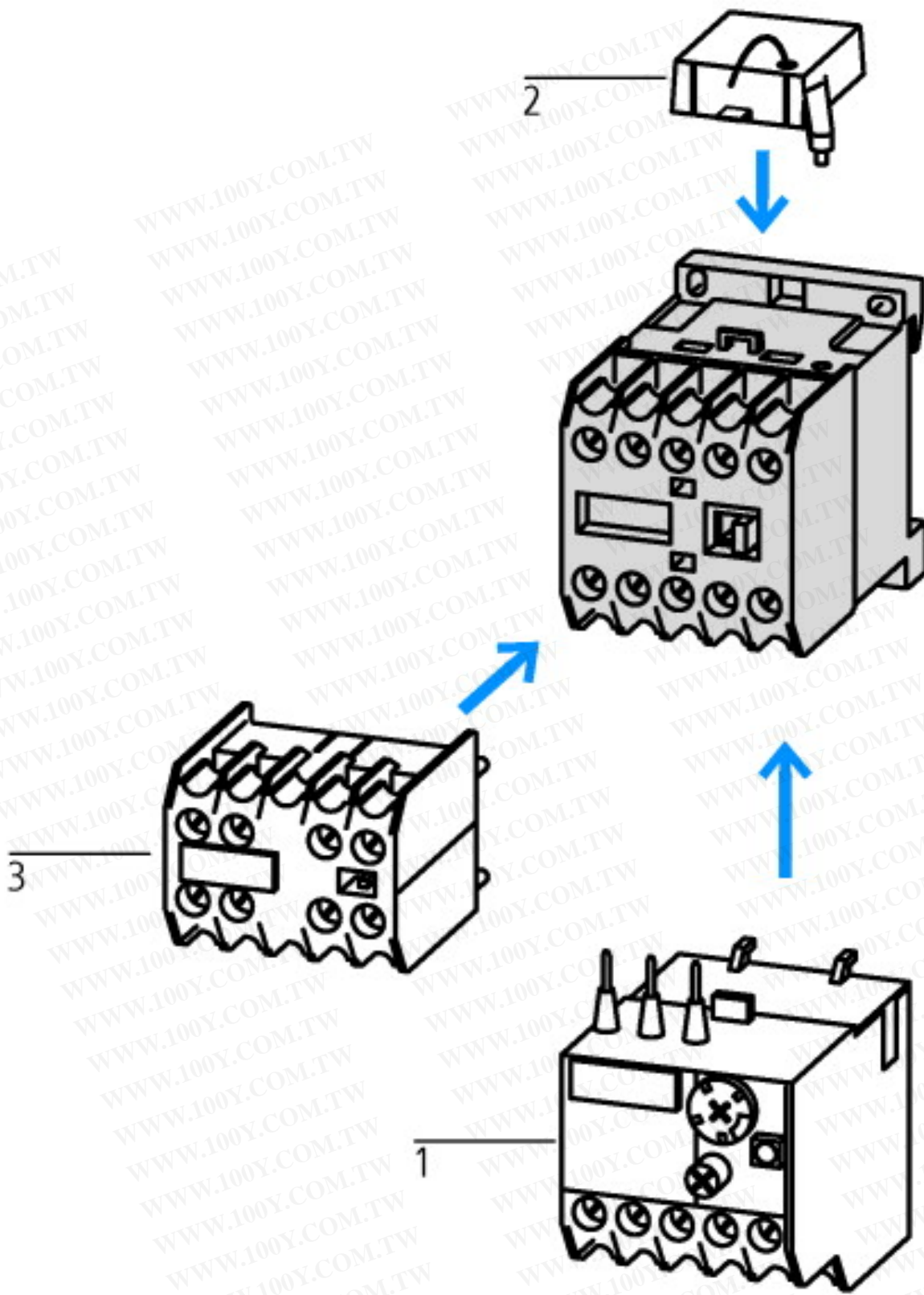
|   |           |         |      |
|---|-----------|---------|------|
| Positive operating contacts to ZH 1/457, including auxiliary contact module |           |         | Yes  |
| Rated impulse withstand voltage   | $U_{imp}$ | V<br>AC | 6000 |
| Rated insulation voltage  | $U_i$     | V<br>AC | 690  |
| Rated operational voltage   | $U_e$     | V       |      |
| Rated operational voltage   | $U_e$     | V<br>AC | 600  |

|  |              |                |  |
|--|--------------|----------------|--|
| Safe isolation to VDE 0106 Part 101 and Part 101/A1                                    |              |                |  |
| between coil and auxiliary contacts  |              | V<br>AC        | 300  |
| between the auxiliary contacts   |              | V<br>AC        | 300  |
| Rated operational current  | $I_e$        | A              |  |
| AC-15  |              |                |  |
| 220/240 V  | $I_e$        | A              | 6  |
| 380/415 V  | $I_e$        | A              | 3  |
| 500 V  | $I_e$        | A              | 1.5  |
| DC-13  |              |                |  |
| 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  |
| Control circuit reliability (at $U_e = 24$ V DC, $U_{min} = 17$ V, $I_{min} = 5.4$ mA) | Failure rate | $\lambda$      | $<10^{-8}$ , < one failure at 100 million operations                           |
| Component lifespan at $U_e = 240$ V  |              |                |  |
| AC-15  | Operations   | $\times 10^6$  | 0.2  |
| DC-13  |              |                |  |
| L/R = 50 ms: 2 contacts in series at $I_e = 0.5$ A                                     | Operations   | $\times 10^6$  | 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<br>gG/<br>gL | 6  |
| 500 V  |              | A<br>fast      | 10   |
| Current heat loss at $I_{th}$  |              |                |  |
| Per contact  |              | W              | 0.3  |

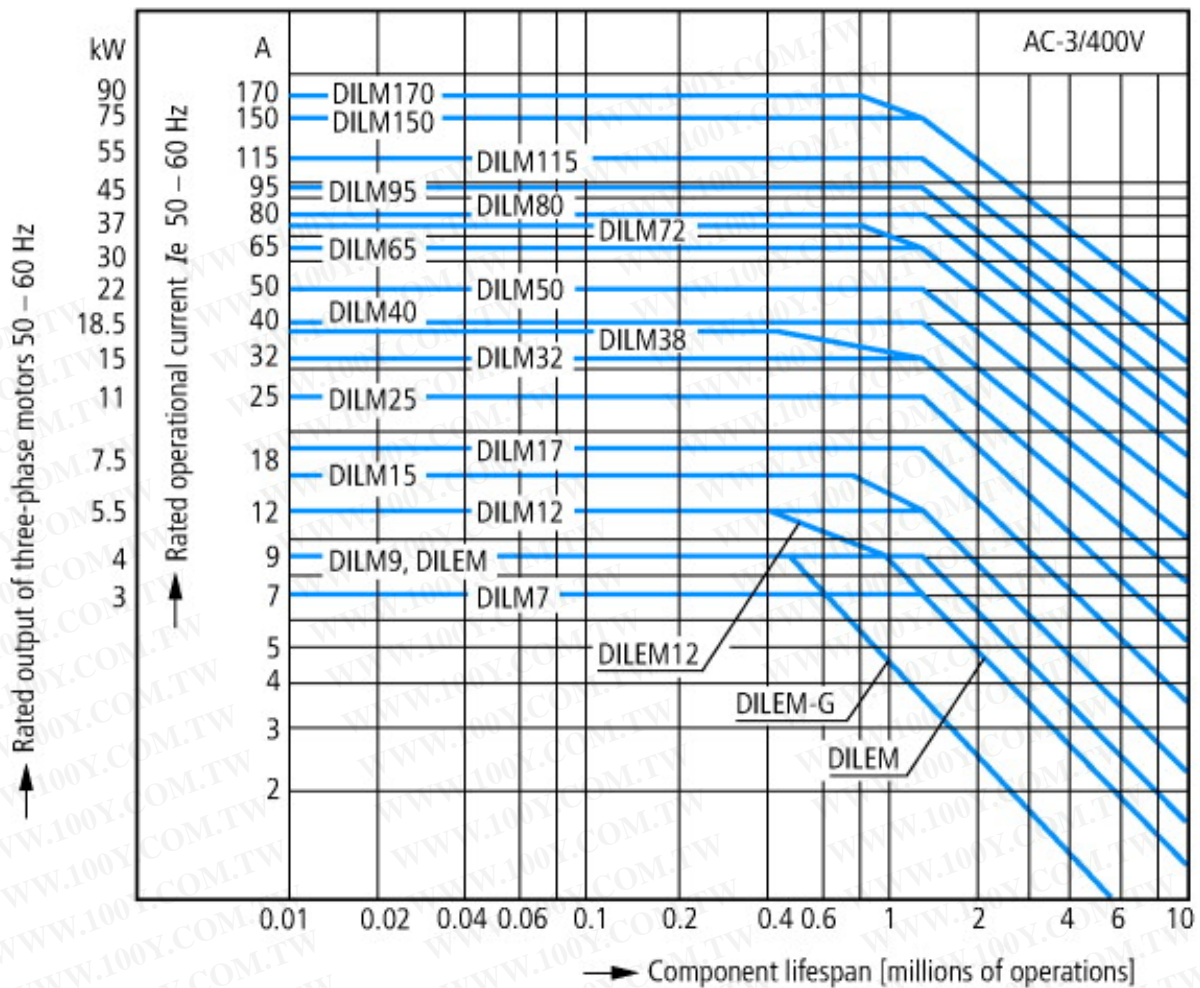
### Technical data according to ETIM 4.0

|  |  |     |                  |
|--|--|-----|------------------|
| Number of main contacts as N/Os              |  |     | 3                |
| Rated operation current $I_e$ at AC-1, 400 V |  |     | 22               |
| 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   | 6.6              |
| Number of N/Cs as main contact               |  |     | 0                |
| Motor rating at AC-3, 400 V                  |  | kWh | 3                |

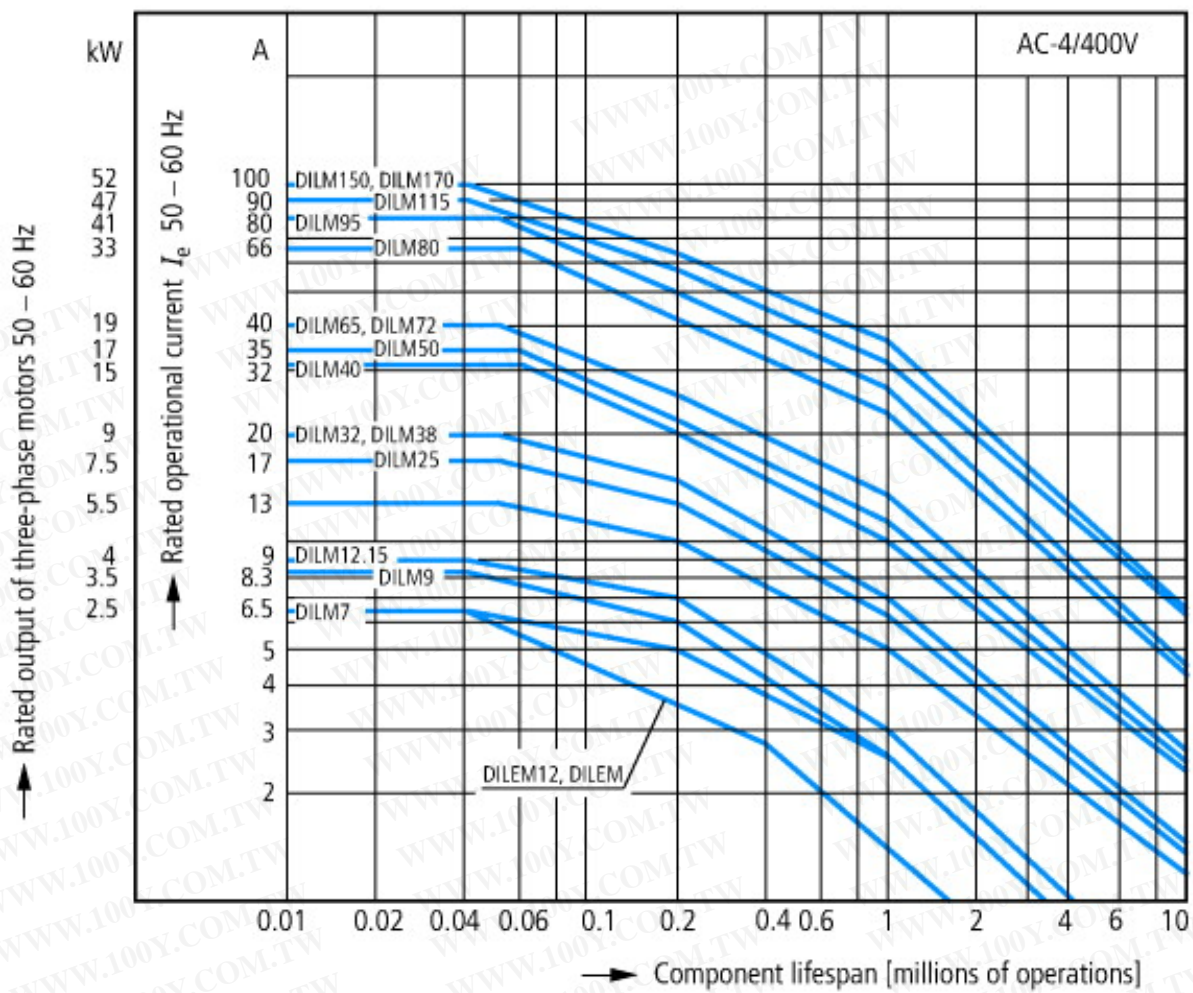
### Characteristics



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

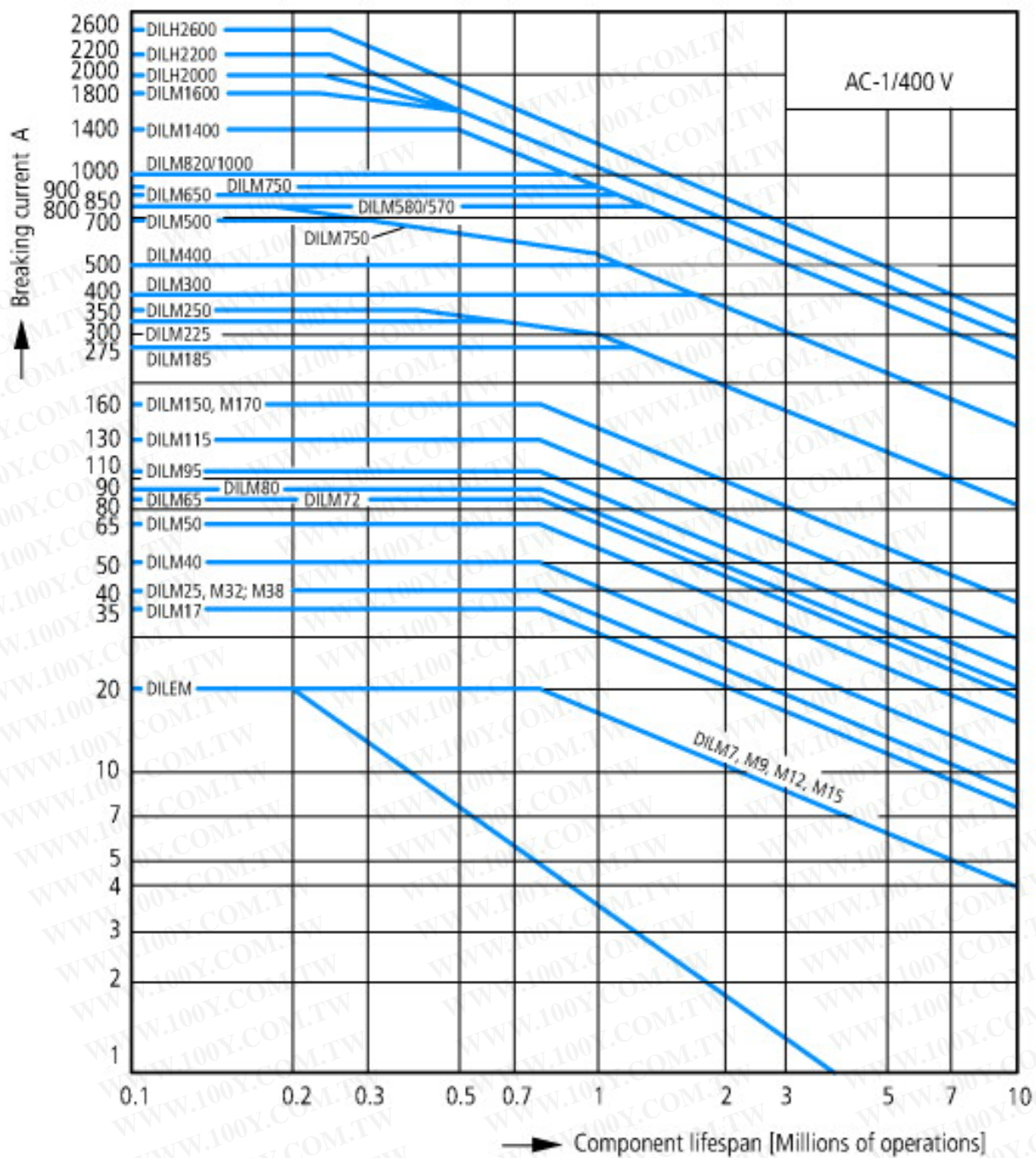


- Squirrel-cage motor
- Operating characteristics
- Starting: from rest
- Stopping: after attaining full running speed
- Electrical characteristics
- Make: up to 6 x rated motor current
- Break: up to 1 x rated motor current
- Utilization category
- 100 % AC-3
- Typical applications
- Compressors
- Lifts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

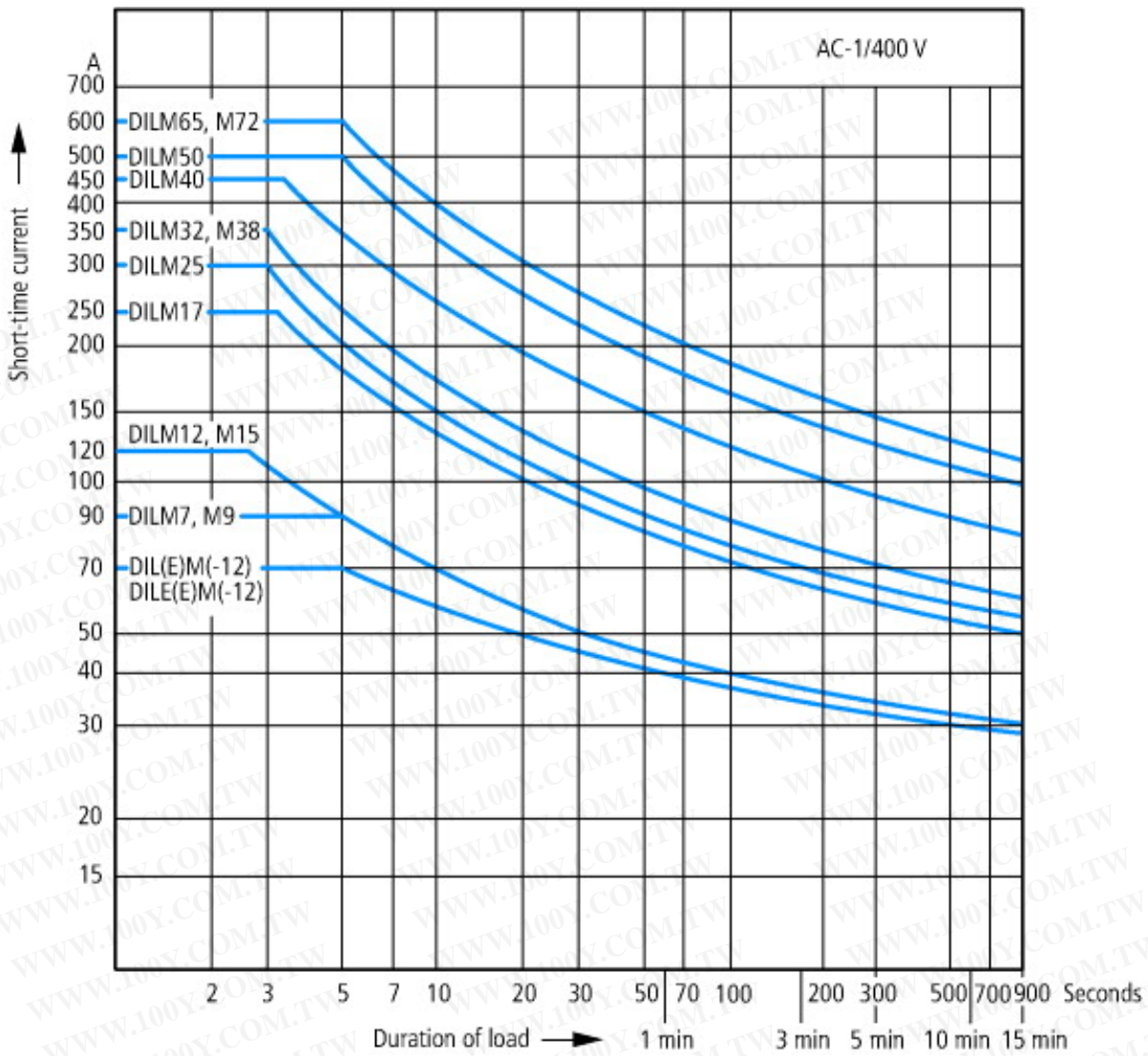


- Extreme switching duty
- Squirrel-cage motor
- Operating characteristics
- Inching, plugging, reversing
- Electrical characteristics
- Make: up to 6 x rated motor current
- Break: up to 6 x rated motor current
- Utilization category
- 100 % AC-4
- Typical applications
- Printing presses
- Wire-drawing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



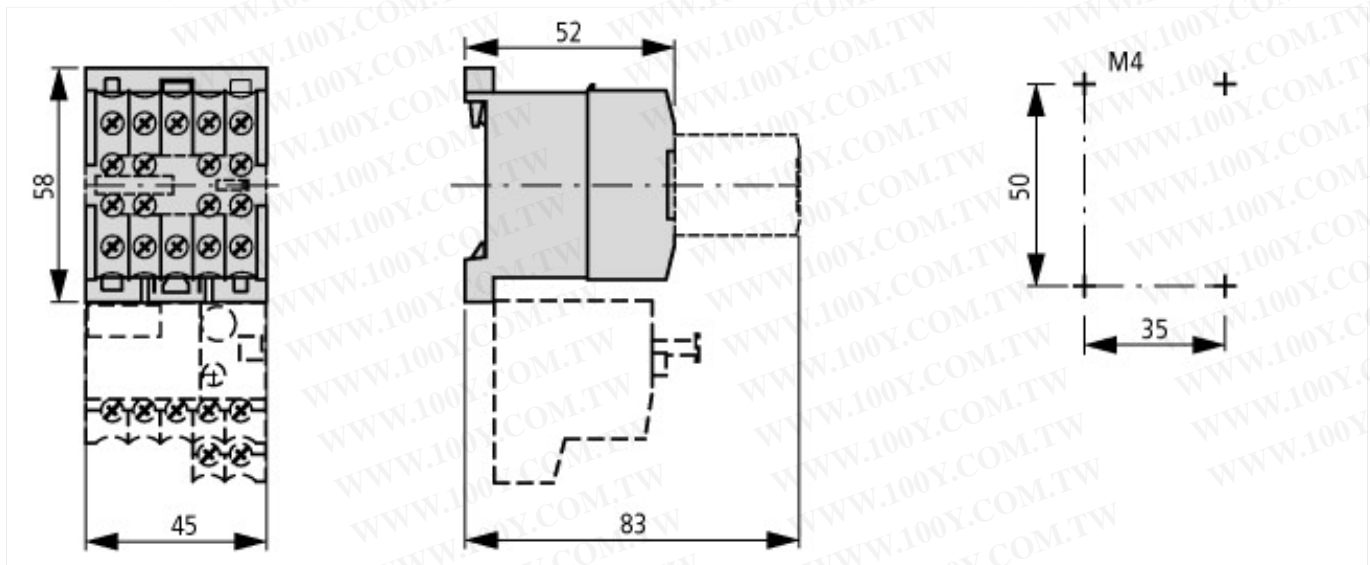
Short-time loading, 3-pole  
Time interval between two loading cycles: 15 minutes

### CAD-Data

Product standards CAD data:

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

### Dimensions



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