

Contactor, 24 V 50 Hz, 3 pole, 380 V 400 V, 5.5 kW, Contacts N/C = Normally closed= 1 NC, Screw terminals, AC operation

Part no. DILEM12-01(24V50HZ)  
 Catalog No. 127083  
 Alternate Catalog XTMC12A01U  
 No.

## Delivery program

|                      |  |  |                                                                                                                                                                                                                            |
|----------------------|--|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product range        |  |  | Contactors                                                                                                                                                                                                                 |
| Application          |  |  | Contactors for Motors<br>Mini Contactors for Motors and Resistive Loads                                                                                                                                                    |
| Subrange             |  |  | DILEM contactors                                                                                                                                                                                                           |
| Utilization category |  |  | AC-1: Non-inductive or slightly inductive loads, resistance furnaces<br>NAC-3: Normal AC induction motors: starting, switch off during running<br>AC-4: Normal AC induction motors: starting, plugging, reversing, inching |
| Connection technique |  |  | Screw terminals                                                                                                                                                                                                            |
| Description          |  |  | With auxiliary contact                                                                                                                                                                                                     |
| Number of poles      |  |  | 3 pole                                                                                                                                                                                                                     |

## Rated operational current

|                                                           |                                  |   |    |
|-----------------------------------------------------------|----------------------------------|---|----|
| AC-3                                                      |                                  |   |    |
| 380 V 400 V                                               | I <sub>e</sub>                   | A | 12 |
| AC-1                                                      |                                  |   |    |
| Conventional free air thermal current, 3 pole, 50 - 60 Hz |                                  |   |    |
| Open                                                      |                                  |   |    |
| at 40 °C                                                  | I <sub>th</sub> = I <sub>e</sub> | A | 22 |

## Max. rating for three-phase motors, 50 - 60 Hz

|             |   |    |     |
|-------------|---|----|-----|
| AC-3        |   |    |     |
| 220 V 230 V | P | kW | 3   |
| 380 V 400 V | P | kW | 5.5 |
| 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/C = Normally closed |  |  | 1 NC         |
| For use with          |  |  | ...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   | x 10 <sup>6</sup> | 5                                                                              |
| Lifespan, mechanical                           | Operations   | x 10 <sup>6</sup> | 5                                                                              |
| 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<br>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 |
| 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               |                                                                 |
| Break contact                                                         | g               | 10                                                              |
| 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 <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                                                         |
| Stripping length                                                      | mm              | 8                                                               |
| 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                                                             |

Main conducting paths

|                                         |                  |      |       |
|-----------------------------------------|------------------|------|-------|
| Rated impulse withstand voltage         | U <sub>imp</sub> | V AC | 6000  |
| Overvoltage category/pollution degree   |                  |      | III/3 |
| Rated insulation voltage                | U <sub>i</sub>   | V AC | 690   |
| Rated operational voltage               | U <sub>e</sub>   | 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    | 120   |
| Breaking capacity                       |                  |      |       |
| 220 V 230 V                             |                  | A    | 96    |
| 380 V 400 V                             |                  | A    | 96    |
| 500 V                                   |                  | A    | 72    |
| 660 V 690 V                             |                  | A    | 42    |
| Short-circuit protection maximum fuse   |                  |      |       |
| Type “2”, 500 V                         | gL/gG            | A    | 20    |
| Type “1”, 500 V                         | gL/gG            | A    | 35    |

AC

|                                                           |                                  |   |    |
|-----------------------------------------------------------|----------------------------------|---|----|
| AC-1                                                      |                                  |   |    |
| Rated operational current                                 |                                  |   |    |
| Conventional free air thermal current, 3 pole, 50 - 60 Hz |                                  |   |    |
| Open                                                      |                                  |   |    |
| at 40 °C                                                  | I <sub>th</sub> = I <sub>e</sub> | A | 22 |
| at 50 °C                                                  | I <sub>th</sub> = I <sub>e</sub> | A | 20 |
| at 55 °C                                                  | I <sub>th</sub> = I <sub>e</sub> | A | 19 |
| enclosed                                                  | I <sub>th</sub>                  | 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 <sub>th</sub> | A   | 50                                                 |
| enclosed                                      | I <sub>th</sub> | A   | 40                                                 |
| AC-3                                          |                 |     |                                                    |
| Rated operational current                     |                 |     |                                                    |
| Open, 3-pole: 50 – 60 Hz                      |                 |     |                                                    |
| Notes                                         |                 |     | At maximum permissible ambient temperature (open.) |
| 220 V 230 V                                   | I <sub>e</sub>  | A   | 12                                                 |
| 240 V                                         | I <sub>e</sub>  | A   | 12                                                 |
| 380 V 400 V                                   | I <sub>e</sub>  | A   | 12                                                 |
| 415 V                                         | I <sub>e</sub>  | A   | 10.5                                               |
| 440V                                          | I <sub>e</sub>  | A   | 10.5                                               |
| 500 V                                         | I <sub>e</sub>  | A   | 9                                                  |
| 660 V 690 V                                   | I <sub>e</sub>  | A   | 5.2                                                |
| Motor rating                                  | P               | kWh |                                                    |
| 220 V 230 V                                   | P               | kW  | 3                                                  |
| 240V                                          | P               | kW  | 3                                                  |
| 380 V 400 V                                   | P               | kW  | 5.5                                                |
| 415 V                                         | P               | kW  | 5.5                                                |
| 440 V                                         | P               | kW  | 5.5                                                |
| 500 V                                         | P               | kW  | 5.5                                                |
| 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 <sub>e</sub>  | A   | 6.6                                                |
| 240 V                                         | I <sub>e</sub>  | A   | 6.6                                                |
| 380 V 400 V                                   | I <sub>e</sub>  | A   | 6.6                                                |
| 415 V                                         | I <sub>e</sub>  | A   | 6.6                                                |
| 440 V                                         | I <sub>e</sub>  | A   | 6.6                                                |
| 500 V                                         | I <sub>e</sub>  | A   | 5                                                  |
| 660 V 690 V                                   | I <sub>e</sub>  | A   | 3.4                                                |
| Motor rating                                  | P               | kWh |                                                    |
| 220 V 230 V                                   | P               | kW  | 1.5                                                |
| 240 V                                         | P               | kW  | 1.5                                                |
| 380 V 400 V                                   | P               | kW  | 3                                                  |
| 415 V                                         | P               | kW  | 3                                                  |
| 440 V                                         | P               | kW  | 3                                                  |
| 500 V                                         | P               | kW  | 3                                                  |
| 660 V 690 V                                   | P               | kW  | 3                                                  |
| DC                                            |                 |     |                                                    |
| Rated operational current open                |                 |     |                                                    |
| DC-1                                          |                 |     |                                                    |
| 12 V                                          | I <sub>e</sub>  | A   | 20                                                 |
| 24 V                                          | I <sub>e</sub>  | A   | 20                                                 |
| 60 V                                          | I <sub>e</sub>  | A   | 20                                                 |
| 110 V                                         | I <sub>e</sub>  | A   | 20                                                 |
| 220 V                                         | I <sub>e</sub>  | 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 <sub>c</sub> | 0.8 - 1.1 |
| Dual-frequency coil 50/60 Hz                                         | Pick-up | x U <sub>c</sub> |           |
| Voltage tolerance Dual-frequency coil 50/60 Hz, max. pick-up voltage |         | x U <sub>c</sub> | 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 <sub>c</sub>                              |         |                  |           |
| 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 <sub>c</sub>                              |         |                  |           |
| 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 <sub>th</sub> , 50 °C      |  | W  | 5.9  |
| at I <sub>e</sub> to AC-3/400 V |  | W  | 2.1  |
| 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 <sub>imp</sub> | V AC              | 6000                                                                                                                                             |
| Overvoltage category/pollution degree                                                      |                  |                   | III/3                                                                                                                                            |
| Rated insulation voltage                                                                   | U <sub>i</sub>   | V AC              | 690                                                                                                                                              |
| Rated operational voltage                                                                  | U <sub>e</sub>   | 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 <sub>e</sub>   | A                 | 6                                                                                                                                                |
| 380 V 415 V                                                                                | I <sub>e</sub>   | A                 | 3                                                                                                                                                |
| 500 V                                                                                      | I <sub>e</sub>   | 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 <sub>th</sub>  | A                 | 10                                                                                                                                               |
| Control circuit reliability                                                                | Failure rate     | λ                 | <10 <sup>-8</sup> , < one failure at 100 million operations<br>(at U <sub>e</sub> = 24 V DC, U <sub>min</sub> = 17 V, I <sub>min</sub> = 5.4 mA) |
| Component lifespan at U <sub>e</sub> = 240 V                                               |                  |                   |                                                                                                                                                  |
| AC-15                                                                                      | Operations       | x 10 <sup>6</sup> | 0.2                                                                                                                                              |
| DC current                                                                                 |                  |                   |                                                                                                                                                  |

|                                                     |            |               |                                                                                |
|-----------------------------------------------------|------------|---------------|--------------------------------------------------------------------------------|
| 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 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<br>208 V               |  | HP   | 2    |
| 230 V<br>240 V               |  | HP   | 3    |
| 460 V<br>480 V               |  | HP   | 5    |
| 575 V<br>600 V               |  | HP   | 5    |
| Single-phase                 |  |      |      |
| 115 V<br>120 V               |  | HP   | 0.5  |
| 230 V<br>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  | 12                                         |
| Heat dissipation per pole, current-dependent                                                                           | $P_{vid}$  | W  | 0.7                                        |
| Equipment heat dissipation, current-dependent                                                                          | $P_{vid}$  | W  | 2.1                                        |
| 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 Us at AC 50HZ                                                                                                                                            | V  | 24 - 24          |
| Rated control supply voltage Us at AC 60HZ                                                                                                                                            | V  | 0 - 0            |
| Rated control supply voltage Us at DC                                                                                                                                                 | V  | 0 - 0            |
| Voltage type for actuating                                                                                                                                                            |    | AC               |
| Rated operation current Ie at AC-1, 400 V                                                                                                                                             | A  | 22               |
| Rated operation current Ie at AC-3, 400 V                                                                                                                                             | A  | 12               |
| Rated operation power at AC-3, 400 V                                                                                                                                                  | kW | 5.5              |
| Rated operation current Ie 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                                                                                                                                 |    | 0                |
| Number of auxiliary contacts as normally closed contact                                                                                                                               |    | 1                |
| 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                |