

**Contactor, 4 pole, AC operation, AC-1: 45 A, 1 N/O, 24 V 50/60 Hz, Screw terminals**

**Part no.** DILMP45-10(24V50/60HZ)  
**Catalog No.** 109828  
**Alternate Catalog No.** XTCF045C10T

## Delivery program

|                                                           |                |   |                                                                                                                                                       |
|-----------------------------------------------------------|----------------|---|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product range                                             |                |   | Contactors                                                                                                                                            |
| Application                                               |                |   | Contactors for 4 pole electric consumers                                                                                                              |
| Subrange                                                  |                |   | Contactors up to 200 A, 4 pole                                                                                                                        |
| Utilization category                                      |                |   | AC-1: Non-inductive or slightly inductive loads, resistance furnaces<br>AC-3/AC-3e: Normal AC induction motors: Starting, switching off while running |
| Connection technique                                      |                |   | Screw terminals                                                                                                                                       |
| Number of poles                                           |                |   | 4 pole                                                                                                                                                |
| <b>Rated operational current</b>                          |                |   |                                                                                                                                                       |
| AC-1                                                      |                |   |                                                                                                                                                       |
| Conventional free air thermal current, 3 pole, 50 - 60 Hz |                |   |                                                                                                                                                       |
| at 40 °C                                                  | $I_{th} = I_e$ | A | 45                                                                                                                                                    |
| at 50 °C                                                  | $I_{th} = I_e$ | A | 41                                                                                                                                                    |
| at 55 °C                                                  | $I_{th} = I_e$ | A | 40                                                                                                                                                    |
| at 60 °C                                                  | $I_{th} = I_e$ | A | 39                                                                                                                                                    |
| <b>Contacts</b>                                           |                |   |                                                                                                                                                       |
| N/O = Normally open                                       |                |   | 1 N/O                                                                                                                                                 |
| For use with                                              |                |   | DILM32-XHI(C)...<br>DILA-XHI(V)(C)...                                                                                                                 |
| Actuating voltage                                         |                |   | 24 V 50/60 Hz                                                                                                                                         |
| Voltage AC/DC                                             |                |   | AC operation                                                                                                                                          |
| Connection to SmartWire-DT                                |                |   | no                                                                                                                                                    |
| <b>Instructions</b>                                       |                |   | Contacts to EN 50 012.                                                                                                                                |

## Technical data

|                                                 |              |               |                                                                               |
|-------------------------------------------------|--------------|---------------|-------------------------------------------------------------------------------|
| <b>General</b>                                  |              |               |                                                                               |
| Standards                                       |              |               | IEC/EN 60947, VDE 0660, UL, CSA                                               |
| Lifespan, mechanical                            |              |               |                                                                               |
| AC operated                                     | Operations   | $\times 10^6$ | 10                                                                            |
| DC operated                                     | Operations   | $\times 10^6$ | 10                                                                            |
| Operating frequency, mechanical                 |              |               |                                                                               |
| AC operated                                     | Operations/h |               | 5000                                                                          |
| DC operated                                     | Operations/h |               | 5000                                                                          |
| Climatic proofing                               |              |               | Damp heat, constant, to IEC 60068-2-3<br>Damp heat, cyclic, to IEC 60068-2-30 |
| Ambient temperature                             |              |               |                                                                               |
| Open                                            |              | °C            | -25 - +60                                                                     |
| Enclosed                                        |              | °C            | - 25 - 40                                                                     |
| Storage                                         |              | °C            | - 40 - 80                                                                     |
| 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                                                                             |
| Degree of Protection                            |              |               | IP00                                                                          |

|                                                                       |  |                 |                                      |
|-----------------------------------------------------------------------|--|-----------------|--------------------------------------|
| Altitude                                                              |  | m               | Max. 2000                            |
| Protection against direct contact when actuated from front (EN 50274) |  |                 | Finger and back-of-hand proof        |
| Stripping length                                                      |  | mm              | 10                                   |
| Terminal capacity main cable                                          |  |                 |                                      |
| Solid                                                                 |  | mm <sup>2</sup> | 1 x (0.75 - 16)<br>2 x (0.75 - 10)   |
| Flexible with ferrule                                                 |  | mm <sup>2</sup> | 1 x (0.75 - 16)<br>2 x (0.75 - 10)   |
| Stranded                                                              |  | mm <sup>2</sup> | 1 x 16                               |
| Solid or stranded                                                     |  | AWG             | 18 - 6                               |
| Terminal screw                                                        |  |                 | M5                                   |
| Tightening torque                                                     |  | Nm              | 3                                    |
| Stripping length                                                      |  | mm              | 10                                   |
| Terminal capacity control circuit cables                              |  |                 |                                      |
| Solid                                                                 |  | mm <sup>2</sup> | 1 x (0.75 - 4)<br>2 x (0.75 - 2.5)   |
| Flexible with ferrule                                                 |  | mm <sup>2</sup> | 1 x (0.75 - 2.5)<br>2 x (0.75 - 2.5) |
| Solid or stranded                                                     |  | AWG             | 18 - 14                              |
| Stripping length                                                      |  | mm              | 10                                   |
| Terminal screw                                                        |  |                 | M3.5                                 |
| Tightening torque                                                     |  | Nm              | 1.2                                  |
| Tool                                                                  |  |                 |                                      |
| Main cable                                                            |  |                 |                                      |
| Pozidriv screwdriver                                                  |  | Size            | 2                                    |
| Standard screwdriver                                                  |  | mm              | 0.8 x 5.5<br>1 x 6                   |
| Control circuit cables                                                |  |                 |                                      |
| Pozidriv screwdriver                                                  |  | Size            | 2                                    |
| Standard screwdriver                                                  |  | mm              | 0.8 x 5.5<br>1 x 6                   |

## Main conducting paths

|                                       |                  |      |                                  |
|---------------------------------------|------------------|------|----------------------------------|
| Rated impulse withstand voltage       | U <sub>imp</sub> | V AC | 8000                             |
| 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 | 440                              |
| between the contacts                  |                  | V AC | 440                              |
| Making capacity (cos φ)               | Up to 690 V      | A    | 350<br>According to IEC/EN 60947 |
| Breaking capacity                     |                  |      |                                  |
| 220 V 230 V                           |                  | A    | 250                              |
| 380 V 400 V                           |                  | A    | 250                              |
| 500 V                                 |                  | A    | 250                              |
| 660 V 690 V                           |                  | A    | 144                              |
| Short-circuit rating                  |                  |      |                                  |
| Short-circuit protection maximum fuse |                  |      |                                  |
| Type "2" coordination                 |                  |      |                                  |
| 400 V                                 | gG/gL 500 V      | A    | 35                               |
| 690 V                                 | gG/gL 690 V      | A    | 35                               |
| Type "1" coordination                 |                  |      |                                  |
| 400 V                                 | gG/gL 500 V      | A    | 100                              |
| 690 V                                 | gG/gL 690 V      | A    | 50                               |

## 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       | 45                                                                                    |
| at 50 °C                                                      | $I_{th} = I_e$ | A       | 41                                                                                    |
| at 55 °C                                                      | $I_{th} = I_e$ | A       | 40                                                                                    |
| at 60 °C                                                      | $I_{th} = I_e$ | A       | 39                                                                                    |
| enclosed                                                      | $I_{th}$       | A       | 36                                                                                    |
| Conventional free air thermal current, 1 pole                 |                |         |                                                                                       |
| open                                                          | $I_{th}$       | A       | 117                                                                                   |
| enclosed                                                      | $I_{th}$       | A       | 105                                                                                   |
| Motor rating                                                  | P              | kWh     |                                                                                       |
| 220/230 V                                                     | P              | kW      | 16                                                                                    |
| 240 V                                                         | P              | kW      | 18                                                                                    |
| 380/400 V                                                     | P              | kW      | 28                                                                                    |
| 415 V                                                         | P              | kW      | 31                                                                                    |
| 440 V                                                         | P              | kW      | 33                                                                                    |
| 500 V                                                         | P              | kW      | 37                                                                                    |
| 690 V                                                         | P              | kW      | 49                                                                                    |
| AC-3                                                          |                |         |                                                                                       |
| Rated operational current                                     |                |         |                                                                                       |
| Open, 3-pole: 50 – 60 Hz                                      |                |         |                                                                                       |
| Notes                                                         |                |         | At maximum permissible ambient temperature (open.)<br>Also tested according to AC-3e. |
| 220 V 230 V                                                   | $I_e$          | A       | 25                                                                                    |
| 240 V                                                         | $I_e$          | A       | 25                                                                                    |
| 380 V 400 V                                                   | $I_e$          | A       | 25                                                                                    |
| 415 V                                                         | $I_e$          | A       | 25                                                                                    |
| 440V                                                          | $I_e$          | A       | 25                                                                                    |
| 500 V                                                         | $I_e$          | A       | 25                                                                                    |
| 660 V 690 V                                                   | $I_e$          | A       | 15                                                                                    |
| Motor rating                                                  | P              | kWh     |                                                                                       |
| 220 V 230 V                                                   | P              | kW      | 7.5                                                                                   |
| 240V                                                          | P              | kW      | 8.5                                                                                   |
| 380 V 400 V                                                   | P              | kW      | 11                                                                                    |
| 415 V                                                         | P              | kW      | 14.5                                                                                  |
| 440 V                                                         | P              | kW      | 15.5                                                                                  |
| 500 V                                                         | P              | kW      | 17.5                                                                                  |
| 660 V 690 V                                                   | P              | kW      | 14                                                                                    |
| DC                                                            |                |         |                                                                                       |
| Rated operational current, open                               |                |         |                                                                                       |
| DC-1                                                          |                |         |                                                                                       |
| 60 V                                                          | $I_e$          | A       | 45                                                                                    |
| 110 V                                                         | $I_e$          | A       | 45                                                                                    |
| 220 V                                                         | $I_e$          | A       | 45                                                                                    |
| Current heat loss                                             |                |         |                                                                                       |
| 3 pole, at $I_{th}$ (60°)                                     |                | W       | 13.2                                                                                  |
| Impedance per pole                                            |                | mΩ      | 2.7                                                                                   |
| Magnet systems                                                |                |         |                                                                                       |
| Voltage tolerance                                             |                |         |                                                                                       |
| AC operated 50 Hz                                             | Pick-up        | x $U_c$ | 0.8 - 1.1                                                                             |
| AC operated 50/60 Hz                                          |                | x $U_c$ | 0.85 - 1.1                                                                            |
| Drop-out voltage AC operated                                  | Drop-out       | x $U_c$ | 0.4 - 0.6                                                                             |
| Power consumption of the coil in a cold state and 1.0 x $U_S$ |                |         |                                                                                       |
| AC operated 50/60 Hz                                          | Pick-up        | VA      | 50                                                                                    |
| AC operated 50/60 Hz                                          | Pick-up        | W       | 40                                                                                    |
| AC operated 50/60 Hz                                          | Sealing        | VA      | 8                                                                                     |

|                                                                                            |         |      |         |
|--------------------------------------------------------------------------------------------|---------|------|---------|
| AC operated 50/60 Hz                                                                       | Sealing | W    | 2.1     |
| Duty factor                                                                                |         | % DF | 100     |
| Changeover time at 100 % U <sub>S</sub> (recommended value)                                |         |      |         |
| Main contacts                                                                              |         |      |         |
| AC operated                                                                                |         |      |         |
| Closing delay                                                                              |         | ms   | 16 - 22 |
| Opening delay                                                                              |         | ms   | 8 - 14  |
| Permissible residual current with actuation of A1 - A2 by the electronics (with 0 signal). |         | mA   | ≤ 1     |

### Rating data for approved types

|                                      |  |      |                 |
|--------------------------------------|--|------|-----------------|
| Switching capacity                   |  |      |                 |
| Maximum motor rating                 |  |      |                 |
| Three-phase                          |  |      |                 |
| 200 V<br>208 V                       |  | HP   | 7.5             |
| 230 V<br>240 V                       |  | HP   | 10              |
| 460 V<br>480 V                       |  | HP   | 15              |
| 575 V<br>600 V                       |  | HP   | 20              |
| Single-phase                         |  |      |                 |
| 115 V<br>120 V                       |  | HP   | 2               |
| 230 V<br>240 V                       |  | HP   | 5               |
| General use                          |  | A    | 40              |
| Auxiliary contacts                   |  |      |                 |
| Pilot Duty                           |  |      |                 |
| AC operated                          |  |      | A600            |
| DC operated                          |  |      | P300            |
| General Use                          |  |      |                 |
| AC                                   |  | V    | 600             |
| AC                                   |  | A    | 10              |
| DC                                   |  | V    | 250             |
| DC                                   |  | A    | 1               |
| Short Circuit Current Rating         |  | SCCR |                 |
| Basic Rating                         |  |      |                 |
| SCCR                                 |  | kA   | 5               |
| max. Fuse                            |  | A    | 125             |
| max. CB                              |  | A    | 125             |
| 480 V High Fault                     |  |      |                 |
| SCCR (fuse)                          |  | kA   | 10/100          |
| max. Fuse                            |  | A    | 125/70 Class J  |
| SCCR (CB)                            |  | kA   | 10/65           |
| max. CB                              |  | A    | 50/32           |
| 600 V High Fault                     |  |      |                 |
| SCCR (fuse)                          |  | kA   | 10/100          |
| max. Fuse                            |  | A    | 125/100 Class J |
| SCCR (CB)                            |  | kA   | 10/22           |
| max. CB                              |  | A    | 50/32           |
| Special Purpose Ratings              |  |      |                 |
| Electrical Discharge Lamps (Ballast) |  |      |                 |
| 480V 60Hz 3phase, 277V 60Hz 1phase   |  | A    | 40              |
| 600V 60Hz 3phase, 347V 60Hz 1phase   |  | A    | 40              |
| Incandescent Lamps (Tungsten)        |  |      |                 |
| 480V 60Hz 3phase, 277V 60Hz 1phase   |  | A    | 40              |
| 600V 60Hz 3phase, 347V 60Hz 1phase   |  | A    | 40              |

|                                                           |    |      |  |
|-----------------------------------------------------------|----|------|--|
| Resistance Air Heating                                    |    |      |  |
| 480V 60Hz 3phase, 277V 60Hz 1phase                        | A  | 40   |  |
| 600V 60Hz 3phase, 347V 60Hz 1phase                        | A  | 40   |  |
| Refrigeration Control (CSA only)                          |    |      |  |
| LRA 480V 60Hz 3phase                                      | A  | 240  |  |
| FLA 480V 60Hz 3phase                                      | A  | 40   |  |
| LRA 600V 60Hz 3phase                                      | A  | 180  |  |
| FLA 600V 60Hz 3phase                                      | A  | 30   |  |
| Definite Purpose Ratings (100,000 cycles acc. to UL 1995) |    |      |  |
| LRA 480V 60Hz 3phase                                      | A  | 150  |  |
| FLA 480V 60Hz 3phase                                      | A  | 25   |  |
| Elevator Control                                          |    |      |  |
| 200V 60Hz 3phase                                          | HP | 3    |  |
| 200V 60Hz 3phase                                          | A  | 11   |  |
| 240V 60Hz 3phase                                          | HP | 5    |  |
| 240V 60Hz 3phase                                          | A  | 15.2 |  |
| 480V 60Hz 3phase                                          | HP | 10   |  |
| 480V 60Hz 3phase                                          | A  | 14   |  |
| 600V 60Hz 3phase                                          | HP | 15   |  |
| 600V 60Hz 3phase                                          | A  | 17   |  |

## Design verification as per IEC/EN 61439

|                                                                                                                        |                   |    |                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------|-------------------|----|----------------------------------------------------------------------------------------------------------------------------------|
| Technical data for design verification                                                                                 |                   |    |                                                                                                                                  |
| Rated operational current for specified heat dissipation                                                               | I <sub>n</sub>    | A  | 45                                                                                                                               |
| Heat dissipation per pole, current-dependent                                                                           | P <sub>vid</sub>  | W  | 4.4                                                                                                                              |
| Equipment heat dissipation, current-dependent                                                                          | P <sub>vid</sub>  | W  | 13.2                                                                                                                             |
| Static heat dissipation, non-current-dependent                                                                         | P <sub>vs</sub>   | W  | 2.1                                                                                                                              |
| Heat dissipation capacity                                                                                              | P <sub>diss</sub> | W  | 0                                                                                                                                |
| Operating ambient temperature min.                                                                                     |                   | °C | -25                                                                                                                              |
| Operating ambient temperature max.                                                                                     |                   | °C | 60                                                                                                                               |
| 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  | 24 - 24          |
| 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  | 45               |
| Rated operation current Ie at AC-3, 400 V                                                                                                                                             | A  | 25               |
| Rated operation power at AC-3, 400 V                                                                                                                                                  | kW | 11               |
| Rated operation current Ie at AC-4, 400 V                                                                                                                                             | A  | 15               |
| Rated operation power at AC-4, 400 V                                                                                                                                                  | kW | 7                |
| Rated operation power NEMA                                                                                                                                                            | kW | 11               |
| 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                                                                                                                                      |    | 4                |