

**Contactor, 3 pole, 380 V 400 V 22 kW, 230 V 50 Hz, 240 V 60 Hz, AC operation, Screw terminals**

**Part no.** DILM50(230V50HZ,240V60HZ)  
**Catalog No.** 277830  
**Alternate Catalog No.** XTCE050D00F  
**EL-Nummer (Norway)** 4130447

## Delivery program

|                      |  |  |                                                                                                                                                                                                                                   |
|----------------------|--|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product range        |  |  | Contactors                                                                                                                                                                                                                        |
| Application          |  |  | Contactors for Motors                                                                                                                                                                                                             |
| Subrange             |  |  | Contactors up to 170 A, 3 pole                                                                                                                                                                                                    |
| Utilization category |  |  | AC-1: Non-inductive or slightly inductive loads, resistance furnaces<br>AC-3/AC-3e: Normal AC induction motors: Starting, switching off while running<br>AC-4: Normal AC induction motors: starting, plugging, reversing, inching |
| Notes                |  |  | Also suitable for motors with efficiency class IE3.                                                                                                                                                                               |
| Connection technique |  |  | Screw terminals                                                                                                                                                                                                                   |
| Number of poles      |  |  | 3 pole                                                                                                                                                                                                                            |

## Rated operational current

|                                                           |                |   |                                                                                       |
|-----------------------------------------------------------|----------------|---|---------------------------------------------------------------------------------------|
| AC-3                                                      |                |   |                                                                                       |
| Notes                                                     |                |   | At maximum permissible ambient temperature (open.)<br>Also tested according to AC-3e. |
| 380 V 400 V                                               | $I_e$          | A | 50                                                                                    |
| AC-1                                                      |                |   |                                                                                       |
| Conventional free air thermal current, 3 pole, 50 - 60 Hz |                |   |                                                                                       |
| Open                                                      |                |   |                                                                                       |
| at 40 °C                                                  | $I_{th} = I_e$ | A | 80                                                                                    |
| enclosed                                                  | $I_{th}$       | A | 58                                                                                    |
| Conventional free air thermal current, 1 pole             |                |   |                                                                                       |
| open                                                      | $I_{th}$       | A | 162                                                                                   |
| enclosed                                                  | $I_{th}$       | A | 145                                                                                   |

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

|                                        |   |    |                                         |
|----------------------------------------|---|----|-----------------------------------------|
| AC-3                                   |   |    |                                         |
| 220 V 230 V                            | P | kW | 15.5                                    |
| 380 V 400 V                            | P | kW | 22                                      |
| 660 V 690 V                            | P | kW | 30                                      |
| AC-4                                   |   |    |                                         |
| 220 V 230 V                            | P | kW | 6                                       |
| 380 V 400 V                            | P | kW | 10                                      |
| 660 V 690 V                            | P | kW | 14                                      |
| Can be combined with auxiliary contact |   |    | DILM150-XHI(V)...<br>DILM1000-XHI(V)... |
| Actuating voltage                      |   |    | 230 V 50 Hz, 240 V 60 Hz                |
| Voltage AC/DC                          |   |    | AC operation                            |
| Connection to SmartWire-DT             |   |    | no                                      |
| <b>Instructions</b>                    |   |    | Contacts to EN 50 012.                  |
| Frame size                             |   |    | 3                                       |

## Technical data

### General

|                                 |            |               |                                 |
|---------------------------------|------------|---------------|---------------------------------|
| Standards                       |            |               | IEC/EN 60947, VDE 0660, UL, CSA |
| Lifespan, mechanical            |            |               |                                 |
| AC operated                     | Operations | $\times 10^6$ | 10                              |
| Operating frequency, mechanical |            |               |                                 |

|                                                                       |                                     |      |                                                                                |
|-----------------------------------------------------------------------|-------------------------------------|------|--------------------------------------------------------------------------------|
| AC operated                                                           | Operations/h                        |      | 5000                                                                           |
| Climatic proofing                                                     |                                     |      | Damp heat, constant, to IEC 60068-2-78<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                                                                              |
| Mechanical shock resistance (IEC/EN 60068-2-27) when tabletop-mounted |                                     |      |                                                                                |
| 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                                                                           |
| Protection against direct contact when actuated from front (EN 50274) |                                     |      | Finger and back-of-hand proof                                                  |
| Altitude                                                              | m                                   |      | Max. 2000                                                                      |
| Weight                                                                |                                     |      |                                                                                |
| AC operated                                                           | kg                                  |      | 0.872                                                                          |
| Screw connector terminals                                             |                                     |      |                                                                                |
| Terminal capacity main cable                                          |                                     |      |                                                                                |
| Solid                                                                 | mm <sup>2</sup>                     |      | 1 x (0.75 - 16)<br>2 x (0.75 - 16)                                             |
| Flexible with ferrule                                                 | mm <sup>2</sup>                     |      | 1 x (0.75 - 35)<br>2 x (0.75 - 25)                                             |
| Stranded                                                              | mm <sup>2</sup>                     |      | 1 x (16 - 50)<br>2 x (16 - 35)                                                 |
| Solid or stranded                                                     | AWG                                 |      | single 14 - 1, double 14 - 2                                                   |
| Flat conductor                                                        | Lamellenzahl<br>x Breite x<br>Dicke | mm   | 2 x (6 x 9 x 0.8)                                                              |
| Stripping length                                                      |                                     | mm   | 14                                                                             |
| Terminal screw                                                        |                                     |      | M6                                                                             |
| Tightening torque                                                     |                                     | Nm   | 3.3                                                                            |
| Tool                                                                  |                                     |      |                                                                                |
| Pozidriv screwdriver                                                  |                                     | Size | 2                                                                              |
| Standard screwdriver                                                  |                                     | mm   | 0.8 x 5.5<br>1 x 6                                                             |
| 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                                                                  |                                     |      |                                                                                |
| Pozidriv screwdriver                                                  |                                     | Size | 2                                                                              |
| Standard screwdriver                                                  |                                     | mm   | 0.8 x 5.5<br>1 x 6                                                             |
| <b>Main conducting paths</b>                                          |                                     |      |                                                                                |
| 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 (p.f. to IEC/EN 60947) |                |      |       |
|                                        | Up to 690 V    | A    | 700   |
| Breaking capacity                      |                |      |       |
| 220 V 230 V                            |                | A    | 500   |
| 380 V 400 V                            |                | A    | 500   |
| 500 V                                  |                | A    | 500   |
| 660 V 690 V                            |                | A    | 320   |
| Short-circuit rating                   |                |      |       |
| Short-circuit protection maximum fuse  |                |      |       |
| Type "2" coordination                  |                |      |       |
| 400 V                                  | gG/gL 500 V    | A    | 80    |
| 690 V                                  | gG/gL 690 V    | A    | 63    |
| Type "1" coordination                  |                |      |       |
| 400 V                                  | gG/gL 500 V    | A    | 160   |
| 690 V                                  | gG/gL 690 V    | A    | 80    |

## 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   | 80                                                                                    |
| at 50 °C                                                  | I <sub>th</sub> = I <sub>e</sub> | A   | 71                                                                                    |
| at 55 °C                                                  | I <sub>th</sub> = I <sub>e</sub> | A   | 68                                                                                    |
| at 60 °C                                                  | I <sub>th</sub> = I <sub>e</sub> | A   | 65                                                                                    |
| enclosed                                                  | I <sub>th</sub>                  | A   | 58                                                                                    |
| Conventional free air thermal current, 1 pole             |                                  |     |                                                                                       |
| open                                                      | I <sub>th</sub>                  | A   | 162                                                                                   |
| enclosed                                                  | I <sub>th</sub>                  | A   | 145                                                                                   |
| 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 <sub>e</sub>                   | A   | 50                                                                                    |
| 240 V                                                     | I <sub>e</sub>                   | A   | 50                                                                                    |
| 380 V 400 V                                               | I <sub>e</sub>                   | A   | 50                                                                                    |
| 415 V                                                     | I <sub>e</sub>                   | A   | 50                                                                                    |
| 440V                                                      | I <sub>e</sub>                   | A   | 50                                                                                    |
| 500 V                                                     | I <sub>e</sub>                   | A   | 50                                                                                    |
| 660 V 690 V                                               | I <sub>e</sub>                   | A   | 32                                                                                    |
| Motor rating                                              | P                                | kWh |                                                                                       |
| 220 V 230 V                                               | P                                | kW  | 15.5                                                                                  |
| 240V                                                      | P                                | kW  | 17                                                                                    |
| 380 V 400 V                                               | P                                | kW  | 22                                                                                    |
| 415 V                                                     | P                                | kW  | 30                                                                                    |
| 440 V                                                     | P                                | kW  | 32                                                                                    |
| 500 V                                                     | P                                | kW  | 36                                                                                    |
| 660 V 690 V                                               | P                                | kW  | 30                                                                                    |
| AC-4                                                      |                                  |     |                                                                                       |

|                          |                |     |     |
|--------------------------|----------------|-----|-----|
| Open, 3-pole: 50 – 60 Hz |                |     |     |
| 220 V 230 V              | I <sub>e</sub> | A   | 21  |
| 240 V                    | I <sub>e</sub> | A   | 21  |
| 380 V 400 V              | I <sub>e</sub> | A   | 21  |
| 415 V                    | I <sub>e</sub> | A   | 21  |
| 440 V                    | I <sub>e</sub> | A   | 21  |
| 500 V                    | I <sub>e</sub> | A   | 21  |
| 660 V 690 V              | I <sub>e</sub> | A   | 17  |
| Motor rating             | P              | kWh |     |
| 220 V 230 V              | P              | kW  | 6   |
| 240 V                    | P              | kW  | 6.5 |
| 380 V 400 V              | P              | kW  | 10  |
| 415 V                    | P              | kW  | 11  |
| 440 V                    | P              | kW  | 12  |
| 500 V                    | P              | kW  | 13  |
| 660 V 690 V              | P              | kW  | 14  |

DC

|                                 |                |   |    |
|---------------------------------|----------------|---|----|
| Rated operational current, open |                |   |    |
| DC-1                            |                |   |    |
| 60 V                            | I <sub>e</sub> | A | 60 |
| 110 V                           | I <sub>e</sub> | A | 50 |
| 220 V                           | I <sub>e</sub> | A | 45 |

Current heat loss

|                                                   |  |    |      |
|---------------------------------------------------|--|----|------|
| 3 pole, at I <sub>th</sub> (60°)                  |  | W  | 16.7 |
| Current heat loss at I <sub>e</sub> to AC-3/400 V |  | W  | 9.9  |
| Impedance per pole                                |  | mΩ | 1.9  |

Magnet systems

|                                                                        |          |                  |           |
|------------------------------------------------------------------------|----------|------------------|-----------|
| Voltage tolerance                                                      |          |                  |           |
| AC operated                                                            | Pick-up  | x U <sub>c</sub> | 0.8 - 1.1 |
| Drop-out voltage AC operated                                           | Drop-out | x U <sub>c</sub> | 0.3 - 0.6 |
| Power consumption of the coil in a cold state and 1.0 x U <sub>S</sub> |          |                  |           |
| 50 Hz                                                                  | Pick-up  | VA               | 149       |
| 50 Hz                                                                  | Sealing  | VA               | 16        |
| 50 Hz                                                                  | Sealing  | W                | 4.1       |
| 60 Hz                                                                  | Pick-up  | VA               | 178       |
| 60 Hz                                                                  | Sealing  | VA               | 19        |
| 60 Hz                                                                  | Sealing  | W                | 4.1       |
| Duty factor                                                            |          | % DF             | 100       |
| Changeover time at 100 % U <sub>S</sub> (recommended value)            |          |                  |           |
| Main contacts                                                          |          |                  |           |
| AC operated                                                            |          |                  |           |
| Closing delay                                                          |          | ms               | 12 - 18   |
| Opening delay                                                          |          | ms               | 8 - 13    |
| Arcing time                                                            |          | ms               | 10        |

Electromagnetic compatibility (EMC)

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

Rating data for approved types

|                      |  |    |    |
|----------------------|--|----|----|
| Switching capacity   |  |    |    |
| Maximum motor rating |  |    |    |
| Three-phase          |  |    |    |
| 200 V<br>208 V       |  | HP | 15 |
| 230 V<br>240 V       |  | HP | 20 |
| 460 V                |  | HP | 40 |

|                                      |  |      |                 |
|--------------------------------------|--|------|-----------------|
| 480 V                                |  |      |                 |
| 575 V<br>600 V                       |  | HP   | 50              |
| Single-phase                         |  |      |                 |
| 115 V<br>120 V                       |  | HP   | 3               |
| 230 V<br>240 V                       |  | HP   | 10              |
| General use                          |  | A    | 80              |
| Short Circuit Current Rating         |  | SCCR |                 |
| Basic Rating                         |  |      |                 |
| SCCR                                 |  | kA   | 10              |
| max. Fuse                            |  | A    | 250             |
| max. CB                              |  | A    | 250             |
| 480 V High Fault                     |  |      |                 |
| SCCR (fuse)                          |  | kA   | 30/100          |
| max. Fuse                            |  | A    | 250/150 Class J |
| SCCR (CB)                            |  | kA   | 65              |
| max. CB                              |  | A    | 100             |
| 600 V High Fault                     |  |      |                 |
| SCCR (fuse)                          |  | kA   | 30/100          |
| max. Fuse                            |  | A    | 250/150 Class J |
| SCCR (CB)                            |  | kA   | 30              |
| max. CB                              |  | A    | 250             |
| Special Purpose Ratings              |  |      |                 |
| Electrical Discharge Lamps (Ballast) |  |      |                 |
| 480V 60Hz 3phase, 277V 60Hz 1phase   |  | A    | 79              |
| 600V 60Hz 3phase, 347V 60Hz 1phase   |  | A    | 79              |
| Incandescent Lamps (Tungsten)        |  |      |                 |
| 480V 60Hz 3phase, 277V 60Hz 1phase   |  | A    | 74              |
| 600V 60Hz 3phase, 347V 60Hz 1phase   |  | A    | 74              |
| Resistance Air Heating               |  |      |                 |
| 480V 60Hz 3phase, 277V 60Hz 1phase   |  | A    | 79              |
| 600V 60Hz 3phase, 347V 60Hz 1phase   |  | A    | 79              |
| Elevator Control                     |  |      |                 |
| 200V 60Hz 3phase                     |  | HP   | 10              |
| 200V 60Hz 3phase                     |  | A    | 32.2            |
| 240V 60Hz 3phase                     |  | HP   | 15              |
| 240V 60Hz 3phase                     |  | A    | 42              |
| 480V 60Hz 3phase                     |  | HP   | 30              |
| 480V 60Hz 3phase                     |  | A    | 40              |
| 600V 60Hz 3phase                     |  | HP   | 40              |
| 600V 60Hz 3phase                     |  | A    | 41              |

## Design verification as per IEC/EN 61439

|                                                          |                   |    |                                            |
|----------------------------------------------------------|-------------------|----|--------------------------------------------|
| Technical data for design verification                   |                   |    |                                            |
| Rated operational current for specified heat dissipation | I <sub>n</sub>    | A  | 50                                         |
| Heat dissipation per pole, current-dependent             | P <sub>vid</sub>  | W  | 3.3                                        |
| Equipment heat dissipation, current-dependent            | P <sub>vid</sub>  | W  | 9.9                                        |
| Static heat dissipation, non-current-dependent           | P <sub>vs</sub>   | W  | 4.1                                        |
| 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 (ecI@ss10.0.1-27-37-10-03 [AAB718015]) |    |  |                  |
| Rated control supply voltage Us at AC 50HZ                                                                                                                                            | V  |  | 230 - 230        |
| Rated control supply voltage Us at AC 60HZ                                                                                                                                            | V  |  | 240 - 240        |
| 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  |  | 80               |
| Rated operation current Ie at AC-3, 400 V                                                                                                                                             | A  |  | 50               |
| Rated operation power at AC-3, 400 V                                                                                                                                                  | kW |  | 22               |
| Rated operation current Ie at AC-4, 400 V                                                                                                                                             | A  |  | 21               |
| Rated operation power at AC-4, 400 V                                                                                                                                                  | kW |  | 10               |
| Rated operation power NEMA                                                                                                                                                            | kW |  | 29.8             |
| Modular version                                                                                                                                                                       |    |  | No               |
| Number of auxiliary contacts as normally open contact                                                                                                                                 |    |  | 0                |
| Number of auxiliary contacts as normally closed contact                                                                                                                               |    |  | 0                |
| Type of electrical connection of main circuit                                                                                                                                         |    |  | Screw connection |
| Number of normally closed contacts as main contact                                                                                                                                    |    |  | 0                |
| Number of normally open contacts as main contact                                                                                                                                      |    |  | 3                |