

**Contactor, 3 pole, 380 V 400 V 30 kW, 42 V 50 Hz, 48 V 60 Hz, AC operation,  
Screw terminals**

**Part no.** DILM65(42V50HZ,48V60HZ)  
**Catalog No.** 277890  
**Alternate Catalog No.** XTCE065D00AC  
**EL-Nummer (Norway)** 4130455

## 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 | 65  |
| AC-1  |                |   |   |
| Conventional free air thermal current, 3 pole, 50 - 60 Hz |                |   |   |
| Open  |                |   |   |
| at 40 °C  | $I_{th} = I_e$ | A | 98  |
| enclosed  | $I_{th}$       | A | 72  |
| Conventional free air thermal current, 1 pole             |                |   |   |
| open  | $I_{th}$       | A | 200   |
| enclosed  | $I_{th}$       | A | 180   |

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

|  |   |    |   |
|--|---|----|---|
| AC-3                                   |   |    |   |
| 220 V 230 V                            | P | kW | 20                                      |
| 380 V 400 V                            | P | kW | 30                                      |
| 660 V 690 V                            | P | kW | 35                                      |
| AC-4                                   |   |    |   |
| 220 V 230 V                            | P | kW | 7                                       |
| 380 V 400 V                            | P | kW | 12                                      |
| 660 V 690 V                            | P | kW | 17                                      |
| Can be combined with auxiliary contact |   |    | DILM150-XHI(V)...<br>DILM1000-XHI(V)... |
| Actuating voltage                      |   |    | 42 V 50 Hz, 48 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    | 910   |
| Breaking capacity                      |                |      |       |
| 220 V 230 V                            |                | A    | 650   |
| 380 V 400 V                            |                | A    | 650   |
| 500 V                                  |                | A    | 650   |
| 660 V 690 V                            |                | A    | 370   |
| Short-circuit rating                   |                |      |       |
| Short-circuit protection maximum fuse  |                |      |       |
| Type "2" coordination                  |                |      |       |
| 400 V                                  | gG/gL 500 V    | A    | 125   |
| 690 V                                  | gG/gL 690 V    | A    | 80    |
| Type "1" coordination                  |                |      |       |
| 400 V                                  | gG/gL 500 V    | A    | 250   |
| 690 V                                  | gG/gL 690 V    | A    | 100   |

## 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   | 98  |
| at 50 °C  | I <sub>th</sub> = I <sub>e</sub> | A   | 88  |
| at 55 °C  | I <sub>th</sub> = I <sub>e</sub> | A   | 83  |
| at 60 °C  | I <sub>th</sub> = I <sub>e</sub> | A   | 80  |
| enclosed  | I <sub>th</sub>                  | A   | 72  |
| Conventional free air thermal current, 1 pole             |                                  |     |   |
| open  | I <sub>th</sub>                  | A   | 200   |
| enclosed  | I <sub>th</sub>                  | A   | 180   |
| 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   | 65  |
| 240 V   | I <sub>e</sub>                   | A   | 65  |
| 380 V 400 V   | I <sub>e</sub>                   | A   | 65  |
| 415 V   | I <sub>e</sub>                   | A   | 65  |
| 440V  | I <sub>e</sub>                   | A   | 65  |
| 500 V   | I <sub>e</sub>                   | A   | 65  |
| 660 V 690 V   | I <sub>e</sub>                   | A   | 37  |
| Motor rating  | P                                | kWh |   |
| 220 V 230 V   | P                                | kW  | 20  |
| 240V  | P                                | kW  | 22  |
| 380 V 400 V   | P                                | kW  | 30  |
| 415 V   | P                                | kW  | 39  |
| 440 V   | P                                | kW  | 41  |
| 500 V   | P                                | kW  | 47  |
| 660 V 690 V   | P                                | kW  | 35  |
| AC-4  |                                  |     |   |

|                          |                |     |     |
|--------------------------|----------------|-----|-----|
| Open, 3-pole: 50 – 60 Hz |                |     |     |
| 220 V 230 V              | I <sub>e</sub> | A   | 25  |
| 240 V                    | I <sub>e</sub> | A   | 25  |
| 380 V 400 V              | I <sub>e</sub> | A   | 25  |
| 415 V                    | I <sub>e</sub> | A   | 25  |
| 440 V                    | I <sub>e</sub> | A   | 25  |
| 500 V                    | I <sub>e</sub> | A   | 25  |
| 660 V 690 V              | I <sub>e</sub> | A   | 20  |
| Motor rating             | P              | kWh |     |
| 220 V 230 V              | P              | kW  | 7   |
| 240 V                    | P              | kW  | 7.5 |
| 380 V 400 V              | P              | kW  | 12  |
| 415 V                    | P              | kW  | 13  |
| 440 V                    | P              | kW  | 14  |
| 500 V                    | P              | kW  | 16  |
| 660 V 690 V              | P              | kW  | 17  |

DC

|                                 |                |   |    |
|---------------------------------|----------------|---|----|
| Rated operational current, open |                |   |    |
| DC-1                            |                |   |    |
| 60 V                            | I <sub>e</sub> | A | 72 |
| 110 V                           | I <sub>e</sub> | A | 72 |
| 220 V                           | I <sub>e</sub> | A | 65 |

Current heat loss

|   |  |    |      |
|---|--|----|------|
| 3 pole, at I <sub>th</sub> (60°)                  |  | W  | 25.9 |
| Current heat loss at I <sub>e</sub> to AC-3/400 V |  | W  | 17.1 |
| 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 | 20 |
| 230 V<br>240 V       |  | HP | 25 |
| 460 V                |  | HP | 50 |

|   |  |      |                 |
|---|--|------|-----------------|
| 480 V   |  |      |                 |
| 575 V<br>600 V  |  | HP   | 60              |
| Single-phase  |  |      |                 |
| 115 V<br>120 V  |  | HP   | 5               |
| 230 V<br>240 V  |  | HP   | 15              |
| General use   |  | A    | 88              |
| 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    | 88              |
| 600V 60Hz 3phase, 347V 60Hz 1phase                        |  | A    | 88              |
| Incandescent Lamps (Tungsten)                             |  |      |                 |
| 480V 60Hz 3phase, 277V 60Hz 1phase                        |  | A    | 88              |
| 600V 60Hz 3phase, 347V 60Hz 1phase                        |  | A    | 88              |
| Resistance Air Heating                                    |  |      |                 |
| 480V 60Hz 3phase, 277V 60Hz 1phase                        |  | A    | 88              |
| 600V 60Hz 3phase, 347V 60Hz 1phase                        |  | A    | 88              |
| Definite Purpose Ratings (100,000 cycles acc. to UL 1995) |  |      |                 |
| LRA 480V 60Hz 3phase                                      |  | A    | 390             |
| FLA 480V 60Hz 3phase                                      |  | A    | 65              |
| 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  | 65   |
| Heat dissipation per pole, current-dependent             | P <sub>vid</sub>  | W  | 5.7  |
| Equipment heat dissipation, current-dependent            | P <sub>vid</sub>  | W  | 17.1 |
| 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 (ecl@ss10.0.1-27-37-10-03 [AAB718015]) |    |  |                  |
| Rated control supply voltage Us at AC 50HZ  | V  |  | 42 - 42          |
| Rated control supply voltage Us at AC 60HZ  | V  |  | 48 - 48          |
| 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  |  | 98               |
| Rated operation current Ie at AC-3, 400 V   | A  |  | 65               |
| Rated operation power at AC-3, 400 V  | kW |  | 30               |
| Rated operation current Ie at AC-4, 400 V   | A  |  | 25               |
| Rated operation power at AC-4, 400 V  | kW |  | 12               |
| Rated operation power NEMA  | kW |  | 37               |
| 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                |