



Safety contactor, 380 V 400 V: 11 kW, 2 N/O, 3 NC, RDC 24: 24 - 27 V DC, DC operation, Screw terminals, With mirror contact (not for microswitches).



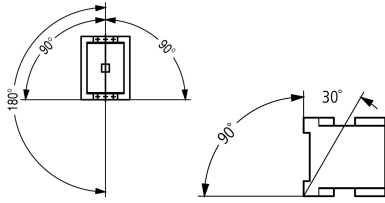
**Part no.** DILMS25-R23(RDC24)  
**Catalog No.** 191725  
**Alternate Catalog No.** XTSE025CE23TD

**Delivery program**

|   |                |    |  |   |
|---|----------------|----|--|---|
| Product range   |                |    |  | Safety contactors   |
| Application   |                |    |  | Contactors for Motors   |
| Subrange  |                |    |  | Complete devices up to 170 A  |
| 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 |
| Connection technique                                      |                |    |  | Screw terminals   |
|   |                |    |  |   |
| Notes   |                |    |  | Also suitable for motors with efficiency class IE3.<br>Also tested according to AC-3e.  |
| Description   |                |    |  | With two electronically compatible microswitches 1 S + 1 Ö<br>Auxiliary contact element connected non-detachably with basic device (manual activation not possible).  |
| <b>Rated operational current</b>                          |                |    |  |   |
| AC-3  |                |    |  |   |
| 380 V 400 V   | $I_e$          | A  |  | 25  |
| AC-1  |                |    |  |   |
| Conventional free air thermal current, 3 pole, 50 - 60 Hz |                |    |  |   |
| Open  |                |    |  |   |
| at 40 °C  | $I_{th} = I_e$ | A  |  | 45  |
| enclosed  | $I_{th}$       | A  |  | 36  |
| Conventional free air thermal current, 1 pole             |                |    |  |   |
| open  | $I_{th}$       | A  |  | 100   |
| enclosed  | $I_{th}$       | A  |  | 90  |
| <b>Max. rating for three-phase motors, 50 - 60 Hz</b>     |                |    |  |   |
| AC-3  |                |    |  |   |
| 220 V 230 V   | P              | kW |  | 7.5   |
| 380 V 400 V   | P              | kW |  | 11  |
| 660 V 690 V   | P              | kW |  | 14  |
| AC-4  |                |    |  |   |
| 220 V 230 V   | P              | kW |  | 3.5   |
| 380 V 400 V   | P              | kW |  | 6   |
| 660 V 690 V   | P              | kW |  | 8.5   |
| <b>Contacts</b>   |                |    |  |   |
| N/O = Normally open                                       |                |    |  | 2 N/O   |
| N/C = Normally closed                                     |                |    |  | 3 NC  |
| <b>Instructions</b>                                       |                |    |  |   |
|   |                |    |  | Contacts to EN 50 012.<br>integrated suppressor circuit in actuating electronics<br>With mirror contact (not for microswitches).  |
| Contact sequence  |                |    |  |   |
| Actuating voltage   |                |    |  | RDC 24: 24 - 27 V DC  |
| Voltage AC/DC   |                |    |  | DC operation  |

## Technical data

### General

|   |              |                 |  |
|---|--------------|-----------------|--|
| Standards   |              |                 | IEC/EN 60947, VDE 0660, UL, CSA  |
| Lifespan, mechanical  |              |                 |  |
| DC operated   | Operations   | $\times 10^6$   | 10   |
| Operating frequency, mechanical                                       |              |                 |  |
| DC 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  |
| Mounting position   |              |                 |  |
| 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               | 6.9  |
| Auxiliary contacts  |              |                 |  |
| N/O contact   |              | g               | 5.3  |
| N/C contact   |              | g               | 3.5  |
| 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  |              |                 |  |
| DC operated   |              | kg              | 0.603  |
| Screw connector terminals   |              |                 |  |
| 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             | single 18 - 6, double 18 - 8   |
| Stripping length  |              | mm              | 10   |
| Terminal screw  |              |                 | M5   |
| Tightening torque   |              | Nm              | 3.2  |
| 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 - 2.5)<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 |

### Main conducting paths

|  |             |      |       |
|--|-------------|------|-------|
| Rated impulse withstand voltage        | $U_{imp}$   | V AC | 8000  |
| Overvoltage category/pollution degree  |             |      | III/3 |
| Rated insulation voltage               | $U_i$       | V AC | 690   |
| Rated operational voltage              | $U_e$       | 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    | 350   |
| Breaking capacity                      |             |      |       |
| 220 V 230 V                            |             | A    | 250   |
| 380 V 400 V                            |             | A    | 250   |
| 500 V                                  |             | A    | 250   |
| 660 V 690 V                            |             | A    | 150   |
| 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 | 43  |
| at 55 °C  | $I_{th} = I_e$ | A | 42  |
| at 60 °C  | $I_{th} = I_e$ | A | 40  |
| enclosed  | $I_{th}$       | A | 36  |
| Conventional free air thermal current, 1 pole             |                |   |   |
| open  | $I_{th}$       | A | 100   |
| enclosed  | $I_{th}$       | A | 90  |
| 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   |
| <b>AC-4</b>              |       |     |      |
| Open, 3-pole: 50 – 60 Hz |       |     |      |
| 220 V 230 V              | $I_e$ | A   | 13   |
| 240 V                    | $I_e$ | A   | 13   |
| 380 V 400 V              | $I_e$ | A   | 13   |
| 415 V                    | $I_e$ | A   | 13   |
| 440 V                    | $I_e$ | A   | 13   |
| 500 V                    | $I_e$ | A   | 13   |
| 660 V 690 V              | $I_e$ | A   | 10   |
| Motor rating             | P     | kWh |      |
| 220 V 230 V              | P     | kW  | 3.5  |
| 240 V                    | P     | kW  | 4    |
| 380 V 400 V              | P     | kW  | 6    |
| 415 V                    | P     | kW  | 6.5  |
| 440 V                    | P     | kW  | 7    |
| 500 V                    | P     | kW  | 8    |
| 660 V 690 V              | P     | kW  | 8.5  |

## DC

|                                 |       |   |    |
|---------------------------------|-------|---|----|
| Rated operational current, open |       |   |    |
| DC-1                            |       |   |    |
| 60 V                            | $I_e$ | A | 40 |
| 110 V                           | $I_e$ | A | 40 |
| 220 V                           | $I_e$ | A | 40 |

## Current heat loss

|  |  |    |      |
|--|--|----|------|
| 3 pole, at $I_{th}$ (60°)                |  | W  | 10.8 |
| Current heat loss at $I_e$ to AC-3/400 V |  | W  | 4.2  |
| Impedance per pole                       |  | mΩ | 2.7  |

## Magnet systems

|  |          |         |   |
|--|----------|---------|---|
| Voltage tolerance  |          |         |   |
| DC operated  | Pick-up  | $x U_c$ | 0.7 - 1.2   |
| DC operated  | Drop-out | $x U_c$ | 0.15 - 0.6  |
| Notes  |          |         | at least smoothed two-phase bridge rectifier or three-phase rectifier |
| Power consumption of the coil in a cold state and $1.0 \times U_S$ |          |         |   |
| DC operated  | Pick-up  | W       | 12  |
| DC operated  | Sealing  | W       | 0.9   |
| Duty factor  |          | % DF    | 100   |
| Changeover time at 100 % $U_S$ (recommended value)                 |          |         |   |
| Main contacts  |          |         |   |
| DC operated  |          | ms      |   |
| Closing delay  |          | ms      |   |
| Closing delay  |          | ms      | 47  |
| Opening delay  |          | ms      |   |
| Opening delay  |          | ms      | 30  |
| Arcing time  |          | ms      | 10  |

## Electromagnetic compatibility (EMC)

|                      |  |  |                         |
|----------------------|--|--|-------------------------|
| Emitted interference |  |  | according to EN 60947-1 |
|----------------------|--|--|-------------------------|

**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         |    |  |                 |
| 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   | $I_n$      | A  | 25   |
| Heat dissipation per pole, current-dependent   | $P_{vid}$  | W  | 1.4  |
| Equipment heat dissipation, current-dependent  | $P_{vid}$  | W  | 4.2  |
| Static heat dissipation, non-current-dependent   | $P_{vs}$   | W  | 0.9  |
| Heat dissipation capacity  | $P_{diss}$ | 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 7.0

|   |  |   |       |
|---|--|---|-------|
| 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 $U_s$ at AC 50HZ   |  | V | 0 - 0 |
| Rated control supply voltage $U_s$ at AC 60HZ   |  | V | 0 - 0 |

|   |    |                  |
|---|----|------------------|
| Rated control supply voltage $U_s$ at DC                | V  | 24 - 24          |
| Voltage type for actuating                              |    | DC               |
| Rated operation current $I_e$ at AC-1, 400 V            | A  | 45               |
| Rated operation current $I_e$ at AC-3, 400 V            | A  | 25               |
| Rated operation power at AC-3, 400 V                    | kW | 11               |
| Rated operation current $I_e$ at AC-4, 400 V            | A  | 13               |
| Rated operation power at AC-4, 400 V                    | kW | 6                |
| Rated operation power NEMA                              | kW | 11               |
| Modular version   |    | No               |
| Number of auxiliary contacts as normally open contact   |    | 2                |
| Number of auxiliary contacts as normally closed contact |    | 3                |
| Type of electrical connection of main circuit           |    | Screw connection |
| Number of normally closed contacts as main contact      |    | 0                |
| Number of main contacts as normally open contact        |    | 3                |

## Approvals

|                                      |  |  |
|--------------------------------------|--|--|
| Product Standards                    |  | IEC/EN 60947-4-1; UL 60947-4-1; CSA - C22.2 No. 60947-4-1-14; CE marking |
| UL File No.                          |  | E29096   |
| UL Category Control No.              |  | NLDX   |
| CSA File No.                         |  | 012528   |
| CSA Class No.                        |  | 2411-03, 3211-04   |
| North America Certification          |  | UL listed, CSA certified   |
| Specially designed for North America |  | No   |



- 1: Overload relay
- 2: Suppressor





Normal AC induction motor  
 Operating characteristics  
 Switch on: from stop  
 Switch off: during run  
 Electrical characteristics:  
 Switch on: up to 6 x Rated motor current  
 Switch off: up to 1 x Rated motor current  
 Utility category



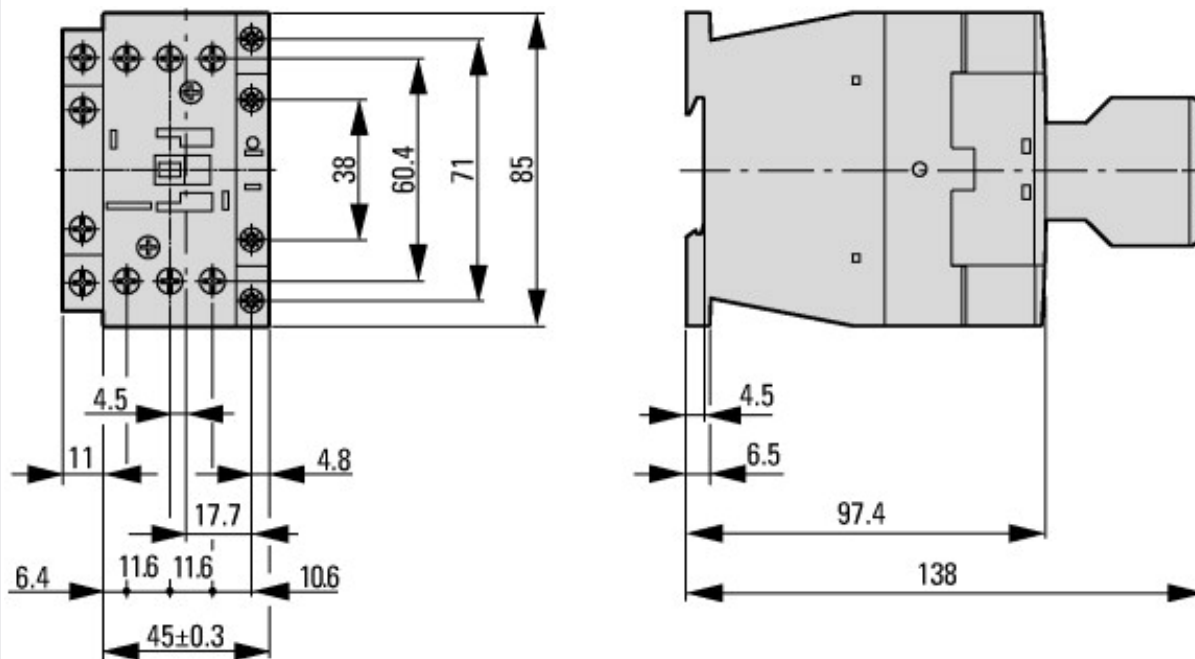
Extreme switching duty  
 Normal AC induction motor  
 Operating characteristics  
 Inching, plugging, reversing  
 Electrical characteristics:  
 Switch on: up to 6 x Rated motor current  
 Switch off: up to 6 x Rated motor current  
 Utilization



Switching conditions for non-motor consumers, 3 pole, 4 pole  
 Operating characteristics  
 Non inductive and slightly inductive loads  
 Electrical characteristics:  
 Switch on: 1 x rated operational current  
 Switch off: 1 x rated operational current  
 Utilization



## Dimensions



Contactors with auxiliary contact module



side clearance to earthed parts: 6 mm

### Additional product information (links)

|  |   |
|--|---|
| Motor starters and "Special Purpose Ratings" for the North American market                     | <a href="http://www.eaton.eu/ecm/groups/public/@pub/@europe/@electrical/documents/content/pct_3258146.pdf">http://www.eaton.eu/ecm/groups/public/@pub/@europe/@electrical/documents/content/pct_3258146.pdf</a> |
| Switchgear of Power Factor Correction Systems  | <a href="http://www.moeller.net/binary/ver_techpapers/ver934en.pdf">http://www.moeller.net/binary/ver_techpapers/ver934en.pdf</a>   |
| X-Start - Modern Switching Installations Efficiently Fitted and Wired Securely                 | <a href="http://www.moeller.net/binary/ver_techpapers/ver938en.pdf">http://www.moeller.net/binary/ver_techpapers/ver938en.pdf</a>   |
| Mirror Contacts for Highly-Reliable Information Relating to Safety-Related Control Functions   | <a href="http://www.moeller.net/binary/ver_techpapers/ver944en.pdf">http://www.moeller.net/binary/ver_techpapers/ver944en.pdf</a>   |
| Effect of the Cabel Capacitance of Long Control Cables on the Actuation of Contactors          | <a href="http://www.moeller.net/binary/ver_techpapers/ver949en.pdf">http://www.moeller.net/binary/ver_techpapers/ver949en.pdf</a>   |
| Switchgear for Luminaires  | <a href="http://www.moeller.net/binary/ver_techpapers/ver955en.pdf">http://www.moeller.net/binary/ver_techpapers/ver955en.pdf</a>   |
| Standard Compliant and Functionally Safe Engineering Design with Mechanical Auxiliary Contacts | <a href="http://www.moeller.net/binary/ver_techpapers/ver956en.pdf">http://www.moeller.net/binary/ver_techpapers/ver956en.pdf</a>   |
| The Interaction of Contactors with PLCs  | <a href="http://www.moeller.net/binary/ver_techpapers/ver957en.pdf">http://www.moeller.net/binary/ver_techpapers/ver957en.pdf</a>   |
| Busbar Component Adapters for modern Industrial control panels                                 | <a href="http://www.moeller.net/binary/ver_techpapers/ver960en.pdf">http://www.moeller.net/binary/ver_techpapers/ver960en.pdf</a>   |

