

**DOL starter, 380 V 400 V 415 V: 4 kW, I<sub>r</sub>= 6.3 - 10 A, 230 V 50 Hz, 240 V 60 Hz, AC**

**Part no.** MSC-D-10-M9(230V50HZ)  
**Catalog No.** 283147  
**Alternate Catalog No.** XTSC010B009BFNL  
**EL-Nummer (Norway)** 4365031

## Delivery program

|                            |  |  |                                                     |
|----------------------------|--|--|-----------------------------------------------------|
| Basic function             |  |  | DOL starters (complete devices)                     |
| Basic device               |  |  | MSC                                                 |
| Notes                      |  |  | Also suitable for motors with efficiency class IE3. |
| Connection technique       |  |  | Screw terminals                                     |
| Connection to SmartWire-DT |  |  | no                                                  |

## Motor ratings

|                                         |                |    |     |
|-----------------------------------------|----------------|----|-----|
| Motor rating                            |                |    |     |
| AC-3                                    |                |    |     |
| 380 V 400 V 415 V                       | P              | kW | 4   |
| Rated operational current               |                |    |     |
| AC-3                                    |                |    |     |
| 380 V 400 V 415 V                       | I <sub>e</sub> | A  | 8.5 |
| Rated short-circuit current 380 - 415 V | I <sub>q</sub> | kA | 150 |

## Setting range

|                                    |                |   |                          |
|------------------------------------|----------------|---|--------------------------|
| Setting range of overload releases | I <sub>r</sub> | A | 6.3 - 10                 |
| Coordination                       |                |   | Type of coordination "1" |
| Actuating voltage                  |                |   | 230 V 50 Hz, 240 V 60 Hz |
|                                    |                |   | AC                       |

## Motor-protective circuit-breakers PKZM0-10

### Contactor DILM9-10(...)

### DOL starter wiring set

Mechanical connection element and electrical electric contact module PKZM0-XDM12

### Notes

BK25/3-PKZ0-E extension terminal and if necessary B3.../...-PKZ0 three-phase commoning link can be added to motor-starter combinations to make Type F starters in accordance with UL508.

### Notes

The DOL starters (complete units) consist of a PKZM0 motor protective circuit breaker and a DILM contactor.

With the adapter-less top-hat rail mounting of starters up to 15 A, only the motor protective circuit breaker on the top-hat rail requires an adapter. The contactors are provided with mechanical support via a mechanical connection element.

Control wire guide with max. 6 conductors up to 2.5 mm external diameter or 4 conductors up to 3.5 mm external diameter.

The connection of the main circuit between PKZ and contactor is established with electrical contact modules.

When using the auxiliary contacts DILA-XHIT... (→ 101042) the plug-in electrical connector can be removed without the removal of the front mounting auxiliary contact.

## Technical data

### General

|                     |  |   |                            |
|---------------------|--|---|----------------------------|
| Standards           |  |   | IEC/EN 60947-4-1, VDE 0660 |
| Altitude            |  | m | Max. 2000                  |
| Ambient temperature |  |   | -25 - +55                  |

### Main conducting paths

|                                       |                  |      |           |
|---------------------------------------|------------------|------|-----------|
| Rated impulse withstand voltage       | U <sub>imp</sub> | V AC | 6000      |
| Overvoltage category/pollution degree |                  |      | III/3     |
| Rated operational voltage             | U <sub>e</sub>   | V    | 230 - 415 |
| Rated operational current             |                  |      |           |
| Open, 3-pole: 50 – 60 Hz              |                  |      |           |

|                                                                        |                |   |                                                                                                                                                                                                                                           |
|------------------------------------------------------------------------|----------------|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 380 V 400 V                                                            | I <sub>e</sub> | A | 9                                                                                                                                                                                                                                         |
| <b>Additional technical data</b>                                       |                |   |                                                                                                                                                                                                                                           |
| Motor protective circuit breaker PKZM0, PKE                            |                |   | PKZM0 motor-protective circuit-breakers, see motor-protective circuit-breakers/<br>PKZM0 product group<br>DILM contactors, see contactor product group<br>DILET timing relay, ETR, see contactors, electronic timing relays product group |
| DILM contactors                                                        |                |   |                                                                                                                                                                                                                                           |
| Current heat loss                                                      |                |   |                                                                                                                                                                                                                                           |
| Current heat loss at I <sub>e</sub> to AC-3/400 V                      |                | W | 8.1                                                                                                                                                                                                                                       |
| Power consumption of the coil in a cold state and 1.0 x U <sub>S</sub> |                |   |                                                                                                                                                                                                                                           |
| Dual-voltage coil 50 Hz                                                | Sealing        | W | 1.4                                                                                                                                                                                                                                       |
| <b>Rating data for approved types</b>                                  |                |   |                                                                                                                                                                                                                                           |
| Auxiliary contacts                                                     |                |   |                                                                                                                                                                                                                                           |
| Pilot Duty                                                             |                |   |                                                                                                                                                                                                                                           |
| AC operated                                                            |                |   | A600                                                                                                                                                                                                                                      |
| DC operated                                                            |                |   | P300                                                                                                                                                                                                                                      |
| General Use                                                            |                |   |                                                                                                                                                                                                                                           |
| AC                                                                     |                | V | 600                                                                                                                                                                                                                                       |
| AC                                                                     |                | A | 15                                                                                                                                                                                                                                        |
| DC                                                                     |                | V | 250                                                                                                                                                                                                                                       |
| DC                                                                     |                | A | 1                                                                                                                                                                                                                                         |

## Design verification as per IEC/EN 61439

|                                                                                                                        |                   |    |                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------|-------------------|----|----------------------------------------------------------------------------------------------------------------------------------|
| Technical data for design verification                                                                                 |                   |    |                                                                                                                                  |
| Rated operational current for specified heat dissipation                                                               | I <sub>n</sub>    | A  | 9                                                                                                                                |
| Heat dissipation per pole, current-dependent                                                                           | P <sub>vid</sub>  | W  | 2.7                                                                                                                              |
| Equipment heat dissipation, current-dependent                                                                          | P <sub>vid</sub>  | W  | 8.1                                                                                                                              |
| Static heat dissipation, non-current-dependent                                                                         | P <sub>vs</sub>   | W  | 1.4                                                                                                                              |
| Heat dissipation capacity                                                                                              | P <sub>diss</sub> | W  | 0                                                                                                                                |
| Operating ambient temperature min.                                                                                     |                   | °C | -25                                                                                                                              |
| Operating ambient temperature max.                                                                                     |                   | °C | 55                                                                                                                               |
| 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) / Motor starter/Motor starter combination (EC001037)                                                                                                |    |                             |
| Electric engineering, automation, process control engineering / Low-voltage switch technology / Load breakout, motor breakout / Motor starter combination (ecl@ss10.0.1-27-37-09-05 [AJZ718013]) |    |                             |
| Type of motor starter                                                                                                                                                                            |    | Direct online starter (DOL) |
| With short-circuit release                                                                                                                                                                       |    | Yes                         |
| Rated control supply voltage Us at AC 50HZ                                                                                                                                                       | V  | 230 - 230                   |
| Rated control supply voltage Us at AC 60HZ                                                                                                                                                       | V  | 0 - 0                       |
| Rated control supply voltage Us at DC                                                                                                                                                            | V  | 0 - 0                       |
| Voltage type for actuating                                                                                                                                                                       |    | AC                          |
| Rated operation power at AC-3, 230 V, 3-phase                                                                                                                                                    | kW | 2.2                         |
| Rated operation power at AC-3, 400 V                                                                                                                                                             | kW | 4                           |
| Rated power, 460 V, 60 Hz, 3-phase                                                                                                                                                               | kW | 0                           |
| Rated power, 575 V, 60 Hz, 3-phase                                                                                                                                                               | kW | 0                           |
| Rated operation current Ie                                                                                                                                                                       | A  | 8.5                         |
| Rated operation current at AC-3, 400 V                                                                                                                                                           | A  | 9                           |
| Overload release current setting                                                                                                                                                                 | A  | 6.3 - 10                    |
| Rated conditional short-circuit current, type 1, 480 Y/277 V                                                                                                                                     | A  | 0                           |
| Rated conditional short-circuit current, type 1, 600 Y/347 V                                                                                                                                     | A  | 0                           |
| Rated conditional short-circuit current, type 2, 230 V                                                                                                                                           | A  | 0                           |
| Rated conditional short-circuit current, type 2, 400 V                                                                                                                                           | A  | 150                         |
| Number of auxiliary contacts as normally open contact                                                                                                                                            |    | 1                           |
| Number of auxiliary contacts as normally closed contact                                                                                                                                          |    | 0                           |
| Ambient temperature, upper operating limit                                                                                                                                                       | °C | 55                          |
| Temperature compensated overload protection                                                                                                                                                      |    | Yes                         |
| Release class                                                                                                                                                                                    |    | CLASS 10 A                  |
| Type of electrical connection of main circuit                                                                                                                                                    |    | Screw connection            |
| Type of electrical connection for auxiliary- and control current circuit                                                                                                                         |    | Screw connection            |
| Rail mounting possible                                                                                                                                                                           |    | Yes                         |
| With transformer                                                                                                                                                                                 |    | No                          |
| Number of command positions                                                                                                                                                                      |    | 0                           |
| Suitable for emergency stop                                                                                                                                                                      |    | No                          |
| Coordination class according to IEC 60947-4-3                                                                                                                                                    |    | Class 1                     |
| Number of indicator lights                                                                                                                                                                       |    | 0                           |
| External reset possible                                                                                                                                                                          |    | No                          |
| With fuse                                                                                                                                                                                        |    | No                          |
| Degree of protection (IP)                                                                                                                                                                        |    | IP20                        |
| Degree of protection (NEMA)                                                                                                                                                                      |    | Other                       |
| Supporting protocol for TCP/IP                                                                                                                                                                   |    | No                          |
| Supporting protocol for PROFIBUS                                                                                                                                                                 |    | No                          |
| Supporting protocol for CAN                                                                                                                                                                      |    | No                          |
| Supporting protocol for INTERBUS                                                                                                                                                                 |    | No                          |
| Supporting protocol for ASI                                                                                                                                                                      |    | No                          |
| Supporting protocol for Modbus                                                                                                                                                                   |    | No                          |
| Supporting protocol for Data-Highway                                                                                                                                                             |    | No                          |
| Supporting protocol for DeviceNet                                                                                                                                                                |    | No                          |
| Supporting protocol for SUCONET                                                                                                                                                                  |    | No                          |
| Supporting protocol for LON                                                                                                                                                                      |    | No                          |
| Supporting protocol for PROFINET IO                                                                                                                                                              |    | No                          |
| Supporting protocol for PROFINET CBA                                                                                                                                                             |    | No                          |
| Supporting protocol for SERCOS                                                                                                                                                                   |    | No                          |
| Supporting protocol for Foundation Fieldbus                                                                                                                                                      |    | No                          |
| Supporting protocol for EtherNet/IP                                                                                                                                                              |    | No                          |

|                                                     |  |    |     |
|-----------------------------------------------------|--|----|-----|
| Supporting protocol for AS-Interface Safety at Work |  |    | No  |
| Supporting protocol for DeviceNet Safety            |  |    | No  |
| Supporting protocol for INTERBUS-Safety             |  |    | No  |
| Supporting protocol for PROFIsafe                   |  |    | No  |
| Supporting protocol for SafetyBUS p                 |  |    | No  |
| Supporting protocol for other bus systems           |  |    | No  |
| Width                                               |  | mm | 45  |
| Height                                              |  | mm | 180 |
| Depth                                               |  | mm | 95  |