

**DOL starter, 380 V 400 V 415 V: 5.5 kW, I<sub>q</sub>= 100 kA, I<sub>r</sub>= 3 - 12 A, 230 V 50 Hz, 240 V 60 Hz, AC voltage, Screw terminals**

**Part no.** MSC-DE-12-M17(230V50HZ)  
**Catalog No.** 121745  
**Alternate Catalog No.** XTSE012B018CFNL  
**EL-Nummer (Norway)** 4315124

## 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 | 5.5  |
| 500 V                                         | P              | kW | 5.5  |
| Rated operational current                     |                |    |      |
| AC-3                                          |                |    |      |
| 380 V 400 V 415 V                             | I <sub>e</sub> | A  | 11.3 |
| 500 V                                         | I <sub>e</sub> | A  | 9    |
| Rated short-circuit current 380 - 415 V       | I <sub>q</sub> | kA | 100  |
| Rated conditional short-circuit current 500 V | I <sub>q</sub> | kA | 50   |

## Setting range

|                                                                                     |                |   |                                                      |
|-------------------------------------------------------------------------------------|----------------|---|------------------------------------------------------|
| Setting range of overload releases                                                  | I <sub>r</sub> | A | 3 - 12                                               |
|  |                |   |                                                      |
| Coordination                                                                        |                |   | Type of coordination "1"<br>Type of coordination "2" |
| Actuating voltage                                                                   |                |   | 230 V 50 Hz, 240 V 60 Hz                             |
|                                                                                     |                |   | AC voltage                                           |

## Motor-protective circuit-breakers PKE12/XTU-12

### Contactors DILM17-10(...)

### DOL starter wiring set

Mechanical connection element and electrical electric contact module PKZM0-XDM32

### Notes

The DOL starter (complete devices) consists of a PKE 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.

From 16 A, the motor-protective circuit-breaker and contactor are mounted on the top-hat rail adapter plate.

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

When using DILA-XHIT... auxiliary contacts with MSC-DE-... DOL starters, the plug-in electrical connectors can be removed without removing the front-mounted auxiliary contact.

Cannot be combined with NHI-E...PKZ0-C.

MSC-DEA... DOL starters are prepared for communications via SmartWire-DT. In order to be used this way, they first need to be expanded with the PKE-SWD-32 communications module.

Motor output/rated motor current

| Motor rating | Rated motor current |                         |                         |                        |                        |                        |                         |                       |
|--------------|---------------------|-------------------------|-------------------------|------------------------|------------------------|------------------------|-------------------------|-----------------------|
| P<br>kW      | AC-3                | 220 V                   | 380 V                   | 415 V                  | 440 V                  | 500 V                  | 500 V                   | 660 V                 |
|              |                     | 230 V                   | 400 V                   |                        |                        |                        | with                    | 690 V                 |
|              |                     | 240 V                   |                         |                        |                        |                        | CL-PKZO                 |                       |
|              |                     | I <sub>q</sub> = 100 kA | I <sub>q</sub> = 100 kA | I <sub>q</sub> = 65 kA | I <sub>q</sub> = 65 kA | I <sub>q</sub> = 50 kA | I <sub>q</sub> = 100 kA | I <sub>q</sub> = 3 kA |
|              |                     | I                       | I                       | I                      | I                      | I                      | I                       | I                     |
|              |                     | A                       | A                       | A                      | A                      | A                      | A                       | A                     |
|              | 0.75                | 3.2                     | -                       | -                      | -                      | -                      | -                       | -                     |
|              | 1.1                 | 4.6                     | -                       | -                      | -                      | -                      | -                       | -                     |
|              | 1.5                 | 6.3                     | 3.6                     | 3.6                    | 3.3                    | -                      | -                       | -                     |
|              | 2.2                 | 8.7                     | 5                       | 5                      | 4.6                    | 4                      | 4                       | -                     |
|              | 3                   | 11.5                    | 6.6                     | 6.6                    | 6                      | 5.3                    | 5.3                     | 3.8                   |
|              | 4                   | -                       | 8.5                     | 8.5                    | 7.7                    | 6.8                    | 6.8                     | 4.9                   |
|              | 5.5                 | -                       | 11.3                    | 11.3                   | 10.2                   | 9                      | 9                       | 6.5                   |
|              | 7.5                 | -                       | -                       | -                      | -                      | -                      | -                       | 8.8                   |

Technical data

General

|                     |  |  |                            |
|---------------------|--|--|----------------------------|
| Standards           |  |  | IEC/EN 60947-4-1, VDE 0660 |
| 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    | 12                                                                                                                                                                                                                                               |
| AC-4 cycle operation                  |                  |      |                                                                                                                                                                                                                                                  |
| Minimum current flow times            |                  | ms   | 500 (Class 5)<br>700 (Class 10)<br>900 (Class 15)<br>1000 (Class 20)                                                                                                                                                                             |
| Minimum cut-out periods               |                  | ms   | 500                                                                                                                                                                                                                                              |
| Note                                  |                  | ms   | In AC-4 cycle operation, going below the minimum current flow time can cause overheating of the load (motor).<br>For all combinations with an SWD activation, you need not adhere to the minimum current flow times and minimum cut-out periods. |

Additional technical data

|                                                                        |         |   |                                                                                                                                                                                                                                           |
|------------------------------------------------------------------------|---------|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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 | 4.2                                                                                                                                                                                                                                       |
| Power consumption of the coil in a cold state and 1.0 x U <sub>S</sub> |         |   |                                                                                                                                                                                                                                           |
| Dual-voltage coil 50 Hz                                                | Sealing | W | 2.1                                                                                                                                                                                                                                       |

Rating data for approved types

|                              |  |      |            |
|------------------------------|--|------|------------|
| Short Circuit Current Rating |  | SCCR |            |
| 600 V High Fault             |  |      |            |
| SCCR (fuse)                  |  | kA   | 100        |
| max. Fuse                    |  | A    | 60 Class J |

Design verification as per IEC/EN 61439

|                                                          |                   |    |     |
|----------------------------------------------------------|-------------------|----|-----|
| Technical data for design verification                   |                   |    |     |
| Rated operational current for specified heat dissipation | I <sub>n</sub>    | A  | 12  |
| Heat dissipation per pole, current-dependent             | P <sub>vid</sub>  | W  | 1.4 |
| Equipment heat dissipation, current-dependent            | P <sub>vid</sub>  | W  | 4.2 |
| Static heat dissipation, non-current-dependent           | P <sub>vs</sub>   | W  | 2.1 |
| Heat dissipation capacity                                | P <sub>diss</sub> | W  | 0   |
| Operating ambient temperature min.                       |                   | °C | -25 |
| Operating ambient temperature max.                       |                   | °C | 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 | 3                           |
| Rated operation power at AC-3, 400 V                                                                                                                                                             |  | kW | 5.5                         |
| 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  | 11.3                        |
| Rated operation current at AC-3, 400 V                                                                                                                                                           |  | A  | 12                          |
| Overload release current setting                                                                                                                                                                 |  | A  | 3 - 12                      |
| 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  | 100000                      |
| Rated conditional short-circuit current, type 2, 400 V                                                                                                                                           |  | A  | 100000                      |
| 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                                                                                                                                                                                    |  |    | Adjustable                  |
| 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 2 |
| 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 | 242     |
| Depth                                               |  | mm | 128     |