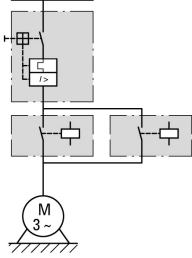




**Reversing starter, 380 V 400 V 415 V: 7.5 kW, I<sub>r</sub>= 10 - 16 A, 230 V 50 Hz, 240 V 60 Hz, AC voltage**

**Part no.** MSC-R-16-M17(230V50HZ)  
**Catalog No.** 283186  
**Alternate Catalog No.** XTSR016B018CFNL  
**EL-Nummer (Norway)** 4365061

## Delivery program

|                                         |                |    |                                                                                      |
|-----------------------------------------|----------------|----|--------------------------------------------------------------------------------------|
| Basic function                          |                |    | Reversing starters (complete devices)                                                |
| Basic device                            |                |    | MSC                                                                                  |
|                                         |                |    |    |
| Notes                                   |                |    | Also suitable for motors with efficiency class IE3.                                  |
| Connection technique                    |                |    | Screw terminals                                                                      |
| Connection to SmartWire-DT              |                |    | no                                                                                   |
| <b>Motor ratings</b>                    |                |    |                                                                                      |
| Motor rating                            |                |    |                                                                                      |
| AC-3                                    |                |    |                                                                                      |
| 380 V 400 V 415 V                       | P              | kW | 7.5                                                                                  |
| Rated operational current               |                |    |                                                                                      |
| AC-3                                    |                |    |                                                                                      |
| 380 V 400 V 415 V                       | I <sub>e</sub> | A  | 15.2                                                                                 |
| Rated short-circuit current 380 - 415 V | I <sub>q</sub> | kA | 50                                                                                   |
| <b>Setting range</b>                    |                |    |                                                                                      |
| Setting range of overload releases      | I <sub>r</sub> | A  | 10 - 16                                                                              |
|                                         |                |    |   |
| Coordination                            |                |    | Type of coordination "1"<br>Type of coordination "2"                                 |
| Contact sequence                        |                |    |  |
| Actuating voltage                       |                |    | 230 V 50 Hz, 240 V 60 Hz<br>AC voltage                                               |

**Motor-protective circuit-breakers** PKZM0-16

**Contactor** DILM17-01(...)

**DOL starter wiring set**

Mechanical connection element and electrical electric contact module PKZM0-XRM32

### Notes

The reversing starter (complete unit) consists of a PKZM0 motor-protective circuit-breaker and two DILM contactors.

With the adapter-less top-hat rail mounting of starters up to 12 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 2.5mm external diameter or 4 conductors up to 3.5mm external diameter.

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

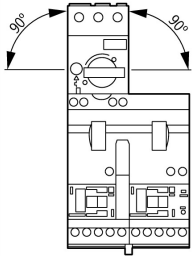
The connection of the main circuit between PKZ and contactor is established with electrical contact modules.

Complete units with mechanical interlock, starters up to 12 A also feature electrical interlock.

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           |  |   | UL 508 (on request)<br>CSA C 22.2 No. 14 (on request)                              |
| Mounting position   |  |   |  |
| Altitude            |  | m | Max. 2000                                                                          |
| Ambient temperature |  |   | -25 - +55                                                                          |

### Main conducting paths

|                                       |           |      |           |
|---------------------------------------|-----------|------|-----------|
| Rated impulse withstand voltage       | $U_{imp}$ | V AC | 6000      |
| Overvoltage category/pollution degree |           |      | III/3     |
| Rated operational voltage             | $U_e$     | V    | 230 - 415 |
| Rated operational current             |           |      |           |
| Open, 3-pole: 50 – 60 Hz              |           |      |           |
| 380 V 400 V                           | $I_e$     | A    | 16        |

### 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                                                    |         |   |                                                                                                                                                                                                                                           |
| Power consumption of the coil in a cold state and $1.0 \times U_S$ |         |   |                                                                                                                                                                                                                                           |
| Dual-voltage coil 50 Hz                                            | Sealing | W | 2.1                                                                                                                                                                                                                                       |

### Rating data for approved types

|                    |  |   |      |
|--------------------|--|---|------|
| 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 | $I_n$      | A  | 16                                         |
| Heat dissipation per pole, current-dependent             | $P_{vid}$  | W  | 3.1                                        |
| Equipment heat dissipation, current-dependent            | $P_{vid}$  | W  | 9.3                                        |
| Static heat dissipation, non-current-dependent           | $P_{vs}$   | W  | 2.1                                        |
| Heat dissipation capacity                                | $P_{diss}$ | 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

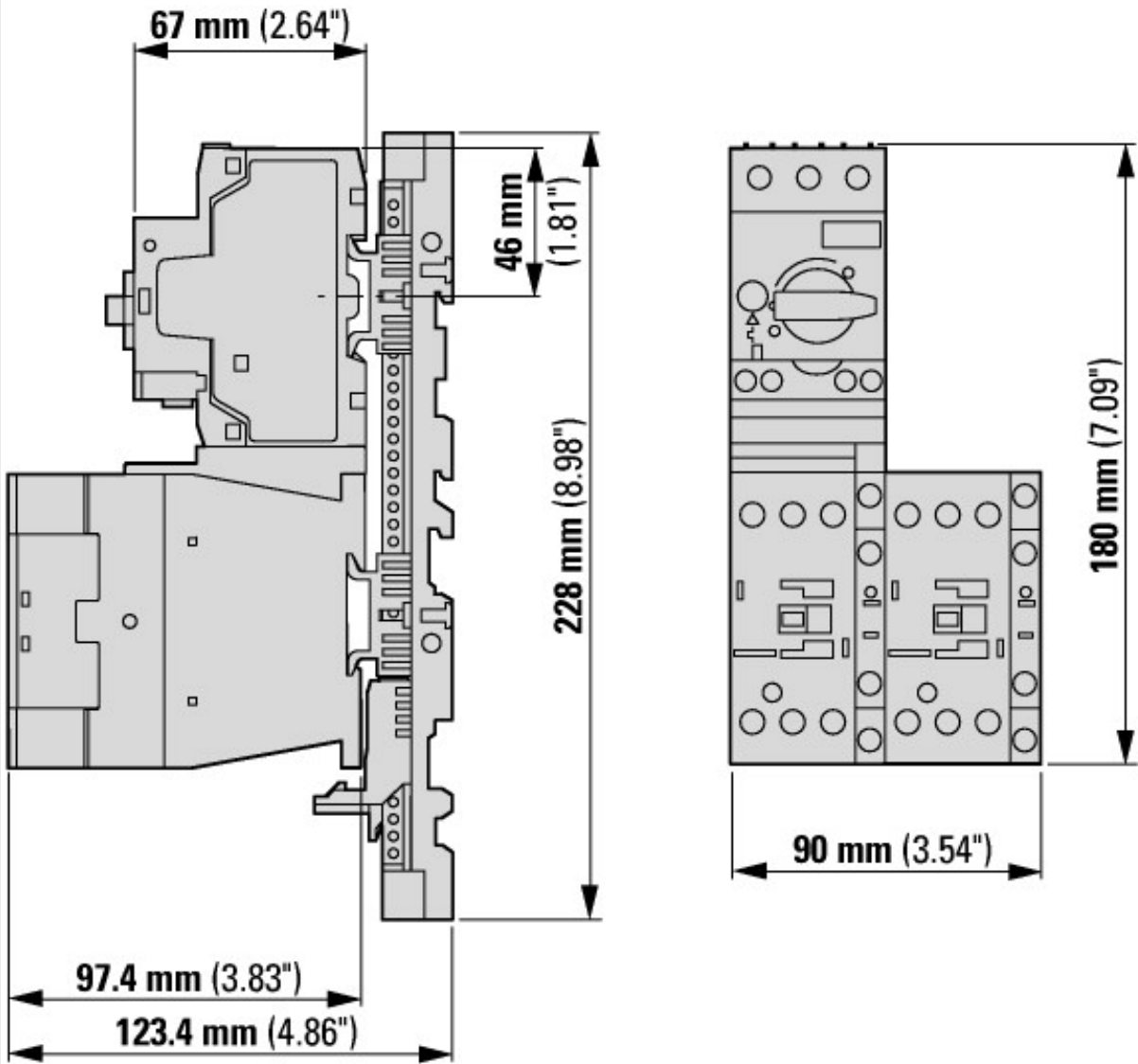
|                                                                                                                                                                                                  |    |                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-------------------|
| 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                                                                                                                                                                            |    | Reversing starter |
| 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 | 4                 |
| Rated operation power at AC-3, 400 V                                                                                                                                                             | kW | 7.5               |
| 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  | 15.2              |
| Rated operation current at AC-3, 400 V                                                                                                                                                           | A  | 16                |
| Overload release current setting                                                                                                                                                                 | A  | 10 - 16           |
| 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  | 50000             |
| Rated conditional short-circuit current, type 2, 400 V                                                                                                                                           | A  | 50000             |
| Number of auxiliary contacts as normally open contact                                                                                                                                            |    | 0                 |
| 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 2 |
| Number of indicator lights                          |  |    | 0       |
| External reset possible                             |  |    | No      |
| With fuse                                           |  |    | No      |
| Degree of protection (IP)                           |  |    | IP00    |
| 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 | 90      |
| Height                                              |  | mm | 123.4   |
| Depth                                               |  | mm | 228     |

## Approvals

|                                      |  |  |                                                             |
|--------------------------------------|--|--|-------------------------------------------------------------|
| Product Standards                    |  |  | UL60947-4-1A; CSA-C22.2 No. 14-10; IEC60947-4-1; CE marking |
| UL File No.                          |  |  | E123500                                                     |
| UL Category Control No.              |  |  | NKJH                                                        |
| CSA File No.                         |  |  | 12528                                                       |
| CSA Class No.                        |  |  | 3211-24                                                     |
| North America Certification          |  |  | UL listed, CSA certified                                    |
| Specially designed for North America |  |  | No                                                          |

Dimensions



MSC-R-...-M17[...32]...

Additional product information (links)

|                                                                            |                                                                                                                                                                                                                 |
|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>IL03402006Z (AWA1210-2248) Reversing starter to 12 A</b>                |                                                                                                                                                                                                                 |
| IL03402006Z (AWA1210-2248) Reversing starter to 12 A                       | <a href="https://es-assets.eaton.com/DOCUMENTATION/AWA_INSTRUCTIONS/IL03402006Z2021_09.pdf">https://es-assets.eaton.com/DOCUMENTATION/AWA_INSTRUCTIONS/IL03402006Z2021_09.pdf</a>                               |
| <b>IL03402011Z (AWA1210-2266) Reversing starter to 32 A</b>                |                                                                                                                                                                                                                 |
| IL03402011Z (AWA1210-2266) Reversing starter to 32 A                       | <a href="https://es-assets.eaton.com/DOCUMENTATION/AWA_INSTRUCTIONS/IL03402011Z2021_08.pdf">https://es-assets.eaton.com/DOCUMENTATION/AWA_INSTRUCTIONS/IL03402011Z2021_08.pdf</a>                               |
| 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> |
| 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>                                                                               |