



121756

MSC-DEA-12-M9(24VDC)



Overview



Specifications



Resources



## DELIVERY PROGRAM

[Delivery program >](#)

Basic function  
DOL starters (complete devices)

[Technical data >](#)

Basic device  
MSC

[Design verification as  
per IEC/EN 61439 >](#)



[Technical data ETIM 7.0  
>](#)

Notes  
Also suitable for motors with efficiency class IE3.

[Dimensions >](#)

Connection technique  
Screw terminals

Connection to SmartWire-DT  
yes  
in conjunction with PKE-SWD-32 SmartWire DT  
PKE module

### Motor ratings

Motor rating [P]  
AC-3  
380 V 400 V 415 V [P]  
4 kW

Rated operational current  
AC-3  
380 V 400 V 415 V [ $I_e$ ]  
8.5 A

Rated short-circuit current 380 - 415 V [ $I_q$ ]  
100 kA

## Setting range

Setting range of overload releases  [ $I$ ]  
3 - 12 A

Coordination  
Type of coordination "1"

Contact sequence



Actuating voltage  
24 V DC

DC

**Motor-protective circuit-breakers**  
PKE12/XTUA-12 Type

**Contactor**  
DILM9-01(...) Part no.

## DOL starter wiring set

Mechanical connection element and electrical  
electric contact module  
PKZM0-XDM12 Type

### Notes

The DOL starters (complete units) consist 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<sup>2</sup> external diameter or 4 conductors up to 3.5 mm<sup>2</sup> external diameter.

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 NH-E..PKZ0-C.

The MSC-DEA... DOL starters are prepared for communication via SmartWire-DT. For this, the PKE-SWD-32 communication module must be added.

Motor output/rated motor current

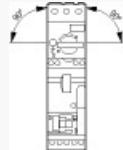
Motor rating	Rated motor current	AC-3	
		220 V	380 V
		230 V	415 V
		400 V	
		240 V	
			$I_q = 100$ kA
P	I	I	$I_q = 50$ kA
kW	A	A	A
0.75	3.2	-	-
1.1	4.6	-	-
1.5	6.3	3.6	3.6
2.2	8.7	5	5
3	-	6.6	6.6
4	-	8.5	8.5

## TECHNICAL DATA

## General

Standards  
IEC/EN 60947-4-1, VDE 0660

Mounting position



Altitude  
Max. 2000 m

Ambient temperature  
-25 - +55

## Main conducting paths

Rated impulse withstand voltage [ $U_{imp}$ ]  
6000 V AC

Overvoltage category/pollution degree  
III/3

Rated operational voltage [ $U_e$ ]  
230 - 415 V

Rated operational current  
Open, 3-pole: 50 – 60 Hz  
380 V 400 V [ $I_e$ ]  
9 A

AC-4 cycle operation  
Minimum current flow times  
500 (Class 5)  
700 (Class 10)  
900 (Class 15)  
1000 (Class 20) ms

AC-4 cycle operation  
Minimum cut-out periods  
500 ms

AC-4 cycle operation

#### Note

In AC-4 cycle operation, going below the minimum current flow time can cause overheating of the load (motor).

For all combinations with an SWD activation, you need not adhere to the minimum current flow times and minimum cut-out periods. ms

## Additional technical data

Motor protective circuit breaker PKZM0, PKE  
PKZM0 motor-protective circuit-breakers, see  
motor-protective circuit-breakers/PKZM0 product  
group

DILM contactors, see contactor product group

DILET timing relay, ETR, see contactors, electronic  
timing relays product group

DILM contactors

Current heat loss

Current heat loss at  $I_e$  to AC-3/400 V

2.19 W

## Power consumption

DC operated [Sealing]

2.6 W

# DESIGN VERIFICATION AS PER IEC/EN 61439

## Technical data for design verification

Rated operational current for specified heat

dissipation [ $I_h$ ]

9 A

Heat dissipation per pole, current-dependent [ $P_{vid}$ ]

0.7 W

Equipment heat dissipation, current-dependent

[ $P_{vid}$ ]

2.2 W

Static heat dissipation, non-current-dependent [ $P_{vs}$ ]

2.6 W

Heat dissipation capacity [ $P_{diss}$ ]

0 W

Operating ambient temperature min.

-25 °C

Operating ambient temperature max.

+55 °C

### 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 Strength of materials and parts

10.2.3.1 Verification of thermal stability of enclosures

Meets the product standard's requirements.

10.2 Strength of materials and parts

10.2.3.2 Verification of resistance of insulating materials to normal heat

Meets the product standard's requirements.

10.2 Strength of materials and parts

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 Strength of materials and parts

10.2.4 Resistance to ultra-violet (UV) radiation

Meets the product standard's requirements.

10.2 Strength of materials and parts

10.2.5 Lifting

Does not apply, since the entire switchgear needs to be evaluated.

10.2 Strength of materials and parts

10.2.6 Mechanical impact

Does not apply, since the entire switchgear needs to be evaluated.

10.2 Strength of materials and parts

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 Insulation properties**

**10.9.3 Impulse withstand voltage**

Is the panel builder's responsibility.

**10.9 Insulation properties**

**10.9.4 Testing of enclosures made of insulating material**

Is the panel builder's responsibility.

**10.10 Temperature rise**

The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.

**10.11 Short-circuit rating**

Is the panel builder's responsibility. The specifications for the switchgear must be observed.

10.12 Electromagnetic compatibility  
Is the panel builder's responsibility. The specifications for the switchgear must be observed.

10.13 Mechanical function  
The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

## TECHNICAL DATA ETIM 7.0

Low-voltage industrial components (EG000017) / Motor starter/Motor starter combination (EO001037)

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])

Kind of motor starter  
Direct starter

With short-circuit release  
Yes

Rated control supply voltage Us at AC 50Hz  
0 - 0 V

Rated control supply voltage Us at AC 60Hz  
0 - 0 V

Rated control supply voltage Us at DC  
24 - 24 V

Voltage type for actuating  
DC

Rated operation power at AC3, 230 V, 3-phase  
2.2 kW

Rated operation power at AC3, 400 V  
4 kW

Rated power, 460 V, 60 Hz, 3-phase  
0 kW

Rated power, 575 V, 60 Hz, 3-phase  
0 kW

Rated operation current  $I_e$   
8.5 A

Rated operation current at AC-3, 400 V  
9 A

Overload release current setting  
3 - 12 A

Rated conditional short-circuit current, type 1, 480  
Y/277 V  
0 A

Rated conditional short-circuit current, type 1, 600  
Y/347 V  
0 A

Rated conditional short-circuit current, type 2, 230  
V  
0 A

Rated conditional short-circuit current, type 2, 400  
V  
0 A

Number of auxiliary contacts as normally open  
contact  
0

Number of auxiliary contacts as normally closed  
contact  
1

Ambient temperature, upper operating limit  
60 °C

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 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 PROFlsafe  
No

Supporting protocol for SafetyBUS p  
No

Supporting protocol for other bus systems  
Yes

Width  
45 mm

Height  
198 mm

Depth  
102 mm

## DIMENSIONS





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