



121742
MSC-DE-12-M9(24VDC)

Overview

Specifications

Resources



Delivery program

Technical data

Design verification as
per IEC/EN 61439

Technical data ETIM 7.0

Dimensions

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 [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_k]
100 kA

Setting range

Setting range of overload releases  [I_n]
3 - 12 A

Coordination
Type of coordination "1"

Contact sequence



Actuating voltage
24 V DC

DC voltage

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

Contactor
DILM9-10(...) 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 external diameter or 4 conductors up to 3.5 mm 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	415 V
	230 V	400 V	
	240 V		
	$I_q = 100 \text{ kA}$	$I_q = 100 \text{ kA}$	$I_q = 50 \text{ kA}$
P	I	I	I
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 PKZMD, PKE
PKZMD motor-protective circuit-breakers, see
motor-protective circuit-breakers/PKZMD 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_b to AC-3/400 V

2.19 W

Power consumption

DC operated [Sealing]

2.6 W

Rating data for approved types

Short Circuit Current Rating

Basic Rating

SCCR

5 kA

Short Circuit Current Rating

Basic Rating

max. Fuse

225 A

Short Circuit Current Rating

Basic Rating

max. CB

200 A

DESIGN VERIFICATION AS PER IEC/EN 61439

Technical data for design verification

Rated operational current for specified heat dissipation [I_r]
9 A

Heat dissipation per pole, current-dependent [P_{id}]
0.8 W

Equipment heat dissipation, current-dependent [P_{id}]
2.4 W

Static heat dissipation, non-current-dependent [P_{is}]
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 (EC001037)

Electric engineering, automation, process control engineering / Low-voltage switch technology / Load breakout, motor breakout / Motor starter combination (ec1@ss10.0.1-27-37-09-05 [AJZ718013])

Kind of motor starter

Direct starter

With short-circuit release

Yes

Rated control supply voltage U_s at AC 50-HZ

0 - 0 V

Rated control supply voltage U_s at AC 60-HZ

0 - 0 V

Rated control supply voltage U_s at DC
24 - 24 V

Voltage type for actuating
DC

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

Rated operation power at AC-3, 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
1

Number of auxiliary contacts as normally closed
contact
0

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 PROFI-safe
No

Supporting protocol for SafetyBUS p
No

Supporting protocol for other bus systems
No

Width
45 mm

Height
198 mm

Depth
102 mm

DIMENSIONS

