



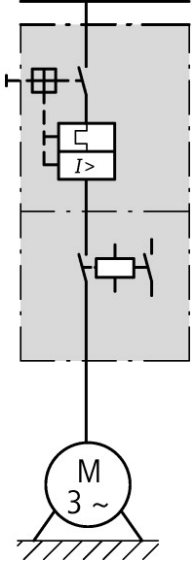


**DOL starter, 3p, 4.0kW/400V/AC3, 100kA, protection electronic**

**Part no. MSC-DE-12-M9(24VDC)**  
**Article no. 121742**  
**Catalog No. XTSE012B009BTDNL**

## Delivery program

Basic function				DOL starters (complete devices)
Basic device				MSC
				
Notes				Also suitable for motors with efficiency class IE3. IE3-ready devices are identified by the logo on their packaging.
<b>Motor ratings</b>				
Motor rating				
AC-3				
380 V 400 V 415 V	P	kW	4	
Rated operational current				
AC-3				
400 V	$I_e$	A	8.5	
Rated short-circuit current 380 - 400 V	$I_q$	kA	100	
<b>Setting range</b>				
Setting range of overload releases	$I_r$	A	3 - 12	
				
Short-circuit releases				
				
Non-delayed	$I_{rm}$	A	186	
				
Coordination				Type of coordination "1"
Contact sequence				
Actuating voltage				24 V DC

			DC voltage
<b>Motor-protective circuit-breakers PKE12/XTU-12</b>			
Contactor DILM9-10(...)			
<b>DOL starter wiring set</b> Mechanical connection element and electrical electric contact module PKZM0-XDM12			
<b>Notes</b>			
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	Rated motor current		
Motor rating	AC-3		
	220 V	380 V	415 V
	230 V	400 V	
	240 V		
	I <sub>q</sub> = 100 kA	I <sub>q</sub> = 100 kA	I <sub>q</sub> = 50 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
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### 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

### 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 contactors product group DILET timing relay, ETR, see contactors, electronic timing relays product group
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### Power consumption

DC operated	Sealing	W	3
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## 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	0.8
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	2.4
Static heat dissipation, non-current-dependent	P <sub>vs</sub>	W	2.6
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 6.0

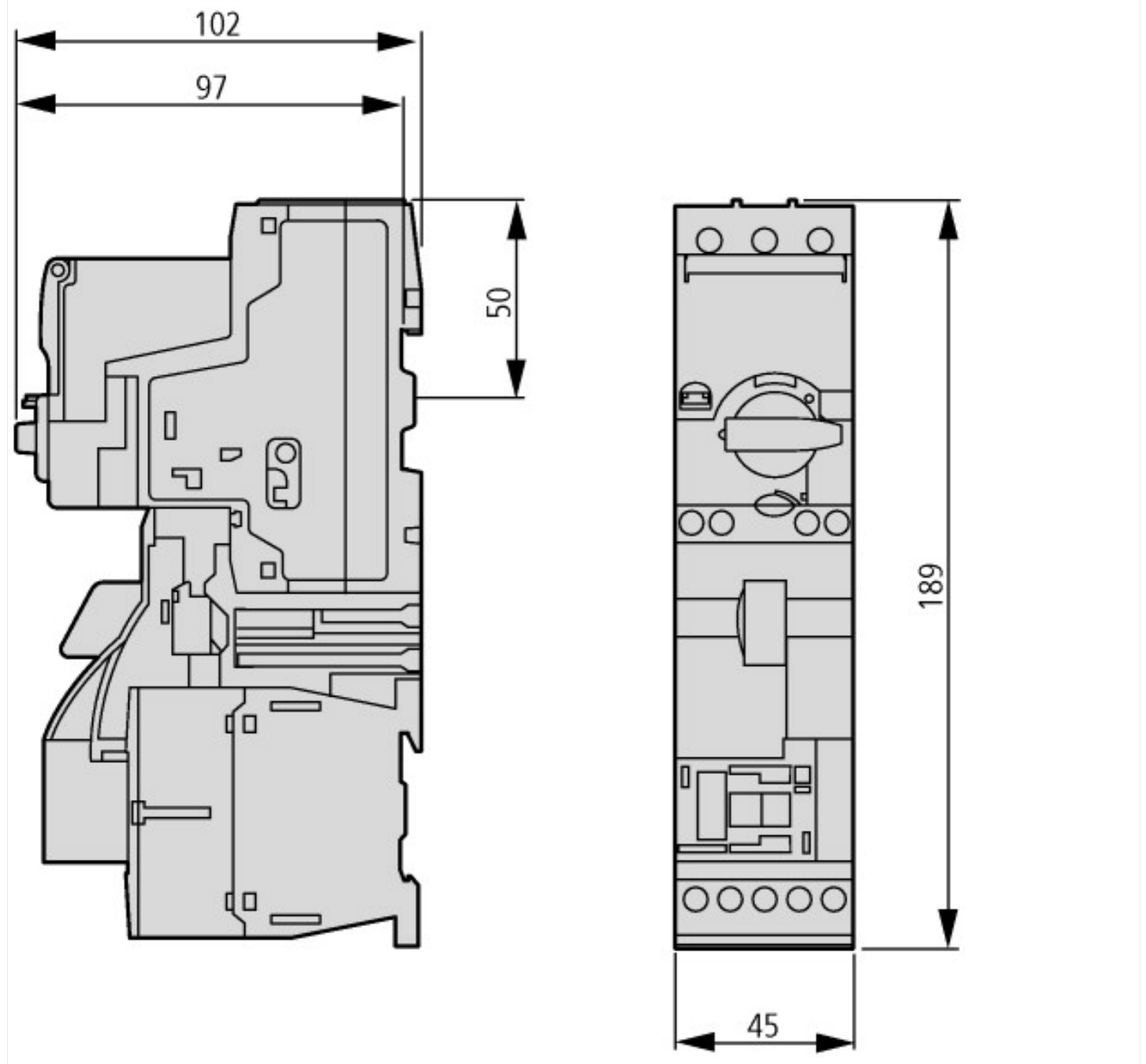
Low-voltage industrial components (EG000017) / Motor starter/Motor starter combination (EC001037)

Electric engineering, automation, process control engineering / Low-voltage switch technology / Load breakout, motor breakout / Motor starter combination (ecl@ss8.1-27-37-09-05 [AJZ718010])

Kind of motor starter		Direct starter
With short-circuit release		Yes
Rated control supply voltage $U_s$ at AC 50HZ	V	0 - 0
Rated control supply voltage $U_s$ at AC 60HZ	V	0 - 0
Rated control supply voltage $U_s$ at DC	V	24 - 24
Voltage type for actuating		DC
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 $I_e$	A	8.5
Rated operation current at AC-3, 400 V	A	9
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	0
Rated conditional short-circuit current, type 2, 400 V	A	0
Number of auxiliary contacts as normally open contact		1
Number of auxiliary contacts as normally closed contact		0
Ambient temperature, , upper operating limit	°C	60
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
Degree of protection (IP)		IP20
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

## Dimensions



## Additional product information (links)

### IL034014ZU (IL03402005Z) Direct-on-line starter up to 15 A

IL034014ZU (IL03402005Z) Direct-on-line starter up to 15 A [ftp://ftp.moeller.net/DOCUMENTATION/AWA\\_INSTRUCTIONS/IL034014ZU2013\\_11.pdf](ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL034014ZU2013_11.pdf)

Moeller\_Online Selections Aids <http://www.moeller.net/en/support/slider/index.jsp>