

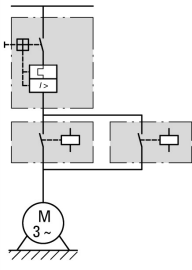




Reversing starter, 380 V 400 V 415 V: 4 kW, I<sub>r</sub>= 6.3 - 10 A, 230 V 50 Hz, 240 V 60 Hz, AC voltage

Part no. **MSC-R-10-M9(230V50HZ)/BBA**  
 Catalog No. **102990**  
 Alternate Catalog No. **XTSR010B009BFNL-A**  
 EL-Nummer (Norway) **4315451**

**Delivery program**

Basic function				Reversing 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.
Connection to SmartWire-DT				no
<b>Motor ratings</b>				
Motor rating				
AC-3				
380 V 400 V 415 V	P	kW		4
Rated operational current				
AC-3				
380 V 400 V 415 V	I <sub>e</sub>	A		8.5
Rated short-circuit current 380 - 415 V	I <sub>q</sub>	kA		100
<b>Setting range</b>				
Setting range of overload releases	I <sub>r</sub>	A		6.3 - 10
				
Coordination				Type of coordination "1"
Contact sequence				
Actuating voltage				230 V 50 Hz, 240 V 60 Hz AC voltage
<b>Motor-protective circuit-breakers</b> PKZM0-10				
Contactor DILM9-01(...)				
<b>DOL starter wiring set</b> Mechanical connection element and electrical electric contact module PKZM0-XRM12				
<b>Notes</b>				
The reversing starter (complete units) consists of a PKZM0 motor protective circuit breaker and two DILM contactors.				
These combinations are mounted on the busbar adapters.				
The connection of the main circuit between the motor protective circuit breaker and the contactor is established with an electrical contact module.				
Complete units with mechanical interlock, starters up to 12 A also feature electrical interlock.				
<b>Further information</b>			<b>Page</b>	
Technical data PKZM0			→ PKZM0	
Accessories PKZ			→ 072896	
Technical data DILM			→ DILM	
Accessories DIL			→ 281199	

## Technical data

### General

Standards			UL 508 (on request) CSA C 22.2 No. 14 (on request)
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	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 contactor product group 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	1.2

### 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	9
Heat dissipation per pole, current-dependent	$P_{vid}$	W	2.8
Equipment heat dissipation, current-dependent	$P_{vid}$	W	8.4
Static heat dissipation, non-current-dependent	$P_{vs}$	W	1.4
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 7.0

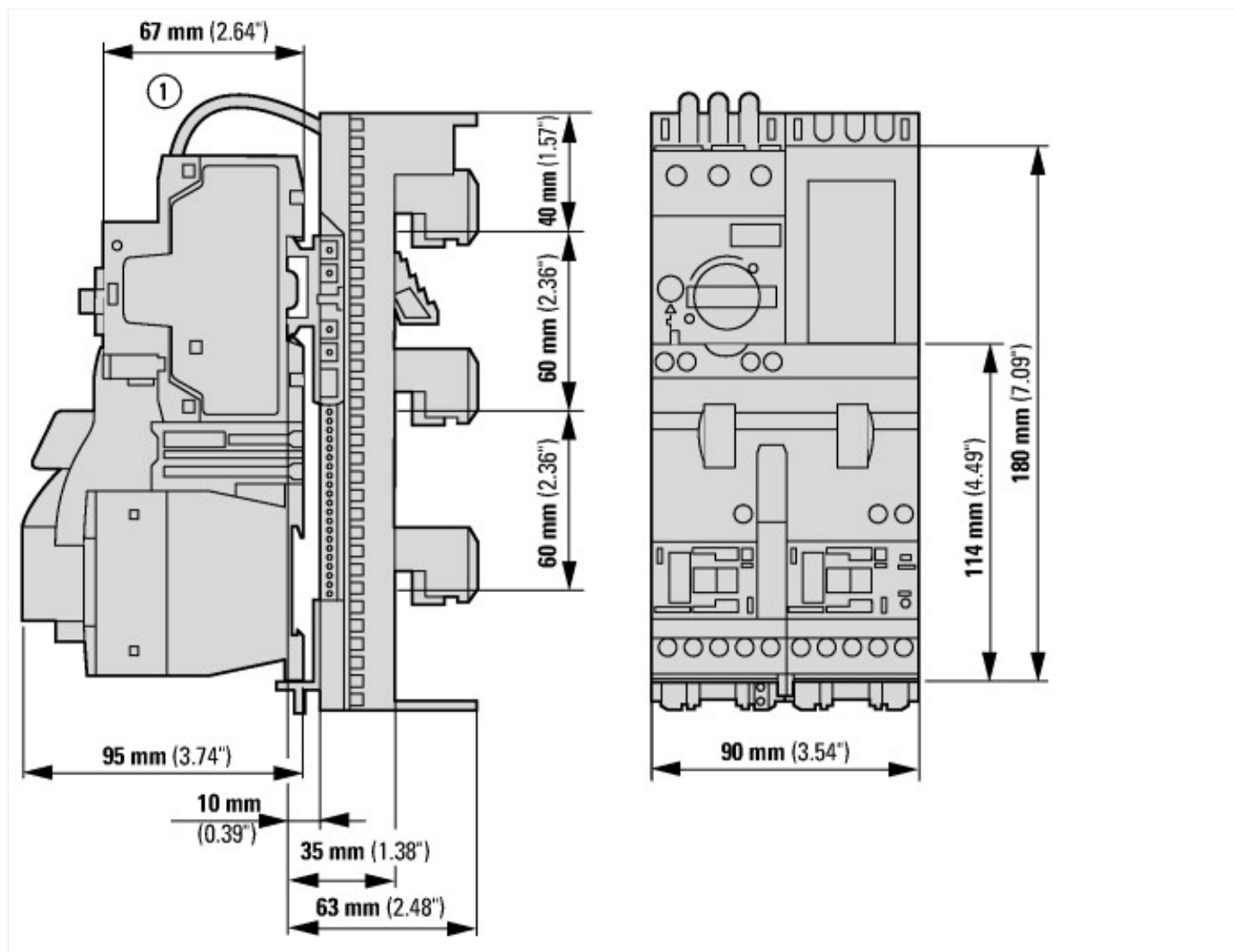
Low-voltage industrial components (EG000017) / Motor starter/Motor starter combination (EC001037)		
Electric engineering, automation, process control engineering / Low-voltage switch technology / Load breakout, motor breakout / Motor starter combination (ecl@ss10.0.1-27-37-09-05 [AJZ718013])		
Kind of motor starter		Reversing starter
With short-circuit release		Yes
Rated control supply voltage $U_s$ at AC 50HZ	V	230 - 230
Rated control supply voltage $U_s$ at AC 60HZ	V	0 - 0
Rated control supply voltage $U_s$ at DC	V	0 - 0
Voltage type for actuating		AC
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	6.3 - 10
Rated conditional short-circuit current, type 1, 480 V/277 V	A	0
Rated conditional short-circuit current, type 1, 600 V/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		0
Number of auxiliary contacts as normally closed contact		0
Ambient temperature, upper operating limit	°C	60
Temperature compensated overload protection		Yes
Release class		CLASS 10
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 PROFIsafe			No
Supporting protocol for SafetyBUS p			No
Supporting protocol for other bus systems			No
Width		mm	90
Height		mm	200
Depth		mm	154

## 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.			3211-04
North America Certification			UL listed, CSA certified
Specially designed for North America			No

## Dimensions



① l = 73 mm

MSC-R-...-M7[...12]BBA...

## Assets (links)

### Declaration of CE Conformity

00002885

### Instruction Leaflets

IL03402006Z2018\_04

## Additional product information (links)

### IL03402006Z (AWA1210-2248) Reversing starter to 12 A

IL03402006Z (AWA1210-2248) Reversing starter to 12 A [ftp://ftp.moeller.net/DOCUMENTATION/AWA\\_INSTRUCTIONS/IL03402006Z2018\\_04.pdf](ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03402006Z2018_04.pdf)

### IL03402015Z (AWA1210-2324) Busbar adapter

IL03402015Z (AWA1210-2324) Busbar adapter [ftp://ftp.moeller.net/DOCUMENTATION/AWA\\_INSTRUCTIONS/IL03402015Z2018\\_05.pdf](ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03402015Z2018_05.pdf)

Motor starters and "Special Purpose Ratings" for the North American market [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)

Busbar Component Adapters for modern Industrial control panels [http://www.moeller.net/binary/ver\\_techpapers/ver960en.pdf](http://www.moeller.net/binary/ver_techpapers/ver960en.pdf)