DATASHEET - MSC-R-4-M7(24VDC)/BBA



Reversing starter, 380 V 400 V 415 V: 1.1, 1.5 kW, Ir= 2.5 - 4 A, 24 V DC, DC voltage



MSC-R-4-M7(24VDC)/BBA Part no.

Catalog No. 103003

Alternate Catalog

XTSR004B007BTDNL-A

No.

EL-Nummer 4315464

(Norway)

Delivery program

Donvory program			
Basic function			Reversing starters (complete devices)
Basic device			MSC
			IE3 ✓
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
Motor ratings			
Motor rating			
AC-3			
380 V 400 V 415 V	P	kW	1.1 1.5
Rated operational current			
AC-3			
380 V 400 V 415 V	I _e	А	2.6 3.6
Rated short-circuit current 380 - 415 V	I_q	kA	100
Setting range			
Setting range of overload releases	I _r	Α	2.5 - 4
Coordination			Type of coordination "1" Type of coordination "2"
Contact sequence			M 3-7-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-
Actuating voltage			24 V DC
			DC voltage

Motor-protective circuit-breakers PKZM0-4

Contactor DILM7-01(...)

DOL starter wiring set

Mechanical connection element and electrical electric contact module PKZM0-XRM12

Notes

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.

Further information Technical data PKZM0 Accessories PKZ Technical data DILM

Accessories DIL

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Technical data General

Gollorar			
Standards			UL 508 (on request) CSA C 22.2 No. 14 (on request)
Main conducting paths			
Rated impulse withstand voltage	U_{imp}	V AC	6000
Overvoltage category/pollution degree			111/3
Rated operational voltage	U_{e}	V	230 - 415
Rated operational current			
Open, 3-pole: 50 – 60 Hz			
380 V 400 V	l _e	Α	4
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
Power consumption			
DC operated	Sealing	W	3
Rating data for approved types			
Auxiliary contacts			
Pilot Duty			
AC operated			A600
DC operated			P300
General Use			
AC		V	600
AC		Α	15
DC		V	250
DC		Α	1

Design verification as per IEC/EN 61439

Design verification as per IEC/EN 61439 echnical data for design verification			
Rated operational current for specified heat dissipation	In	Α	4
Heat dissipation per pole, current-dependent	P _{vid}	W	2
Equipment heat dissipation, current-dependent	P _{vid}	W	6
Static heat dissipation, non-current-dependent	P _{vs}	W	2.6
Heat dissipation capacity	P _{diss}	W	0
Operating ambient temperature min.	· uiss	°C	-25
Operating ambient temperature max.		°C	55
C/EN 61439 design verification		0	
•			
10.2 Strength of materials and parts			Marketha and doctors double assuring and
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 [A.IZ718013])

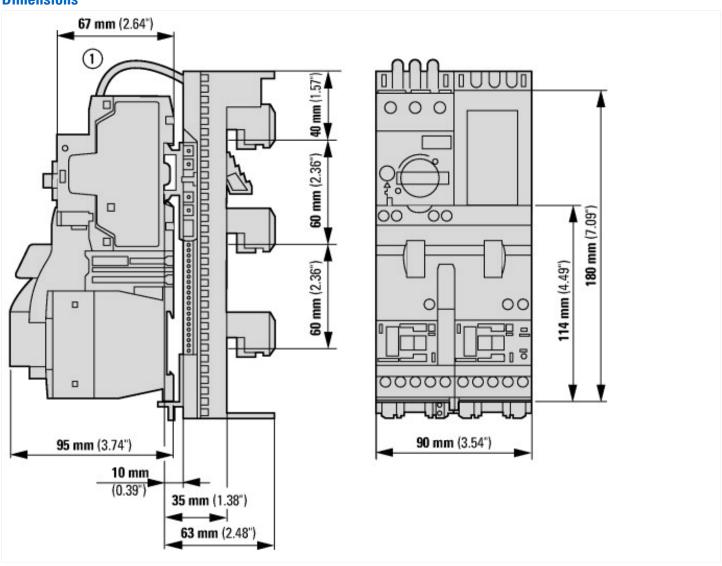
Kind of motor starter Reversing starter With short-circuit release Yes Rated control supply voltage Us at AC SBHZ V 0 - 0 Rated control supply voltage Us at AC SBHZ V 0 - 0 Rated control supply voltage Us at AC SBHZ V 0 - 0 Rated control supply voltage Us at AC SBHZ V 0 - 0 Rated operation power at AC SA 200 V 3 phase AW 0 75 Rated operation power at AC SA 400 V AW 0 - 0 Rated operation current b A 3 G 0 Rated operation current at AC SA 400 V A 4 C 0 Voerfood rollease current setting A 3 G 0 Rated conditional short-circuit current, type 1, 480 Y327 V A 0 0 Rated conditional short-circuit current, type 2, 228 V A 5 0000 0 Number of auxiliary contacts as normally open contact E 6 0000 0 Number of auxiliary contacts as normally open contact E 6 0000 0 Release classes class C 0 0 0
Rated control supply voltage Us at AC 50H2 V 0 - 0 Rated control supply voltage Us at AC 50H2 V 2 - 24 Rated control supply voltage Us at AC 50H2 V 2 - 42 Voltage type for actualistin DC DC Rated operation power at AC-3, 23D V.3 -phase KW 0.75 Rated power, 57 V.60 Hr.3 -phase KW 0 Rated power, 57 V.60 Hr.3 -phase A 3.6 Rated power, 57 V.60 Hr.3 -phase A 2.5 - 4 Rated operation current at extrang A 0 Rated conditional short-circuit current, type 1, 600 Y/54 TV A 0 Rated conditional short-circuit current, type 2, 230 V A 50000 Rated conditional short-circuit current, type 2, 250 V A 50000 Rated conditional short-circuit current, type 2, 250 V C V Refeate conflictional connec
Rated control supply voltage Us at AC 60H2 V 2 - 24 Rated control supply voltage Us at DC V 2 - 24 Voltage type for actuating W 0.75 Rated operation power at AC-2, 20U 3-phase WW 0.75 Rated operation power at AC-3, 400 V W 1.5 Rated power, 57 V, 60 H2, 3-phase WW 0. Rated operation current at AC-3, 400 V A 3.6 Rated operation current at AC-3, 400 V A 2.5 - 4 Rated operation current at AC-3, 400 V A 0.0 Rated conditional short-circuit current, type 1, 400 V/277 V A 0.0 Rated conditional short-circuit current, type 2, 400 V A 50000 Rated conditional short-circuit current, type 2, 400 V A 50000 Rated conditional short-circuit current, type 2, 400 V A 50000 Rated conditional short-circuit current, type 2, 400 V A 50000 Rated conditional short-circuit current, type 2, 400 V A 50000 Rated conditional short-circuit current, type 2, 400 V A 50000 Rated conditional short-circuit current, type 2, 400
Name of auxiliary contacts an normally open cantact unrent, type 1, 489 V777 V878 V878 V878 V878 V878 V878 V8
Voltage type for actuating DC Rated operation power at AC-3, 230 V.3-phase kW 0.75 Rated operation power at AC-3, 230 V.3-phase kW 1.5 Rated power, 57 V. 60 Hz.3-phase kW 0 Rated operation current te kW 0 Rated operation current at AC-3, 400 V A 4 Overfoad release current setting A 2.5 - 4 Rated conditional short-circuit current, type 1, 480 V/277 V A 0 Rated conditional short-circuit current, type 1, 480 V/277 V A 0 Rated conditional short-circuit current, type 1, 480 V/277 V A 0 Rated conditional short-circuit current, type 2, 230 V A 0 Rated conditional short-circuit current, type 2, 230 V A 0 Number of auxiliary contacts as normally open contact A 0 Number of auxiliary contacts as normally open contact V 8 Release class C C C Temperature compensated overload protection C C C Release class C C C C
Rated operation power at AC-3, 290 V, 3-phase kW 15 Rated operation power at AC-3, 400 V kW 15 Rated operation power at AC-3, 400 V kW 0 Rated power, 55V, 60 Nt, 3-phase kW 0 Rated operation current te A 3.6 Rated operation current at AC-3, 400 V A 4 Overload release current setting A 2.5 - 4 Rated conditional short-circuit current, type 1, 480 V/277 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 centact A 60 Number of auxiliary contacts as normally open centact Yes 60 Ambient temperature, upper operating limit °C 60 Release class C C 61 Release class C C 62 Release class C C 62 Release class C C 62 With turnesformer
Rated operation power at AC-3, 400 V kW 15 Rated power, 750 V, 60 Hz, 3-phase kW 0 Rated operation current le kW 0 Rated operation current at AC-3, 400 V A 4 Overload release current setting A 25 - 4 Rated conditional short-circuit current, type 1, 480 Y/277 V A 0 Rated conditional short-circuit current, type 2, 400 V A 0 Rated conditional short-circuit current, type 2, 200 V A 50000 Rated conditional short-circuit current, type 2, 400 V A 50000 Number of auxiliary contacts as normally open contact A 60 Number of auxiliary contacts as normally closed contact C 60 Release class C CLAS 10 Tippe of electrical connection of main circuit C CLAS 10 Type of electrical connection of main circuit C Screw connection With transformer No No Number of command positions C No Suitable for emergency stop No No Coordination class accordin
Rated power, 460 V, 60 Hz, 3-phase kW 0 Rated power, 575 V, 60 Hz, 3-phase kW 0 Rated operation current le A 3.6 Rated operation current at AC3, 400 V A 4 4 Overload release current setting A 2.5 - 4 A Rated conditional short-circuit current, type 1, 480 Y/277 V A 0 C Rated conditional short-circuit current, type 2, 230 V A 50000 C Rated conditional short-circuit current, type 2, 240 V A 50000 C Rated conditional short-circuit current, type 2, 240 V A 50000 C Rated conditional short-circuit current, type 2, 240 V A 50000 C Rated conditional short-circuit current, type 2, 240 V A 60000 C Rated conditional short-circuit current, type 2, 240 V A 50000 C Rated conditional short-circuit current, type 2, 240 V A 60000 C
Rated power, 575 V, 60 Hz, 3-phase kW 0 Rated operation current le A 3.5 Rated operation current at ACS, 400 V A 4 Overload release current setting A 2.5 - 4 Rated conditional short-circuit current, type 1, 480 Y/277 V A 0 Rated conditional short-circuit current, type 2, 230 V A 50000 Rated conditional short-circuit current, type 2, 2400 V A 50000 Number of auxiliary contacts as normally open contact D 0 Number of auxiliary contacts as normally closed cortact B 0 Ambient temperature, upper operating limit C 60 Tomporature compensated overload protection Yes C Release class Yes Ccrew connection Type of electrical connection of main circuit Yes Yes Type of electrical connection for auxiliary- and control current circuit Yes Yes Rail mounting possible Yes No Number of command positions Yes Cordination class according to IEC 60047-4-3 Yes Number of indicator lights
Rated operation current le A 3.6 Rated operation current at AC-3, 400 V A 4 Overload release current setting A 25 - 4 Rated conditional short-circuit current, type 1, 480 Y/277 V A 0 Rated conditional short-circuit current, type 1, 500 Y/347 V A 50000 Rated conditional short-circuit current, type 2, 400 V A 50000 Number of auxiliary contacts as normally open contact C 60 Number of auxiliary contacts as normally closed contact Yes 60 Ambient temperature, upper operating limit C 60 Temperature compensated overload protection Yes CLASS 10 Release class CLASS 10 Screw connection Type of electrical connection for auxiliary- and control current circuit Screw connection Yes Rail mounting possible Yes No With transformer Yes No Number of command positions Yes Class 2 Suitable for amergency stop No No Coordination class a coording to IEC 60947.4-3 Yes No </td
Rated operation current at AC-3,400 V A 4 4 Overload release current satting A 25 - 4 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 0 Number of auxiliary contacts as normally open contact 0 0 Number of auxiliary contacts as normally closed contact C 80 Ambient temperature, upper operating limit C 80 Temperature compensated overload protection Yes CLASS 10 Release class C CLASS 10 Type of electrical connection of main circuit Yes Screw connection Rail mounting possible Yes Screw connection With transformer Yes No Number of command positions Yes No Suitable for emergency stop Yes Class 2 Coordination class according to IEC 60947-4-3 Yes No
Overload release current setting A 254 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, 290 V A 500000 Ruted conditional short-circuit current, type 2, 400 V A 500000 Number of auxiliary contacts as normally closed contact C 0 Number of auxiliary contacts as normally closed contact B 0 Ambient temperature, upper operating limit B 60 Temperature compensated overload protection Yes CLASS 10 Release class CLASS 10 Strew connection Type of electrical connection for auxiliary- and control current circuit Yes Screw connection Rail mounting possible Yes No With transformer Yes No Number of command positions Yes Class 2 Suitable for emergency stop Yes Class 2 Coordination class according to IEC 60947-4-3 Yes No Number of indicator lights Yes
Rated conditional short-circuit current, type 1, 480 Y/277 V
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 closed contact C 0 Ambient temperature, upper operating limit C 60 Temperature compensated overload protection Yes CLASS 10 Release class CLASS 10 Screw connection Type of electrical connection of main circuit Yes Screw connection Type of electrical connection for auxiliary- and control current circuit Yes Yes With transformer No No With transformer No No Number of command positions O Class 2 Suitable for emergency stop Class 2 Class 2 Coordination class according to IEC 60947-4-3 No No External reset possible No No With fuse No No Degree of protection (IP) No No Degree of protection (NEMA)
Rated conditional short-circuit current, type 2, 230 V Rated conditional short-circuit current, type 2, 400 V Number of auxiliary contacts as normally open contact Number of auxiliary contacts as normally closed contact Release class Release class Release class Type of electrical connection of main circuit Type of electrical connection for auxiliary- and control current circuit Rail mounting possible With transformer Number of command positions Suitable for emergency stop Coordination class according to IEC 60947-4-3 Number of indicator lights External reset possible With fuse Degree of protection (IFP) Degree of protection (NEMA) Supporting protocol for TCP/IPP A 00000 A 000000 A 00000000
Rated conditional short-circuit current, type 2, 400 V Number of auxiliary contacts as normally open contact Number of auxiliary contacts as normally closed contact Ambient temperature, upper operating limit Comperature compensated overload protection Release class Release class Type of electrical connection of main circuit Type of electrical connection for auxiliary- and control current circuit Rail mounting possible With transformer Number of command positions Suitable for emergency stop Coordination class according to IEC 60947-4-3 Number of indicator lights External reset possible With fuse Degree of protection (IP) Degree of protection (NEMA) Supporting protocol for TCP/IP Suitable for Condition (NEMA) Suitable
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 O Suitable for emergency stop No Coordination class according to IEC 60947-4-3 O Number of indicator lights O External reset possible No With fuse No Degree of protection (IP) Po Degree of protection (NEMA) Po Supporting protocol for TCP/IP O
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 O Suitable for emergency stop No Coordination class according to IEC 60947-4-3 Class 2 Number of indicator lights No External reset possible No With fuse No Degree of protection (IP) IP20 Degree of protection (IPMA) Other Supporting protocol for TCP/IP Other
Ambient temperature, upper operating limit Temperature compensated overload protection Release class CLASS 10 CLASS 10 Type of electrical connection of main circuit Type of electrical connection for auxiliary- and control current circuit Rail mounting possible With transformer Number of command positions Suitable for emergency stop Coordination class according to IEC 60947-4-3 Number of indicator lights External reset possible With fuse Degree of protection (IP) Degree of protection (NEMA) Supporting protocol for TCP/IP
Temperature compensated overload protection Release class CLASS 10 Screw connection Type of electrical connection for auxiliary- and control current circuit Rail mounting possible With transformer Number of command positions Suitable for emergency stop Coordination class according to IEC 60947-4-3 Number of indicator lights External reset possible With fuse Degree of protection (IP) Degree of protection (NEMA) Supporting protocol for TCP/IP
Release class Type of electrical connection of main circuit Type of electrical connection for auxiliary- and control current circuit Rail mounting possible With transformer Number of command positions Suitable for emergency stop Coordination class according to IEC 60947-4-3 Number of indicator lights External reset possible With fuse Degree of protection (IP) Degree of protection (NEMA) Supporting protocol for TCP/IP CLASS 10 Screw connection
Type of electrical connection of main circuit Type of electrical connection for auxiliary- and control current circuit Rail mounting possible With transformer With transformer No No Suitable for emergency stop Coordination class according to IEC 60947-4-3 Number of indicator lights External reset possible With fuse Degree of protection (IP) Degree of protection (NEMA) Supporting protocol for TCP/IP Screw connection Yes Screw connection Screw connection Screw connection Yes Screw connection Yes Screw connection Screw connection Yes Yes No Class 2 Class 2 No No Class 2 No No Other Other
Type of electrical connection for auxiliary- and control current circuit Rail mounting possible With transformer No Number of command positions Suitable for emergency stop Coordination class according to IEC 60947-4-3 Number of indicator lights External reset possible With fuse Degree of protection (IP) Degree of protection (NEMA) Supporting protocol for TCP/IP Screw connection Yes Screw connection Yes Screw connection Yes No 0 Class 2 No No Class 2 No No Other Degree of protection (NEMA) Other
Rail mounting possible With transformer No Number of command positions Suitable for emergency stop Coordination class according to IEC 60947-4-3 Number of indicator lights Caternal reset possible With fuse No Degree of protection (IP) Degree of protection (NEMA) Supporting protocol for TCP/IP No Yes No Class 2 No No Class 2 No No O External reset possible No O Degree of protection (IP) Degree of protection (NEMA) No Other
With transformer No Number of command positions Suitable for emergency stop Coordination class according to IEC 60947-4-3 No Coordination class according to IEC 60947-4-3 No External reset possible No With fuse No Degree of protection (IP) Degree of protection (NEMA) Supporting protocol for TCP/IP No
Number of command positions Suitable for emergency stop Coordination class according to IEC 60947-4-3 Number of indicator lights No External reset possible No With fuse Degree of protection (IP) Degree of protection (NEMA) Supporting protocol for TCP/IP O O O O O O O O O O O O O
Suitable for emergency stop Coordination class according to IEC 60947-4-3 Number of indicator lights External reset possible No With fuse No Degree of protection (IP) Degree of protection (NEMA) Supporting protocol for TCP/IP No No No No No No No No No N
Coordination class according to IEC 60947-4-3 Number of indicator lights External reset possible No With fuse No Degree of protection (IP) Degree of protection (NEMA) Supporting protocol for TCP/IP Class 2 No No No No IP20 Other No
Number of indicator lights External reset possible No With fuse No Degree of protection (IP) Degree of protection (NEMA) Supporting protocol for TCP/IP O O O O O O O O O O O O O
External reset possible No With fuse No Degree of protection (IP) Degree of protection (NEMA) Supporting protocol for TCP/IP No
With fuse No Degree of protection (IP) IP20 Degree of protection (NEMA) Other Supporting protocol for TCP/IP No
Degree of protection (IP) Degree of protection (NEMA) Supporting protocol for TCP/IP IP20 Other No
Degree of protection (NEMA) Supporting protocol for TCP/IP No
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 I = 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 ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03402006Z2018_04.pdf to 12 A			
IL03402015Z (AWA1210-2324) Busbar adapter			
IL03402015Z (AWA1210-2324) Busbar adapter	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		
Busbar Component Adapters for modern Industrial control panels	http://www.moeller.net/binary/ver_techpapers/ver960en.pdf		