## DATASHEET - MSC-D-16-M17(230V50HZ)/BBA



DOL starter, 380 V 400 V 415 V: 7.5 kW, Ir= 10 - 16 A, 230 V 50 Hz, 240 V 60 Hz, AC voltage



Part no. MSC-D-16-M17(230V50HZ)/BBA

Catalog No. 102961

XTSC016B018CFNL-A **Alternate Catalog** 

**EL-Nummer** (Norway)

4315422

Delivery program			
Basic function			DOL 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	Р	kW	7.5
Rated operational current			
AC-3			
380 V 400 V 415 V	l <sub>e</sub>	Α	15.2
Rated short-circuit current 380 - 415 V	Iq	kA	50
Setting range			
Setting range of overload releases	I <sub>r</sub>	Α	10 - 16
Coordination			Type of coordination "1" Type of coordination "2"
Contact sequence			M 3~
Actuating voltage			230 V 50 Hz, 240 V 60 Hz
			AC voltage
Motor-protective circuit-breakers PKZM0-16			

03/15/2020

Notes

Contactor DILM17-10(...) DOL starter wiring set

Mechanical connection element and electrical electric contact module PKZM0-XM32DE

BK25/3-PKZ0-E extension terminal and if necessary B3.../...-PKZ0 three-phase commoning link can be added to motor-starter combinations to make Type F starters in accordance with UL508.

#### Notes

The DOL starters (complete units) consist of a PKZM0 motor protective circuit breaker and a DILM contactor. 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.

Cannot be combined with NHI-E-...-PKZ0-C standard auxiliary contact with spring-cage terminal.

Further information	Page
Technical data PKZM0	→ PKZM0
Accessories PKZ	→ 072896
Technical data DILM	→ DILM
Accessories DILM	<b>→</b> 281199

# **Technical data**

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Standards			CSA C 22.2 No. 14 (on request)
Altitude		m	Max. 2000
Ambient temperature			-25 - +55
Main conducting paths			
Rated impulse withstand voltage	$U_{\text{imp}}$	V AC	6000

Overvoltage category/pollution degree			111/3
Rated operational voltage	U <sub>e</sub>	V	230 - 415
Rated operational current			
Open, 3-pole: 50 – 60 Hz			
380 V 400 V	le	Α	16

#### 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 x $\ensuremath{\text{U}_{\text{S}}}$			
Dual-voltage coil 50 Hz	Sealing	W	2.1

#### **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	А	1

## Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	In	Α	16
Heat dissipation per pole, current-dependent	$P_{\text{vid}}$	W	3.3
Equipment heat dissipation, current-dependent	$P_{vid}$	W	9.9
Static heat dissipation, non-current-dependent	$P_{vs}$	W	2.1
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 $ \frac{1}{2} \left( \frac{1}{2} \right) = \frac{1}{2} \left( \frac{1}{2} \right) \left($			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])

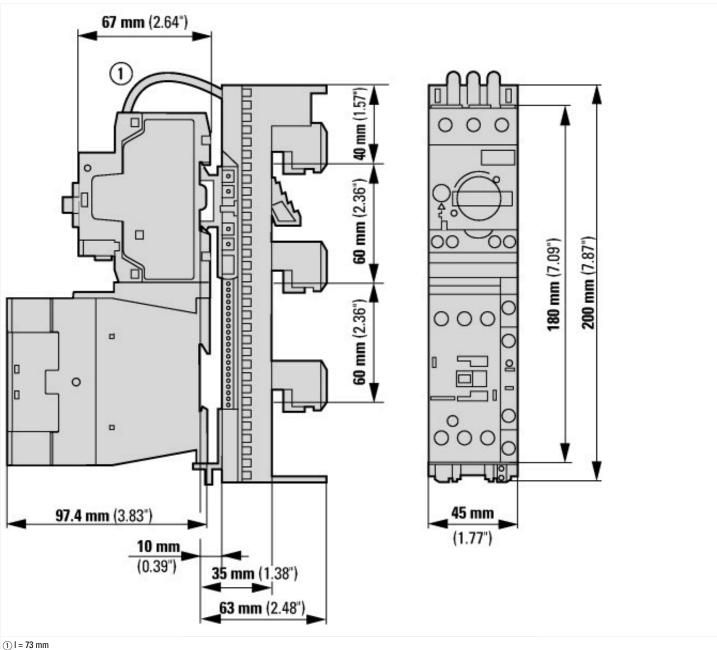
Rated control supply voltage Us at DC         V         0 - 0           Voltage type for actuating         AC           Rated operation power at AC-3, 230 V, 3-phase         kW         4           Rated operation power at AC-3, 400 V         kW         7.5           Rated power, 460 V, 60 Hz, 3-phase         kW         0           Rated operation current le         A         15.2           Rated operation current at AC-3, 400 V         A         16           Overload release current setting         A         10 - 16           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         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 contact         I         Ves           Ambient temperature, upper operating limit         °C         90           Temperature compensated overload protection         Yes         CLASS 10           Release class         CLASS 10         Crew connection           Rail mounting possible         Yes           With transformer         No			
Rated control supply voltage Us at AC 50HZ         V         230 - 230           Rated control supply voltage Us at AC 60HZ         V         0 - 0           Notage byse for actuating         AC         AC           Rated operation power at AC-3, 230 V, 3-phase         kW         4           Rated operation power at AC-3, 400 V         kW         7.5           Rated power, 490 V, 60 Hz, 3-phase         kW         0           Rated operation current le         A         18.2           Rated operation current at AC-3, 400 V         A         18.2           Rated operation current ac-3, 400 V         A         16.           Voverload release current setting         A         16.           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, 400 V         A         50000           Number of auxiliary contacts as normally open contact         Yes         6           Temperature compensated overload protection         Yes         6           Release class         Yes         CLASS 10           Temperature compensated overload protection         Yes         CLASS 10           Temperature compe	Kind of motor starter		Direct starter
Rated control supply voltage Us at AC 60HZ         V         0 - 0           Rated control supply voltage Us at DC         V         0 - 0           Voltage type for actuating         M         AC           Rated operation power at AC-3, 230 V,3-phase         kW         4           Rated operation power at AC-3, 400 V         kW         0           Rated power, 575 V,60 Hz, 3-phase         kW         0           Rated operation current le         A         15.2           Rated operation current at AC-3, 400 V         A         16           Rated operation current at AC-3, 400 V         A         16           Vovefload release current setting         A         16           Rated conditional short-circuit current, type 1, 480 Y/277 V         A         0           Rated conditional short-circuit current, type 2, 230 V         A         0           Rated conditional short-circuit current, type 2, 400 V         A         50000           Number of auxiliary contacts as normally closed contact         P         6           Number of auxiliary contacts as normally closed contact         P         6           Release class         C         6           Release class         C         6           Release class         C         6	With short-circuit release		Yes
Rated control supply voltage Us at DC         V         0 - 0           Voltage type for actuating         AC           Rated operation power at AC-3, 230 V, 3-phase         kW         4           Rated operation power at AC-3, 400 V         kW         7.5           Rated power, 460 V, 60 Hz, 3-phase         kW         0           Rated operation current le         A         15.2           Rated operation current at AC-3, 400 V         A         16           Overload release current setting         A         10 - 16           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         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 contact         I         Ves           Ambient temperature, upper operating limit         °C         90           Temperature compensated overload protection         Yes         CLASS 10           Release class         CLASS 10         Crew connection           Rail mounting possible         Yes           With transformer         No	Rated control supply voltage Us at AC 50HZ	V	230 - 230
Voltage type for actuating         AC           Rated operation power at AC-3, 200 V, 3-phase         kW         4           Rated operation power at AC-3, 400 V         kW         7.5           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         15.2           Rated operation current at AC-3, 400 V         A         16           Overload release current setting         A         10-16           Rated conditional short-circuit current, type 1, 800 V/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           Rated conditional short-circuit current, type 2, 400 V         A         50000           Rated conditional short-circuit current, type 2, 400 V         A         50000           Number of auxiliary contacts as normally open contact         Yes         6           Temperature compensated overload protection         Yes         CLASS 10           Release class         CLASS 10         Screw connection           Type of electrical connection of main circuit         Yes         Screw connection	Rated control supply voltage Us at AC 60HZ	V	0 - 0
Rated operation power at AC-3, 230 V, 3-phase         kW         7.5           Rated operation power at AC-3, 400 V         kW         0           Rated power, 460 V, 60 Hz, 3-phase         kW         0           Rated power, 575 V, 60 Hz, 3-phase         kW         0           Rated power, 575 V, 60 Hz, 3-phase         kW         0           Rated power, 575 V, 60 Hz, 3-phase         kW         0           Rated operation current at AC-3, 400 V         A         15-2           Rated operation current at AC-3, 400 V         A         16-6           Voveload release current setting         A         10-16           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, 400 V         A         50000           Rated conditional short-circuit current, type 2, 400 V         A         60           Number of auxiliary contacts as normally closed contact         F         60           Ambient temperature, upper operating limit         F         60           Tamperature compensated overload protection         F         CLASS 10           Type of electrical connection of main circuit         F         Screw connection	Rated control supply voltage Us at DC	V	0 - 0
Rated operation power at AC-3, 400 V Rated power, 460 V, 60 Hz, 3-phase Rated operation current le Rated operation current at AC-3, 400 V Roveload release current setting Rated conditional short-circuit current, type 1, 480 Y/277 V Rated conditional short-circuit current, type 1, 480 Y/277 V Rated conditional short-circuit current, type 2, 230 V Rated conditional short-circuit current, type 2, 230 V Rated conditional short-circuit current, type 2, 400 V Rated conditional short-circuit current type 2, 400 V Rated conditional	Voltage type for actuating		AC
Rated power, 460 V, 60 Hz, 3-phase Rated power, 575 V, 60 Hz, 3-phase Rated operation current le Rated operation current at AC-3, 400 V Rated operation current at AC-3, 400 V Rated conditional short-circuit current, type 1, 480 Y/277 V Rated conditional short-circuit current, type 1, 600 Y/347 V Rated conditional short-circuit current, type 2, 230 V Rated conditional short-circuit current, type 2, 230 V Rated conditional short-circuit current, type 2, 400 V Rated conditional short-circuit current, type 2, 400 V Rumber of auxiliary contacts as normally open contact Rumber of auxiliary contacts as normally closed contact Release class Relea	Rated operation power at AC-3, 230 V, 3-phase	kW	4
Rated power, 575 V, 60 Hz, 3-phase  Rated operation current le  Rated operation current at AC-3, 400 V  Rated conditional short-circuit current, type 1, 480 Y/277 V  Rated conditional short-circuit current, type 1, 600 Y/347 V  Rated conditional short-circuit current, type 2, 230 V  Rated conditional short-circuit current, type 2, 230 V  Rated conditional short-circuit current, type 2, 400 V  Rated conditional short-circuit current type 2, 230 V  Rated conditional short-circuit current type 2, 400 V  Rated conditional short-circuit current, type 2, 400 V  Rated conditional short-circuit current, ty	Rated operation power at AC-3, 400 V	kW	7.5
Rated operation current Ie         A         15.2           Rated operation current at AC-3, 400 V         A         16           Overload release current setting         A         10 - 16           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 open contact         B         1         1           Number of auxiliary contacts as normally closed contact         B         6         6           Number of auxiliary contacts as normally closed contact         Yes         6           Temperature, upper operating limit         C         Yes           Release class         CLASS 10         CLASS 10           Type of electrical connection of main circuit         Screw connection         Screw connection           Type of electrical connection for auxiliary- and control current circuit         Yes         No           With transformer         No         No           Number of command positions         Yes         No           Suitable for emergency stop         No         No           Cordination class according to IEC 60947-4-3 <td>Rated power, 460 V, 60 Hz, 3-phase</td> <td>kW</td> <td>0</td>	Rated power, 460 V, 60 Hz, 3-phase	kW	0
Rated operation current at AC-3, 400 V         A         16           Overload release current setting         A         10 - 16           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         50000           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 contact         P         1           Number of auxiliary contacts as normally closed contact         P         6           Ambient temperature, upper operating limit         P         Yes           Temperature compensated overload protection         P         Yes           Release class         CLASS 10         Screw connection           Type of electrical connection of main circuit         Screw connection         Yes           With transformer         Yes         No           Number of command positions         No         No           Suitable for emergency stop         No         No           Cordination class according to 1EC 60947-4-3         Image: Condition class according to 1EC 60947-4-3         Image: Class 2	Rated power, 575 V, 60 Hz, 3-phase	kW	0
Overload release current setting Rated conditional short-circuit current, type 1, 480 Y/277 V Rated conditional short-circuit current, type 1, 600 Y/347 V Rated conditional short-circuit current, type 2, 230 V Rated conditional short-circuit current, type 2, 230 V Rated conditional short-circuit current, type 2, 400 V Rated conditional sho	Rated operation current le	Α	15.2
Rated conditional short-circuit current, type 1, 480 Y/277 V Rated conditional short-circuit current, type 2, 230 V Rated conditional short-circuit current, type 2, 230 V Rated conditional short-circuit current, type 2, 400 V Rated conditional short-circuit current, type 2, 400 V Rumber of auxiliary contacts as normally open contact Rumber of auxiliary contacts as normally closed contact Rumber of auxiliary contacts as normally closed contact Release class Release connection of main circuit Release connection for auxiliary- and control current circuit Release connection Release connecti	Rated operation current at AC-3, 400 V	Α	16
Rated conditional short-circuit current, type 1, 600 Y/347 V A 500000 Rated conditional short-circuit current, type 2, 230 V A 500000 Rated conditional short-circuit current, type 2, 400 V A 500000 Number of auxiliary contacts as normally open contact I 1 Number of auxiliary contacts as normally closed contact I 0 Ambient temperature, upper operating limit C C 60 Temperature compensated overload protection I Ves Release class Class C CLASS 10 Type of electrical connection of main circuit C Screw connection I Screw connec	Overload release current setting	Α	10 - 16
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  Ambient temperature, upper operating limit  CC  60  Temperature 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	Rated conditional short-circuit current, type 1, 480 Y/277 V	Α	0
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  CC  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  A  S0000  1  1  1  1  1  1  1  1  1  1  1  1	Rated conditional short-circuit current, type 1, 600 Y/347 V	Α	0
Number of auxiliary contacts as normally open contact  Number of auxiliary contacts as normally closed contact  Ambient temperature, upper operating limit  °C  60  Temperature compensated overload protection  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  I 1  1	Rated conditional short-circuit current, type 2, 230 V	Α	50000
Number of auxiliary contacts as normally closed contact  Ambient temperature, upper operating limit  CC  CB  CB  CB  CB  CB  CB  CB  CB  C	Rated conditional short-circuit current, type 2, 400 V	Α	50000
Ambient temperature, upper operating limit  °C  60  Temperature compensated overload protection  Release class  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  Number of command positions  Suitable for emergency stop  Coordination class according to IEC 60947-4-3  **C  60  Class 2  Class 10  Screw connection  Screw connection  No  Screw connection  No  Class 2	Number of auxiliary contacts as normally open contact		1
Temperature compensated overload protection  Release class CLASS 10  Type of electrical connection of main circuit 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  Yes  Yes  CLASS 10  Screw connection Screw connection  No Screw connection  Yes  No Class 2	Number of auxiliary contacts as normally closed contact		0
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  CLASS 10  Screw connection Screw connection No Screw connection Screw connection No O CLASS 10  CLASS 10  CLASS 10  Screw connection Screw connection No Screw connection No Class 2	Ambient temperature, upper operating limit	°C	60
Type of electrical connection of main circuit  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  Screw connection  Yes  No  Class 2	Temperature compensated overload protection		Yes
Type of electrical connection for auxiliary- and control current circuit  Rail mounting possible  With transformer  With transformer  No  Number of command positions  Suitable for emergency stop  Coordination class according to IEC 60947-4-3  Screw connection  Yes  No  No  Class 2	Release class		CLASS 10
Rail mounting possible  With transformer  No  Number of command positions  Suitable for emergency stop  Coordination class according to IEC 60947-4-3  Yes  No  Class 2	Type of electrical connection of main circuit		Screw connection
With transformer No Number of command positions 0 Suitable for emergency stop No Coordination class according to IEC 60947-4-3 Class 2	Type of electrical connection for auxiliary- and control current circuit		Screw connection
Number of command positions 0 Suitable for emergency stop No Coordination class according to IEC 60947-4-3 Class 2	Rail mounting possible		Yes
Suitable for emergency stop  Coordination class according to IEC 60947-4-3  Class 2	With transformer		No
Coordination class according to IEC 60947-4-3  Class 2	Number of command positions		0
	Suitable for emergency stop		No
Number of indicator lights 0	Coordination class according to IEC 60947-4-3		Class 2
	Number of indicator lights		0

External reset possible		No
With fuse		No
Degree of protection (IP)		IP00
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	45
Height	mm	200
Depth	mm	156

# 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**



MSC-D-...-M17[...32]BBA...

#### **Assets (links)**

**Declaration of CE Conformity** 

00003118

**Instruction Leaflets** 

IL03402010Z2018\_05

### **Additional product information (links)**

H 024020407 / ANNA 2240 22551 Direct on Line standards 22 A	
IL03402010Z (AWA1210-2265) Direct-on-line starter to 32 A	
IL03402010Z (AWA1210-2265) Direct-on-line starter to 32 A	ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03402010Z2018_05.pdf
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