




Reversing starter, 24 V DC, 0,18 - 2,4 A, Push in terminals

Part no. EMS2-RO-T-2,4-24VDC
 Catalog No. 192392
 Alternate Catalog No. EMS2-RO-T-2P4-24VDC
 EL-Nummer (Norway) 4100377

Delivery program

Product range			Electronic motor starter
Basic function			Reversing starters (complete devices)
Description			DOL starting Reversing start Motor protection Circuit design: safety output stage with bypass, three-phase disconnect.
Motor ratings			
Max. rating for three-phase motors, 50 - 60 Hz			
AC-53a			
380 V 400 V 415 V	P	kW	0.06 - 0.75
Setting range of overload releases	I _r	A _x	0,18 - 2,4
			
Actuating voltage			24 V DC
Connection technique			Push in terminals
Connection to SmartWire-DT			no

Technical data

General			
Standards			IEC/EN 60947-4-2 UL508
Ambient temperature			
Storage		°C	
Min. ambient temperature, storage		°C	- 40
Ambient temperature, storage max.		°C	+ 80
Open			
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	+ 70
Weight		kg	0.22
Mounting			Top-hat rail IEC/EN 60715, 35 mm
Protection type (IEC/EN 60529, EN50178, VBG 4)			IP20
Mounting position			Vertical Motor feeder at bottom
Terminal capacity			
Push-in terminals			
		mm ²	0.2 - 2.5
		AWG	24 - 14

Main conducting paths

Rated operational voltage	U _e	V AC	500
Operational voltage range			
Operating voltage range min.		V	42
Operating voltage range max.		V	550
Rated operational current			
AC-51	I _e	A	2.4
AC-53a	I _e	A	2.4

			AC-53a: Please note possible derating.
Setting range of overload releases	I_r	A_x	0,18 - 2,4
Release class		CLASS	10
Heat dissipation	P_V	W	1.1 - 3.3

Control section

Rated control voltage	U_s	V DC	24
Control voltage range		V	19,2 - 30 V DC
Residual ripple on the input voltage		%	≤ 5
Rated control current	I_s	mA	40
Actuating circuit (ON, L, R)			
Rated actuation voltage	U_c	V	24
Switching level "Low"		V	-3 - +9.6 V DC
Switching level "confirm Off"		V	< 5 V DC
Switching level "High"		V	19.2 - 30 V DC
Rated actuating current	I_c	mA	5
Relay outputs			
Contacts			
CO = changeover			1 CO
Rated operational current			
AC-15			
230 V	I_e	A	3
DC-13			
24 V	I_e	A	2

Electromagnetic compatibility (EMC)

Radio interference suppression			EN 55011 EN 61000-6-3, Class A (emitted interference, radiated)
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Technical safety parameters:

Notes			motor protection
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Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	I_n	A	2.4
Heat dissipation per pole, current-dependent	P_{vid}	W	0
Equipment heat dissipation, current-dependent	P_{vid}	W	3.3
Static heat dissipation, non-current-dependent	P_{vs}	W	1
Heat dissipation capacity	P_{diss}	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	70
			If necessary, Allow for derating
IEC/EN 61439 design verification			
10.2 Strength of materials and parts			
10.2.2 Corrosion resistance			
10.2.2.1 Verification of thermal stability of enclosures			Meets the product standard's requirements.
10.2.2.2 Verification of resistance of insulating materials to normal heat			Meets the product standard's requirements.
10.2.2.3 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			
10.4 Clearances and creepage distances			
10.5 Protection against electric shock			
10.6 Incorporation of switching devices and components			
10.7 Internal electrical circuits and connections			
10.8 Connections for external conductors			

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

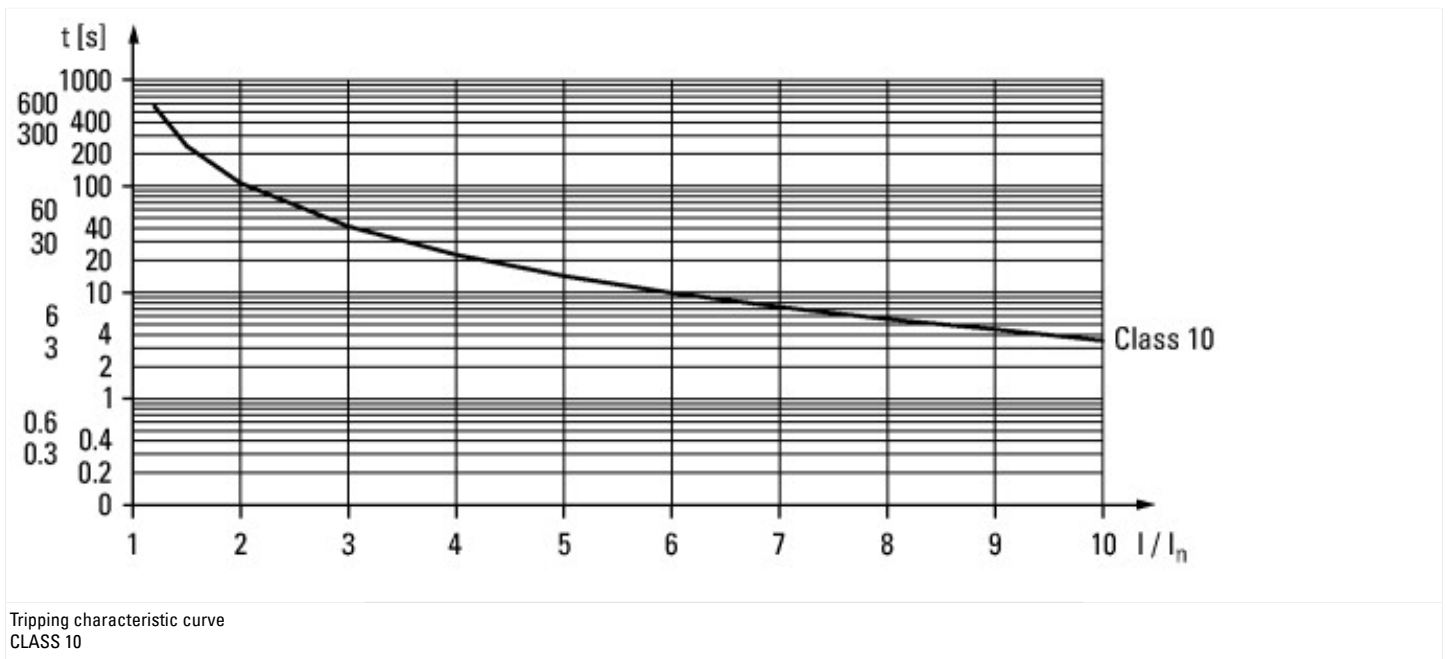
Low-voltage industrial components (EG000017) / Motor starter/Motor starter combination (EC001037)		
Electric engineering, automation, process control engineering / Low-voltage switch technology / Load breakout, motor breakout / Motor starter combination (ecl@ss10.0.1-27-37-09-05 [AJZ718013])		
Kind of motor starter		Reversing starter
With short-circuit release		No
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	0.37
Rated operation power at AC-3, 400 V	kW	0.75
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	2.4
Rated operation current at AC-3, 400 V	A	2.4
Overload release current setting	A	0.18 - 3
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		1
Ambient temperature, upper operating limit	°C	60
Temperature compensated overload protection		Yes
Release class		CLASS 10
Type of electrical connection of main circuit		Spring clamp connection
Type of electrical connection for auxiliary- and control current circuit		Spring clamp connection
Rail mounting possible		Yes
With transformer		No
Number of command positions		
Suitable for emergency stop		No
Coordination class according to IEC 60947-4-3		
Number of indicator lights		4
External reset possible		Yes
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	22.5
Height		mm	110.8
Depth		mm	113.6

Approvals

Product Standards			UL 60947-4-1; CSA C22.2 No. 60947-4-1-14; CE marking
UL File No.			E29096
UL Category Control No.			NLDX, NLDX7
CSA File No.			UL report applies to both US and Canada
North America Certification			UL listed, certified by UL for use in Canada
Specially designed for North America			No

Characteristics



Dimensions

