Powering Business Worldwide

EMS2-RO-Z-9-230VAC - Reversing starter, 230 V AC, 1,5 - 6,5 (AC-53a), 9 (AC-51) A, Screw terminals

197171 EMS2-RO-Z-9-230VAC

Overview Specifications Resources

197171 EMS2-RO-Z-9-230VAC

Reversing starter, 230 V AC, 1,5 - 6,5 (AC-53a), 9 (AC-51) A, Screw terminals

Alternate Catalog No. EMS2-RO-Z-9-230VAC

Reversing starter, Product range: Electronic motor starter, 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= 0.55 - 3 kW, Setting range of overload releases: Ir= 1,5 - 9 A_x, Actuating voltage: 230 V AC, Connection technique: Screw terminals, Connection to SmartWire-DT: no, Mounting position: Vertical, Motor feeder at bottom, Standards: IEC/EN 60947-4-2, UL508

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 HzAC-53a380 V 400 V 415 V [P]
0.55 - 3 kW
Setting range of overload releases [Ir]
1,5 - 6,5 (AC-53a)
1,5 - 9 (AC-51) A_x
Actuating voltage
230 V AC
Connection technique
Screw terminals
Connection to SmartWire-DT
no

Technical data

General
Standards
IEC/EN 60947-4-2
UL508
Ambient temperatureStorageMin. ambient temperature, storage
- 40 °C
Ambient temperatureStorageAmbient temperature, storage max.
+ 80 °C
Ambient temperatureOpenOperating ambient temperature min.
-25 °C
Ambient temperatureOpenOperating ambient temperature max.
+70 °C
Weight
0.22 kg
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 Screw terminalsTerminal capacity main cable
0.2 - 2.5 mm^2
Terminal capacity Screw terminalsTerminal capacity main cable
24 - 14 AWG
Terminal capacity Screw terminalsTerminal capacity control circuit cables
0.14 - 2.5 mm^2
Terminal capacity Screw terminalsTerminal capacity control circuit cables
26 - 14 AWG
Terminal capacity Screw terminalstightening torque
0.5 - 0.6 N/m
Main conducting paths
Rated operational voltage [U_e]
500 V AC
Operational voltage rangeOperating voltage range min.
42 V
Operational voltage rangeOperating voltage range max.
550 V
Rated operational currentAC-51 [I_e]
9 A
Rated operational currentAC-53a [I_e]
6.5 A
Rated operational current
AC-53a: Please note possible derating.
Rated operational currentSetting range of overload releases [I_r]
1,5 - 6,5 (AC-53a)
1,5 - 9 (AC-51) A_x
Release class
10A CLASS
Heat dissipation [P_V]
2.6 - 16.1 W
Control section
Rated control voltage [U_s]
230 V AC
Control voltage range
85 - 253 V AC V
Rated control current [I_s]
4 mA
Actuating circuit (ON, L, R)Rated actuation voltage [U_c]
230 V
Actuating circuit (ON, L, R)Switching level "Low"
0 - 48 V AC V
Actuating circuit (ON, L, R)Switching level "confirm Off"
< 5 V DC V
Actuating circuit (ON, L, R)Switching level "High"
85 - 253 V AC V
Actuating circuit (ON, L, R)Rated actuating current [I_c]
7 mA
Relay outputsContacts CO = changeover

1 CO
Rated operational currentAC-15230 V [I_e]
3 A
Rated operational currentDC-1324 V [I_e]
2 A
Electromagnetic compatibility (EMC)
Radio interference suppression
EN 55011
EN 61000-6-3, Class A (emitted interference, radiated)
Technical safety parameters:
Notes
motor protection

Design verification as per IEC/EN 61439

Technical data for design verification
Rated operational current for specified heat dissipation [I_n]
9 A
Heat dissipation per pole, current-dependent [P_{vid}]
0 W
Equipment heat dissipation, current-dependent [P_{vid}]
16.1 W
Static heat dissipation, non-current-dependent [P_{vs}]
1 W
Heat dissipation capacity [P_{diss}]
0 W
Operating ambient temperature min.
-25 °C
Operating ambient temperature max.
+70 °C
If necessary, Allow for derating
IEC/EN 61439 design verification
10.2 Strength of materials and parts10.2.2 Corrosion resistance
Meets the product standard's requirements.
10.2 Strength of materials and parts10.2.3.1 Verification of thermal stability of enclosures
Meets the product standard's requirements.
10.2 Strength of materials and parts10.2.3.2 Verification of resistance of insulating materials to normal heat
Meets the product standard's requirements.
10.2 Strength of materials and parts10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects
Meets the product standard's requirements.
10.2 Strength of materials and parts10.2.4 Resistance to ultra-violet (UV) radiation
Meets the product standard's requirements.
10.2 Strength of materials and parts10.2.5 Lifting
Does not apply, since the entire switchgear needs to be evaluated.
10.2 Strength of materials and parts10.2.6 Mechanical impact
Does not apply, since the entire switchgear needs to be evaluated.
10.2 Strength of materials and parts10.2.7 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 properties10.9.2 Power-frequency electric strength
Is the panel builder's responsibility.
10.9 Insulation properties10.9.3 Impulse withstand voltage
Is the panel builder's responsibility.
10.9 Insulation properties10.9.4 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 Us at AC 50HZ
230 - 230 V
Rated control supply voltage Us at AC 60HZ
0 - 0 V
Rated control supply voltage Us at DC
0 - 0 V
Voltage type for actuating
AC
Rated operation power at AC-3, 230 V, 3-phase
1.5 kW
Rated operation power at AC-3, 400 V
3 kW
Rated power, 460 V, 60 Hz, 3-phase
0 kW
Rated power, 575 V, 60 Hz, 3-phase
0 kW
Rated operation current Ie
9 A
Rated operation current at AC-3, 400 V
6.5 A
Overload release current setting
1.5 - 9 A
Rated conditional short-circuit current, type 1, 480 Y/277 V
0 A
Rated conditional short-circuit current, type 1, 600 Y/347 V
0 A
Rated conditional short-circuit current, type 2, 230 V
0 A
Rated conditional short-circuit current, type 2, 400 V
0 A
Number of auxiliary contacts as normally open contact
1
Number of auxiliary contacts as normally closed contact
1
Ambient temperature, upper operating limit
40 °C
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
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
22.5 mm
Height
106.8 mm
Depth
113.6 mm

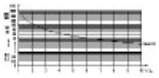
Approvals

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

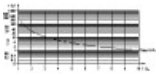
North America Certification
UL listed, certified by UL for use in Canada
Specially designed for North America
No

Characteristics

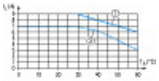
Characteristic curve



Tripping characteristic curve
CLASS 10
set motor current ≤ 4 A
Characteristic curve



Tripping characteristic curve
CLASS 10A
set motor current > 4 A
Characteristic curve



Electricity derating devices with I_e = 9 A
□ For devices installed with a minimum clearance of 20 mm
□ For devices in direct sequence

Dimensions

CAD data

- Product-specific CAD data
  (Web)
- 3D Preview
  (Web)
- DA-CD-ems2_dos_ros_z_24_230v
  CAD data
  DWG files
  (Web)
- DA-CE-ETN.EMS2-RO-Z-9-230VAC
  CAD data
  edz files
  (Web)
- DA-CS-ems2_dos_ros_z_24_230v
  CAD data
  Step files
  (Web)

3D drawing

- □
  2100DRW-493
  3D drawing
  Line drawing

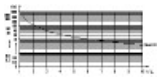
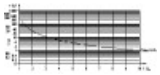
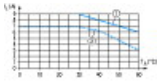
Product photo

- 
  Photo
  Product photo
  Photo

Dimensions single product

- 2100DIM-79
  Dimensions single product
  Line drawing

Characteristic curve

- 
  Characteristic curve
  Characteristic curve
  Coordinate visualization
- 
  Characteristic curve
  Characteristic curve
  Coordinate visualization
- 
  Characteristic curve
  Characteristic curve
  Coordinate visualization
  - For devices installed with a minimum clearance of 20 mm
  - For devices in direct sequence

Instruction Leaflet

- EMS2 Electronic Motorstarter (IL034064ZU)
  Instruction Leaflet
  (PDF, 07/2019, Language independent)

Manual

- MN034003DE
  Manual
  (PDF, German)
- MN034003EN
  Manual
  (PDF, English)

Declaration of Conformity

- DA-DC-00003279
  Declaration of Conformity
  (PDF)

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