

Specifications



Eaton 197167

Eaton Moeller® series EMS2 Reversing starter, 24 V DC, 1,5 - 7 (AC-53a), 9 (AC-51) A, Screw terminals, Controlled stop, PTB 19 ATEX 3000 EMS2-ROS-Z-9-24VDC

General specifications

PRODUCT NAME	Eaton Moeller® series EMS2 Reversing starter
---------------------	---

CATALOG NUMBER	197167
-----------------------	--------

MODEL CODE	EMS2-ROS-Z-9-24VDC
-------------------	--------------------

EAN	4015080896081
------------	---------------

PRODUCT LENGTH/DEPTH	114.5 mm
-----------------------------	----------

PRODUCT HEIGHT	99 mm
-----------------------	-------

PRODUCT WIDTH	22.5 mm
----------------------	---------

PRODUCT WEIGHT	0.287 kg
-----------------------	----------

CERTIFICATIONS	EN ISO 13849 IEC/EN 60947-4-2 IEC 61508 UL508 UL File No.: E338590 UL Category Control No.: NLDX, NLDX7 PTB 19 ATEX 3000 UL 60947-4-1 CSA-C22.2 No. 60947-4-1- 14 CE marking UL listed Certified by UL for use in Canada UL report applies to both US and Canada
-----------------------	--

Features & Functions

FUNCTIONS	Motor protection
	Controlled stop
	Reversing start
	DOL starting
	Temperature
	compensated overload protection

General

CLASS	CLASS 10 A
CONNECTION TO SMARTWIRE-DT	No
DEGREE OF PROTECTION	IP20 NEMA Other
MODEL	Reversing starter
MOUNTING METHOD	Top-hat rail fixing (according to IEC/EN 60715, 35 mm) Rail mounting possible
MOUNTING POSITION	Motor feeder at bottom Vertical
OVERLOAD RELEASE CURRENT SETTING - MIN	1.5 A
OVERLOAD RELEASE CURRENT SETTING - MAX	9 A
PRODUCT CATEGORY	Electronic motor starter
RESIDUAL RIPPLE	≤ 5 % (input voltage)
TERMINAL CAPACITY	0.14 - 2.5 mm ² , Control circuit cables 0.2 - 2.5 mm ² , Main cables, Push-in terminals 0.2 - 2.5 mm ² , Main cables
TERMINAL CAPACITY (AWG)	26 - 14, Control circuit cables 24 - 14, Main cables
TYPE	Reversing starter (complete device)
VOLTAGE TYPE	DC

Climatic environmental conditions

AMBIENT OPERATING TEMPERATURE - MIN	-25 °C
--	--------

AMBIENT OPERATING TEMPERATURE - MAX	70 °C
--	-------

AMBIENT STORAGE TEMPERATURE - MIN	40 °C
--	-------

AMBIENT STORAGE TEMPERATURE - MAX	80 °C
--	-------

Electro magnetic compatibility

RADIO INTERFERENCE CLASS	EN 55011 Class A (EN 61000-6-3, emitted interference, radiated)
---------------------------------	--

Electrical rating

**RATED ACTUATING
CURRENT (IC)** 5 mA

**RATED CONDITIONAL
SHORT-CIRCUIT CURRENT
(IQ), TYPE 2, 380 V, 400 V,
415 V** 0 A

**RATED CONTROL SUPPLY
CURRENT IS** 40 mA

**RATED CONTROL SUPPLY
VOLTAGE** 19.2 - 30 V DC

**RATED CONTROL
VOLTAGE (UC)** 24 V (Actuating circuit ON,
L, R)

**RATED CONTROL SUPPLY
VOLTAGE (US) AT AC, 50
HZ - MIN** 0 V

**RATED CONTROL SUPPLY
VOLTAGE (US) AT AC, 50
HZ - MAX** 0 V

**RATED CONTROL SUPPLY
VOLTAGE (US) AT AC, 60
HZ - MIN** 0 V

**RATED CONTROL SUPPLY
VOLTAGE (US) AT AC, 60
HZ - MAX** 0 V

**RATED CONTROL SUPPLY
VOLTAGE (US) AT DC -
MIN** 24 V

**RATED CONTROL SUPPLY
VOLTAGE (US) AT DC -
MAX** 24 V

**RATED OPERATIONAL
CURRENT (IE)** 9 A

**RATED OPERATIONAL
CURRENT (IE) AT AC-15,
220 V, 230 V, 240 V** 2 A

**RATED OPERATIONAL
CURRENT (IE) AT AC-3,
380 V, 400 V, 415 V** 7 A

**RATED OPERATIONAL
CURRENT (IE) AT AC-51** 9 A

**RATED OPERATIONAL
CURRENT (IE) AT AC-53A -
MAX** 7 A

**RATED OPERATIONAL
CURRENT (IE) AT DC-13,
24 V** 2 A

**RATED OPERATIONAL
POWER AT AC-3, 220/230** 1.5 kW

Contacts

**NUMBER OF AUXILIARY
CONTACTS (NORMALLY
CLOSED CONTACTS)** 1

**NUMBER OF AUXILIARY
CONTACTS (NORMALLY
OPEN CONTACTS)** 1

**NUMBER OF CONTACTS
(CHANGE-OVER
CONTACTS)** 1

V, 50 HZ	
RATED OPERATIONAL POWER AT AC-3, 380/400 V, 50 HZ	3 kW
RATED OPERATIONAL POWER AT AC-53A, 380/400 V, 50 HZ	3 kW
RATED OPERATIONAL VOLTAGE	42 - 550 V 500 V AC
SWITCHING LEVEL	19.2 - 30 V DC, Switching level "High", Actuating circuit (ON, L, R) -3 - 9.6 V DC, Switching level "Low", Actuating circuit (ON, L, R) < 5 V DC, Switching level "confirm Off", Actuating circuit (ON, L, R)

Safety	
EXPLOSION SAFETY CATEGORY FOR DUST	ATEX dust-ex-protection, II (2) G [Ex e] [Ex d] [Ex px] ATEX dust-ex-protection, II (2) D [Ex t] [Ex p]
SAFETY PARAMETER (EN ISO 13849-1)	PL e, Performance level (safe switch off) 3 (safe switch off), Category 60 (safe switch off) / 70 (motor protection) years; MTTFD
SAFETY PARAMETER (IEC 62061)	Adu [FIT]: 2.3 (Safe switch off) / 11 (Motor protection) 99 %, SFF Add [FIT]: 580 (Safe switch off) / 601 (Motor protection) PFHd [FIT]: 2.3 (Safe switch off) Opening delay [ms]: 200 (safe switch off) / Class 10A (motor protection) 99 % (safe switch off) / 98 % (motor protection), DC Asu [FIT]: 1072 (Safe switch off) / 969 (Motor protection) SIL 3 (Safe switch off) / SIL 2 (Motor protection) Asd [FIT]: 0

Design verification	
EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID	12 W
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	0 W
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	9 A
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	2 W
HEAT DISSIPATION DETAILS	If necessary, Allow for derating
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 RESIST. OF INSUL. MAT. TO ABNORMAL HEAT/FIRE	Meets the product standard's requirements.

BY INTERNAL ELECT. EFFECTS	
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.
10.9.2 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.

Resources

APPLICATION NOTES	eaton-motor-starter-ems2-setting-motor-protection-twincat3-ap034001-en-us.pdf
BROCHURES	eaton-ems2-electronic-motorstarter-brochure-br034001en-en-us.pdf
CHARACTERISTIC CURVE	eaton-contactors-ems2-reversing-starter-characteristic-curve-002.eps eaton-contactors-ems2-reversing-starter-characteristic-curve.eps eaton-contactors-ems2-reversing-starter-characteristic-curve-004.eps
DECLARATIONS OF CONFORMITY	DA-DC-00004948.pdf DA-DC-00004126.pdf DA-DC-00004947.pdf
DRAWINGS	eaton-contactors-ems2-reversing-starter-dimensions-002.eps eaton-contactors-ems2-reversing-starter-3d-drawing-002.eps
ECAD MODEL	DA-CE-ETN.EMS2-ROS-Z-9-24VDC
INSTALLATION INSTRUCTIONS	IL034089ZU
INSTALLATION VIDEOS	Eaton's electronic motor starter EMS2
MANUALS AND USER GUIDES	eaton-electronic-motor-starter-ems2-manual-mn034003en-us.pdf
MCAD MODEL	DA-CD-ems2 dos ros z 24 230v DA-CS-ems2 dos ros z 24 230v
SALES NOTES	eaton-ems2-electronic-motorstarter-flyer-fl034007en-en-us.pdf

PROJECT NAME:
PROJECT NUMBER:
PREPARED BY:
DATE:



Eaton Corporation plc
Eaton House
30 Pembroke Road
Dublin 4, Ireland
Eaton.com

© 2025 Eaton. All Rights Reserved.

Follow us on social media to get the latest product and support information.

