Specifications





Eaton 197220

Eaton Moeller® series EASY I/O expansion, For use with easyE4, 24 V DC, Inputs expansion (number) digital: 8, screw terminal

General specifications

PRODUCT NAME	Eaton Moeller® series EASY I/O expansion
CATALOG NUMBER	197220
MODEL CODE	EASY-E4-DC-16TE1
EAN	4015080892816
PRODUCT LENGTH/DEPTH	58 mm
PRODUCT HEIGHT	90 mm
PRODUCT WIDTH	72 mm
PRODUCT WEIGHT	0.2 kg
CERTIFICATIONS	UL File No.: E205091 CE UL hazardous location class I UL hazardous location division 2 UL hazardous location group B (hydrogen) UL hazardous location group A (acetylene) UL hazardous location group D (propane) UL hazardous location group C (ethylene) cULus Ordinary Location DNV TAA00002HT cULus Hazard Location UL File No.: E523283 EN 61131-2 IEC 61131-2 EN IEC 61000-6-3 IEC 61000-6-3 EN IEC 61010-2-201 IEC 61010-2-201 UL 61010-1 UL 61010-2-201 CSA C22.2 No. 61010-1 CSA C22.2 No. 61010-2-201

Powering Business Worldwide

	UL 121201 CSA C22.2 No. 213

Ambient conditions, mechanical

DROP AND TOPPLE	50 mm Drop height, Drop to IEC/EN 60068-2-31
HEIGHT OF FALL (IEC/EN 60068-2-32) - MAX	0.3 m
MOUNTING POSITION	Horizontal Vertical
SHOCK RESISTANCE	15 g, Mechanical, acc. to IEC/EN61131-2, Half-sinusoidal shock 11 ms, 18 Impacts
VIBRATION RESISTANCE	8.4 - 150 Hz, 1 g constant acceleration 5 - 8.4 Hz, 3.5 mm constant amplitude According to IEC/EN 61131-2

Cable

CABLE LENGTH	Digital inputs: ≤ 100 m (unshielded) Digital outputs: ≤ 100 m (unshielded)

Climatic environmental conditions

AIR PRESSURE	795 - 1080 hPa (operation)
AMBIENT OPERATING TEMPERATURE - MAX	55 °C
AMBIENT STORAGE TEMPERATURE - MAX	70 °C
AMBIENT OPERATING TEMPERATURE - MIN	-25 °C
AMBIENT STORAGE TEMPERATURE - MIN	-40 °C
ENVIRONMENTAL CONDITIONS	Clearance in air and creepage distances according to EN 50178, EN 61010-2-201, UL61010-2-201, CSA-C22.2 NO. 61010-2-201 Condensation: prevent with appropriate measures
RELATIVE HUMIDITY	5 - 95 % (IEC 60068-2-30, IEC 60068-2-78)

Communication

CONNECTION TYPE	Screw terminal
LED INDICATOR	Status indication of Power/RUN

Design verification

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.
10.12 ELECTROMAGNETIC COMPATIBILITY	Is the panel builder's responsibility.
10.13 MECHANICAL FUNCTION	The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.
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 BY INTERNAL ELECT. 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	Meets the product standard's requirements.
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.

Electrical rating

POWER CONSUMPTION	1 W
RATED OPERATIONAL CURRENT (IE)	Max. 0.5 A at signal „1" DC per channel
RATED OPERATIONAL VOLTAGE	Power supply: 24 V DC (-15 %/+ 20 %) Inputs: shall be identical to the power supply voltage
SUPPLY CURRENT	18/32 mA, Normally/max., On 0 signal, Transistor outputs 24/44 mA, Normally/max., On 1 signal, Transistor outputs
SUPPLY VOLTAGE AT DC - MAX	28.8 VDC
SUPPLY VOLTAGE AT DC - MIN	20.4 VDC

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.
EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID	4 W
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	0 W
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	1 W

Electro magnetic compatibility

AIR DISCHARGE	8 kV
BURST IMPULSE	2 kV, I/O port 2 kV, Power supply port According to IEC/EN 61131-2
CONTACT DISCHARGE	6 kV
ELECTROMAGNETIC FIELDS	10 V/m at 0.08 - 1.0 GHz (according to IEC/EN 61131-2) 3 V/m at 1.0 - 6 GHz (according to IEC/EN 61131-2)
IMMUNITY TO LINE-CONDUCTED INTERFERENCE	10 V (according to IEC/EN 61131-2)
RADIO INTERFERENCE CLASS	Class B (EN 61000-6-3)
SURGE RATING	0.5 kV, Line-to-Line, Power supply port 1 kV, Line-to-Earth, Power supply port 1 kV, Line-to-Earth, I/O port According to IEC/EN 61131-2
VOLTAGE DIPS	10 ms

Features & functions

FEATURES	Expansion device Expandable
FITTED WITH:	Transistor output
INDICATION	Software used as status indication of digital I/Os

General information

DEGREE OF PROTECTION	IP20
DUTY FACTOR	100 %
INSULATION RESISTANCE	According to EN IEC 61010-2-201, UL61010-2-201, CSA-C22.2 NO. 61010-2-219
MOUNTING METHOD	Top-hat rail fixing (according to IEC/EN 60715, 35 mm) Rail mounting possible Screw fixing using fixing brackets ZB4-101-GF1 (accessories) Front build in possible Wall mounting/direct mounting
OVERVOLTAGE CATEGORY	Power supply + Inputs + Outputs + Right extension interface: II Left extension interface: III
POLLUTION DEGREE	2
PRODUCT CATEGORY	Control relays easyE4
RESIDUAL CURRENT	0.1 mA (on signal "1" per channel)
RESIDUAL RIPPLE	Power supply: ≤ 5 %
SOFTWARE	EASYSOFT-SWLIC/easySoft
SWITCHING FREQUENCY	Dependent on the cycle- and transmission-time of the expansion devices Depending on the suppressor circuit (Inductive load to EN 60947-5-1, With external suppressor circuit, Max. switching frequency, max. duty factor) Dependent on the cycle time of the basic device
TYPE	easyE4 extension
USED WITH	easyE4
VOLTAGE TYPE	DC

Input/Output

DELAY TIME	Digital inputs (24 V DC): 0.1 ms typ., from 0 to 1 Digital inputs (24 V DC): 0.2 ms typ., from 1 to 0
INPUT CURRENT	3.3 mA (I1 - I8, at 24 V DC,at signal 1)
INPUT VOLTAGE	Condition 0: ≤ 5 V DC (Digital inputs, 24 V DC) Condition 1: ≥ 15 V DC (Digital inputs, 24 V DC)
NUMBER OF INPUTS (ANALOG)	0
NUMBER OF INPUTS (DIGITAL)	8
NUMBER OF OUTPUTS (ANALOG)	0
NUMBER OF OUTPUTS (DIGITAL)	8
OUTPUT	8 Transistor Outputs max. 4 A total current Parallel connection of group 1 (Q1 to Q4) and group 2 (Q5 to Q8)
OUTPUT VOLTAGE	$U = U_e$ - 1 V (signal 1 at I_e = 0.5 A, transistor outputs) Max. 1.0 V (at status 0 per channel, transistor outputs)
UTILIZATION FACTOR	1 / group, with ext. suppressor circuit 0.25 / group, w/o ext. suppressor circuit, T0.95 = 15ms/R = 48Ω/L = 0.24H 0.25 / group, w/o ext. suppressor circuit, DC-13/T0.95 = 72ms/R = 48Ω/L = 1.15 H Inductive load to EN 60947-5-1

Safety

EXPLOSION SAFETY CATEGORY FOR DUST	None
EXPLOSION SAFETY CATEGORY FOR GAS	None
POTENTIAL ISOLATION	POW+Inputs+Outputs+right Extension interface vs. left Extension interface: yes
PROTECTION AGAINST POLARITY REVERSAL	For transistor outputs (Caution: A short circuit will result if 0 V/earth is applied to the outputs in the event that the supply voltage is connected to the wrong poles) Yes, for supply voltage

Short-circuit rating

SHORT-CIRCUIT CURRENT	13.6 A, Transistor outputs
SHORT-CIRCUIT PROTECTION	Yes, electronic (Q1 - Q4, Q5 - Q8), Transistor outputs ≥ 5A (T), Fuse, Power supply
SHORT-CIRCUIT TRIPPING CURRENT	0.7 ≤ Ie ≤ 1.7 per output, For Ra ≤ 10 mΩ, Depending on number of active channels and their load, Transistor outputs

Terminal capacities

SCREWDRIVER SIZE	3.5 x 0.6 mm, Terminal screw
TERMINAL CAPACITY	0.2 - 4 mm² (AWG 22 - 12), solid 0.2 - 2.5 mm², flexible with ferrule 0.2 - 2.5 mm², flexible without ferrule
TIGHTENING TORQUE	0.6 Nm, Screw terminals

Resources

APPLICATION NOTES	eaton-easye4-aws-ap050027-en-us.pdf
CATALOGUES	eaton-product-overview-for-machinery-catalogue-ca08103003zen-en-us.pdf
DECLARATIONS OF CONFORMITY	eaton-i-o-expansion-declaration-of-conformity-eu251486en.pdf eaton-i-o-expansion-declaration-of-conformity-uk251130en.pdf
DRAWINGS	eaton-modular-plc-easy-i-o-expansion-dimensions-003.eps eaton-modular-plc-easy-i-o-expansion-3d-drawing.eps
ECAD MODEL	DA-CE-ETN.EASY-E4-DC-16TE1
INSTALLATION INSTRUCTIONS	eaton-easye4-i-o-expansions-control-relays-il050021zu.pdf
INSTALLATION VIDEOS	Control relay easyE4: The new generation Video easy E4 control relay
MCAD MODEL	eaton-logic-modules-mcad-drawings-dc-16te1.dwg DA-CS-dc_16te1

MULTIMEDIA	How to process SmartWire-DT modules using the EASY-COM-SWD-C1 module connected to an easyE4? How to connect the Remote Touch Display EASY-RTD to the easyE4? How to connect the easyE4 to the touch panel XV-102 for easy? - 5 Steps easyE4 SmartWire-DT module with Remote Touch Display and RMQ multi color indicator How to process ModbusRTU devices with the EASY-COM-RTU-M1 module on an easyE4? Handling of the data logger as a ring buffer with the easyE4 using the ST programming language.
PRODUCT NOTIFICATIONS	MZ049014EN
SALES NOTES	eaton-control-relay-easye4-flyer-fl050007en-en-us.pdf eaton-easy-remote-touch-display-flyer-fl048004en-en-us.pdf TT-197220_EASY-E4-DC-16TE1-de_DE

PROJECT NAME:	
PROJECT NUMBER:	
PREPARED BY:	
DATE:	

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