Specifications





Eaton 197211

Eaton Moeller® series EASY Control relays easyE4 with display (expandable, Ethernet), 12/24 V DC, 24 V AC, Inputs Digital: 8, of which can be used as analog: 4, screw terminal

General specifications	
PRODUCT NAME	Eaton Moeller® series EASY Control relay
CATALOG NUMBER	197211
MODEL CODE	EASY-E4-UC-12RC1
EAN	4015081939480
PRODUCT LENGTH/DEPTH	58 mm
PRODUCT HEIGHT	90 mm
PRODUCT WIDTH	72 mm
PRODUCT WEIGHT	0.25 kg
COMPLIANCES	Eaton supports the product until its end of life
CERTIFICATIONS	UL File No.: E205091 CE UL hazardous location group B (hydrogen) UL hazardous location group C (ethylene) UL hazardous location division 2 UL hazardous location group A (acetylene) UL hazardous location class I UL hazardous location group D (propane) 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

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	UL 61010-2-201 CSA C22.2 No. 61010-1 CSA C22.2 No. 61010-2-201 UL 121201 CSA C22.2 No. 213
CATALOG NOTES	Accuracy of the real-time clock depending on ambient air temperature - fluctuations of up to ± 5 s/day (± 0.5 h/year) are possible

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	Vertical Horizontal
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 (DC): ≤ 100 m (unshielded) Digital inputs (AC): ≤ 40 m (unshielded) Analog inputs: ≤ 30 m (shielded)
CABLE TYPE	Ethernet: CAT5

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 Ethernet: RJ45 plug, 8-pole
DATA TRANSFER RATE	10/100 MBit/s

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	3 W
POWER LOSS	10 VA
RATED BREAKING CAPACITY	300000 Operations at AC-15, 250 V AC, 3 A (600 Ops./h) 200000 Operations at DC-13, L/R □ 150 ms, 24 V DC, 1 A (500 Ops./h)
RATED OPERATIONAL VOLTAGE	Power supply: 24 V DC (-15 %/+ 20 %) Power supply: 24 V AC (-15 %/+ 10 %) Power supply: 12 V DC (-15 %/+ 20 %) Relay outputs: max. 300 V AC/DC Inputs: shall be identical to the power supply voltage
SUPPLY FREQUENCY	50/60 Hz (± 5%)
SUPPLY VOLTAGE AT AC, 50 HZ - MAX	26.4 VAC
SUPPLY VOLTAGE AT AC, 50 HZ - MIN	20.4 VAC
SUPPLY VOLTAGE AT DC - MAX	28.8 VDC
SUPPLY VOLTAGE AT DC - MIN	10.2 VDC
UNINTERRUPTED CURRENT	1 A DC, at R 300 (UL/CSA) 8 A DC, at 24 V DC (UL/CSA) 5 A AC, max. thermal continuous current cos ϕ = 1 at B 300 (UL/CSA) 10 A AC, at 240 V AC (UL/CSA)

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	1 W
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	0 W
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	3 W

Electro magnetic compatibility

AIR DISCHARGE	8 kV
BURST IMPULSE	2 kV, I/O port 2 kV, Power supply port 1 kV, communication 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	1 kV, Line-to-Line, Power supply port 2 kV, Line-to-Earth, Power supply port 1 kV, Line-to-Line, Input port 2 kV, Line-to-Earth, Input port 1 kV, Line-to-Earth, communication port According to IEC/EN 61131-2
VOLTAGE DIPS	1 ms 12 V DC 10 ms at 24 V DC 20 ms at 24 V AC

Features & functions

FEATURES	Expandable Display indication of 6 lines x 16 characters Networkable (Ethernet)
FITTED WITH:	Display Real time clock Relay output Keypad Timer
INDICATION	LCD-display used as status indication of digital I/Os

General information

DEGREE OF PROTECTION	IP20
DISPLAY TEMPERATURE - MAX	55 °C
DISPLAY TEMPERATURE - MIN	0 °C
DISPLAY TYPE	Monochrome
DUTY FACTOR	100 %
FREQUENCY COUNTER	Cable length: ≤ 20 m (shielded) Counter frequency: ≤ 5 kHz Number: 4 (I1, I2, I3, I4) Pulse pause ratio: 1:1 Pulse shape: Square
INPUT FREQUENCY	50/60 Hz (Digital inputs at AC)
INSULATION RESISTANCE	According to EN IEC 61010-2-201, UL61010-2-201, CSA-C22.2 NO. 61010-2-211
LIFESPAN, ELECTRICAL	25,000 Operations (Filament bulb load at 1000 W, 230/240 V AC) 25,000 Operations (Fluorescent lamp load 10 x 58 W at 230/240 V AC, uncompensated) 25,000 Operations (Fluorescent lamp load 10 x 58 W at 230/240 V AC, with upstream electrical device) 25,000 Operations (Filament bulb load at 500 W, 115/120 V AC) 25,000 Operations (Fluorescent lamp load 1 x 58 W at 230/240 V AC, conventional, compensated)
LIFESPAN, MECHANICAL	10,000,000 Operations
MOUNTING METHOD	Screw fixing using fixing brackets ZB4-101-GF1 (accessories) Front build in possible Rail mounting possible Top-hat rail fixing (according to IEC/EN 60715, 35 mm) Wall mounting/direct mounting
OVERVOLTAGE CATEGORY	Power supply + Inputs + Extension: II

Input/Output

ACCURACY	± 2 s/day, Real-time clock to inputs (± 0.2 h/Year) ± 2 %, (I5, I6, I7, I8) ± 0.12 V, of actual value, within a single device (Analog Inputs) ± 1 %, Repetition accuracy of timing relays (of values) ± 3 %, of actual value, two easy devices (Analog Inputs)
CONVERSIONS	Each CPU cycle for Analog inputs
DELAY TIME	0.015 ms typ., Digital inputs 12 V DC (I1 - I8), Delay time from 1 to 0, Debounce OFF 0.015 ms typ., Digital inputs 24 V DC (I1 - I8), Delay time from 1 to 0, Debounce OFF 0.015 ms typ., Digital inputs 24 V DC (I1 - I8), Delay time from 0 to 1, Debounce OFF 20 ms typ., Digital inputs 12 V DC (I1 - I8), Delay time from 1 to 0, Debounce ON 20 ms typ., Digital inputs 12 V DC (I1 - I8), Delay time from 0 to 1, Debounce ON 20 ms typ., Digital inputs 24 V DC (I1 - I8), Delay time from 0 to 1, Debounce ON 20 ms typ., Digital inputs 24 V DC (I1 - I8), Delay time from 1 to 0, Debounce ON 0.015 ms typ., Digital inputs 12 V DC (I1 - I8), Delay time from 0 to 1, Debounce OFF
INCREMENTAL COUNTER	Number of counter inputs: 2 (I1 + I2, I3 + I4) Value range: -2147483648 to +2147483647 Pulse shape: Square Pulse pause ratio: 1:1 Signal offset: 90° Counter frequency: ≤ 5 kHz Cable length: ≤ 20 m (shielded)
INPUT	Voltage (DC)
INPUT CURRENT	1.8 mA (I5 - I8, at 24 V DC,at signal 1)

	Relay outputs: III
POLLUTION DEGREE	2
PRODUCT CATEGORY	Control relays easyE4
PROTECTION	B16 circuit breaker or 8 A (T) fuse, Protection of an Output relay
PROTOCOL	Modbus TCP
RATED IMPULSE WITHSTAND VOLTAGE (UIMP)	Relay outputs: 6 kV (contact-coil)
RESIDUAL RIPPLE	Power supply: ≤ 5 %
RESOLUTION	12 Bit (value 0 - 4095, Analog inputs)
SOFTWARE	EASYSOFT-SWLIC/easySoft
SWITCHING FREQUENCY	10 Hz, Relay outputs 2 Hz, Resistive load/lamp load, Relay outputs 0.5 Hz, Inductive load, Relay outputs
TYPE	easyE4 base device
USED WITH	easyE4
UTILIZATION CATEGORY	B 300 Light Pilot Duty, UL/CSA Control Circuit Rating Codes AC R 300 Light Pilot Duty, UL/CSA Control Circuit Rating Codes DC
VOLTAGE TYPE	AC/DC

	3.3 mA (I1 - I4, at 24 V DC,at signal 1) 3.5 mA (I1 - I4, at 24 V AC,at signal 1) 1.8 mA (I5 - I8, at 24 V AC,at signal 1) 0.9 mA (I5 - I8, at 12 V DC,at signal 1) 1.75 mA (I1 - I4, at 12 V DC,at signal 1) < 1 mA (Analog inputs)
INPUT IMPEDANCE	Analog: 13.3 kΩ
INPUT VOLTAGE	Condition 0: ≤ 5 V DC (Digital inputs, 12 V DC) Condition 0: ≤ 5 V DC (Digital inputs, 24 V DC) Condition 1: ≥ 15 V DC (Digital inputs, 24 V DC) Condition 1: ≥ 8 V DC (Digital inputs, 12 V DC) Condition 0: ≤ 5 V AC (Digital inputs, 24 V AC) Condition 1: ≥ 15 V AC (Digital inputs, 24 V AC)
MAKING/BREAKING CAPACITY	28/28 VA (DC, at R 300) 3600/360 VA (AC, at B 300)
NUMBER OF INPUTS (ANALOG)	0 4
NUMBER OF INPUTS (DIGITAL)	4 8
NUMBER OF OUTPUTS (ANALOG)	0
NUMBER OF OUTPUTS (DIGITAL)	4
OUTPUT	4 Relay Outputs min. recommended load: 12 V AC/DC > 500 mA
PARALLEL SWITCHING	Not permitted
RAPID COUNTER INPUTS	Counter frequency: ≤ 10 kHz Value range: -2147483648 to +2147483647 Cable length: ≤ 20 m (shielded) Pulse pause ratio: 1:1 Pulse shape: Square Number of rapid counter inputs: 4 (I1, I2, I3, I4)
SIGNAL RANGE	0 - 10 V DC, Analog inputs

Safety

EXPLOSION SAFETY CATEGORY FOR DUST	None
EXPLOSION SAFETY CATEGORY FOR GAS	None
POTENTIAL ISOLATION	Power supply + Inputs + Extension interface against Outputs: yes POW+Inputs+Extension interface vs. Ethernet+Functional Earth: yes Outputs against Ethernet + Functional Earth: yes Outputs against each other: yes
PROTECTION AGAINST POLARITY REVERSAL	Yes
SAFE ISOLATION	Relay outputs: 300 V AC, Between two contacts Relay outputs: 300 V AC, Between coil and contact

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

Short-circuit rating

SHORT-CIRCUIT PROTECTION	≥ 1A (T), Fuse, Power supply

Resources

APPLICATION NOTES	eaton-easye4-aws-ap050027-en-us.pdf
CATALOGUES	eaton-product-overview-for-machinery-catalogue-ca08103003zen-en-us.pdf
CHARACTERISTIC CURVE	eaton-electrical-timers-easy-control-relays-characteristic-curve-002.eps
DECLARATIONS OF CONFORMITY	eaton-control-relay-declaration-of-conformity-eu250648en.pdf eaton-control-relay-declaration-of-conformity-uk251131en.pdf
DRAWINGS	eaton-modular-plc-starter-kit-dimensions.eps

	eaton-modular-plc-easy-control-relays-3d-drawing.eps
ECAD MODEL	ETN.EASY-E4-UC-12RC1
INSTALLATION INSTRUCTIONS	eaton-easye4-base-programmable-control-relays-il050020zu.pdf
INSTALLATION VIDEOS	Video easy E4 control relay Control relay easyE4: The new generation
MANUALS AND USER GUIDES	eaton-easye-rtd-advanced-training-gh138-mn050015en-us.pdf eaton-easye-easysoft-training-gh135-mn050014en-us.pdf
MCAD MODEL	eaton-logic-modules-mcad-drawings-uc-12rc1.dwg DA-CS-uc_12rc1
MULTIMEDIA	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. easyE4 SmartWire-DT module with Remote Touch Display and RMQ multi color indicator 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 How to process SmartWire-DT modules using the EASY-COM-SWD-C1 module connected to an easyE4?
PRODUCT NOTIFICATIONS	MZ049014EN
SALES NOTES	eaton-easy-remote-touch-display-flyer-fl048004en-en-us.pdf eaton-control-relay-easye4-flyer-fl050007en-en-us.pdf
SOFTWARE, FIRMWARE, AND APPLICATIONS	easyE4_Anwendungsbeispiele_e70_KOP_EDP

PROJECT NAME:	
PROJECT NUMBER:	
PREPARED BY:	
DATE:	

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