Specifications

Eaton 197212

Eaton Moeller® series EASY Control relays, easyE4 (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	197212
EAN	4015081939473
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	EN 61010 IEC 60068-2-30 CULus per UL 61010 IEC/EN 61000-4-2 IEC 60068-2-6 IEC/EN 61000-6-2 IEC/EN 61000-6-3 CSA-C22.2 No. 61010 IEC 60068-2-27 IEC/EN 61131-2 EN 50178 UL Listed UL Category Control No.: NRAQ, NRAQ7 UL File No.: E205091 DNV GL CE UL hazardous location class I UL hazardous location division 2 UL hazardous location group A (acetylene) UL hazardous location group B (hydrogen) UL hazardous location

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	group C (ethylene) UL hazardous location group D (propane) UL hazardous location class I UL hazardous location division 2 UL hazardous location group A (acetylene) UL hazardous location group B (hydrogen) UL hazardous location group C (ethylene) UL hazardous location group D (propane)
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
MODEL CODE	EASY-E4-UC-12RCX1

Features & Functions

FEATURES	Expandable Networkable (Ethernet)
FITTED WITH:	Timer Relay output Real time clock
INDICATION	LCD-display used as status indication of Digital inputs 12 V DC LCD-display used as status indication of Digital inputs 24 V DC

General

DEGREE OF PROTECTION	IP20
FREQUENCY COUNTER	Pulse shape: Square (digital inputs 24 V DC) Cable length: ≤ 20 m (screened, Digital inputs 24 V DC) Number: 4 (I1, I2, I3, I4 - Digital inputs 24 V DC) Pulse pause ratio: 1:1 (Digital inputs 24 V DC) Counter frequency: 5 kHz (Digital inputs 24 V DC)
INPUT FREQUENCY	50/60 Hz (Digital inputs, at 24 V DC)
INSULATION RESISTANCE	According to EN 50178, EN 61010-2-201, UL61010-2-201, CSA-C22.2 NO. 61010-2-201
LIFESPAN, ELECTRICAL	25,000 Operations (Filament bulb load at 500 W, 115/120 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 (Fluorescent lamp load 1 x 58 W at 230/240 V AC, conventional, compensated) 25,000 Operations (Filament bulb load at 1000 W, 230/240 V AC)
LIFESPAN, MECHANICAL	10,000,000 Operations
MOUNTING METHOD	Front build in possible Top-hat rail fixing (according to IEC/EN 60715, 35 mm) Wall mounting/direct mounting Rail mounting possible Screw fixing using fixing brackets ZB4-101-GF1 (accessories)
OVERVOLTAGE CATEGORY	III
POLLUTION DEGREE	2
PRODUCT CATEGORY	Control relays easyE4
PROTECTION	Miniature circuit-breaker B16 or slow-blow 8 A fuse, Protection of an output relay
PROTOCOL	MODBUS TCP/IP
RATED IMPULSE WITHSTAND VOLTAGE (UIMP)	6 kV (contact-coil)
RESIDUAL RIPPLE	≤ 5 %
RESOLUTION	• 1 min (Range H:M) • 1 s (Range M:S) • 12 Bit (value 0 - 4095, Analog inputs) • 5 ms (Range S)
SOFTWARE	EASYSOFT-SWLIC/easySoft
SWITCHING FREQUENCY	0.5 Hz, Inductive load, Relay outputs 2 Hz, Resistive load/lamp load, Relay outputs 10 Hz, 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

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, according to IEC/EN 60068-2-27, Half-sinusoidal shock 11 ms, 18 Impacts
VIBRATION RESISTANCE	57 - 150 Hz, 2 g constant acceleration According to IEC/EN 60068-2-6 10 - 57 Hz, 0.15 mm constant amplitude

Climatic environmental conditions

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

Electro magnetic compatibility

AIR DISCHARGE	8 kV
BURST IMPULSE	2 kV, Signal cable 2 kV, Supply cable According to IEC/EN 61000-4-4
CONTACT DISCHARGE	6 kV
ELECTROMAGNETIC FIELDS	10 V/m at 0.8 - 1.0 GHz (according to IEC EN 61000-4-3) 1 V/m at 2.0 - 2.7 GHz (according to IEC EN 61000-4-3) 3 V/m at 1.4 - 2 GHz (according to IEC EN 61000-4-3)
IMMUNITY TO LINE-CONDUCTED INTERFERENCE	10 V (according to IEC/EN 61000-4-6)
RADIO INTERFERENCE CLASS	Class B (EN 61000-6-3)
SURGE RATING	2 kV, Supply cables, asymmetrical, power pulses (Surge), EMC According to IEC/EN 61000-4-5, power pulses (Surge), EMC 1 kV, Supply cables, symmetrical, power pulses (Surge), EMC
VOLTAGE DIPS	≤ 1 ms from rated voltage (12 V DC) 10 ms

Terminal capacities

TERMINAL CAPACITY	0.2 - 2.5 mm^2 (22 - 12 AWG), flexible with ferrule 0.2 - 4 mm^2 (AWG 22 - 12), solid
SCREWDRIVER SIZE	3.5 x 0.8 mm, Terminal screw
TIGHTENING TORQUE	0.6 Nm, Screw terminals

Electrical rating

CONVENTIONAL THERMAL CURRENT ITH OF AUXILIARY CONTACTS (1-POLE, OPEN)	8 A
POWER CONSUMPTION	3 W
RATED BREAKING CAPACITY	200000 Operations at DC-13, 24 V DC, 1 A (500 Ops./h) 300000 Operations at AC-15, 250 V AC, 3 A (600 Ops./h)
RATED INSULATION VOLTAGE (UI)	240 V
RATED OPERATIONAL VOLTAGE	10.2 - 28.8 V DC 12 V DC (digital inputs) 12/24 V DC (-15 %/+ 20 % - power supply) 24 V AC (digital inputs) 24 V DC (digital inputs) 20.4 - 26.4 V AC Max. 300 V AC 24 V AC (-15 %/+10 % - power supply) 240 V AC Max. 300 V DC
SUPPLY FREQUENCY	50/60 Hz (± 5%)
SUPPLY VOLTAGE AT AC, 50 HZ - MIN	20.4 VAC
SUPPLY VOLTAGE AT AC, 50 HZ - MAX	26.4 VAC
SUPPLY VOLTAGE AT DC - MIN	10.2 VDC
SUPPLY VOLTAGE AT DC - MAX	28.8 VDC
UNINTERRUPTED CURRENT	1 A DC, at R 300 (UL/CSA) 5 A AC, max. thermal continuous current cos ϕ = 1 at B 300 (UL/CSA) 8 A DC, at 24 V DC (UL/CSA) 10 A AC, at 240 V AC (UL/CSA)

Short-circuit rating

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

Communication

CONNECTION TYPE	Screw terminal Ethernet: RJ45 plug, 8-pole
DATA TRANSFER RATE	10/100 MBit/s
LED INDICATOR	Status indication of Power/RUN Status indication of Ethernet: LED

Cable

CABLE LENGTH	100 m, unscreened, Digital inputs 12 V DC 100 m, unscreened, Digital inputs 24 V AC ≤ 30 m, screened, Analog inputs 100 m, unscreened, Digital inputs 24 V DC 40 m (max. per input), Digital inputs 24 V DC
CABLE TYPE	CAT5

Input/Output

ACCURACY	± 2 s/day, Real-time clock to inputs (± 0.2 h/Year) ± 2 %, (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, Analog inputs
DELAY TIME	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 1 to 0, Debounce ON 0.015 ms typ., Digital inputs 12 V DC (I1 - I8), Delay time from 0 to 1, 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 0.015 ms typ., Digital inputs 12 V DC (I1 - I8), Delay time from 1 to 0, 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 24 V DC (I1 - I8), Delay time from 0 to 1, Debounce ON
INCREMENTAL COUNTER	Number of counter inputs: 2 (I1 + I2, I3 + I4) Signal offset: 90° Pulse pause ratio: 1:1 Value range: -2147483648 to +2147483647 Pulse shape: Square Counter frequency: ≤ 5 kHz
INCREMENTAL ENCODER	Cable length: ≤ 20 m (screened)
INPUT	Voltage (DC)

Safety

EXPLOSION SAFETY CATEGORY FOR GAS	None
POTENTIAL ISOLATION	Between Digital inputs 24 V AC and Outputs: yes Between Relay outputs and expansion devices: yes Between Digital inputs 12 V DC and expansion devices: yes Between Relay outputs: yes Between Analog inputs and Outputs: yes Basic isolation: 600 V AC (Relay outputs) Between Analog inputs and expansion devices: yes Between Digital inputs 24 V AC and expansion devices: yes Between Relay outputs and Power supply: yes Between Digital inputs 24 V DC and Outputs: yes Between Analog inputs and Ethernet: yes Safe isolation according to EN 50178: 300 V AC (Relay outputs) Between Digital inputs 24 V AC and Ethernet: yes Between Digital inputs 24 V DC and expansion devices: yes Between Relay outputs and Inputs: yes Between Digital inputs 12 V DC and Ethernet: yes Between Digital inputs 12 V DC and Outputs: yes Between Digital inputs 24 V DC and Ethernet: yes
PROTECTION AGAINST POLARITY REVERSAL	Yes, for supply voltage (Siemens MPI optional)
EXPLOSION SAFETY CATEGORY FOR DUST	None
SAFE ISOLATION	300 V AC, Between coil and contact, According to EN 50178 300 V AC, Between two contacts, According to EN

INPUT CURRENT	2.2 mA (I5 - I8, at 24 V DC, at signal 1) 3.3 mA (I1 - I4, at 24 V DC, at signal 1) 1 mA (Analog inputs) 200 mA
INPUT IMPEDANCE	13.3 kΩ
INPUT VOLTAGE	Status 1: ≥ 15 V DC (I1 - I4, Digital inputs, 24 V DC) Status 0: ≤ 8 V DC (I5 - I8, Digital inputs, 24 V DC) At signal 0: ≤ 5 V (I1 - I8, sinusoidal, Digital inputs, 24 V DC) At signal 1: ≥ 15 V (I1 - I8, sinusoidal, Digital inputs, 24 V DC) Status 1: ≥ 8 V DC (I5 - I8, Digital inputs, 24 V DC) Signal 0: ≤ 5 V DC (I1 - I4, Digital inputs, 12 V DC) Status 0: ≤ 15 V DC (I1 - I4, Digital inputs, 24 V DC)
MAKING/BREAKING CAPACITY	3600/360 VA (AC, at B 300) 28/28 VA (DC, at R 300)
NUMBER OF INPUTS (ANALOG)	0 4
NUMBER OF INPUTS (DIGITAL)	4 8
NUMBER OF OUTPUTS (ANALOG)	0
NUMBER OF OUTPUTS (DIGITAL)	4
OUTPUT	Relay outputs in groups of 1 > 500 mA (Relay outputs, Recommended for load: 12 V AC/DC) 4 Relay Outputs Voltage Current
PARALLEL SWITCHING	Not permitted
RAPID COUNTER INPUTS	-2147483648 - 2147483647 (value range) Number: 4 (I1, I2, I3, I4 - Digital inputs 24 V DC) ≤ 20 m (cable length, screened) 1:1 (Pulse pause ratio) Square (pulse shape) 10 kHz, Counter frequency
SIGNAL RANGE	0 - 10 V DC, Analog inputs

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Design verification

EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID	4 W
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	0 W
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	0 A
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	3 W
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.

Resources

APPLICATION NOTES	eaton-easye4-aws-ap050027-en-us.pdf
BROCHURES	easy E4 control relay-brochure
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	DA-DC-00005057.pdf DA-DC-00005048.pdf
DRAWINGS	2723DIM-100 eaton-logic-relays-easy-control-relays-dimensions.eps eaton-general-easy-control-relays-symbol-002.tif eaton-modular-plc-easy-control-relays-3d-drawing-002.eps
ECAD MODEL	ETN.EASY-E4-UC-12RCX1.edz
INSTALLATION INSTRUCTIONS	IL050020ZU
INSTALLATION VIDEOS	Control relay easyE4: The new generation Video easy E4 control relay
MANUALS AND USER GUIDES	MN050009_EN
MCAD MODEL	DA-CD-uc_12rcx1 DA-CS-uc_12rcx1
MULTIMEDIA	How to connect the Remote Touch Display EASY-RTD to the easyE4? easyE4 SmartWire-DT module with Remote Touch Display and RMQ multi color indicator How to connect the easyE4 to the touch panel XV-102 for easy? - 5 Steps

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.
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.

	How to process SmartWire-DT modules using the EASY-COM-SWD-C1 module connected to an easyE4? 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

PROJECT NAME:	
PROJECT NUMBER:	
PREPARED BY:	
DATE:	

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