Specifications

Eaton 197214

Eaton Moeller® series EASY Control relays, easyE4 (expandable, Ethernet), 24 V DC, 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	197214
EAN	4015081939459
PRODUCT LENGTH/DEPTH	58 mm
PRODUCT HEIGHT	90 mm
PRODUCT WIDTH	72 mm
PRODUCT WEIGHT	0.2 kg
COMPLIANCES	Eaton supports the product until its end of life
CERTIFICATIONS	CULus per UL 61010 IEC/EN 61000-6-2 IEC 60068-2-30 CSA-C22.2 No. 61010 IEC/EN 61000-4-2 IEC 60068-2-27 IEC 60068-2-6 EN 50178 EN 61010 IEC/EN 61000-6-3 IEC/EN 61131-2 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)
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-DC-12TCX1

Features & Functions

FEATURES	Expandable Parallel connection of transistor outputs with resistive load, inductive load with external suppressor circuit, combination within a group - Group 1: Q1 to Q4 Networkable (Ethernet)
FITTED WITH:	Timer Real time clock
FUNCTIONS	Thermal cutout

General

DEGREE OF PROTECTION	IP20
DUTY FACTOR	100 % (Inductive load to EN 60947-5-1, With external suppressor circuit) 100 % (Inductive load to EN 60947-5-1, Without external suppressor circuit, DC-13, T0.95 = 72 ms, R = 48 Ω, L = 1.15 H) 100 % (Inductive load to EN 60947-5-1, Without external suppressor circuit, T0.95 = 15 ms, R = 48 Ω, L = 0.24 H)
FREQUENCY COUNTER	Cable length: ≤ 20 m (screened, Digital inputs 24 V DC) Number: 4 (I1, I2, I3, I4 - Digital inputs 24 V DC) Pulse shape: Square (digital inputs 24 V DC) Pulse pause ratio: 1:1 (Digital inputs 24 V DC) Counter frequency: 5 kHz (Digital inputs 24 V DC)
INSULATION RESISTANCE	According to EN 50178, EN 61010-2-201, UL61010-2-201, CSA-C22.2 NO. 61010-2-201
MOUNTING METHOD	Top-hat rail fixing (according to IEC/EN 60715, 35 mm) Screw fixing using fixing brackets ZB4-101-GF1 (accessories) Rail mounting possible Front build in possible Wall mounting/direct mounting

OPERATING FREQUENCY	Dependent on the cycle- and transmission-time of the expansion devices Dependent on the cycle time of the basic device Depending on the suppressor circuit (Inductive load to EN 60947-5-1, With external suppressor circuit, Max. switching frequency, max. duty factor)
OVERVOLTAGE CATEGORY	III
POLLUTION DEGREE	2
PRODUCT CATEGORY	Control relays easyE4
PROTOCOL	MODBUS TCP/IP
RESIDUAL CURRENT	0.1 mA (on signal "1" per channel)
RESIDUAL RIPPLE	5 % (transistor outputs) ≤ 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
TYPE	easyE4 base device
USED WITH	easyE4
VOLTAGE TYPE	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 10 - 57 Hz, 0.15 mm constant amplitude According to IEC/EN 60068-2-6

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	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)

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	0.5 kV, Supply cables, symmetrical, power pulses (Surge), EMC 1 kV, Supply cables, asymmetrical, power pulses (Surge), EMC According to IEC/EN 61000-4-5, power pulses (Surge), EMC
VOLTAGE DIPS	20 ms ≤ 10 ms, Bridging voltage dips

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)	0.5 A
HEAT DISSIPATION	3.4 W (at 24 V DC)
INRUSH CURRENT	12.5 A (for 6 ms)
POWER CONSUMPTION	2 W
POWER LOSS	2 W
RATED OPERATIONAL VOLTAGE	24 V DC (transistor outputs) 20.4 - 28.8 V DC 24 V DC (digital inputs) 24 V DC (-15 %/+ 20 % - power supply) 20.4 - 28.8 V DC (Transistor outputs)
SUPPLY CURRENT	24/44 mA, Normally/max., On 1 signal, Transistor outputs 18/32 mA, Normally/max., On 0 signal, Transistor outputs
SUPPLY VOLTAGE AT AC, 50 HZ - MIN	0 VAC
SUPPLY VOLTAGE AT AC, 50 HZ - MAX	0 VAC
SUPPLY VOLTAGE AT DC - MIN	20.4 VDC
SUPPLY VOLTAGE AT DC - MAX	28.8 VDC

Short-circuit rating

SHORT-CIRCUIT CURRENT	6.8 A, Transistor outputs
SHORT-CIRCUIT PROTECTION	≥ 1A (T), Fuse, Power supply Yes, electronic (Q1 - Q4), Transistor outputs
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

Communication

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

Cable

CABLE LENGTH	≤ 30 m, screened, Analog inputs 100 m, unscreened, Digital inputs 24 V DC
CABLE TYPE	CAT5

Input/Output

ACCURACY	± 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) ± 2 s/day, Real-time clock to inputs (± 0.2 h/Year)
CONVERSIONS	Each CPU cycle, Analog inputs
DELAY TIME	20 ms typ., Digital inputs 24 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 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
INCREMENTAL COUNTER	Pulse pause ratio: 1:1 Number of counter inputs: 2 (I1 + I2, I3 + I4) Pulse shape: Square Signal offset: 90° Value range: -2147483648 to +2147483647 Counter frequency: ≤ 5 kHz
INCREMENTAL ENCODER	Cable length: ≤ 20 m (screened)
INPUT	Voltage (DC)
INPUT CURRENT	1 mA (Analog inputs) 2.2 mA (I5 - I8, at 24 V DC, at signal 1) 3.3 mA (I1 - I4, at 24 V DC, at signal 1) 80 mA
INPUT IMPEDANCE	13.3 kΩ
INPUT VOLTAGE	Status 0: ≤ 8 V DC (I5 - I8, Digital inputs, 24 V DC) Status 0: ≤ 15 V DC (I1 - I4, Digital inputs, 24 V DC) Status 1: ≥ 15 V DC (I1 - I4,

Safety

EXPLOSION SAFETY CATEGORY FOR GAS	None
POTENTIAL ISOLATION	Between Transistor outputs and expansion devices: yes Between Analog inputs and expansion devices: yes Between Analog inputs and Power supply: no Between Analog inputs and Outputs: yes Between Digital inputs 24 V DC and expansion devices: yes Between Transistor outputs: no Between Transistor outputs and control buttons: yes Between Transistor outputs and Ethernet: yes Between Digital inputs 24 V DC: no Between Analog inputs and Memory card: no Between Digital inputs 24 V DC and Power supply: no Between Transistor outputs and Memory card: yes Between Transistor outputs and Inputs: yes Between Digital inputs 24 V DC and Outputs: yes Between Digital inputs 24 V DC and Memory card: no Between Analog inputs: no Between Analog inputs and Ethernet: yes Between Digital inputs 24 V DC and Ethernet: yes Between Transistor outputs and Power supply: 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

	Digital inputs, 24 V DC) Signal 0: ≤ 5 V DC (I1 - I8, Digital inputs, 24 V DC)
LAMP LOAD	Max. 3 W (without Rv per channel)
NUMBER OF INPUTS (ANALOG)	0 4
NUMBER OF INPUTS (DIGITAL)	8
NUMBER OF OUTPUTS (ANALOG)	0
NUMBER OF OUTPUTS (DIGITAL)	4
OUTPUT	2 A, Max. total current, Outputs Parallel connection of max. 4 Transistor outputs 4 Transistor Outputs Voltage Current
OUTPUT VOLTAGE	U = U_e - 1 V (signal 1 at I_e = 0.5 A, transistor outputs) Max. 2.5 V (at status 0 per channel, transistor outputs)
RAPID COUNTER INPUTS	Square (pulse shape) -2147483648 - 2147483647 (value range) 1:1 (Pulse pause ratio) 10 kHz, Counter frequency Number: 4 (I1, I2, I3, I4 - Digital inputs 24 V DC) ≤ 20 m (cable length, screened)
SIGNAL RANGE	0 - 10 V DC, Analog inputs
UTILIZATION FACTOR	0.25 (Inductive load to EN 60947-5-1, Without external suppressor circuit, DC-13, T0.95 = 72 ms, R = 48 Ω, L = 1.15 H) 0.25 (Inductive load to EN 60947-5-1, Without external suppressor circuit, T0.95 = 15 ms, R = 48 Ω, L = 0.24 H) 1 (Inductive load to EN 60947-5-1, With external suppressor circuit)
	voltage is connected to the wrong poles) Yes, for supply voltage (Siemens MPI optional)
EXPLOSION SAFETY CATEGORY FOR DUST	None

Design verification

EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID	0 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	2 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-00005049.pdf DA-DC-00005056.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-DC-12TCX1.edz
INSTALLATION INSTRUCTIONS	IL050020ZU
INSTALLATION VIDEOS	Video easy E4 control relay Control relay easyE4: The new generation
MANUALS AND USER GUIDES	MN050009_EN
MCAD MODEL	DA-CD-uc_12rcx1 DA-CS-uc_12rcx1
MULTIMEDIA	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 connect the Remote Touch Display EASY-RTD to the easyE4?

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 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. How to process SmartWire-DT modules using the EASY-COM-SWD-C1 module connected to an easyE4?
PRODUCT NOTIFICATIONS	MZ049014EN
SALES NOTES	eaton-control-relay-easye4-flyer-fl050007en-en-us.pdf TT-197214_EASY-E4-DC-12TCX1-de_DE eaton-easy-remote-touch-display-flyer-fl048004en-en-us.pdf

PROJECT NAME:	
PROJECT NUMBER:	
PREPARED BY:	
DATE:	

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