



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

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PRODUCT NAME	Eaton Moeller® series EASY Control relay
CATALOG NUMBER	197212
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 division 2 UL hazardous location class I UL hazardous location group B (hydrogen) UL hazardous location group C (ethylene) UL hazardous location group A (acetylene) UL hazardous location group D (propane)
CATALOG NOTES	Accuracy of the real-time



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clock depending on
ambient air temperature -
fluctuations of up to ± 5
s/day (± 0.5 h/year) are
possible

USED WITH	easyE4
TYPE	easyE4 base device
FEATURES	Expandable Networkable (Ethernet)
AIR DISCHARGE	8 kV
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.

CHARACTERISTIC CURVE	eaton-electrical-timers-easy-control-relays-characteristic-curve-002.eps
DECLARATIONS OF CONFORMITY	eaton-control-relay-declaration-of-conformity-uk251131en.pdf
INSTALLATION VIDEOS	Video easy E4 control relay
□□	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

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.
CABLE TYPE	CAT5
FITTED WITH:	Timer Relay output Real time clock
FREQUENCY RATING	6.5 Hz
POLLUTION DEGREE	2
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)
BURST IMPULSE	2 kV, Signal cable 2 kV, Supply cable According to IEC/EN 61000-4-4
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
RATED IMPULSE WITHSTAND VOLTAGE (UIMP)	6 kV (contact-coil)
AIR PRESSURE	795 - 1080 hPa (operation)
CATEGORY (EN 954-1)	None
EXPLOSION SAFETY CATEGORY FOR DUST	None

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
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
INPUT	Voltage (DC)
EXPLOSION SAFETY CATEGORY FOR GAS	None
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)
SCREWDRIVER SIZE	3.5 x 0.8 mm, Terminal screw
VOLTAGE TYPE	AC/DC
MOUNTING POSITION	Horizontal Vertical
OUTPUT	Relay outputs in groups of 1 > 500 mA (Relay outputs, Recommended for load: 12 V AC/DC) 4 Relay Outputs Voltage Current
CONTACT DISCHARGE	6 kV
BASE TYPE	Yes
SAFETY PERFORMANCE LEVEL (EN ISO 13849-1)	None
SIL (IEC 61508)	None
AMBIENT OPERATING TEMPERATURE - MAX	55 °C
AMBIENT OPERATING TEMPERATURE - MIN	-25 °C
AMBIENT STORAGE TEMPERATURE - MAX	70 °C
AMBIENT STORAGE	-40 °C

TEMPERATURE - MIN	
CONVENTIONAL THERMAL CURRENT ITH OF AUXILIARY CONTACTS (1-POLE, OPEN)	8 A
EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID	4 W
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	0 W
HEIGHT OF FALL (IEC/EN 60068-2-32) - MAX	0.3 m
NUMBER OF HW-INTERFACES (INDUSTRIAL ETHERNET)	1
NUMBER OF HW-INTERFACES (OTHER)	0
NUMBER OF HW-INTERFACES (PARALLEL)	0
NUMBER OF HW-INTERFACES (RS-232)	0
NUMBER OF HW-INTERFACES (RS-422)	0
NUMBER OF HW-INTERFACES (RS-485)	0
NUMBER OF HW-INTERFACES (SERIAL TTY)	0
NUMBER OF HW-INTERFACES (USB)	0
NUMBER OF HW-INTERFACES (WIRELESS)	0
OVERVOLTAGE CATEGORY	III
SOFTWARE	EASYSOFT-SWLIC/easySoft
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
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
CONVERSIONS	Each CPU cycle, Analog inputs
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)
PROTECTION AGAINST POLARITY REVERSAL	Yes, for supply voltage (Siemens MPI optional)
NUMBER OF INPUTS (ANALOG)	0 4
CONNECTION TYPE	Screw terminal Ethernet: RJ45 plug, 8-pole
DROP AND TOPPLE	50 mm Drop height, Drop to IEC/EN 60068-2-31
IMMUNITY TO LINE-CONDUCTED INTERFERENCE	10 V (according to IEC/EN 61000-4-6)
RADIO INTERFERENCE CLASS	Class B (EN 61000-6-3)
NUMBER OF OUTPUTS (DIGITAL)	4
DATA TRANSFER RATE	10/100 MBit/s
RELATIVE HUMIDITY	5 - 95 % (IEC 60068-2-30, IEC 60068-2-78)
DEGREE OF PROTECTION	IP20
SAFE ISOLATION	300 V AC, Between coil and contact, According to EN 50178 300 V AC, Between two contacts, According to EN 50178
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
PROTOCOL	MODBUS TCP/IP
RESIDUAL RIPPLE	≤ 5 %
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
SUPPLY FREQUENCY	50/60 Hz (± 5%)
INSULATION RESISTANCE	According to EN 50178, EN 61010-2-201, UL61010-2-201, CSA-C22.2 NO. 61010-2-201
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
VIBRATION RESISTANCE	57 - 150 Hz, 2 g constant acceleration According to IEC/EN 60068-2-6 10 - 57 Hz, 0.15 mm constant amplitude
INCREMENTAL ENCODER	Cable length: ≤ 20 m (screened)
INPUT IMPEDANCE	13.3 kΩ
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

SHOCK RESISTANCE	15 g, Mechanical, according to IEC/EN 60068-2-27, Half- sinusoidal shock 11 ms, 18 Impacts
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)
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)
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)
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)
LED INDICATOR	Status indication of Power/RUN Status indication of Ethernet: LED
SIGNAL RANGE	0 - 10 V DC, Analog inputs
LIFESPAN, MECHANICAL	10,000,000 Operations
MAKING/BREAKING CAPACITY	3600/360 VA (AC, at B 300) 28/28 VA (DC, at R 300)
PARALLEL SWITCHING	Not permitted
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
NUMBER OF INPUTS (DIGITAL)	4 8
VOLTAGE DIPS	≤ 1 ms from rated voltage (12 V DC)

	10 ms
UNINTERRUPTED CURRENT	1 A DC, at R 300 (UL/CSA) 5 A AC, max. thermal continuous current $\cos \phi = 1$ at B 300 (UL/CSA) 8 A DC, at 24 V DC (UL/CSA) 10 A AC, at 240 V AC (UL/CSA)
NUMBER OF INTERFACES (PROFINET)	0
NUMBER OF OUTPUTS (ANALOG)	0
RATED INSULATION VOLTAGE (UI)	240 V
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	0 A
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	3 W
SUPPLY VOLTAGE AT AC, 50 HZ - MAX	26.4 VAC
SUPPLY VOLTAGE AT AC, 50 HZ - MIN	20.4 VAC
SUPPLY VOLTAGE AT AC, 60 HZ - MAX	26.4 VAC
SUPPLY VOLTAGE AT AC, 60 HZ - MIN	20.4 VAC
SUPPLY VOLTAGE AT DC - MAX	28.8 VDC
SUPPLY VOLTAGE AT DC - MIN	10.2 VDC
SWITCHING CURRENT	8 A
PRODUCT CATEGORY	Control relays easyE4
PROTECTION	Miniature circuit-breaker B16 or slow-blow 8 A fuse, Protection of an output relay
RESOLUTION	• 1 min (Range H:M) • 1 s (Range M:S) • 12 Bit (value 0 - 4095, Analog inputs) • 5 ms (Range S)
POWER CONSUMPTION	3 W
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
SHORT-CIRCUIT PROTECTION	≥ 1A (T), Fuse, Power supply
SWITCHING FREQUENCY	0.5 Hz, Inductive load, Relay outputs 2 Hz, Resistive load/lamp load, Relay outputs 10 Hz, Relay outputs
TERMINAL CAPACITY	0.2 - 2.5 mm ² (22 - 12 AWG), flexible with ferrule 0.2 - 4 mm ² (AWG 22 - 12), solid
TIGHTENING TORQUE	0.6 Nm, Screw terminals

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