

Control relays, easyE4 (expandable, Ethernet), 24 V DC, Inputs Digital: 8, of which can be used as analog: 4, screw terminal



Part no. EASY-E4-DC-12TCX1
197214
EL Number 4500549
(Norway)

Product name	Eaton Moeller® series EASY Control relay
Part no.	EASY-E4-DC-12TCX1
EAN	4015081939459
Product Length/Depth	58 millimetre
Product height	90 millimetre
Product width	72 millimetre
Product weight	0.2 kilogram
Certifications	IEC 60068-2-6 IEC/EN 61000-6-3 EN 61010 CULus per UL 61010 CSA-C22.2 No. 61010 IEC/EN 61131-2 IEC 60068-2-30 EN 50178 IEC 60068-2-27 IEC/EN 61000-4-2 IEC/EN 61000-6-2 UL File No.: E205091 DNV GL CE UL Listed UL Category Control No.: NRAQ, NRAQ7 UL hazardous location division 2 UL hazardous location group A (acetylene) UL hazardous location group B (hydrogen) UL hazardous location class I UL hazardous location group C (ethylene) UL hazardous location group D (propane)
Product Tradename	EASY
Product Type	Control relay
Product Sub Type	None
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
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
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/easySoft7
Type		easyE4 base device
Used with		easyE4
Voltage type		DC
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
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)
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 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
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 current (Ie)		Max. 0.5 A at signal „1“ DC per channel
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
Supply voltage at AC, 50 Hz - max		0
Supply voltage at DC - min		20.4
Supply voltage at DC - max		28.8
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
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 length		≤ 30 m, screened, Analog inputs 100 m, unscreened, Digital inputs 24 V DC
Cable type		CAT5
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, 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
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# - 1 V (signal 1 at I# = 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)
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 voltage is connected to the wrong poles) Yes, for supply voltage (Siemens MPI optional)
Explosion safety category for dust		None
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.
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.

Technical data ETIM 8.0

Programmable logic controllers PLC (EG000024) / Logic module (EC001417)

Electric engineering, automation, process control engineering / Control / Programmable logic control (SPS) / Logic module (ecl@ss10.0.1-27-24-22-16 [AKE539014])

Supply voltage AC 50 Hz	V	0 - 0
Supply voltage AC 60 Hz	V	0 - 0
Supply voltage DC	V	20.4 - 28.8
Voltage type of supply voltage		DC
Switching current	A	0.5
Number of analogue inputs		0
Number of analogue outputs		0
Number of digital inputs		8
Number of digital outputs		4
With relay output		No
Number of HW-interfaces industrial Ethernet		1
Number of interfaces PROFINET		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 parallel		0
Number of HW-interfaces Wireless		0
Number of HW-interfaces other		0
With optical interface		No
Supporting protocol for TCP/IP		Yes
Supporting protocol for PROFIBUS		No
Supporting protocol for CAN		No
Supporting protocol for INTERBUS		No
Supporting protocol for ASI		No
Supporting protocol for KNX		No
Supporting protocol for Modbus		Yes
Supporting protocol for Data-Highway		No
Supporting protocol for DeviceNet		No
Supporting protocol for SUCONET		No
Supporting protocol for LON		No
Supporting protocol for PROFINET IO		No
Supporting protocol for PROFINET CBA		No
Supporting protocol for SERCOS		No
Supporting protocol for Foundation Fieldbus		No
Supporting protocol for EtherNet/IP		No
Supporting protocol for AS-Interface Safety at Work		No
Supporting protocol for DeviceNet Safety		No
Supporting protocol for INTERBUS-Safety		No
Supporting protocol for PROFIsafe		No
Supporting protocol for SafetyBUS p		No
Supporting protocol for other bus systems		No
Radio standard Bluetooth		No
Radio standard Wi-Fi 802.11		No
Radio standard GPRS		No
Radio standard GSM		No
Radio standard UMTS		No
IO link master		No
Redundancy		No
With display		No
Degree of protection (IP)		IP20
Basic device		Yes
Expandable		Yes
Expansion device		No

With time switch clock			Yes
Rail mounting possible			Yes
Wall mounting/direct mounting			Yes
Front built-in possible			Yes
Rack-assembly possible			No
Suitable for safety functions			No
SIL according to IEC 61508			None
Performance level according to EN ISO 13849-1			None
Appendant operation agent (Ex ia)			No
Appendant operation agent (Ex ib)			No
Explosion safety category for gas			None
Explosion safety category for dust			None
Width		mm	72
Height		mm	90
Depth		mm	58