



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

Part no. **EASY-E4-DC-12TCX1P**  
**197507**

General specifications	
Product name	Eaton Moeller® series EASY Control relay
Part no.	EASY-E4-DC-12TCX1P
EAN	4015081940851
Product Length/Depth	58 millimetre
Product height	90 millimetre
Product width	72 millimetre
Product weight	0.2 kilogram
Certifications	IEC 60068-2-27 IEC 60068-2-6 IEC/EN 61000-4-2 IEC/EN 61000-4 EN 55011 EN 55022 DNV GL UL Listed EN 61010 UL Category Control No.: NRAQ, NRAQ7 UL File No.: E205091 IEC/EN 61000-6-2 IEC/EN 61000-6-3 IEC/EN 61131-2 EN 50178 CE IEC 60068-2-30 UL hazardous location group A (acetylene) UL hazardous location group D (propane) UL hazardous location division 2 UL hazardous location group B (hydrogen) UL hazardous location class I UL hazardous location group C (ethylene)
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 & Functions	
Features	Expandable Networkable (Ethernet) Parallel connection of transistor outputs with resistive load, inductive load with external suppressor circuit, combination within a group - Group 1 Q1 to Q4
Fitted with:	Timer Real time clock
Functions	Thermal cutout
General information	
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	Pulse shape: Square (digital inputs 24 V DC) Cable length: ≤ 20 m (screened, Digital inputs 24 V DC) Counter frequency: 5 kHz (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)
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) Front build in possible Rail mounting possible
Operating frequency	Depending on the suppressor circuit (Inductive load to EN 60947-5-1, With external suppressor circuit, Max. switching frequency, max. duty factor) Dependent on the cycle time of the basic device

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) 12 Bit (value 0 - 4095, Analog outputs) 5 ms (Range S)
Software		EASYSOFT-SWLIC/easySoft7
Type		easyE4 base device
Used with		easyE4
Voltage type		DC
<b>Ambient conditions, mechanical</b>		
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		10 - 57 Hz, 0.15 mm constant amplitude According to IEC/EN 60068-2-6 57 - 150 Hz, 2 g constant acceleration
<b>Climatic environmental conditions</b>		
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)
<b>Electro magnetic compatibility</b>		
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		1 V/m at 2 - 2.7 GHz (according to IEC EN 61000-4-3) 10 V/m at 0.08 - 1.0 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, EASY...DC, power pulses (Surge), EMC 1 kV, Supply cables, asymmetrical, power pulses (Surge), EMC According to IEC/EN 61000-4-5 Level 4
Voltage dips		≤ 10 ms, Bridging voltage dips
<b>Terminal capacities</b>		
Terminal capacity		0.2 - 2.5 mm <sup>2</sup> (22 - 12 AWG), flexible with ferrule 0.2 - 4 mm <sup>2</sup> (AWG 22 - 12), solid
<b>Electrical rating</b>		
Conventional thermal current Ith of auxiliary contacts (1-pole, open)		0.5 A
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		20.4 - 28.8 V DC 20.4 - 28.8 V DC (Transistor outputs) 24 V DC (-15 %/+ 20 % - power supply) 24 V DC (transistor outputs)

		24 V DC (digital inputs)
Supply voltage at AC, 50 Hz - min		0 V AC
Supply voltage at AC, 50 Hz - max		0 V AC
Supply voltage at DC - min		20.4 V DC
Supply voltage at DC - max		28.8 V DC
<b>Short-circuit rating</b>		
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		$0.7 \leq I_e \leq 1.7$ per output, For $R_a \leq 10$ mΩ, Depending on number of active channels and their load, Transistor outputs
<b>Communication</b>		
Connection type		Ethernet: RJ45 plug, 8-pole Push in terminals
Data transfer rate		10/100 MBit/s
LED indicator		Status indication of Power/RUN Status indication of Ethernet: LED
<b>Cable</b>		
Cable length		30 m, screened, Analog inputs 100 m, unscreened, Digital inputs 12 V DC 100 m, unscreened, Digital inputs 24 V AC
Cable type		CAT5
<b>Input/Output</b>		
Accuracy		± 2 s/day, Real-time clock to inputs (± 0.2 h/Year) ± 1 %, Repetition accuracy of timing relays (of values) ± 2 %, (I7, I8) ± 0.12 V, of actual value, within a single device (Analog Inputs) ± 3 %, of actual value, two easy devices (Analog Inputs)
Conversions		Each CPU cycle, Analog inputs
Delay time		39 ms typ., Digital Inputs 100 - 240 V AC 50 Hz (I1 - I8), Delay time from 1 to 0, Debounce OFF 32 ms typ., Digital Inputs 100 - 240 V AC 60 Hz (I1 - I8), Delay time from 1 to 0, Debounce OFF 80 ms, Digital inputs 115/230 V AC 50 Hz (I7, I8), Delay time from 0 to 1, Debounce ON 0.5 ms typ., Digital Inputs 100 - 240 V DC (I1 - I8), Delay time from 1 to 0, Debounce OFF 39 ms typ., Digital Inputs 100 - 240 V AC 50 Hz (I1 - I8), Delay time from 0 to 1, Debounce OFF 32 ms typ., Digital Inputs 100 - 240 V AC 60 Hz (I1 - I8), Delay time from 0 to 1, Debounce OFF 0.5 ms typ., Digital Inputs 100 - 240 V DC (I1 - I8), Delay time from 0 to 1, Debounce OFF
Incremental counter		Pulse shape: Square Signal offset: 90° Counter frequency: ≤ 5 kHz Number of counter inputs: 2 (I1 + I2, I3 + I4) Pulse pause ratio: 1:1 Value range: -2147483648 to +2147483647
Incremental encoder		Cable length: ≤ 20 m (screened)
Input		Voltage (DC)
Input current		80 mA
Input impedance		13.3 kΩ
Input voltage		Signal 0: ≤ 5 V DC (I1 - I8, Digital inputs, 24 V DC)
Number of inputs (analog)		4
Number of inputs (digital)		4 8
Number of outputs (analog)		0
Number of outputs (digital)		4
Output		Voltage Current 4 Transistor Outputs Parallel connection of max. 2 Transistor outputs
Output voltage		Max. 2.5 V (at status 0 per channel, transistor outputs) $U = U\# - 1$ V (signal 1 at $I\# = 0.5$ A, transistor outputs)
Rapid counter inputs		1:1 (Pulse pause ratio) 10 kHz, Counter frequency ≤ 20 m (cable length, screened) -2147483648 - 2147483647 (value range) Square (pulse shape) Number: 4 (I1, I2, I3, I4 - Digital inputs 24 V DC)

Signal range		0 - 10 V DC, Analog inputs
Utilization factor		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) 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)
<b>Safety</b>		
Explosion safety category for gas		None
Potential isolation		Between Analog inputs and Digital inputs: no Between Transistor outputs: no
Protection against polarity reversal		Yes (Caution: A short circuit will result if 0 V or earth is applied to the outputs in the event that the supply voltage is connected to the wrong poles.)
Explosion safety category for dust		None
<b>Design verification</b>		
Equipment heat dissipation, current-dependent P <sub>vid</sub>		0 W
Heat dissipation capacity P <sub>diss</sub>		0 W
Heat dissipation per pole, current-dependent P <sub>vid</sub>		0 W
Static heat dissipation, non-current-dependent P <sub>vs</sub>		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 9.0

Programmable logic controllers PLC (EG000024) / Logic module (EC001417)		
Electric engineering, automation, process control engineering / Control, Process Control System (PCS) / Programmable logic control (SPS) / Logic module (ecl@ss13-27-24-22-16 [AKE539019])		
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 (supply voltage)		DC
Switching current	A	0.5
Power consumption	W	2
Number of analogue inputs		4
Number of analogue outputs		0
Number of digital inputs		4
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 EtherCAT		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 WLAN 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		No
Expandable		Yes
Expansion device		No
With time switch clock		Yes
Rail mounting possible		Yes
Wall mounting/direct mounting		No
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
Certified for UL hazardous location class I			Yes
Certified for UL hazardous location class II			No
Certified for UL hazardous location class III			No
Certified for UL hazardous location division 1			No
Certified for UL hazardous location division 2			Yes
Certified for UL hazardous location group A (acetylene)			Yes
Certified for UL hazardous location group B (hydrogen)			No
Certified for UL hazardous location group C (ethylene)			Yes
Certified for UL hazardous location group D (propane)			Yes
Certified for UL hazardous location group E (metal dusts)			No
Certified for UL hazardous location group F (carbonaceous dusts)			No
Certified for UL hazardous location group G (non-conductive dusts)			No
Width		mm	72
Height		mm	90
Depth		mm	58