DATASHEET - EASY-E4-AC-16RE1

I/O expansion, For use with easyE4, 100 - 240 V AC, 110 - 220 V DC (cULus: 100-110 V DC), Inputs expansion (number) digital: 8, screw terminal

Part no.	**EASY-E4-AC-16RE1**
	197222
EL Number (Norway)	**4500560**

General specifications

Product name	Eaton Moeller® series EASY I/O expansion
Part no.	EASY-E4-AC-16RE1
EAN	4015081939428
Product Length/Depth	58 millimetre
Product height	90 millimetre
Product width	72 millimetre
Product weight	0.25 kilogram
Certifications	EN 61010 CE UL hazardous location group C (ethylene) IEC 60068-2-27 UL hazardous location group B (hydrogen) CSA-C22.2 No. 61010 UL Category Control No.: NRAQ, NRAQ7 DNV GL IEC 60068-2-6 UL hazardous location division 2 IEC/EN 61000-6-3 IEC 60068-2-30 IEC/EN 61000-6-2 UL hazardous location group A (acetylene) IEC/EN 61131-2 UL File No.: E205091 UL hazardous location class I IEC/EN 61000-4-2 IEC 60664 CULus per UL 61010 EN 50178 UL Listed UL hazardous location group D (propane)
Product Tradename	EASY
Product Type	I/O expansion
Product Sub Type	None
Catalog Notes	fitted with two controlled relays

Features & Functions

Features	Expansion device Expandable
Fitted with:	Relay output

General information

Degree of protection	IP20
Input frequency	50/60 Hz (Digital inputs, at 24 V DC) 50/60 Hz (Digital inputs, at 115/230 V AC)
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 (Fluorescent lamp load 10 x 58 W at 230/240 V AC, uncompensated) 25,000 Operations (Fluorescent lamp load 1 x 58 W at 230/240 V AC, conventional, compensated) 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, with upstream electrical device) 25,000 Operations (Filament bulb load at 1000 W, 230/240 V AC)
Lifespan, mechanical	1,000,000 Operations
Mounting method	Front build in possible Screw fixing using fixing brackets ZB4-101-GF1 (accessories) Rail mounting possible Top-hat rail fixing (according to IEC/EN 60715, 35 mm) Wall mounting/direct mounting
Overvoltage category	III
Pollution degree	2
Product category	Control relays easyE4

Protocol	TCP/IP MODBUS
Protection	B16 circuit breaker or 8 A (T) fuse, Protection of an Output relay
Rated impulse withstand voltage (Uimp)	6 kV (contact-coil)
Residual ripple	≤ 5 %
Software	EASYSOFT-SWLIC/easySoft7
Switching frequency	10 Hz, Relay outputs 0.5 Hz, Inductive load, Relay outputs 2 Hz, Resistive load/lamp load, Relay outputs
Type	easyE4 extension
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

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	Vertical Horizontal
Shock resistance	15 g, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 11 ms, 18 Impacts
Vibration resistance	According to IEC/EN 60068-2-6 10 - 57 Hz, 0.15 mm constant amplitude 57 - 150 Hz, 2 g constant acceleration

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	According to IEC/EN 61000-4-4 2 kV, Supply cable 2 kV, Signal cable
Contact discharge	6 kV
Electromagnetic fields	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) 10 V/m at 0.8 - 1.0 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 1 kV, Supply cables, symmetrical, power pulses (Surge), EMC According to IEC/EN 61000-4-5, power pulses (Surge), EMC
Voltage dips	10 ms

Terminal capacities

Terminal capacity	0.2 - 4 mm^2 (AWG 22 - 12), solid 0.2 - 2.5 mm^2 (22 - 12 AWG), flexible with ferrule
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)	5 A
Inrush current	12.5 A (for 6 ms)
Power consumption	4 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	100/110/115/120/230/240 AC (-15 %/+10 %) 240 V AC 110/120 V DC (power supply)

	Max. 300 V DC Max. 300 V AC 85 - 264 V AC
Supply frequency	50/60 Hz (± 5%)
Supply voltage at AC, 50 Hz - min	85 V AC
Supply voltage at AC, 50 Hz - max	264 V AC
Supply voltage at DC - min	85 V DC
Supply voltage at DC - max	264 V DC
Uninterrupted current	8 A AC, at 240 V AC (UL/CSA) 8 A DC, at 24 V DC (UL/CSA) 5 A AC, max. thermal continuous current cos φ = 1 at B 300 (UL/CSA) 1 A DC, at R 300 (UL/CSA)
Short-circuit rating	
Short-circuit protection	≥ 1A (T), Fuse, Power supply
Communication	
Connection type	Screw terminal
Cable	
Cable length	40 m (max. permissible per input R1 to R12), Digital inputs 115/230 V AC ≤ 60 m per input (I1 - I8), Digital inputs 115/230 V AC ≤ 100 m per input (I1 - I6, I9 - I12, debounce ON), Digital inputs 115/230 V AC
Input/Output	
Delay time	0.5 ms typ., Digital Inputs 100 - 240 V DC (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 39 ms typ., Digital Inputs 100 - 240 V AC 50 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 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 32 ms typ., Digital Inputs 100 - 240 V AC 60 Hz (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 1 to 0, Debounce OFF
Input current	6 x 0.5 mA (I1 - I8, at 230 V AC, 50 Hz, at signal 1) 6 x 0.25 mA (I1 - I8, at 115 V AC, 60 Hz, at signal 1)
Input voltage	Condition 1: 79 - 264 V AC, Digital inputs, 115/230 V AC) Condition 0: 0 - 40 V AC, Digital inputs, 115/230 V AC)
Making/breaking capacity	28/28 VA (DC, at R 300) 3600/360 VA (AC, at B 300)
Number of inputs (analog)	0
Number of inputs (digital)	8
Number of outputs (analog)	0
Number of outputs (digital)	8
Output	Current Voltage Relay outputs in groups of 1 > 500 mA (Relay outputs, Recommended for load: 12 V AC/DC) 8 Relay Outputs
Parallel switching	Not permitted
Safety	
Explosion safety category for gas	None
Potential isolation	Safe isolation according to EN 50178: 300 V AC (Relay outputs) Between Relay outputs: yes Between Relay outputs and Power supply: yes Basic isolation: 600 V AC (Relay outputs) Between Digital inputs 115/230 V AC: no Between Digital inputs 115/230 V AC and Power supply: no Between Digital inputs 115/230 V AC and base unit: yes Between Relay outputs and Inputs: yes Between Digital inputs 115/230 V AC and expansion devices: yes Between Digital inputs 115/230 V AC and Outputs: yes Between Relay outputs and expansion devices: yes
Protection against polarity reversal	Yes, for supply voltage (Siemens MPI optional)
Explosion safety category for dust	None
Safe isolation	300 V AC, Between two contacts, According to EN 50178 300 V AC, Between coil and contact, According to EN 50178
Design verification	
Equipment heat dissipation, current-dependent Pvid	2 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		4 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	85 - 264
Supply voltage AC 60 Hz	V	85 - 264
Supply voltage DC	V	85 - 264
Voltage type (supply voltage)		AC
Switching current	A	5
Power consumption	W	4
Number of analogue inputs		0
Number of analogue outputs		0
Number of digital inputs		8
Number of digital outputs		8
With relay output		Yes
Number of HW-interfaces industrial Ethernet		0
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	Yes
With time switch clock	No
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
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