

I/O expansion, For use with easyE4, 12/24 V DC, 24 V AC, Inputs expansion (number) digital: 4, screw terminal

Part no. **EASY-E4-UC-8RE1**
Catalog No. **197217**

EL-Nummer **4500550**
(Norway)

Delivery program

Product range		Control relays easyE4
Subrange		easyE4 digital input/output enhancements
Basic function		easyE4 extensions
Description		Input/output extension for easyE4 control relay Expandable with the easyE4 series of digital input/output expansions with easy-E4-CONNECT1 connector (Item Y7-197225) Rated operating voltage 12V DC, 24V DC or 24V AC 4 digital inputs for 12 VDC, 24 VDC or 24 VAC 4 relay outputs for 12–250 VAC or 12–240 VDC Screw terminals
Inputs		
Inputs expansion (number)		digital: 4
Additional features		
Display		with diagnostic LED
Software		EASYSOFT-SWLIC/easySoft 7
Supply voltage		12/24 V DC 24 V AC
For use with		easyE4

Technical data

General

Standards		EN 61000-6-2 EN 61000-6-3 IEC 60068-2-6 IEC 60068-2-27 IEC 60068-2-30 IEC/EN 61131-2 EN 61010 EN 50178
Approvals		
Approvals		cULus
certificate		CE
shipping classification		DNV GL
Dimensions (W x H x D)	mm	35.5 x 90 x 58
Weight	kg	0.125
Mounting		Top-hat rail IEC/EN 60715, 35 mm or screw fixing using fixing brackets ZB4-101-GF1 (accessories)
Connection type		Push-in terminals

Terminal capacities

Screw terminals		
Solid	mm ²	0.2 - 4
flexible	mm ²	0.2 - 2.5
Solid or flexible conductor, with ferrule	mm ²	0.2 - 2.5
Solid or stranded	AWG	22 - 12
Standard screwdriver	mm	0.8 x 3.5
Tightening torque	Nm	0.5 - 0.7
Stripping length	mm	6.5

Climatic environmental conditions

Operating ambient temperature	°C	-25 to 55, cold as per IEC 60068-2-1, heat as per IEC 60068-2-2
Condensation		Take appropriate measures to prevent condensation

Storage	8	°C	-40 - +70
relative humidity		%	in accordance with IEC 60068-2-30, IEC 60068-2-78 5 - 95
Air pressure (operation)		hPa	795 - 1080

Ambient conditions, mechanical

Protection type (IEC/EN 60529, EN50178, VBG 4)			IP20
Vibrations		Hz	In accordance with IEC 60068-2-6 constant amplitude 0.15 mm: 10 - 57 constant acceleration 2 g: 57 - 150
Mechanical shock resistance (IEC/EN 60068-2-27) semi-sinusoidal 15 g/11 ms		Impacts	18
Drop to IEC/EN 60068-2-31	Drop height	mm	50
Free fall, packaged (IEC/EN 60068-2-32)		m	0.3
Mounting position			Vertical or horizontal

Electromagnetic compatibility (EMC)

Overvoltage category/pollution degree			III/2
Electrostatic discharge (ESD)			
applied standard			nach IEC/EN 61000-4-2
Air discharge		kV	8
Contact discharge		kV	6
Electromagnetic fields (RFI) to IEC EN 61000-4-3		V/m	0.08 - 1.0 GHz: 10 1.4 - 2 GHz: 3 2.0 - 2.7 GHz: 1
Radio interference suppression			EN 61000-6-3 Class B
Burst		kV	according to IEC/EN 61000-4-4 Supply cables: 2 Signal cables: 2
power pulses (Surge)			according to IEC/EN 61000-4-5 1 kV (supply cables, symmetrical) 2 kV (supply cables, asymmetrical)
Immunity to line-conducted interference to (IEC/EN 61000-4-6)		V	10

Insulation resistance

Clearance in air and creepage distances			nach EN 50178, EN 61010-2-201, UL61010-2-201, CSA-C22.2 NO. 61010-2-201
Insulation resistance			in accordance with EN 50178, EN 61010-2-201, UL61010-2-201, CSA-C22.2 NO. 61010-2-201

Power supply

Rated operational voltage	U _e	V	12/24 DC (-15/+20%) 24 AC (-15/+10%)
Permissible range	U _e		10.2 - 28.8 V DC 20.4 - 26.4 V AC
Residual ripple		%	≤ 5
Protection against polarity reversal			yes
Frequency		Hz	50/60 (± 5%)
Input current			max. 150 mA at 12 V DC max. 80 mA at 24 V DC
Voltage dips		ms	≤ 20 ms at 24 V AC 10 ms at 24 V DC 1 ms at 12 V DC
Fuse		A	≥ 1A (T)
Power loss	P	W	Normally 2
Heat dissipation at 24 V DC		W	2

Digital inputs 12 V DC

Number			4
Potential isolation			from power supply: no between inputs: no from the outputs: yes to base unit: yes to expansion devices: yes
Rated operational voltage	U _e	V DC	12
Input voltage		V DC	Status 0: ≤ 5 (I1 - I4) Condition 1: ≥ 8 (I1 - I4)
Input current at signal 1		mA	1.75 mA (I1 - I4)
Deceleration time		ms	type 0.2 (0 -> 1) type 0.15 (1 -> 0)
Cable length		m	100 (unshielded)

Digital inputs 24 V DC

Number			4
Potential isolation			from power supply: no between inputs: no from the outputs: yes to base unit: yes to expansion devices: yes
Rated operational voltage	U _e	V DC	24
Input voltage		V DC	Signal 0: ≤ 5 (I1 - I4) Signal 1: ≥ 15 (I1 - I4)
Input current at signal 1		mA	3.3 (I1 – I4)
Deceleration time		ms	type 0.1 (0 -> 1) type 0.2 (1 -> 0)
Cable length		m	100 (unshielded)

Digital inputs 24 V AC

Number			4
Potential isolation			from power supply: no between inputs: no from the outputs: yes to base unit: yes to expansion devices: yes
Rated operational voltage	U _e	V AC	24
Input voltage (AC = sinusoidal)	U _e	V	Status 0: ≤ 5 (I1 - I8) Condition 1: ≥ 14 (I1 - I4)
Rated frequency		Hz	50/60
Input current at signal 1		mA	I1 - I4: 3.5 (at 24 VAC/DC)
Deceleration time		ms	type 25/21 (0 - > 1/1 -> 0, 50/60Hz)
Cable length		m	40 (unshielded)

Relay outputs

Number			4
Outputs in groups of			1
Parallel switching of outputs for increased output			Not permitted
Protection of an output relay			B16 circuit breaker or 8 A (T) fuse
Potential isolation			Safe isolation according to EN 50178: 300 V AC Basic isolation: 600 V AC from power supply: yes From the inputs: yes between outputs: yes to expansion devices: yes
Contacts			
Conventional thermal current (10 A UL)		A	5
Recommended for load: 12 V AC/DC		mA	> 500
Rated impulse withstand voltage U _{imp} of contact coil		kV	6
Rated operational voltage	U _e	V AC	240
Rated insulation voltage	U _i	V AC	240
Safe isolation according to EN 50178		V AC	300 between coil and contact 300 between two contacts
Making capacity			
AC—15, 250 V AC, 3 A (600 ops./h)	Operations		300000
DC-13, L/R ≤ 150 ms, 24 V DC, 1 A (500 S/h)	Operations		200000
Breaking capacity			
AC-15, 250 V AC, 3 A (600 Ops./h)	Operations		300000
DC-13, L/R ≤ 150 ms, 24 V DC, 1 A (500 S/h)	Operations		200000
Filament bulb load			
1000 W at 230/240 V AC	Operations		25000
500 W at 115/120 V AC	Operations		25000
Fluorescent lamp load			
Fluorescent lamp load 10 x 58 W at 230/240 V AC			
With upstream electrical device	Operations		25000
Uncompensated	Operations		25000
Fluorescent lamp load 1 x 58 W at 230/240 V AC, conventional, compensated	Operations		25000
Switching frequency			

Mechanical operations	x 10 ⁶	10
Switching frequency	Hz	10
Resistive load/lamp load	Hz	2
Inductive load	Hz	0.5
UL/CSA		
Uninterrupted current at 240 V AC	A	5
Uninterrupted current at 24 V DC	A	5
AC		
Control Circuit Rating Codes (utilization category)		B 300 Light Pilot Duty
Max. rated operational voltage	V AC	300
max. thermal continuous current cos φ = 1 at B 300	A	5
max. make/break cos φ ≠ capacity 1 at B 300	VA	3600/360
DC		
Control Circuit Rating Codes (utilization category)		R 300 Light Pilot Duty
Max. rated operational voltage	V DC	300
Max. thermal uninterrupted current at R 300	A	1
Max. make/break capacity at R 300	VA	28/28

Design verification as per IEC/EN 61439

Technical data for design verification			
Static heat dissipation, non-current-dependent	P _{VS}	W	2
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	55
IEC/EN 61439 design verification			
10.2 Strength of materials and parts			
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 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric 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 Insulation properties			
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	85 - 264
Supply voltage AC 60 Hz	V	85 - 264

Supply voltage DC	V	10.2 - 28.8
Voltage type of supply voltage		AC/DC
Switching current	A	5
Number of analogue inputs		0
Number of analogue outputs		0
Number of digital inputs		4
Number of digital outputs		4
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 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		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
Width		mm	36
Height		mm	90
Depth		mm	58

Approvals

UL File No.			E205091
UL Category Control No.			NRAQ/7
North America Certification			UL listed
Degree of Protection			IEC: IP20, UL/CSA Type: -

Dimensions

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Additional product information (links)

assembly instructions easyE4 IL050021ZU	
assembly instructions easyE4 IL050021ZU	https://es-assets.eaton.com/DOCUMENTATION/AWA_INSTRUCTIONS/IL050021ZU.pdf
easyE4 (MN050009) manual	
easyE4 – Handbuch (MN050009) - Deutsch	https://es-assets.eaton.com/DOCUMENTATION/AWB_MANUALS/MN050009_DE.pdf
easyE4 (MN050009) manual - English	https://es-assets.eaton.com/DOCUMENTATION/AWB_MANUALS/MN050009_EN.pdf
manuel easyE4 (MN050009) - français	https://es-assets.eaton.com/DOCUMENTATION/AWB_MANUALS/MN050009_FR.pdf
Manuale easy E4 (MN050009) - italiano	https://es-assets.eaton.com/DOCUMENTATION/AWB_MANUALS/MN050009_IT.pdf
instrukcja easyE4 (MN050009) - polski	https://es-assets.eaton.com/DOCUMENTATION/AWB_MANUALS/MN050009_PL.pdf
f1=1454&f2=1174&f3=1755;Download Software easySoft V7	http://applications.eaton.eu/sdlc?LX=11&f1=1454&f2=1174&f3=1755
Product overview (WEB)	http://www.eaton.eu/easyE4