



I/O expansion, integrated, 24 V DC, 6DI, 4DO(T)

Part no. **EC4E-221-6D4T1**
 Catalog No. **114297**

EL-Nummer (Norway) **4560854**

Delivery program

Product range			Remote I/O systems Compact PLCs
Subrange			I/O expansions digital/analog
Basic function			Expansions
Description			usable via CANopen®
Function			CANopen® expansion EC4E
Inputs			
Inputs expansion (number)			Digital: 6
Outputs			
Transistor			4
Additional features			
Real time clock			#
Supply voltage			24 V DC
For use with			easy800 EC4P MFD-CP8... MFD-CP10...
For use with			XC100/200, EC4P, MFD4 (via CANopen®)

Technical data

General

Dimensions (W x H x D)		mm	71.5 x 90 x 58 (4 PE)
Weight		kg	0.2
Mounting			Top-hat rail IEC/EN 60715, 35 mm or screw fixing using fixing brackets ZB4-101-GF1 (accessories)

Terminal capacities

Solid		mm ²	0.2/4 (AWG 22 - 12)
Flexible with ferrule		mm ²	0.2/2.5 (AWG 22 - 12)
Standard screwdriver		mm	0.8 x 3.5
Max. tightening torque		Nm	0.6

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	θ	°C	-40 - +70

Ambient conditions, mechanical

Mounting position			Vertical or horizontal
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Electromagnetic compatibility (EMC)

Overvoltage category/pollution degree			II/2
Electrostatic discharge (ESD)			
applied standard			IEC/EN 61000-4-2, Level 3
Air discharge		kV	8
Electromagnetic fields (RFI) to IEC EN 61000-4-3		V/m	10
Burst		kV	according to IEC/EN 61000-4-4
power pulses (Surge)			2 kV (supply cables, symmetrical, EASY...AC) 0.5 kV (supply cables, symmetrical, easy-DC) according to IEC/EN 61000-4-5
Immunity to line-conducted interference to (IEC/EN 61000-4-6)		V	10

Insulation resistance

Clearance in air and creepage distances			EN 50178, UL 508, CSA C22.2, No. 142
Insulation resistance			EN 50178

Power supply

Rated operational voltage	U_e	V	24 DC (-15/+20%)
Permissible range	U_e		20.4 - 28.8 V DC
Residual ripple		%	≤ 5
Input current			150 mA at U_e at no load
Voltage dips		ms	≤ 20 (IEC/EN 61131-2)
Heat dissipation	P		Normally 3.5 W

Interfaces

CANopen®			
Data transfer rate			500 kBit/s, 25 m250 kBit/s, 40m125 kBit/s, 125 m50 kBit/s, 300 m20 kBit/s, 700 m10 kBit/s, 1000 m
Bus termination (first and last station)			Via integrated Dip switch
Connection types			2 x terminals (see terminal capacity)
Mode slave			
Stations		Number	max. 62
PDO type			Asynchronous, cyclic, acyclic
Control contact rated current			to DS301V4

Digital inputs 24 V DC

Number			6
Potential isolation			from the outputs: yes
Rated operational voltage	U_e	V DC	24
Input voltage		V DC	< 5 (R1 - R6) at signal "0" > 15 (R1 - R6) at signal "1"
Input current on 1 signal			
Input current at signal 1		mA	3.3 (R1 to R6 (R12))
Deceleration time		ms	20 (from "0" to "1", debounce ON) Normally 0.25 (R1 - R12) (from "0" to "1", debounce OFF) 20 (from „1" to „0")
Cable length		m	100 (unshielded)

Transistor outputs

Number			4
Rated operational voltage	U_e	V DC	24
Permissible range	U_e		20.4 - 28.8 V DC
Residual ripple		%	5
Supply current		mA	Norm./max. 9/16 at signal 0 12/22 at signal 1
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.)
Potential isolation			from power supply, inputs to the memory card: yes
Rated operational current at signal „1" DC per channel	I_e	A	Max. 0.5
Lamp load without R_v per channel		W	5
Residual current on 0 signal per channel		mA	< 0.1
Max. output voltage		V	2.5 (signal 0 at external load < 10 M Ω) $U = U_e - 1$ V (signal 1 at $I_e = 0.5$ A)
Short-circuit protection			Yes, thermal (analysis via diagnostics input I16, I15; R15, R16)
Short-circuit tripping current for $R_a \leq 10$ m Ω		A	$0.7 \leq I_e \leq 2$ per output
Total short-circuit current		A	8
Peak short-circuit current		A	16
Thermal cutout			Yes
Max. operating frequency with constant resistive load		Operations/h	40000
Parallel connection of outputs			
With resistive load, inductive load with external suppressor circuit, combination within a group			Group 1: Q1 to Q4
Number of outputs	max.		4
Max. total current		A	2 (Caution! Outputs must be actuated simultaneously and for the same length of time.)

Supply voltage U_{Aux}

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.)
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Network easyNet

Bus termination (first and last station)		Via integrated Dip switch
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Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	I _n	A	0
Heat dissipation per pole, current-dependent	P _{vid}	W	0
Equipment heat dissipation, current-dependent	P _{vid}	W	0
Static heat dissipation, non-current-dependent	P _{vs}	W	3.4
Heat dissipation capacity	P _{diss}	W	0
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 7.0

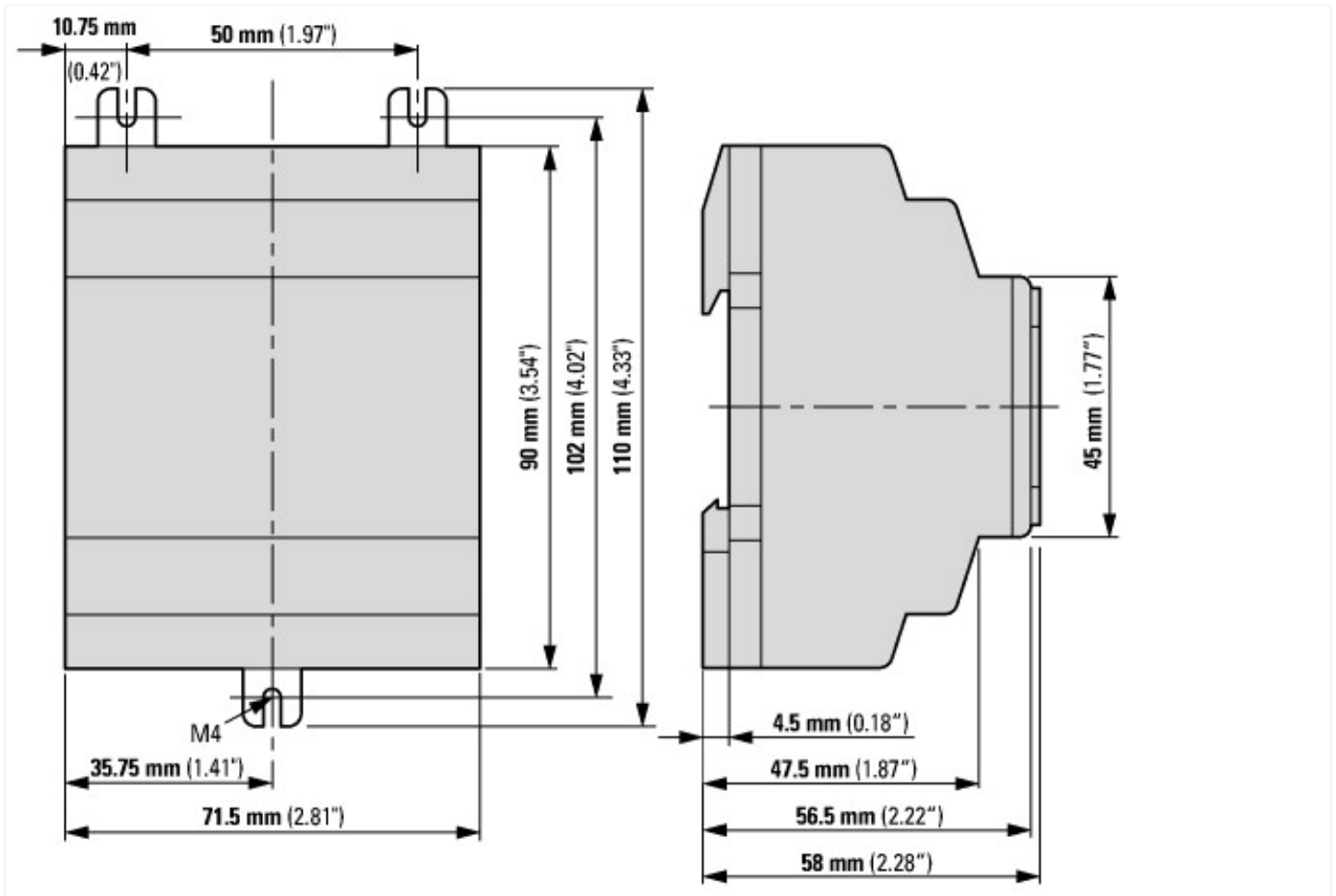
PLC's (EG000024) / PLC digital I/O-module (EC001419)			
Electric engineering, automation, process control engineering / Control / Programmable logic control (SPS) / SPS digital input/output module (ecl@ss10.0.1-27-24-22-04 [AKE527014])			
Supply voltage AC 50 Hz		V	0 - 0
Supply voltage AC 60 Hz		V	0 - 0
Supply voltage DC		V	20.4 - 28.8
Voltage type of supply voltage			DC
Number of digital inputs			6
Number of digital outputs			4
Digital inputs configurable			No
Digital outputs configurable			No
Input current at signal 1		mA	3.3
Permitted voltage at input		V	0 - 0
Type of voltage (input voltage)			DC

Type of digital output		Transistor
Output current	A	0.5
Permitted voltage at output	V	0 - 0
Type of output voltage		DC
Short-circuit protection, outputs available		Yes
Redundancy		No
Type of electric connection		Screw connection
Time delay at signal exchange	ms	20 - 20
Suitable for safety functions		No
Category according to EN 954-1		
SIL according to IEC 61508		None
Performance level acc. 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	71.5
Height	mm	90
Depth	mm	58

Approvals

North America Certification		Request filed for UL and CSA
Specially designed for North America		No
Current Limiting Circuit-Breaker		No
Degree of Protection		IEC: IP20, UL/CSA Type: -

Dimensions



Additional product information (links)

Instruction leaflet IL05013026Z CANopen digital modules EC4E-221-6D4R1, EC4E-221-6D4T1

Instruction leaflet IL05013026Z CANopen digital modules EC4E-221-6D4R1, EC4E-221-6D4T1	https://es-assets.eaton.com/DOCUMENTATION/AWA_INSTRUCTIONS/IL05013026Z2018_02.pdf
Manual CAN digital module EC4E MN05002003Z (AWB2724-1614)	
Handbuch digitales CAN-Modul EC4E MN05002003Z (AWB2724-1614) - Deutsch	https://es-assets.eaton.com/DOCUMENTATION/AWB_MANUALS/MN05002003Z_DE.pdf
Manual CAN digital module EC4E MN05002003Z (AWB2724-1614) - English	https://es-assets.eaton.com/DOCUMENTATION/AWB_MANUALS/MN05002003Z_EN.pdf
Technical Data	http://ecat.moeller.net/flip-cat/?edition=HPLEN&startpage=14.75
Product overview (WEB)	http://www.eaton.eu/ec4p