



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 |
|-------------------|--|--|------------------------|

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.) |
|--------------------------------------|--|--|

Network easyNet

| | | |
|--|--|---------------------------|
| Bus termination (first and last station) | | Via integrated Dip switch |
|--|--|---------------------------|

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

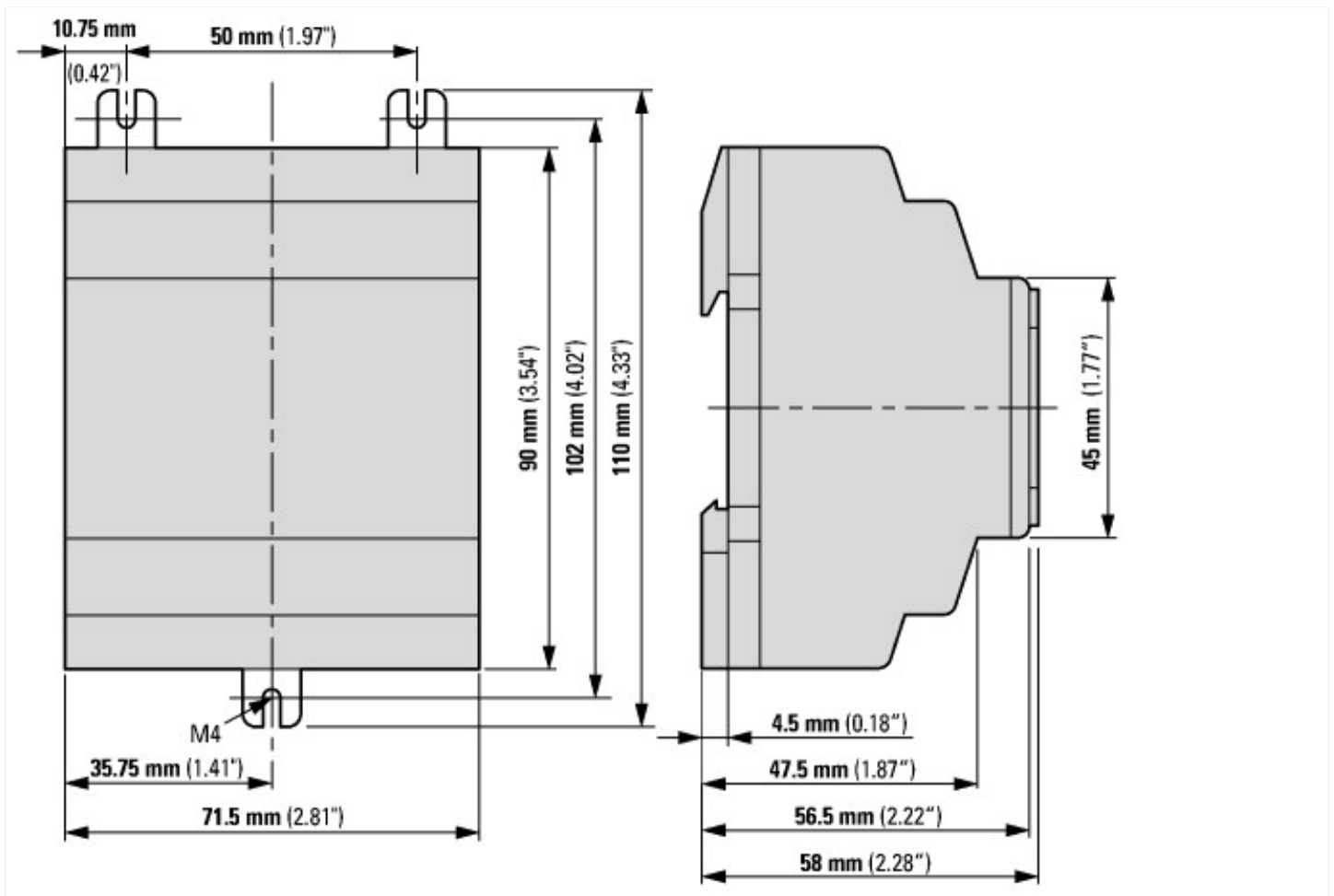
| PLC's (EG000024) / PLC digital I/O-module (EC001419) | | | |
|---|--|----|-------------|
| Electric engineering, automation, process control engineering / Control / Programmable logic control (SPS) / SPS digital input/output module (ecl@ss10.0.1-27-24-22-04 [AKE527014]) | | | |
| Supply voltage AC 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)

| | |
|----------------|---|
| Technical Data | http://ecat.moeller.net/flip-cat/?edition=HPLEN&startpage=14.75 |
|----------------|---|

