# DATASHEET - EASY-E4-AC-12RC1



**Control relays, easyE4 (expandable, Ethernet), 100 - 240 V AC, 110 - 240 V DC, Inputs Digital: 8, Outputs Digital: 4 relais, screw terminal**

**Part no.** EASY-E4-AC-12RC1
**Catalog No.** 197215

## Delivery program

| | | | |
|---|---|---|---|
| Basic function | | | easyE4 basic device |
| Description | | | Electronic control relay<br>with display<br>with Ethernet interface<br>Expandable with the easyE4 series of digital input/output expansions with easy-E4-CONNECT1 connector (Item Y7-197225)<br>Rated operating voltage 100 to 240V AC or 100 to 240V DC<br>Digital inputs: 8<br>Digital outputs: 4 relays<br>Screw terminals<br>Delivery with customized user program is possible via Item (Y7) -2010781 EASY-COMBINATION |
| **Inputs** | | | |
| Digital | | | 8 |
| **Additional features** | | | |
| Real time clock | | | # |
| Display & keypad | | | # |
| Expansions | | | Expandable<br>networkable (Ethernet) |
| Supply voltage | | | 100 - 240 V AC, 100 - 240 V DC |
| Software | | | EASYSOFT-SWLIC/easySoft 7 |

## Technical data

### General

| | | | |
|---|---|---|---|
| Standards | | | EN 61000-6-2<br>EN 61000-6-3<br>IEC 60068-2-6<br>IEC 60068-2-27<br>IEC 60068-2-30<br>IEC 61131-2<br>EN 61010<br>EN 50178 |
| Dimensions (W x H x D) | | mm | 71.5 x 90 x 58 |
| Weight | | kg | 0.2 |
| Mounting | | | Top-hat rail IEC/EN 60715, 35 mm or screw fixing using fixing brackets ZB4-101-GF1 (accessories) |
| Connection type | | | screw terminal |
| Ethernet | | | |
| Connections | | | RJ45 plug, 8-pin |
| Cable | | | CAT5 |

### Terminal capacities

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

### Display

| | | | |
|---|---|---|---|
| Display - Type | | | Monochrome |
| Lines x characters | | | 6 x 16 |

### 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 |
| LCD display (clearly legible) | | °C | 0 - 55 |
| Storage | ϑ | °C | -40 - +70 |

| | | | |
|---|---|---|---|
| relative humidity | | % | in accordance with IEC 60068-2-30, IEC 60068-2-78<br>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<br>constant amplitude 0.15 mm: 10 - 57<br>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 |

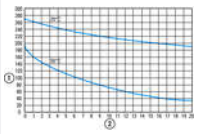
## Electromagnetic compatibility (EMC)

| | | | |
|---|---|---|---|
| Overvoltage category/pollution degree | | | III/2 |
| Electrostatic discharge (ESD) | | | |
| applied standard | | | according to IEC EN 61000-4-2 |
| Air discharge | | kV | 8 |
| Contact discharge | | kV | 6 |
| Electromagnetic fields (RFI) to IEC EN 61000-4-3 | | V/m | 0.8 - 1.0 GHz: 10<br>1.4 - 2 GHz: 3<br>2.0 - 2.7 GHz: 1 |
| Radio interference suppression | | | EN 61000-6-3 Class B |
| Burst | | kV | according to IEC/EN 61000-4-4<br>Supply cables: 2<br>Signal cables: 2 |
| power pulses (Surge) | | | according to IEC/EN 61000-4-5<br>1 kV (supply cables, symmetrical)<br>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 | | | per EN 50178, EN 61010-2-201, UL61010-2-201, CSA-C22.2 NO. 61010-2-201 |

## Back-up of real-time clock

| | | | |
|---|---|---|---|
| Back-up of real-time clock | | |  |
| | | | ① Backup time (hours) with fully charged double layer capacitor<br>② Service life (years) |
| Accuracy of real-time clock to inputs | | s/day | typ. ± 2 (± 0.2 h/Year) |
| | | | depending on ambient air temperature fluctuations of up to ± 5 s/day (± 0.5 h/year) are possible |

## Repetition accuracy of timing relays

| | | | |
|---|---|---|---|
| Accuracy of timing relays (of values) | | % | ± 0.02 |
| Resolution | | | |
| Range “S” | | ms | 5 |
| Range “M:S” | | s | 1 |
| Range “H:M” | | min | 1 |

## Power supply

| | | | |
|---|---|---|---|
| Rated operational voltage | $U_e$ | V | 100 - 240V DC (-15/+10%)<br>100 - 240V DC (-15/+10%) |
| Permissible range | $U_e$ | | 85 - 264 V AC<br>85 - 264 V DC |
| Residual ripple | | % | ≦ 5 |
| Siemens MPI, (optional) | | | yes |
| Frequency | | Hz | 50/60 (± 5%) |
| Voltage dips | | ms | ≤ 20 ms at 100V AC<br>10 ms at 100V DC |
| Fuse | | A | ≧ 1A (T) |

## Digital inputs 115/230 V AC

| | | | |
|---|---|---|---|
| Number | | | 8 |
| Status Display | | | LCD-Display |
| Potential isolation | | | from power supply: no |

| | | | |
|---|---|---|---|
| | | | for memory card: no<br>for Ethernet interface: yes<br>between inputs: no<br>from the outputs: yes<br>to the base unit: yes<br>to the expansion units: yes |
| Rated operational voltage | $U_e$ | V | 100 - 240 V AC<br>100 - 240 V DC |
| Input voltage | $U_e$ | V | Condition 0: 0 - 40V AC/DC<br>Condition 1: 79 - 264V AC/DC |
| Rated frequency | | Hz | 50/60 |
| Input current at signal 1 | | mA | I1 - I6: 6 x 0.25 (at 115 V AC, 60 Hz)<br>I7, I8: 2 x 4 (at 115 V AC, 60 Hz)<br>I1 - I6: 6 x 0.5 (at 230 V AC, 50 Hz)<br>I7, I8: 2 x 6 (at 230 V AC, 50 Hz)<br>I1 - I8: 8 x 0.25 (at 115V DC)<br>I1 - I8: 8 x 0.5 (at 230V DC) |
| Deceleration time | | ms | 45/38 (0 -> 1/1 -> 0, debounce ON 50/60Hz) for AC<br>type 25/21 (0 -> 1/1 -> 0, debounce OFF 50/60Hz) for AC<br>20 (0 -> 1/1 -> 0, debounce ON) for DC<br>type 0.03 (0 -> 1/1 -> 0, debounce OFF) for DC |
| Cable length | | m | 40 (unshielded) (I1 - I6)<br>100 (unshielded) (I7, I8) |

## 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<br>Basic isolation: 600 V AC<br>from power supply: yes<br>From the inputs: yes<br>between outputs: yes<br>to Ethernet: yes<br>to control buttons: yes<br>to expansion devices: yes |
| Contacts | | | |
| Conventional thermal current (10 A UL) | | A | 8 |
| 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<br>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 | 10 |

| | | |
|---|---|---|
| Uninterrupted current at 24 V DC | A | 8 |
| 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 |

### Ethernet

| | | |
|---|---|---|
| Data transfer rate | Mbit/s | 10/100 |
| Connections | | RJ45 plug, 8-pin |
| Cable | | CAT5 |

## Design verification as per IEC/EN 61439

| | | |
|---|---|---|
| Technical data for design verification | | |
| 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) / 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 | 85 - 264 |
| Voltage type of supply voltage | | AC/DC |
| Switching current | A | 8 |
| Number of analogue inputs | | 0 |

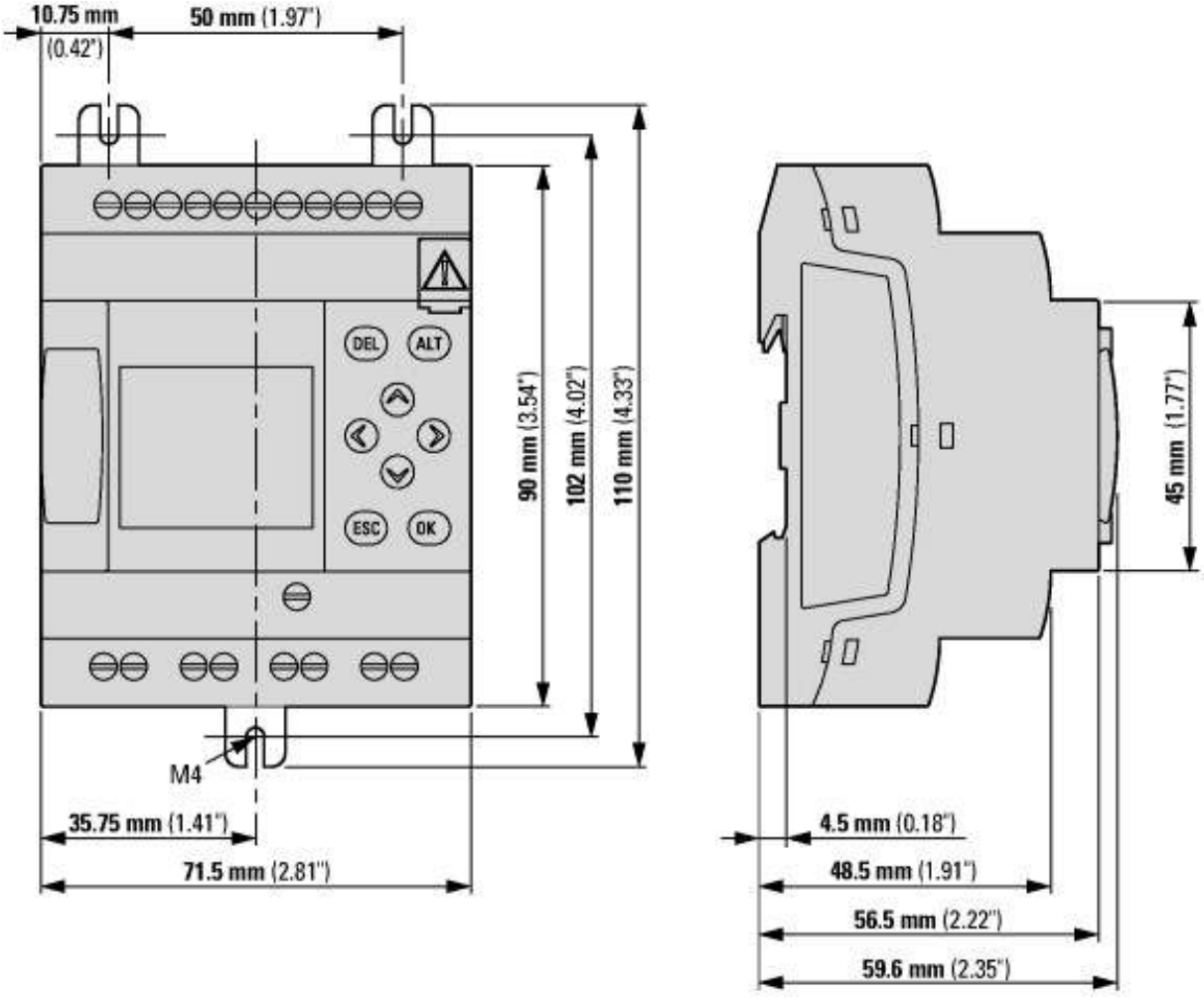
| | |
|---|---|
| Number of analogue outputs | 0 |
| Number of digital inputs | 8 |
| Number of digital outputs | 4 |
| With relay output | Yes |
| Number of HW-interfaces industrial Ethernet | 1 |
| Number of interfaces PROFINET | 0 |
| Number of HW-interfaces RS-232 | 0 |
| Number of HW-interfaces 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 | 1 |
| 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 WLAN 802.11 | No |
| Radio standard GPRS | No |
| Radio standard GSM | No |
| Radio standard UMTS | No |
| IO link master | No |
| Redundancy | No |
| With display | Yes |
| Degree of protection (IP) | IP20 |
| Basic device | Yes |
| Expandable | Yes |
| Expansion device | No |
| With timer | Yes |
| Rail mounting possible | Yes |
| Wall mounting/direct mounting | Yes |
| Front build in possible | Yes |
| Rack-assembly possible | No |
| 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

| | | |
|---|---|---|
| Degree of Protection | | IEC: IP20, UL/CSA Type: - |

## Dimensions




## Assets (links)

### Declaration of CE Conformity

00003237


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