



I/O module, 100-240VAC, for MFD-AC-CP8, 12DI, 4DO relays

Part no. MFD-AC-R16
Catalog No. 274093

EL-Nummer (Norway) 4519712

Delivery program

| | | | |
|--------------------------|--|--|----------------|
| Supply voltage | | | 100 - 240 V AC |
| Inputs | | | |
| Digital | | | 12 |
| Outputs | | | |
| Relay 10 A (UL) | | | 4 |
| Temperature range | | | |
| Temperature detector | | | - |
| For use with | | | MFD-AC-CP8... |
| Connection type | | | screw terminal |

Technical data

General

| | | | |
|------------------------|--|----|--|
| Standards | | | EN 61000-6-1/-2/-3/-4, IEC/EN 61000-4, IEC 60068-2-6, IEC 60068-2-27 |
| Dimensions (W x H x D) | | mm | 89 x 90 x 44 |
| Weight | | kg | 0.153 |
| Mounting | | | Fitted into the power supply unit. |

Terminal capacities

| | | | |
|-----------------------|--|-----------------|----------------------|
| Solid | | mm ² | 0.24 (AWG 24 - 12) |
| Flexible with ferrule | | mm ² | 0.22.5 (AWG 24 - 12) |
| Standard screwdriver | | mm | 3.5 x 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 | | °C | - 40 - 70 |
| Relative humidity, non-condensing (IEC/EN 60068-2-30) | | % | 5 - 95 |
| Air pressure (operation) | | hPa | 795 - 1080 |

Ambient conditions, mechanical

| | | | |
|--|-------------|---------|------------------------|
| Pollution degree | | | 2 |
| Protection type (IEC/EN 60529, EN50178, VBG 4) | | | IP20 |
| Vibrations (IEC/EN 60068-2-6) | | Hz | |
| Constant amplitude 0.15 mm | | Hz | 10 - 57 |
| Constant acceleration 2 g | | Hz | 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 | 1 |
| Mounting position | | | Vertical or horizontal |

Electromagnetic compatibility (EMC)

| | | | |
|--|--|-----|------------------------------------|
| Electrostatic discharge (IEC/EN 61000-4-2, Level 3, ESD) | | kV | |
| Air discharge | | kV | 8 |
| Contact discharge | | kV | 6 |
| Electromagnetic fields (RFI) to IEC EN 61000-4-3 | | V/m | 10 |
| Radio interference suppression | | | EN 55011 Class B, EN 55022 Class B |
| Burst Impulse (IEC/EN 61000-4-4, Level 3) | | | |
| Supply cable | | kV | 2 |
| Signal lines | | kV | 2 |
| Power pulses (surge) (IEC/EN 61000-4-5) | | kV | 2 (supply cables, symmetrical) |

| | | | |
|--|------------|---------------|--|
| power pulses (surge) (IEC/EN 61000-4-5, level 2) | | kV | 0.5 (symmetrical power lines) |
| 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 | | | |
| Heat dissipation | | W | 17 |
| Digital inputs 115/230 V AC | | | |
| Number | | | 12 |
| Status indication | | | LCD-display (if present) |
| Potential isolation | | | |
| From power supply | | | No |
| Between digital inputs | | | No |
| From the outputs | | | Yes |
| From the PC interface, memory card NET network, EASY-Link | | | Yes |
| Rated voltage L (sinusoidal) | | V AC | |
| On 0 signal | | V AC | 0 - 40 |
| On 1 signal | | V AC | 79 - 264 |
| Rated frequency | | Hz | 50 - 60 |
| Input current on 1 signal | | | |
| I1 - I12 | | mA | 12 x 0.2 (at 115 V AC, 60 Hz), 12 x 0.5 (at 230 V AC, 50 Hz) |
| Delay time | | | |
| Delay time (0 - 1/1 - 0) I1 - I12, 50/60 Hz | | ms | 10/100 |
| Max. admissible cable length (per input) | | m | |
| I1 - I12 | | m | Normally 60 |
| Relay outputs | | | |
| Number | | | 4 |
| Parallel switching of outputs for increased output | | | Not permissible |
| Protection of an output relay | | | Miniature circuit-breaker B16 or fuse 8 A (slow) |
| Potential isolation | | | |
| From power supply | | | Yes |
| From the inputs | | | No |
| From the PC interface, memory card NET network, EASY-Link | | | Yes |
| Safe isolation according to EN 50178 | | V AC | 300 |
| Basic insulation | | V AC | 600 |
| Lifespan, mechanical | Operations | $\times 10^6$ | 10 |
| Contacts | | | |
| Conventional thermal current (10 A UL) | | A | 8 |
| Recommended for load: 12 V AC/DC | | mA | > 500 |
| Short-circuit-proof $\cos \varphi = 1$, characteristic B16 at 600 A | | A | 16 |
| Short-circuit-proof $\cos \varphi = 0.5$ to 0.7, characteristic B16 at 900 A | | A | 16 |
| Rated impulse withstand voltage U_{imp} of contact coil | | kV | 6 |
| Rated operational voltage | U_e | V AC | 250 |
| Rated insulation voltage | U_i | V AC | 250 |
| Safe isolation to EN 50178 between coil and contact | | V AC | 300 |
| Safe isolation to EN 50178 between 2 contacts | | V AC | 300 |
| Making capacity | | | |
| AC-15, 230 V AC, 3 A | Operations | | 300000 |
| DC-13, 24 V DC, 5 A, 0.1 Hz | Operations | | 200000 |
| Breaking capacity | | | |
| AC-15, 250 V AC, 3 A (600 Ops./h) | Operations | | 300000 |
| DC-13, L/R \leq 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 $\phi = 1$ at B 300 | | A | 5 |
| max. make/break cos $\phi \neq$ 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 | | | |
| 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 | 17 |
| 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. |

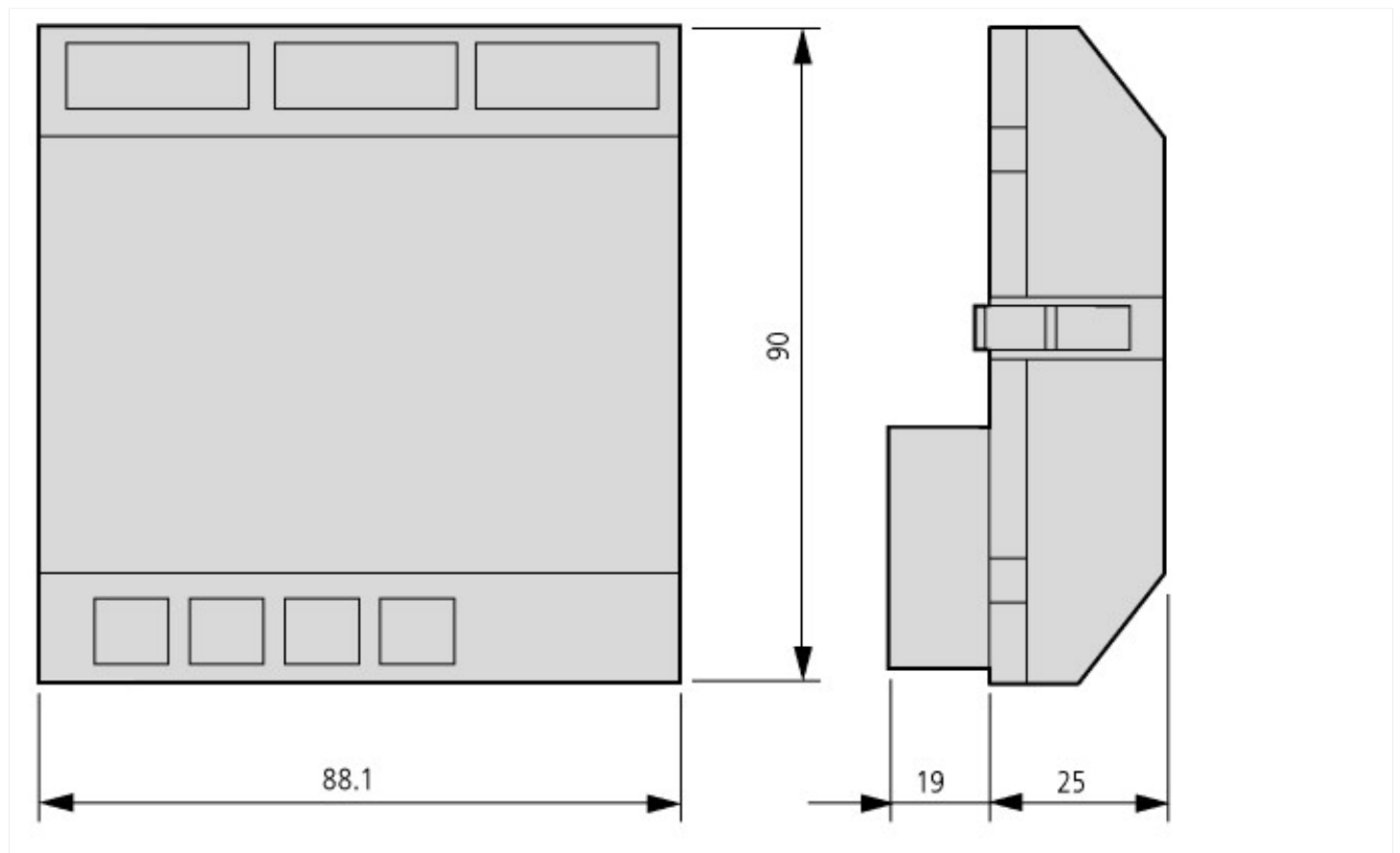
Technical data ETIM 7.0

| | | |
|---|----|-------------------------|
| 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 | 85 - 264 |
| Supply voltage AC 60 Hz | V | 85 - 264 |
| Supply voltage DC | V | 0 - 0 |
| Voltage type of supply voltage | | AC |
| Number of digital inputs | | 12 |
| Number of digital outputs | | 4 |
| Digital inputs configurable | | No |
| Digital outputs configurable | | No |
| Input current at signal 1 | mA | 0.5 |
| Permitted voltage at input | V | 0 - 0 |
| Type of voltage (input voltage) | | AC |
| Type of digital output | | Relay |
| Output current | A | 8 |
| Permitted voltage at output | V | 0 - 0 |
| Type of output voltage | | AC/DC |
| Short-circuit protection, outputs available | | No |
| Redundancy | | No |
| Type of electric connection | | Spring clamp connection |
| Time delay at signal exchange | ms | 10 - 100 |
| 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 | 90 |
| Height | mm | 44 |
| Depth | mm | 89 |

Approvals

| | | |
|-----------------------------|--|---|
| Product Standards | | IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking |
| UL File No. | | E135462 |
| UL Category Control No. | | NRAQ |
| CSA File No. | | 012528 |
| CSA Class No. | | 2252-01 + 2258-02 |
| North America Certification | | UL listed, CSA certified |
| Degree of Protection | | IEC: IP20, UL/CSA Type: - |

Dimensions



Additional product information (links)

Instruction leaflet "Multi-function display, easy control relays" IL05013014Z (AWA2528-2019)

Instruction leaflet "Multi-function display, easy control relays" IL05013014Z (AWA2528-2019) https://es-assets.eaton.com/DOCUMENTATION/AWA_INSTRUCTIONS/IL05013014Z2018_02.pdf

Manual "MFD-Titan multi-function display" MN05002001Z (AWB2528-1480)

Handbuch „Multifunktions-Display MFD-Titan“ MN05002001Z (AWB2528-1480) - Deutsch https://es-assets.eaton.com/DOCUMENTATION/AWB_MANUALS/MN05002001Z_DE.pdf

Manual "MFD-Titan multi-function display" MN05002001Z (AWB2528-1480) - English https://es-assets.eaton.com/DOCUMENTATION/AWB_MANUALS/MN05002001Z_EN.pdf

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