# Specifications

## Eaton 197214

Eaton Moeller® series EASY Control relays, easyE4 (expandable, Ethernet), 24 V DC, Inputs Digital: 8, of which can be used as analog: 4, screw terminal

| General specifications | |
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| **PRODUCT NAME** | Eaton Moeller® series EASY Control relay |
| **CATALOG NUMBER** | 197214 |
| **MODEL CODE** | EASY-E4-DC-12TCX1 |
| **EAN** | 4015081939459 |
| **PRODUCT LENGTH/DEPTH** | 58 mm |
| **PRODUCT HEIGHT** | 90 mm |
| **PRODUCT WIDTH** | 72 mm |
| **PRODUCT WEIGHT** | 0.2 kg |
| **COMPLIANCES** | Eaton supports the product until its end of life |
| **CERTIFICATIONS** | CULus per UL 61010<br>IEC/EN 61000-6-2<br>IEC 60068-2-30<br>CSA-C22.2 No. 61010<br>IEC/EN 61000-4-2<br>IEC 60068-2-27<br>IEC 60068-2-6<br>EN 50178<br>EN 61010<br>IEC/EN 61000-6-3<br>IEC/EN 61131-2<br>UL Listed<br>UL Category Control No.: NRAQ, NRAQ7<br>UL File No.: E205091<br>DNV GL<br>CE<br>UL hazardous location group B (hydrogen)<br>UL hazardous location division 2<br>UL hazardous location group C (ethylene)<br>UL hazardous location class I<br>UL hazardous location group A (acetylene) |

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| | UL hazardous location group D (propane) |
| **CATALOG NOTES** | Accuracy of the real-time clock depending on ambient air temperature - fluctuations of up to ± 5 s/day (± 0.5 h/year) are possible |
| **GLOBAL CATALOG** | 197214 |
| **PRODUCT TYPE** | Control relay |

## Product specifications

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| **USED WITH** | easyE4 |
| **TYPE** | easyE4 base device |
| **FEATURES** | Expandable<br>Parallel connection of transistor outputs with resistive load, inductive load with external suppressor circuit, combination within a group - Group 1: Q1 to Q4<br>Networkable (Ethernet) |
| **AIR DISCHARGE** | 8 kV |
| **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. |
| **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 RESIST. OF INSUL. MAT. TO ABNORMAL HEAT/FIRE BY INTERNAL ELECT. 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. |

## Resources

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| APPLICATION NOTES | eaton-easye4-aws-ap050027-en-us.pdf |
| CATALOGS | eaton-product-overview-for-machinery-catalogue-ca08103003zen-en-us.pdf |
| CHARACTERISTIC CURVE | eaton-electrical-timers-easy-control-relays-characteristic-curve-002.eps |
| DECLARATIONS OF CONFORMITY | eaton-i-o-expansion-declaration-of-conformity-uk251130en.pdf<br><br>eaton-i-o-expansion-declaration-of-conformity-eu251486en.pdf |
| DRAWINGS | eaton-logic-relays-easy-control-relays-dimensions.eps<br><br>2723DIM-100<br><br>eaton-modular-plc-easy-control-relays-3d-drawing-002.eps<br><br>eaton-general-easy-control-relays-symbol-002.tif |
| ECAD MODEL | ETN.EASY-E4-DC-12TCX1.edz |
| INSTALLATION INSTRUCTIONS | IL050020ZU |
| INSTALLATION VIDEOS | Control relay easyE4: The new generation<br><br>Video easy E4 control relay |
| MANUALS AND USER GUIDES | MN050009_EN |
| MCAD MODEL | DA-CD-uc_12rcx1<br><br>DA-CS-uc_12rcx1 |
| MULTIMEDIA | How to process SmartWire-DT modules using the EASY-COM-SWD-C1 module connected to an easyE4?<br><br>easyE4 SmartWire-DT module with Remote Touch Display and RMQ multi color indicator |

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| **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. |
| **10.9.2 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. |
| **CABLE TYPE** | CAT5 |
| **FITTED WITH:** | Timer<br>Real time clock |
| **OPERATING FREQUENCY** | Dependent on the cycle- and transmission-time of the expansion devices<br>Dependent on the cycle time of the basic device<br>Depending on the suppressor circuit (Inductive load to EN 60947-5-1, With external suppressor circuit, Max. switching frequency, max. duty factor) |
| **POLLUTION DEGREE** | 2 |
| **ACCURACY** | ± 2 %, (I7, I8) ± 0.12 V, of actual value, within a single device (Analog Inputs)<br>± 1 %, Repetition accuracy of timing relays (of values)<br>± 3 %, of actual value, two easy devices (Analog Inputs)<br>± 2 s/day, Real-time clock to inputs (± 0.2 h/Year) |
| **BURST IMPULSE** | 2 kV, Signal cable<br>2 kV, Supply cable<br>According to IEC/EN |

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| | How to process ModbusRTU devices with the EASY-COM-RTU-M1 module on an easyE4?<br><br>How to connect the Remote Touch Display EASY-RTD to the easyE4?<br><br>How to connect the easyE4 to the touch panel XV-102 for easy? - 5 Steps<br><br>Handling of the data logger as a ring buffer with the easyE4 using the ST programming language. |
| PRODUCT NOTIFICATIONS | MZ049014EN |
| SALES NOTES | TT-197214_EASY-E4-DC-12TCX1-de_DE<br><br>eaton-easy-remote-touch-display-flyer-fl048004en-en-us.pdf<br><br>eaton-control-relay-easye4-flyer-fl050007en-en-us.pdf |

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| | 61000-4-4 |
| **AIR PRESSURE** | 795 - 1080 hPa (operation) |
| **CATEGORY (EN 954-1)** | None |
| **EXPLOSION SAFETY CATEGORY FOR DUST** | None |
| **ENVIRONMENTAL CONDITIONS** | Clearance in air and creepage distances according to EN 50178, EN 61010-2-201, UL61010-2-201, CSA-C22.2 NO. 61010-2-201<br>Condensation: prevent with appropriate measures |
| **INPUT** | Voltage (DC) |
| **OUTPUT VOLTAGE** | $U = U_e$ - 1 V (signal 1 at $I_e$ = 0.5 A, transistor outputs)<br>Max. 2.5 V (at status 0 per channel, transistor outputs) |
| **EXPLOSION SAFETY CATEGORY FOR GAS** | None |
| **MOUNTING METHOD** | Top-hat rail fixing (according to IEC/EN 60715, 35 mm)<br>Screw fixing using fixing brackets ZB4-101-GF1 (accessories)<br>Rail mounting possible<br>Front build in possible<br>Wall mounting/direct mounting |
| **SCREWDRIVER SIZE** | 3.5 x 0.8 mm, Terminal screw |
| **VOLTAGE TYPE** | DC |
| **MOUNTING POSITION** | Horizontal<br>Vertical |
| **OUTPUT** | 2 A, Max. total current, Outputs<br>Parallel connection of max. 4 Transistor outputs<br>4 Transistor Outputs<br>Voltage<br>Current |
| **CONTACT DISCHARGE** | 6 kV |
| **BASE TYPE** | Yes |
| **SAFETY PERFORMANCE LEVEL (EN ISO 13849-1)** | None |
| **SIL (IEC 61508)** | None |
| **AMBIENT OPERATING TEMPERATURE - MAX** | 55 °C |
| **AMBIENT OPERATING** | -25 °C |

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| **TEMPERATURE - MIN** | |
| **AMBIENT STORAGE TEMPERATURE - MAX** | 70 °C |
| **AMBIENT STORAGE TEMPERATURE - MIN** | -40 °C |
| **CONVENTIONAL THERMAL CURRENT ITH OF AUXILIARY CONTACTS (1-POLE, OPEN)** | 0.5 A |
| **EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID** | 0 W |
| **HEAT DISSIPATION CAPACITY PDISS** | 0 W |
| **HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID** | 0 W |
| **HEIGHT OF FALL (IEC/EN 60068-2-32) - MAX** | 0.3 m |
| **NUMBER OF HW-INTERFACES (INDUSTRIAL ETHERNET)** | 1 |
| **NUMBER OF HW-INTERFACES (OTHER)** | 0 |
| **NUMBER OF HW-INTERFACES (PARALLEL)** | 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 (WIRELESS)** | 0 |
| **OVERVOLTAGE CATEGORY** | III |
| **DUTY FACTOR** | 100 % (Inductive load to EN 60947-5-1, With external suppressor circuit)<br>100 % (Inductive load to EN 60947-5-1, Without external suppressor circuit, DC-13, T0.95 = 72 ms, R = 48 Ω, L = 1.15 H)<br>100 % (Inductive load to EN 60947-5-1, Without external suppressor |

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| | circuit, T0.95 = 15 ms, R = 48 Ω, L = 0.24 H) |
| **SOFTWARE** | EASYSOFT-SWLIC/easySoft |
| **SURGE RATING** | 0.5 kV, Supply cables, symmetrical, power pulses (Surge), EMC<br>1 kV, Supply cables, asymmetrical, power pulses (Surge), EMC<br>According to IEC/EN 61000-4-5, power pulses (Surge), EMC |
| **CABLE LENGTH** | ≤ 30 m, screened, Analog inputs<br>100 m, unscreened, Digital inputs 24 V DC |
| **CONVERSIONS** | Each CPU cycle, Analog inputs |
| **ELECTROMAGNETIC FIELDS** | 10 V/m at 0.8 - 1.0 GHz (according to IEC EN 61000-4-3)<br>1 V/m at 2.0 - 2.7 GHz (according to IEC EN 61000-4-3)<br>3 V/m at 1.4 - 2 GHz (according to IEC EN 61000-4-3) |
| **PROTECTION AGAINST POLARITY REVERSAL** | For transistor outputs (Caution: A short circuit will result if 0 V/earth is applied to the outputs in the event that the supply voltage is connected to the wrong poles)<br>Yes, for supply voltage (Siemens MPI optional) |
| **NUMBER OF INPUTS (ANALOG)** | 0<br>4 |
| **CONNECTION TYPE** | Ethernet: RJ45 plug, 8-pole<br><br>Screw terminal |
| **DROP AND TOPPLE** | 50 mm Drop height, Drop to IEC/EN 60068-2-31 |
| **IMMUNITY TO LINE-CONDUCTED INTERFERENCE** | 10 V (according to IEC/EN 61000-4-6) |
| **RADIO INTERFERENCE CLASS** | Class B (EN 61000-6-3) |
| **NUMBER OF OUTPUTS (DIGITAL)** | 4 |
| **DATA TRANSFER RATE** | 10/100 MBit/s |
| **RELATIVE HUMIDITY** | 5 - 95 % (IEC 60068-2-30, IEC 60068-2-78) |
| **DEGREE OF PROTECTION** | IP20 |

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| **DELAY TIME** | 20 ms typ., Digital inputs 24 V DC (I1 - I8), Delay time from 1 to 0, Debounce ON<br>20 ms typ., Digital inputs 24 V DC (I1 - I8), Delay time from 0 to 1, Debounce ON<br>0.015 ms typ., Digital inputs 24 V DC (I1 - I8), Delay time from 1 to 0, Debounce OFF<br>0.015 ms typ., Digital inputs 24 V DC (I1 - I8), Delay time from 0 to 1, Debounce OFF |
| **RESIDUAL CURRENT** | 0.1 mA (on signal "1" per channel) |
| **PROTOCOL** | MODBUS<br>TCP/IP |
| **RESIDUAL RIPPLE** | 5 % (transistor outputs)<br>≤ 5 % |
| **RAPID COUNTER INPUTS** | Square (pulse shape)<br>-2147483648 - 2147483647 (value range)<br>1:1 (Pulse pause ratio)<br>10 kHz, Counter frequency<br><br>Number: 4 (I1, I2, I3, I4 - Digital inputs 24 V DC)<br>≤ 20 m (cable length, screened) |
| **RATED OPERATIONAL CURRENT (IE)** | Max. 0.5 A at signal „1” DC per channel |
| **INRUSH CURRENT** | 12.5 A (for 6 ms) |
| **INSULATION RESISTANCE** | According to EN 50178, EN 61010-2-201, UL61010-2-201, CSA-C22.2 NO. 61010-2-201 |
| **HEAT DISSIPATION** | 3.4 W (at 24 V DC) |
| **FUNCTIONS** | Thermal cutout |
| **INCREMENTAL COUNTER** | Pulse pause ratio: 1:1<br>Number of counter inputs: 2 (I1 + I2, I3 + I4)<br>Pulse shape: Square<br>Signal offset: 90°<br>Value range: -2147483648 to +2147483647<br>Counter frequency: ≤ 5 kHz |
| **SHORT-CIRCUIT CURRENT** | 6.8 A, Transistor outputs |
| **VIBRATION RESISTANCE** | 57 - 150 Hz, 2 g constant acceleration<br>10 - 57 Hz, 0.15 mm constant amplitude<br>According to IEC/EN 60068-2-6 |

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| **INCREMENTAL ENCODER** | Cable length: ≤ 20 m (screened) |
| **INPUT IMPEDANCE** | 13.3 kΩ |
| **INPUT CURRENT** | 1 mA (Analog inputs)<br>2.2 mA (I5 - I8, at 24 V DC, at signal 1)<br>3.3 mA (I1 - I4, at 24 V DC, at signal 1)<br>80 mA |
| **SHOCK RESISTANCE** | 15 g, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 11 ms, 18 Impacts |
| **FREQUENCY COUNTER** | Cable length: ≤ 20 m (screened, Digital inputs 24 V DC)<br>Number: 4 (I1, I2, I3, I4 - Digital inputs 24 V DC)<br>Pulse shape: Square (digital inputs 24 V DC)<br>Pulse pause ratio: 1:1 (Digital inputs 24 V DC)<br>Counter frequency: 5 kHz (Digital inputs 24 V DC) |
| **INPUT VOLTAGE** | Status 0: ≤ 8 V DC (I5 - I8, Digital inputs, 24 V DC)<br>Status 0: ≤ 15 V DC (I1 - I4, Digital inputs, 24 V DC)<br>Status 1: ≥ 15 V DC (I1 - I4, Digital inputs, 24 V DC)<br>Signal 0: ≤ 5 V DC (I1 - I8, Digital inputs, 24 V DC) |
| **SHORT-CIRCUIT TRIPPING CURRENT** | 0.7 ≤ Ie ≤ 1.7 per output, For Ra ≤ 10 mΩ, Depending on number of active channels and their load, Transistor outputs |
| **LAMP LOAD** | Max. 3 W (without Rv per channel) |
| **LED INDICATOR** | Status indication of Power/RUN<br>Status indication of Ethernet: LED |
| **SIGNAL RANGE** | 0 - 10 V DC, Analog inputs |
| **SUPPLY CURRENT** | 24/44 mA, Normally/max., On 1 signal, Transistor outputs<br>18/32 mA, Normally/max., On 0 signal, Transistor outputs |
| **UTILIZATION FACTOR** | 0.25 (Inductive load to EN 60947-5-1, Without external suppressor circuit, DC-13, T0.95 = 72 |

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| | ms, R = 48 Ω, L = 1.15 H)<br>0.25 (Inductive load to EN 60947-5-1, Without external suppressor circuit, T0.95 = 15 ms, R = 48 Ω, L = 0.24 H)<br>1 (Inductive load to EN 60947-5-1, With external suppressor circuit) |
| **POTENTIAL ISOLATION** | Between Transistor outputs and expansion devices: yes<br>Between Analog inputs and expansion devices: yes<br>Between Analog inputs and Power supply: no<br>Between Analog inputs and Outputs: yes<br>Between Digital inputs 24 V DC and expansion devices: yes<br>Between Transistor outputs: no<br>Between Transistor outputs and control buttons: yes<br>Between Transistor outputs and Ethernet: yes<br>Between Digital inputs 24 V DC: no<br>Between Analog inputs and Memory card: no<br>Between Digital inputs 24 V DC and Power supply: no<br>Between Transistor outputs and Memory card: yes<br>Between Transistor outputs and Inputs: yes<br>Between Digital inputs 24 V DC and Outputs: yes<br>Between Digital inputs 24 V DC and Memory card: no<br><br>Between Analog inputs: no<br><br>Between Analog inputs and Ethernet: yes<br>Between Digital inputs 24 V DC and Ethernet: yes<br>Between Transistor outputs and Power supply: yes |
| **NUMBER OF INPUTS (DIGITAL)** | 8 |
| **POWER LOSS** | 2 W |

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| **VOLTAGE DIPS** | 20 ms<br>≤ 10 ms, Bridging voltage dips |
| **NUMBER OF INTERFACES (PROFINET)** | 0 |
| **NUMBER OF OUTPUTS (ANALOG)** | 0 |
| **RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)** | 0 A |
| **STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS** | 2 W |
| **SUPPLY VOLTAGE AT DC - MAX** | 28.8 VDC |
| **SUPPLY VOLTAGE AT DC - MIN** | 20.4 VDC |
| **SWITCHING CURRENT** | 0.5 A |
| **PRODUCT CATEGORY** | Control relays easyE4 |
| **RESOLUTION** | • 1 min (Range H:M)<br>• 1 s (Range M:S)<br>• 12 Bit (value 0 - 4095, Analog inputs)<br>• 5 ms (Range S) |
| **POWER CONSUMPTION** | 2 W |
| **RATED OPERATIONAL VOLTAGE** | 24 V DC (transistor outputs)<br>20.4 - 28.8 V DC<br>24 V DC (digital inputs)<br>24 V DC (-15 %/+ 20 % - power supply)<br>20.4 - 28.8 V DC (Transistor outputs) |
| **SHORT-CIRCUIT PROTECTION** | ≥ 1A (T), Fuse, Power supply<br>Yes, electronic (Q1 - Q4), Transistor outputs |
| **TERMINAL CAPACITY** | 0.2 - 2.5 mm² (22 - 12 AWG), flexible with ferrule<br>0.2 - 4 mm² (AWG 22 - 12), solid |
| **TIGHTENING TORQUE** | 0.6 Nm, Screw terminals |

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| **PROJECT NAME:** | |
| **PROJECT NUMBER:** | |
| **PREPARED BY:** | |
| **DATE:** | |

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