Specifications

Eaton 197213

Catalog Number: 197213

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

General specifications

Product Name
Eaton Moeller® series EASY Control relay

Catalog Number
197213

Model Code
EASY-E4-DC-12TC1

EAN
4015081939466

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
CSA-C22.2 No. 61010
EN 61010
IEC/EN 61000-6-2
IEC 60068-2-27
IEC 60068-2-30
IEC/EN 61000-4-2
CULus per UL 61010
IEC 60068-2-6
IEC/EN 61000-6-3
IEC/EN 61131-2
EN 50178
UL Listed
UL Category Control No.: NRAQ, NRAQ7
UL File No.: E205091

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

Powering Business Worldwide

Product specifications

Used with

easyE4

Type

easyE4 base device

Features

Parallel connection of transistor outputs with resistive load, inductive load with external suppressor circuit, combination within a group - Group 1: Q1 to Q4
Networkable (Ethernet)
Expandable
Display indication of 6 lines x 16 characters

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

Resources

Application notes

eaton-easye4-aws-ap050027-en-us.pdf

Brochures

easy E4 control relay-brochure

Catalogs

eaton-product-overview-for-machinery-catalogue-ca08103003zen-en-us.pdf

Characteristic curve

eaton-electrical-timers-easy-control-relays-characteristic-curve-002.eps

252U084

Declarations of conformity

DA-DC-00005056.pdf

DA-DC-00005049.pdf

Drawings

2528DIM-19

eaton-logic-relays-easy-control-relays-dimensions-002.eps

eaton-modular-plc-starter-kit-dimensions.eps

2723DIM-98

Drawings

2723DRW-420

eaton-modular-plc-easy-control-relays-3d-drawing.eps

0000SPC-596

eaton-general-easy-control-relays-symbol-002.tif

eCAD model

DA-CE-ETN.EASY-E4-DC-12TC1

Installation instructions

IL050020ZU

Installation videos

Video easy E4 control relay

Control relay easyE4: The new generation

Manuals and user guides

DA-MN-h1430de

MN050009_EN

mCAD model

DA-CS-uc_12rc1

eaton-cadenas-front_view-uc_12rc1_front.pra

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.

10.9.2 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:

Keypad
Display
Real time clock
Timer

Operating frequency

Dependent on the cycle time of the basic device
Dependent on the cycle- and transmission-time of the expansion devices
Depending on the suppressor circuit (Inductive load to EN 60947-5-1, With external suppressor circuit, Max. switching frequency, max. duty factor)

DA-CD-uc_12rc1

eaton-cadenas-side_view-uc_12rc1_side.pra

eaton-cadenas-path-easy_e4-assemblies-uc_12rc1_asmtpl.prj

Multimedia

How to connect the Remote Touch Display EASY-RTD to the easyE4?

How to process ModbusRTU devices with the EASY-COM-RTU-M1 module on an easyE4?

How to process SmartWire-DT modules using the EASY-COM-SWD-C1 module connected to an easyE4?

easyE4 SmartWire-DT module with Remote Touch Display and RMQ multi color indicator

Handling of the data logger as a ring buffer with the easyE4 using the ST programming language.

How to connect the easyE4 to the touch panel XV-102 for easy? - 5 Steps

Product notifications

eaton-easye-product-family-product-cybersecurity-guideline-mz049001en.pdf

MZ049014EN

Sales notes

TT-197213_EASY-E4-DC-12TC1 -de_DE

eaton-easy-remote-touch-display-flyer-fl048004en-en-us.pdf

eaton-control-relay-easye4-flyer-fl050007en-en-us.pdf

Pollution degree

2

Accuracy

± 2 %, (I7, I8) ± 0.12 V, of actual value, within a single device (Analog Inputs)

± 3 %, of actual value, two easy devices (Analog Inputs)

± 2 s/day, Real-time clock to inputs (± 0.2 h/Year)

± 1 %, Repetition accuracy of timing relays (of values)

Burst impulse

According to IEC/EN 61000-4-4

2 kV, Supply cable

2 kV, Signal cable

Air pressure

795 - 1080 hPa (operation)

Category (EN 954-1)

None

Explosion safety category for dust

None

Environmental conditions

Condensation: prevent with appropriate measures

Clearance in air and creepage distances according to EN 50178, EN 61010-2-201, UL61010-2-201, CSA-C22.2 NO. 61010-2-201

Indication

LCD-display used as Output status indication of Transistor outputs

LCD-display used as status indication of Digital inputs 24 V DC

Input

Voltage (DC)

Output voltage

$U = U_e$ - 1 V (signal 1 at I_e = 0.5 A, transistor outputs)

Max. 2.5 V (at status 0 per channel, transistor outputs)

Explosion safety category for gas

None

Mounting method

Screw fixing using fixing brackets ZB4-101-GF1 (accessories)

Top-hat rail fixing (according to IEC/EN 60715, 35 mm)

Front build in possible

Wall mounting/direct mounting

Rail mounting possible

Screwdriver size

3.5 x 0.8 mm, Terminal screw

Voltage type

DC

Mounting position

Vertical

Horizontal

Output

Parallel connection of max. 4 Transistor outputs

2 A, Max. total current, Outputs

4 Transistor Outputs

Voltage

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 temperature - min

-25 °C

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

Display temperature - max

55 °C

Display temperature - min

0 °C

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)
100 % (Inductive load to EN 60947-5-1, Without external suppressor circuit, T0.95 = 15 ms, R = 48 Ω, L = 0.24 H)
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)

Software

EASYSOFT-SWLIC/easySoft

Surge rating

0.5 kV, Supply cables, symmetrical, power pulses (Surge), EMC
According to IEC/EN 61000-4-5, power pulses (Surge), EMC
1 kV, Supply cables, asymmetrical, power pulses (Surge), EMC

Cable length

≤ 30 m, screened, Analog inputs

100 m, unscreened, Digital inputs 24 V DC

Conversions

Each CPU cycle, Analog inputs

Electromagnetic fields

3 V/m at 1.4 - 2 GHz (according to IEC EN 61000-4-3)
10 V/m at 0.8 - 1.0 GHz (according to IEC EN 61000-4-3)
1 V/m at 2.0 - 2.7 GHz (according to IEC EN 61000-4-3)

Display type

Monochrome

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)
Yes, for supply voltage (Siemens MPI optional)

Number of inputs (analog)

0
4

Connection type

Screw terminal
Ethernet: RJ45 plug, 8-pole

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

Delay time

0.015 ms typ., Digital inputs 24 V DC (I1 - I8), Delay time from 1 to 0, Debounce OFF
20 ms typ., Digital inputs 24 V DC (I1 - I8), Delay time from 1 to 0, Debounce ON
0.015 ms typ., Digital inputs 24 V DC (I1 - I8), Delay time from 0

to 1, Debounce OFF

20 ms typ., Digital inputs 24 V DC (I1 - I8), Delay time from 0 to 1, Debounce ON

Residual current

0.1 mA (on signal "1" per channel)

Residual ripple

5 % (transistor outputs)

≤ 5 %

Rapid counter inputs

1:1 (Pulse pause ratio)

10 kHz, Counter frequency

≤ 20 m (cable length, screened)

-2147483648 - 2147483647 (value range)

Square (pulse shape)

Number: 4 (I1, I2, I3, I4 - Digital inputs 24 V DC)

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

Pulse shape: Square

Value range: -2147483648 to +2147483647

Number of counter inputs: 2 (I1 + I2, I3 + I4)

Signal offset: 90°

Counter frequency: ≤ 5 kHz

Short-circuit current

6.8 A, Transistor outputs

Vibration resistance

10 - 57 Hz, 0.15 mm constant amplitude

57 - 150 Hz, 2 g constant acceleration

According to IEC/EN 60068-2-6

Incremental encoder

Cable length: ≤ 20 m (screened)

Input impedance

13.3 kΩ

Input current

1 mA (Analog inputs)

3.3 mA (I1 - I4, at 24 V DC, at signal 1)

2.2 mA (I5 - I8, at 24 V DC, at signal 1)

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)

Number: 4 (I1, I2, I3, I4 - Digital inputs 24 V DC)

Pulse pause ratio: 1:1 (Digital inputs 24 V DC)

Pulse shape: Square (digital inputs 24 V DC)

Counter frequency: 5 kHz (Digital inputs 24 V DC)

Input voltage

Status 0: ≤ 15 V DC (I1 - I4, Digital inputs, 24 V DC)

Status 0: ≤ 8 V DC (I5 - I8, Digital inputs, 24 V DC)

Status 1: ≥ 15 V DC (I1 - I4, Digital inputs, 24 V DC)

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)

Signal range

0 - 10 V DC, Analog inputs

Supply current

24/44 mA, Normally/max., On 1 signal, Transistor outputs

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 ms, R = 48 Ω, L = 1.15 H)

0.25 (Inductive load to EN 60947-5-1, Without external

suppressor circuit, T0.95 = 15 ms, R = 48 Ω, L = 0.24 H)

1 (Inductive load to EN 60947-5-1, With external suppressor circuit)

Potential isolation

Between Transistor outputs and Ethernet: yes

Between Digital inputs 24 V DC and Ethernet: yes

Between Transistor outputs and control buttons: yes

Between Transistor outputs and Power supply: yes

Between Analog inputs and Outputs: yes

Between Transistor outputs and expansion devices: yes

Between Digital inputs 24 V DC and expansion devices: yes

Between Analog inputs and expansion devices: yes

Between Digital inputs 24 V DC: no

Between Transistor outputs and Inputs: yes

Between Transistor outputs: no

Between Digital inputs 24 V DC and Power supply: no

Between Analog inputs: no

Between Analog inputs and Memory card: no

Between Transistor outputs and Memory card: yes

Between Digital inputs 24 V DC and Outputs: yes

Between Analog inputs and Ethernet: yes

Between Digital inputs 24 V DC and Memory card: no

Between Analog inputs and Power supply: no

Number of inputs (digital)

8

Power loss

2 W

Voltage dips

20 ms

≤ 10 ms, Bridging voltage dips

Protocol

TCP/IP

MODBUS

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 AC, 50 Hz - max

0 VAC

Supply voltage at AC, 50 Hz - min

0 VAC

Supply voltage at AC, 60 Hz - max

0 VAC

Supply voltage at AC, 60 Hz - min

0 VAC

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)
1 s (Range M:S)
12 Bit (value 0 - 4095,
Analog inputs)
5 ms (Range S)

Power consumption

2 W

Rated operational voltage

24 V DC (-15 %/+ 20 % - power supply)
24 V DC (transistor outputs)
20.4 - 28.8 V DC (Transistor outputs)
24 V DC (digital inputs)
20.4 - 28.8 V DC

Short-circuit protection

≥ 1A (T), Fuse, Power supply
Yes, electronic (Q1 - Q4), Transistor outputs

Terminal capacity

0.2 - 4 mm² (AWG 22 - 12), solid
0.2 - 2.5 mm² (22 - 12 AWG), flexible with ferrule

Tightening torque

0.6 Nm, Screw terminals

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