Specifications

Eaton 106397

Catalog Number: 106397

Eaton EC4P Compact PLC, 24 V DC, 12DI(of 4AI), 6DO(R), 1AO, CAN, display



General specifications

Product Name
Eaton EC4P Compact PLC

Catalog Number
106397

EAN
4015081061679

Product Length/Depth
72 mm

Product Height
90 mm

Product Width
107.5 mm

Product Weight
0.374 kg

Certifications
UL File No.: E135462
CSA File No.: 012528
CSA-C22.2 No. 0-M
UL
IEC/EN 61000-4-2, Level 3
UL Category Control No.: NRAQ
CE
CSA
CSA Class No.: 2252-01
UL508
CSA-C22.2 No. 142-M

Catalog Notes
Expandable: Inputs/outputs and bus systems

Powering Business Worldwide

Product specifications

Features

Asynchronous, cyclic, acyclic PDO types (operating modes of the slave)
Overload and short-circuit protection
190 received bytes in a block (PRG interface RS232, Master mode)

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

Resources

Catalogs

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

Characteristic curve

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

Declarations of conformity

DA-DC-00004388.pdf

DA-DC-00004391.pdf

Drawings

eaton-modular-plc-easy-module-ec4p-compact-plc-dimensions.eps

eaton-general-m22-standards.eps

eaton-general-approval-easy-control-relays-standards.jpg

eCAD model

ETN.EC4P-221-MRAD1

Installation instructions

IL05003003Z

Manuals and user guides

MN05003003Z_EN

mCAD model

DA-CS-easy800

DA-CD-easy800

Sales notes

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

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.

Fitted with:

Display
Analog output module
Engineering software
Keypad
Control unit
Power supply
Monitor
Memory unit
Libraries
Documentation
Basic device
Digital input module
Communication module
Other components
easyNet/CANopen® on board
Analog input module
Digital output module
Function module

Pollution degree

2

Accuracy

± 2, (I7, I8, I11, I12) ± 0.12 V, of actual value, within a single device (Analog Inputs)

2 %, Analog outputs at-25 °C - 55 °C

± 5 s/day (± 0.5 h/year), Real-time clock, normally

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

1 %, Analog outputs at 25 °C

Burst impulse

According to IEC/EN 61000-4-4, level 3

2 kV, Signal cable

2 kV, Supply cable

Rated impulse withstand voltage (Uimp)

6 kV (contact-coil)

Utilization category

B 300 Light Pilot Duty, UL/CSA Control Circuit Rating Codes AC

R 300 Light Pilot Duty, UL/CSA Control Circuit Rating Codes DC

Air pressure

1080 hPa (operation)

Bus termination

EASY-NT-R plug (incl. bus terminating resistor 120 Ω), first and last station, CANopen®

Environmental conditions

Condensation: prevent with appropriate measures

Clearance in air and creepage distances according to EN 50178, UL 508, CSA C22.2, No. 142

Indication

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

Input

Voltage (DC)

Cable length

30 m, screened, Analog inputs

100 m, unshielded, Digital inputs 24 V DC

Mounting method

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

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

Number of outputs

6 (relay outputs)

8 Transistor Outputs

Relay outputs in groups of 1

Character formats

8E1, 8O1, 8N1, 8N2, 7E2, 7O2, 7N2, 7E1, PRG interface

RS232, Master mode

Screwdriver size

3.5 x 0.8 mm, Terminal screw

Mounting position

Vertical

Horizontal

Output

Voltage (DC)

Contact discharge

6 kV, Electrostatic discharge (ESD)

Overvoltage category

II

Connection type

RJ45, Ethernet

2 x RJ45, 8 pole, CANopen®

RJ45, PRG Interface RS232

Constant acceleration

2 g, 57 - 150 Hz, according to IEC/EN 60068-2-6, Vibrations

Constant amplitude

0,15 mm, 10 - 57 Hz, according to IEC/EN 60068-2-6, Vibrations

Surge rating

2 kV, Supply cables, symmetrical, EASY...AC, power pulses (Surge), EMC

0.5 kV, Supply cables, symmetrical, EASY…DC, power pulses (Surge), EMC

According to IEC/EN 61000-4-5, power pulses (Surge), EMC

Terminal capacity (flexible with ferrule AWG)

22 - 12

Conversions

Each CPU cycle, Analog inputs

Each CPU cycle, Analog outputs

Electromagnetic fields

10 V/m (according to IEC EN 61000-4-3)

Terminal capacity (solid AWG)

22 - 12

Number of inputs (analog)

4 (I7, I8, I11, I12)

Cycle time

< 0.3 ms, for 1 k of instructions (Bit, Byte), CPU

Number of modules

Max. 126 (slaves)

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 55022)

Class B (EN 55011)

Data transfer rate

2.4 kBit/s, PRG interface RS232, Master mode

4.8 kBit/s, PRG interface RS232, Master mode

9.6 kBit/s, PRG interface RS232, Master mode

0.6 kBit/s, PRG interface RS232, Master mode

500 kBit/s at 25 m, CANopen®

10 MBit/s, 100 m, Ethernet

250 kBit/s at 60 m, CANopen®

0.3 kBit/s, PRG interface RS232, Master mode

125 kBit/s at 125 m, CANopen®

1.2 kBit/s, PRG interface RS232, Master mode

50 kBit/s at 300 m, CANopen®

19.2 kBit/s, PRG interface RS232, Master mode

38.4 kBit/s, PRG interface RS232, Master mode

57.6 kBit/s, PRG interface RS232, Master mode

20 kBit/s at 700 m, CANopen®

10 kBit/s at 1000 m , CANopen®

Relative humidity

5 - 95 % (non-condensing)

Degree of protection

IP20

Safe isolation

300 V AC, Between coil and contact, According to EN 50178

300 V AC, Between two contacts, According to EN 50178

Delay time

0.25 ms typ., Digital inputs 24 DC (I5 - I12), Delay time from 0 to 1

0.02 ms typ., Digital inputs 24 DC (I1 - I4), Delay time from 0 to 1

Residual ripple

≤ 5 %

Rapid counter inputs

≤ 20 m (cable length, screened)

50 kHz, Counter frequency

2 (I1, I2) at 16 Bit or 1 (I1) at 32 Bit

16/32 Bit (value range)

Square (pulse shape)

Recovery time

100 µs

Insulation resistance

According to EN 50178

Functions

Building blocks

Heat dissipation

3.4 W

Supply voltage at DC - max

24 VDC

Resolution

0.01 V analog (Analog inputs)

0.01 V DC analog (Analog outputs)

0.01 V digital (Analog inputs)

10 Bit (value 0 - 1023, Analog inputs)

10 Bit (value 0 - 1023, digital, Analog outputs)

Incremental counter

Counter frequency: ≤ 40 kHz

Signal offset: 90°

Counter inputs: I1, I2

Reference input: I3

Pulse shape: Square

Value range: 32 Bit

Input for reference switch: I4

Number of counter inputs: 1 (I1, I2, I3, I4)

Station

To DS 301 V4, Control contact rated current, Mode slave, Interfaces

Input current

3.3 mA (I9 - I10, at 24 V DC, at signal 1)

2.2 mA (I11 - I12, at 24 V DC, at signal 1)

1 mA (Analog inputs)

140 mA

3.3 mA (I1 - I6, at 24 V DC, at signal 1)

2.2 mA (I7 - I8, at 24 V DC, at signal 1)

Input impedance

11.2 kΩ

Input voltage

Signal 1: > 15 V DC (I1 - I6, I9 - I10, Digital inputs, 24 V DC)
Signal 1: > 8 V DC (I7 - I8, I11 - I12, Digital inputs, 24 V DC)
Signal 0: < 8 V DC (I7 - I8, I11 - I12, Digital inputs, 24 V DC)
Signal 0: < 5 V DC (I1 - I6, I9 - I10, Digital inputs, 24 V DC)

Processor

Infineon XC161

Shock resistance

15 g, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 11 ms, 18 Impacts

Inscription

Individual inscription possible with EC4-COMBINATION-*

Rated breaking capacity

300000 Operations at AC-15, 250 V AC, 3 A (600 Ops./h)
200000 Operations at DC-13, 24 V DC, 1 A (500 Ops./h)

Lifespan, electrical

25,000 Operations (Filament bulb load at 500 W, 115/120 V AC)
25,000 Operations (Fluorescent lamp load 10 x 58 W at 230/240 V AC, uncompensated)
25,000 Operations (Fluorescent lamp load 1 x 58 W at 230/240 V AC, conventional, compensated)
25,000 Operations (Fluorescent lamp load 10 x 58 W at 230/240 V AC, with upstream electrical device)
25,000 Operations (Filament bulb load at 1000 W, 230/240 V AC)

Signal range

0 - 10 V DC, Analog inputs
0 - 10 V DC, Analog outputs

Lifespan, mechanical

10,000,000 Operations (Relay outputs)
10,000,000 Operations

Load resistance

1 kΩ

Making/breaking capacity

3600/360 VA (AC, at B 300)
28/28 VA (DC, at R 300)

Memory

4 kByte Input Memory

14 segments of 16 kByte Program memory data

4 kByte Output Memory

8 kByte Retain Memory

256 kByte Program memory code

16 kByte Marker Memory

Number of bytes

190 transmission bytes (in a block)

Number of inputs (digital)

12 (24 V DC)

4 (I7, I8, I11, I12, can also be used as analog inputs)

12

4 (can also be used as analog inputs)

Parallel switching

Not permitted

Voltage dips

According to EN 61131-2

≤ 10 ms

Uninterrupted current

10 A AC, at 240 V AC (UL/CSA)

5 A AC, max. thermal continuous current cos ϕ = 1 at B 300 (UL/CSA)

1 A DC, at R 300 (UL/CSA)

8 A DC, at 24 V DC (UL/CSA)

Potential isolation

Basic isolation: 600 V AC (Relay outputs)

Between Digital inputs 24 V DC and network easyNet, easyLink

In groups (Relay outputs)

Between Relay outputs and Power supply: yes

Between Analog inputs and Interface/memory card: no

Safe isolation according to EN 50178: 300 V AC (Relay outputs)

Between Analog inputs and Outputs: yes

Between Relay outputs and Inputs: yes

Between Digital inputs 24 V DC and Outputs: yes

Protection of an output relay

Miniature circuit-breaker B16 or fuse 8 A (slow)

Rated operational voltage

20.4 - 28.8 V DC

24 V DC (-15 %/+ 20 % - power supply)

Relay output

> 500 mA (Recommended for load: 12 V AC/DC)

Short-circuit protection

16 A, Short-circuit-proof cos ϕ = 0.5 to 0.7, characteristic B16 at

900 A, Contacts, Relay outputs

16 A, Short-circuit-proof cos ϕ = 1, characteristic B16 at 600 A, Contacts, Relay outputs

Terminal capacity (flexible with ferrule)

0.2/2.5 mm²

Switching frequency

10 Hz, Relay outputs

0.5 Hz, Inductive load, Relay outputs

2 Hz, Resistive load/lamp load, Relay outputs

Terminal capacity (solid)

0.2/4 mm²

Tightening torque

0.6 Nm

Write cycles of the retentive memory

10,000,000,000 read-write cycles

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)

8 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

1 m

Number of outputs (analog)

1

Output current (mA) - max

100 mA

Rated insulation voltage (Ui)

250 V

Rated operational current for specified heat dissipation (In)

0 A

Rated operational voltage (Ue) at AC - max

300 V

Rated operational voltage (Ue) at DC - max

300 V

Static heat dissipation, non-current-dependent Pvs

3.4 W

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