Eaton 106398

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

PRODUCT NAME	Eaton EC4P Compact PLC
CATALOG NUMBER	106398
PRODUCT LENGTH/DEPTH	72 mm
PRODUCT HEIGHT	90 mm
PRODUCT WIDTH	107.5 mm
PRODUCT WEIGHT	0.352 kg
CERTIFICATIONS	UL Category Control No.: NRAQ CSA-C22.2 No. 0-M CSA-C22.2 No. 142-M IEC/EN 61000-4-2, Level 3 UL CE CSA Class No.: 2252-01 CSA File No.: 012528 CSA UL508 UL File No.: E135462
CATALOG NOTES	Expandable: Inputs/outputs and bus systems

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

CHARACTERISTIC CURVE	eaton-electrical-timers-easy-control-relays-characteristic-curve.eps
	IL05003003Z
	eaton-modular-plc-easy-module-ec4p-compact-plc-dimensions.eps eaton-general-approval-easy-control-relays-standards.jpg

	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:	Function module Libraries Basic device Power supply Digital output module Communication module Documentation Analog input module Engineering software Digital input module Analog output module Memory unit Other components easyNet/CANopen® on board
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 1 %, Analog outputs at 25 °C ± 5 s/day (± 0.5 h/year), Real-time clock, normally ± 3 %, of actual value, two

	devices (Analog Inputs)
BURST IMPULSE	2 kV, Signal cable According to IEC/EN 61000-4-4, level 3 2 kV, Supply cable
RATED IMPULSE WITHSTAND VOLTAGE (UIMP)	6 kV (contact-coil)
UTILIZATION CATEGORY	R 300 Light Pilot Duty, UL/CSA Control Circuit Rating Codes DC B 300 Light Pilot Duty, UL/CSA Control Circuit Rating Codes AC
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	100 m, unshielded, Digital inputs 24 V DC 30 m, screened, Analog inputs
MOUNTING METHOD	Screw fixing using fixing brackets ZB4-101-GF1 (accessories) Top-hat rail fixing (according to IEC/EN 60715, 35 mm)
NUMBER OF OUTPUTS	8 Transistor Outputs Relay outputs in groups of 1 6 (relay outputs)
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	Horizontal

	Vertical
OUTPUT	Voltage (DC)
CONTACT DISCHARGE	6 kV, Electrostatic discharge (ESD)
OVERVOLTAGE CATEGORY	II
CONNECTION TYPE	2 x RJ45, 8 pole, CANopen® RJ45, PRG Interface RS232 RJ45, Ethernet
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	According to IEC/EN 61000-4-5, power pulses (Surge), EMC 0.5 kV, Supply cables, symmetrical, EASY...DC, power pulses (Surge), EMC 2 kV, Supply cables, symmetrical, EASY...AC, 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)
LOAD RESISTANCE	1 kΩ
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 55011) Class B (EN 55022)
DATA TRANSFER RATE	2.4 kBit/s, PRG interface RS232, Master mode 9.6 kBit/s, PRG interface RS232, Master mode 38.4 kBit/s, PRG interface RS232, Master mode 1.2 kBit/s, PRG interface RS232, Master mode 20 kBit/s at 700 m, CANopen® 10 MBit/s, 100 m, Ethernet 50 kBit/s at 300 m, CANopen® 10 kBit/s at 1000 m , CANopen® 0.3 kBit/s, PRG interface RS232, Master mode 250 kBit/s at 60 m, CANopen® 0.6 kBit/s, PRG interface RS232, Master mode 500 kBit/s at 25 m, CANopen® 125 kBit/s at 125 m, CANopen® 4.8 kBit/s, PRG interface RS232, Master mode 19.2 kBit/s, PRG interface RS232, Master mode 57.6 kBit/s, PRG interface RS232, Master mode
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	0.02 ms typ., Digital inputs 24 DC (I1 - I4), Delay time from 0 to 1 0.25 ms typ., Digital inputs 24 DC (I5 - I12), Delay time from 0 to 1
RESIDUAL RIPPLE	≤ 5 %
RAPID COUNTER INPUTS	16/32 Bit (value range) Square (pulse shape) 50 kHz, Counter frequency 2 (I1, I2) at 16 Bit or 1 (I1)

	at 32 Bit ≤ 20 m (cable length, screened)
RECOVERY TIME	100 µ s
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 inputs: I1, I2 Reference input: I3 Counter frequency: ≤ 40 kHz Number of counter inputs: 1 (I1, I2, I3, I4) Pulse shape: Square Input for reference switch: I4 Signal offset: 90° Value range: 32 Bit
STATION	To DS 301 V4, Control contact rated current, Mode slave, Interfaces
INPUT CURRENT	3.3 mA (I1 - I6, at 24 V DC, at signal 1) 2.2 mA (I11 - I12, at 24 V DC, at signal 1) 2.2 mA (I7 - I8, at 24 V DC, at signal 1) 3.3 mA (I9 - I10, at 24 V DC, at signal 1) 140 mA 1 mA (Analog inputs)
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: < 5 V DC (I1 - I6, I9 - I10, Digital inputs, 24 V DC) Signal 0: < 8 V DC (I7 - I8, I11 - I12, 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	200000 Operations at DC-13, 24 V DC, 1 A (500 Ops./h) 300000 Operations at AC-15, 250 V AC, 3 A (600 Ops./h)
LIFESPAN, ELECTRICAL	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) 25,000 Operations (Fluorescent lamp load 1 x 58 W at 230/240 V AC, conventional, compensated) 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)
SIGNAL RANGE	0 - 10 V DC, Analog inputs 0 - 10 V DC, Analog outputs
LIFESPAN, MECHANICAL	10,000,000 Operations 10,000,000 Operations (Relay outputs)
MAKING/BREAKING CAPACITY	3600/360 VA (AC, at B 300) 28/28 VA (DC, at R 300)
MEMORY	14 segments of 16 kByte Program memory data 256 kByte Program

	memory code 16 kByte Marker Memory 4 kByte Input Memory 4 kByte Output Memory 8 kByte Retain Memory
NUMBER OF BYTES	190 transmission bytes (in a block)
NUMBER OF INPUTS (DIGITAL)	4 (can also be used as analog inputs) 12 (24 V DC) 4 (I7, I8, I11, I12, can also be used as analog inputs) 12
PARALLEL SWITCHING	Not permitted
VOLTAGE DIPS	≤ 10 ms According to EN 61131-2
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	Between Relay outputs and Inputs: yes Between Analog inputs and Outputs: yes Between Analog inputs and Interface/memory card: no Safe isolation according to EN 50178: 300 V AC (Relay outputs) Between Digital inputs 24 V DC and Outputs: yes In groups (Relay outputs) Between Digital inputs 24 V DC and network easyNet, easyLink Between Relay outputs and Power supply: yes Basic isolation: 600 V AC (Relay outputs)
PROTECTION OF AN OUTPUT RELAY	Miniature circuit-breaker B16 or fuse 8 A (slow)
RATED OPERATIONAL VOLTAGE	24 V DC (-15 %/+ 20 % - power supply) 20.4 - 28.8 V DC
RELAY OUTPUT	> 500 mA (Recommended for load: 12 V AC/DC)
SHORT-CIRCUIT PROTECTION	16 A, Short-circuit-proof cos ϕ = 1, characteristic

	B16 at 600 A, Contacts, Relay outputs 16 A, Short-circuit-proof cos ϕ = 0.5 to 0.7, characteristic B16 at 900 A, Contacts, Relay outputs
TERMINAL CAPACITY (FLEXIBLE WITH FERRULE)	0.2/2.5 mm²
SWITCHING FREQUENCY	0.5 Hz, Inductive load, Relay outputs 2 Hz, Resistive load/lamp load, Relay outputs 10 Hz, 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

PROJECT NAME:
PROJECT NUMBER:
PREPARED BY:
:

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