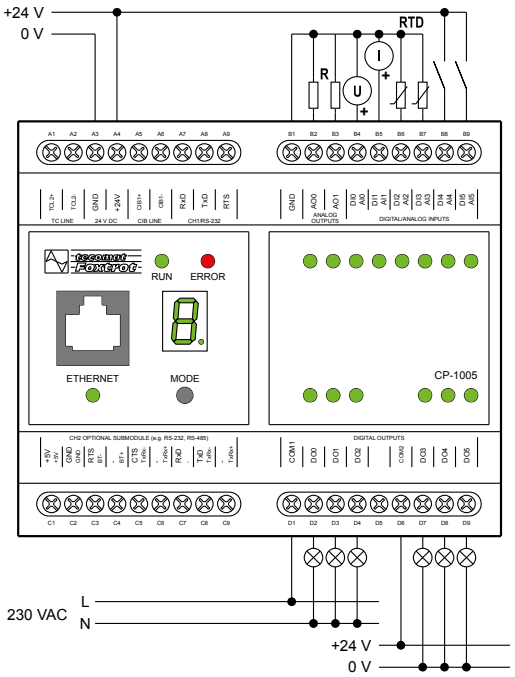
Basic module with 14 I/O (max. 21 I/O) for use in measurement and regulation

Type	DI	RO	AI	AO	Comm
CP-1005 **CP-1015**		6×RO	6×AI/DI	2×AO	Ethernet 10/100, RS-232, 1×optional interface, 1×TCL2, 1×CIB

Basic features

- Programmable controller (PLC) according to IEC EN 61131 standard.
- Outstanding integration of control system with latest IT and telecommunication technologies.
- Powerfull central module with integrated mostly analog inputs and analog outputs plus relay outputs (I/O).
- Type CP-1015 is expanded with built-in display 4×20 characters and 6 keys. Available code pages: ASCII, CP 1250 (Central European), CP 1251 (Cyrillic), CP 1252 (Western European), CP 1253 (Greek), CP1255 (Hebrew). Other features are the same with CP-1005.
- Optional slot can be inserted by additional 7×DI or 4×DI/3×DO on submodules PX-781x.
- Each of 6 universal inputs may be alternatively used as analog or digital input.
- The type of analog input (U, I, RTD) and range of measurement are set in user configuration.
- Memory expandable by SD/SDHC/MMC cards, built-in file system compatible with FAT32.
- Built-in clocks and calendar.
- No. of I/O is expandable up to 134 I/O, resp. up to 10 modules on high speed internal serial bus TCL2 (345 kbps).
- Other I/O can be expanded also by 2 wire installation bus CIB (19.2 kbps).
- More PLC Tecomat can be networked by Ethernet LAN or by RS-485 bus.
- Free programmable PLC according IEC EN 61131-3.
- On-line programming during operation.
- Programming and data communication (in LAN, WiFi, WAN, Internet) is available on Ethernet port (100 Mbps) with fixed IP address or DHCP.
- Up to 4 serial ports, one RS-232, the others with optional interface from line MR 01xx (up to 345 kbps), configurable UART. Other 6 with additional communication modules SC-1101 and SC-1102.
- Built-in PROFIBUS DP Master, Modbus RTU/TCP slave, BACnet slave on Ethernet port, IEC 60870-5-104 as payed application profile.
- Built-in web server, free creation of user internal web site stored on memory card (XML technology).
- Enables to create web page of any connected controlled object.
- May be used as programmable converter of communication protocols.
- May be used as independent programmable datalogger for any measured or internal values.
- Compact form-factor for DIN rail mounting (6 modules width) for standard circuit breaker cabinets.
- Removable connectors instead of fixed terminals.

Connection example



Analog inputs (AI0-AI5)

No. of inputs×groups	6×1
Configurable inputs	Voltage/Current/RTD measurement Binary input See other tables
Common wire	minus (GND)
Galvanic isolation	No
Resolution	12 bit
Conversion time	80 µs per input
Sample repetition period	480 µs
Protection type	Overvoltage, integrated

Digital inputs (DI0-DI5) Alternative function

No. of inputs×groups	6×1
Option: Analog inputs	See Analog inputs
Common wire	minus (GND)
Galvanic isolation	No
Input voltage for log.0 (U_L)	0 V DC; (–5÷ +5 V DC)
Input voltage for log.1 (U_H)	+24 V DC; (+15÷ +30 V DC)
Input current for log.1 (I_H)	typ. 5 mA
Delay 0 –> 1/1 –> 0:	1ms/1ms

Features of CPU

CPU	32 bit RISC procesor
PLC Instruction cycle	0.2 ms/1k instructions
Real Time Clock (RTC)	Yes
Backup period of RAM and RTC	500 hours without battery 20 000 hours with battery
User program memory	192+64 kB
Program memory backup	Yes
Internal data memory (DataBox)	0.5 MB
Archive memory for the project resource files	2 MB
Memory card slot	Yes, MMC/SD, SDHC
Memory for variables	64 kB/32 kB remanent
No. of IEC timers/counters	4096/8192

Communication

Ethernet; supported protocols	1×10/100 BaseT; TCP/IP, UDP, HTTP; SMTP; MODBUS/TCP, BACnet, IEC 60870-5-104
Serial ports	1×RS-232;1×free slot for optional interface (see submodules MR-0xxx)
System I/O bus	1×TCL2 (RS-485, 345 kbit/s)
Communication over expansion module at TCL2	CIB, RFox, MP-Bus, OpenTherm
Installation bus	1×CIB (Common installation bus 19.2 kbit/s)

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Related products

Submodules with inputs/outputs PX-7811, PX-7812

Communication submodules MR-01xx

Analog outputs

No. of outputs × groups	2 × 1
Common wire	minus (GND)
Galvanic isolation	No
Resolution	12 bit
Conversion time	10 µs per output
Max. output current	10 mA
Output range	0 ÷ 10 V
Max. error at 25 °C	±2 % of full range
Protection type	Overvoltage, integrated
Permissible overvoltage	±20 V (between AI and GND)

Relay outputs (DO0-DO5)

No. of outputs × groups	3 × 2 = 6
Galvanic isolation	Yes (also among groups)
Type of contact/type of output	Electromechanical relay, non-protected output
Switched voltage	min. 5 V; max. 250 V AC
Switched current	min. 10 mA; max. 3 A
Short-term output overload	max. 4 A
Current through joint terminal	max. 10 A
Time of close/open the contact	typ. 10 ms/4 ms
Threshold limits of switched loads	
for resistive load	max. 3 A at 30 V DC or at 230 V AC
for inductive load DC13	max. 3 A at 30 V DC
for inductive load AC15	max. 3 A at 230 V AC
Switching frequency without load	max. 300 switches/minute
Switching frequency with rated load	max. 20 switches/minute
Mechanical/Electrical lifetime at max. load	min. 5 mil./100 000 cycles
Short-circuit protection	None
Spike suppressor of inductive load	External RC, varistor or diode snubber
Insulation voltage	3750 V AC

Operating conditions

Operating temperature	–20 ÷ +55 °C
Storage temperature	–25 ÷ +70 °C
Electric strength	According EN 60950
IP Degree of protectionIEC 529	IP 20
Overvoltage category	II
Degree of pollution IEC EN 60664-1:2004	1
Working position	Vertical
Installation	On DIN rail
Connections	Screw terminals
Conductors cross-section	max. 2.5 mm²

Measurement ranges

Voltage	
Input impedance	> 20 kΩ
Input range	0 ÷ +10 V 0 ÷ +5 V 0 ÷ +2 V 0 ÷ +1 V 0 ÷ 0.5 V
Max. error at 25 °C	±0.3 % of full range
Allowed overload	–20 ÷ 30 V (between AI and AGND)
Current	
Input impedance	100Ω
Input range	0 ÷ 20 mA 4 ÷ 20 mA
Max. error at 25 °C	± 0.4 % of full range
Allowed overload	± 5 V/ +50 mA (between AI and GND)
Detection of open input circuit	yes, in status word
Resistance Temperature Detectors (RTD)	
Input impedance	> 50 kΩ
Input range	Pt100 1.385 (–90 ÷ +400 °C) Pt100 1.391 (–90 ÷ +400 °C) Pt1000 1.385 (–90 ÷ +400 °C) Pt1000 1.391 (–90 ÷ +400 °C) Ni1000 1.617 (–60 ÷ +200 °C) Ni1000 1.500 (–60 ÷ +200 °C) OV1000 (0 ÷ 1000 Ω)
Max. error at 25 °C	± 0.5 % of full range
Allowed overload	±35 V (between AI and GND)
Sensor disconnection detection	Yes, in status word

Dimensions and weight

Dimensions	105 × 92 × 63 mm
Weight	250 g

Power supply

Power supply voltage (SELV)	+24 V DC
Allowed range	–15 % ÷ +25 % (20.4 ÷ 30 V DC)
Max. power consumption	10 W
Galvanic isolation	No
Memory backup	Built-in Li-Ion accumulator (500 hours) Holder for CR2032 lithium battery (20 000 hours)

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Order number

TXN 110 05	CP-1005, CPU, ETH100/10, 1 × RS-232, 1 × SCH, 6 × AI/DI, 2 × AO, 6 × RO 230 V/3 A, 1 × CIB, prg. Mosaic
TXN 110 15	CP-1015, CPU+LCD4 × 20, ETH100/10, 1 × RS-232, 1 × SCH, 6 × AI/DI, 2 × AO, 6 × RO 230 V/3 A,1 × CIB, prg. Mosaic