



PU 104

Intelligent PLC module with CAN/Ethernet bridge

Powerful CPU

CAN, CAL/CAN open

CAN/Ethernet bridge

16 digital inputs

16 digital inputs/outputs, individual configuration

PROFILE

The PU 104 is part of the P-open series and provides compact PLC functions for automation applications requiring distributed intelligence. It also combines CAN with Ethernet, enabling Ethernet PCs to access CAN field busses directly, without an additional CAN interface. Apart from real-time processing, the unit features 16 on-board digital inputs, and 16 digital I/O which can be configured individually as inputs or outputs.

For communication and programming purposes, the PU 104 is fitted with a complete CAN/CAN master/slave implementation, plus a CANopen master implementation as a library for IEC 1131 and 'C'.

With its compact dimensions of 124 x 170 mm, and a depth of 85,5 mm, the PU 104 is ideally suited for mounting close to the process in de-centralized systems.

The housing is designed for clip-on mounting to standard DIN rails. System extensions are easily implemented by connecting additional I/O modules to the PU 104. The connections are made with cables which plug into the module's extension bus (E-bus). The resulting complete PLC system is linked via the CANbus.

Selective I/O energization

Supply of the inputs/outputs is provided via two terminals at the signal level. The supply voltage is 24 VDC.

The I/O's can be divided into 6 groups, each with its own supply. This enables the I/O of a specific group to be disabled by means of an external switching device.

Convenient field connections

Electrical wiring from the machine or process is taken directly to the terminal strips at top and bottom of the modules. The terminal strips are of the plug-in type, allowing system pre-wiring as well as fast module exchange.

Furthermore, the following alternatives are available for the terminal strips:

- Screw terminals
- Screwless spring-clamp terminals
- Crimp terminals.

Inputs/outputs are connected using the 3-wire principle. Front panel LEDs indicate the signal status of every I/O, and the module's operational status. The LED positions are directly associated with the corresponding I/O's. Inscription labels on the terminal strips allow clear identification of each I/O.

CAN/Ethernet bridge

Together with its PLC functions, the PU 104 provides a „bridge“ between CAN-CAL and Ethernet TCP/IP networks. For linking into the Ethernet, the PU 104 is fitted with a 10BaseT and a 10Base2 interface. In this way, PCs with 32-bit Windows-based applications and Ethernet network modules, have direct access to CAN fieldbus networks. The bridge function is supported by an ANSI-C library in the form of a 32-bit Windows DLL.

Programming with standard tools

Programming of the PU 104 is done with a PC and a Windows-based (95 or NT) software tool.

The universal programming tool is used for all of PMA's P-open modules. Depending on your application, the programming software lets you choose the most convenient method: Instruction List (IL), Ladder Diagram (LD), Function Block Diagram (FBD), or the high-level language 'C'. The first three options are according to the international standard IEC 1131-3.

If necessary, we provide full support during development of your own application-specific programs.

TECHNICAL DATA

CPU

Type: MC 68EN360FE33, 33 MHz

Configuration

Pre-configured

Memory

2 Mbyte Flash EPROM

2 Mbyte SRAM

Programming

By means of a PC-based software tool under Windows.

Available languages: IL, LD, and FBD to IEC 1131-3, and 'C'.

Downloading: from PC (RS 232), via CANbus or via Ethernet

Digital I/O

16 digital inputs for 24 VDC.

16 digital I/O, individually configurable as 24 VDC inputs/outputs (max. 0,5 A for outputs).

Connection: 3-wire technique

All digital outputs are short-circuit proof and have reverse-polarity protection.

Status LEDs / diagnostics

32 red LEDs show the switching status of the digital I/O.

5 LEDs show the module's operational status. A push-button is provided for diagnostic functions.

In addition, the module has a watchdog.

Interfaces

2 x CANbus interface

To ISO/DIN 11 898, 9-pin D-type connector with locking screws.

Protocol: CAN CAL/CANopen

1 x RS 232 interface

24 VDC, max. 0,15 A (to EN 61 131-2)

9-pin D-type connector with locking screws.

1 x 10Base port

Screened RJ45 socket to IEE 802.3

or

Coax socket

E-bus

For local I/O extensions with P-open modules

POWER SUPPLY

Module supply

24 VDC, max. 0,4 A (to EN 61 131-2)

I/O energization

24 VDC (to EN 61 131-2), divided into 6 groups

Galvanic isolation

Between CANbus and digital I/O

ENVIRONMENTAL CONDITIONS

Permissible temperature

For operation: 5...50°C

Climatic category

KUF to DIN 40 040

Relative humidity: $\leq 85\%$ yearly average, no condensation

Shock and vibration

Vibration test *Fc*

to DIN 60068-2-6 (5...50 Hz)

Unit in operation: 1g or 0,075 mm

Unit not in operation: 1,5g or 0,15 mm

Shock test *Ea*

to DIN IEC 60068-2-27 (15g, 11 ms)

ELECTROMAGNETIC COMPATIBILITY

Electromagnetic immunity

Complies with EN 50 082-2

Electromagnetic radiation

Complies with EN 50 081-2

ORDERING DATA

Description	Order no.
Intelligent PLC module PU 104-R (RJ45 socket)	9407 700 40011
Intelligent PLC module PU 104-C (COAX socket)	9407 700 41011

ACCESSORIES

Description	Order no.
18-pole screw terminal strip Phoenix type FRONT-MSTB 2,5/18-ST-5,08	9407 799 00001
CANbus cable for connecting CANbus modules, standard length 5 m	9407 800 90041
CANbus termination resistor with plug	9407 800 90021

GENERAL

Housing

Front dimensions: 124 x 170 mm

Depth: 85,5 mm

Module spacing: B = 113/118,5 mm

Protection mode: IP 20

CE-marking

Fulfils the European Directives for electromagnetic compatibility and low voltage.

Electrical connections

Choice of screw terminals (Phoenix type FRONT-MSTB 2,5/18-ST-5,08), screwless spring-clamp connection, or crimp terminals.

All terminal types simply plug onto the connector strips of the PU 104.

Electrical safety

Tested to IEC 348 (VDE 0411)

Protection class III (protective low voltage)

Mounting method

Clip-on rail mounting (NS 35/7,5 „top-hat“ rails to DIN EN 50 022)

Weight: approx. 0,71 kg

Accessories

Operating instructions

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