# PU 103-X

## CPU module with data interfaces

Powerful CPU

Programming in IEC 1131 oder 'C'

CAN, CAL/CAN open

4 serial data interfaces (RS 232, RS 422, RS 485)

4 encoder inputs

4 open-collector outputs

### *PROFILE*

The PU 103-X is part of the P-open series. It is a real-time CANbus CPU with a powerful processor. Of particular interest is the wide range of available data interfaces.

In addition, the module has 4 encoder inputs (e.g. from rotary shaft encoders) for signal levels according to the RS 422 standard, plus 4 open-collector pulse outputs (e.g. for operating stepping motors).

With its compact dimensions of 124 x 170 mm, and a depth of 85,5 mm, the PU 103 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 up to 7 additional I/O modules to the PU 103. 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. Furthermore, the PU 103 has 3 CAN interfaces with which the module can be integrated into a hierarchical bus structure (Wide CAN / Local CAN).

For communication and programming purposes, the PU 103 is fitted with a complete CAN/CAN master/slave implementation, plus a CANopen master implementation as a library for IEC 1131 and 'C'.

### Module energization

The module is energized via two terminals at the signal level. The supply voltage is 24 VDC.

### 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 are connected using the 3-wire principle. Front panel LEDs indicate the module's operational status. Inscription labels on the terminal strips allow clear identification of each I/O.

### Programming with standard tools

Programming of the PU 103 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 68332, 25 MHz

**Configuration**
Pre-configured

**Memory**
2 Mbyte Flash
1,25 Mbyte CMOS RAM

**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) or via CANbus.

**Digital I/O**
4 (differential) encoder inputs for 7 V, max. 500 kHz, optocoupler-isolated (RS 422 standard).
4 (open collector) pulse outputs for 24 VDC, 25 mA; max. 500 kHz, optocoupler-isolated.
Output connections: 3-wire technique
All digital outputs are short-circuit proof and have reverse-polarity protection.

**Status LEDs / diagnostics**
5 LEDs show the module's operational status. A push-button is provided for diagnostic functions.
In addition, the module has a watchdog.

**Interfaces**

*Version-dependent RS interfaces*
PU 103-1: 2 x RS 232C, 2 x RS 485
PU 103-2: 2 x RS 232C, 2 x RS 422
PU 103-3: 4 x RS 422
PU 103-4: 1 x RS 232C, 1 x RS 485,
         2 x RS 422
PU 103-5: 2 x RS 485, 2 x RS 422

additional 1x RS 232/Debug (all variant)

*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.

*E-bus*
For local I/O extensions with P-open modules.

## POWER SUPPLY

**Module supply**
24 VDC, max. 0,6 A (to EN 61 131-2)

**Bus & encoder energization**
24 VDC, max. 0,2 A (only for current loop interfaces)
2 x 5 VDC, max. 50 mA for encoder

**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: $\leqq$ 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

## 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 2,5/9-ST-5,08), screwless spring-clamp connection, or crimp terminals.
All terminal types simply plug onto the connector strips of the PU 103.

**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

## *ORDERING DATA*

| Description | Order no. |
|---|---|
| **CPU module PU 103-X** | |
| PU 103-0 | **9407 700 30001** |
| PU 103-1 | **9407 700 31001** |
| PU 103-2 | **9407 700 32001** |
| PU 103-3 | **9407 700 33001** |
| PU 103-4 | **9407 700 34001** |
| PU 103-5 | **9407 700 35001** |

## *ACCESSORIES*

| Description | Order no. |
|---|---|
| **9-pole screw terminal strip** Phoenix type FRONT-MSTB 2,5/9-ST-5,08 | **9407 799 00031** |
| **CANbus cable** for connecting CANbus modules, standard length 5 m | **9407 800 90041** |
| **CANbus termination resistor** with plug | **9407 800 90021** |

Your local representative:

G 981304