



# 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:  $\leq 85\%$  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.
<b>CPU module PU 103-X</b>	
PU 103-0	<b>9407 700 30001</b>
PU 103-1	<b>9407 700 31001</b>
PU 103-2	<b>9407 700 32001</b>
PU 103-3	<b>9407 700 33001</b>
PU 103-4	<b>9407 700 34001</b>
PU 103-5	<b>9407 700 35001</b>

## ACCESSORIES

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

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