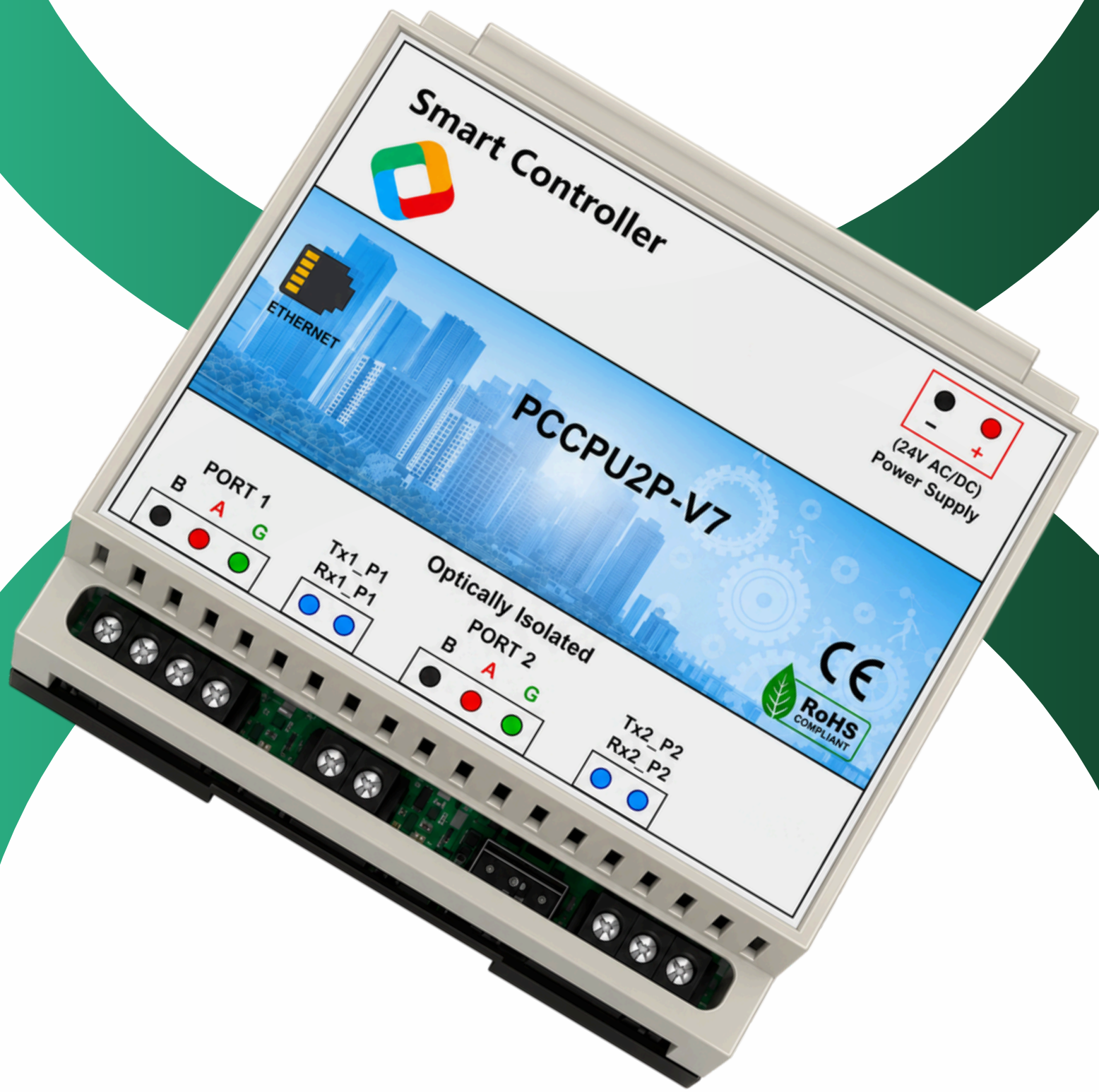
Probiz Controls

PC-SERIES IO MODULE

PC-CPU-V7



-FEATURES & BENEFITS

- Native BACnet/IP and Modbus TCP dual stack
- 3 × RS485 channels for Modbus RTU master / slave communication
- Up to 15 PC-series IO modules on each RS485 port
- Integrates Probiz Controls IO modules and third-party Modbus devices, wired or wireless
- Protocol conversion: Modbus RTU / TCP to BACnet/IP and MQTT
- REST API and MQTT for IoT and cloud connectivity
- 0 °C to 50 °C operating range, 0 °C to 70 °C storage
- 12–24 V AC/DC supply for flexible panel design
- Configured with the free Probiz Controls Editor tool — no programming knowledge required
- Failed IO modules are replaced on site without reprogramming

-APPLICATIONS

Building Management Systems HVACplant, AHU, FCU and chiller control	**Energy Management** Metering, monitoring and energy optimisation	**Modbus / BACnet Integration** Gateway between field devices and BMS	**Industrial & IoT** Process automation and cloud data acquisition

3 × RS485 Modbus RTU channels	**2 GB / 16 GB** RAM / flash storage	**0 to 50 °C** Operating temperature	**12V - 24V** AC/DC supply	**30 W** Power consumption

BACnet/IP **Modbus TCP** **Modbus RTU**

MQTT **REST API**

The PC-CPU-V7 is a DIN-rail mounted DDC controller built on the SmartNova platform. An ARM A53 processor with 2 GB RAM and 16 GB flash runs native BACnet/IP and Modbus TCP, giving the controller an open ISO 16484 / ASHRAE 135 foundation for building automation. Three RS485 channels let the PC-CPU-V7 act as Modbus master for Probiz Controls PC-series IO modules and third-party Modbus devices, while MQTT and REST API interfaces carry plant data to supervisory, cloud and IoT platforms.

-TECHNICAL DATA

HARDWARE SPECIFICATIONS	
Platform	SmartNova
Processor	ARM A53, 1.5 GHz, 32-bit
Memory (RAM)	2 GB
Storage	16 GB flash

INTERFACES	
RS485	3 ports, Modbus RTU
Ethernet	1 × RJ45
USB	4 ports
HDMI	1 port

COMMUNICATION PROTOCOLS	
BACnet	BACnet/IP
Modbus	Modbus TCP, Modbus RTU (RS485), master / slave
IoT	MQTT, REST API

SYSTEM CAPACITY	
EN-series IO modules	Up to 15 per RS485 port
Total IO modules / Modbus devices	To be confirmed for 3-port version

POWER	
Supply voltage	12–24 V AC/DC
Power consumption	30 W

OPERATING ENVIRONMENT	
Operating temperature	0 °C to 50 °C
Storage temperature	0 °C to 70 °C
Operating humidity	0–95 % RH

MECHANICAL	
Dimensions (L × W × H)	110 × 110 × 70 mm
Mounting	DIN rail
Enclosure	ABS

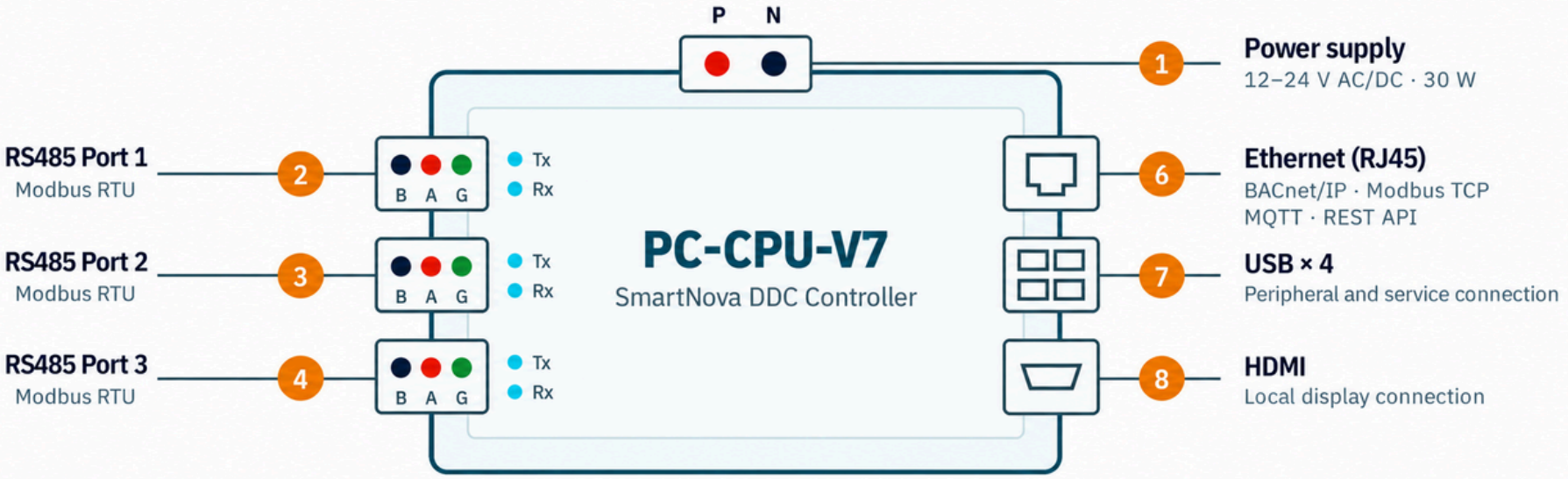
STANDARDS & CERTIFICATIONS	
Standards	ISO 16484, ASHRAE 135
Certifications	CE, RoHS
BACnet	PICS

SOFTWARE & TOOLS	
Configuration	Probiz Controls Editor tool (free)
Commissioning	Over IP, no programming knowledge required

-ORDERING INFORMATION

PART NUMBER	DESCRIPTION
PC-CPU-V7	SmartNova DDC Controller — Modbus master for PC-series IO modules (ordered separately)

- TERMINALS & WIRING

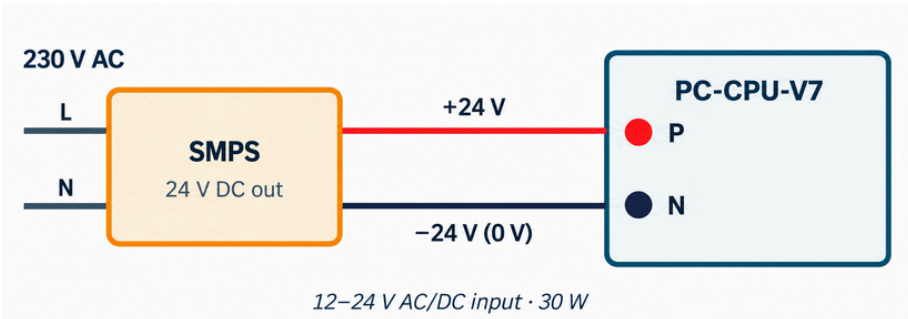


NO.	INTERFACE	TERMINAL / LABEL	SIGNAL	DESCRIPTION
1	**Power supply**	**P, N**	12–24 V AC/DC	Controller supply input — P: + supply, N: – supply
2	**RS485 Port 1**	**B (–), A (+), G**	Modbus RTU	Field bus for PC-series IO modules and third-party Modbus devices
3	**RS485 Port 2**	**B (–), A (+), G**	Modbus RTU	Field bus for PC-series IO modules and third-party Modbus devices
4	**RS485 Port 3**	**B (–), A (+), G**	Modbus RTU	Field bus for PC-series IO modules and third-party Modbus devices
5	**Port indicators**	**Tx / Rx per port**	LED	Transmit and receive activity on each RS485 port
6	**Ethernet**	**RJ45**	BACnet/IP, Modbus TCP, MQTT, REST API	Network connection to BMS, SCADA and cloud platforms
7	**USB**	**4 × USB**	USB	Peripheral and service connection
8	**HDMI**	**1 × HDMI**	Video output	Local display connection

- RS485 BUS WIRING

- Use shielded twisted-pair cable for all RS485 wiring.
- Wire devices in a daisy-chain (line) topology; avoid star and spur connections.
- Fit 120 Ω termination at both ends of long bus segments.
- Connect G to the signal ground of every device on the bus.
- Keep RS485 cables away from mains and relay output wiring.
- Segment length up to 1200 m per TIA/EIA-485, reduced at higher baud rates.

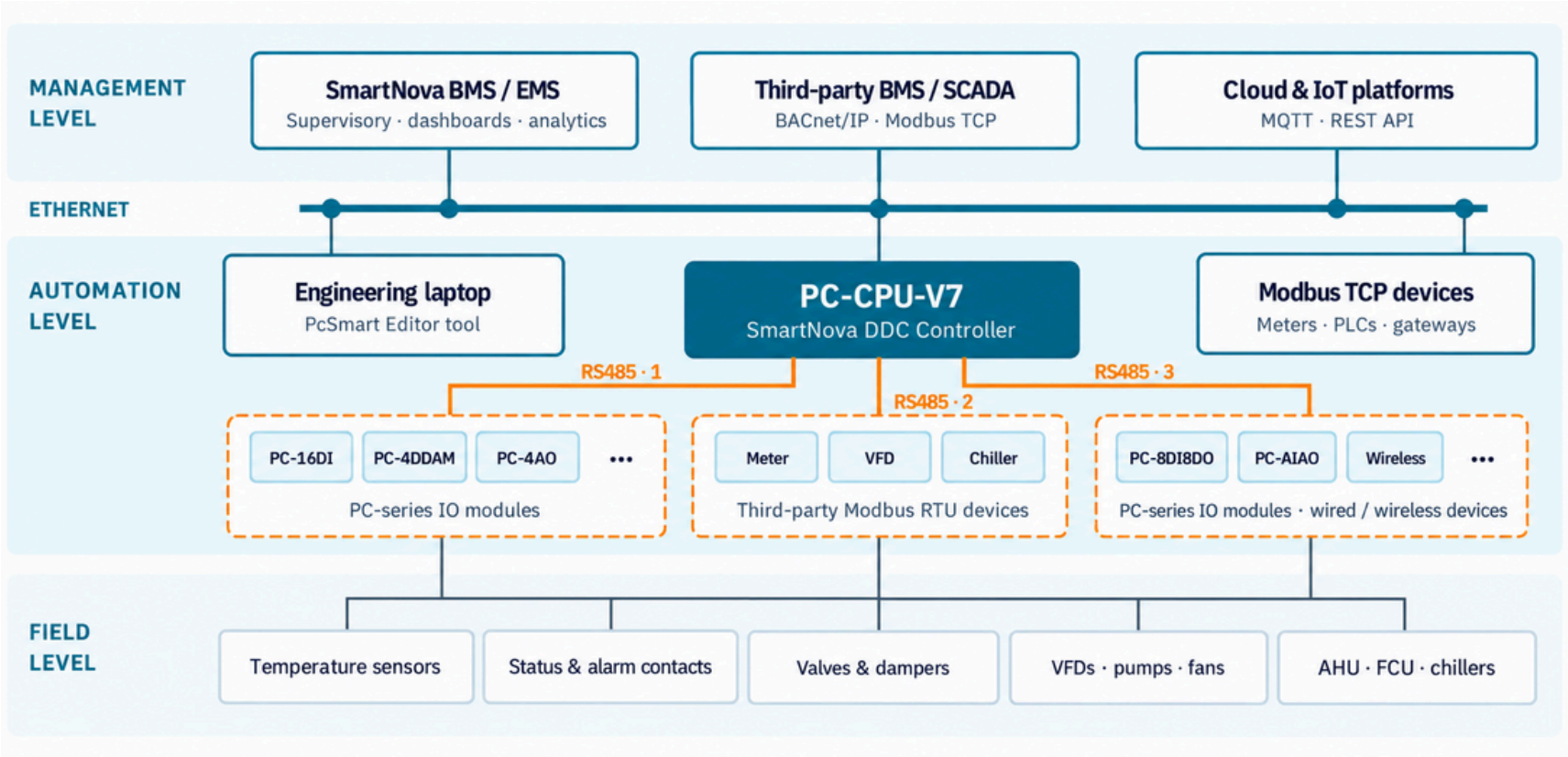
- POWER SUPPLY WIRING



12–24 V AC/DC input · 30 W

- Supply from a 12–24 V AC/DC source, such as a 230 V AC to 24 V DC SMPS.
- Size the supply for the 30 W controller rating plus any other connected loads.
- Connect + supply to terminal P and – supply to terminal N.

- SYSTEM ARCHITECTURE



- PROTOCOL CONVERSION

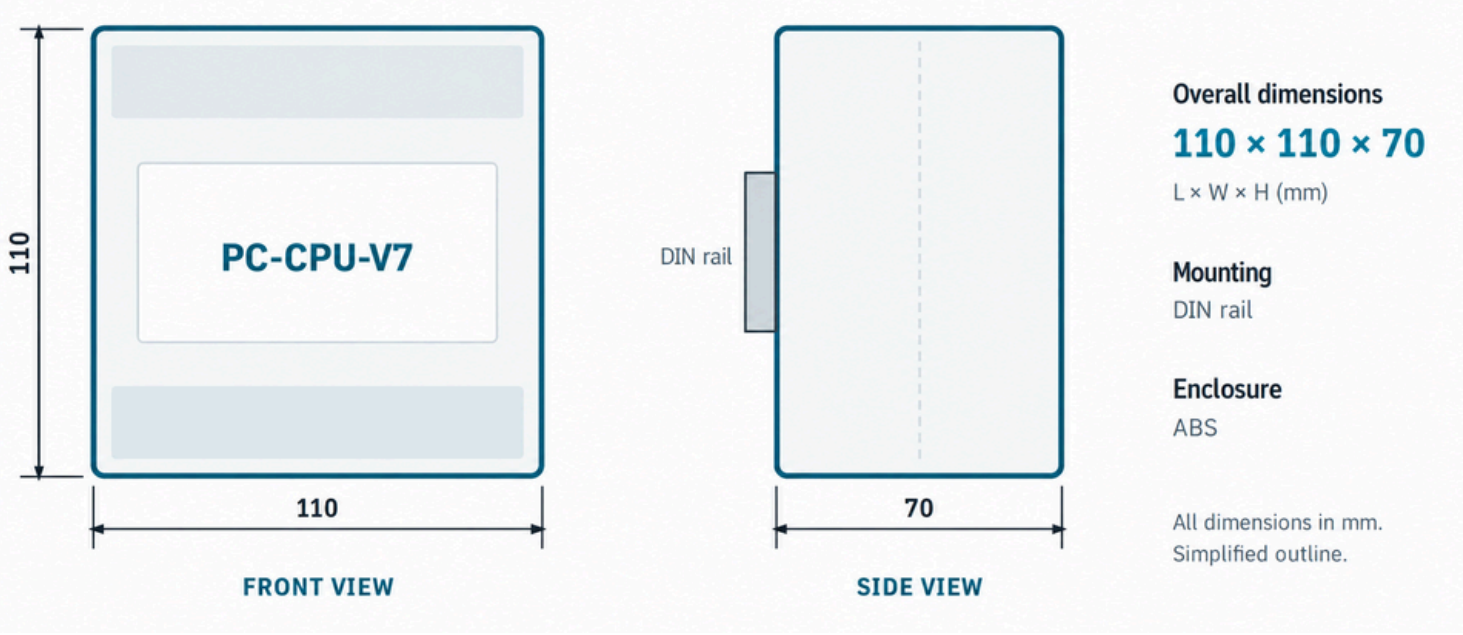
FROM		TO	TYPICAL USE
Modbus RTU	→	**Modbus TCP**	RS485 field devices to Modbus TCP SCADA / BMS
Modbus RTU	→	**BACnet/IP**	Modbus devices as BACnet objects for any BACnet BMS
Modbus TCP	→	**BACnet/IP**	Modbus TCP equipment into a BACnet network
Modbus TCP	→	**MQTT**	Modbus data to cloud and IoT platforms
BACnet/IP	→	**MQTT**	BACnet data to cloud and IoT platforms

- PROTOCOL CONVERSION

PART NUMBER	IO POINTS	SIGNAL TYPES	SIZE (MM)
PC-16DI	16 DI	DI: volt-free contact	110 × 110 × 70
PC-8DI8DO	8 DI, 8 DO	DI: volt-free contact · DO: relay, 230 V AC, 3 A	110 × 110 × 70
PC-4DI4DO	4 DI, 4 DO	DI: volt-free contact · DO: relay	110 × 110 × 70
PC-4DI1DO	4 DI, 1 DO	DI: volt-free contact · DO: relay, 230 V, 3 A	110 × 110 × 70
PC-2DI1DO	2 DI, 1 DO	DI: volt-free contact · DO: relay, 230 V, 3 A	110 × 70 × 70
PC-4DDAM	4 DI, 4 DO, 4 AI	DI volt-free · DO relay 230 V, 3 A · AI NTC / 0–10 V DC / 4–20 mA	110 × 110 × 70
PC-4DIAI3DO2AO	4 DI, 4 AI, 3 DO, 2 AO	DI volt-free · DO relay 230 V, 3 A · AI NTC / 0–10 V / 4–20 mA · AO 0–10 V	110 × 110 × 70
PC-4AI-NTC	4 AI	AI: NTC / 0–10 V DC / 4–20 mA, 12-bit ADC	110 × 70 × 70
PC-4AO	4 AO	AO: 0–10 V DC / 4–20 mA	110 × 70 × 70
PC-AIAO	1 AI, 1 AO	AI: 0–10 V DC or 4–20 mA · AO: 0–10 V DC	110 × 70 × 70

All PC-series IO modules communicate over Modbus RTU (RS485), mount on DIN rail and operate from 24 V AC/DC. Dimensions in mm (L × W × H).

- DIMENSIONS



- INSTALLATION

- Mount on DIN rail inside a control panel or enclosure.
- Leave space around the unit for ventilation and cable access.
- Isolate the power supply before wiring or servicing.
- Route RS485 and Ethernet cables away from power and relay wiring.
- A failed IO module can be replaced on site and the system resumes without re-programming.

- COMMISSIONING

- Mount the controller and connect the 12–24 V AC/DC supply.
- Connect the Ethernet port to the site network.
- Configure the controller with the free Probiz Controls Editor tool.
- Connect PC-series IO modules and Modbus devices to RS485 ports 1–3. 4 5
- Check communication on the Tx / Rx indicators of each port.

- SYSTEM REQUIREMENTS

- Probiz Controls Editor tool (free) for controller configuration
- Modbus master utility (e.g. Modscan) for IO module commissioning
- USB-to-RS485 converter for commissioning over serial
- 12–24 V AC/DC power supply
- DIN rail mounting inside a control panel

- SAFETY INFORMATION

- Installation, wiring and maintenance must be carried out by qualified personnel in line with local electrical regulations.
- Disconnect all power before connecting or removing terminal wiring.
- Install inside a closed control panel, protected from dust, water and direct sunlight.
- Operate only within the supply voltage and environmental limits stated in this datasheet.
- Observe ESD precautions when handling the unit.
- Dispose of the product as electronic waste in accordance with local e-waste regulations.

- SERVICES & SUPPORT

Technical support | **Installation & setup** | **Maintenance** | **Application support**

Hardware support | **Warranty**

PROBIZ CONTROLS

PC-SERIES IO MODULE

PC-CPU-V7



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