Probiz Controls

PC-SERIES IO MODULE

PC-16DI



FEATURES & BENEFITS

- Modbus RTU (RS485) to Modbus TCP/IP routing
- Single-port PC-MRTU-MIP or two-port PC-MRTU-MIP-2P
- 10/100 Mbps Ethernet port
- RS485 2-wire, 300 to 250 000 bps
- 5–8 data bits, 1–2 stop bits, None / Even / Odd parity
- 1 kB send and receive buffer
- Isolated RS485 interface option
- Reset button, power and status LEDs, Tx / Rx LEDs
- Low power — max 200 mA at 24 V AC/DC
- 12–24 V AC/DC supply, 35 mm DIN rail mounting

APPLICATIONS

AHU & Chiller Status Volt-freerun, trip and auto / manual status	**FCU Monitoring** Electrical status offan coil units	**Fans & Pumps** Exhaust fan and pump electrical status	**Filter & Alarms** Filter status and alarm contacts

16 DI Volt-free contact inputs	**2 × 8** Input terminal groups	**Modbus RTU** RS485 slave	**24 V** DC supply	**CE · RoHS** Certified

Modbus RTU **16 DI** **RS485**

The PC-16DI is a DIN-rail mounted extension IO module with 16 digital inputs, dedicated to status monitoring. It communicates over Modbus RTU on RS485, so it works as an expansion module for the PC-CPU-V7 controller or with any third-party Modbus master. Inputs are arranged in two groups of eight, each with its own GND and +24V DC terminals, and read volt-free status contacts from AHUs, chillers, FCUs, exhaust fans, pumps and filters.

TECHNICAL DATA

INPUTS & OUTPUTS	
Digital inputs	16, volt-free contact
Input groups	2 × 8 (DI1–DI8, DI9–DI16)
Group terminals	GND and +24V DC per group

COMMUNICATION	
Protocol	Modbus RTU (slave)
Interface	RS485 — B, A, GND
Baud rate	Multiple baud rate options
Compatible masters	PC-CPU-V7, third-party Modbus masters

CONFIGURATION	
Set-up	No configuration required
Custom IO	Customer-specific configuration on request
Commissioning	Modbus master utility (e.g. Modscan) via USB-to-RS485, or PC-CPU-V7 over IP

POWER	
Supply voltage	24 V DC
Power consumption	To be confirmed

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

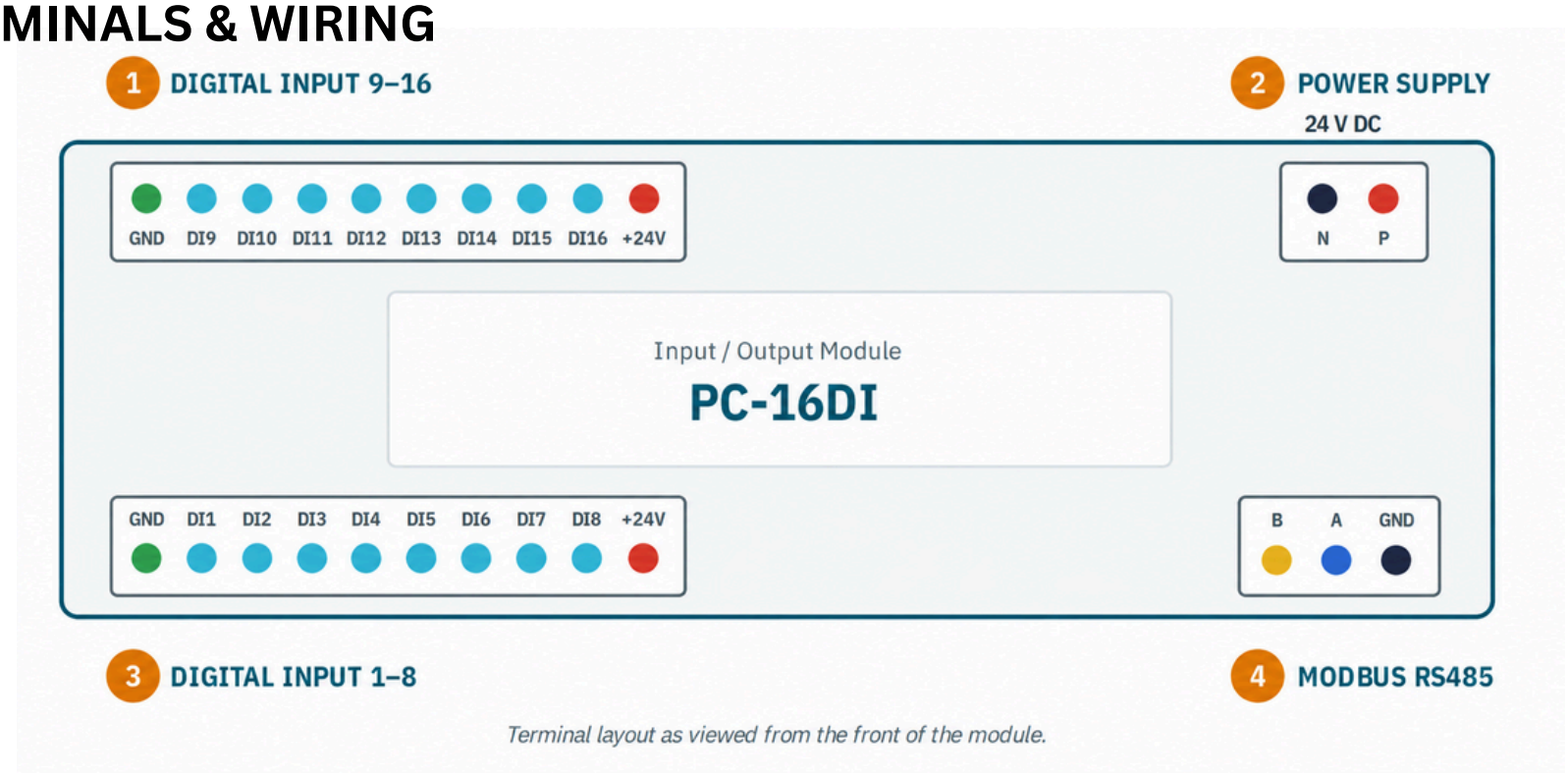
MECHANICAL	
Dimensions (L × W × H)	110 × 110 × 70 mm
Mounting	DIN rail
Enclosure	ABS

STANDARDS & CERTIFICATIONS	
Certifications	CE, RoHS

ORDERING INFORMATION

PART NUMBER	DESCRIPTION
PC-16DI	PC-series IO module — 16 DI (volt-free), Modbus RTU RS485, 24 V DC, DIN rail
PC-CPU-V7	SmartNova DDC Controller — Modbus master for PC-series IO modules (ordered separately)

- TERMINALS & WIRING



Terminal layout as viewed from the front of the module.

NO.	GROUP	TERMINALS	SIGNAL	DESCRIPTION
1	**Digital inputs**	GND, DI9–DI16, +24V DC	Volt-free contact	Status inputs 9–16; connect each contact between +24V DC and its DI terminal
2	**Power supply**	N, P	24 V DC	Module supply input — P: +24 V, N: −24 V (0 V)
3	**Digital inputs**	GND, DI1–DI8, +24V DC	Volt-free contact	Status inputs 1–8; connect each contact between +24V DC and its DI terminal
4	**Modbus RS485**	B, A, GND	Modbus RTU	Connection to an PC-CPU-V7 RS485 port or third-party Modbus master

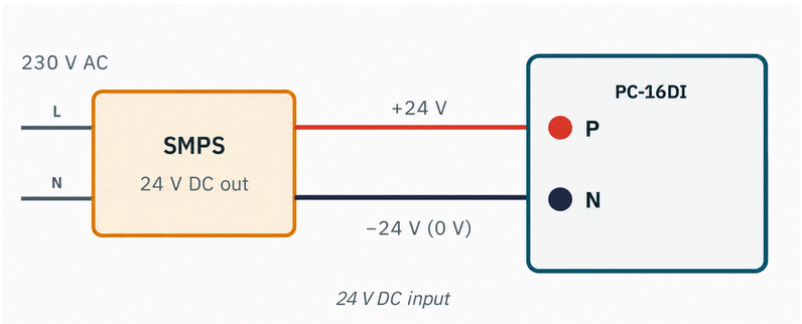
- IO WIRING

- Digital inputs accept volt-free (dry) contacts only — do not apply external voltage.
- Connect each contact between the +24V DC terminal and its DI terminal, using the +24V DC of the same group.
- Use separate cores per contact and keep input cabling away from mains wiring.
- Label field cables DI1–DI16 to match the module terminals.

- RS485 BUS WIRING

- Use shielded twisted-pair cable and daisy-chain modules on the bus.
- Connect B, A and GND to the same terminals on the master and every module.
- Fit 120 Ω termination at both ends of long bus segments.
- Segment length up to 1200 m per TIA/EIA-485, reduced at higher baud rates.

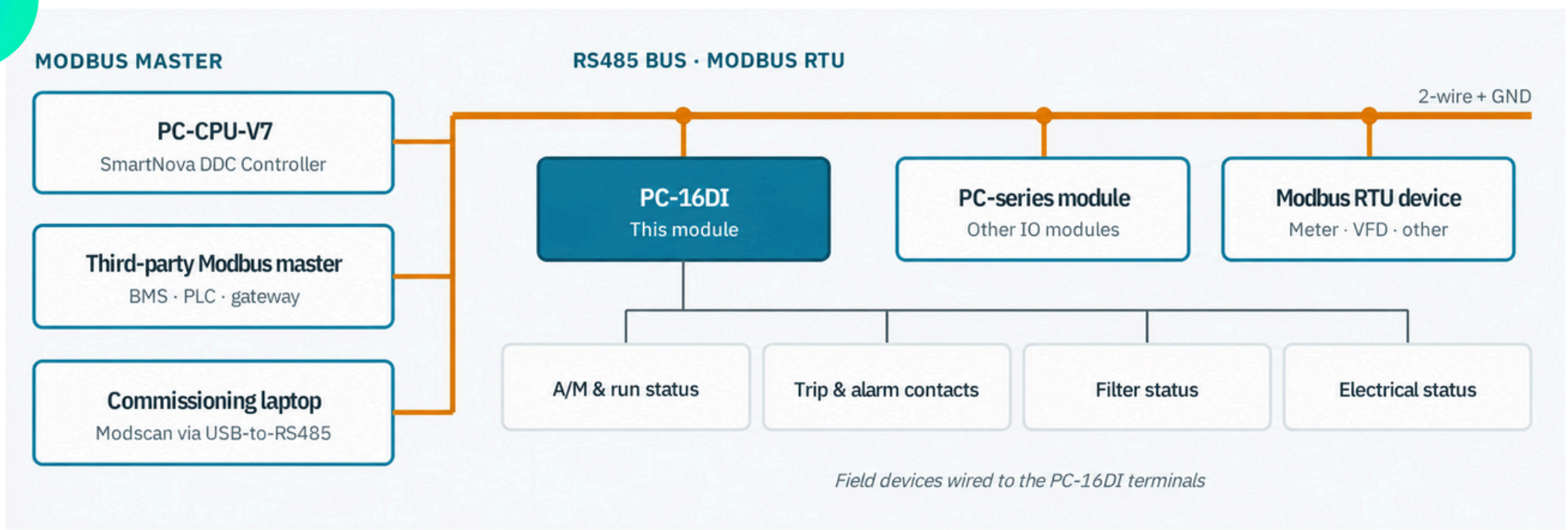
- POWER SUPPLY WIRING



24 V DC input

- Supply from a 24 V AC/DC source, such as a 230 V AC to 24 V DC SMPS.
- Connect + supply to terminal P and − supply to terminal N.
- One SMPS can feed several modules; size it for the total load.

- SYSTEM ARCHITECTURE



- MODEL SELECTION

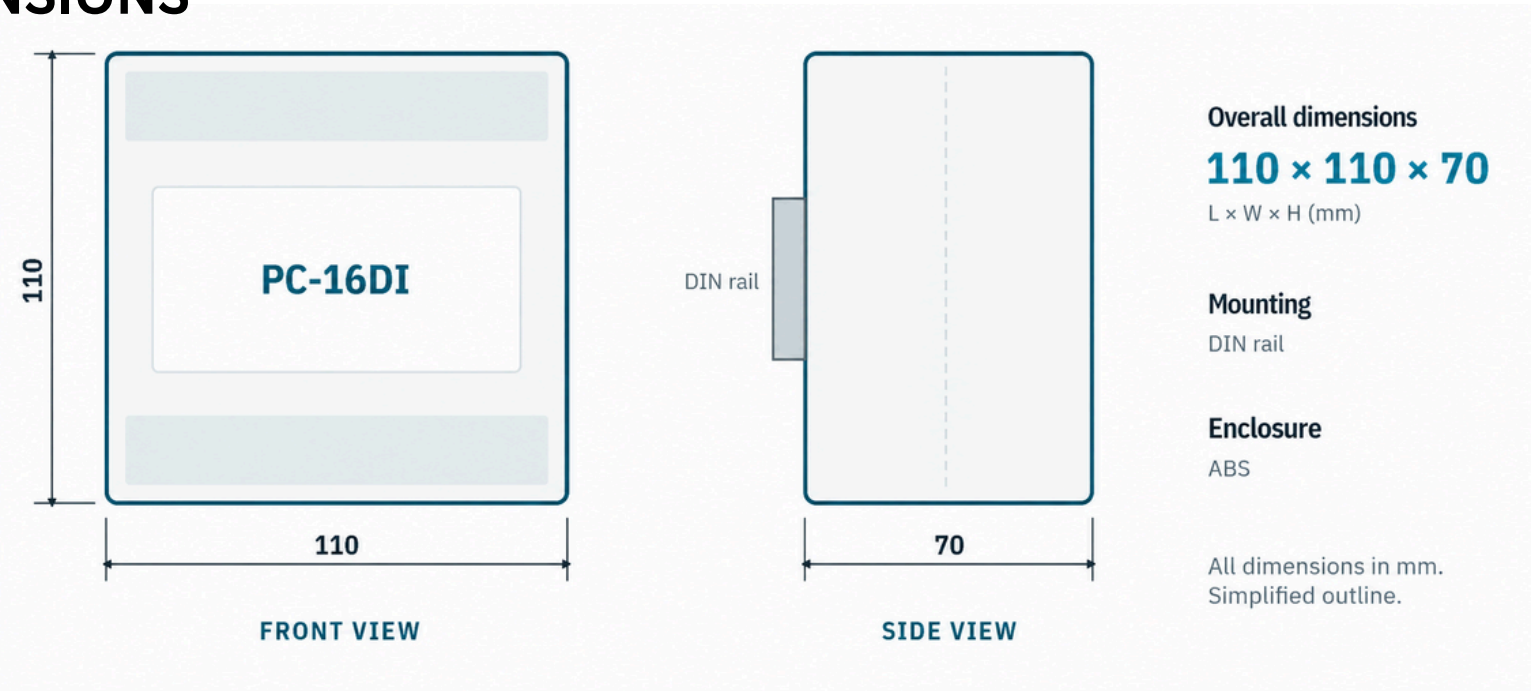
COMMUNICATION SETTINGS	
Protocol	Modbus RTU, slave
Physical layer	RS485, 2-wire + GND
Baud rate	Multiple options
Default slave address	To be confirmed
Data format	To be confirmed
Function codes	02

Addresses use the standard Modbus 0x / 1x notation, as listed in the module address details.

MODBUS REGISTER MAP

NO.	IO POINT	ADDRESS	TYPE	ACCESS
1	DI-1	10001	Input status	R
2	DI-2	10002	Input status	R
3	DI-3	10003	Input status	R
4	DI-4	10004	Input status	R
5	DI-5	10005	Input status	R
6	DI-6	10006	Input status	R
7	DI-7	10007	Input status	R
8	DI-8	10008	Input status	R
9	DI-9	10009	Input status	R
10	DI-10	10010	Input status	R
11	DI-11	10011	Input status	R
12	DI-12	10012	Input status	R
13	DI-13	10013	Input status	R
14	DI-14	10014	Input status	R
15	DI-15	10015	Input status	R
16	DI-16	10016	Input status	R

- 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 digital input cables away from relay output wiring.
- A failed module can be replaced on site and the system resumes without re-programming.

- COMMISSIONING

- Mount the module and connect the 24 V DC supply.
- Wire volt-free contacts to DI1–DI16 as per the wiring drawing.
- Connect RS485 B, A, GND to the PC-CPU-V7 port or Modbus master.
- Poll the module using the Modbus register map.
- Verify points with Modscan over USB-to-RS485 or through PC-CPU-V7 over IP.

- SYSTEM REQUIREMENTS

- PC-CPU-V7 controller or any third-party Modbus master
- Modbus master utility (e.g. Modscan) for commissioning
- USB-to-RS485 converter for commissioning over serial
- 24 V 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

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