Probiz Controls

PC-SERIES IO MODULE

PC-4DIAI3DO2AO



FEATURES & BENEFITS

- 4 digital inputs for volt-free status contacts
- 3 relay outputs (C / NO), rated 230 V, 3 A
- 4 analog inputs for NTC 10K, 0–10 V DC or 4–20 mA signals
- 2 analog outputs, 0–10 V DC, for VFDs, valves and dampers
- Modbus RTU slave on RS485 (B, A, G)
- Works with PC-CPU-V7 or any third-party Modbus master
- No configuration required — ready to poll from the master
- Customer-specific IO configuration available on request
- Failed modules are replaced on site without reprogramming
- Modular design for fast, repeatable panel builds

APPLICATIONS

AHU Control SA/ RAtemperature, start / stop and status	**Chilled Water** CHW temperatureand chiller commands	**VFD Speed Control** 0–10 V speed referenceand feedback	**Dampers & Valves** Modulating control with position feedback

4 DI Volt-free contact inputs	**3 DO** Relay outputs, 230 V, 3 A	**4 AI** NTC / 0–10 V / 4–20 mA	**24 V** AC/DC supply	**2 AO** 0–10 V DC outputs

Modbus RTU | **4 DI** | **RS485**

3 DO | **4 AI** | **2 AO**

The PC-4DIAI3DO2AO is a DIN-rail mounted extension IO module with 4 digital inputs, 3 relay outputs, 4 analog inputs and 2 analog outputs, combining monitoring and modulating control in a single unit. It communicates over Modbus RTU on RS485, so it works as an expansion module for the PC-CPU-V7 controller or with any thirdparty Modbus master. Analog inputs accept NTC 10K temperature sensors, 0–10 V DC or 4– 20 mA signals, while the 0–10 V DC analog outputs drive VFDs, control valves and modulating dampers.

TECHNICAL DATA

INPUTS & OUTPUTS	
Digital inputs	4, volt-free contact
Digital outputs	3, relay (C / NO), 230 V, 3 A
Analog inputs	4, NTC 10K / 0–10 V DC / 4–20 mA
Analog outputs	2, 0–10 V DC
Analog resolution	To be confirmed

COMMUNICATION	
Protocol	Modbus RTU (slave)
Interface	RS485 — B, A, G
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 AC/DC
Power consumption	To be confirmed

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

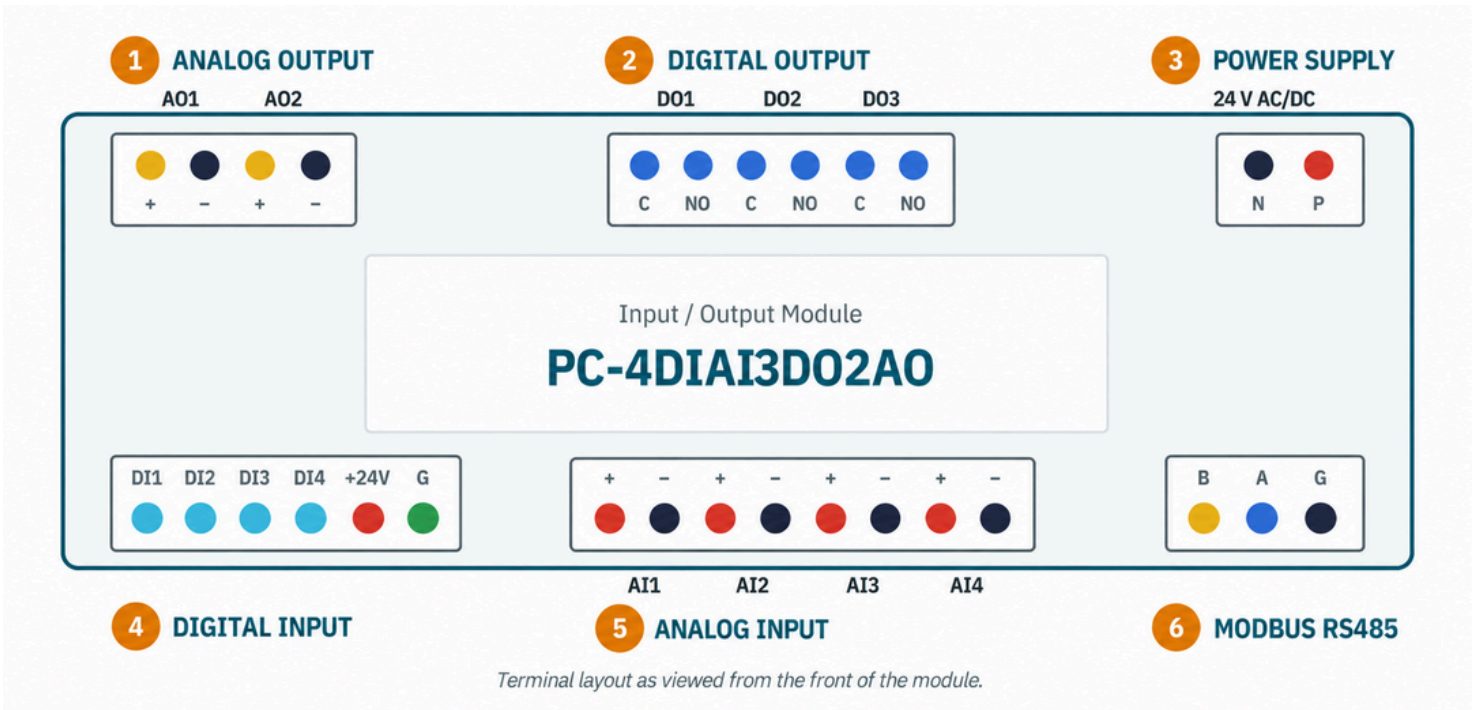
MECHANICAL	
Dimensions (L × W × H)	110 × 110 × 70 mm
Mounting	DIN rail
Enclosure	ABS

STANDARDS & CERTIFICATIONS	
Certifications	CE, RoHS

ORDERING INFORMATION

PART NUMBER	DESCRIPTION
PC-4DIAI3DO2AO	PC-series IO module — 4 DI (volt-free), 3 DO (relay 230 V, 3 A), 4 AI (NTC 10K / 0–10 V DC / 4–20 mA), 2 AO (0–10 V DC), Modbus RTU RS485, 24 V AC/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	**Analog outputs**	**AO1–AO2: +, –**	0–10 V DC	Control signal to VFDs, control valves and modulating dampers
2	**Digital outputs**	**DO1–DO3: C, NO**	Relay, 230 V, 3 A	Relay contact per output — C = common, NO = normally open
3	**Power supply**	**N, P**	24 V AC/DC	Module supply input — P: + supply, N: – supply
4	**Digital inputs**	**DI1–DI4, +24V, G**	Volt-free contact	Status inputs for volt-free contacts, wired as shown in the wiring drawing
5	**Analog inputs**	**AI1–AI4: +, –**	NTC 10K / 0–10 V DC / 4–20 mA	Temperature sensor or analog transmitter inputs
6	**Modbus RS485**	**B, A, G**	Modbus RTU	Connection to an PC-CPU-V7 RS485 port or third-party Modbus master

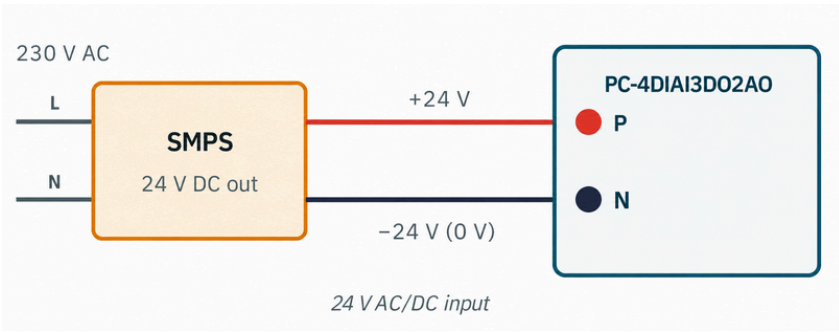
- IO WIRING

- Digital inputs accept volt-free (dry) contacts only — do not apply external voltage.
- Relay outputs switch loads up to 230 V, 3 A; use an interposing relay or contactor for larger loads.
- Connect AO + / – to the 0–10 V DC control input of the VFD, valve or damper actuator.
- Observe + / – polarity on analog inputs and use shielded cable for all analog signals.

- RS485 BUS WIRING

- Use shielded twisted-pair cable and daisy-chain modules on the bus.
- Connect B, A and G 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.

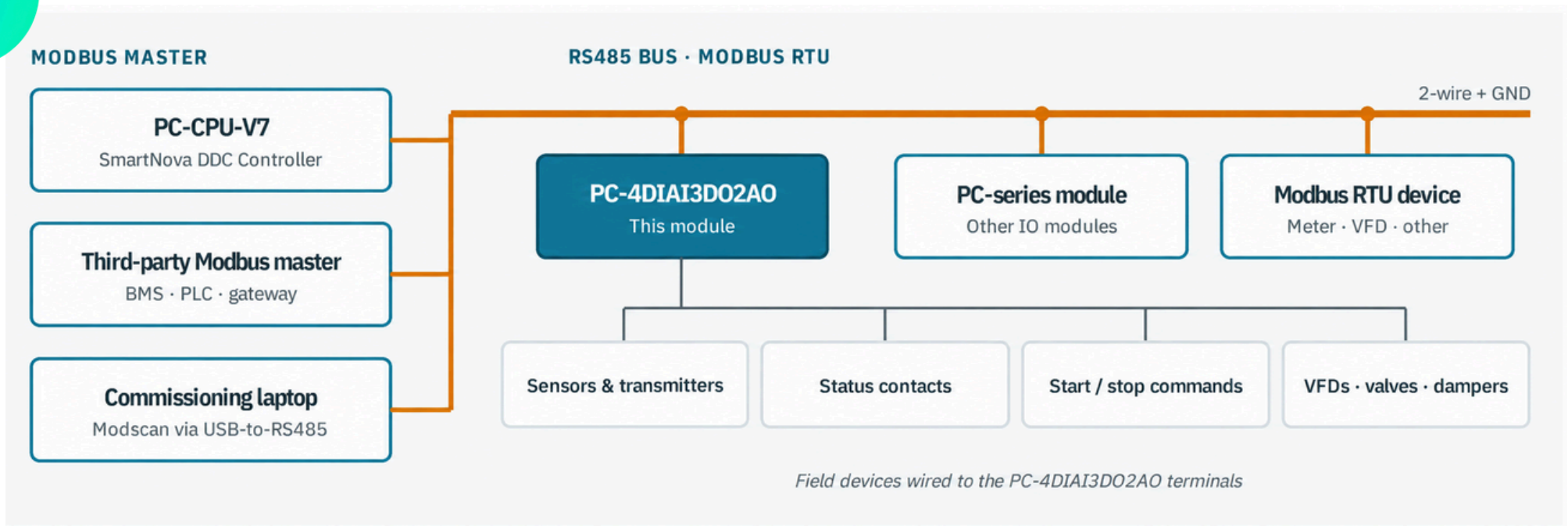
- POWER SUPPLY WIRING



24 V AC/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



Field devices wired to the PC-4DIAI3DO2AO terminals

- MODEL SELECTION

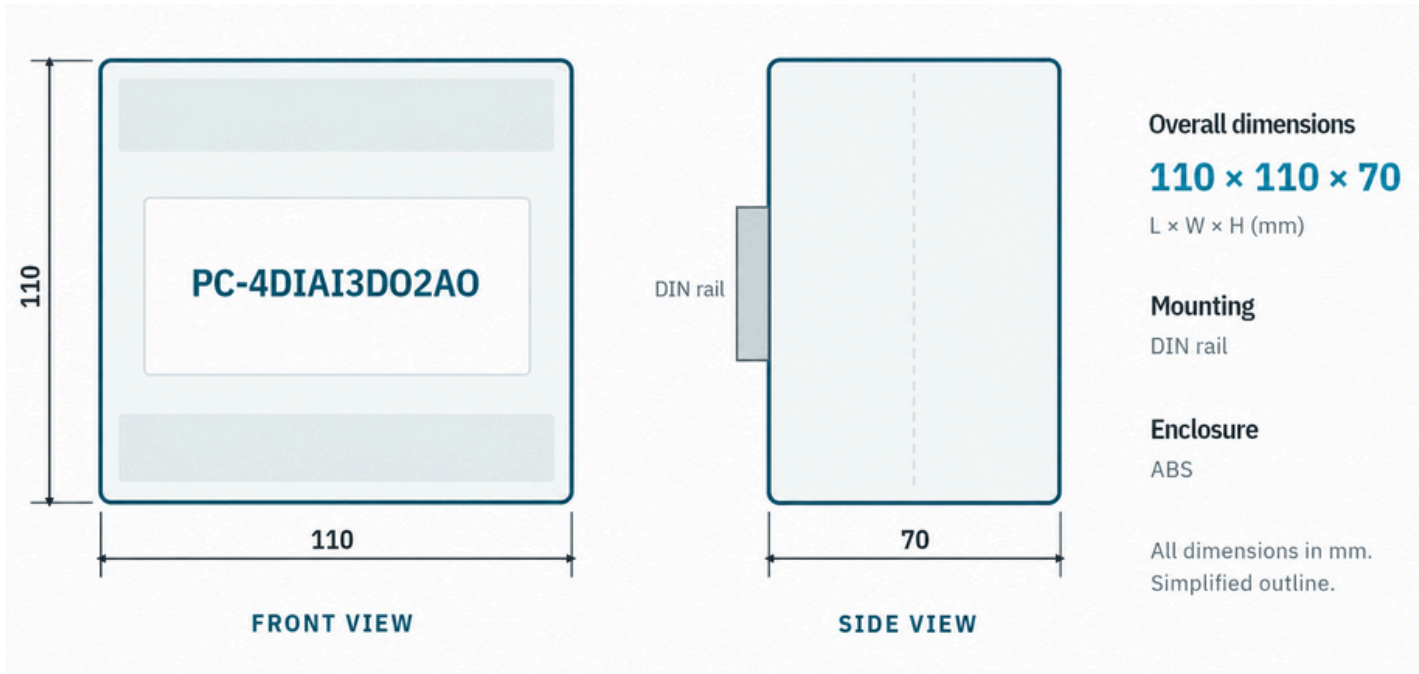
COMMUNICATION SETTINGS	
Protocol	Modbus RTU, slave
Physical layer	RS485, 2-wire + G
Baud rate	Multiple options
Default slave address	To be confirmed
Data format	To be confirmed
Function codes	01, 02, 03, 05, 06

Addresses use the standard Modbus 0x / 1x / 4x notation. Register scaling for analog inputs and outputs to be confirmed.

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	DO-1	00005	Coil status	R/W
6	DO-2	00006	Coil status	R/W
7	DO-3	00007	Coil status	R/W
8	AI-1 (0–10 V / 4–20 mA)	40002	Holding register	R
9	AI-2 (0–10 V / 4–20 mA)	40003	Holding register	R
10	AI-3 (0–10 V / 4–20 mA)	40004	Holding register	R
11	AI-4 (0–10 V / 4–20 mA)	40005	Holding register	R
12	AI-1 (NTC)	40006	Holding register	R
13	AI-2 (NTC)	40007	Holding register	R
14	AI-3 (NTC)	40008	Holding register	R
15	AI-4 (NTC)	40009	Holding register	R
16	AO-1 (0–10 V)	40010	Holding register	R/W
17	AO-2 (0–10 V)	40011	Holding register	R/W

- 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 AC/DC supply.
- Wire digital inputs, relay outputs, analog inputs and analog outputs as per the wiring drawing.
- Connect RS485 B, A, G 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 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-4DIAI3DO2AO



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