Probiz Controls

## PC-SERIES IO MODULE

# PC-4DI4DO



## 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

| | | | |
|---|---|---|---|
| **Equipment Status**<br>A/M, run and trip status of AHUs, FCUs, fans and pumps | **Chiller & Pumps**<br>Run / trip status and start / stop commands | **Filter Monitoring**<br>Filter status contacts | **System Commands**<br>Start / stop through relay outputs |

| | | | | |
|---|---|---|---|---|
| **4 DI**<br>Volt-free contact inputs | **4 DO**<br>Relay outputs (C / NO) | **Modbus RTU**<br>RS485 slave | **24 V**<br>AC/DC supply | **CE · RoHS**<br>Certified |

**Modbus RTU** **4 DI** **RS485** **4 DO**

The PC-4DI4DO is a DIN-rail mounted extension IO module with 4 digital inputs and 4 relay outputs, sized for monitoring and start / stop control of a single piece of equipment. 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. Volt-free inputs read auto / manual, run, trip and filter status, while four independent relay outputs issue system commands to AHUs, FCUs, exhaust fans, pumps and chillers.

# TECHNICAL DATA

| INPUTS & OUTPUTS | |
|---|---|
| Digital inputs | 4, volt-free contact |
| Digital outputs | 4, relay (C / NO) |
| Relay rating | 230 V AC, 3 A |

| 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 AC/DC |
| Power consumption | To be confirmed |

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

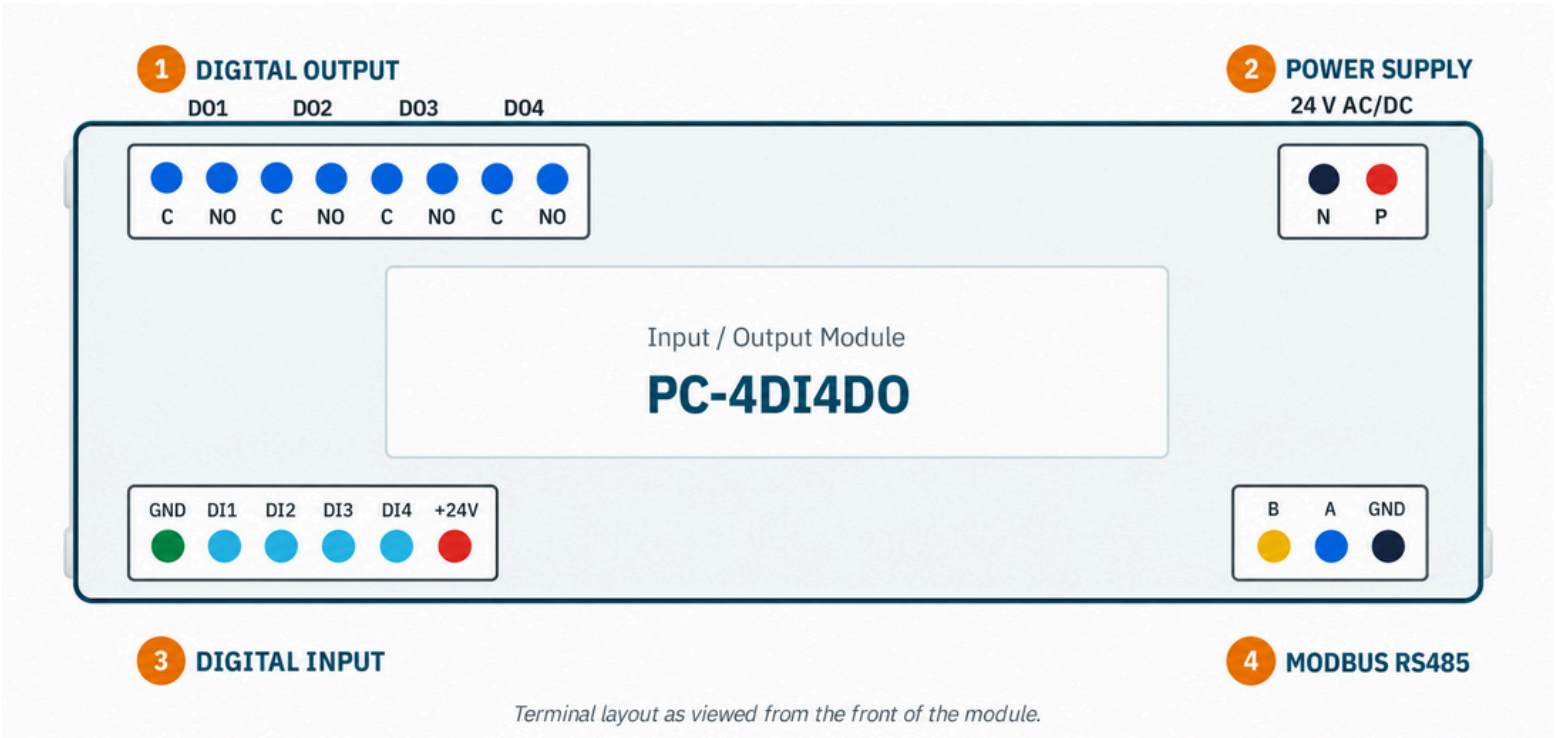
| MECHANICAL | |
|---|---|
| Dimensions (L × W × H) | 110 × 110 × 70 mm |
| Mounting | DIN rail |
| Enclosure | ABS |

| STANDARDS & CERTIFICATIONS | |
|---|---|
| Certifications | CE, RoHS |

# ORDERING INFORMATION

| PART NUMBER | DESCRIPTION |
|---|---|
| **PC-4DI4DO** | PC-series IO module — 4 DI (volt-free), 4 DO (relay), 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 | **Digital outputs** | DO1–DO4: C, NO | Relay | Independent relay contact per output — C = common, NO = normally open |
| 2 | **Power supply** | N, P | 24 V AC/DC | Module supply input — P: + supply, N: – supply |
| 3 | **Digital inputs** | GND, DI1–DI4, +24V DC | Volt-free contact | Status inputs; 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 |

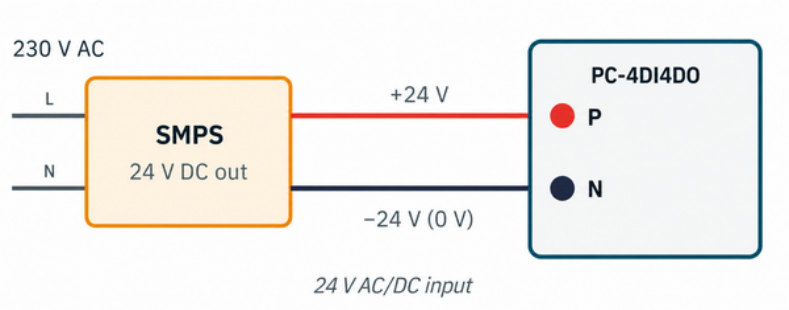
## - IO WIRING

- 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.
- Switch loads within the relay rating; use an interposing relay or contactor for larger loads.
- Keep relay output wiring separate from digital input and RS485 cabling.

## - 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.

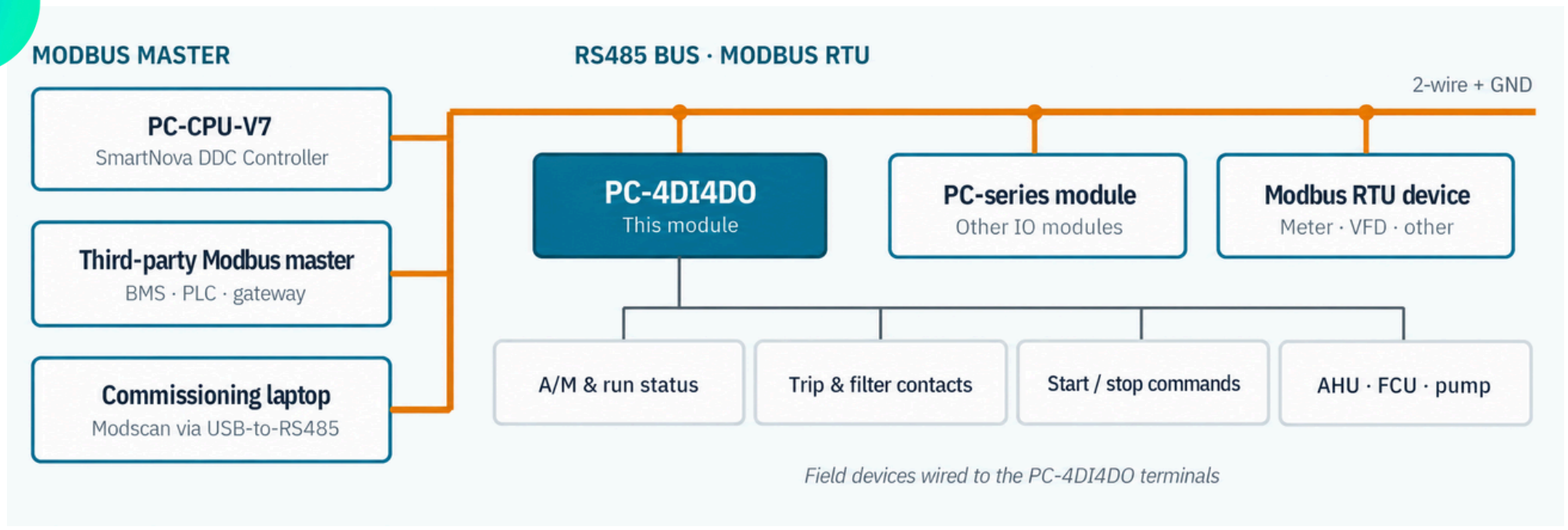
## - POWER SUPPLY WIRING




*24 V 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




## - MODEL SELECTION

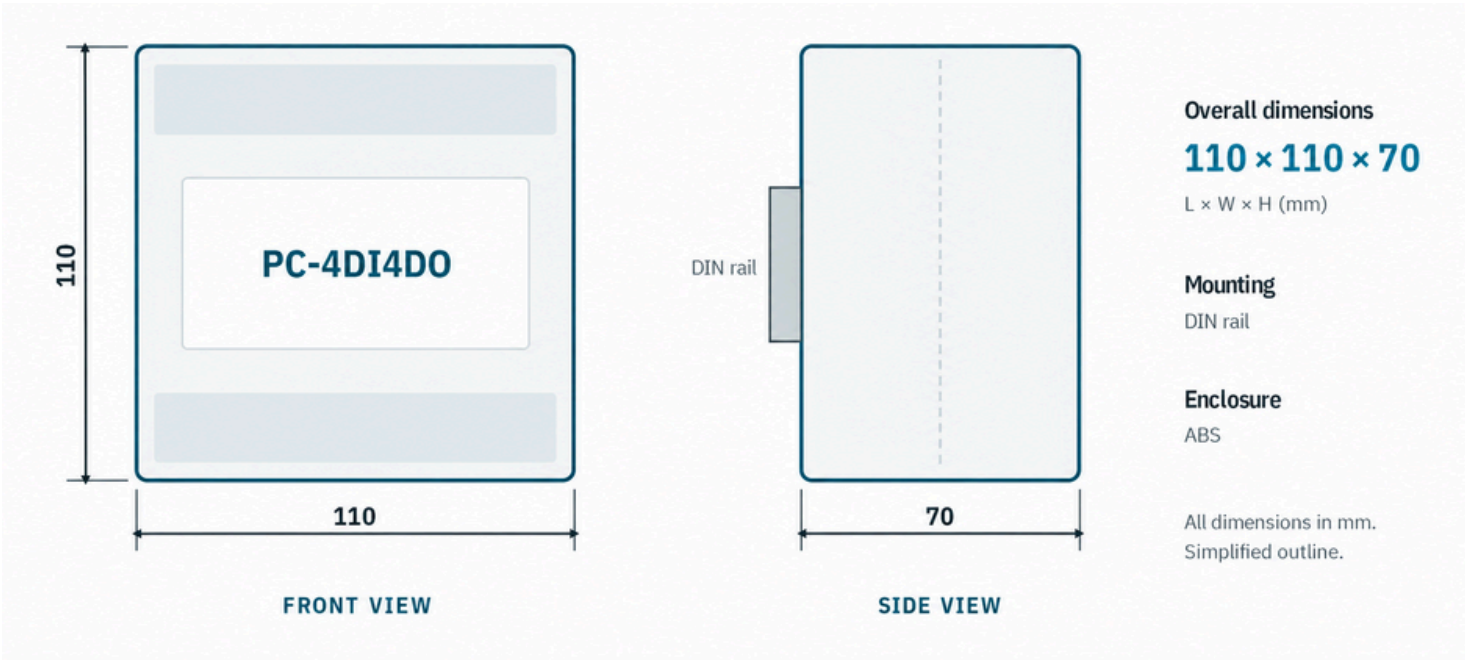
| COMMUNICATION SETTINGS | |
|---|---|
| Protocol | **Modbus RTU, slave** |
| Physical layer | **RS485, 2-wire + GND** |
| Baud rate | **Multiple options** |
| Default slave address | **To be confirmed** |
| Data format | **To be confirmed** |
| Function codes | **01, 02, 05** |

**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 | **DO-4** | **00008** | Coil status | R/W |

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

## - 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 and relay outputs 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 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-4DI4DO




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