DATASHEET

ADQUIO MULTI IOs PRO

Modbus RTU input/output module

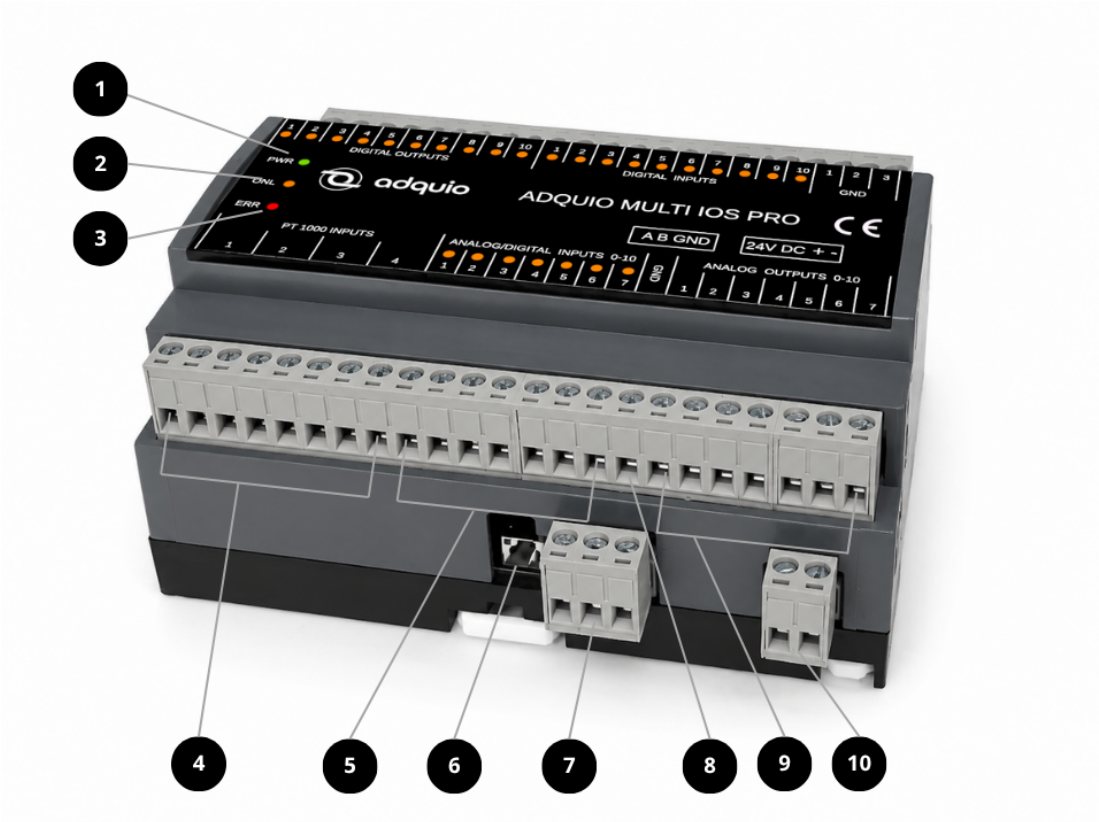


1 Product identification and applications

An expansion module for HVAC, machinery, electrical panels and technical systems. Collect input signals, control actuators and integrate temperatures, states and setpoints through a Modbus RTU-compatible controller.

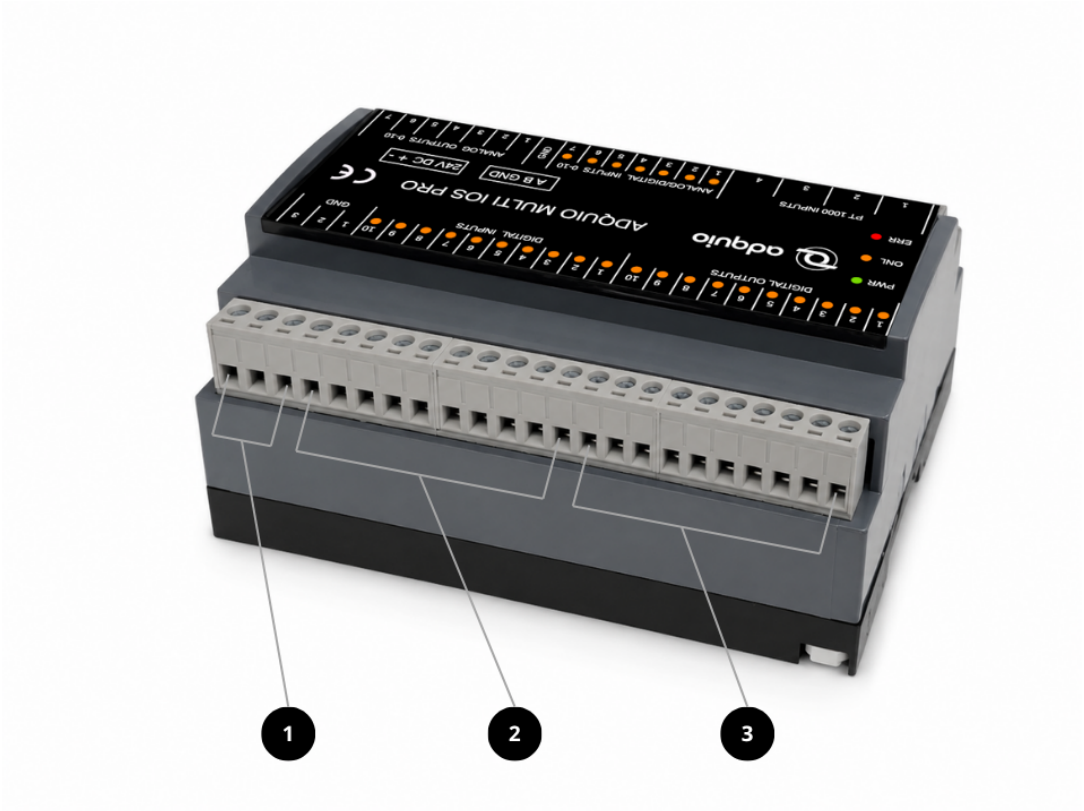
Model	Adquio Multi IOs Pro
Digital inputs	10
Digital outputs	10 · power transistors, 24 V
Analogue/digital inputs	7 · configurable
Analogue outputs	7 · 0–10 V
Temperature probes	4 · PT1000 · 2-wire

2 Front connections and indicators



No.	Item	Description
1	PWR	Power indicator.
2	ONL	Communication indicator for the master connection.
3	ERR	Error indicator.
4	PT1000	Four pairs of terminals for two-wire PT1000 probes.
5	AI/DI 1–7	Seven inputs configurable for analogue or digital signals.
6	Reset	Communication reset to 9600 bps, 8N1.
7	RS-485	Modbus RTU slave port. A, B and GND terminals.
8	GND	Common reference for analogue outputs.
9	AO 1–7	Seven 0–10 V analogue outputs.
10	24 V DC	Power connection. Observe +/− polarity.

3 Rear connections



No.	Item	Description
1	GND	Common reference / negative terminals.
2	DI 1–10	Ten digital inputs.
3	DO 1–10	Ten 24 V power-transistor digital outputs for compatible relay actuation.

Separate signal functions

The ten DI and ten DO channels are separate from the seven AI/DI channels and seven AO outputs. The four PT1000 channels have their own connection terminals.

4 Technical specifications

Parameter	Value
Nominal supply	24 V DC
Module current consumption	130 mA
Communication	RS-485 · Modbus RTU · slave
Reference baud rates	9600 / 19200 bps
Communication reset	9600 bps · 8N1
Dedicated digital inputs	10 · 0–24 V
Configurable AI/DI inputs	7
Analogue input ranges	0–10 V / 0–24 V
Digital-mode input threshold	Approximately 4.8 V for logic 1.
Current signals	4–20 mA through an external DIN-rail converter.
Temperature inputs	4 × PT1000 · 2-wire
Digital outputs	10 × 24 V · power transistors
Analogue outputs	7 × 0–10 V
Status indicators	PWR / ONL / ERR

Connection requirements

Size the power supply for the module and connected loads. Digital outputs use transistors and are not dry relay contacts. Check the electrical compatibility of each sensor and actuator before wiring.

5 Modbus map: inputs and outputs

Addresses use zero-based offsets. Every entry in this map uses holding registers. R: read; W: write. Permissions indicate the operations enabled for each variable.

Address	Variable	Description	Access	Representation
0	DI01	Digital input 1	R	uint16
1	DI02	Digital input 2	R	uint16
2	DI03	Digital input 3	R	uint16
3	DI04	Digital input 4	R	uint16
4	DI05	Digital input 5	R	uint16
5	DI06	Digital input 6	R	uint16
6	DI07	Digital input 7	R	uint16
7	DI08	Digital input 8	R	uint16
8	DI09	Digital input 9	R	uint16
9	DI10	Digital input 10	R	uint16
10	DO01	Digital output 1	R/W	uint16
11	DO02	Digital output 2	R/W	uint16
12	DO03	Digital output 3	R/W	uint16
13	DO04	Digital output 4	R/W	uint16
14	DO05	Digital output 5	R/W	uint16
15	DO06	Digital output 6	R/W	uint16
16	DO07	Digital output 7	R/W	uint16
17	DO08	Digital output 8	R/W	uint16
18	DO09	Digital output 9	R/W	uint16
19	DO10	Digital output 10	R/W	uint16
20	AI01	Analogue input 1	R	uint16
21	AI02	Analogue input 2	R	uint16
22	AI03	Analogue input 3	R	uint16
23	AI04	Analogue input 4	R	uint16
24	AI05	Analogue input 5	R	uint16
25	AI06	Analogue input 6	R	uint16
26	AI07	Analogue input 7	R	uint16
27	AO01	Analogue output 1	R/W	uint16 · 0–4095
28	AO02	Analogue output 2	R/W	uint16 · 0–4095
29	AO03	Analogue output 3	R/W	uint16 · 0–4095
30	AO04	Analogue output 4	R/W	uint16 · 0–4095
31	AO05	Analogue output 5	R/W	uint16 · 0–4095
32	AO06	Analogue output 6	R/W	uint16 · 0–4095
33	AO07	Analogue output 7	R/W	uint16 · 0–4095

5.1 Modbus map: temperature and configuration

Address	Variable	Description	Access	Representation
34	PT01	PT1000 1	R	int16 / 100
35	PT02	PT1000 2	R	int16 / 100
36	PT03	PT1000 3	R	int16 / 100
37	PT04	PT1000 4	R	int16 / 100
38	PT01_ajuste	PT1000 adjustment 1	R/W	int16 / 100
39	PT02_ajuste	PT1000 adjustment 2	R/W	int16 / 100
40	PT03_ajuste	PT1000 adjustment 3	R/W	int16 / 100
41	PT04_ajuste	PT1000 adjustment 4	R/W	int16 / 100
42	LedPower	Power LED control	R/W	uint16
43	modbus_slave_restart_to_apply	Restart-to-apply status	R	uint16
44	LedError	Error LED control	R/W	uint16
45	ResetButton	Reset button status	R	uint16
46	Config_Baud	Serial baud rate	R/W	uint16
47	Config_Serial_8N1	Serial framing	R/W	uint16
48	Config_address	Slave address	R/W	uint16

Temperature interpretation

PT variables and their adjustments cast the register value to a signed 16-bit integer and divide it by 100. The float64 type applies to the controller’s resulting variable; it does not mean that each probe occupies four Modbus registers.

Serial framing · register 47

Value	6	14	38	46	54	62
Framing	8N1	8N2	8E1	8E2	8O1	8O2

Addressing and commissioning

Adapt the port instance and slave address to the installation. Address 6 and port modbus_rs485_2 in the JSON example are example settings, not the device’s factory defaults. The profile is supplied disabled until these settings are reviewed.

6 Integration, standards and documentation

Commissioning

1. Connect the 24 V DC supply and check polarity and GND references.
2. Connect the RS-485 bus to a compatible master, observing A, B and GND.
3. Import the variable profile, set the port, address and serial framing, then enable the device.
4. Verify readings and test outputs under controlled conditions before automating the installation.

Standards

Area	Standards
Safety and Health	EN ISO 13849-1:2015; EN ISO 13849-2:2012; EN 62061:2005 + A1:2013 + A2:2015; EN 60950-1:2006; EN 62311:2008
EMC	EN 61000-6-4:2007 + A1:2011; EN 61000-6-2:2005; ETSI EN 301 489-1 v2.2.0; ETSI EN 301 489-17 v3.2.0
RoHS	EN 50581:2012

Product resources

Product page ↗

Variable configuration · JSON ↗

Commercial brochure ↗

Fridama Instalaciones S.L. · Adquio
https://adquio.com · soporte@adquio.com