Logivyx

PRODUCT CATALOG · 2026

FIELD I/O · ANALOG INPUT · 12-BIT · MODBUS RTU

FieldIO 8AI

Measure the process.
One RS485 cable.

An isolated 8-channel analog input module for pressure, level, temperature and flow transmitters. Set each channel to its own range and the Logivyx Soft PLC reads ready-to-use values in mV or µA over standard Modbus RTU.

- ✓ 4–20 mA, 0–20 mA and voltage ranges
- ✓ Range set per channel, mixed V and mA
- ✓ Single-ended or differential inputs
- ✓ Power and signal isolation built in



8 AI · 12-bit
Voltage and current inputs

7–36 V DC
Isolated power input

72 × 121 mm
35 mm DIN-rail mount

VISUAL LOGIC.
ZERO CODE.

PRODUCT OVERVIEW

Every transmitter, read straight into the Soft PLC.

FieldIO 8AI brings eight analog signals onto a Logivyx panel. Mount it beside the transmitters, run one twisted pair back to the panel, and the Soft PLC reads each channel as mV or µA — ready for alarms, trends, recipes and reports.

THE CONVENTIONAL CABINET

PLC + analog card + long shielded runs



One shielded cable per signal, all the way back to the rack

- ✕ PLC CPU plus a costly analog input card
- ✕ Long shielded runs that pick up noise
- ✕ Raw counts to scale in a separate tool

THE LOGIVYX WAY

Panel + FieldIO 8AI on RS485



Analog and digital I/O on the same bus

- ✓ No PLC CPU or analog card to buy
- ✓ Short analog runs, digital bus back to the panel
- ✓ Values already in mV / µA — simple scaling

8 AI
Single-ended or differential inputs

12-bit
Oversampling digital filter on every channel

5 modes
Two voltage, two current and raw-code per channel

255
Modbus addresses — many modules per bus

WHAT YOU GET

Isolated analog module

8 inputs with per-channel ranges, power and signal isolation, in a compact DIN-rail housing.

Standard Modbus RTU

Open protocol on RS485 — works with the Logivyx driver and with any Modbus RTU master.

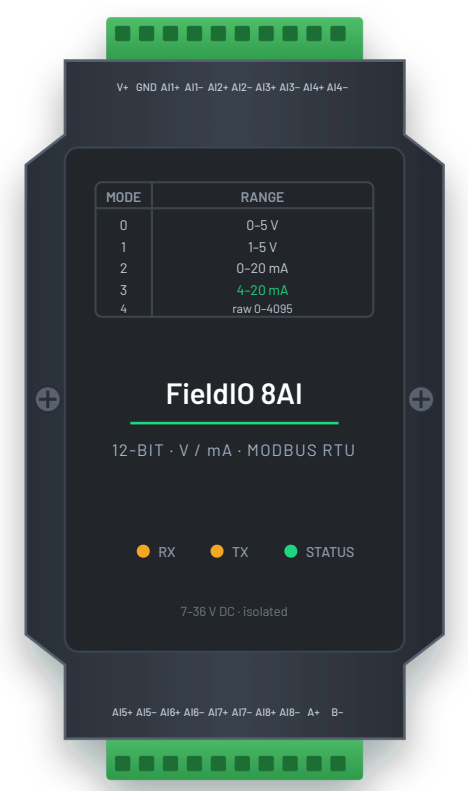
Built for Logivyx

Channel values mapped to tags in Studio, scaled in ST or Ladder, and shown on trends and gauges.

HARDWARE

Precise, isolated, built for the cabinet.

High-precision resistors and zero-drift amplifiers feed a 12-bit converter with oversampling filtering. Power and signal isolation, a resettable fuse, reverse-polarity, TVS and ESD protection keep measurements stable in industrial environments.



Front view. Range legend; RX, TX and STATUS indicators.

Top terminal block	POWER & AI1–AI4
7–36 V / GND	Module power supply, isolated
AI1+ / AI1− … AI4+ / AI4−	Analog inputs 1–4 (positive / negative)

Bottom terminal block	AI5–AI8 & BUS
AI5+ / AI5− … AI8+ / AI8−	Analog inputs 5–8 (positive / negative)
A+ / B−	RS485 signal pair

Two versions — RANGES

	8AI-C	8AI-V
Ships in	Current mode, 0–20 mA	Voltage mode, 0–10 V
Voltage ranges	0–5 V · 1–5 V	0–10 V · 2–10 V
Current ranges	0–20 mA · 4–20 mA	0–20 mA · 4–20 mA
Sampling resistor	249 Ω	499 Ω
Resolution	12-bit	12-bit

Dual isolation
Isolated power and magnetically isolated RS485 signal.

Oversampling filter
Digital filtering for steady readings on noisy signals.

Fuse, TVS & ESD
Resettable fuse, reverse-polarity, surge and ESD protection.

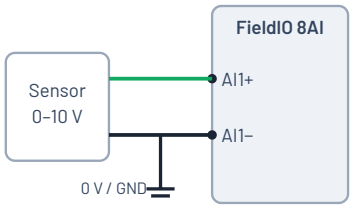
Watchdog
On-board watchdog keeps the module running unattended.

WIRING

Voltage or current, channel by channel.

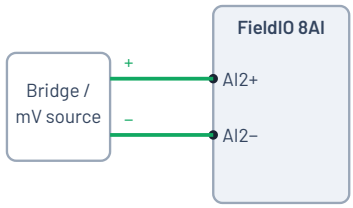
Every channel has AI+ and AI− terminals and an internal jumper. Remove the jumper to measure voltage; fit it to measure current. Then select the matching range for that channel in software.

VOLTAGE · JUMPER OFF
Single-ended



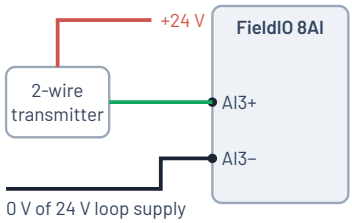
Signal to AI+, signal ground to AI−. Tie the sensor ground to the module ground for a common reference.

VOLTAGE · JUMPER OFF
Differential



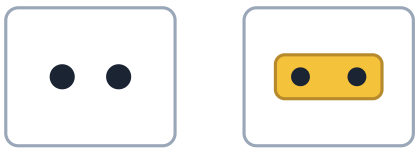
Both signal wires to AI+ and AI−; the module measures the difference, rejecting common-mode noise.

CURRENT · JUMPER ON
2-wire 4–20 mA



Loop supply + to the transmitter, transmitter output to AI+, AI− back to the loop supply 0 V.

INTERNAL JUMPERS
Voltage or current per channel

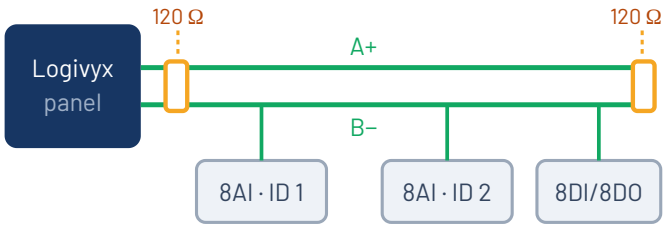


Voltage
jumper off

Current
jumper on

Jumpers sit inside the housing next to each channel's terminals. A wrong jumper gives wrong readings — set it before selecting the range.

FIELDBUS
RS485 multi-drop



Share one bus with other FieldIO modules — each with a unique address (1–255). Factory default is ID 1, 9600 baud, 8-N-1; terminate both ends with 120 Ω.

Common ground: when sensors and the module use different power supplies, connect their grounds together — otherwise readings may be inaccurate. Wiring must be done by qualified personnel with the power switched off.

LOGIVYX INTEGRATION

Eight process values, ready for trends and alarms.

FieldIO 8AI connects through the Logivyx Runtime's built-in Modbus RTU driver. Each channel arrives as an integer in mV or µA, so scaling to bar, °C or m³/h is one line of ST — or a SCALE block in Ladder.

01
Add the device
Create a Modbus RTU connection on the panel's RS485 port: 9600 baud, 8-N-1, slave ID 1 (factory defaults).

02
Set the ranges
Write each channel's range mode (0–4) once — from a STARTUP routine or a commissioning screen.

03
Scale and use
Convert mV / µA to engineering units and use them in logic, trends, alarms, recipes and reports.

MODBUS REGISTER MAP

Address	Data	Access	Function codes · values
3x0000 – 3x0007	Channel values AI1 – AI8	Read	FC 04 — mV, µA or raw code, per the channel's range
4x1000 – 4x1007	Range mode, ch. 1–8	Read / write	FC 03, 06, 10 — 0 to 4 (see page 6)
4x2000	Serial settings	Read / write	FC 03, 06 — high byte parity, low byte baud-rate code
4x4000	Device address	Read / write	FC 03, 06 — 1 to 255
4x8000	Firmware version	Read	FC 03 — e.g. 100 = V1.00

```
(* AI1: 4–20 mA pressure, 0–10 bar  *)
(* AI1_uA from FieldIO 8AI, ID 2       *)
Pressure_bar := INT_TO_REAL(AI1_uA - 4000)
              * 10.0 / 16000.0;
Sensor_Fault := AI1_uA < 3600;   (* wire break *)
IF Pressure_bar > 8.5 THEN
    Alarm_HiPress := TRUE;
END_IF;
```

Connects to	PANELS
FieldCore 7	On-board RS485 (COM2 / COM4) — wire straight to the terminals
StationCore 15 · 17	COM1 or COM2 configured for RS485
PanelCore 10	Through a USB–RS485 adapter
Other masters	Any Modbus RTU master, PLC or SCADA

Tag names and scaling shown are examples.

RANGE MODES

Five modes per channel, mixed on one module.

Each channel has its own range register, so one module can read 4–20 mA transmitters and 0–10 V signals side by side. Values arrive in engineering-friendly units — no raw-count conversion needed.

Mode	8AI-C range	8AI-C value	8AI-V range	8AI-V value
0	0–5 V	0 – 5000 mV	0–10 V	0 – 10000 mV
1	1–5 V	1000 – 5000 mV	2–10 V	2000 – 10000 mV
2	0–20 mA	0 – 20000 µA	0–20 mA	0 – 20000 µA
3	4–20 mA	4000 – 20000 µA	4–20 mA	4000 – 20000 µA
4	Raw code	0 – 4095	Raw code	0 – 4095

LIVE-ZERO RANGES

Detect broken wires

With 4–20 mA or 1–5 V / 2–10 V, a reading near zero means an open circuit — flag it as a sensor fault in the Soft PLC instead of a valid zero.

RAW CODE MODE

Direct converter value

Mode 4 returns the 12-bit converter code. Voltage = code × 3300 / 4095 / amplifier ratio (32.4/49.9 for 8AI-C, 10/32.4 for 8AI-V); current = voltage / sampling resistor.

IDEAL APPLICATIONS

Pressure & vacuum
Test, fill and evacuation pressure transmitters.

Level & flow
Tank level, flow meters and dosing.

Temperature
RTD / thermocouple transmitters, 4–20 mA.

Leak testing
Leak-rate and gas-concentration signals.

Energy & utilities
Compressors, chillers, power transducers.

Position & load
Linear sensors and load-cell amplifiers.

Environment
Humidity, gas and air-quality sensors.

Retrofits
Add measurements without a new PLC card.

TECHNICAL SPECIFICATIONS

Specifications

Analog inputs — AI

Channels	8, sampled simultaneously
Input type	Single-ended or differential; voltage or current per channel (internal jumper)
Ranges, 8AI-C	0–5 V, 1–5 V, 0–20 mA, 4–20 mA; ships in 0–20 mA
Ranges, 8AI-V	0–10 V, 2–10 V, 0–20 mA, 4–20 mA; ships in 0–10 V
Resolution	12-bit
Sampling resistor	249 Ω (8AI-C) · 499 Ω (8AI-V)
Output data	mV or µA per channel; raw code 0–4095 in mode 4
Filtering	Oversampling digital filter

Power & protection — HARDWARE

Supply	7–36 V DC
Isolation	Isolated power supply; magnetically isolated RS485
Protection	Resettable fuse, reverse-polarity protection, TVS, ESD protection on inputs
Reliability	On-board watchdog
Indicators	RX, TX, STATUS

Communication — RS485

Interface	RS485 (A+, B−)
Protocol	Standard Modbus RTU
Baud rates	4800, 9600, 19200, 38400, 57600, 115200, 128000, 256000
Default	9600 baud, 8 data bits, no parity, 1 stop bit; address 1
Address range	1–255 (0 = broadcast)
Function codes	03, 04, 06, 10

Mechanical — HOUSING

Dimensions	72 × 121 × 34 mm (W × H × D)
Weight	Approx. 140 g
Mounting	35 mm DIN rail; side-by-side stacking
Terminals	Screw terminal blocks, top and bottom

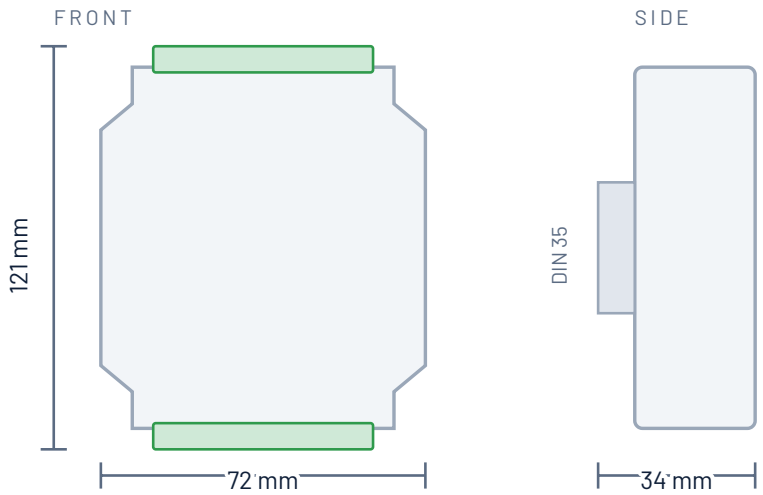
Logivyx compatibility — SOFTWARE

Driver	Logivyx Runtime Modbus RTU driver
Logic	Structured Text, Ladder (SCALE), Sequence; trends, alarms, reports
Panels	FieldCore 7, StationCore 15 · 17, PanelCore 10 (USB–RS485)

Specifications subject to change without notice.

DIMENSIONS

Compact on the DIN rail



Installation

1. Set each channel's jumper.
2. Snap onto a 35 mm DIN rail.
3. Wire power, sensors and RS485.
4. Set address and range modes.
5. Map tags in Logivyx Studio.

ORDERING INFORMATION

Order code	Description	Best for
LGX-FIO-8AI-C	**FieldIO 8AI-C** — 0–5 V, 1–5 V, 0/4–20 mA; ships in current mode	4–20 mA transmitters, 5 V sensors
LGX-FIO-8AI-V	**FieldIO 8AI-V** — 0–10 V, 2–10 V, 0/4–20 mA; ships in voltage mode	0–10 V signals, drives and valves feedback

In the box

FieldIO 8AI module · power terminal adapter · quick-start wiring guide

Recommended accessories

Shielded twisted-pair RS485 cable · 120 Ω bus terminators · USB–RS485 adapter (for PanelCore 10) · 24 V DC DIN-rail power supply

TYPICAL SYSTEMS

TEST BENCH

FieldCore 7 + 8AI + 8DI/8DO

8 analog and 16 digital points on the panel's own RS485.

PROCESS SKID

PanelCore 10 + 2 × 8AI

16 transmitters with trends, alarms and batch reports.

PRODUCTION LINE

StationCore 17 + 4 × 8AI + 4 × 8DI/8DO

32 analog and 64 digital points across two RS485 buses.

Logivyx

Request a live demo
and see FieldIO 8AI on your process.

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FieldIO 8AI hardware platform: Waveshare Modbus RTU Analog Input 8CH.