ION8-1324

Technical Data Sheet · October 2026 · Rev. 1.0

Wireless remote I/O unit: 8 DI + 8 DO + 4 AI + 4 AO

Slot layout (schematic view)

8 DI 8 DO 4 AI 4 AO

Quick specification

Model code	ION8-1324
Total channels	**24**
Signal terminals	**32**
Wireless	**Paired wireless link**
Local access	**Built-in web interface**

Product description

ION8 is a family of wireless remote I/O that collects sensor, encoder and control signals on wire and cable processing machines without running cables, and passes them on to the PLC. The same enclosure is used in every model; models differ only in their slot modules.

The model code has the form **ION8-ABCD**; the four digits show the module in slots A, B, C, D (1 = 8 DI, 2 = 8 DO, 3 = 4 AI, 4 = 4 AO, 5 = 2 isolated loadcell, 0 = empty).

Capabilities

- Wireless link; four link modes (Range, Balanced, Fast, Very fast)
- Built-in web interface for monitoring, configuration and commissioning
- Communicates only with a paired partner (wrong-machine protection)
- Model-protected software update package

Model data

Slot	Module	Channels	Terminal
A	DI DI8 — 8-channel digital input module	8	A1 – A8
B	AI AI4 — 4-channel analog input module	4	B1 – B8
C	DO DO8 — 8-channel digital output module	8	C1 – C8
D	AO AO4 — 4-channel analog output module (0–10 V)	4	D1 – D8

Typical use in wire & cable

- Carrying inputs and outputs of the rotating section of stranding and buncher machines to the other side
- Motion and distance monitoring with an encoder, product and pulse counting
- PULSE/DIRECTION command to an external step drive, 0–10 V drive reference

Module sections

DI8 — 8-channel digital input module `code digit: 1`

In this model: 1 (slot A).

Capabilities

- 8 digital inputs
- 2 quadrature encoder inputs + 2 pulse counters
- Software pulse counter and frequency reading on every input
- 10 ms stable-level filter on dry-contact inputs
- With the “High-speed sensor” input type, pulse counting is not lost in mirroring (pulse completion); the default input type is mechanical contact (10 ms filter)
- Encoder and counter functions share the module's inputs; they do not add channels. An enabled function takes the related inputs out of general-purpose use.

Channel functions

Signal	Function
DI0 – DI1	Encoder 0 (A/B)
DI2 – DI3	Encoder 1 (A/B)
DI4	Pulse counter 0
DI5	Pulse counter 1
DI6 – DI7	General DI; optional counter clear function

The encoder inputs have no Z/index input. Software counting and frequency reading (DI0 – DI7) is a separate layer from the encoder/counter functions above and does not affect the raw input state.

Electrical data

Parameter	Value
Input type	**PNP (24 V DC)**
Minimum input voltage for logic 1	**15 V**
Input isolation	**2500 V**
Maximum pulse counter frequency	**100 kHz**
Maximum encoder (A/B) frequency	**2 kHz (A/B; 8 kHz count with ×4 decoding)**
Software counter / frequency reading upper limit	**100 Hz**
Rising-edge lockout (filter) setting range	**1–50 ms**
Frequency timeout setting range	**100–10000 ms**

Settings in the web interface

- Live state of the inputs
- Enabling encoder 0/1 and pulse counter 0/1 functions
- Software counter and frequency channels: value, rate and status
- Rising-edge lockout (filter) setting
- Timeout (stale) time setting for the frequency value

DO8 — 8-channel digital output module `code digit: 2`

In this model: 1 (slot C).

Capabilities

- 8 digital outputs
- 4 PWM channels with adjustable frequency and duty cycle (DO16 – DO19); each channel is enabled independently
- Pulse/direction output: one PWM channel as PULSE and a separate output as DIRECTION can drive a compatible external step drive; the DIRECTION output is selected from DO20 – DO23 (default DO20)
- The PWM channels are part of the module's 8 outputs; they are not additional outputs.
- When the link is lost, the outputs go to a safe state.

Electrical data

Parameter	Value
Output type	**Sourcing (PNP, high side)**
Maximum continuous current per channel	**100 mA**
Output protection	**Overcurrent and overtemperature protected**
PWM frequency range	**100–20000 Hz**
Pulse/direction maximum pulse frequency	**10 kHz**

Settings in the web interface

- Driving outputs manually (commissioning test)
- PWM channel enable, frequency and duty cycle setting
- Selecting the pulse/direction sources
- Live monitoring of the output state

AI4 — 4-channel analog input module `code digit: 3`

In this model: 1 (slot B).

Capabilities

- 4 analog inputs
- Signal chain monitored and set from the web interface: filter, gain, scaling
- Per-unit calibration

Electrical data

Parameter	Value
Input range	**0–10 V**
Numeric value (for 0–10 V)	**0–10000**
Accuracy (after calibration)	**±0.05 % FS typical (factory calibrated)**

Settings in the web interface

- Live monitoring of channel values
- Filter, gain and scaling setting
- Calibration

AO4 — 4-channel analog output module (0–10 V) code digit: 4

In this model: 1 (slot D).

Capabilities

- 4 analog outputs, 0–10 V
- Signal chain set from the same web interface
- Per-unit calibration
- When the link is lost, the output goes to the safe state (0).

Electrical data

Parameter	Value
Output range	**0–10 V**
Numeric value (for 0–10 V)	**0–10000**
Accuracy (after calibration)	**±0.15 % FS in the 1–10 V range (factory calibrated); residual at 0 V ≤30 mV**
Output settling time	**≤70 ms (0↔10 V settling)**

Settings in the web interface

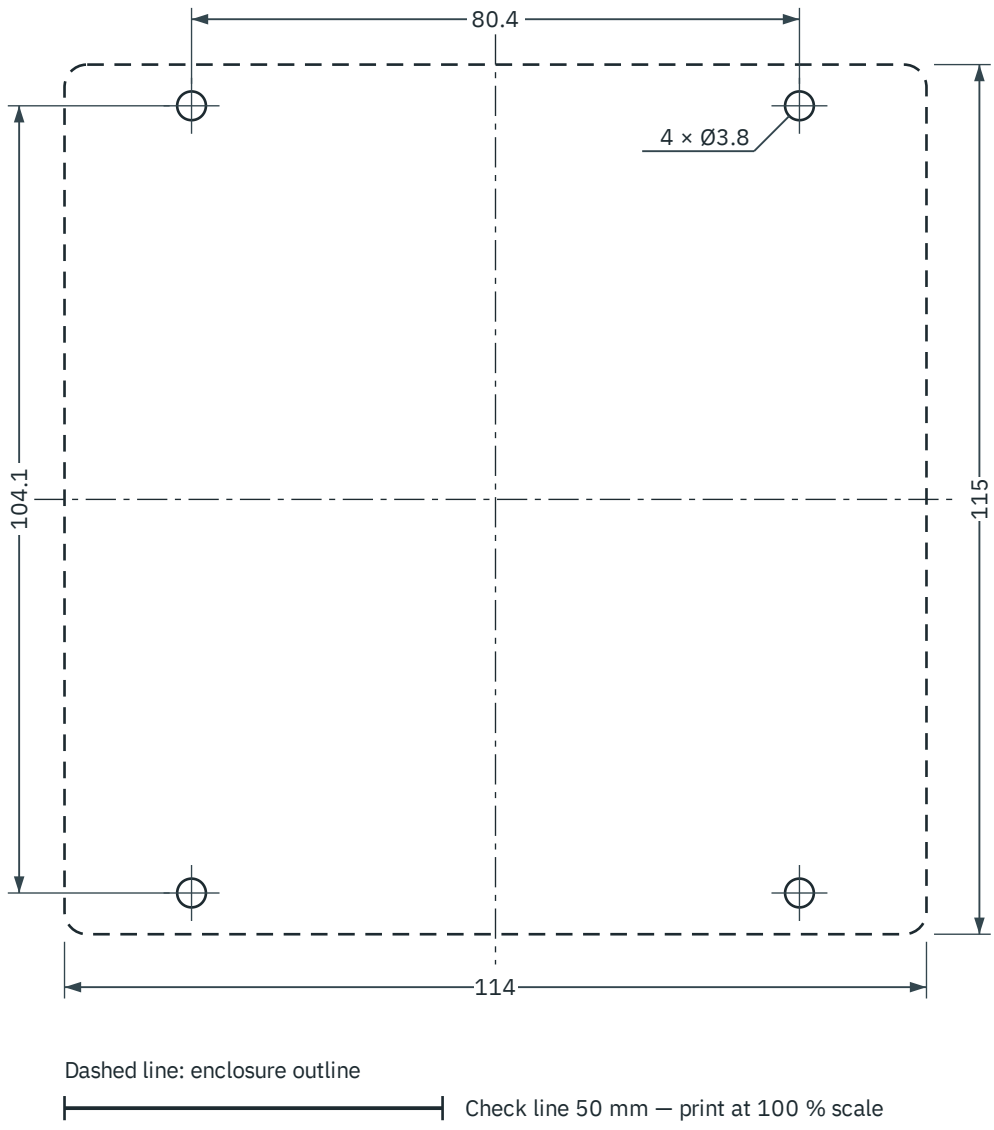
- Entering the output value (set point) and live monitoring
- Signal chain setting and calibration

General technical data

Parameter	Value
Supply voltage	**24 V DC nominal (15–30 V DC; 15 V is needed for the analog output)**
Current consumption	**min. 50 mA · typ. 80 mA · max. 120 mA (24 V DC)**
Enclosure	**Enclosed housing; dust resistant, not protected against water**
Dimensions (W × L × H)	**115 × 114 × 45 mm (excluding mounting tabs and antenna connectors)**
Weight	**250 g**
Input-to-output latency (mirroring)	**typical ~33 ms (Range mode) · ~27–29 ms (Balanced, Fast, Very fast modes)**
Time to safe state after link loss	**1.5 s (factory value; adjustable in the web interface)**

Mounting hole template (1:1)

Mounting hole template — scale 1:1, dimensions in mm



Print the page without scaling (100 %) and verify the 50 mm check line with a ruler; then fix the template to the mounting surface and mark the hole centres. Dimensions in mm.

Connection modes

ION8-1324 is used in two ways; the choice depends on where the signal has to go.

Mirroring — Between two ION8 units, no PLC

The local inputs of one ION8 are passed to the matching outputs of the paired ION8; no PLC is needed to carry signals between two points of a machine.

PLC through ION8 EB — 8 remote stations on one bridge

ION8 EB passes the data of the remote ION8 stations to the PLC; see the ION8 EB documents for the supported protocols and network interfaces.

Wireless link modes

In mirroring (P2P) the wireless link mode is selected in the web interface and stored persistently. The default mode is Range; the advantage and disadvantage of each option are written on the mode screen.

Mode	Characteristic	Typical latency
Range (default)	Longest range, most resistant to noise	~33 ms
Balanced	Long range, lower latency	~29 ms
Fast	Medium range, low latency	~28 ms
Very fast	Shortest range, lowest latency	~27 ms

Times are typical values from input to the partner output (10 ms input filter included); they vary with the site, distance and obstacles.

Need	Mode
Carry signals between two machine points	**Mirroring**
Connect remote I/O to a PLC / SCADA	**ION8 EB**

ION8 EB is a separate product with its own documents: its supply voltage is given below; see the ION8 EB Installation Guide for protocol and address details.

ION8 EB supply voltage **10–30 V DC**

Ordering and contact

Ionia is the manufacturer of the ION8 family. Contact us for model selection, the ABCD code and a configuration that fits your application.

- State the **ION8-ABCD** model code when ordering.
- Other ABCD combinations are available on request.

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