

ION8 Family Catalog

Wireless remote I/O for wire and cable machines

Collect machine signals wirelessly and carry them to a PLC or to the outputs of a paired unit.



ION8-1324



ION8 EB

Electronics for Wire & Cable Industry

ION8 remote I/O models

1010 · 1111 · 2020 · 2222 · 1030 · 2040 · 1324 · 1325

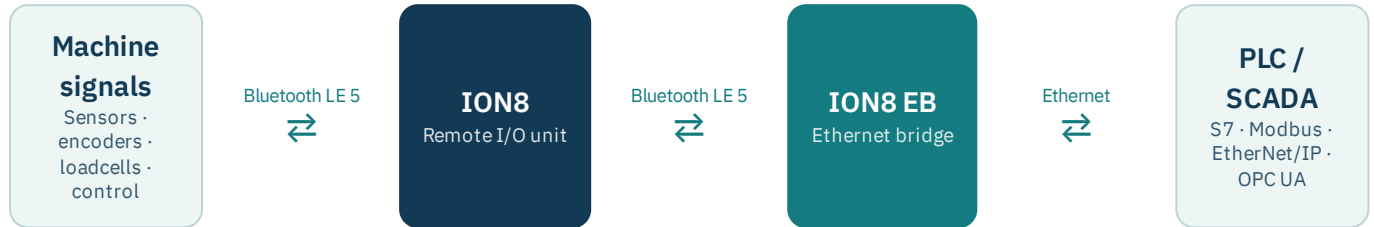
ION8 EB

Ethernet bridge / ETH2BLE

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October 2026 · Rev. 1

The ION8 ecosystem

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. Digital, analog and loadcell modules share one family. Ionia's team has 25 years in cable & wire and 30+ years in electronics & automation; ION8 runs in many factories.



Wireless that adapts to its environment

Bluetooth LE 5

Data transfer on the machine and at remote points without running cables.

Adaptive channel selection

Changes channel according to interference in the environment to help reduce collisions.

Adaptive transmit power

Transmit power is adjusted to the link conditions.

Built-in web interface

Monitoring, configuration and commissioning from a browser.

What is in the family?

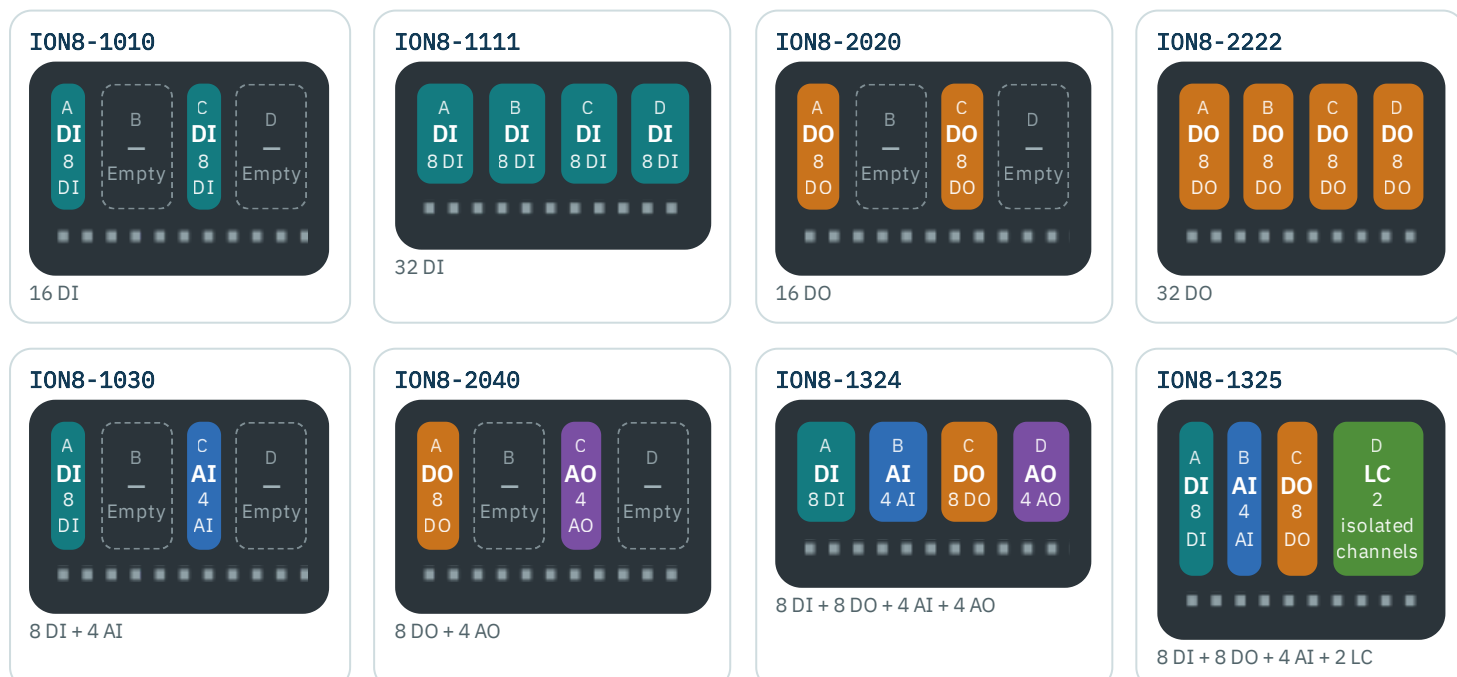
ION8 remote I/O models

Digital input/output, analog input/output and isolated loadcell modules; eight standard models, other combinations on request.

ION8 EB

One hardware, two modes: Ethernet bridge to the PLC and ETH2BLE transparent wireless tunnel.

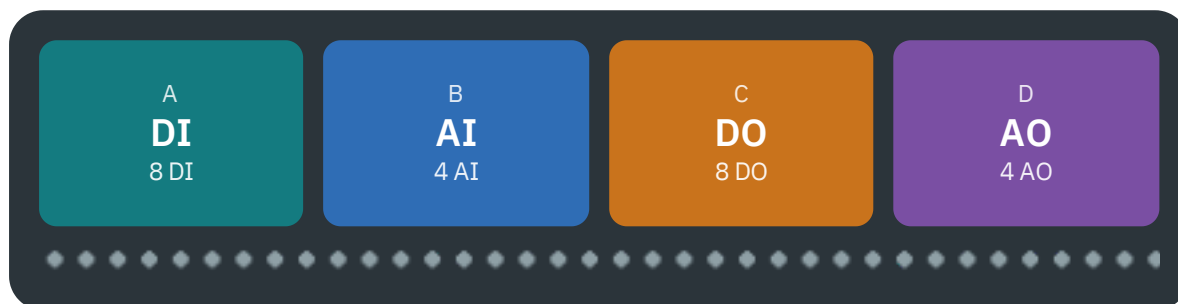
ION8 remote I/O models



Reading the model code

The model code has the form **ION8-ABCD**. The four digits describe the four slots of the unit (A, B, C, D); each digit shows the module fitted in that slot.

ION8 - ABCD



Digit	Slot module	Channels
1	Digital input module	8 DI
2	Digital output module	8 DO
3	Analog input module	4 AI
4	Analog output module	4 AO
5	Isolated loadcell module	2 channels
0	Empty slot	—

Example: ION8-1324

A = 1 → 8 DI · B = 3 → 4 AI · C = 2 → 8 DO · D = 4 → 4 AO

Example: ION8-1010

A = 1 → 8 DI · B = 0 → empty · C = 1 → 8 DI · D = 0 → empty = 16 DI

The standard models are on the next page. ABCD combinations that are not listed are available on request.

Model selection table

Figures are channel counts; signal terminals is the total number of signal connection points on the unit; “—” means the I/O type is not present.

Model	Slot A·B·C·D	DI	DO	AI	AO	LC	Signal terminals	Supply	Typical use
ION8-1010	DI — DI —	16	—	—	—	—	16	10–30 V DC	Remote sensor and status monitoring, encoder and counter
ION8-1111	DI DI DI DI	32	—	—	—	—	32	10–30 V DC	Multi-point status monitoring, high input count
ION8-2020	DO — DO —	—	16	—	—	—	16	10–30 V DC	Remote digital control, PWM and pulse/direction
ION8-2222	DO DO DO DO	—	32	—	—	—	32	10–30 V DC	Multi-point digital control
ION8-1030	DI — AI —	8	—	4	—	—	16	10–30 V DC	Digital status + analog sensor measurement
ION8-2040	DO — AO —	—	8	—	4	—	16	15–30 V DC	Digital control + 0–10 V analog output
ION8-1324	DI AI DO AO	8	8	4	4	—	32	15–30 V DC	Combined remote I/O; stranding and buncher machines
ION8-1325	DI AI DO LC	8	8	4	—	2	32	10–30 V DC	Combined remote I/O; tension and load measurement

DI Digital input
DO Digital output
AI Analog input
AO Analog output
LC Isolated loadcell

Other combinations on request. Models with analog outputs (AO) take a 15–30 V DC supply, all others 10–30 V DC; 15 V is needed for the analog output.

Which model?

Signal monitoring and counting only	ION8-1010 (16 DI) · ION8-1111 (32 DI)
Remote control outputs	ION8-2020 (16 DO) · ION8-2222 (32 DO)
Digital + analog measurement or reference	ION8-1030 · ION8-2040
Inputs, outputs and analog in one unit	ION8-1324 (8 DI + 4 AI + 8 DO + 4 AO)
Tension / weight with a loadcell	ION8-1325 (8 DI + 4 AI + 8 DO + 2 isolated loadcell)
PLC connection or wireless Ethernet/RS485 tunnel	ION8 EB

Module capabilities

The capabilities of each slot module are the same in every ION8 model that carries it.

8-channel digital input module code: 1

- 8 digital inputs
- 2 quadrature encoder inputs + 2 pulse counters
- Software pulse counter and frequency reading on every input
- Encoder and counter functions share the module's inputs; they do not add channels.

8-channel digital output module code: 2

- 8 digital outputs
- 4 PWM channels with adjustable frequency and duty cycle
- Pulse/direction output
- The PWM channels are part of the module's 8 outputs; they are not additional outputs.

4-channel analog input module code: 3

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

4-channel analog output module code: 4

- 4 analog outputs, 0–10 V
- Signal chain set from the same web interface
- Per-unit calibration

Isolated loadcell module code: 5

- 2 isolated loadcell input channels
- For weighing and wire tension monitoring applications

Analog signal chain



Every step of the chain is visible and adjustable in the built-in web interface.

Connection modes

ION8 is used in three ways. The right one depends on where the signal has to go.

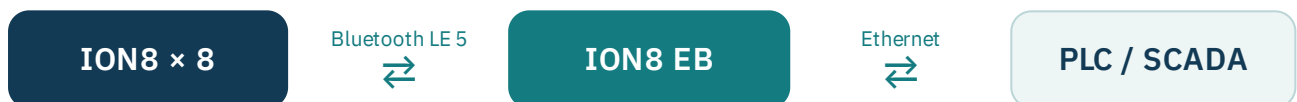
1 • Mirroring — Between two ION8 units, no PLC

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.



2 • PLC through ION8 EB — 8 remote stations on one bridge

ION8 EB passes the data of the remote ION8 stations to the PLC: Siemens S7 PUT/GET, Modbus TCP, EtherNet/IP and OPC UA; Modbus RTU master (up to 8 devices) or slave over RS485.



3 • ETH2BLE — Carry an existing Ethernet and RS485 line wirelessly

A transparent point-to-point Ethernet + RS485 tunnel between two ION8 EB units. Existing PLC communication is carried as it is over a wireless link instead of a cable.



Need	Mode
Carry signals between two machine points	Mirroring
Connect remote I/O to a PLC / SCADA	ION8 EB
Carry an existing Ethernet or RS485 line wirelessly	ETH2BLE

ION8 EB · ETH2BLE

One hardware, two operating modes. The mode is selected in the web interface. ETH2BLE is not a separate product; it is a mode of the ION8 EB.



ION8 EB



Ethernet bridge

- 8 remote ION8 stations
- Siemens S7 PUT/GET
- Modbus TCP
- EtherNet/IP
- OPC UA
- RS485 Modbus RTU: master (8 devices) / slave
- Tag selection in the web interface
- DB structure that can be copied into TIA Portal

ETH2BLE

- Transparent point-to-point tunnel between two ION8 EB
- Ethernet + RS485 together
- RS485 tunnel: 300–230400 baud
- One-button pairing

Technical summary

Supply	10–30 V DC
Size	120 × 75 × 40 mm
Weight	105 g
Ethernet	1 × RJ45 10/100
Serial	RS485
Wireless	Bluetooth LE 5
Remote stations	up to 8 ION8

Applications in the wire and cable industry

The examples below show typical areas of use and the suitable model choice.

Application	What ION8 does	Model
Stranding and buncher machines	Carries inputs and outputs of the rotating section to the other side and to the PLC without cables	ION8-1324
Drawing, take-up and spooling lines	Length and speed monitoring with an encoder, product and pulse counting	ION8-1010 · 1111 · 1324
Wire tension and load monitoring	Isolated loadcell measurement, weighing and tension monitoring	ION8-1325
Drive speed reference	Gives a speed / setpoint reference through a 0–10 V analog output	ION8-2040 · 1324
Step drive command	PULSE by PWM and DIRECTION by a separate output, to an external step drive	ION8-2020 · 2040 · 1324 · 1325
Remote station and sensor monitoring	Collects sensor, switch and status signals from remote points	ION8-1010 · 1111 · 1030
PLC integration	Connects remote stations to a PLC through Siemens S7, Modbus TCP, EtherNet/IP or OPC UA	ION8 EB
Making an existing line wireless	Carries existing Ethernet or RS485 communication through a wireless tunnel	ION8 EB · ETH2BLE

Connection modes

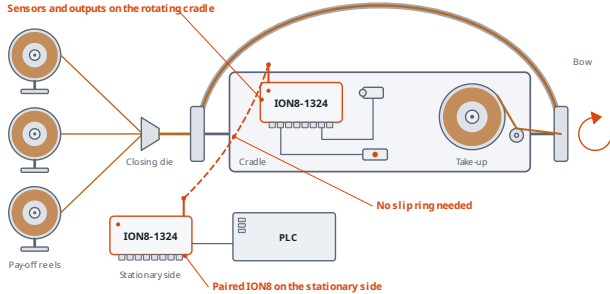
Need	Mode
Carry signals between two machine points	Mirroring
Connect remote I/O to a PLC / SCADA	ION8 EB
Carry an existing Ethernet or RS485 line wirelessly	ETH2BLE

ION8 on the machine

Where ION8 and ION8 EB sit on wire and cable machines: six typical solutions.

Buncher machine: no slip ring on the rotating cradle

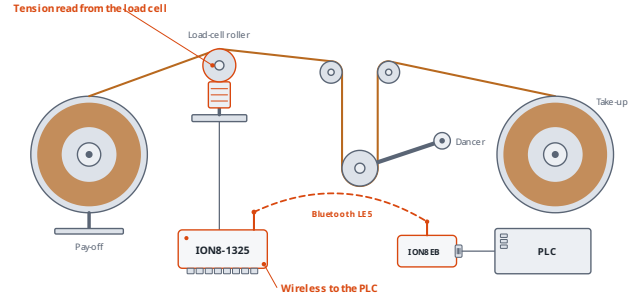
ION8-1324



On a buncher, the ION8-1324 in the rotating cradle carries sensors and outputs wirelessly to the stationary ION8 and the PLC panel; no slip ring is needed.

Wire tension and load monitoring

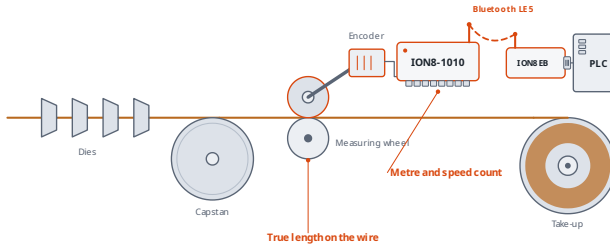
ION8-1325



On a line with pay-off reel, load-cell guide roller, dancer and take-up, the ION8-1325 reads the load cell and carries it wirelessly to the PLC.

Length and speed on drawing and winding lines

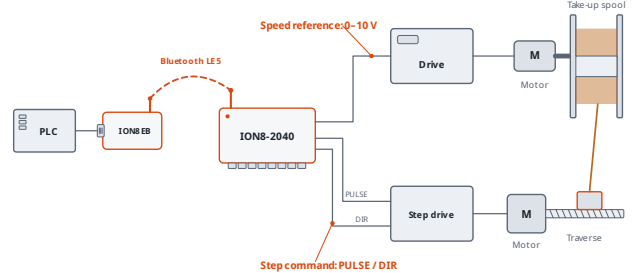
ION8-1010



Dies, capstan and a measuring wheel with an encoder feed the ION8-1010; metre and speed counts are carried wirelessly to the panel.

Drive speed reference and step command

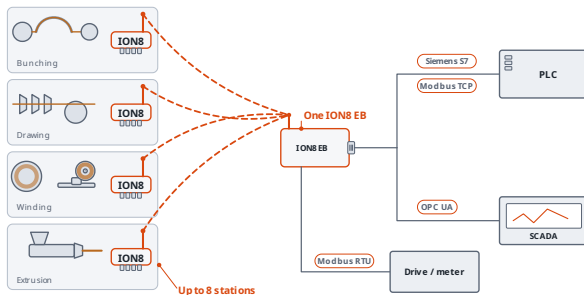
ION8-2040



The ION8-2040 gives the motor drive a 0-10 V analog speed reference and the traverse stepper drive PULSE and DIRECTION commands.

Plant view: from stations to the PLC

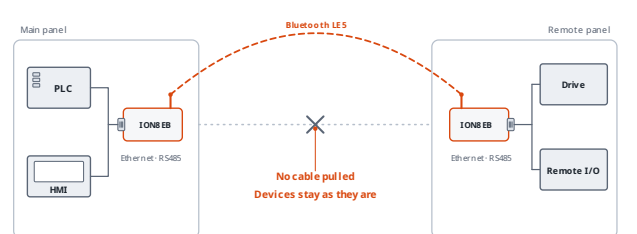
ION8-ION8 EB



ION8 units on different machines (up to 8 stations) connect through a single ION8 EB, over Ethernet, to the PLC and SCADA.

Carry your existing Ethernet / RS485 line wirelessly

ION8 EB



A wireless tunnel between two ION8 EB units links the PLC in the main panel to the devices in a remote panel without pulling cable.

Contact and ordering

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

Ordering

- State the **ION8-ABCD** model code when ordering.
- Standard models: 1010, 1111, 2020, 2222, 1030, 2040, 1324, 1325 and ION8 EB.
- Other ABCD combinations on request.

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Model sheets

A one-page sheet is available separately for each model.

ION8-1010	Remote I/O unit with 16 digital inputs
ION8-1111	Remote I/O unit with 32 digital inputs
ION8-2020	Remote I/O unit with 16 digital outputs
ION8-2222	Remote I/O unit with 32 digital outputs
ION8-1030	Remote I/O unit with 8 digital inputs + 4 analog inputs
ION8-2040	Remote I/O unit with 8 digital outputs + 4 analog outputs
ION8-1324	Multi-function combined remote I/O: 8 DI + 4 AI + 8 DO + 4 AO
ION8-1325	Combined remote I/O with loadcell input: 8 DI + 4 AI + 8 DO + 2 isolated loadcell
ION8-EB	One hardware, two modes: Ethernet bridge and ETH2BLE

Electronics for Wire & Cable Industry

This document introduces the product family. Product features may change without notice.