Milli Pro I/O and Sensor
Deca Sensor E-Wi

E-Wi™

- **Expansion devices for Electrex monitoring networks via SIO Bus**
- **Remote control, counting, and environmental measurements for building automation**
- **Quick Plug & Play installation**

The Electrex monitoring and management solutions are extremely versatile and modular. Thanks to the S**IO communication bus**, they allow the integration of additional **Milli Pro series modules** at any time. These modules are equipped with **digital or analog inputs/outputs or environmental and air quality sensors.**
The **inputs** can be used for status monitoring, counting, or acquiring data from other sensors, while the **outputs** can operate as **remotely controlled output units** or for even complex **Energy Automation applications**.
All **Milli Pro series devices** must be connected to an **Electrex instrument** equipped with an **SIO Bus** (e.g., **Femto Pro, Pico Pro**, etc.). The **maximum total bus length is 20 meters**, and each instrument can manage **up to 4 Milli Pro or Milli Sensor devices**.
In the **Electrex solutions**, in addition to energy and process vectors, it is also possible to include **environmental parameters**. The least invasive way to detect these parameters is by using **Deca Sensor E-Wi 868 TH** wireless temperature and humidity sensors. These can be added to an **Electrex E-Wi 868 wireless network** and transmit data via radio to the **Electrex Net Coordinator E-Wi 868 Gateways.**

Milli Pro I/O (Input/Output)

The **Milli Pro I/O RJ Box** are **expansion modules equipped with digital and/or analog inputs and outputs**, featuring **RJ45** ports for quick connection to Electrex devices with an SIO Bus. The input and/or output circuits require an **external power supply** (e.g. 12 VDC or 24 VDC). Black enclosure, dimensions: 38 × 73 × 20 mm.. Available versions:

- **4DI 4COMMON***: 4 digital inputs with separate commons*
- **4DO 4COMMON***: 4 digital outputs with separate commons*
- **2DI 2DO 4COMMON***: 2 digital inputs and 2 digital outputs with separate commons*
- **4AI:** 4 analog inputs, −10 ÷ +10 V (compatible with 0 ÷ 10 V, 0 ÷ 5 V, −5 ÷ +5 V, 4 ÷ 20 mA)
- **2DO Relè:** 2 relay outputs, max 30 V 2 A (resistive load), each with separate ON and OFF coils

Digital Inputs

The **digital inputs** are **optically isolated** and include a **programmable debounce filter.** They are typically used for counting externally generated pulses, such as from **gas meters** (a galvanic isolator compliant with **ATEX regulations** is required), **water meters, piece counters**, and similar devices. When properly configured, they can also function as **remote status indicators** (e.g. machine ON/OFF status, switches, etc.). **Maximum sampling frequency**: 500 Hz (2 ms). **External power supply required**: 10–30 VDC.

Digital Inputs

The digital outputs are opto-isolated transistor outputs rated at 27 VDC, 27 mA in compliance with DIN 43864. They can be configured as alarm or Energy Automation outputs, or as remotely controlled output units.

Milli Pro Sensor

Milli Pro Sensor devices are environmental sensors designed for Electrex instruments equipped with an SIO Bus. Up to 4 sensors can be connected on the same Bus in various combinations. Different sensor types are available, including Temperature, Humidity, Lux, and Air Quality parameters. The maximum total SIO Bus length is 20 m.

Below are the currently available parameters; additional options are available upon request. Technical specifications are subject to change without notice.

Parameters	Range	Accuracy
Temperature [T]	-20°C…+80°C	± 0,2°C
Relative Humidity [RH]	0…100%	± 1,5% RH
Luminosity [L]	Int: 0…4.000 lux Est: 0…65.000 lux	± 10%
Volatile Organic Compounds [TVOC^2]	0 .. 60.000ppb	Dependent on gas type and particle concentration
PM1 PM2,5 PM10	0…1.000µg/m^3	± 10% tra 0-40°C
Atmospheric Pressure [B]	800… 1.100mbar	Typical ± 4mbar
Differential air pressure [DP]	-500 Pa…+500 Pa	± 3%
Carbon Dioxide [CO$_2$]	400…2.000 ppm	± 50 ppm + 5% of reading
Ozone [O$_3$]	0…5 ppm	±15% of reading
Carbon Monoxide [CO]	0…500 ppm	±15% of reading

ELECTREX
the energy saving technology

Engineered and manufactured in Italy
Made In **Italy**
Pensato, progettato e prodotto in Italia

Wireless Environmental Sensors – Deca Sensor E-Wi 868 TH

The Deca Sensor E-Wi 868 TH are wireless ambient temperature and humidity sensors. They can be added to an **E-Wi network** and transmit data via radio signals to **Electrex Net Coordinator E-Wi 868 Gateways**. Typical accuracy: ±0.2 °C (temperature), ±1.8 % RH (humidity). Sampling interval adjustable from 1 to 60 minutes. Wall-mounted installation. Dimensions: 80 × 80 × 25 mm. Power supply: 12 V DC or battery-operated.

Parameters	Type[1]	Range	Accuracy
Temperature [T]	T ist	-20°C…+80°C	± 0,2°C
Relative Humidity [RH]	RH ist	0…100%	± 1,5% RH
Battery Level		0…100%	

Pico Pro E-Wi 868 Battery 2DI

Pico Pro E-Wi 868 Battery 2DI is a **battery-powered wireless E-Wi 868 device** equipped with two opto-isolated **digital inputs for status and/or pulse counting**, each with separate commons.

The digital inputs are typically used to count externally generated pulses or as remote status indicators.

The input circuits are self-powered and do not require an external power supply. Data is transmitted via radio waves at **868 MHz** to the **Electrex Net Coordinator E-Wi 868 gateways**. Powered by lithium AA batteries.

Grey enclosure, dimensions: 130 × 45 × 175 mm.

HOW TO ORDER

MILLI PRO	
TYPE	**CODIE**
Milli Pro I/O	
MILLI PRO I/O RJ BOX 4DI	PFAMR0Z-N0EB
MILLI PRO I/O RJ BOX 4DO	PFAMR0Z-P0EB
MILLI PRO I/O RJ BOX 2DI 2DO	PFAMR0Z-Q0EB
MILLI PRO I/O RJ BOX 2DO RELE'	PFAMR0Z-70EB
MILLI PRO I/O RJ BOX 4AI	PFAMR0Z-R0EB
Milli Pro Sensor	
MILLI PRO SENSOR BUS RJ BLACK BOX T H	PFAMRHZ-00EB
MILLI PRO SENSOR BUS RJ BLACK BOX T H L P	PFAMRSZ-00EB
MILLI PRO SENSOR BUS RJ WHITE BOX T H CO2 P	PFAMDZZ-00EB
SENSOR BUS BLACK BOX T 0,2	PFATBAQ-00B
MILLI SENSOR BUS NAKED T 1	PFAT4TQ-01
MILLI SENSOR BUS NAKED T 0,2	PFAT4AQ-00
MILLI SENSOR BUS RJ BLACK BOX T H 0,2	PFATREQ-00B
MILLI SENSOR BUS RJ BLACK BOX DP	PFAMRDZ-00EB
MILLI SENSOR BUS RJ BLACK BOX PM	PFAMVPZ-00EB
MILLI SENSOR BUS RJ BLACK BOX OZONE	PFAMVWZ-00EB
MILLI SENSOR BUS RJ BLACK BOX CO	PFAMVYZ-00EB

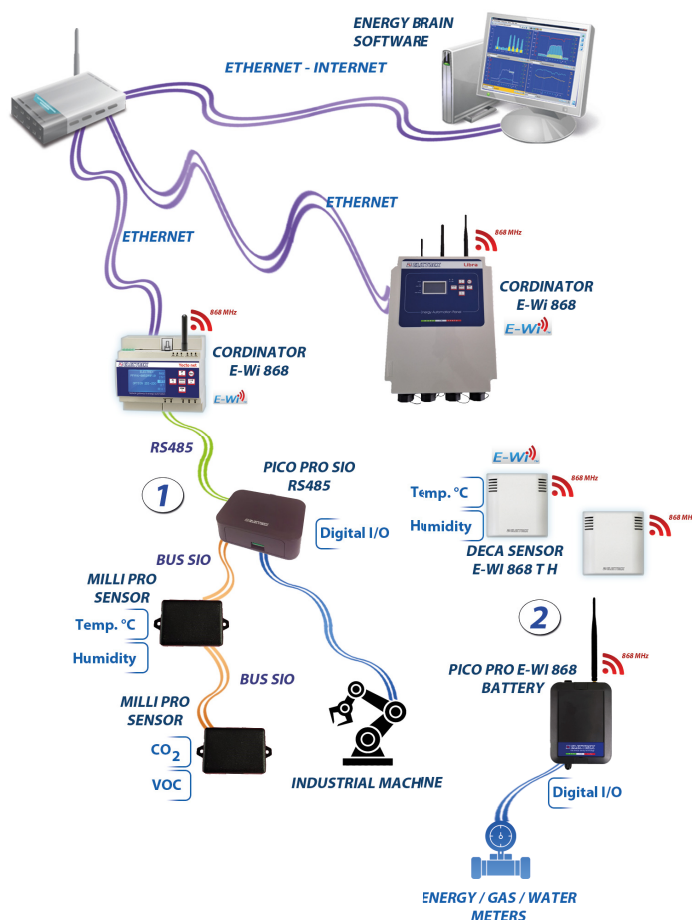| DECA SENSOR	
TYPE	**CODIE**
DECA SENSOR E-WI 868 TH BATTERY	PFATDHI-0BW
DECA SENSOR E-WI 868 TH 12VDC	PFATDHI-04W
DECA SENSOR EXTERNAL ENCLOSURE	PFAT0T0-01

PICO PRO E-WI 868 BATTERY	
TYPE	**CODIE**
PICO PRO E-WI 868 BATTERY 2DI LOW POWER	PFAPUHL-F0GG

Example of an Electrex Network with Pico Pro

The image below shows two examples of Electrex networks featuring Pico Pro and Milli Pro devices, described in detail as follows:

- **Network 1:** The Net device, connected via Ethernet, acts as an RS485 Master for the Pico Pro RS485, which is connected through an RS485 serial bus. The Pico Pro RS485 includes onboard digital inputs and outputs for controlling industrial machines. In addition, Milli Pro Sensor modules are connected in cascade via the SIO bus for monitoring environmental parameters.

- **Network 2:** The devices from the Net Coordinator E-Wi 868 series communicate with the Pico Pro E-Wi 868 Battery and Deca Sensor modules via radio waves at 868 MHz. The Pico Pro E-Wi 868 Battery features two self-powered digital inputs for counting pulses from gas, water, or energy meters, etc. The Deca Sensor E-Wi 868 TH modules monitor ambient temperature and humidity.

ELECTREX the energy saving technology

Engineered and manufactured in Italy
Made in Italy
Pensato, progettato e prodotto in Italia