

PRODUCT CATALOGUE

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FOOD INDUSTRY



RETAIL



MEDICAL / PHARMA

APPLICATIONS



IOT



INDUSTRY 4.0



COLD CHAIN

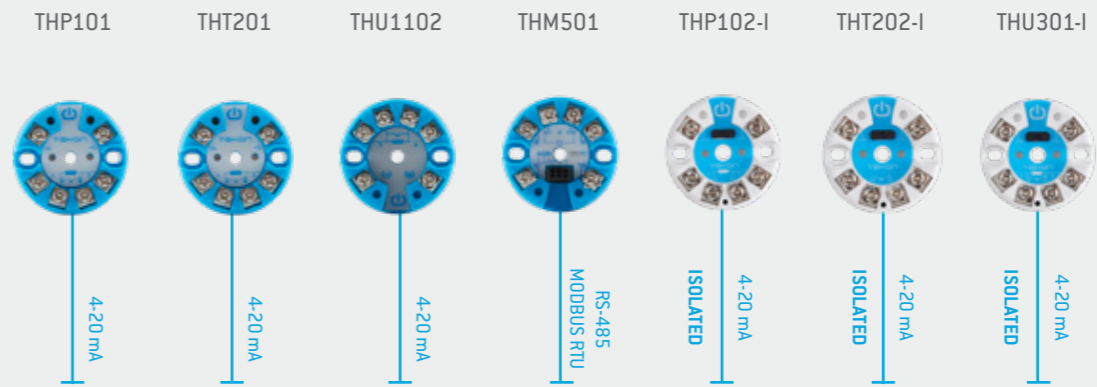
WIRELESS

SMART SENSORS

WIRED

ONLINE DATALOGGER

TRANSMITTERS



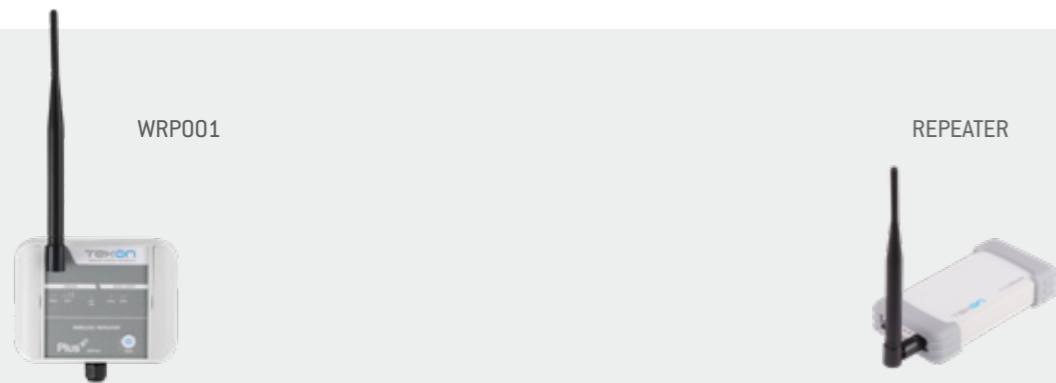
SENSORS



IOT PLATFORM



REPEATERS



GATEWAYS



ABOUT TEKON ELECTRONICS

Tekon Electronics is an European brand based in Portugal, specialized in development and manufacture of innovative wireless sensors technology. It is a business unit of Bresimar Automação, S.A., a company with 38 years of experience in automation, industrial control solutions, and engineering.

Bresimar Automação began its activity in 1982 focusing in distribution of equipment and systems for industrial automation. Throughout the years, Bresimar Automação leveraged the knowledge by providing high-quality products and automation solutions, representing several valued brands. Specialized teams and dedicated professionals provide services in several fields of industrial automation and engineering projects.

Tekon Electronics develops and manufactures wireless solutions for measurement and monitoring applications, focusing in trending topics as Internet of Things and Industry 4.0. A skilled R&D team and a planned manufacture process are cornerstones of a full product development strategy.

PEOPLE

99
EMPLOYEES

38 YEARS
AVERAGE AGE

7 YEARS
AVERAGE EMPLOYEE TIME

75%
HIGHER EDUCATION

84,4%
SATISFACTION RATE

TOP 10
HAPPINESS WORKS 2019

TOP 100
BEST PORTUGUESE
COMPANIES TO WORK FOR

CERTIFICATIONS



SERVICES AND PRODUCTS

HOW TEKON ELECTRONICS CAN HELP YOUR BUSINESS

COMMERCIAL SUPPORT

We provide sales support with reduced response time

TECHNICAL SUPPORT

Permanent technical assistance, performed by skilled professionals

R&D OEM

We develop solutions tailored to your needs

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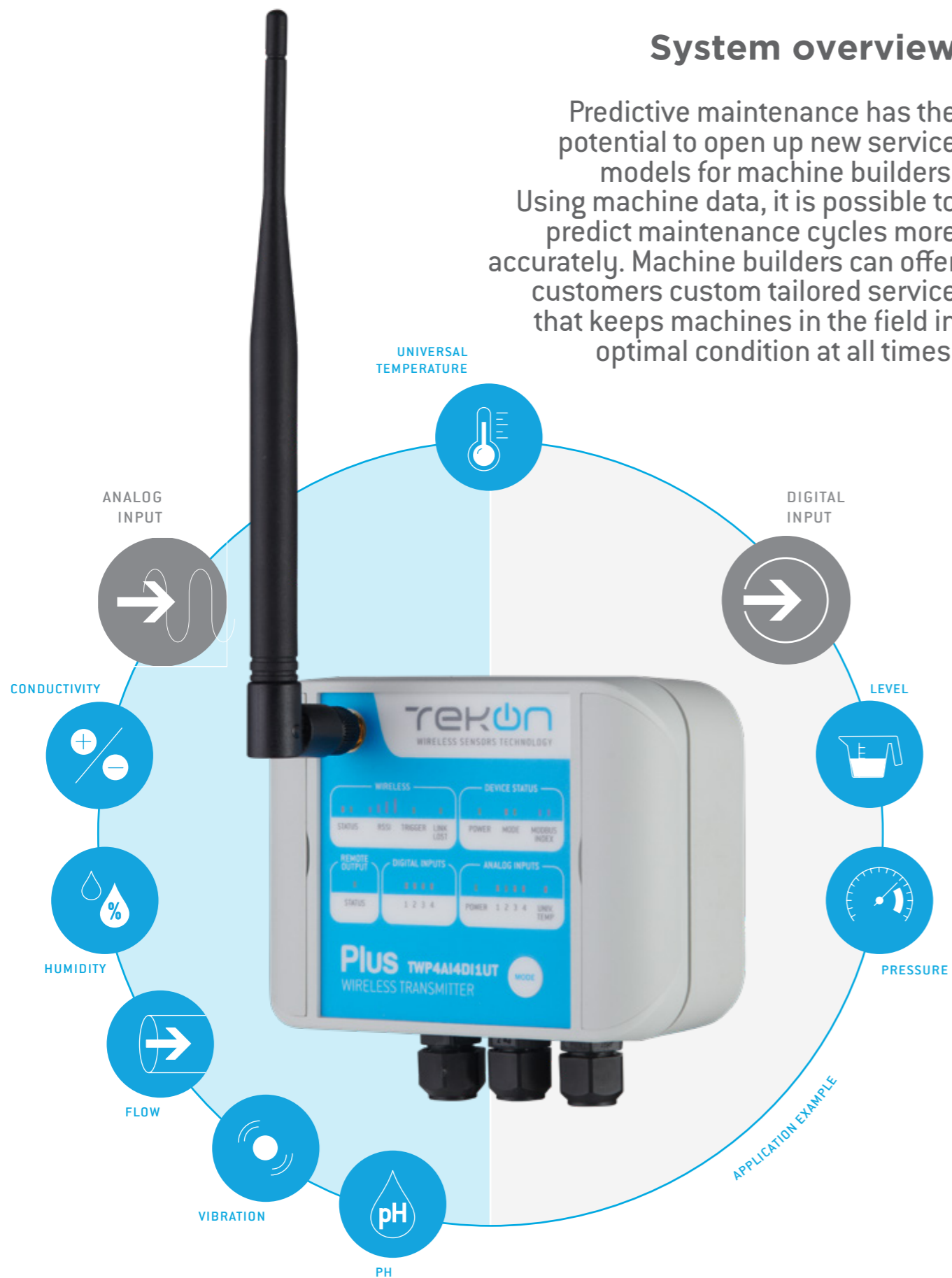
WIRELESS TRANSMITTERS

Special features include extremely easy assignment of inputs and outputs. Tekon Wireless Transmitters are the ideal choice for reliable use in industrial environments, collecting data from multiple sensors and multiple variables. With a comprehensive range, it merges sensors and devices that transmit real-time data to the cloud, transforming monitoring and control of multiple parameters and locations, an easy task. In the era of Industry 4.0, digitization is shifting toward the sensor. Where connectivity was once handled relatively simply, the analog sensor signals from the various systems were transmitted to a central controller and digitized there. The implementation of so-called smart, intelligent sensors that can be integrated anywhere in a complex network allows them to pass on the digital form of the recorded physical quantities over the network.



System overview

Predictive maintenance has the potential to open up new service models for machine builders. Using machine data, it is possible to predict maintenance cycles more accurately. Machine builders can offer customers custom tailored service that keeps machines in the field in optimal condition at all times.



Nowadays, the term “Industrial Internet of Things” (IIoT) has become progressively more widespread in the context of industry as digitization has become a business priority for many organizations. Industrial Internet of Things, also known as the Industrial Internet, brings together brilliant machines, advanced analytics, and people at work. It’s the network of a plethora of industrial devices connected by multiple communications technologies that results in systems that can monitor, collect, exchange, analyze, and deliver valuable new data-based insights like never before. These insights can foster to drive smarter, faster business decisions for

industrial organizations. IIoT is shifting the industry, changing the way that industrial companies operate their daily basis. Whether allowing analytics to prevent non-conformities in production infrastructure, providing real-time data to unfold additional capacity in a factory, or accelerating new product development by powering the product design cycle. IIoT is helping to achieve unprecedented levels of efficiency, productivity, and performance leading companies to produce ground-breaking products, quickly available due to optimized production process.

Application cases



Tank Level Monitoring

The PLUS product family monitored a water tank supply system, designed to guarantee the supply of water in a displaced industrial unit. The instrumentation of the application with diversified sensors, which monitor the pressure, temperature, flow, level and safety valve, support the maximum guarantee of the continuous availability of the process.

[Visit our website to read the full case study.](#)

Biodegradable waste monitoring

Inside of a waste management facility, the process of composting biodegradable elements must be constantly monitored, in order to control the ideal stage of raw materials and accelerate the turnover of resources. The development of a wireless monitoring system, composed by a TWP4-IUT transmitter, powered by batteries, together with the Tekon Electronics cloud solution, Tekon IoT Platform, certified the process of placing probes and real-time monitoring of all phases.

[Visit our website to read the full case study.](#)



Heat treatment in industrial drum

Several industries are equipped with rotating drums for heat treatments as part of the production process. Temperature monitoring can be simplified with the use of wireless solutions, without having any interference in the normal rotating movement of the equipment, instead of the wired solutions, which can be an obstacle in this environment. The positioning of TWP4-IUT wireless transmitters, along the drum, offered several temperature measuring points and greater reliability of the measurement process. The connection of the GW420 gateway with the local automation structure, made the data available in an instance of the Tekon IoT Platform, with an alarm configuration focusing on process temperatures and RSSI values.

[Visit our website to read the full case study.](#)

System overview



Machine condition monitoring drives the product quality, improves OEE and prevents downtimes.



Wireless solutions can be easily adapted to work in different environments.



Production lines can provide data with added value for the optimization of maintenance and production indicators



up to 55 transmitters
1 second to 12 hours communication period

Many industrial sectors have long used data from monitoring systems to help direct their strategy to maximize profits. Enable the connectivity with cloud-base solutions, has become a priority to the companies, in order to streamline the access to the condition monitoring systems of their equipment. The multiplicity of secure protocols and communication architectures are turning the use of cloud-based solutions essential.

PLUS

Wireless Transmitter with Analog, Digital and Temperature inputs

TWP-4AI4DI1UT WIRELESS TRANSMITTER



KEY FEATURES

- 4 configurable analog inputs
- 4 configurable digital inputs
- 1 universal temperature input
- 3 configurable digital outputs
- Up to 4 Km communication distance (LoS)

PLUS TWP-4AI4DI1UT Wireless Transmitter was designed to monitor 4..20 mA / 0..10V signals, digital inputs, and universal temperature inputs, providing a secure communication, without cable requirements of a complex wired solution.

VERSION REFERENCE	868 MHz	PA164510610
	915 MHz	PA164510620

TECHNICAL SPECIFICATIONS Data applicable at 23°C

RADIO SPECIFICATIONS	868MHz	Range	4Km LoS (2.5mi)	4Km LoS (2.5mi)
		Frequency Band	868 to 869 MHz	902 to 928MHz
		Number of Channels	16	50
		Reception Sensitivity	-97 to -110 dBm	-97 to -110 dBm
		Transmit Power	25 to 27 dBm	8 to 27 dBm
		Encryption method	AES 128 (Advanced Encryption Standard)	AES 128 (Advanced Encryption Standard)
ANALOG INPUT	VOLTAGE	Range	0 to 12V DC	0 to 24mA
		Resolution	0.38mV (15bit)	0.96uA (15bit)
		Accuracy	<5mV (<0.05% FS)	<100uA (<0.5% FS)
DIGITAL INPUTS	INPUT TRIGGER	Range	0 to 24 V DC	
		ON detection level	> 4.5V	> 12V
		OFF detection level	< 2.5V	< 9V
		Input current	4.5mA @ 12V DC /6mA @ 24V DC	
		Galvanic Isolation	No	Yes
		Activation detection	Raising Edge/ Falling Edge/ Both	
DIGITAL OUTPUTS	Communication Loss			
	Remote Output			
	External Supply			
SUPPLY VOLTAGE	Range	5 to 24V DC ± 5% / USB		
	Maximum current	500mA DC @ 5V DC / 100mA DC @ 24V DC		

STARTERKITS



TRANSMITTER + GATEWAY + ACCESSORIES,
ANTENNAS AND CABLES

UNDER REQUEST

PLUS

Wireless transmitter with analog inputs

TWP4AI WIRELESS TRANSMITTER



KEY FEATURES

- 4 configurable analog inputs
- 3 configurable digital outputs
- Configurable communication period
- Multi-hop mesh network
- Up to 4 Km communication distance (LoS)

PLUS TWP4AI Wireless Transmitter was designed to monitor 4..20 mA / 0..10V signals from sensors with the same analog output span. Variables like conductivity, flow, level, vibration, humidity, pressure and temperature can be clustered in a single transmitter.

VERSION REFERENCE	868 MHz	PA164510110
	915 MHz	PA164510120

TECHNICAL SPECIFICATIONS Data applicable at 23°C

RADIO SPECIFICATIONS	Range	4Km LoS (2.5mi)	4Km LoS (2.5mi)
	Frequency Band	868 to 869 MHz	902 to 928MHz
	Number of Channels	16	50
	Reception Sensitivity	-97 to -110 dBm	-97 to -110 dBm
	Transmit Power	25 to 27 dBm	8 to 27 dBm
	Encryption method	AES 128 (Advanced Encryption Standard)	AES 128 (Advanced Encryption Standard)
WIRELESS NETWORK	Maximum Devices	55	
	Maximum Hops	13	
	Communication Period	1 second to 12 hours (configurable)	
ANALOG INPUT	Range	0 to 12V DC	0 to 24mA
	Resolution	0.38mV (15bit)	0.96uA (15bit)
	Accuracy	<5mV (<0.05% FS)	<100uA (<0.5% FS)
DIGITAL INPUT - TRIGGER	Range	0V DC to Supply Voltage	
	Type	Sinking	
	Activation Detection	Falling Edge / Rising Edge / Both	
DIGITAL OUTPUTS	Communication Loss		
	Remote Output		
	External Supply		
SUPPLY VOLTAGE	Range	5 to 24V DC ± 5% / USB	
	Maximum current	500mA DC @ 5V DC / 100mA DC @ 24V DC	
	Operating Temperature	-30 to 80°C	

STARTERKITS



TRANSMITTER + GATEWAY + ACCESSORIES, ANTENNAS AND CABLES

UNDER REQUEST

PLUS

Inhead Wireless Transmitter with Universal Temperature input

TWPH-1UT WIRELESS TRANSMITTER



KEY FEATURES

Universal Sensor Input (PT100, Thermocouples: C, J, K, N, R, S, T)

Up to 4km communication distance (LoS)

Dual operating mode: Transmitter or transmitter and repeater

Ultra low power mode

6 Status Leds

*Connection Head sold separately

TWPH-1UT is a wireless transmitter fully dedicated to collect and transmit temperatures from PT100 and thermocouples sensors. When embedded in a PLUS devices network, it can work as transmitter and repeater simultaneously, a feature provided by the dual operational mode.

VERSION REFERENCE	868 MHz	PA164510510
	915 MHz	PA164510520

TECHNICAL SPECIFICATIONS Data applicable at 23°C

RADIO SPECIFICATIONS	Range	4Km LoS (2.5mi)	4Km LoS (2.5mi)
	Frequency Band	868 to 869 MHz	902 a 928MHz
	Number of Channels	16	50
	Reception Sensitivity	-97 to -110 dBm	-97 to -110 dBm
	Transmit Power	25 to 27 dBm	8 to 27 dBm
	Encryption method	AES 128 (Advanced Encryption Standard)	AES 128 (Advanced Encryption Standard)
INPUT	Sensor type	PT100 (2,3 or 4 wire)	C, J, K, N, R, S, T
	Short-circuit monitoring	Always active (cannot be disabled)	Not available
	Open-circuit monitoring	Always active (cannot be disabled)	
WIRELESS NETWORK	Maximum Devices		55
	Maximum Hops		13
	Communication Period		1 second to 12 hours (configurable)
SUPPLY VOLTAGE	Range		5 to 24V DC
	Accuracy		±50mV
	Operating Temperature		-40 to 80°C

STARTERKITS



TRANSMITTER + GATEWAY + ACCESSORIES, ANTENNAS AND CABLES

UNDER REQUEST

ACCESSORIES



CONNECTION HEAD

Buz Connection Head for transmitters with battery holder

PLUS

Wireless Gateway
with Modbus RTU output

WGW420 WIRELESS GATEWAY



KEY FEATURES

Modbus RTU communication protocol via RS-485 interface

8 analog outputs (4..20 mA current loop)

Scalable network up to 55 PLUS transmitters

Multiple networks with extra gateways and extra long range with several repeaters

Multi-hop Mesh Network with Self-Forming, Self-Healing and Self-Optimizing features

The WGW420 gateway is equipped with 8 analog outputs configurable for several application scenarios such as integration of variable display systems with local displays, configuring analog charts, digital input datalogger's and 4..20 mA signal replication. RS485 port enables the connection to automation systems, using Modbus RTU protocol to communicate the data from the PLUS transmitters

VERSION REFERENCE	868 MHz	PA164510210
	915 MHz	PA164510220

TECHNICAL SPECIFICATIONS Data applicable at 23°C

RADIO SPECIFICATIONS	Range	4Km LoS (2.5mi)	4Km LoS (2.5mi)
	Frequency Band	868 to 869 MHz	902 to 928 MHz
	Number of Channels	16	50
	Reception Sensitivity	-97 to -110 dBm	-97 to -110 dBm
	Transmit Power	25 to 27 dBm	8 to 27 dBm
	Transmission Rate	19 to 76.8kbit/s	19 to 76,8kbit/s
	Encryption method	AES 128 (Advanced Encryption Standard)	AES 128 (Advanced Encryption Standard)
	Modulation	GFSK	GFSK
	Antenna	Articulated dipole antenna	Articulated dipole antenna
	Antenna gain	SMA	SMA
Antenna impedance	50Ω	50Ω	
WIRELESS NETWORK	Maximum Devices	55	
	Maximum Hops	13	
RS-485 COMMUNICATION	Protocol	MODBUS RTU (Slave)	
	Galvanic Isolation	1kV AC	
ANALOG OUTPUT	Output Range	4 to 20mA	
	Out of range indication	[3.2;4.0]mA and [20.0;20.2]mA	
	Error indication	3.1mA and 20.4mA	
Power Supply	12 to 24V DC ± 5%		
Operating Temperature	0 to 80°C		

ACCESSORIES



RS485 TO USB CONVERTER CABLE
Cable to connect WGW420 Gateway to an USB port

PLUS

Wireless repeater for network redundancy and robustness.

WRP001 WIRELESS REPEATER



KEY FEATURES

Network redundancy and robustness

Up to 12 repeaters in series for extra-long range

Up to 4 Km communication distance (LoS)

Multi-hop mesh network

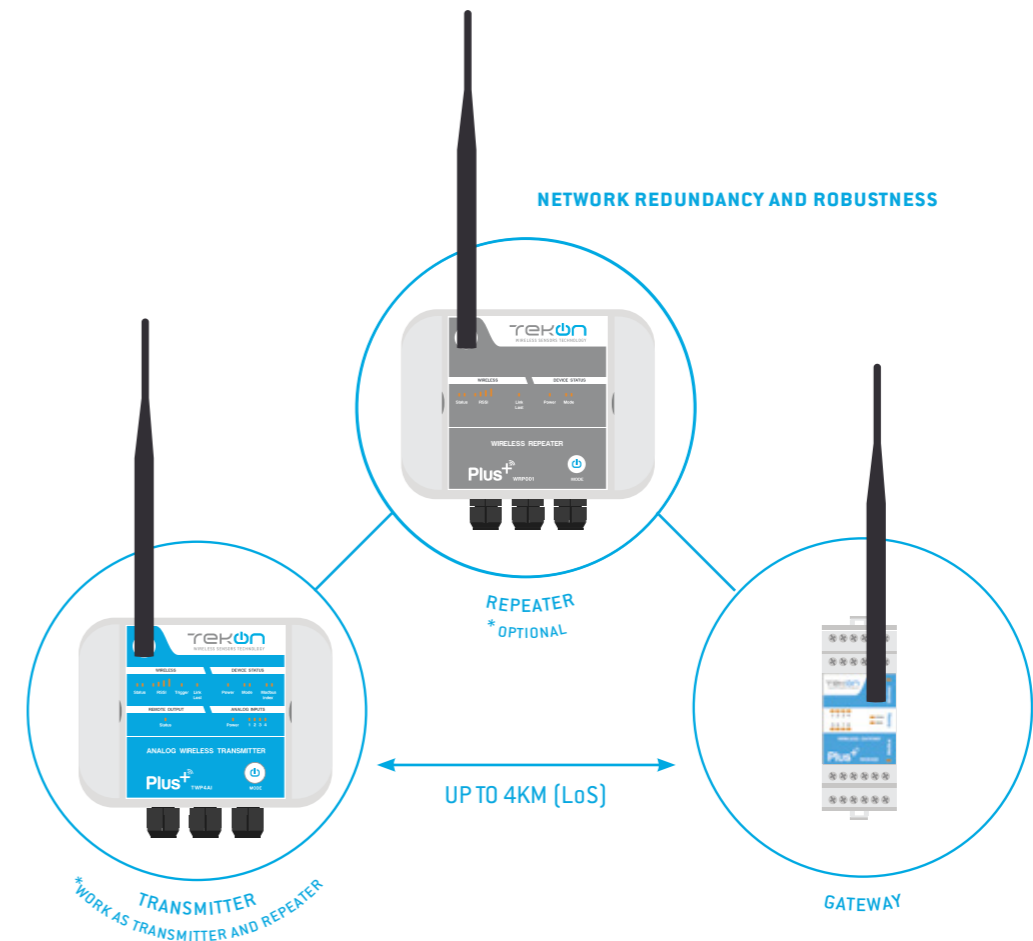
Simple and intuitive USB configuration

PLUS devices network redundancy can be increased with multiple PLUS WRP001 repeaters, benefiting from the mesh network topology, providing the best wireless signal and ensuring the reliability on data transmission.

VERSION REFERENCE	868 MHz	PA164510310
	915 MHz	PA164510320

TECHNICAL SPECIFICATIONS Data applicable at 23°C

RADIO SPECIFICATIONS	Range	4Km LoS (2.5mi)	4Km LoS (2.5mi)
	Frequency Band	868 to 869MHz	902 a 928MHz
	Number of Channels	16	50
	Reception Sensitivity	-99 to -104 dBm	-97 to -110 dBm
	Transmit Power	0 to 27 dBm	8 to 27 dBm
	Transmission Rate	19 to 76.8kbit/s	19 to 76.8kbit/s
	Encryption method	AES 128 (Advanced Encryption Standard)	AES 128 (Advanced Encryption Standard)
	Modulation	GFSK	GFSK
	Antenna	Articulated dipole antenna	Articulated dipole antenna
	Antenna impedance	50Ω	50Ω
Maximum Repeaters	12		
Power Supply	5 to 24V DC ± 5%		
Operating Temperature	-30 to 80°C		



ONE

Inhead Wireless Transmitter with Universal Temperature input

THW401 WIRELESS TRANSMITTER



KEY FEATURES

Universal sensor input

RTD: PT100, PT500, PT1000

Thermocouples: E, J, K, N, R, S, T

Up to 4km communication distance (LoS)

Ultra low power mode

1 sec. to 24h configurable communication period

*Connection Head sold separately

THW401 wireless transmitter is a compact solution to collect temperature data from RTD, Thermocouple and DC voltage sensors. Without any kind of configuration over PC, user only have to set the node id and network id on the device, with two single steps.

VERSION REFERENCE	868 MHz	PA123720200
	2.4 GHz	PA123720100

TECHNICAL SPECIFICATIONS Data applicable at 23°C

RADIO SPECIFICATIONS	Range	Up to 4 Km LoS	Up to 2 Km LoS
	Radio Transmit Power	0 to 27 dBm	-10 to 18 dBm
	Radio Receiver Sensitivity	-97 to -109 dBm	-91 to -108 dBm
	Frequency Band	868 to 870 MHz	2,4 to 2,5 GHz
	Radio Channels	16	16
Encryption method		AES 128 (Advanced Encryption Standard)	
INPUT RTD / TC	Sensor type	PT100, PT500, PT1000/ E, J, K, N, R, S, T	
	Connection	1 Resistance thermometer (RTD) in 2-wire, 3-wire or 4-wire system / 1 Thermocouple (TC)	
	Open-circuit monitoring	Always active (cannot be disabled)	
	Short-circuit monitoring	Always active (cannot be disabled) / Not available	
	Cold junction compensation (CJC)	Not available / Integrated resistance thermometer	
SUPPLY VOLTAGE	Range	5 to 24V DC ± 5%	
	Accuracy	± 100 mV	
Operating Temperature		-40 to 80°C	-20 to 80°C

STARTERKITS



TRANSMITTER + GATEWAY + ACCESSORIES, ANTENNAS AND CABLES

UNDER REQUEST

ACCESSORIES



CONNECTION HEAD

Buz Connection Head for transmitters with battery holder

ONE

Wireless Gateway
with Modbus RTU output

WGW410

WIRELESS MODBUS GATEWAY



KEY FEATURES

Supports up to 16 THW401 Temperature Transmitters

1 sec network refresh time

RS485 interface with MODBUS RTU

8 Analog Outputs (4..20 mA)

DIN rail mounting

The WGW410 gateway supports up to 16 THW401 wireless transmitters in 16 different networks. This solution allows the integration of 256 transmitters in the same application. With RS485 port, ONE wireless system can be connected with a PLC or HMI, using Modbus RTU protocol to ensure the communication between this solutions. The WGW410 gateway is equipped with 8 analog outputs configurable for several application scenarios such as integration of variable display systems with local displays, configuring analog charts, digital input datalogger's and 4..20 mA signal replication.

VERSION REFERENCE	868 MHz	PA123730100
	2.4 GHz	PA123710100

TECHNICAL SPECIFICATIONS Data applicable at 23°C

RADIO SPECIFICATIONS	Range	Up to 4 Km LoS	Up to 2 Km LoS
	Radio Transmit Power	0 to 27 dBm	-10 to 18 dBm
	Radio Receiver Sensitivity	-97 to -110 dBm	-91 to -108 dBm
	Frequency Band	868 to 870 MHz	2,4 to 2,5 GHz
	Radio Channels	16	16
Encryption method		AES 128 (Advanced Encryption Standard)	
SUPPLY VOLTAGE	Range	12 VDC to 24 VDC +/- 10%	
	Current consumption	70 mA @ 12 VDC / 45 mA @ 24 VDC (@ 25 °C)	
	Power consumption	0.85 W @ 12 VDC / 1.1 W @ 24 VDC (@ 25 °C)	
	Power up time	900 ms	
RS-485 COMMUNICATION	Protocol	Modbus RTU	
	Galvanic isolation	1kV	
ANALOG OUTPUTS	Output signal	4 to 20 mA	
	Max. load	360 Ω @ 12VDC / 1 KΩ @ 24VDC	
	Out of range	[3.2;4.0] mA and [20.0;20.2] mA	
	Fault signal (e.g. sensor fault)	3.1.mA or 20.4 mA	
	Communication Period	1s to 24h (configurable)	
	Power on or reset initial value	Last written value	

ACCESSORIES



RS485 TO USB CONVERTER CABLE

Cable to connect WGW410 Gateway to an USB port

Digitization is shifting toward the sensor in the era of Industry 4.0 process automation. Implementation of smart sensors that can be integrated anywhere in a complex network allows them to pass on the digital form of recorded physical quantities over the network, versus digitizing analog signals transmitted to a controller.

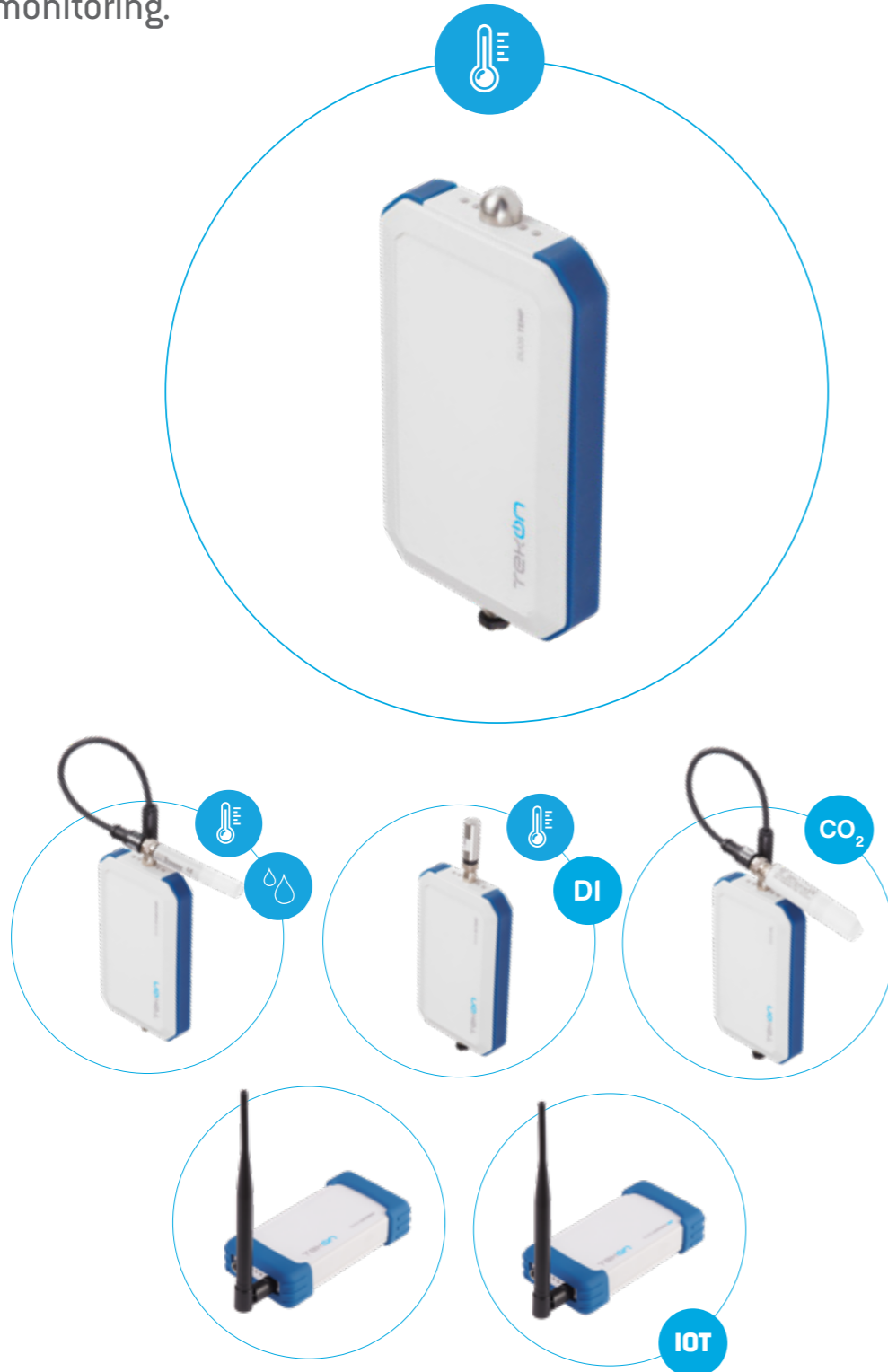
Smart Sensors generate and receive data and information which goes beyond traditional switching signals or measured process parameters. They therefore enable substantial increases in efficiency, more flexibility, and better planning security for predictive plant maintenance.



SMART SENSORS

System overview

The implementation of smart sensors in the cold chain has been a reliable IoT solution to promote the digitization of operations, more quickly and promptly. Smart sensors offer essential features such as rapid deployment, secure connectivity and real-time monitoring.



Application case



Fast food chain restaurants

The multitude of processes, which can be monitored, available in a fast food restaurant environment allowed the integration of the different DUOS monitoring solutions - temperature, humidity, CO2 and digital input - related to tasks ranging from air quality monitoring in the main room, the monitoring of the temperature of the refrigeration equipment until the temperature and state of the door in the monitoring of the perishable product storage.

Temperature monitoring in inconel storage

The vulnerability of elements related to the production of temperature probes with Inconel coating, implies the use of storage equipment with controlled environment, where temperature and humidity influence the final product. The real-time monitoring of the storage environment, with alarms set for operational limit values, fosters a continuous process of observation and quality assurance.



Temperature monitoring in the freezing and storage of processed foods

Food processing is characterized by several steps until reaching the final product. The cold chain is started in the production phase. In this application, it was essential to monitor the process of deep-freezing of food and the subsequent transition to storage equipment, which anticipates the availability of the final product, for the distribution chain.

System overview



Thanks to its IP67 index DUOS wireless transmitter performs in harsh environments.



The implementation of DUOS solutions is carried out quickly and suitable to several environments



Smart sensors are advanced devices with embedded resources such as diagnostics, and connectivity tools that transform traditional feedback signals into true digital insights. The ability to provide relevant, timely data regarding both products and conditions can be used to generate a more holistic, accurate perception of the operating environment.

Solutions with cloud connectivity boost the availability and security of information, effectively distributing it across management and analysis platforms. Products and services connected to this ecosystem strengthen the presence and performance of organizations, with renewed sights of the surrounding chains.

DUOS

Wireless Smart Sensors

TEMP

WIRELESS SENSOR



KEY FEATURES

-40 °C to 80 °C Measurement Range

Dual temperature probe

Internal and External probes

Auto Discovery of the best wireless link

Low power and long battery life

Battery voltage and wireless link quality (RSSI) monitoring

Water Resistant with IP67 protection

DUOS TEMP has a unique function - to record temperatures. The external probe records the ambient temperature and the internal probe enables to simulate the temperature of the product that is in the same physical space.

VERSION REFERENCE	BUILT-IN PROBE		PART NUMBER
	FREQUENCY	HOUSING	
TEMP	868 MHz	BLACK HOUSING	PA160411710
		WHITE HOUSING	PA160411720
	915 MHz	BLACK HOUSING	PA160411730
		WHITE HOUSING	PA160411740
868 MHz	BLACK HOUSING	PA160410110	
	WHITE HOUSING	PA160410120	
915 MHz	BLACK HOUSING	PA160410130	
	WHITE HOUSING	PA160410140	

TECHNICAL SPECIFICATIONS Data applicable at 23°C

RADIO SPECIFICATIONS	868MHz		915MHz	
	Range	Up to 4 Km LoS	Up to 4 Km LoS	
	Radio Transmit Power	0 to 27 dBm	8 to 27 dBm	
	Radio Receiver Sensitivity	-97 to -110 dBm	-97 to -110 dBm	
	Frequency Band	868 to 869 MHz	902 to 928 MHz	
Radio Channels	16	50		
Encryption method	AES 128 (Advanced Encryption Standard)			

TEMPERATURE MEASUREMENT	EXT		INT	
	Range	-40 to 125°C	-40 to 80 °C	-40 to 80 °C
	Resolution	0.1 °C		
	Accuracy	Typical: ± 0.25 °C / Maximum: ± 0.5 °C		
Sensor Type	I2C digital sensor			

SUPPLY VOLTAGE	3x3.6 AA lithium batteries (PN EVE ER14505)
	3 years of estimated battery life
	External power supply with 12 VDC ± 5%

OPERATING ENVIRONMENT	-40 °C to 80 °C
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STARTERKITS

	TRANSMITTER + GATEWAY + PROBE + ACCESSORIES, ANTENNAS AND CABLES	UNDER REQUEST
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ACCESSORIES

	DUOS TRANSMITTER SARC DUOS transmitter configuration cable (to use with Tekon Configurator).
	DUOS EXTERNAL POWER CABLE DUOS repeater and DUOS transmitter power supply
	DUOS TRANSMITTER MOUNTING CLIP Stainless steel wall mounting clip
	DUOS TRANSMITTER MOUNTING BRACKET Stainless steel wall mounting bracket
	DUOS DIGITAL TEMPERATURE PROBE ±0.25°C typical accuracy with 0.1°C resolution digital sensor
	DUOS DIGITAL TEMPERATURE PROBE WITH 2M CABLE ±0.25°C typical accuracy with 0.1°C resolution digital sensor
	DUOS DIGITAL TEMPERATURE PROBE WITH 5M CABLE ±0.25°C typical accuracy with 0.1°C resolution digital sensor

DUOS

Wireless Smart Sensors

HYGROTEMP WIRELESS SENSOR



KEY FEATURES

0% to 100% Humidity range

-40 °C to 80 °C Measurement Range

Dual Temperature and Humidity Probe

Wireless Link Strength (RSSI)

Low Power and Long Battery Life

IP67 Protection


*External probe sold separately with calibration certificate from manufacturer






DUOS Hygrotemp is the right solution to monitor temperature and humidity from applications. The external probe is designed to perform reliable temperature and humidity measurements, even when exposed to harsh, wet and polluted environments.

868 MHz	BLACK HOUSING	PA164520110
	WHITE HOUSING	PA164520120
915 MHz	BLACK HOUSING	PA164520130
	WHITE HOUSING	PA164520140

TECHNICAL SPECIFICATIONS Data applicable at 23°C

RADIO SPECIFICATIONS	Range	Up to 4 Km LoS	Up to 4 Km LoS
	Radio Transmit Power	0 to 27 dBm	8 to 27 dBm
	Radio Receiver Sensitivity	-97 to -110 dBm	-97 to -110 dBm
	Frequency Band	868 to 869 MHz	915 MHz
	Radio Channels	16	50
Encryption method		AES 128 (Advanced Encryption Standard)	
INTERNAL TEMPERATURE MEASUREMENT	Range	-40 to 80°C	
	Resolution	0,1 °C	
	Accuracy	Typical: ± 0.25 °C / Maximum: ± 0.5 °C	
	Sensor Type	I2C digital sensor	
	Response Time	1 second	
HUMIDITY	Range	0 to 100%	
	Resolution	0,01%	
	Accuracy	±2% (0 to 90%); ±3% (90 to 100%)	
	Sensor Type	I2C digital sensor	
	Response Time	1 second	
SUPPLY VOLTAGE	3x3.6 AA lithium batteries (PN EVE ER14505)		
OPERATING ENVIRONMENT	Temperature range	-40 °C to 80 °C	
	Humidity	95% maximum relative humidity (non-condensing)	

STARTERKITS		TRANSMITTER + GATEWAY + PROBE + ACCESSORIES, ANTENNAS AND CABLES	UNDER REQUEST
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ACCESSORIES		DUOS TRANSMITTER SARC DUOS transmitter configuration cable (to use with Tekon Configurator)
		DUOS EXTERNAL POWER CABLE DUOS repeater and DUOS transmitter power supply cable
		DUOS TRANSMITTER MOUNTING CLIP Stainless steel wall mounting clip
		DUOS POWER SUPPLY DUOS repeater and transmitter 110-230 VAC / 50-60 Hz EU plug power supply
		DUOS HUMIDITY + TEMPERATURE PROBE TK07-PFT5 0..100 % RH and -40..80 °C T measurement ranges

DUOS

Wireless Smart Sensors

DUOS DI+TEMP

WIRELESS SENSOR



KEY FEATURES

-40 °C to 80 °C Measurement Range

Dual temperature probe

External digital input

Up to 4 Km communication distance (LoS)

Multi-hop mesh network

Battery voltage and wireless link quality (RSSI) monitoring

Low power and long battery life

IP67 protection

*External probe sold separately

DUOS DI+TEMP is the right device to monitor temperature in equipment and spaces with opening and closing doors. The digital input allows you to monitor the two possible status of the doors, and thus be able to relate the temperature fluctuation to the status of the doors.

868 MHz	BLACK HOUSING	PA160411210
	WHITE HOUSING	PA160411220
915 MHz	BLACK HOUSING	PA160411230
	WHITE HOUSING	PA160411240

TECHNICAL SPECIFICATIONS Data applicable at 23°C

RADIO SPECIFICATIONS	Range	Up to 4 Km LoS	Up to 4 Km LoS
	Radio Transmit Power	0 to 27 dBm	8 to 27 dBm
	Radio Receiver Sensitivity	-97 to -110 dBm	-97 to -110 dBm
	Frequency Band	868 MHz	915 MHz
	Radio Channels	16	50
Encryption method		AES 128 (Advanced Encryption Standard)	
TEMPERATURE MEASUREMENT	Range	-40 to 125°C	-40 to 80 °C
	Resolution	0.1 °C	0.1 °C
	Accuracy	Typical: ± 0.25 °C / Maximum: ± 0.5 °C	Typical: ± 0.25 °C / Maximum: ± 0.5 °C
	Connector	M8 female socket, 4 poles	
	Sensor Type	I2C digital sensor	
Response Time		1 second	
DIGITAL INPUT	Contact Type	Dry contact	
	Standby state	Open / OFF	
	Current consumption	DI ON: 28uA / DI OFF: 0uA	
	Communication Time after DI activation	< 1.1 seconds	
	DI debounce time	60ms	
	Edge trigger	Open Close	
SUPPLY VOLTAGE	3x3.6 AA lithium batteries (PN EVE ER14505)		
	3 years of estimated battery life		
	External power supply with 12 VDC ± 5%		
OPERATING ENVIRONMENT	-40 °C to 80 °C		

STARTERKITS		TRANSMITTER + GATEWAY + PROBE + ACCESSORIES, ANTENNAS AND CABLES	UNDER REQUEST
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ACCESSORIES		DUOS TRANSMITTER SARC DUOS transmitter configuration cable (to use with Tekon Configurator)
		DUOS EXTERNAL POWER CABLE DUOS repeater and DUOS transmitter power supply cable
		DUOS DI+TEMP EXTERNAL CABLE DUOS DI+TEMP digital input cable
		DUOS TRANSMITTER MOUNTING CLIP Stainless steel wall mounting clip
		DUOS TRANSMITTER MOUNTING BRACKET Stainless steel wall mounting bracket

DUOS

Wireless Smart Sensors

DUOS CO₂ WIRELESS SENSOR



KEY FEATURES

-40 °C to 60 °C Measurement Range

Dual probe external CO2 and internal temperature

Up to 4 Km communication distance (LoS)

Multi-hop mesh network

Battery voltage and wireless link quality (RSSI) monitoring

IP67 protection

**External probe sold separately*

DUOS CO2 uses a dual wavelength NDIR CO2 sensor with automatic temperature compensation for ageing effects and high accuracy over the entire temperature operating range. The sensor IP65 enclosure together with transmitter IP67 protection level, ensures operation in harsh, wet and polluted environments

868 MHz	BLACK HOUSING	PA160411110
	WHITE HOUSING	PA160411120
915 MHz	BLACK HOUSING	PA160411130
	WHITE HOUSING	PA160411140

TECHNICAL SPECIFICATIONS Data applicable at 23°C

RADIO SPECIFICATIONS	Range	Up to 4 Km LoS	Up to 4 Km LoS
	Radio Transmit Power	0 to 27 dBm	8 to 27 dBm
	Radio Receiver Sensitivity	-97 to -110 dBm	-97 to -110 dBm
	Frequency Band	868 to 869 MHz	915 to 928 MHz
	Radio Channels	16	50
Encryption method		AES 128 (Advanced Encryption Standard)	
CO2 MEASUREMENT EXTERNAL PROBE	Operating Temperature	-40°C to 60°C (0-100%RH non-condensing)	
	Acquisition Range	0-2000ppm	
		0-5000ppm	
		0-10000ppm	
		0-3%	
	Accuracy at 25°C and 1013 mbar	0-5%	
		0 to 2000ppm: + 50ppm + 2% measured value	
0 to 5000ppm: + 50ppm + 3% measured value			
0 to 10000ppm: + 100ppm + 5% measured value			
INTERNAL PROBE	Range	-40 to 80 °C	
	Resolution	0.1 °C	
	Accuracy	0 to 3%: +- 1.5% of the scale + 2% measured value	
		0 to 5%: +-1.5% of the scale + 2% measured value	

STARTERKITS		TRANSMITTER + GATEWAY + PROBE + ACCESSORIES, ANTENNAS AND CABLES	UNDER REQUEST
		DUOS TRANSMITTER SARC DUOS transmitter configuration cable (to use with Tekon Configurator)	
ACCESSORIES		DUOS POWER SUPPLY DUOS repeater and transmitter 110-230 VAC / 50-60 Hz EU plug power supply	
		DUOS EXTERNAL POWER CABLE DUOS repeater and DUOS transmitter power supply cable	
		DUOS TRANSMITTER MOUNTING CLIP Stainless steel wall mounting clip	
		DUOS TRANSMITTER MOUNTING BRACKET Stainless steel wall mounting bracket	
		DUOS TK871-HR5000J2 CO2 PROBE Measurement range: 0..5000 ppm	
		DUOS TK871-HR5000J2 CO2 PROBE WITH 2M CABLE Measurement range: 0..5000 ppm	

DUOS

Wireless Smart Sensors

DUOS

WIRELESS GATEWAY



KEY FEATURES

Scalable network up to 55 DUOS transmitters

Up to 4 Km communication distance (LoS)

Multiple networks simultaneously with extra gateways

Multi-hop mesh network



Modbus RTU communication protocol via RS-485 interface

With the DUOS Gateway you can connect your DUOS wireless system to automation equipments like SCADA, PLC, HMI or a computer and access data using Modbus RTU protocol through RS485 port.

868 MHz	BLACK HOUSING	PA160410210
	WHITE HOUSING	PA160410230
915 MHz	BLACK HOUSING	PA160410250
	WHITE HOUSING	PA160410270

TECHNICAL SPECIFICATIONS Data applicable at 23°C

RADIO SPECIFICATIONS	Range	Up to 4 Km LoS	Up to 4 Km LoS
	Radio Transmit Power	0 to 27 dBm	8 to 27 dBm
	Radio Receiver Sensitivity	-97 to -110 dBm	-97 to -110 dBm
	Frequency Band	868 to 869 MHz	902 to 928 MHz
	Radio Channels	16	50
Encryption method		AES 128 (Advanced Encryption Standard)	
WIRELESS NETWORK	Maximum Devices	55	
	Maximum Hops	13	
OPERATING ENVIRONMENT	-10 °C to +60 °C		
	95% maximum relative humidity (non-condensing)		
SUPPLY VOLTAGE	External power supply from 5 to 24 VDC ± 5%		
	Maximum current draw of 250 mA		

ACCESSORIES		DUOS GATEWAY EXTERNAL CABLE DUOS gateway communication (via RS-485) and power supply cable
		DUOS GATEWAY/REPEATER MOUNTING CLIP Stainless steel wall mounting clip

DUOS

Wireless Smart Sensors

DUOS

WIRELESS GATEWAY IOT



TCP/IP

KEY FEATURES

Ethernet TCP/IP Modbus Communication

Integration with Tekon IoT Platform

Scalable Network

Multiple Networks Simultaneously

Up to 4 Km communication distance (LoS)

Automatic Mesh Network Management

DUOS IoT Gateway offers IoT connectivity, through the Ethernet port, with Modbus TCP/IP and system integration with REST API. DUOS IoT Gateway is natively integrated with Tekon IoT Platform.

VERSION REFERENCE	868 MHz	
	BLACK HOUSING	PA160410220
WHITE HOUSING	PA160410240	
915 MHz	BLACK HOUSING	PA160410260
	WHITE HOUSING	PA160410280

TECHNICAL SPECIFICATIONS Data applicable at 23°C

RADIO SPECIFICATIONS	Range	Up to 4 Km LoS	Up to 4 Km LoS
	Radio Transmit Power	0 to 27 dBm	8 to 27 dBm
	Radio Receiver Sensitivity	-97 to -110 dBm	-97 to -110 dBm
	Frequency Band	868 MHz	915 MHz
	Radio Channels	16	50
	Encryption method	AES 128 (Advanced Encryption Standard)	
WIRELESS NETWORK	Maximum Devices	55	
	Maximum Hops	13	
OPERATING ENVIRONMENT	-10 °C to +60 °C		
	95% maximum relative humidity (non-condensing)		
SUPPLY VOLTAGE	External power supply with 12 VDC ± 5%		
	Maximum current draw of 250 mA2		
INTERFACES	RS-485		ETHERNET
	Protocol	Modbus RTU (Slave)	TCP / IP Modbus
Physical connection	2-wire RS-485	Ethernet	
IOT CONNECTIVITY	Native integration with Tekon IoT Platform		
	REST API		

ACCESSORIES

	DUOS POWER SUPPLY DUOS repeater and transmitter 110-230 VAC / 50-60 Hz EU plug power supply
	DUOS GATEWAY EXTERNAL CABLE DUOS gateway communication (via RS-485) and power supply cable
	DUOS EXTERNAL POWER CABLE DUOS repeater and DUOS transmitter power supply cable
	DUOS GATEWAY/REPEATER MOUNTING CLIP Stainless steel wall mounting clip

DUOS

Wireless Smart Sensors

DUOS

WIRELESS REPEATER



KEY FEATURES

Simple, intuitive and free configuration Software

Up to 4 Km communication distance (LoS)

Auto discovery of best wireless link

Mesh Network

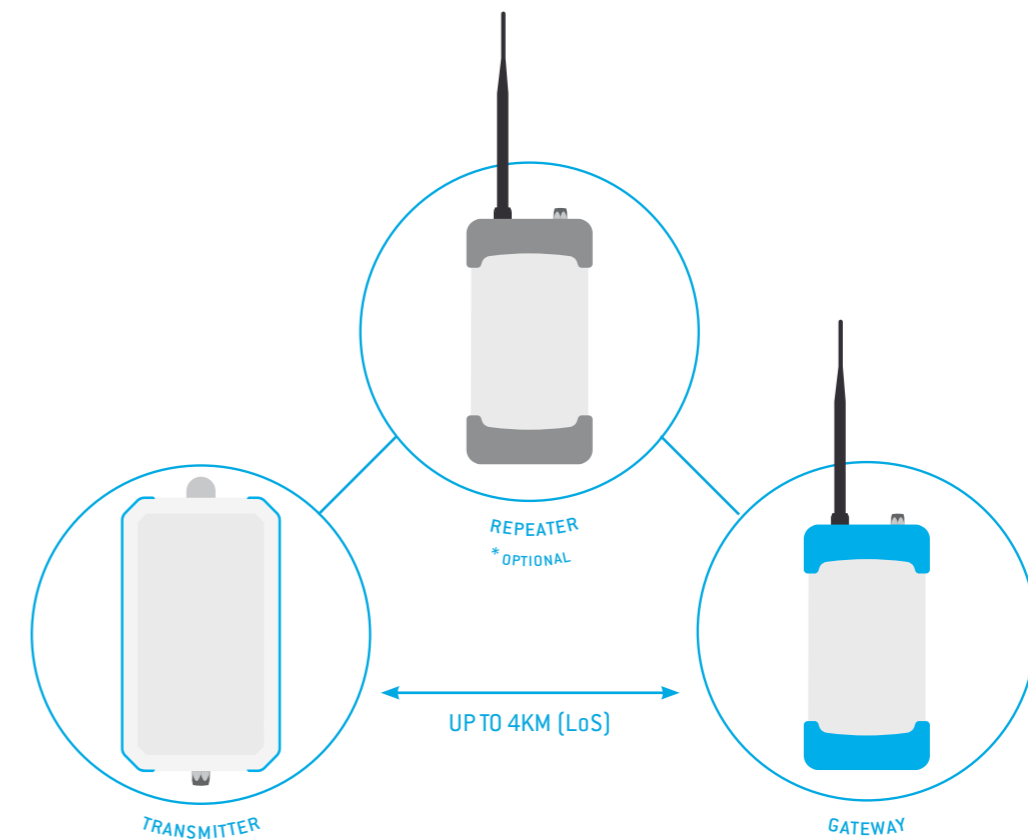
Improvement of the network coverage

Due to its self-optimizing mesh network features, this equipment has the capacity to auto discover the best wireless link, create alternative paths in a mesh network and make sure that there is no chance of an individual device failure bringing the whole network down.

VERSION REFERENCE	868 MHz	BLACK HOUSING	PA160410310
		WHITE HOUSING	PA160410320
	915 MHz	BLACK HOUSING	PA160410330
		WHITE HOUSING	PA160410340

TECHNICAL SPECIFICATIONS Data applicable at 23°C

RADIO SPECIFICATIONS	Range	Up to 4 Km LoS	Up to 4 Km LoS
	Radio Transmit Power	0 to 27 dBm	8 to 27 dBm
	Radio Receiver Sensitivity	-97 to -110 dBm	-97 to -110 dBm
	Frequency Band	868 MHz	915 MHz
	Radio Channels	16	50
Encryption method		AES 128 (Advanced Encryption Standard)	
WIRELESS NETWORK	Maximum Devices	55	
	Maximum Hops	13	
SUPPLY VOLTAGE	External power supply with 12 VDC ± 5%		
OPERATING ENVIRONMENT	-10 °C to +60 °C		

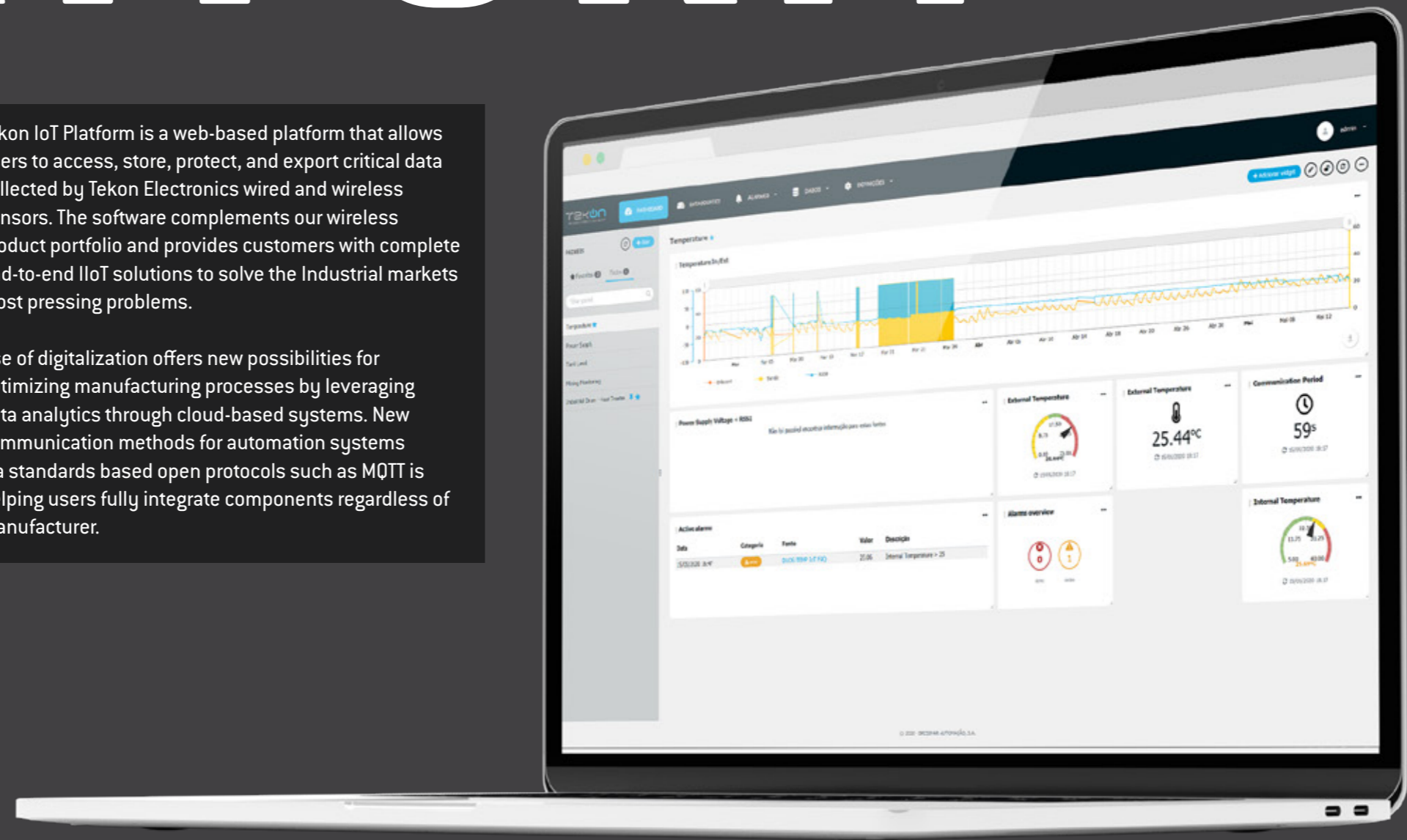


ACCESSORIES		DUOS POWER SUPPLY DUOS repeater and transmitter 110-230 VAC / 50-60 Hz EU plug power supply
		DUOS EXTERNAL POWER CABLE DUOS repeater and DUOS transmitter power supply cable
		DUOS GATEWAY/REPEATER MOUNTING CLIP Stainless steel wall mounting clip

IOT PLATFORM

Tekon IoT Platform is a web-based platform that allows users to access, store, protect, and export critical data collected by Tekon Electronics wired and wireless sensors. The software complements our wireless product portfolio and provides customers with complete end-to-end IIoT solutions to solve the Industrial markets most pressing problems.

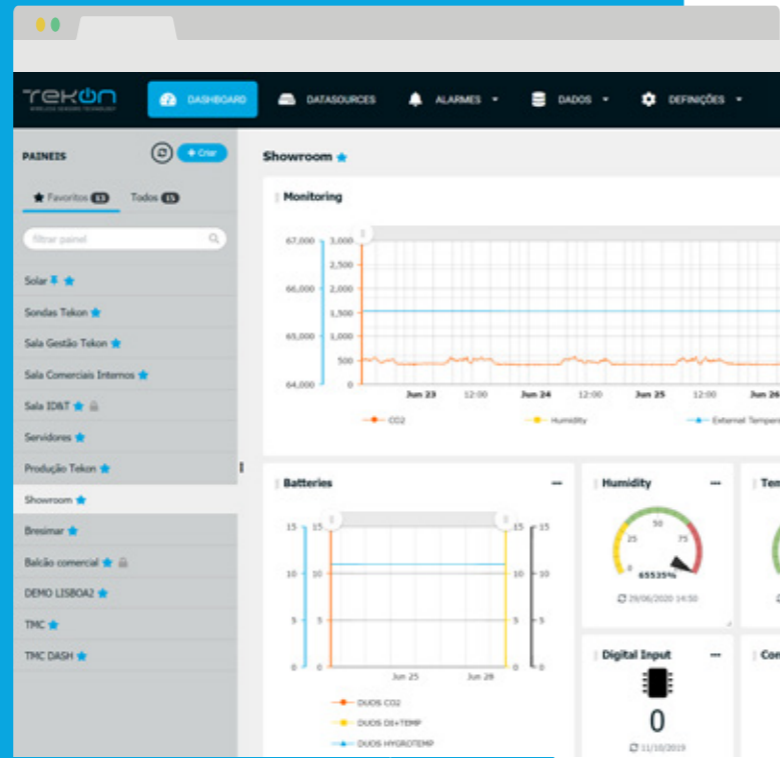
Use of digitalization offers new possibilities for optimizing manufacturing processes by leveraging data analytics through cloud-based systems. New communication methods for automation systems via standards based open protocols such as MQTT is helping users fully integrate components regardless of manufacturer.



Your Online Datalogger

Connect, optimize, and scale your digital industrial applications

TEKON IOT PLATFORM



KEY FEATURES

Alarms and Notifications

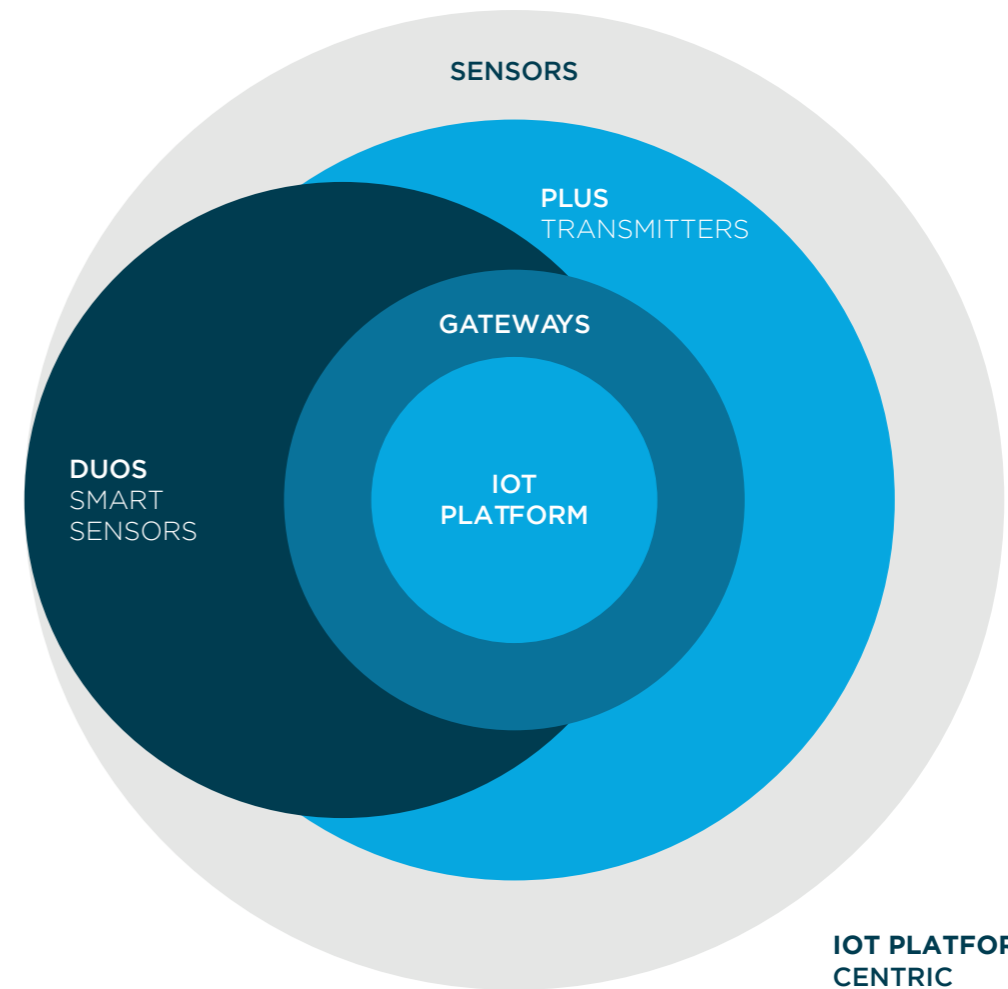
IoT Data Encryption

Third-party integration

Web-based platform

Asset monitoring and event management is the cornerstone of industrial digital transformation and the first step that most companies will take in harnessing the power of cloud-based IIoT. Centralizing assets and data, visualizing, applying analytics and acting on the results opens the door to reduced downtime, lower maintenance costs, and many other concrete benefits.

The implementation of cloud-based IoT solutions will bring a clear overview of the operations, with direct improvements in the production processes and with the profitability of the collected IoT data.



Data Storage for more than 2 years *

* for longer periods, only on request

Capabilities delivered by Tekon IoT Platform

- Reliable devices, sensors and gateways connection
- Secure access management
- Visualization of data from multiple sources within one dashboard
- Management and analysis IoT data

TEKON IOT PLATFORM - Subscription Plan

Tekon Electronics is offering a subscription of a SMS service with 100 SMS's so that you can receive notifications from Tekon IoT Platform on your mobile phone. You can order extra SMS packs to continue receiving instantly alarm notifications from your application.

UP TO 5 SENSORS	UP TO 10 SENSORS	UP TO 25 SENSORS	UP TO 50 SENSORS
UP TO 100 SENSORS	UP TO 250 SENSORS	UP TO 999 SENSORS	ON PREMISES

SMS SERVICE

Tekon Electronics is offering a subscription of a SMS service with 100 SMS's so that you can receive notifications from Tekon IoT Platform on your mobile phone. You can order extra SMS packs to continue receiving instantly alarm notifications from your application.

100 SMS	500 SMS	1000 SMS	> 1000 SMS Under Request
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ALARMS

An efficient monitoring is supported by the establishment of an alarm system that shapes a security layer in your application. The assignment of reference values to the most critical and necessary processes to guarantee a high availability of your application, provides a monitoring centered on the most relevant variables. In addition to the alarms, the user can define external notification channels, such as email and SMS, that inform the selected recipients of the occurrence of the alarms.

REPORTING

The periodic analysis of data establishes a consistent analytical methodology in which the timeliness of the stipulated data has an increased relevance. The reporting feature has a set of editable parameters where the user defines the intervals and the information that will appear in his report. The combination of all information allows access to a document that conveys an integral view of its application, within the stipulated time frame.

THIRD-PARTY CONNECTIVITY

Tekon IoT Platform has supported the integration of devices from other manufacturers, expanding its use in several applications. The extension of connectivity to third-party devices is enabled by the adoption of web-based protocol solutions, which promote the exchange of data between digital endpoints.

The MQTT communication protocol and the REST API architectural style are currently providing communication between non-Tekon Electronics devices and the Tekon IoT Platform. Our technical team is assisting customers in all integration procedures supported by these universally known methods.

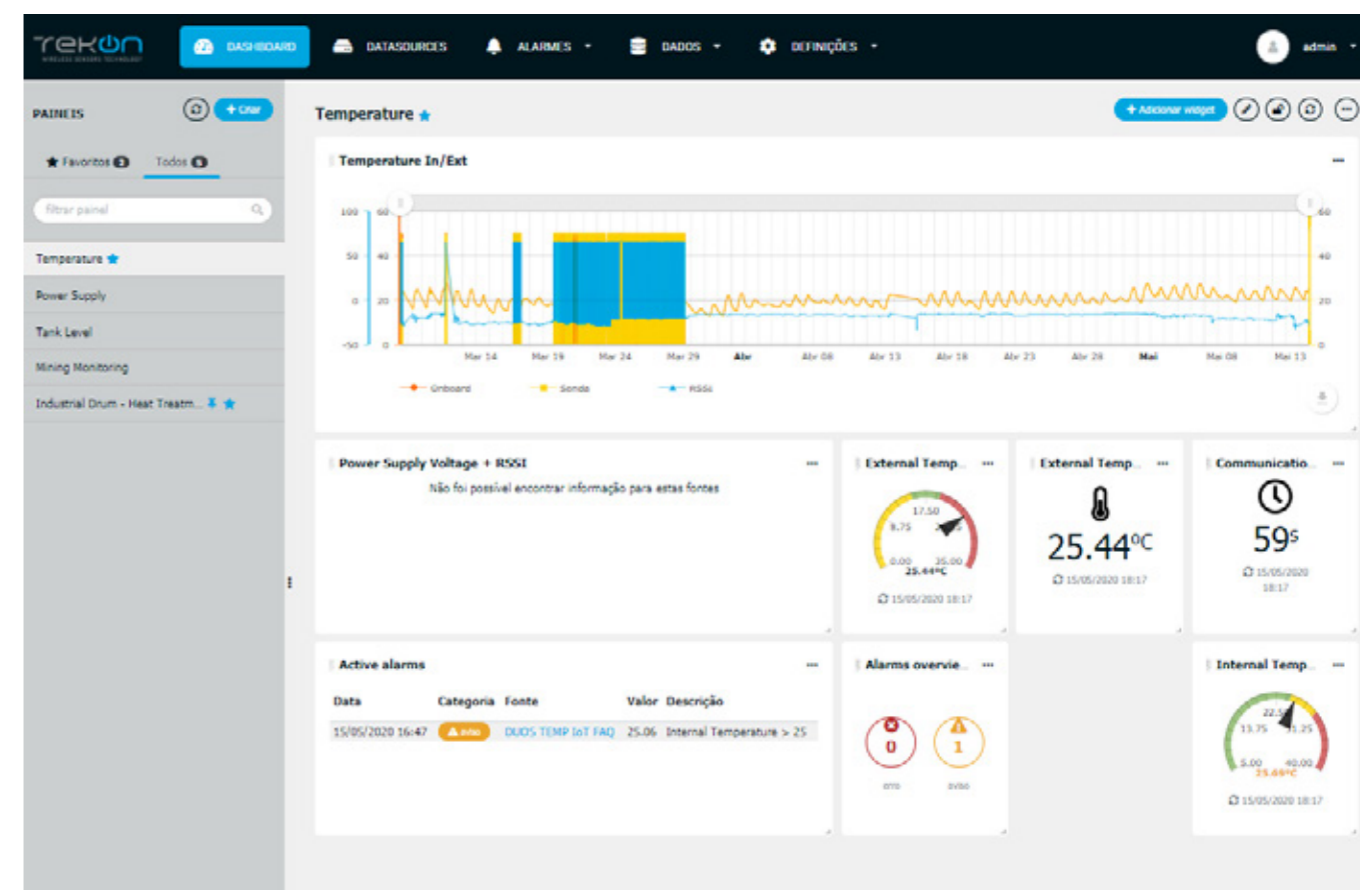


DATA ANALYSIS

Data is an important asset for organizations. Its visualization and analysis bring new points of view of the applications, where detail is essential in helping to implement measures that aim to add value to the business and improve efficiency rates.

At Tekon IoT Platform, users can count with a section entirely dedicated to the analysis of data collected by datasources. This functionality is entirely configured by the user, in order to adapt his analysis to his specific application.

In this section, the user can set parameters that are traditionally associated with data analysis - type of aggregation, time interval, granularity, etc. All analyses performed can be printed or exported to files with formats such as PDF, JSON, CSV, XSLX, among others.



WIRED TRANSMITTERS



Tekon Electronics is a global, customer-oriented partner for reliable monitoring solutions.

Our product range covers Wireless Sensors, Wireless Transmitters, Wired Transmitters, Software, Probes and Accessories.

We are committed with the development of innovative solutions, delivering products of the highest quality, fulfilling the needs of each customer.

Along with our quality products and solutions, our brand is one of our most valuable assets. We also work with customized products and application solutions, frequently in close collaboration with our customers.

INHEAD

Wired Sensors



THM501

PT100 TEMPERATURE TRANSMITTER

KEY FEATURES

RS-485 Output

PT100 sensor input

High precision and accuracy

Sensor cable resistance and output current compensation

Type DIN B connection head compatible

THM501 is a temperature transmitter which accepts exclusively PT100 temperature sensors (with 2,3 or 4-wire configuration), and make it available in a Modbus RTU slave register.

VERSION REFERENCE

PA151700100

TECHNICAL SPECIFICATIONS Data applicable at 23°C

INPUT	Measured variable	Temperature
	Sensor type	PT100
	Connection	2 wires, 3 wires or 4 wires
	Units	°C
	Sensor current	600uA (2 or 4 wires); 300uA (3 wires)
	Response time	<100 ms
OUTPUT-MODBUS	Measuring range	-200°C to 850°C
	Physical layer	RS-485
	Slave address range	1 to 100
	Support baud rates	4800, 9600, 19200, 38400, 56000, 57600, 115200
	Supported parity	Odd/Even/None
	Response time	<100ms
OPERATING ENVIRONMENT	Communication start up time (after power ON)	10s
	Temperature range	-20 to 80°C
	Relative humidity	≤95%, without condensation

ACCESSORIES



RS485 TO USB CONVERTER CABLE

Cable to connect WG410 Gateway to an USB port

INHEAD

Wired Sensors



THP101

PT100 TEMPERATURE
HEAD TRANSMITTER

KEY FEATURES

4 to 20 mA Output

PT100 sensor input

High precision and accuracy

Status LED's and test pads

NAMUR NE43 compliant

**Sensor cable resistance and current
output compensation**

Type DIN B connection head compatible

THP101 is a PT100 temperature head transmitter to comply with the most simple applications. Supporting a current output and a sensor cable resistance compensation, it is a highly used commodity in multi-faceted scenarios.

VERSION
REFERENCE

PA132720110

TECHNICAL SPECIFICATIONS Data applicable at 23°C

INPUT RESISTANCE THERMOMETER	Sensor type	PT100
	Connection	1 Resistance thermometer (RTD) in 2-wire, 3-wire or 4-wire system
	Units	°C
	Sensor current	600uA (2 or 4 wires); 300uA (3 wires)
	Response time	<500 ms
OUTPUT	Output signal	4 to 20mA
	Power supply (Uaux)	9 to 30 V DC
	Max. load	(Uaux - 9)/0.022A
	Over range	3 to 22 mA
	Error signal (e.g. Following sensor fault) (conforming to NE43)	Software configurable ≤3,6mA or ≥21mA
	Sample cycle	<1s
	Protection	Against reversed polarity - Surge protection
OPERATING ENVIRONMENT	-20 to 80°C	

ACCESSORIES



SARC2 - USB CONFIGURATOR

Connection between a PC USB port and THP101/THT201 universal temperature head transmitters

INHEAD

Wired Sensors



THT201

THERMOCOUPLE TEMPERATURE HEAD TRANSMITTER

KEY FEATURES

4 to 20 mA Output

Universal thermocouple sensor input E, J, K, N, R, S and T

High precision and accuracy

Status LED's and test pads

NAMUR NE43 compliant

Cold-junction and output current compensation

Type DIN B connection head compatible

THT201 is a thermocouple temperature head transmitter to comply with the most simple applications. It is a highly used commodity in multi-faceted scenarios.

VERSION REFERENCE

PA132720210

TECHNICAL SPECIFICATIONS Data applicable at 23°C

INPUT THERMOCOUPLE	Sensor type	Thermocouples: E, J, K, N, R, S, T
	Open-circuit monitoring	Always active (cannot be disabled)
	Short-circuit monitoring	Not available
	Cold junction compensation (CJC)	Integrated resistance thermometer
	Measuring range	Configurable (see table "Digital measuring errors")
OUTPUT	Output signal	4 to 20mA
	Power supply (Uaux)	9 to 30 V DC
	Max. load	(Uaux - 9)/0.022A
	Over range	3 to 22 mA
	Error signal (e.g. Following sensor fault) (conforming to NE43)	Software configurable $\leq 3,6\text{mA}$ or $\geq 21\text{mA}$
	Sample cycle	<1s
	Protection	Against reversed polarity - Surge protection
OPERATING ENVIRONMENT	-20 to 80°C	

ACCESSORIES



SARC2 - USB CONFIGURATOR

Connection between a PC USB port and THP101/THT201 universal temperature head transmitters

INHEAD

Wired Sensors



THP102-I

PT100 ISOLATED TEMPERATURE HEAD TRANSMITTER

KEY FEATURES

Galvanic Isolation 1,5kV AC

PT100 Sensor Input

2 Status LEDs

High Measurement Accuracy

High EMC Performance

NAMUR NE 43 Compliant

Galvanic isolation grant an improved EMC performance and eradicate major measurement errors, turning THP102-I in a reliable head transmitter to comply with several applications where PT100 probes are being used.

VERSION
REFERENCE

PA183120110

TECHNICAL SPECIFICATIONS Data applicable at 23°C

INPUT RESISTANCE THERMOMETER	
Sensor type	PT100
Connection	1 Resistance thermometer (RTD) in 3-wire system
Units	°C
Sensor current	200 µA
OUTPUT	
Output signal	4 to 20mA
Power supply (Uaux)	12 to 24V DC
Max. load	(Uaux - 9)/0.021A
Error signal [e.g. Following sensor fault] [conforming to NE43]	Software configurable 3,2mA or 21mA
Sample cycle	< 200ms
Protection	Against reversed polarity - Surge protection
COMMON SPECIFICATIONS	
Isolation voltage [test operation]	1,5 kV AC 48 V AC
Internal power dissipation	40 mW to 0,5 W
Voltage drop	12V DC
Effect of supply voltage variation	< 0,003% of span/ V DC
Response time 90%	< 1s
Power-up time	< 1s
OPERATING ENVIRONMENT	
Temperature range	-40 to 80°C
Relative humidity	≤95%, without condensation

INHEAD

Wired Sensors

THT202-I

THERMOCOUPLE ISOLATED
TEMPERATURE HEAD TRANSMITTER



KEY FEATURES

4 to 20 mA Output

Galvanic Isolation 1,5kV AC

Thermocouple Sensor Input (J,K,N,R,S,T)

Wide Measurement Range

2 Status LEDs

High Measurement Accuracy

High EMC Performance

NAMUR NE 43 Compliant

Galvanic isolation grant an improved EMC performance and eradicate major measurement errors, turning THT202-I in a reliable head transmitter to comply with several applications where thermocouple probes are being used.

VERSION
REFERENCE

PA183120210

TECHNICAL SPECIFICATIONS Data applicable at 23°C

INPUT THERMOCOUPLES	Sensor type	Thermocouples: J, K, N, R, S, T
	Connection	1 Thermocouple [TC]
	Units	°C
	Sensor current	<11 nA
	Cold junction compensation [CJC]	Integrated resistance thermometer
OUTPUT	Output signal	4 to 20mA
	Power supply (Uaux)	12 to 24V DC
	Max. load	(Uaux - 12)/0.021A
	Error signal (e.g. Following sensor fault) (conforming to NE43)	Software configurable 3,2mA or 21mA
	Sample cycle	< 200ms
Protection	Against reversed polarity - Surge protection	
COMMON SPECIFICATIONS	Isolation voltage (test operation)	1,5 kV AC 48 V AC
	Internal power dissipation	40 mW to 0,5 W
	Voltage drop	12V DC
	Effect of supply voltage variation	< 0,003% of span/ V DC
	Response time 90%	< 1s
Power-up time	< 600ms	
OPERATING ENVIRONMENT	Temperature range	-40 to 80°C
	Relative humidity	≤95%, without condensation

INHEAD

Wired Sensors



THU301-I

UNIVERSAL TEMPERATURE ISOLATED TRANSMITTER

KEY FEATURES

4 to 20 mA Output

Galvanic Isolation 1,5kV AC

Universal Sensor Input
 Thermocouple J,K,N,R,S,T; PT100, PT500 and PT1000 RTD

Wide Measurement Range

2 Status LEDs

High Measurement Accuracy

High EMC Performance

NAMUR NE 43 Fault Compliant

Galvanic isolation grant an improved EMC performance and eradicate major measurement errors, turning THU301-I in a reliable head transmitter to comply with several applications where thermocouple probes are being used.

VERSION REFERENCE

PA183120010

TECHNICAL SPECIFICATIONS Data applicable at 23°C

INPUT		TEMPERATURE	
Measured variable	Temperature	Temperature	Temperature
Sensor type	PT100, PT500, PT1000	J, K, N, R, S, T	J, K, N, R, S, T
Connection	1 Resistance thermometer*	TC	1 Thermocouple (TC)
Units	°C	TC	°C
Sensor current	200 µA		<11 nA
Minimum measured span	50°C		50°C

*RTD in 2-wire, 3-wire or 4-wire system.

OUTPUT	
Output signal	4 to 20 mA
Power supply (Uaux)	12 to 24V DC
Max. load	(Uaux - 12) / 0.021 A
Error signal (e.g. following sensor fault) (conforming to NE43)	Software configurable 3,2mA or 21mA
Sample cycle	< 200ms
Protection	Against reversed polarity - Surge protection

OPERATING ENVIRONMENT	
Temperature range	-40 to 80°C
Relative humidity	≤95%, without condensation

INHEAD

Wired Sensors



THU1102

UNIVERSAL TEMPERATURE TRANSMITTER

KEY FEATURES

4 to 20 mA Output

Universal sensor input (RTD, thermocouple, etc)

High precision and accuracy with low operating temperature drift

NAMUR NE43 compliant

Cold-junction, sensor cable resistance and output current compensation

Type DIN B connection head compatible

THU1102 is an universal temperature head transmitter to comply with different applications. Supporting a current output, sensor cable resistance and cold-junction compensation, it is a highly used commodity in multi-faceted scenarios.

VERSION REFERENCE

PA110020100

TECHNICAL SPECIFICATIONS Data applicable at 23°C

INPUT	Measured variable	Temperature	Resistance	Temperature	DC Voltage
	Sensor type	PT100, PT500, PT1000	Resistance, potentiometers	E, J, K, N, R, S, T	DC Voltage source
Connection	1 Resistance thermometer*	2-wire	1 Thermocouple (TC)	-	
Units	°C	Ω	°C	mV	
Sensor current	<0,05 mA (50 uA)	<0,05 mA (50 uA)	<0,05 mA (50 uA)	-	
Response time	<500 ms	<500 ms	<500 ms	<500 ms	

*RTD in 2-wire, 3-wire or 4-wire system.

OUTPUT	Output signal	4 to 20 mA
	Power supply (Uaux)	9 to 30V DC
Max. load	(Uaux - 9) / 0.022 A	
Overrange	3 to 22 mA	
Error signal (e.g. following sensor fault) (conforming to NE43)	Software configurable ≤ 3,6mA or ≥ 21mA	
Sample cycle	<1s	
Protection	Against reversed polarity - Surge protection	

OPERATING ENVIRONMENT

Temperature range	-20 to 80°C
Relative humidity	≤95%, without condensation

ACCESSORIES



SARC1105 - USB CONFIGURATOR

Connection between a PC USB port and THU1102 universal temperature head transmitter;



Tekon Electronics has a department specialized in the production of temperature probes for a wide range of industries.

For reliable measurements, even in the harshest of conditions, we produce a wide variety of industrial temperature sensors, both resistance thermometers and thermocouples.

From general proposed, corrosion resistant, surface probes, flanged thermocouple, protection head design, industrial, precious metal sheathed.

Competence and professionalism ensure the production of reliable solutions and increased quality.

Customer requests are answered with the major promptness and are always followed by advice from a team with extensive experience in the producing of temperature and level measurement solutions.

PROBES

Temperature and level probes



KEY FEATURES

OEM

Production according specifications

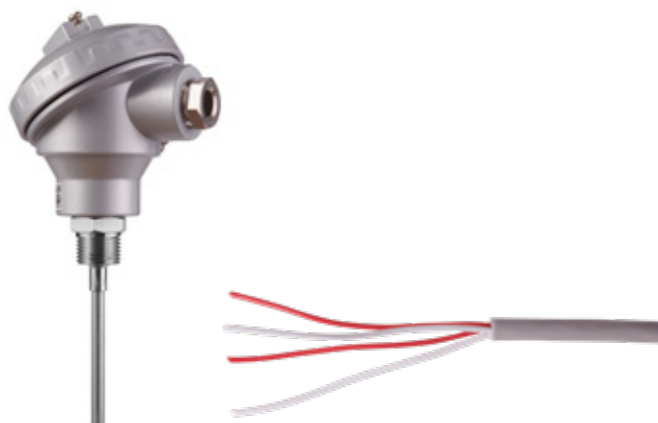
Assembly

Tekon has a department specialized in the production of temperature probes for a wide range of industries. Competence and professionalism ensure the production of reliable solutions and increased quality. Customer requests are answered with the major promptness and are always followed by advice from a team with extensive experience in the producing of temperature and level measurement solutions.

Contact us for more information on probes completely produced according to the specific requirements of your process.

RTD

Resistance Temperature Detector (RTD) temperature probes, are featured by the acquisition of temperature through thermoresistors made of metals with fluctuation of electrical resistance. The stability guaranteed by this type of sensors, makes them widely used in various applications. The most common types of RTD's on the market - PT100 and PT1000 - and special - PT120, PT500 and PT10000 - can be divided into several accuracy classes: B, A, 1/3 and 1/10. Tekon Electronics produces single RTD temperature probes with 2, 3 or 4 wire connections and double probes with 4 or 6 wire connection.



INCONEL

Our experienced production team is able to build thermocouple probes with an inconel coating, ensuring that all the necessary requirements from storage to the production process are protected in order to obtain a final product with high quality.

THERMOCOUPLES

Thermocouple sensors consist on two wires of different types of materials, fused at a single point, creating a thermal junction. When this junction experiences a temperature change, is created a voltage that is proportional to the temperature difference between the connection terminals and the junction. The most frequent thermocouple types are J, K, N, S, R, T and E. The special thermocouple types B, G, C and D are used in environments with temperatures that can reach 2600°C. The choice of the thermocouple must consider the following specifications:

- Temperature range;
- Accuracy;
- Work conditions.

THERMISTOR

Thermistors are temperature sensors that vary the resistance of the semiconductor element according to the temperature to which they are exposed. There are two types of thermistors:

- **NTC** (Negative Temperature Coefficient) - thermistors whose coefficient of resistance variation with temperature is negative: resistance decreased with increasing temperature.
- **PTC** (Positive Temperature Coefficient) - thermistors whose coefficient of resistance variation with temperature is positive: resistance increases with increasing temperature.

Thermistors have a high thermal coefficient which gives them a high sensitivity, causing great resistance variations for small temperature variations.



LEVEL

Tekon Electronics is also dedicated to the production of magnetic level probes, easy to install and oriented to vertical assemblies. The level probes can contain up to 5 detection points, operating in applications with temperatures up to 125°C and 10 bar pressure.



REFERENCE TABLE

	PRODUCT DESIGNATION	HOUSING COLOR	REFERENCE		
			868 MHz	915 MHz	2,4 GHz
PLUS	PLUS TWP4AI Wireless Transmitter		PA164510110	PA164510120	-
	PLUS TWP-4AI4DI1UT Wireless Transmitter		PA164510610	PA164510620	-
	PLUS TWP4-1UT Wireless Transmitter		PA164510510	PA164510520	-
	PLUS WGW420 Wireless Gateway		PA164510210	PA164510220	-
	PLUS WRP001 Wireless Repeater		PA164510310	PA164510320	-
ONE	ONE THW401 Wireless Temperature Transmitter		PA123720200	-	PA123720100
	ONE WGW410 Wireless Modbus Gateway		PA123730100	-	PA123710100
DUOS	DUOS TEMP Wireless Transmitter Built-in Probe	BLACK	PA160411710	PA160411730	-
		WHITE	PA160411720	PA160411740	-
	DUOS TEMP Wireless Transmitter	BLACK	PA160410110	PA160410130	-
		WHITE	PA160410120	PA160410140	-
	DUOS HYGROTEMP Wireless Transmitter	BLACK	PA164520110	PA164520130	-
		WHITE	PA164520120	PA164520140	-
	DUOS Di+TEMP Wireless Transmitter	BLACK	PA160411210	PA160411230	-
		WHITE	PA160411220	PA160411240	-
	DUOS CO2 Wireless Transmitter	BLACK	PA160411110	PA160411130	-
		WHITE	PA160411120	PA160411140	-
	DUOS Gateway	BLACK	PA160410210	PA160410250	-
		WHITE	PA160410230	PA160410270	-
	DUOS IoT Gateway	BLACK	PA160410220	PA160410260	-
		WHITE	PA160410240	PA160410280	-
	DUOS Repeater	BLACK	PA160410310	PA160410330	-
		WHITE	PA160410320	PA160410340	-
INHEAD	THP101 PT100 Temperature Transmitter			PA132720110	
	THT201 Thermocouple Temperature Transmitter			PA132720210	
	THP102-I PT100 Isolated Head Transmitter			PA183120110	
	THT202-I Thermocouple Isolated Head Transmitter			PA183120210	
	THU301-1 Universal Isolated Head Transmitter			PA183120010	
	THU1102 Universal Temperature Transmitter			PA110020100	
	THM501 PT100 Temperature Transmitter With Modbus output			PA151700100	

ACCESSORIES

	PRODUCT DESIGNATION	REFERENCE
PLUS	Antenna Cable Extension 2MT	PA123772100
	Buz Connection Head For Wireless Transmitters	PA123790200
	RS485 To USB Converter Cable	PA123790400
ONE	RS485 To USB Converter Cable	PA123790400
	Connection Head	PA123790200
	Buz Connection Head For Wireless Transmitters	PA123790200
DUOS	Transmitter SARC	PA160410005
	Power Supply Type A	PA160412810
	Power Supply Type G	PA160412710
	Power Supply Type C	PA160410006
	Gateway External Cable	PA160410007
	External Power Cable	PA160410008
	Transmitter Mounting Clip	PA160410910
	Transmitter Mounting Bracket	PA160410810
	Gateway/Repeater Mounting Clip	PA160411010
	Digital Temperature Probe	PA160410001
	Digital Temperature Probe with 2MT Cable	PA160410002
	Digital Temperature Probe with 5MT Cable	PA160410003
	Humidity + Temperature Probe TK07-PFT5	PA164520001
	Humidity + Temperature Probe TK07-PFT5 With 2Mt Cable	PA164520004
	CO2 Probe TK871-HR5000J2	PA160410010
	CO2 Probe TK871-HR5000J2 With 2MT Cable	PA160410011
Di+TEMP External Cable	PA160410009	
INHEAD	SARC1105 – USB Configurator	PA110050100
	SARC2 – USB Configurator	PA132720310

STARTER KITS

PLUS Starter Kit

How to customize your PLUS starter kit?

1. Choose your transmitter
2. PLUS WGW420 wireless gateway and all necessary accessories will be automatically added to the starter kit

ONE Starter Kit

The starter kit with products from ONE wireless family is arranged with the following references

THW401 wireless transmitter + WGW410 wireless gateway + Connection Head with a type K thermocouple probe + antennas and accessories

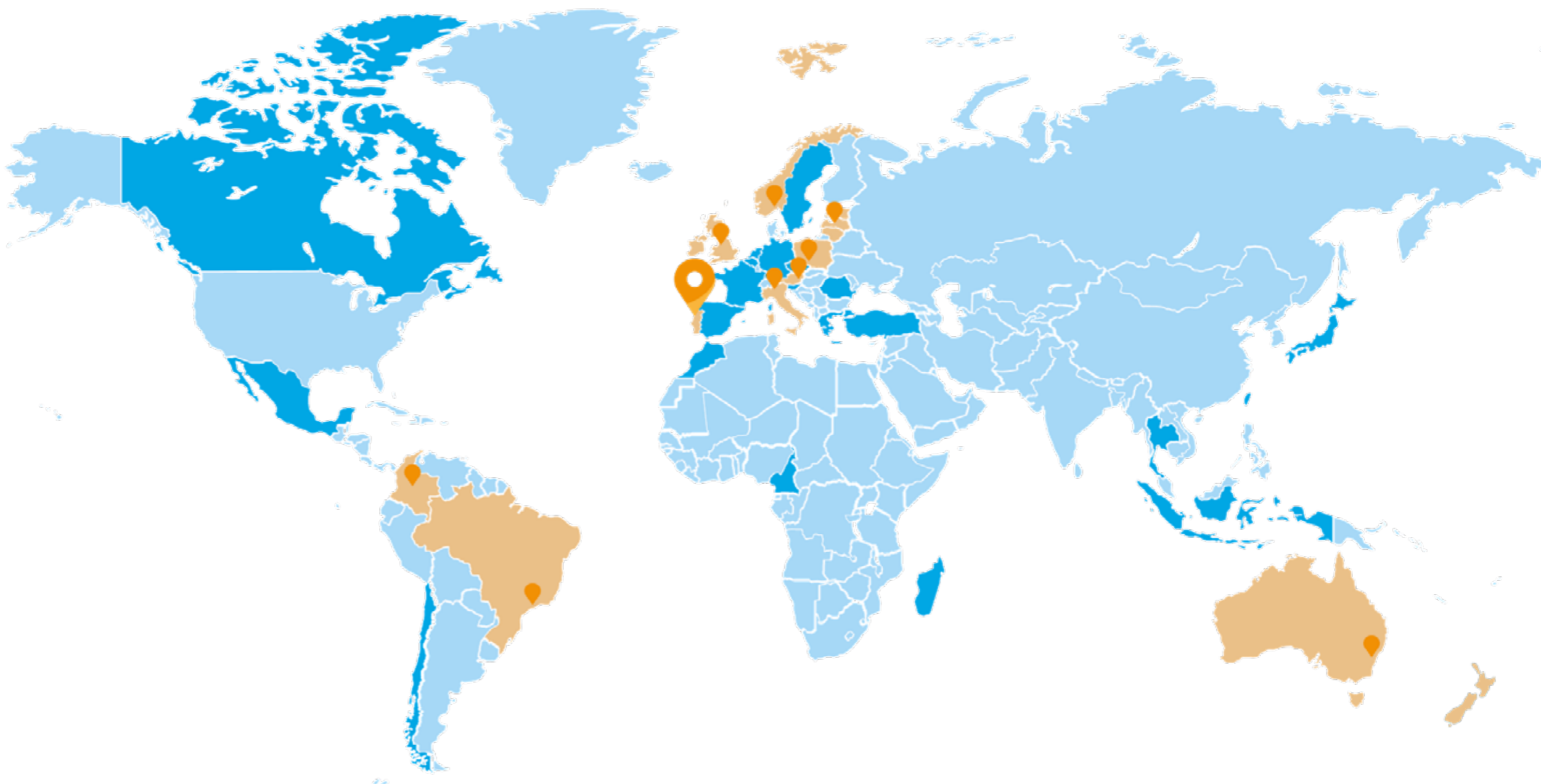
DUOS Starter Kit

How to customize your DUOS starter kit?

1. Choose your transmitter
2. Select the type of probe for your transmitter
3. Choose your gateway
4. All necessary accessories will be automatically added to the starter kit



TEKON ELECTRONICS WORLDWIDE



-  Headquarters
-  Local Distributors
-  Product Presence

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