TEKON
WIRELESS SENSORS TECHNOLOGY

-40°C 80°C

IP67 PROTECTION

WIRELESS TRANSMITTER DUOS TEMP 868MHz

REF.: PA160410110

IoT ready

Tekon Wireless Transmitter DUOS Temp is the perfect temperature wireless solution for monitoring applications, automation and centralization of temperature measurements throughout the production substances, distribution and storage of refrigerated foods, frozen and deep-frozen, HVAC and other industry processes.

Equipped with a smart dual probe transmitter, it allows the user to monitor not only the air temperature but also the product temperature, thanks to the second enclosed probe.

Dimensions: 162 x 88.5 x 25 mm

Weight: 100 g

Material: ABS UL94HB

Protection Index: IP67

KEY FEATURES

−40 °C TO 125°C
TEMPERATURE SENSOR MEASUREMENT RANGE*

AGRIFOOD INDUSTRY COMPATIBILITY
COMPATIBLE WITH AGRIFOOD INDUSTRY STANDARDS

DUAL TEMPERATURE PROBE
INTERNAL AND EXTERNAL PROBE

WIRELESS LINK STRENGTH (RSSI)
AUTO DISCOVERY OF THE BEST WIRELESS LINK

LOW POWER AND LONG BATTERY LIFE
MEASUREMENT AND TRANSMISSION OF BATTERY VOLTAGE

WATER RESISTANT
IP67 PROTECTION

* The temperature measurement sensor range is related with the external temperature probes.

TECHNICAL SPECIFICATIONS

RADIO SPECIFICATIONS

Range[1]:	Up to 4 Km LoS, 868MHz, 27 dBm (0.5 W)
Minimum Separation Distance:	3 m, 868MHz, 27 dBm (0.5 W)
Radio Transmit Power:	0 to 27 dBm[2]
Radio Receiver Sensitivity:	-97 to -110 dBm[2]
Frequency Band:	868.050 to 869.575 MHz[2]
Radio Channels:	16, 868MHz
Radio Transmission Rate:	1.2 to 76.8 kbit/s[2]
Modulation:	GFSK
Encryption method:	AES 128 (Advanced Encryption Standard)

WIRELESS NETWORK

Maximum Devices:	55
Maximum Hops:	13
Communication Period:	1 to 43200 seconds (configurable)

TEMPERATURE MEASUREMENT — EXTERNAL PROBE

Range:	-40 to 125ºC
Resolution:	0.1 ºC
Accuracy:	Typical: ± 0.25 ºC / Maximum: ± 0.5 ºC
Sensor Type:	I2C digital sensor
Response Time:	1 second
Connector:	M8 female socket, 4 poles

TEMPERATURE MEASUREMENT — INTERNAL PROBE

Range:	-40 to 80 ºC
Resolution:	0.1 ºC
Accuracy:	Typical: ± 0.25 ºC / Maximum: ± 0.5 ºC
Sensor Type:	I2C digital sensor
Response Time:	1 second

SUPPLY VOLTAGE

3x3.6 AA lithium batteries (PN EVE ER14505M)

3 years of estimated battery life[3]

External power supply with 12 VDC ± 5%

Peak current draw of 500 mA

Supply voltage measurement accuracy ± 1 V DC

LOW BATTERY

	Tint > 25ºC	-25 < Tint < 25	Tint < -25
Voltage Threshold [VDC]	8,5	(Tint / 50) + 8	7,5

CRITICAL BATTERY

	Tint > 25ºC	-25 < Tint < 25	Tint < -25
Voltage Threshold [VDC]	8	(Tint / 50) + 7,5	7

[1] Range depends on the environment and line of sight. Always verify your wireless network's range by performing a Site Survey.

[2] Dependent on radio channel selection.

[3] Considering a communication period of 10 minutes, and maximum transmit power (27dBm) at 25 ºC, with PN EVE ER14505M batteries.

TEKONELECTRONICS.COM

INTERFACE

2 blue LED for wireless network address identification and general operation status

1 red LED and 1 green LED for wireless network operation status

1 magnetic reed switch for system reboot

1 M8 female socket with 5 poles for device configuration through host computer

OPERATING ENVIRONMENT

−40 °C to 80 °C

95% maximum relative humidity (non-condensing)

HOUSING

Dimensions:	162 x 88.5 x 25 mm
Weight:	100 g
Material:	ABS UL94HB
Protection Index:	IP67

FACTORY DEFAULT CONFIGURATION

Frequency:	869.525 MHz
Radio Transmit Power:	27 dBm
Radio Transmission Rate:	76.8 kbit/s
Wireless Network ID:	13
Wireless Device ID:	55
Communication Period:	10 seconds
Configuration time window at startup:	10 seconds

CERTIFICATIONS AND COMPLIANCE

EN 61326 Electrical equipment for measurement, control and laboratory use. EMC requirements.

IEC 61000-4-2 Radiated, Radio-Frequency, Electromagnetic Field Immunity Test

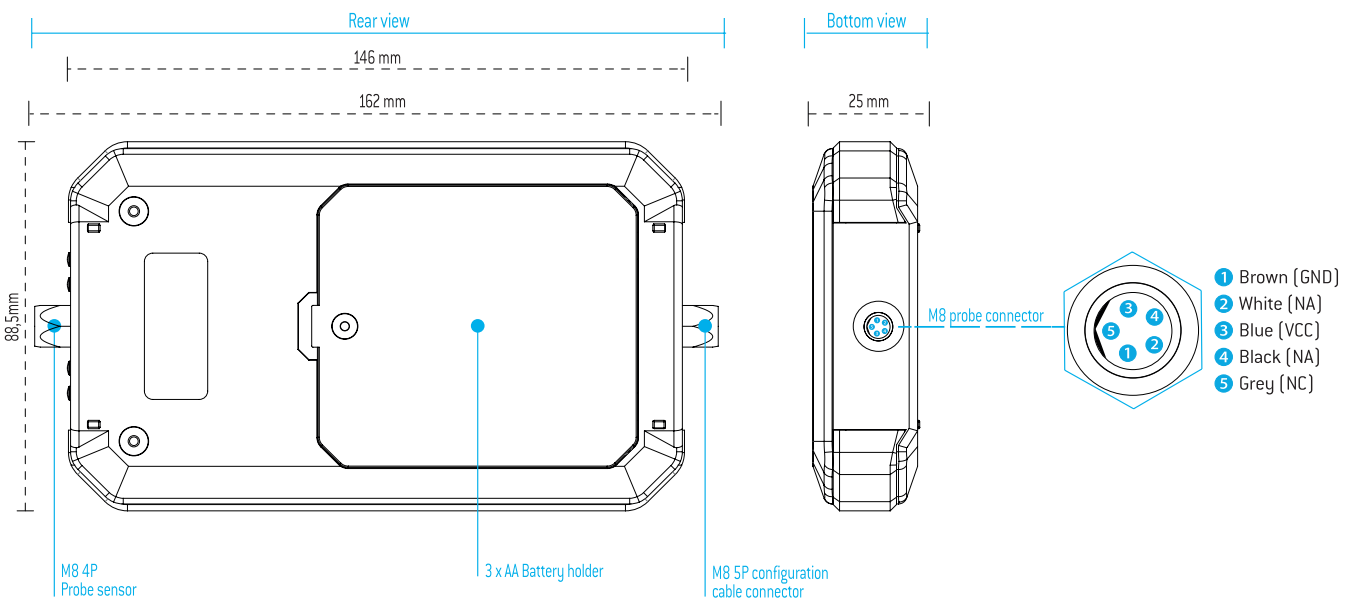IEC 61000-4-3 Electrical fast transient/burst immunity Test

IEC 61000-4-4 Surge Immunity Test

IEC 61000-4-5 Electrostatic discharge immunity test
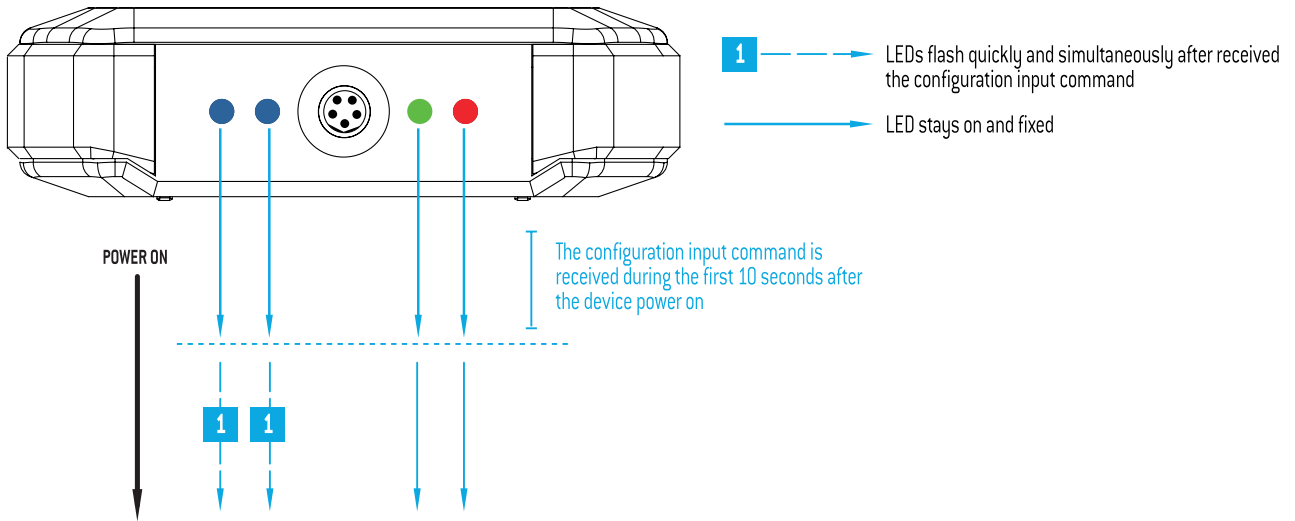
TECHNICAL DRAWINGS

DIMENSIONAL DRAWINGS AND INTERFACE DESIGN

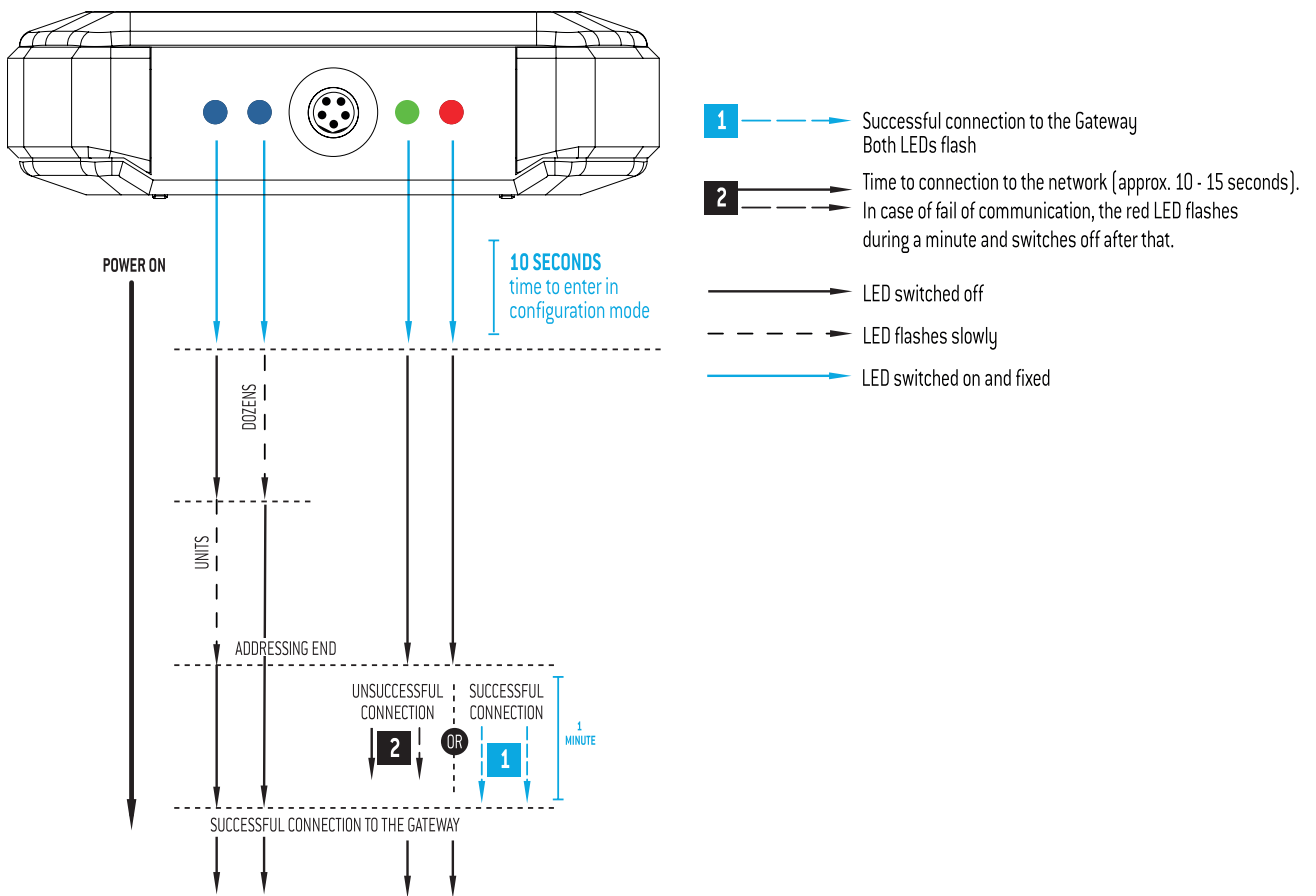### POWER SUPPLY AND COMMUNICATIONS CONNECTOR
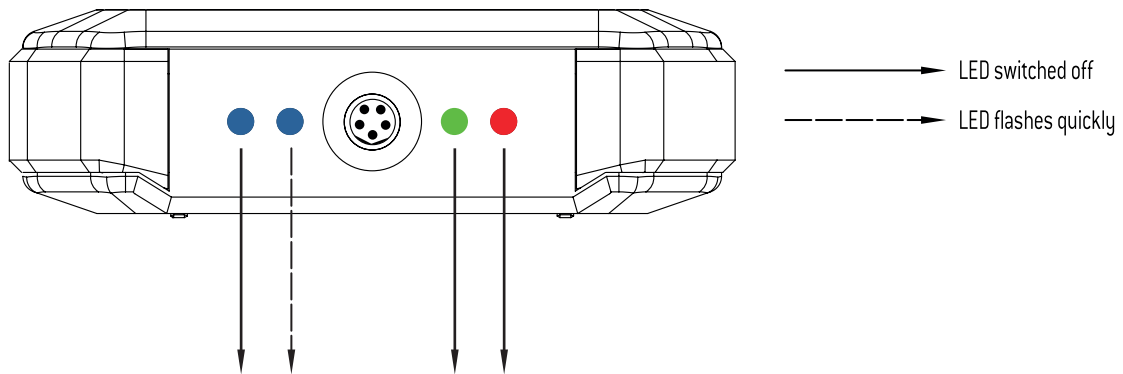

Rear view

146 mm

162 mm

88,5mm

Bottom view

25 mm

M8 probe connector

1 Brown (GND)
2 White (NA)
3 Blue (VCC)
4 Black (NA)
5 Grey (NC)

M8 4P
Probe sensor

3 x AA Battery holder

M8 5P configuration
cable connector

LEDS SIGNAGE

STARTING EQUIPMENT IN CONFIGURATION MODE

1 LEDs flash quickly and simultaneously after received the configuration input command

LED stays on and fixed

POWER ON

The configuration input command is received during the first 10 seconds after the device power on

STARTING EQUIPMENT NORMALLY

1 Successful connection to the Gateway
Both LEDs flash

2 Time to connection to the network (approx. 10 - 15 seconds).
In case of fail of communication, the red LED flashes during a minute and switches off after that.

LED switched off

LED flashes slowly

LED switched on and fixed

POWER ON

10 SECONDS
time to enter in configuration mode

DOZENS

UNITS

ADDRESSING END

UNSUCCESSFUL CONNECTION

SUCCESSFUL CONNECTION

2 OR **1**

1 MINUTE

SUCCESSFUL CONNECTION TO THE GATEWAY

TRANSMITTER FAILURE

LED switched off

LED flashes quickly

CRITICAL BATTERY LEVEL

CRITICAL BATTERY LEVEL
Device stops communication with Gateway
One LED stays permanently flashing at 0.5Hz (1 second on, 1 second off) and the remaining LEDs are switched off.

LED switched off

LED flashes slowly

ACCESSORIES

DUOS DIGITAL TEMPERATURE PROBE PLUG AND PLAY (PROBE PG)
REF.: PA160410001
Plug and Play DUOS external temperature probe with M8 connector.

DUOS DIGITAL TEMPERATURE PROBE 2M AND 5M
REF.: PA160410002 (2M) / REF.: PA160410003 (5M)
2M or 5M cable DUOS external temperature probe with M8 connector.

DUOS TRANSMITTER SARC
REF.: PA160410005
Cable used to configure DUOS Transmitter using Tekon Configuration software.

DUOS POWER SUPPLY 230VAC/ 12V DC
REF.: PA160410006
230V/50Hz Power supply cable to be used with the wireless gateway and repeater DUOS.

DUOS EXTERNAL POWER CABLE
REF.: PA160410008
DUOS Transmitter external power supply cable.

COMPLEMENTARY PRODUCTS

WIRELESS GATEWAY DUOS 868 MHZ
REF.: PA160410210

- Scalable network up to 55 DUOS transmitters;
- Up to 4 Km communication distance (LoS) with 128-bit AES encryption;
- Multiple networks simultaneously with extra gateways;
- Multi-hop mesh network with self-forming, self-healing and self-optimizing features;
- Modbus RTU communication protocol via RS-485 interface;
- Simple and intuitive USB configuration via Tekon Configurator (free software).

WIRELESS REPEATER DUOS 868 MHZ
REF.: PA160410310

- Up to 12 repeaters in series for extra-long range;
- Extra repeaters for network redundancy and robustness;
- Up to 4 Km communication distance (LoS) with 128-bit AES encryption;
- Multi-hop mesh network with self-forming, self-healing and self-optimizing features;
- Simple and intuitive USB configuration via Tekon Configurator (free software).

TEKON ELECTRONICS
a brand of Bresimar Automação S.A.

Quinta do Simão
3800-230 Aveiro
PORTUGAL

P.: +351 234 303 320
M.: +351 933 033 250
E.: sales@tekonelectronics.com

Cofinanciado por: