

PLUS TWP-2UT WIRELESS TRANSMITTER



PLUS TWP-2UT Wireless Transmitter System is a solution to easily gather the temperature data needed to identify production issues and implement measures to increase efficiency and prevent future disruptions.

PLUS TWP-2UT Wireless Transmitter was designed to monitor universal temperature inputs, providing a secure communication, without cable requirements of a complex wired solution.

Dimensions: 120 x 90 x 50 mm

Weight: 314 g

Material: ASA+PC-FR (UL 94 V-0) / Polycarbonate

Protection Index: IP65

KEY FEATURES

2 UNIVERSAL TEMPERATURE INPUTS

1 REMOTE SWITCH OUTPUT

UP TO 4 KM COMMUNICATION DISTANCE (LOS)

MULTI-HOP MESH NETWORK

WITH SELF-FORMING, SELF-HEALING AND SELF-OPTIMIZING FEATURES

OPERATING MODE

AS END DEVICE / AS REPEATER

SITE SURVEY FEATURE

SIMPLE AND INTUITIVE USB CONFIGURATION

TEKON CONFIGURATOR SOFTWARE

DS_PLUS_TWP-2UT_E01A

TECHNICAL SPECIFICATIONS

RADIO SPECIFICATIONS	868MHZ	915MHZ
Range ¹	Up to 4Km LoS	
Frequency Band	868 to 869MHz	902 to 928MHz ⁴
Radio channels	16	50 ⁵
Radio receiver sensitivity ²	-97 to -110 dBm	
Power ²	25 to 27 dBm	8 to 27 dBm
Radio transmission rate ²	19 to 76,8kbit/s	
Encryption method	AES 128 (Advanced Encryption Standard)	
Modulation	GFSK	
Connection	SMA	
Antenna	Articulated dipole antenna	
Antenna impedance	50Ω	

WIRELESS NETWORK

Maximum devices	55
Maximum hops	13
Communication period	1 to 43200 seconds (configurable)

INTERNAL TEMPERATURE

Range	-30 to 80°C
Resolution	0,01°C
Accuracy	± 0,50°C
Sensor type	NTC

INPUT RESISTANCE THERMOMETER (RTD)

Measured variable	Temperature
Sensor type	PT100
Units	°C
Connection	1 Resistance thermometer (RTD) in 2, 3 and 4-wire system
Sensor current	200µA
Open-circuit monitoring	Always active (cannot be disabled)
Short-circuit monitoring	Always active (cannot be disabled)
Measuring range	See "Digital measuring accuracy" table
Cable resistance per wire (max.)	50 Ω

INPUT THERMOCOUPLES (TC)

Measured variable	Temperature
Sensor type	Thermocouples: C, J, K, N, R, S, T
Units	°C
Connection	1 Thermocouple
Open-circuit monitoring	Always active (cannot be disabled)
Short-circuit monitoring	Not available
Cold junction compensation (CJC)	Integrated resistance thermometer

Measuring range	See “Digital measuring accuracy” table	
MEASUREMENT ACCURACY		
Reference conditions		
Power supply	12V DC ± 1%	
Ambient temperature	23°C	
Digital measuring errors	See table “Digital measuring accuracy” table	
Internal cold junction		
Accuracy	< ± 0,50 °C	
Resolution	0,01 °C	
Influence of ambient temperature		
on RTD measurement	< ± 0,001 °C / °C	
on thermocouple	Thermocouples C, J, K, N, T: ≤ ± 0,005 °C / °C Thermocouple R: ≤ ± 0,010 °C / °C Thermocouple S: ≤ ± 0,2 °C / °C	
DIGITAL OUTPUT - REMOTE OUTPUT		
Range	5 to 24V DC	
Type	Sinking / NPN	
Maximum current protection	90mA	
Start state	ON / OFF / last state ³	
Communication loss state	ON / OFF / last state ³	
Event number activation	N/A	
Activation period before communication	N/A	
POWER SUPPLY		
Supply voltage	5 to 24V DC ± 5% / USB ⁶	
Maximum current	500mA DC @ 5V DC / 100mA DC @ 24V DC	
Protection against reverse polarity		
INTERFACE		
Indication	Frontal Panel LED	
Switches	External - Site Survey activation Internal - Load Default Factory Settings	
Configuration	Internal micro USB connector	
MECHANICAL INTERFACE		
Push-in spring terminal blocks (internal)		
Bucins PG-7		
1.5mm ² (0.0591in ²)		
Micro USB internal connector		
OPERATING ENVIRONMENT		
ENVIRONMENTAL CONDITIONS		STORAGE CONDITIONS
Temperature	-30 to 80°C	
Relative humidity	N/A	≤ 95% (non- condensing)

CASING	
Dimensions	120 x 90 x 50 mm
Weight	314 g
Material	ASA+PC-FR (UL 94 V-0) / Polycarbonate
Protection index	IP65

FACTORY DEFAULT SETTINGS	868MHZ	915MHZ
Frequency	869,525MHz	915,000MHz
Radio transmit power	27dBm	
Radio transmission rate	76,8kbit/s	
Wireless channel	13	26
Wireless network ID	13042017	
Communication period	10 seconds	
Gateway modbus index	1	
Sensor Input 1/2	PT100 3W / PT100 3W	
Digital output - Remote output	OFF	
Operating mode	End Device	

CERTIFICATIONS AND APPROVALS
EN 61326-1 - Class B - Industrial Requirements
EN 300 220-2 V3.1.1
EN 301 489-1 V2.2.1
EN 301 489-3 V2.1.1
EN 60950-1:2006
EN 61326-1:2013
ETSI EN 301 489-1 V1.9.2

¹ Range depends on the RF propagation environment and Line of Sight (LoS). Always verify your wireless network's range by performing a Site Survey

² Dependent on radio channel selection

³ Configurable

⁴ In some countries, the frequency band admitted is not so extended as the default range.

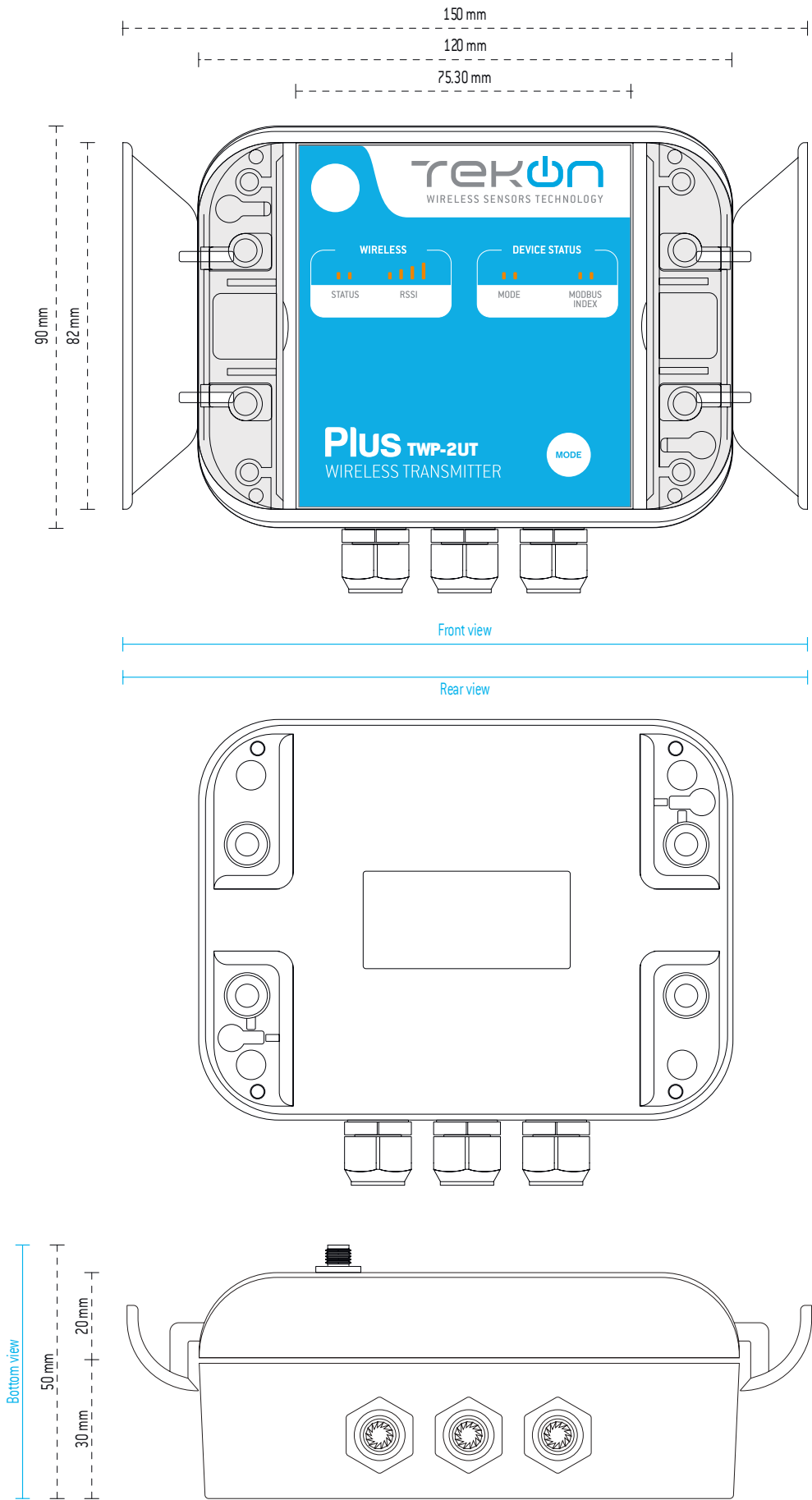
⁵ The radio frequencies admitted in Australia are available from channel 26 to channel 50.

⁶ It is recommended to use a power supply with short-circuit current protection or equipped with a fuse.

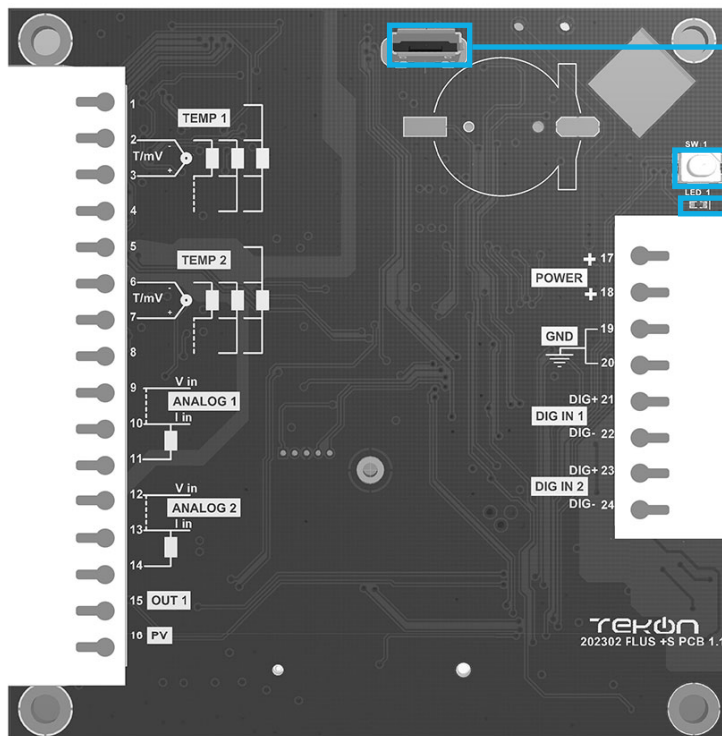
DIGITAL MEASURING ACCURACY			
RESISTANCE THERMOMETER (RTD)			
Sensor	Range °C	Accuracy °C	Resolution °C
PT100	-210 to 850	< ± 0,2	0,05
THERMOCOUPLES (TC)			
Sensor	Range °C	Accuracy °C	Resolution °C
C	0 to 2300	< ± 1,0	0,400
J	-210 to 1200	< ± 1,0	0,077
K	-270 to 1370	< ± 1,0	0,098
N	-270 to 1270	< ± 1,0	0,151
R	-50 to 1760	< ± 1,2	0,189
S	-50 to 1760	< ± 2,0	0,185
T	-270 to 400	< ± 1,0	0,026

TECHNICAL DRAWINGS

DIMENSIONAL DRAWINGS AND INTERFACE DESIGN



WIRING DIAGRAM



USB Configuration Port

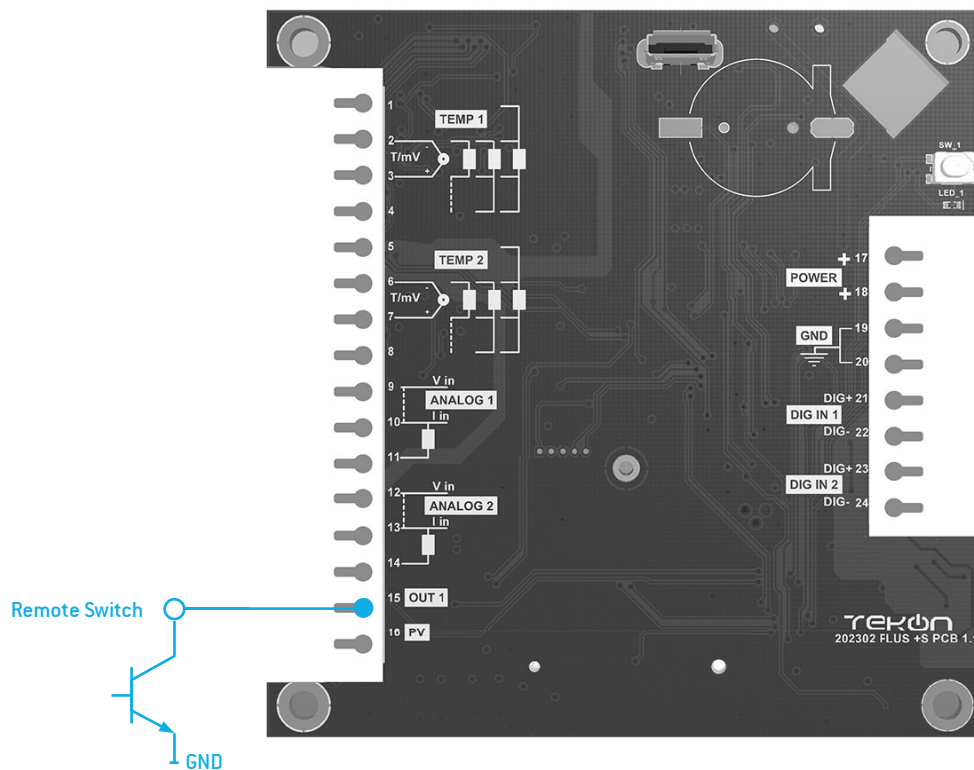
Allows Tekon device Configuration

Load factory setting button (2 methods)

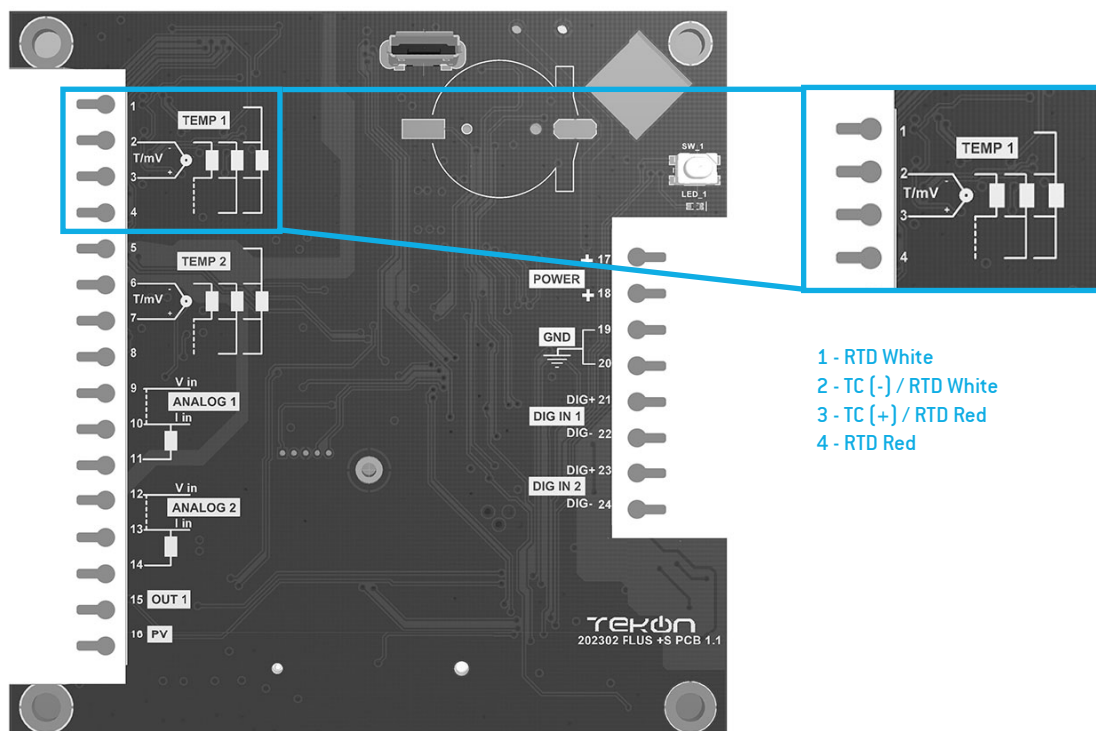
- Pressing this button during 3 seconds forces the factory settings load and reboot.
- Power ON the device with the button pressed during 3 seconds forces the factory settings load and reboot

Internal LED

Digital Output - SINKING - NPN



Universal Temperature Input



Transmitter				
PIN		Functionality		
		2 Wires	3 Wires	4 Wires
1	Temperature Input 1			(-)
2		(-)	(-)	(-)
3		(+)	(+)	(+)
4		Connect to pin 3	(+)	(+)
5	Temperature Input 2			(-)
6		(-)	(-)	(-)
7		(+)	(+)	(+)
8		Connect to pin 7	(+)	(+)
9	Not used			
10	Not used			
11	Not used			
12	Not used			
13	Not used			
14	Not used			
15	Remote Switch Output			
16	Not used			
17	Power Supply (+)			
18	Power Supply (+)			
19	Power Supply (GND)			
20	Power Supply (GND)			

21	Not used			
22	Not used			
23	Not used			
24	Not used			

TEKON ELECTRONICS
a brand of Bresimar Automação S.A.

Avenida Europa, 460
Quinta do Simão
3800-230 Aveiro
PORTUGAL

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

