WIRELESS SENSORS TECHNOLOGY

PLUS TWPH-1UT
INSTALLATION GUIDE

IG_PLUS_TWPH-1UT_E02A

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PLUS TWPH-1UT
INSTALLATION GUIDE

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step

01

WGW420 PLUS WIRELESS GATEWAY CONFIGURATION

step
01
WGW420 PLUS WIRELESS GATEWAY CONFIGURATION

TEKON CONFIGURATOR SOFTWARE is only compatible with the Microsoft® Windows® Operating System.

01

Connect the antenna to the *Gateway*.

02

Wiring

Connect the power supply and then the *RS485-USB* cable to the *Gateway*.

Wire Indication:
Blue - GND; Brown - +24 VDC; Orange - Data+ (A); Black - GND; Yellow - Data - (B)

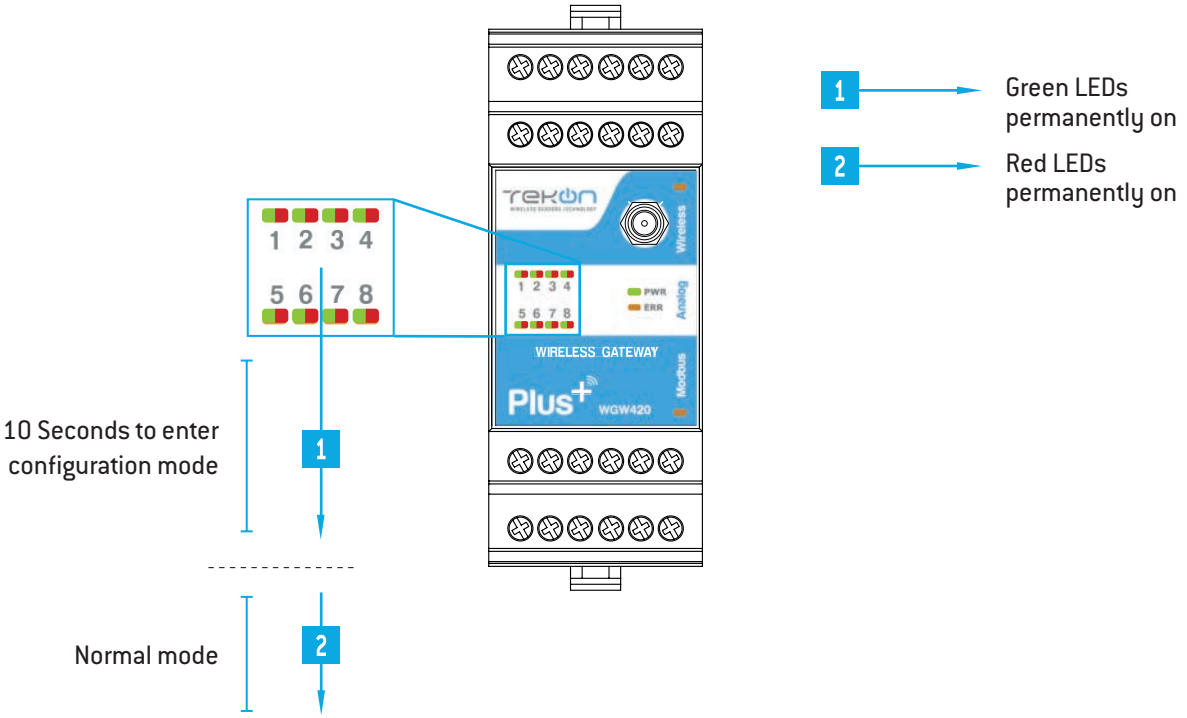
03

Power ON the device.

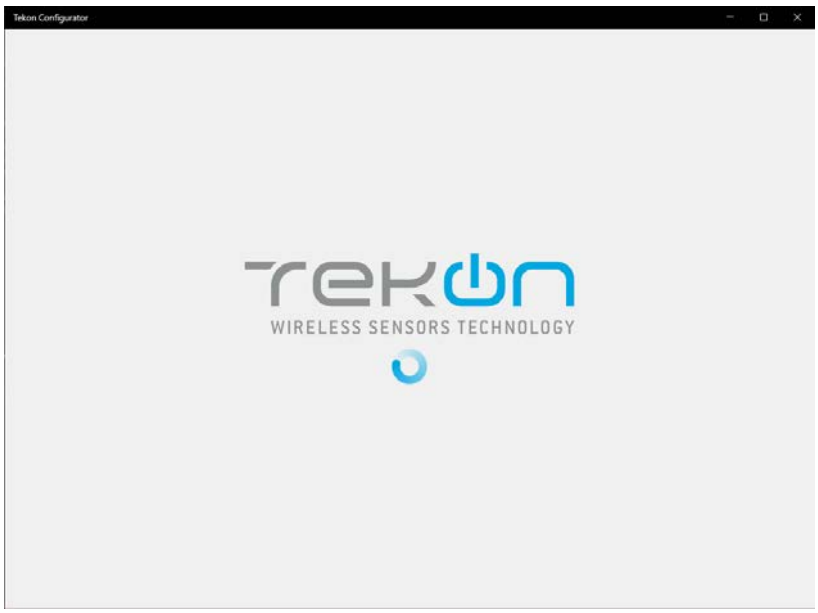
step **01**

WGW420 PLUS WIRELESS GATEWAY CONFIGURATION

04 Check device connection state by LED indication.



05 Open *Tekon Configurator Software*



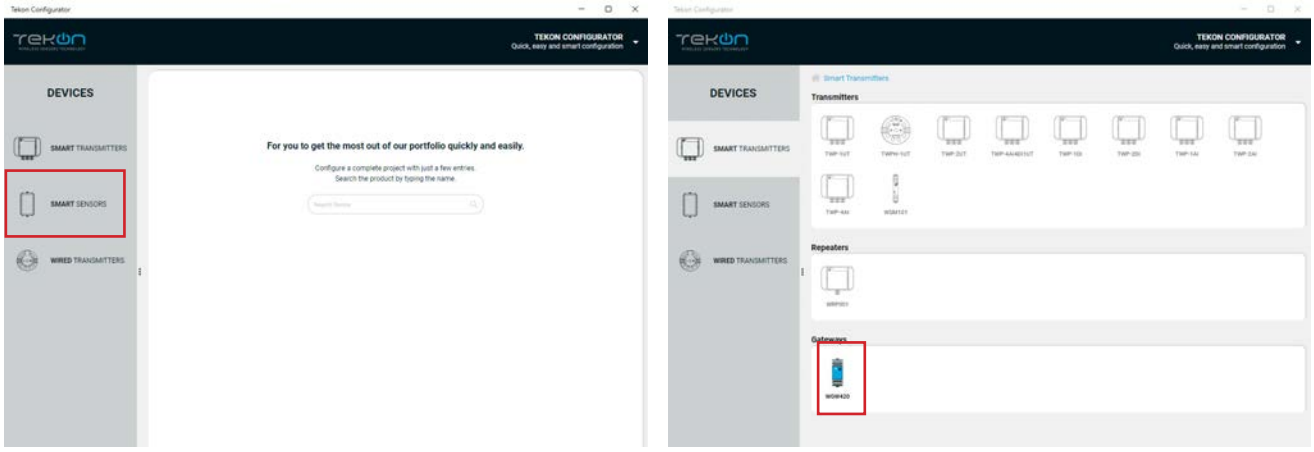
step
01
WGW420 PLUS WIRELESS GATEWAY CONFIGURATION

06

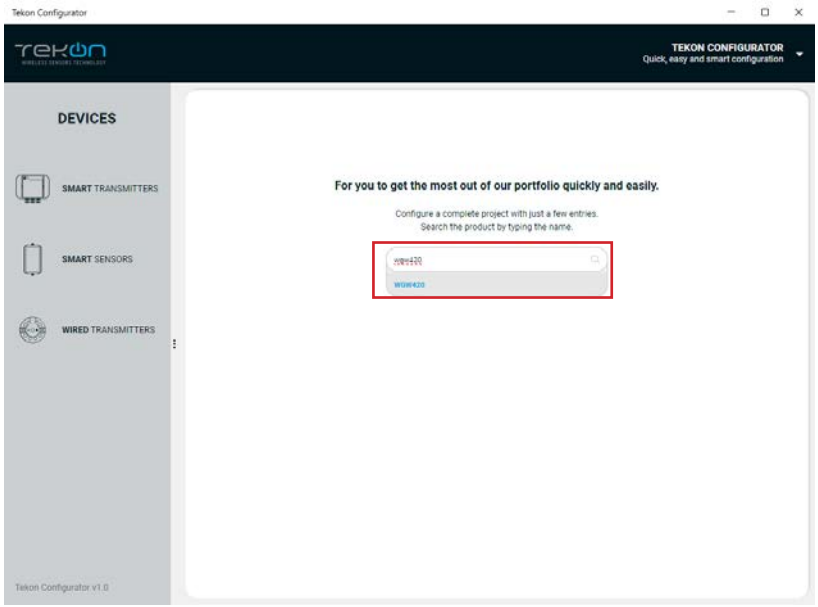
Open the WGW420 PLUS Wireless Gateway device page.

You can enter the device's page in the following ways:

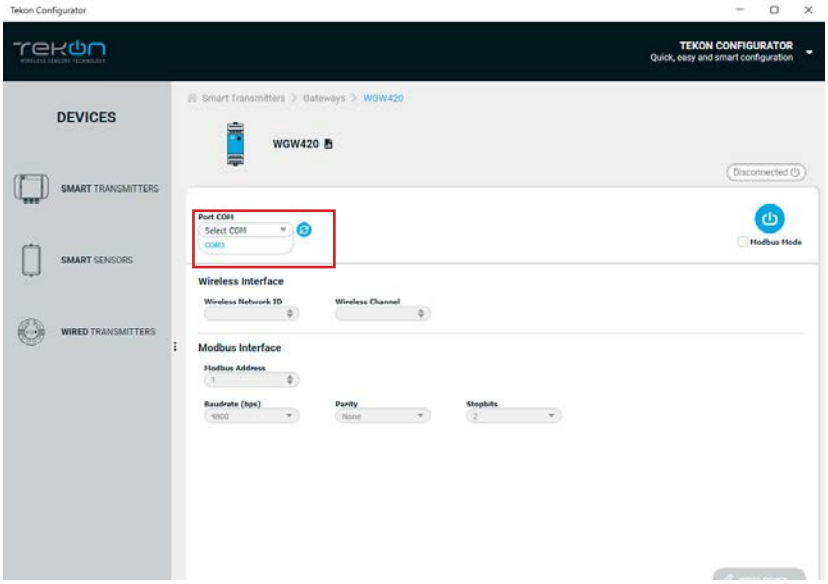
1st option: Click on *"SMART TRANSMITTERS"* in the left menu and then click on the WGW420 device.



2nd option: Type the name of the device in the *"Search Device"* field on the home page and select.

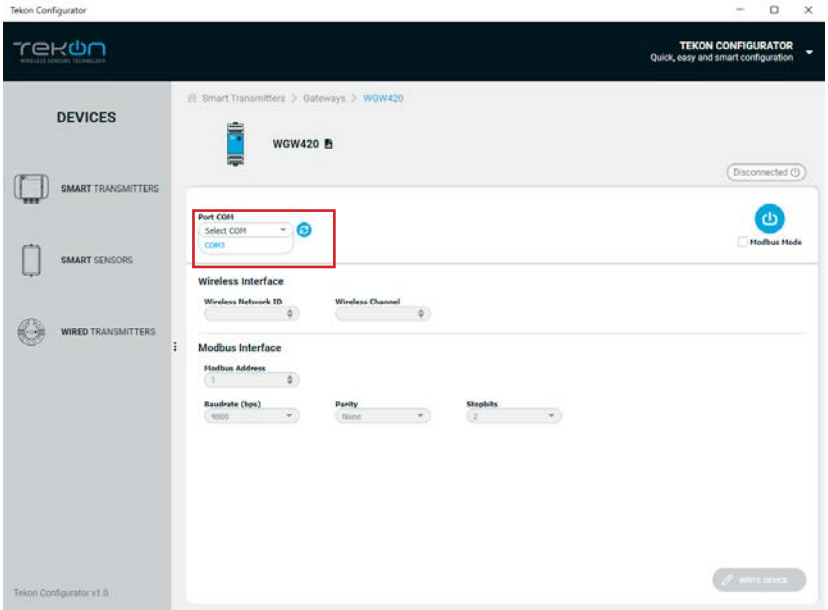


07 Load the "Port COM" corresponding to the WGW420 PLUS Wireless Gateway.



NOTE:
If the USB cable has already been connected before opening the device page, "Port COM" will appear in the list, otherwise you need to click on the "" button.

08 Select corresponding *Port COM*[2].



[2] You can check device's serial port name in "Device Manager" on Microsoft ® Windows® operating system.

step
01
WGW420 PLUS WIRELESS GATEWAY CONFIGURATION

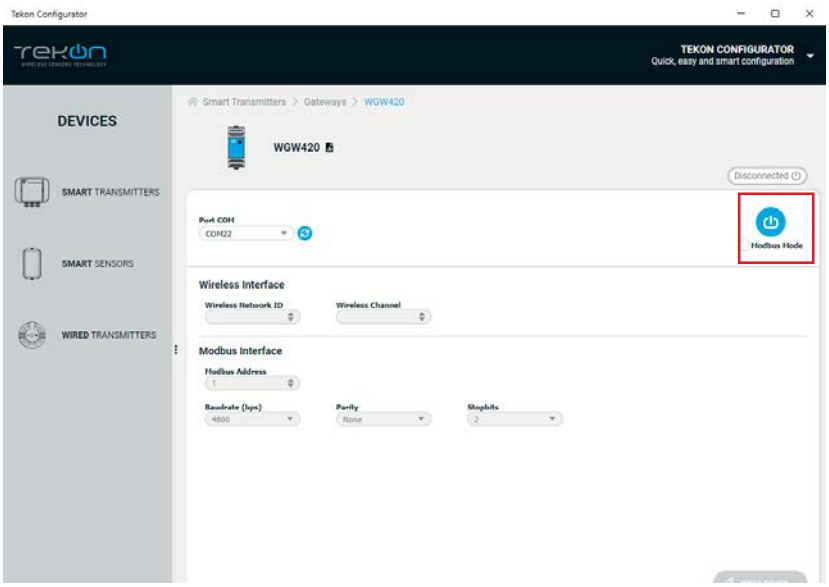
9

Perform a power cycle on the *Gateway*.

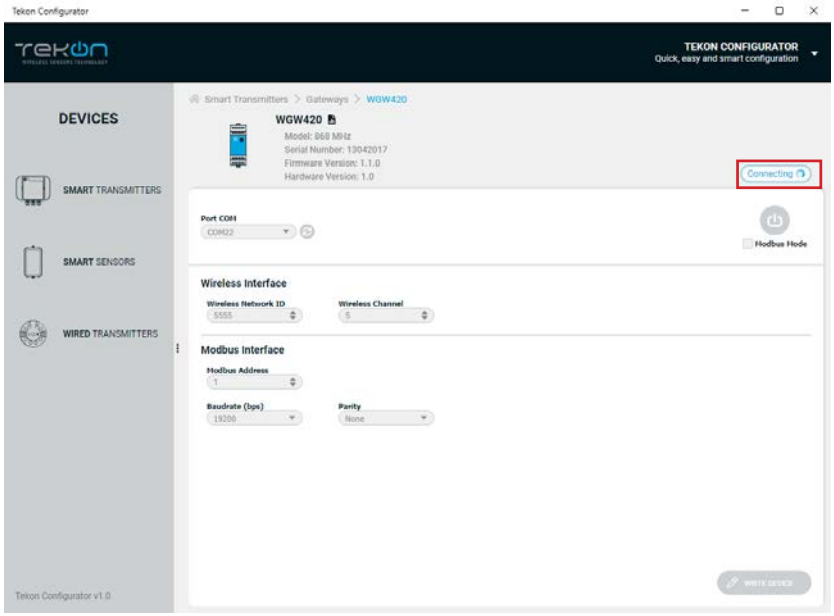
NOTE:
After power up, you have 10 seconds to enter configuration mode by clicking on Connect button [⏻] (while green LEDs are permanently on).
In this mode, you can manage device parameters: *Modbus Address*, *Modbus Baudrate*, *Modbus Parity*, *Wireless Network ID* and *Wireless Channel*.

10

Click on *Connect* [⏻] button.



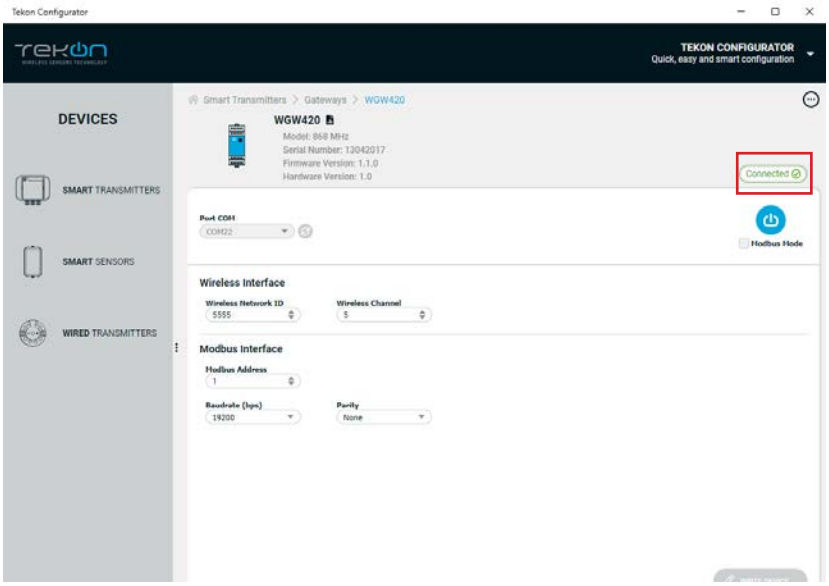
11 The software will connect to the device.



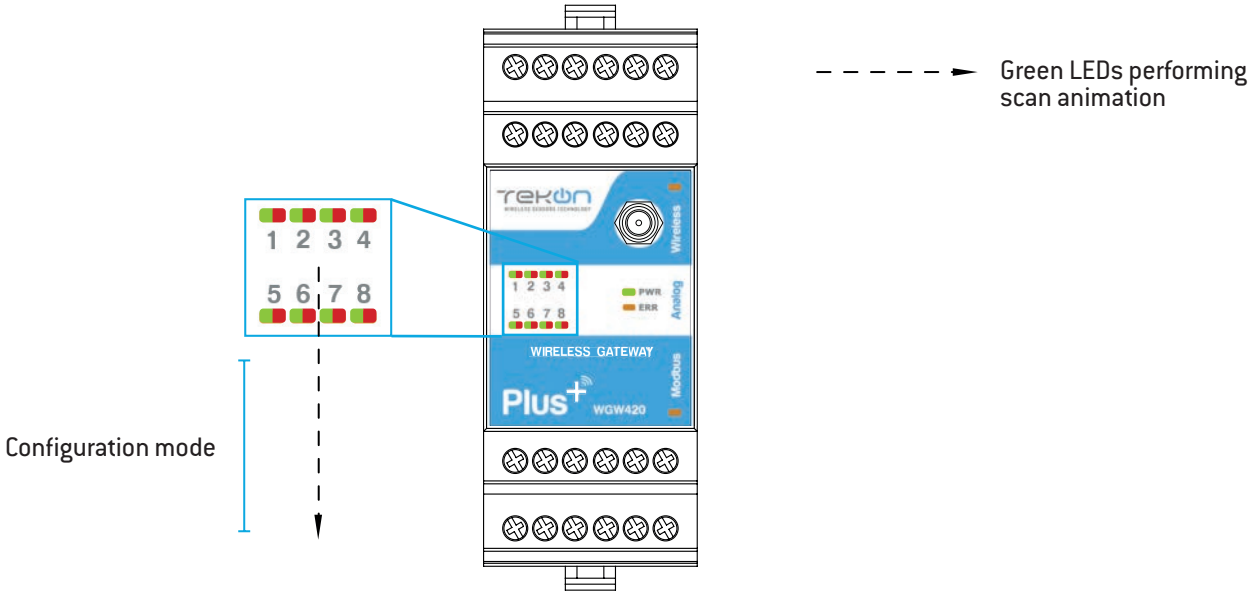
NOTE:
If the software is unable to connect to the device, the Connection Failed status is displayed. If it hasn't connected, go back to the previous steps and check the port COM.

step
01
WGW420 PLUS WIRELESS GATEWAY CONFIGURATION

12 When the software connects to the device, the "*Connected*" message will be displayed.



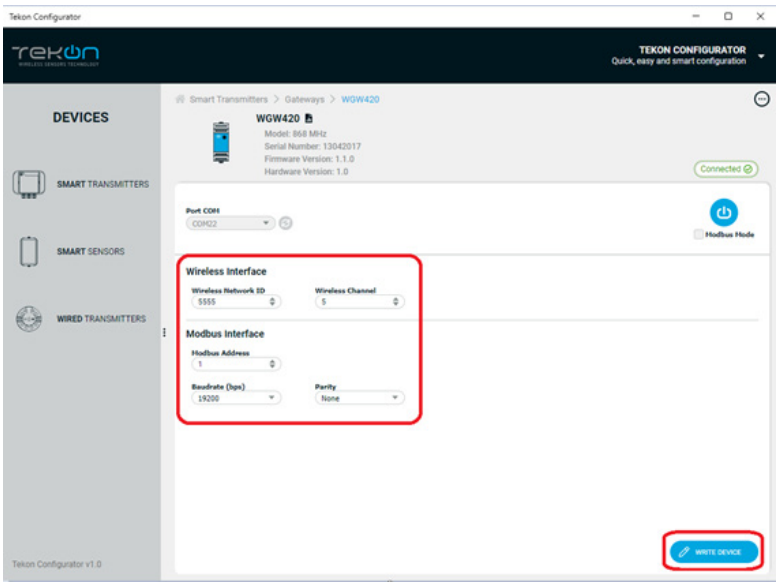
You can also verify configuration mode activation by checking LEDs on the gateway.



NOTE:
When the 10-second time frame to enter configuration mode is exceeded, the LEDs will turn permanently red and the gateway will enter normal operation mode.
To get back in configuration mode, you need to perform a power cycle - step 8.

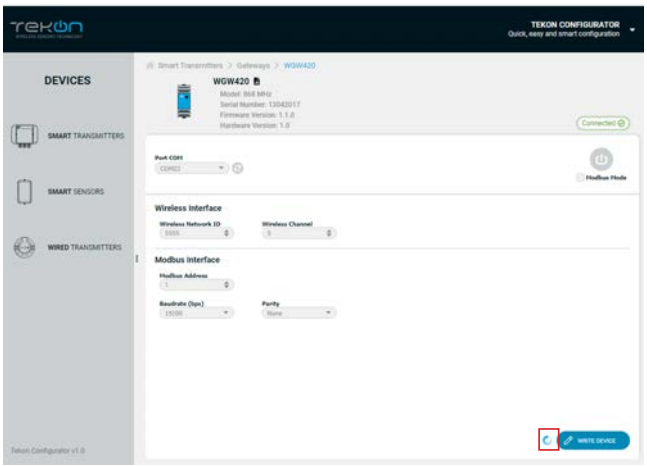
13

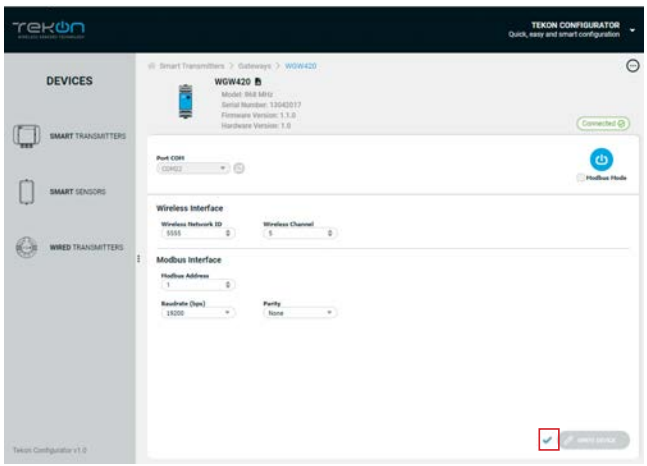
Configure the device fields and write by clicking on the *"WRITE DEVICE"* button.



NOTE:
The "WRITE DEVICE" button will only be active when there is a change to one of the editable fields, if there is no change it will be disabled.

While the settings are being written, the following icon will be displayed next to the "*WRITE DEVICE*" button [ ]



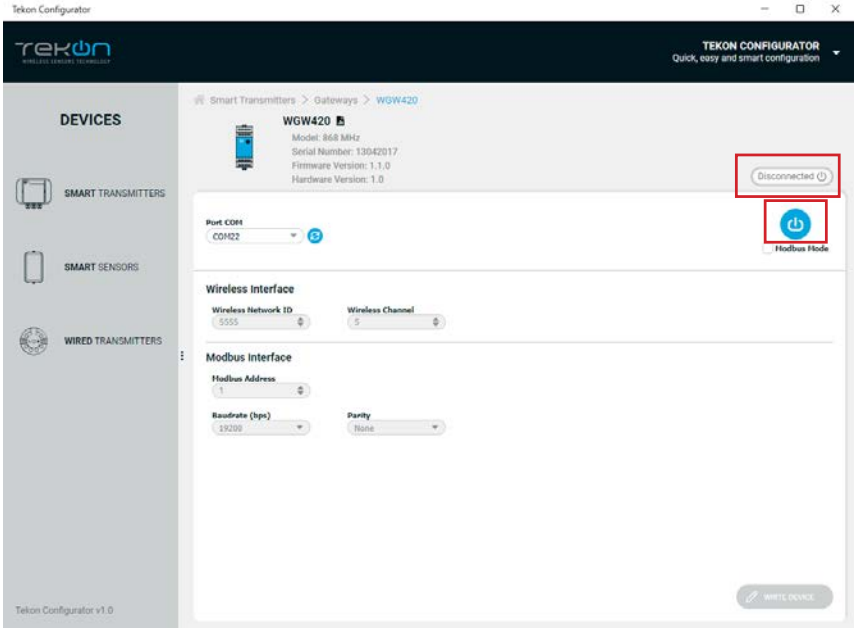


NOTE:
The wireless network connection between devices is ensured by setting the same *Wireless Network ID* and *Wireless Channel* parameters.

step
01
WGW420 PLUS WIRELESS GATEWAY CONFIGURATION

14

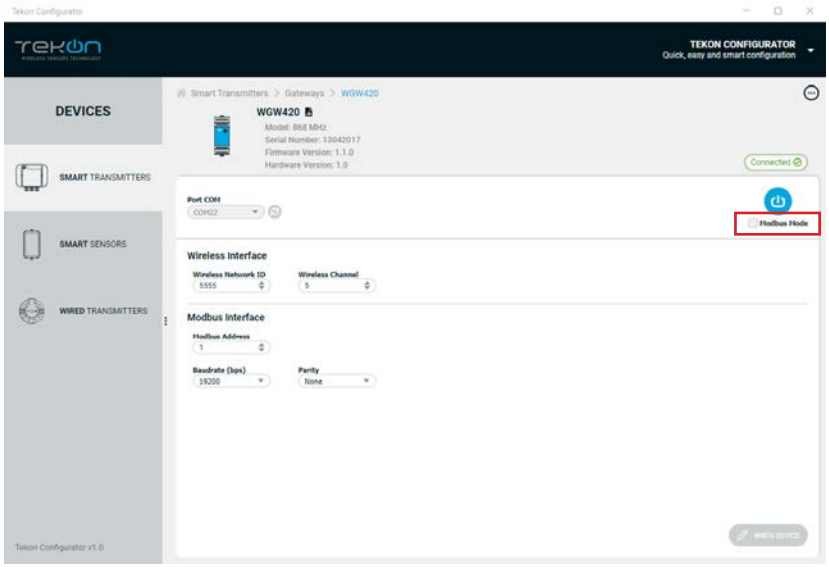
Click on the button ( ) to exit *configuration mode* and return the device to normal operating mode.



15

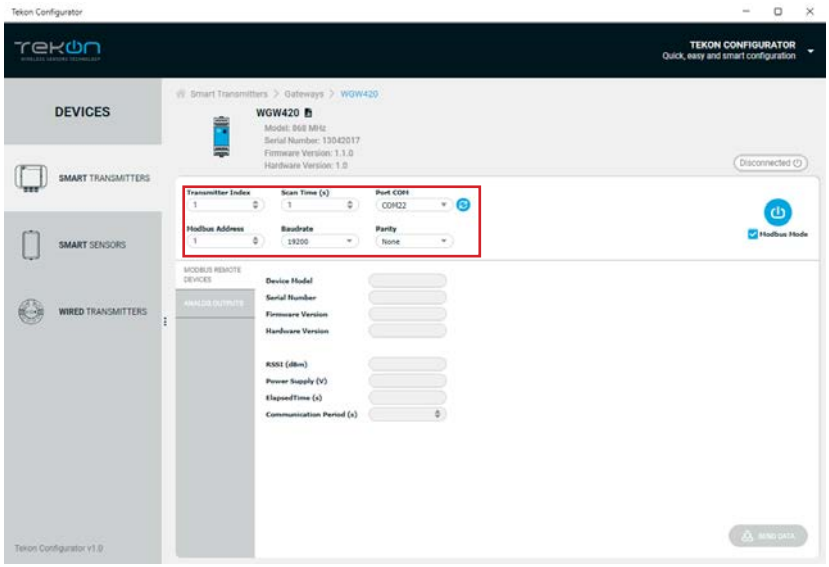
Modbus Communication

Select modbus mode in the checkbox below the Connect button.



16

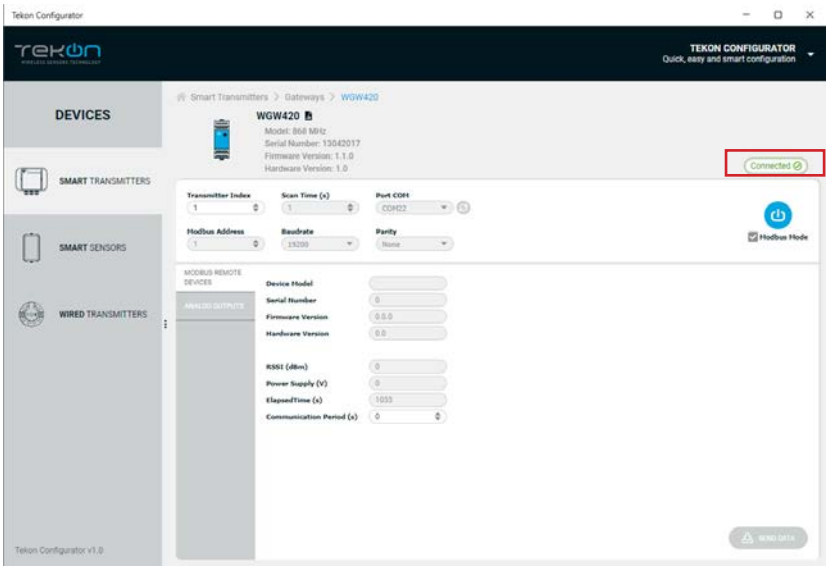
Ensure that *Port name*, *Baudrate*, *Parity* and *Modbus Address* fields are the same as those obtained in configuration mode.

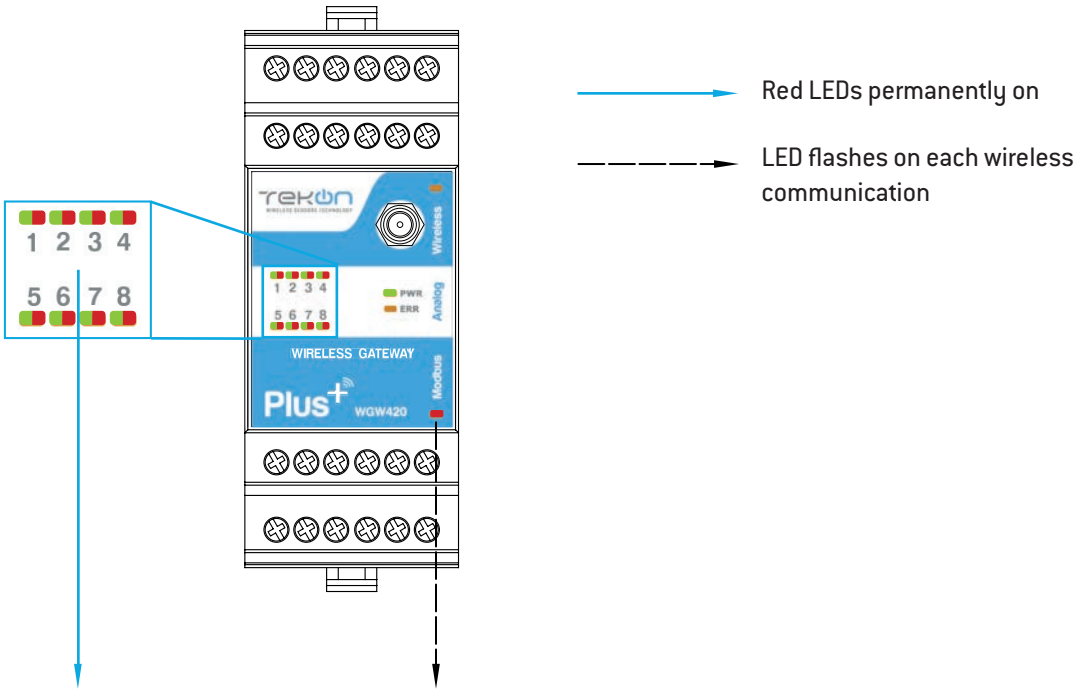


step
01
WGW420 PLUS WIRELESS GATEWAY CONFIGURATION

17

Click on connect and check that the status is *"Connected"*.





NOTE:
See WGW420 Datasheet to access LED indication information - page 4.

step

02

TWPH-1UT PLUS WIRELESS TEMPERATURE TRANSMITTER CONFIGURATION

step
02

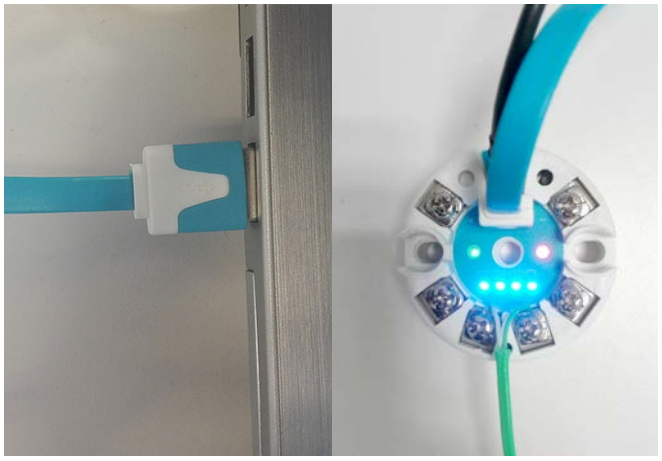
TWPH-1UT PLUS WIRELESS TEMPERATURE TRANSMITTER CONFIGURATION

01

Connect the antenna and sensor connectors to the *TWPH-1UT PLUS Wireless Transmitter.*.

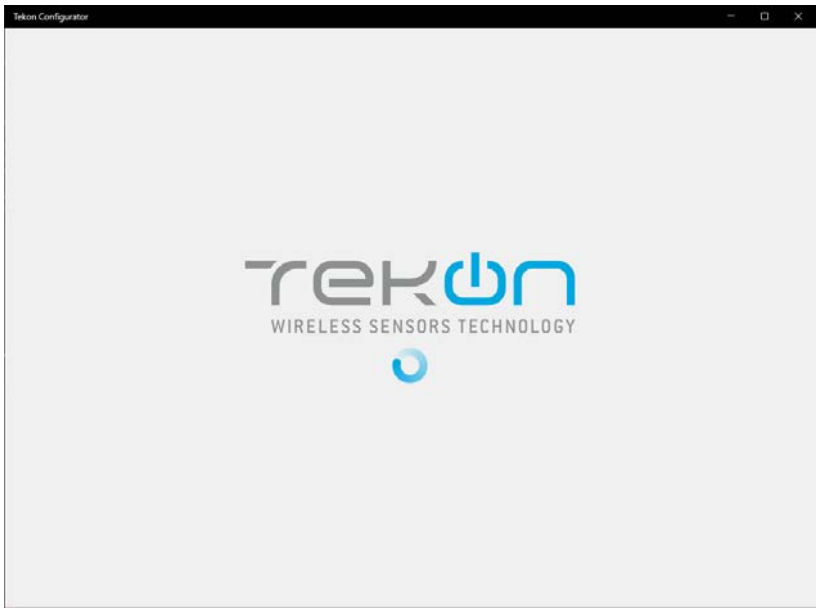
02

Connect the micro USB cable to the computer and then to *TWPH-1UT PLUS Wireless Transmitter*.



03

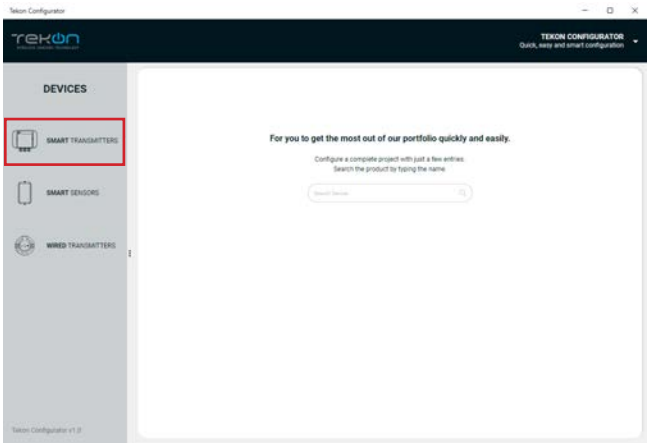
Open *Tekon Configurator Software*

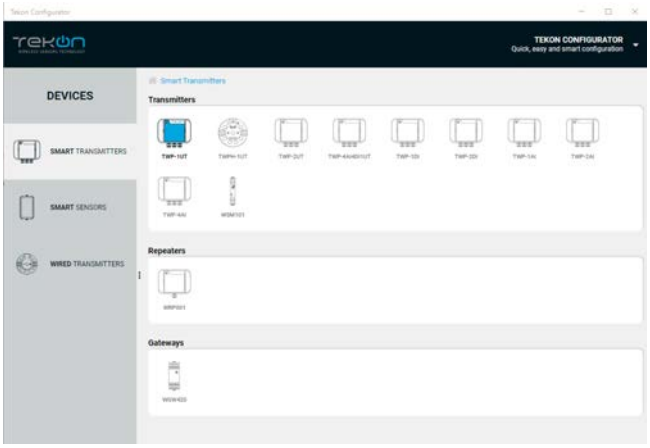


04 Open the TWPH-1UT PLUS Wireless Transmitter device page.

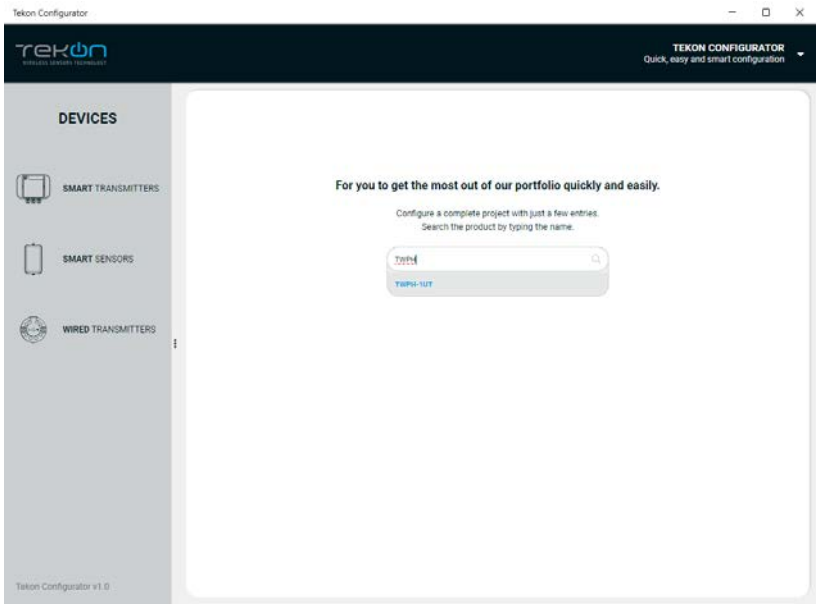
You can enter the device's page in the following ways:

1st option: Click on *"SMART TRANSMITTERS"* in the left menu and then click on the TWP-1UT.



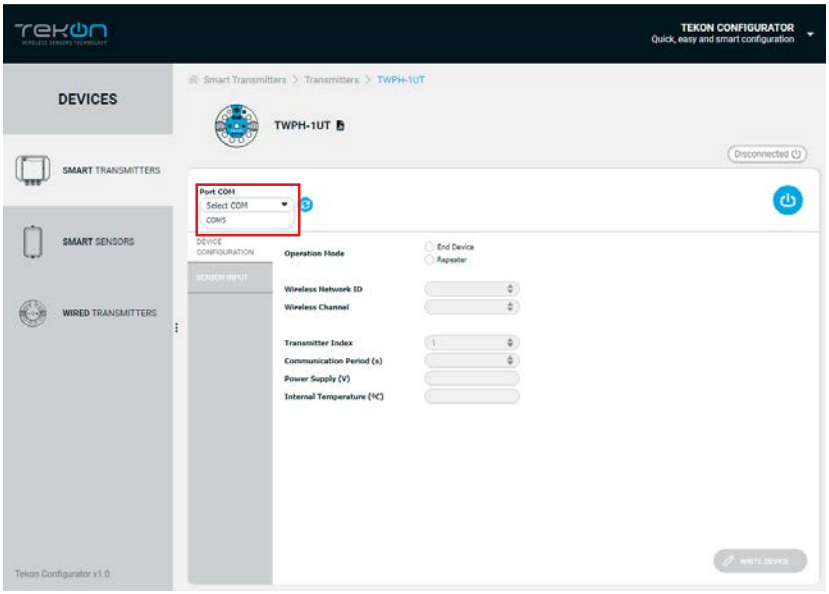


2nd option: Type the name of the device in the *"Search Device"* field on the home page and select.



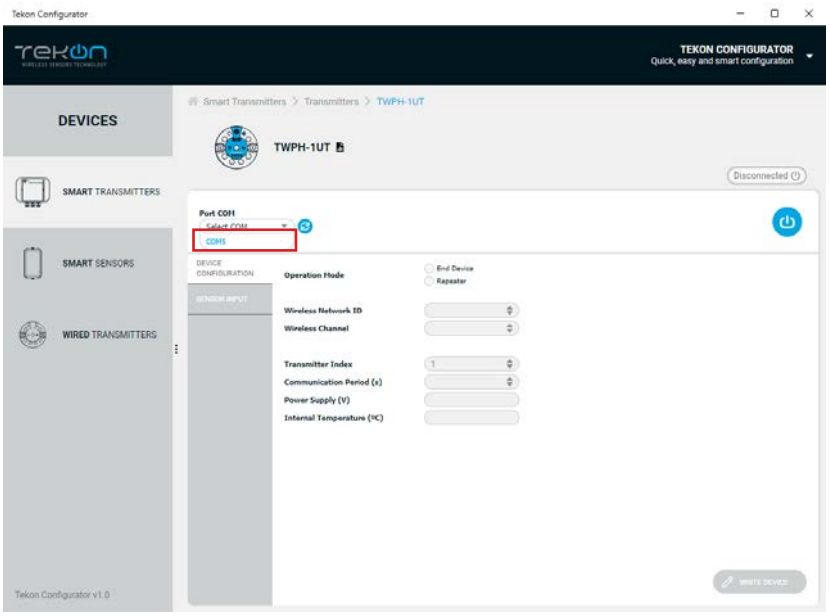
step
02
TWPH-1UT PLUS WIRELESS TEMPERATURE TRANSMITTER CONFIGURATION

05 Load the "Port COM" corresponding to the TWPH-1UT PLUS Wireless Transmitter.



NOTE:
If the USB cable has already been connected before opening the device page, "Port COM" will appear in the list, otherwise click the button [ ]

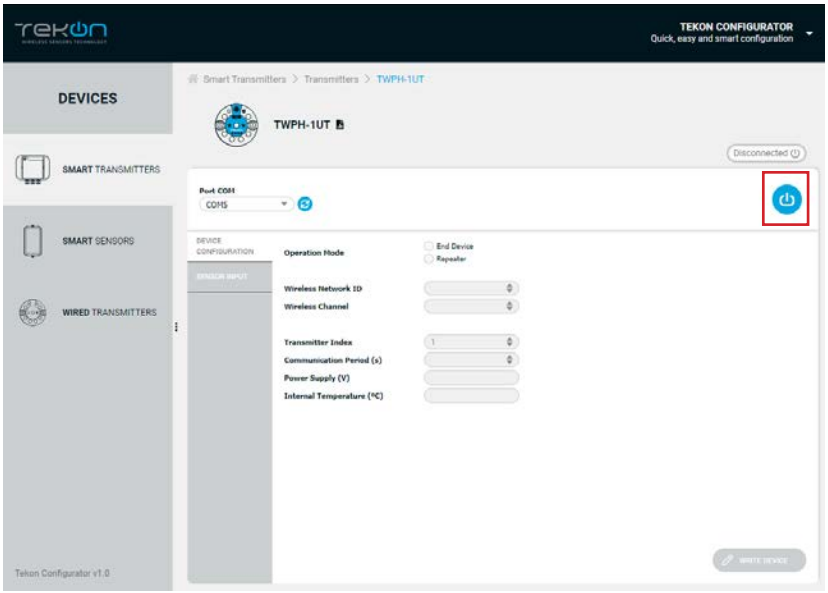
06 Select corresponding *Port Com*[2].



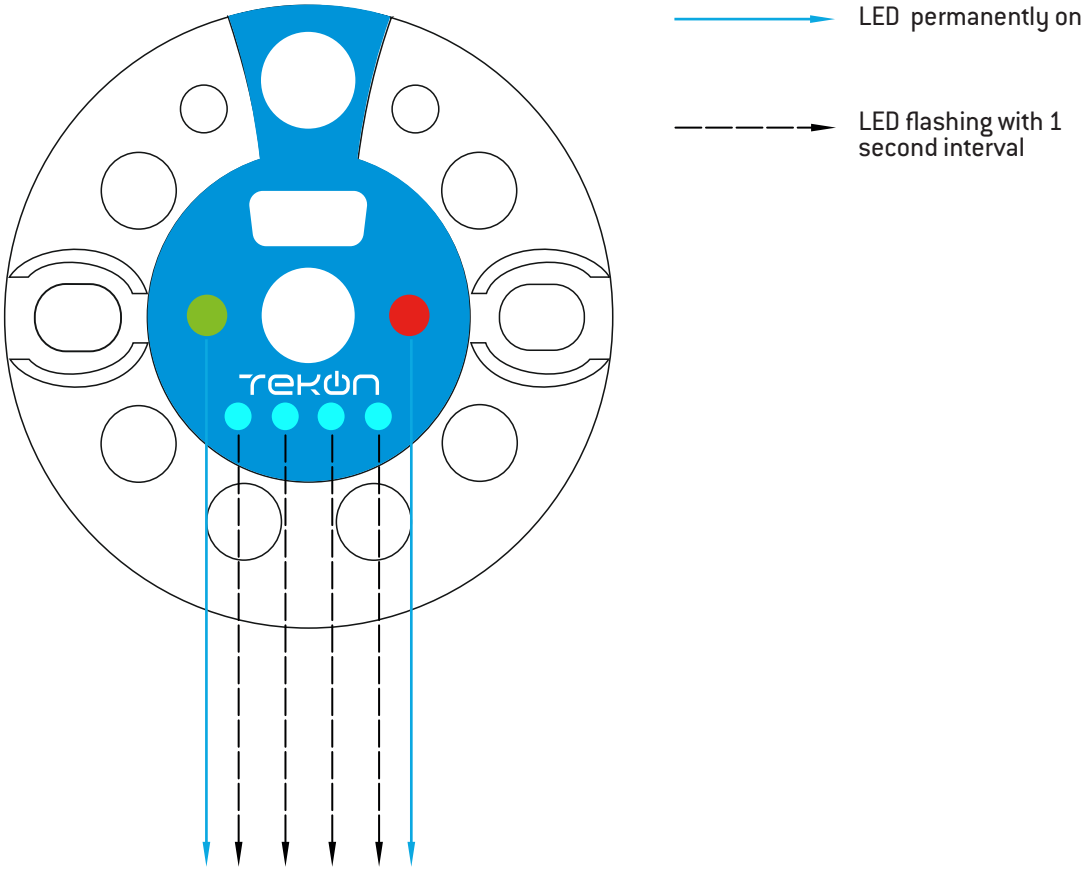
[2] You can check device's serial port name in "Device Manager" on Microsoft ® Windows® operating system.

07

Click on the "Connect" button ( ) to enter *Configuration Mode*.



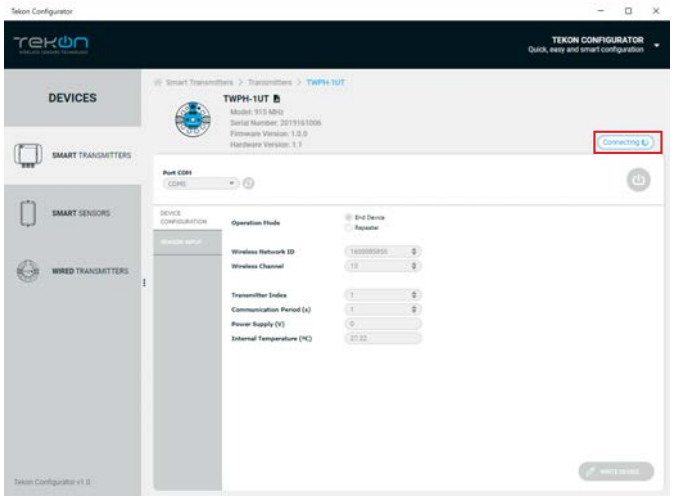
When the *TWPH-1UT Transmitter* is in *Configuration Mode*, all LEDs are active but with different behaviours.



step
02
TWPH-1UT PLUS WIRELESS TEMPERATURE TRANSMITTER CONFIGURATION

08

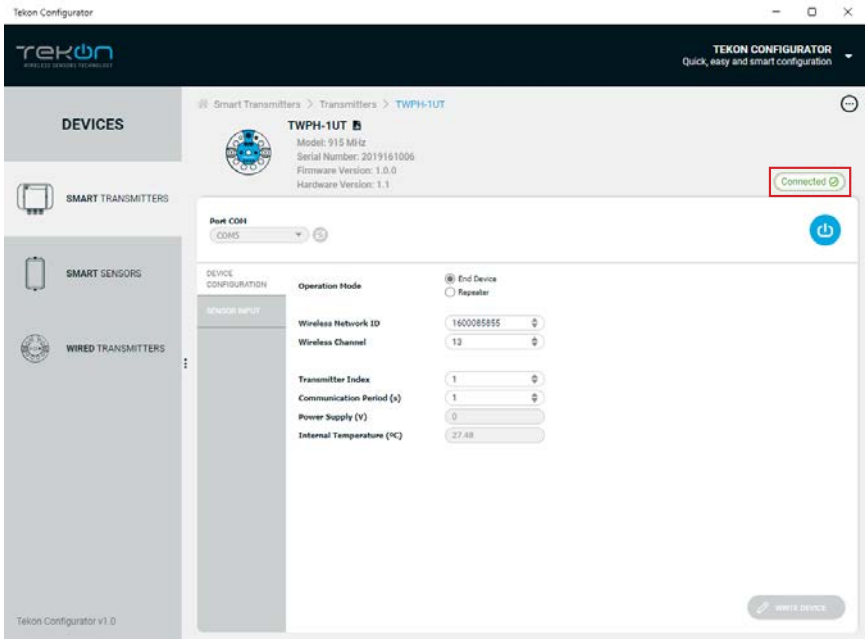
The software will connect to the device.



NOTE:
If the software is unable to connect to the device, the Connection Failed status is displayed. If it hasn't connected, go back to the previous steps and check the port COM.

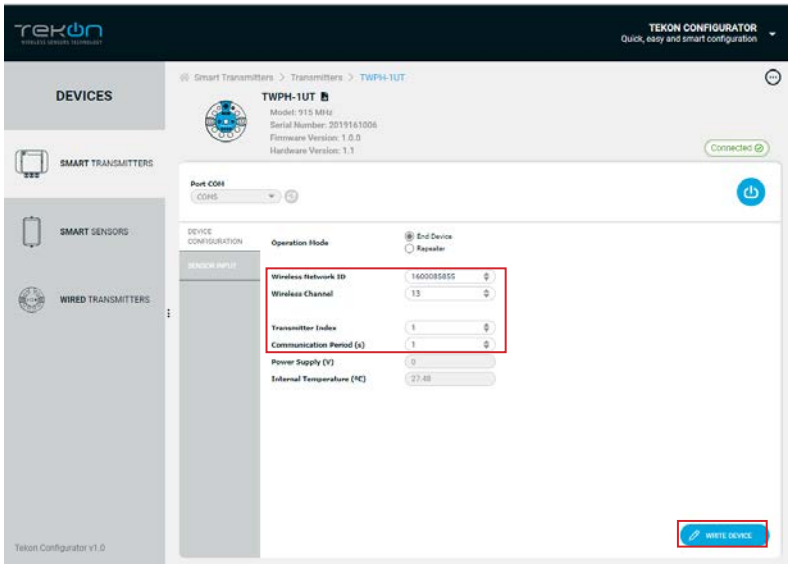
09

When the software connects to the device, the "Connected" message will be displayed.



10

Configure *Wireless Network ID* and *Wireless Channel* previously obtained from *Gateway*.
The wireless connection between both devices is ensured by setting the same *Wireless Network ID* and *Wireless Channel* parameters. Gateway Modbus Index will define the modbus registers window used to store information sent by the transmitter. Each transmitter should have a different *Gateway Modbus Index* in order to avoid information override.
Click on *Write Device* button to update *Transmitter* settings.



On this page you can configure the transmitter's *communication period*, i.e. the time interval between measurements and communication of the values to the gateway. In addition, you can configure the *reconnection period* which is only triggered when communication between the gateway and the transmitter fails. When communication fails, the transmitter will try to connect to the gateway using the following logic:
- 5 attempts with the communication period set;
- N attempts with the reconnection period until communication is successful.

The default reconnection period is 30 minutes. Please note that short reconnection periods (< 30 minutes) will impact the transmitter's autonomy if communication takes a long time to be re-established.

NOTE:
The "WRITE DEVICE" button will only be active when there is a change to one of the editable fields, if there is no change it will be deactivated.

While the settings are being written, the following icon will be displayed next to the "*WRITE DEVICE*" button ( )

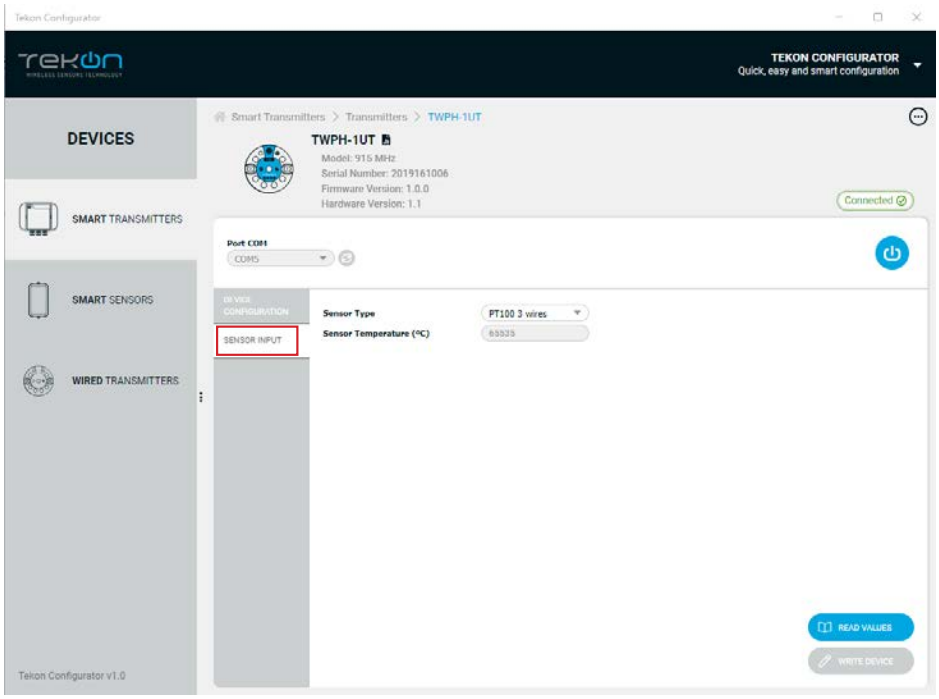
If the changes to the device have been written, the following symbol will appear ( )

If not, the following symbol will appear ( ),try again and check that the device is connected correctly.

step
02
TWPH-1UT PLUS WIRELESS TEMPERATURE TRANSMITTER CONFIGURATION

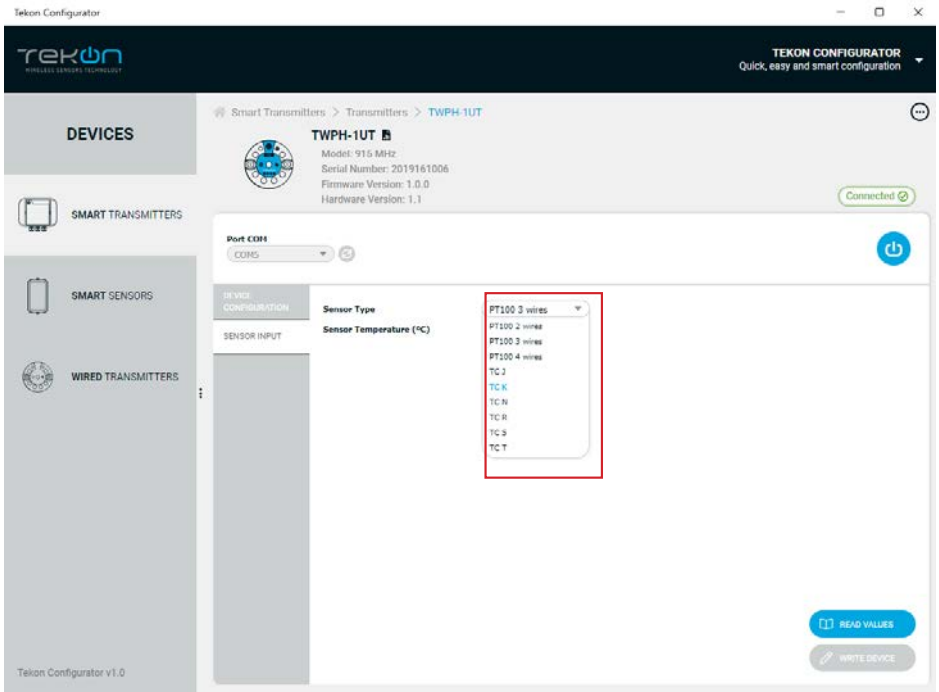
11

Click on *"SENSOR INPUT"*



12

Select the *sensor type* you will use.

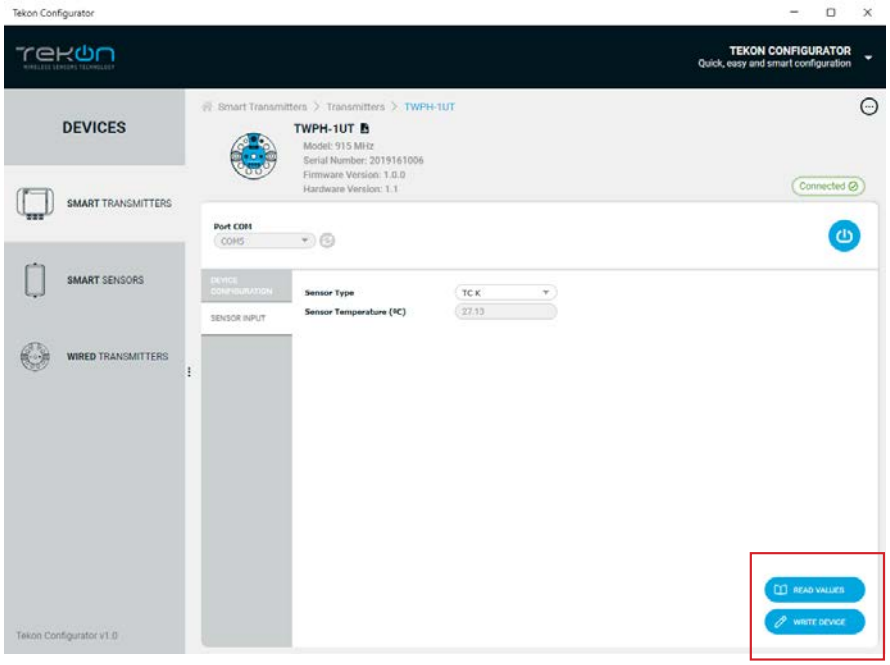


step **02**

TWPH-1UT PLUS WIRELESS TEMPERATURE TRANSMITTER CONFIGURATION

13

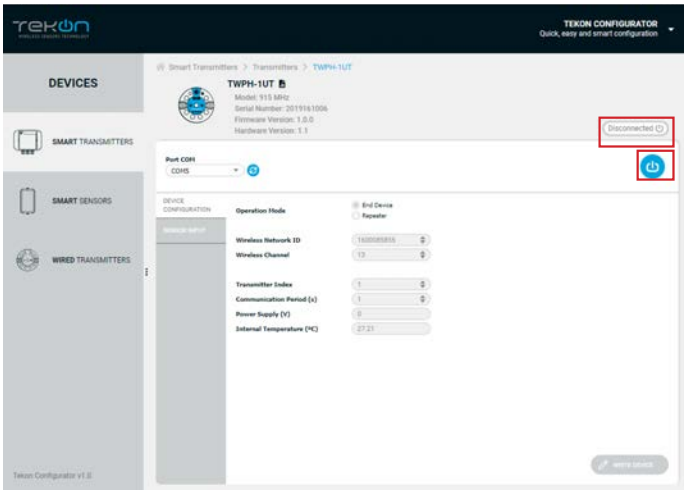
Click on *Write Device* button to update the *Transmitter* settings.
Click on *Read Values* button to read the sensor and internal temperature.



14

Click on the button ( ) to exit *configuration mode* and return the device to normal operating mode.

After clicking on *Disconnect* button, the device will permanently attempt to connect to a wireless network.
If there is no communication, the Status LED flashes slowly and the Mode LED flashes quickly. When there's a successful connection directly to a wireless network, both status LEDs alternate quickly - during 1 minute if the transmitter is operating as end device or permanently if operating as repeater.



NOTE:
Make sure that the devices are at a distance of at least 3 meters or remove the antenna from the gateway (in case both devices are near each other).

step

03

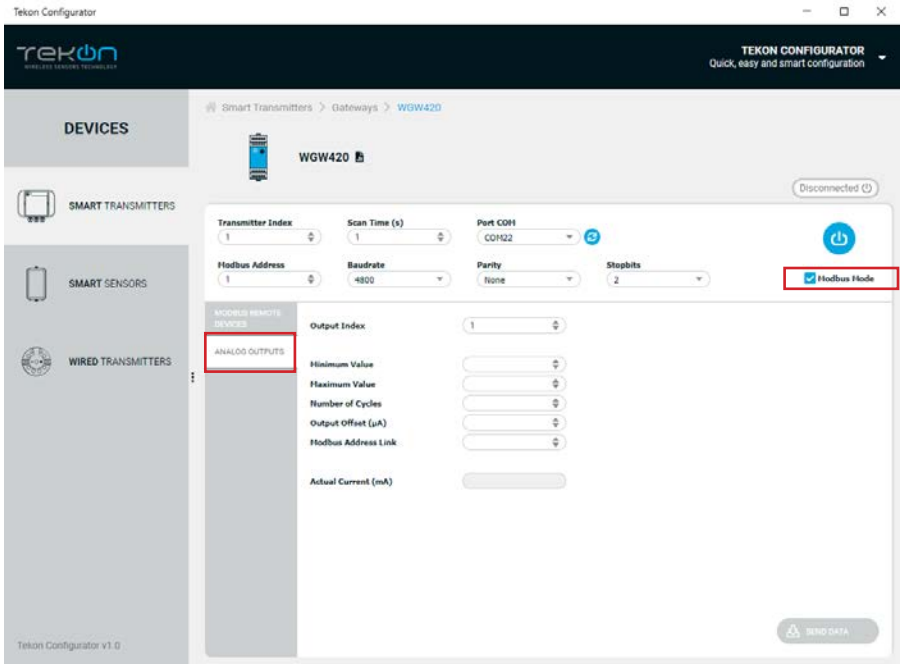
WGW420 GATEWAY ANALOG OUTPUTS CONFIGURATION

step 03

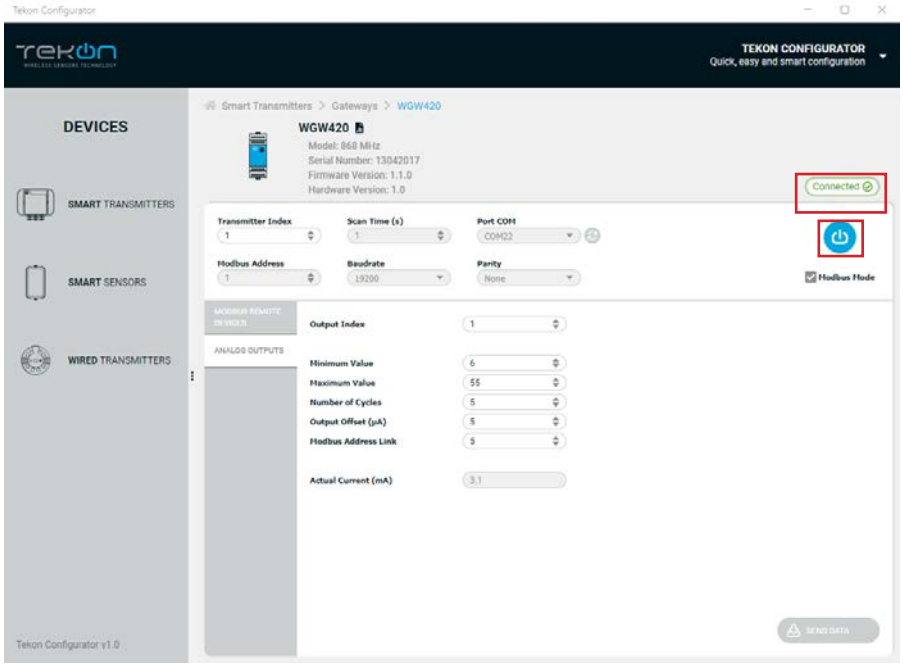
GATEWAY ANALOG OUTPUTS

01 Follow steps 01 and 14 of the PLUS Wireless *Gateway* Configuration.

02 In *Tekon Configurator Software* select *MODBUS MODE* >> *ANALOG OUTPUTS*



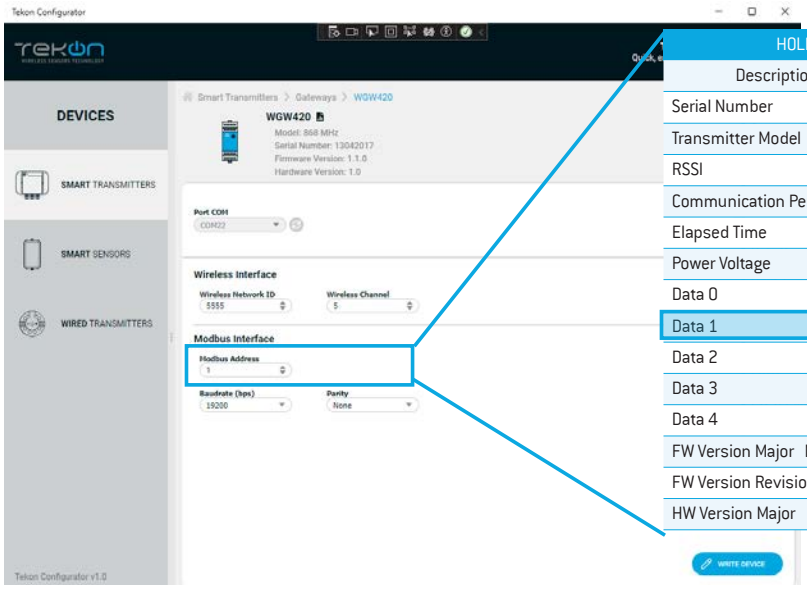
03 Click the (⏻) button and wait for the device to connect.



step
03 GATEWAY ANALOG OUTPUTS

04

Considering the transmitter configuration with Modbus Address=1, there is a Gateway Modbus Address Window corresponding to Modbus address window [0-19].



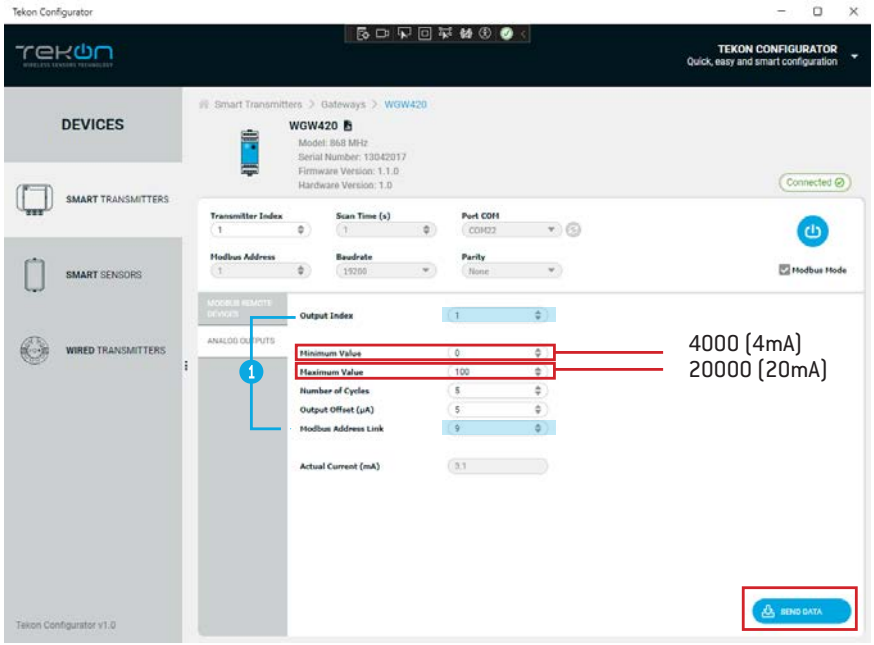
MB Add

HOLDING REGISTERS - TRANSMITTERS DATA		
Description	Address	
Serial Number	(Transmitter Modbus Index-1) x 20+0	0
Transmitter Model	(Transmitter Modbus Index-1)x20+2	
RSSI	(Transmitter Modbus Index-1)x20+3	
Communication Period	(Transmitter Modbus Index-1)x20+4	
Elapsed Time	(Transmitter Modbus Index-1)x20+5	
Power Voltage	(Transmitter Modbus Index-1)x20+6	
Data 0	(Transmitter Modbus Index-1)x20+7	
Data 1	(Transmitter Modbus Index-1)x20+9	9
Data 2	(Transmitter Modbus Index-1)x20+11	
Data 3	(Transmitter Modbus Index-1)x20+13	
Data 4	(Transmitter Modbus Index-1)x20+15	
FW Version Major Minor	(Transmitter Modbus Index-1)x20+17	
FW Version Revision	(Transmitter Modbus Index-1)x20+18	
HW Version Major Minor	(Transmitter Modbus Index-1)x20+19	19

NOTE:
Transmitter analog input 1 data is received and stored at the Gateway Modbus address [9].

05

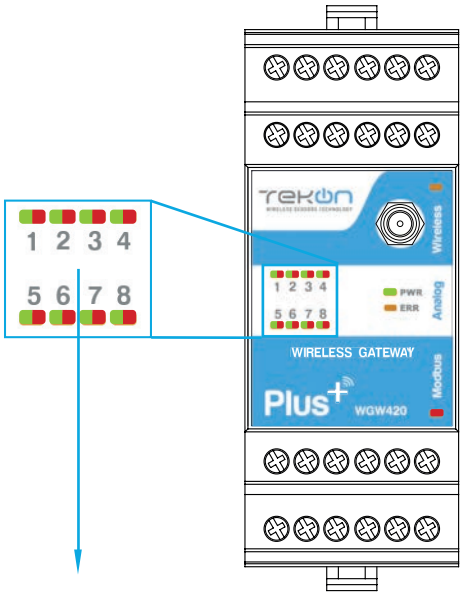
Link the "*Output Index*" (Gateway) to Temperature Input 1 (Transmitter) and configure the "*Modbus Address Link*" according to the previous step. Set the minimum and maximum values and click on "*Send Data*".



NOTE:

① Output index 1 is linked to modbus address [9], according to mapping table of step 03.

Modbus address double word (float 32) value is converted into 4..20 mA scale according to minimum and maximum defined values.



1 → Green led permanently on during a closed current loop

2 → Red led permanently on during an open current loop

step

04

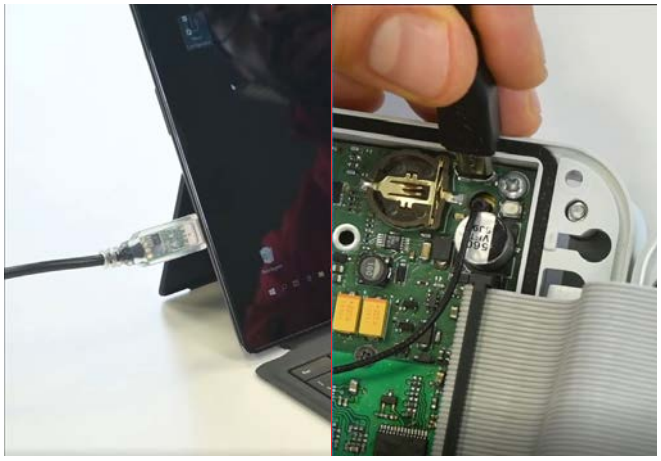
WRP001 PLUS WIRELESS REPEATER CONFIGURATION

step **04**

CONNECT AND CONFIGURE THE PLUS WIRELESS REPEATER

01 Loosen the 4 screws of the case and oppen it.

02 Connect a micro USB cable to the computer and then to *WRP001 PLUS Wireless Repeater*.

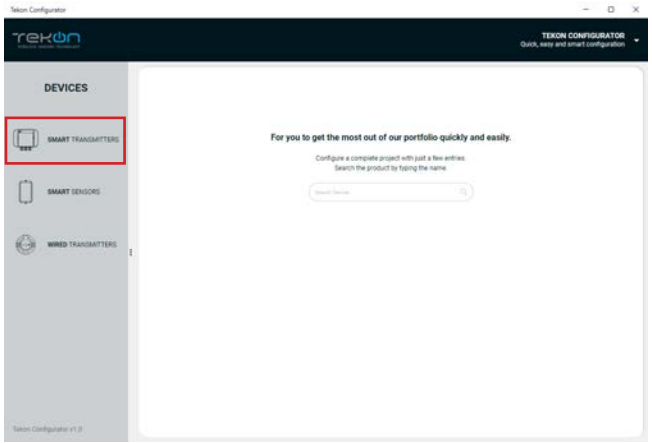


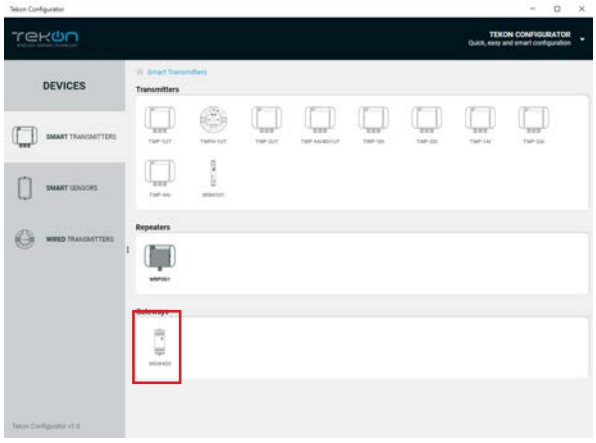
03

Open the WRP001 PLUS Wireless Repeater device page.

You can enter the device's page in the following ways:

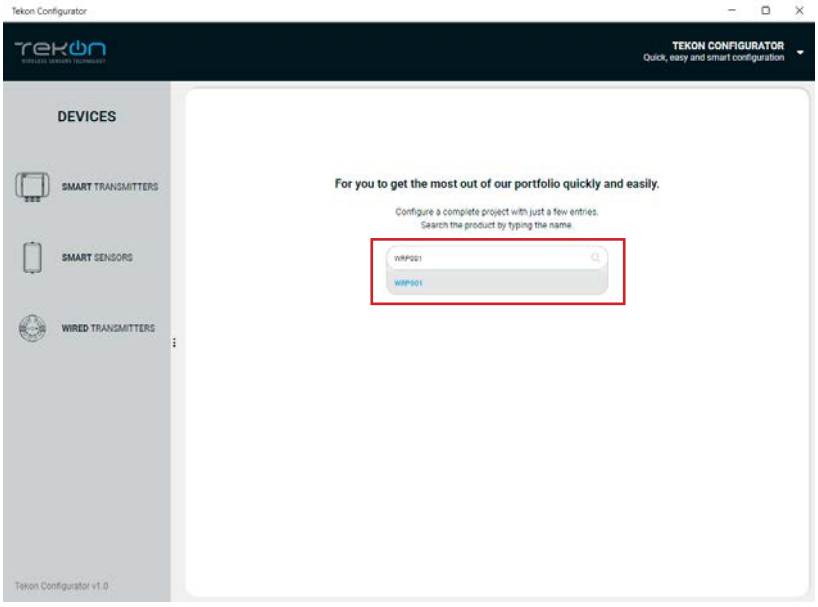
1st option: Click on *"SMART TRANSMITTERS"* in the left menu and then click on the device.



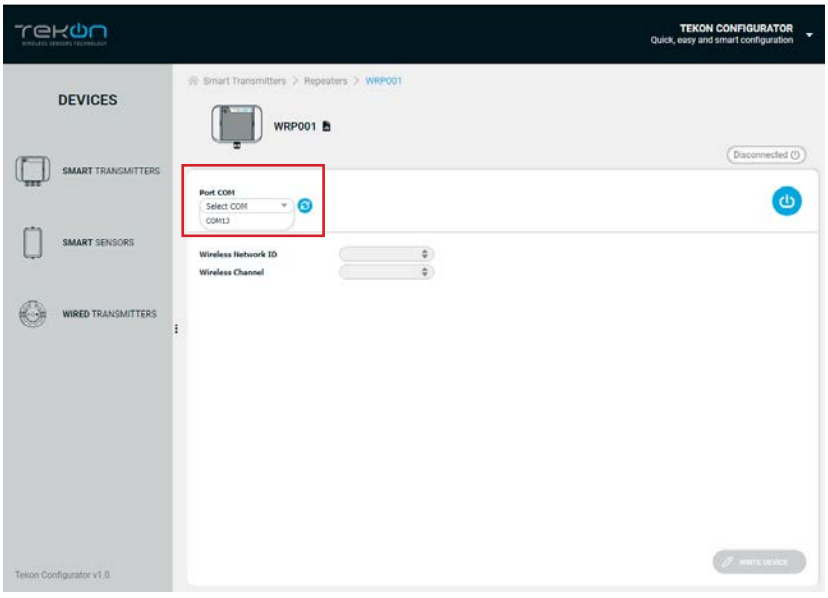


step
04 CONNECT AND CONFIGURE THE PLUS WIRELESS REPEATER

2nd option: Type the name of the device in the *"Search Device"* field on the home page and select.



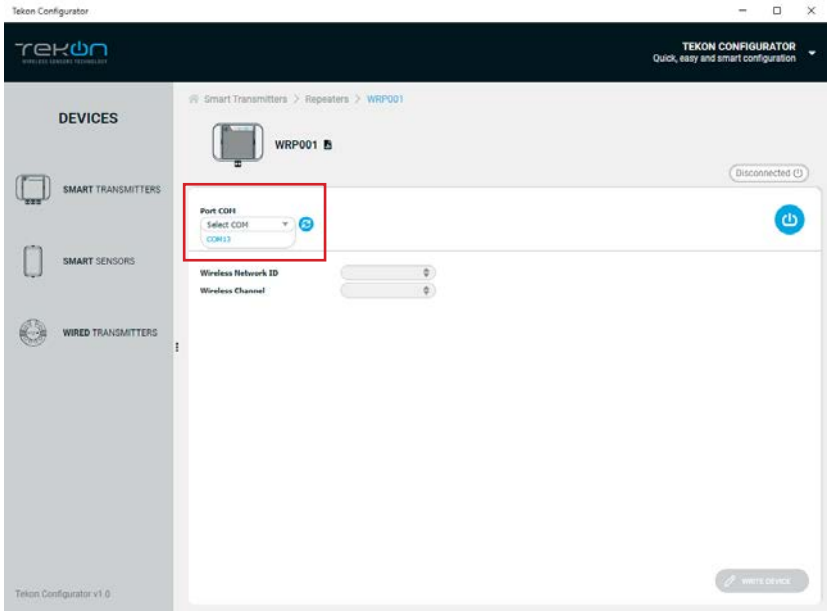
04 Load the "Port COM" corresponding to the WRP001 PLUS Wireless Repeater.



NOTE:
If the USB cable has already been connected before opening the device page, "Port COM" will appear in the list, otherwise you need to click on the " " button.

05

Select corresponding *Port name*[2].

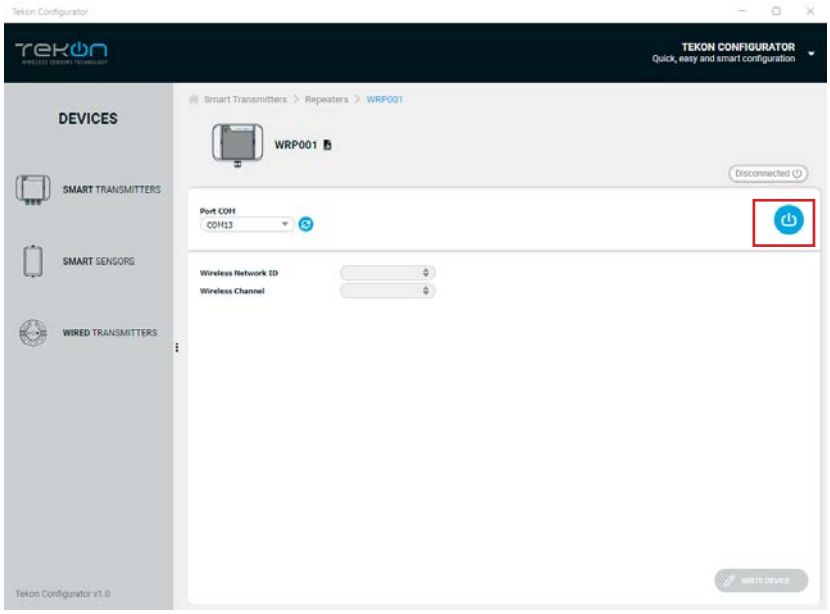


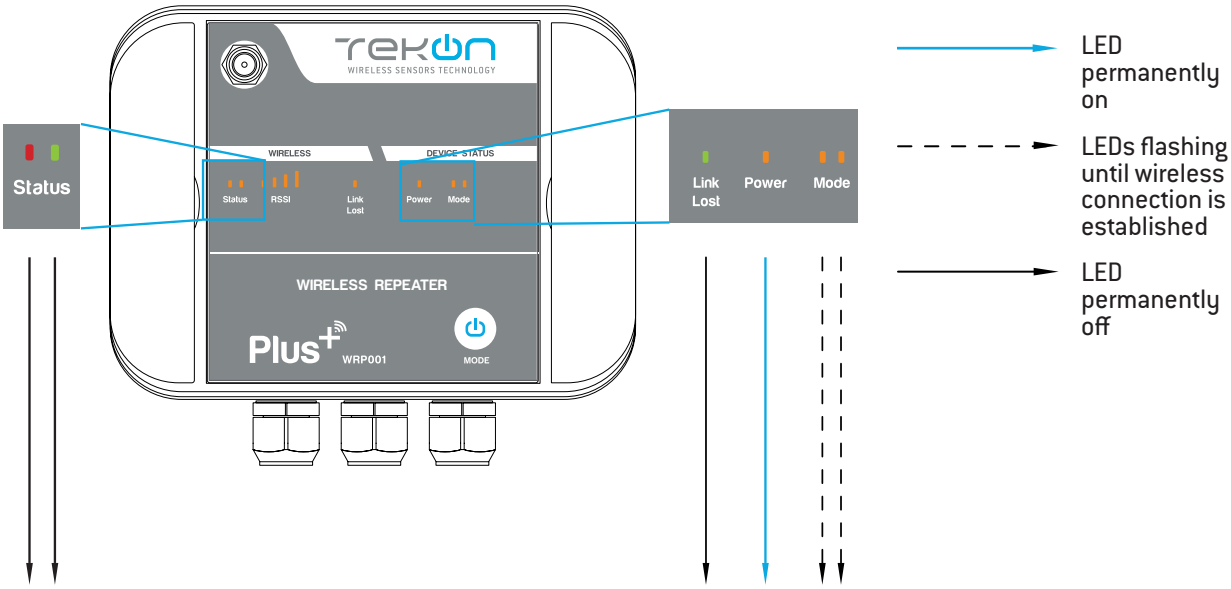
[2] You can check device's serial port name in "Device Manager" on Microsoft ® Windows® operating system.

step
04 CONNECT AND CONFIGURE THE PLUS WIRELESS REPEATER

06

Click on *Connect* (⏻) button.



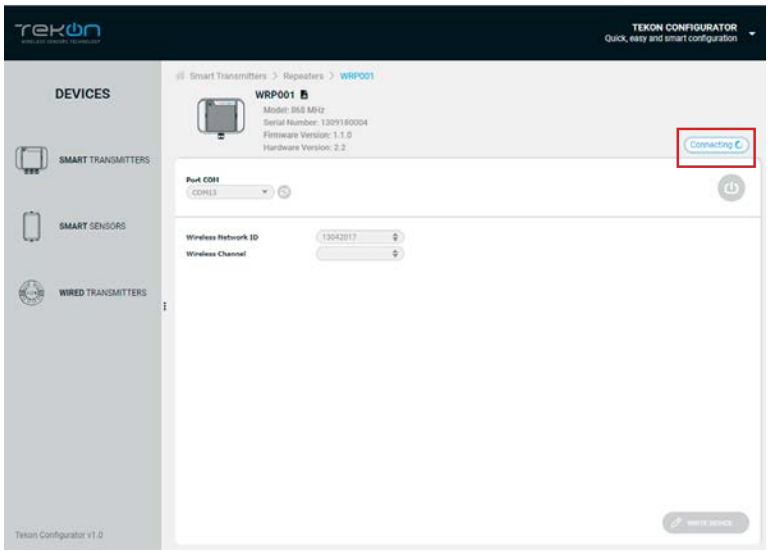


step **04**

CONNECT AND CONFIGURE THE PLUS WIRELESS REPEATER

07

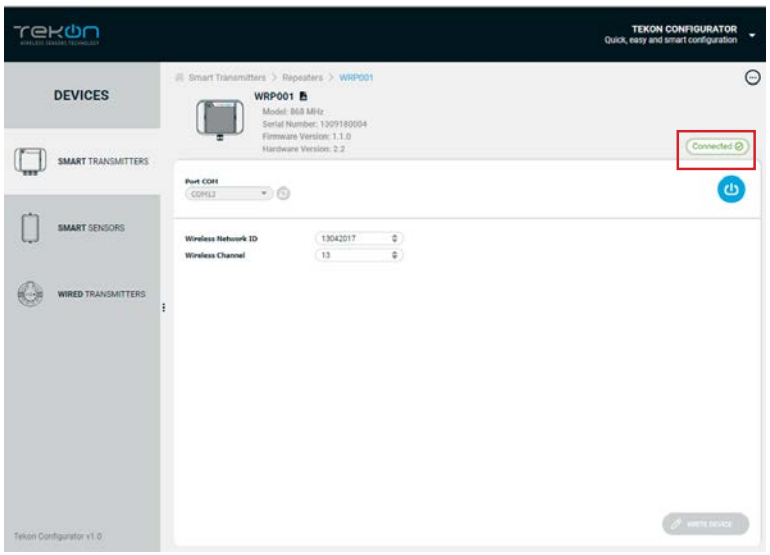
The software will connect to the device.



NOTE:
If the software is unable to connect to the device, the Unexpected Error status is displayed. If it hasn't connected, go back to the previous steps and check the port COM.

08

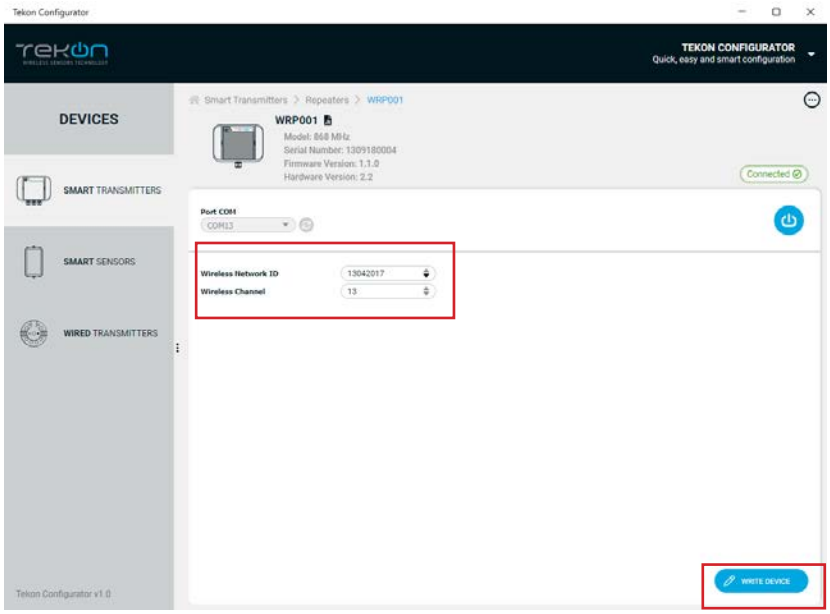
When the software connects to the device, the "Connected" message will be displayed.



step
04 CONNECT AND CONFIGURE THE PLUS WIRELESS REPEATER

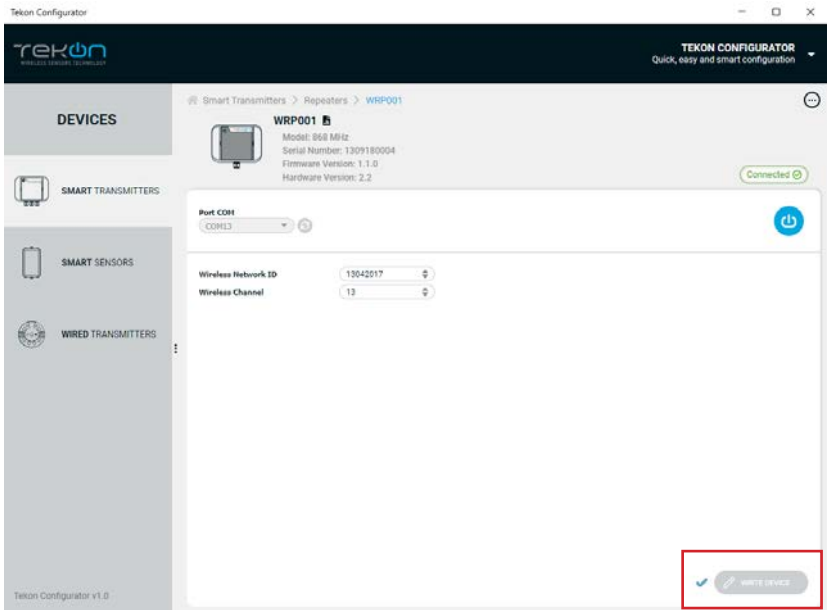
09

Configure the "*Wireless Network ID*" and "*Wireless Channel*" previously obtained from the Gateway.
Click on the "*WRITE DEVICE*" button to update the transmitter settings.



10

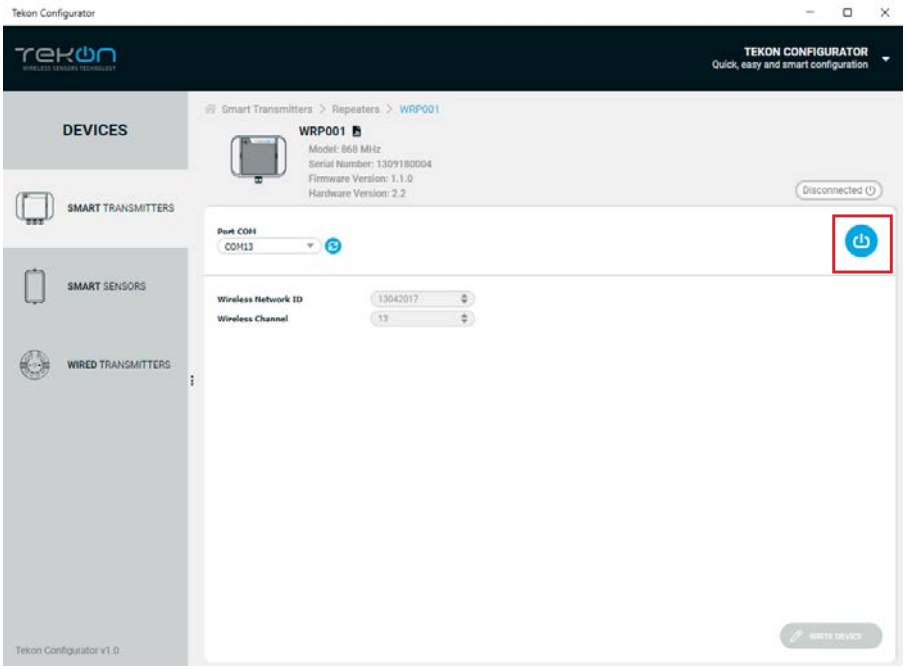
Wait for the software to write the new setting to the device. Wait for the ↻ status to change to ✔ .

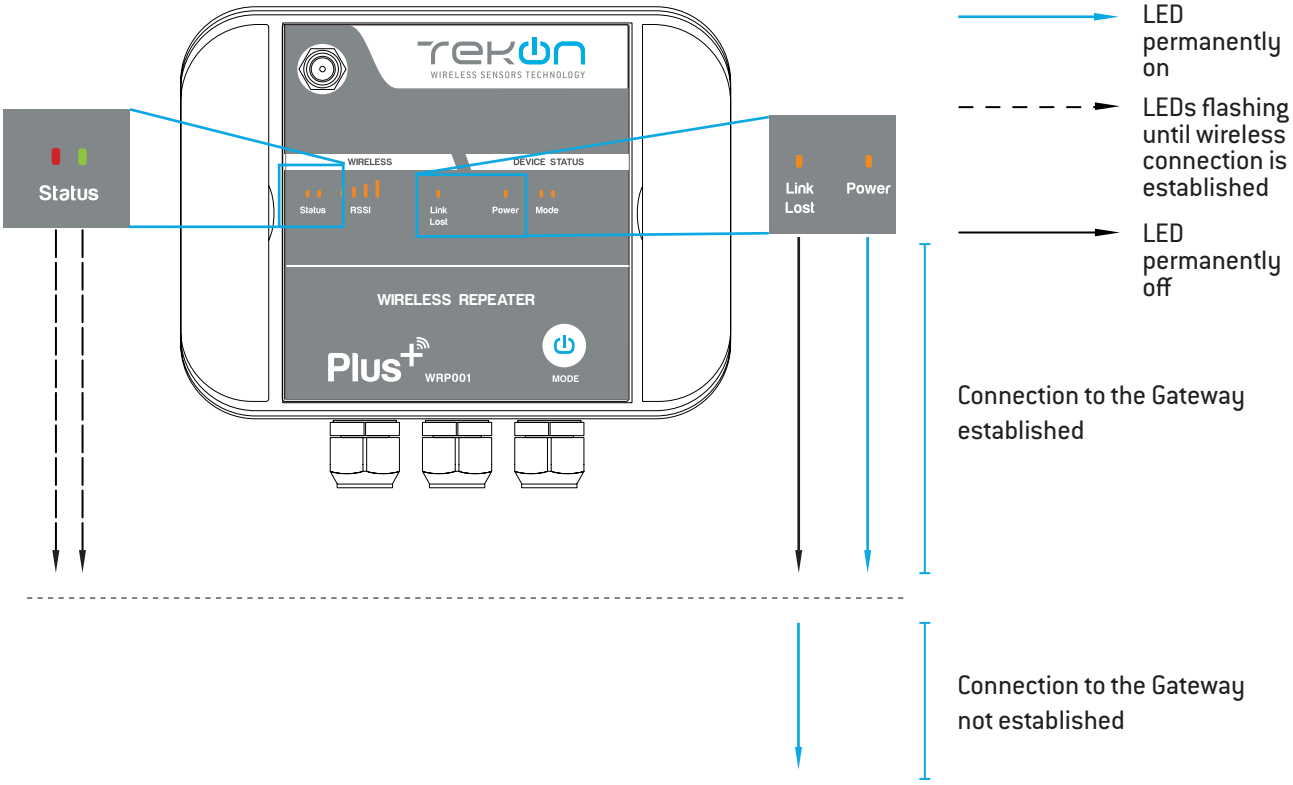


If not, the symbol (✖) will appear: try again and check that the device is connected correctly.

11

Click ⏻ to exit the configuration and return to normal operating mode.





step

05

SITE SURVEY MODE

step **05**

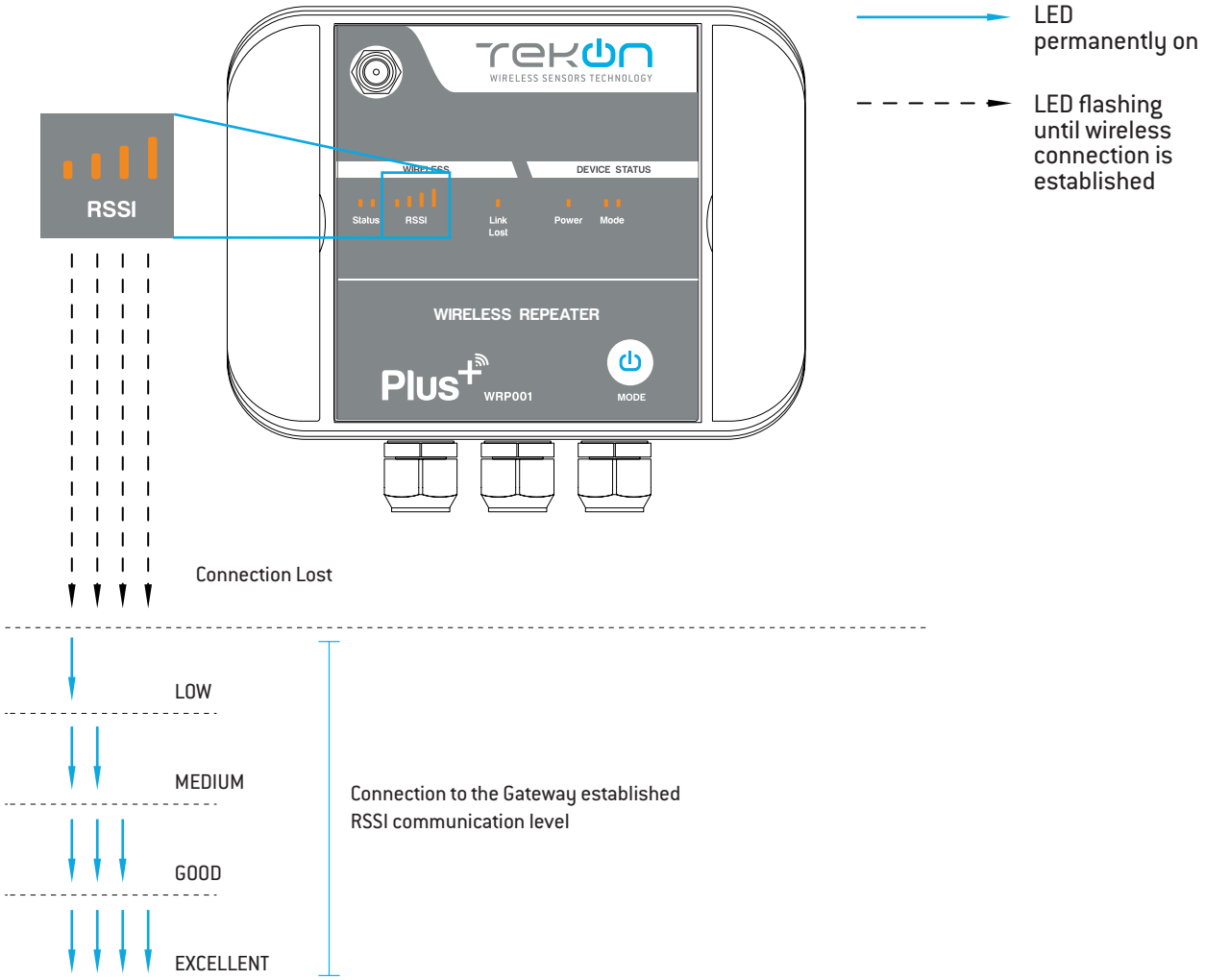
SITE SURVEY MODE

Refers to following devices: *TWP4AI Transmitter*, *TWP-4AI4DI1UT Transmitter*, *WRP001 Repeater* and *TWPH-1UT Transmitter.*
Site survey mode is a tool that allows a quick wireless signal strength evaluation at the site of installation. It doesn't require additional equipment or software.

01

Press and hold Mode (⏻) button untill Status LEDs are permanently on and Mode LEDs flash.

RSSI LEDs indicate the signal strength.



02

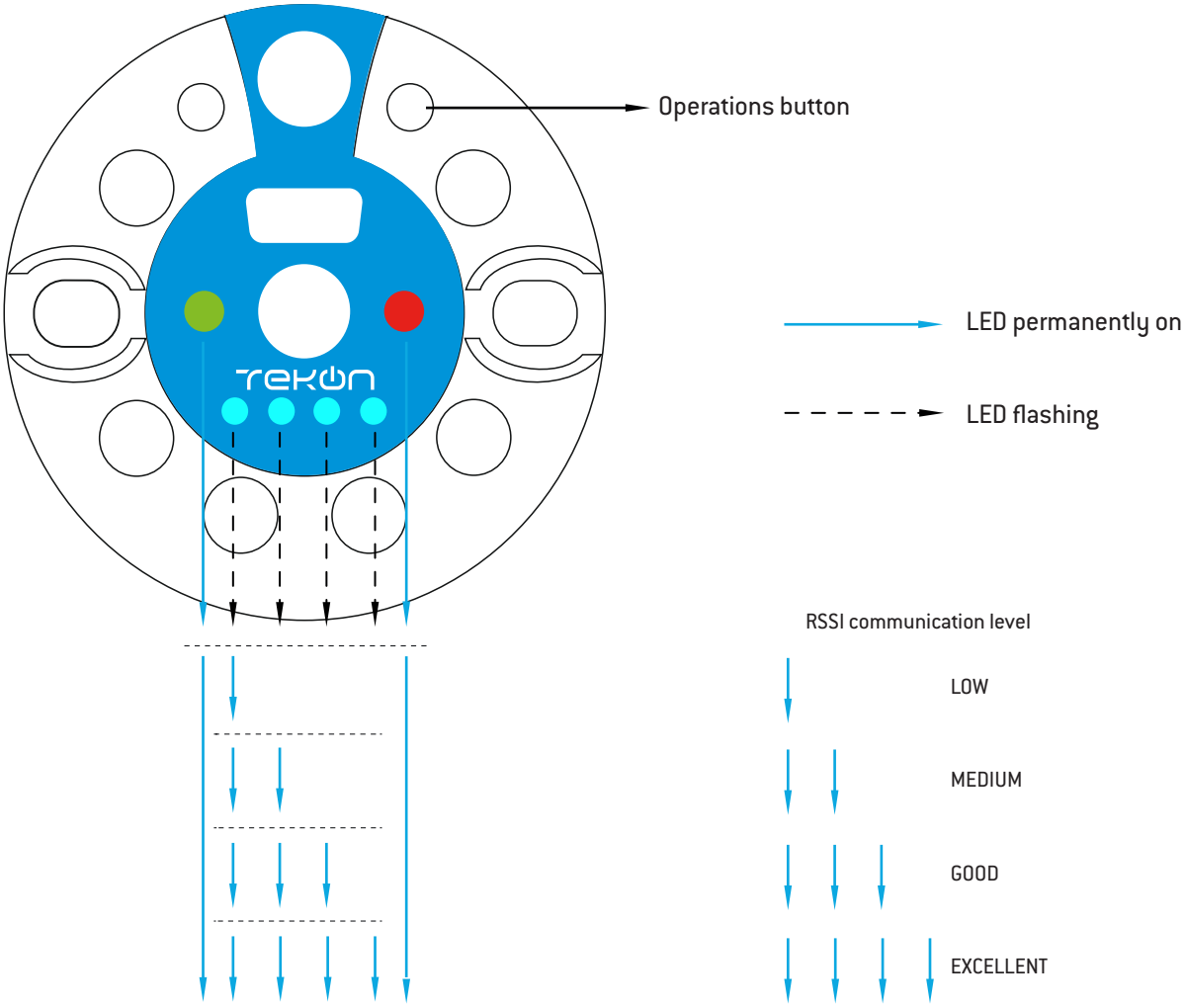
Press and hold Mode (⏻) button untill RSSI LEDs switch off and device resumes normal operation mode.

step
05 SITE SURVEY MODE

03

Press and hold operations button for 3 seconds. Red and green LEDs will stay on.

Blue LEDs indicate the signal strength.



04

Press and hold operations button for 3 seconds to exit Site Survey Mode and activate normal operation mode.

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