WIRELESS SENSORS TECHNOLOGY

DUOS WIRELESS SYSTEM
INSTALLATION GUIDE

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DUOS WIRELESS SYSTEM
INSTALLATION GUIDE

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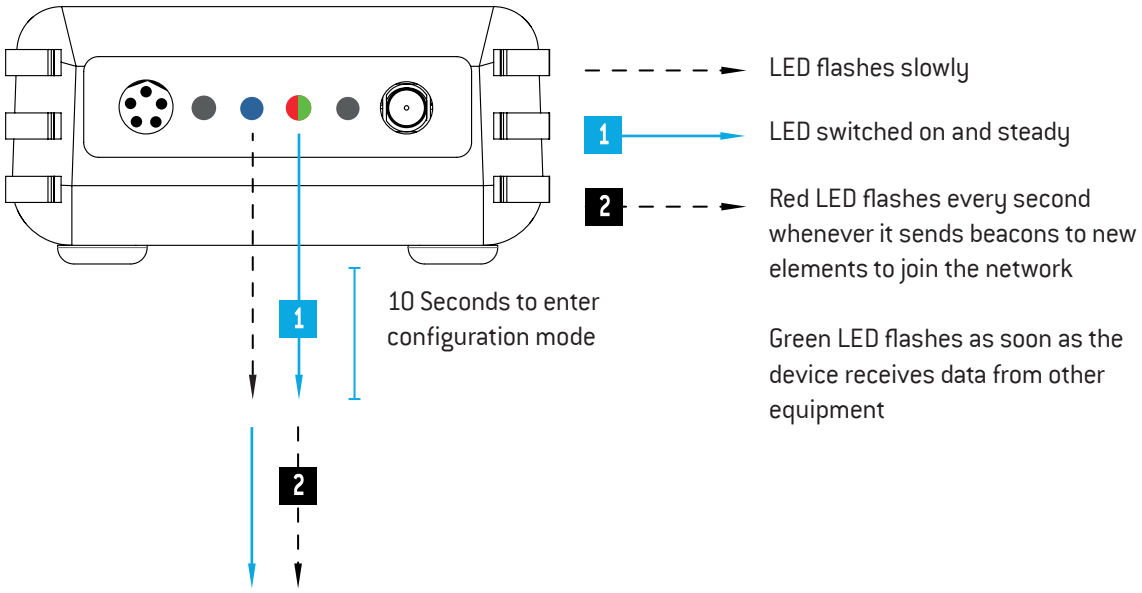
CONNECT AND CONFIGURE THE DUOS WIRELESS GATEWAY

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

01 Connect the antenna to the *Gateway*.

02 Connect the *DUOS RS485-USB* cable to the computer and then to the Gateway.

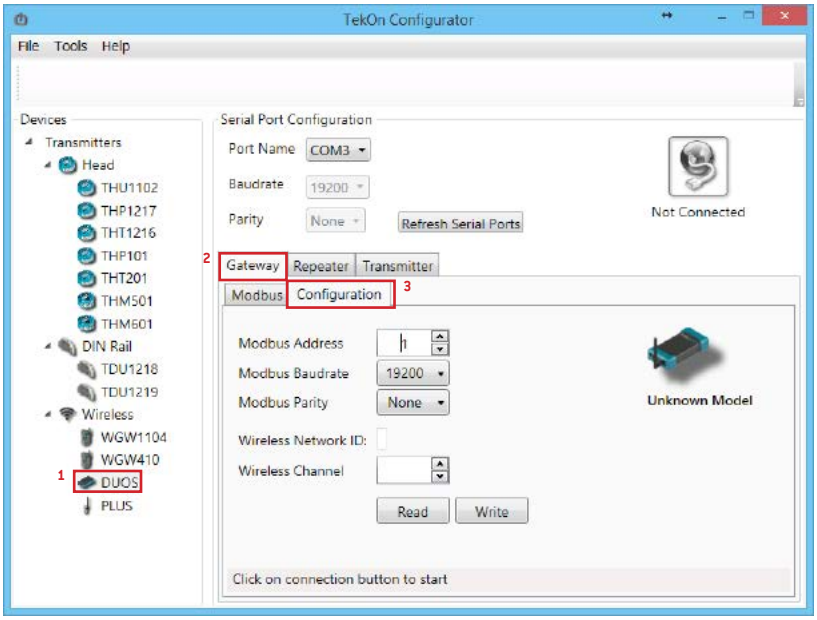
03 Check the device connection through the LED signage.
If the red and blue LEDs are active, both the cable and *Gateway* are working correctly.



step
01
CONNECT AND CONFIGURE THE DUOS WIRELESS GATEWAY

04

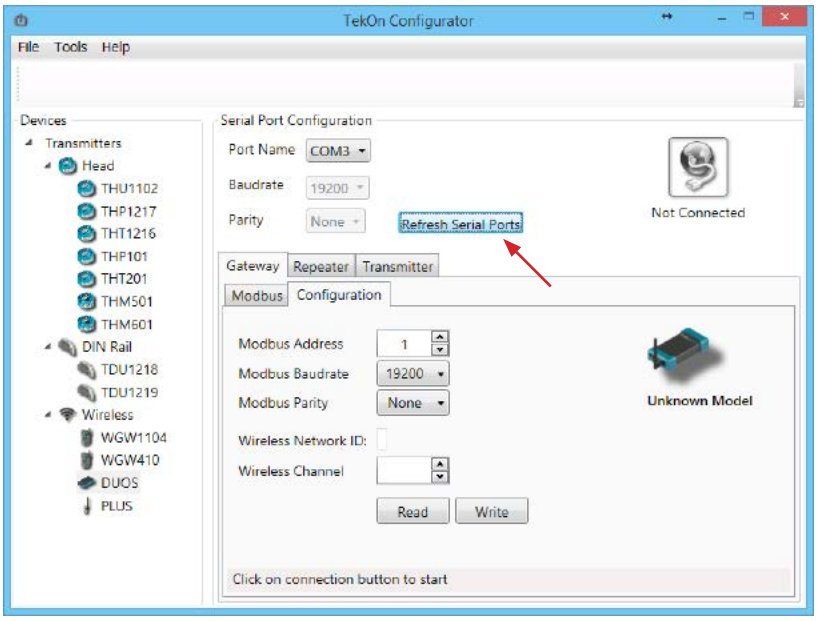
Open *Tekon Configurator Software*[1] and select from the menu *DUOS* >> *Gateway* >> *Configuration*



05

Select the Serial Port of the *DUOS Wireless Gateway*

Click on the *Refresh Serial Ports* button.

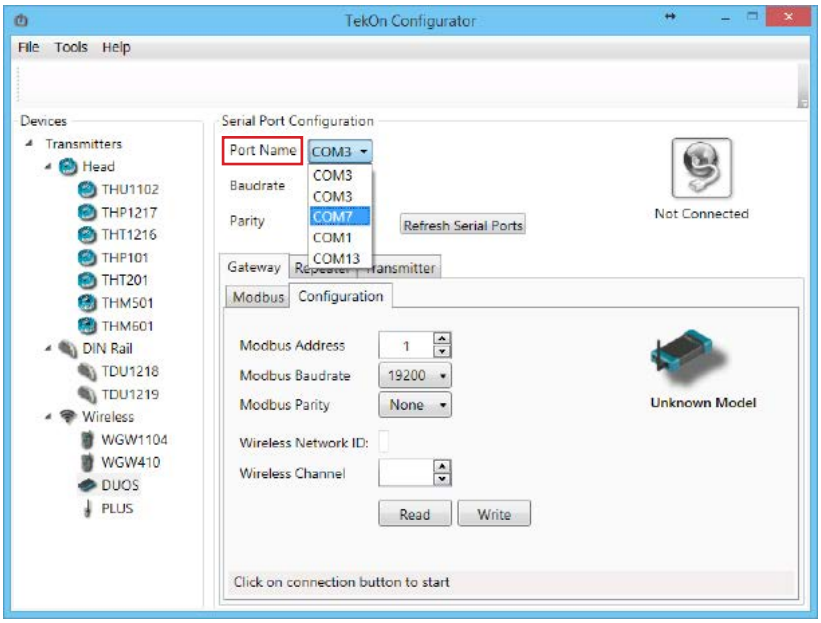


[1] Tekon Configurator software is free of charge and available at www.tekonelectronics.com

step
01
CONNECT AND CONFIGURE THE DUOS WIRELESS GATEWAY

06

Select the *Port name*[2] of the device.



07

Remove the *DUOS RS485-USB* cable from the *Gateway* side and reinsert it.

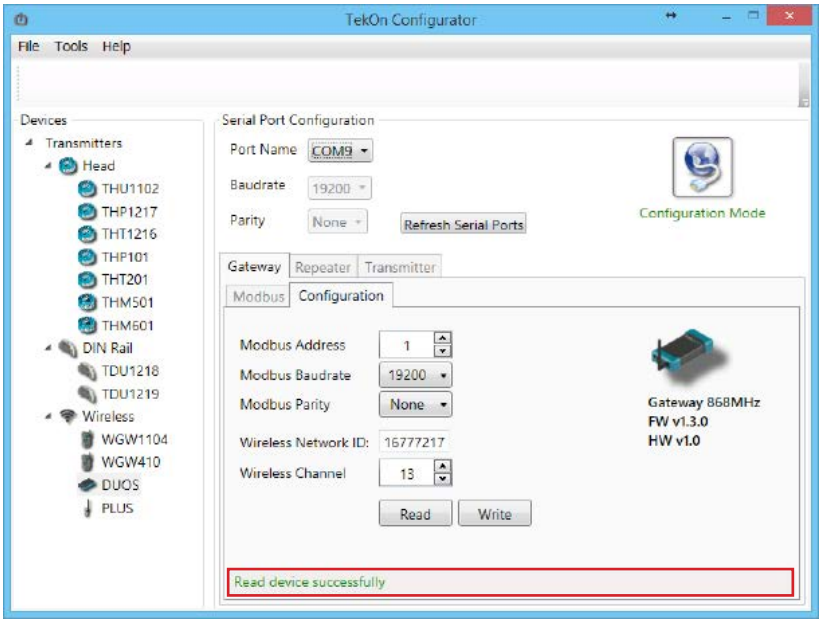
NOTE:
After reinserting the cable, you have 10 seconds to enter in configuration mode by clicking on the Connect ( ) button, while the blue LED flashes slowly.
In this mode, you can manage the device parameters: *Modbus Address*, *Modbus baud rate*, *Modbus Parity*, *Wireless Network ID* and *Wireless Channel*.

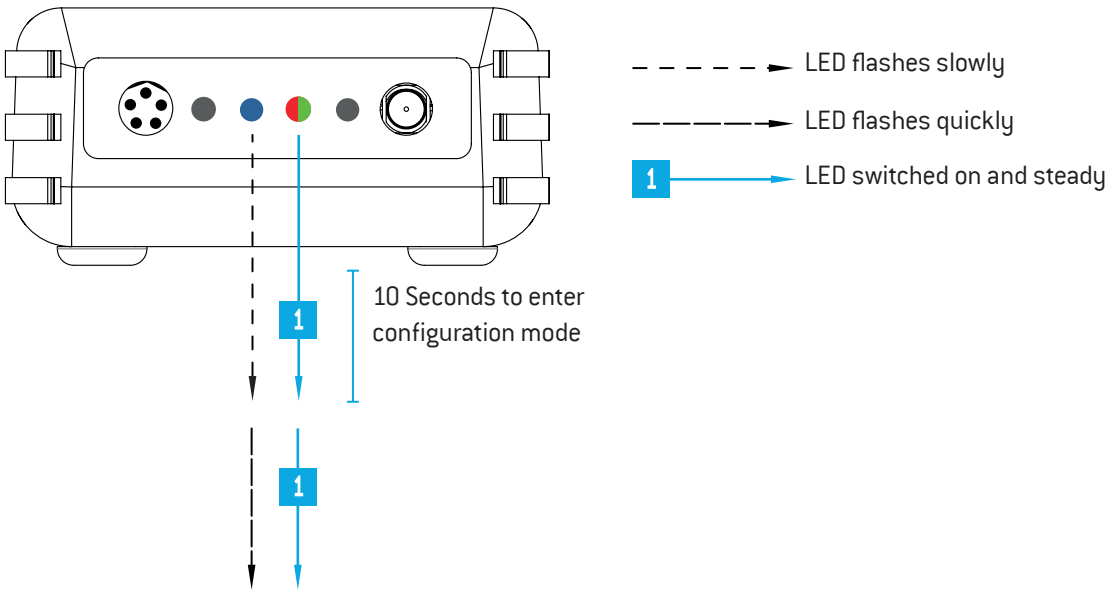
[2] You can check the device port name in the Device Manager menu in the Windows operating system.

step
01
CONNECT AND CONFIGURE THE DUOS WIRELESS GATEWAY

08

Click on the *Connect* ( ) button to enter configuration mode.
The status string at the bottom of the software window gives feedback of reading operations, as well as the *Gateway* LED indication.



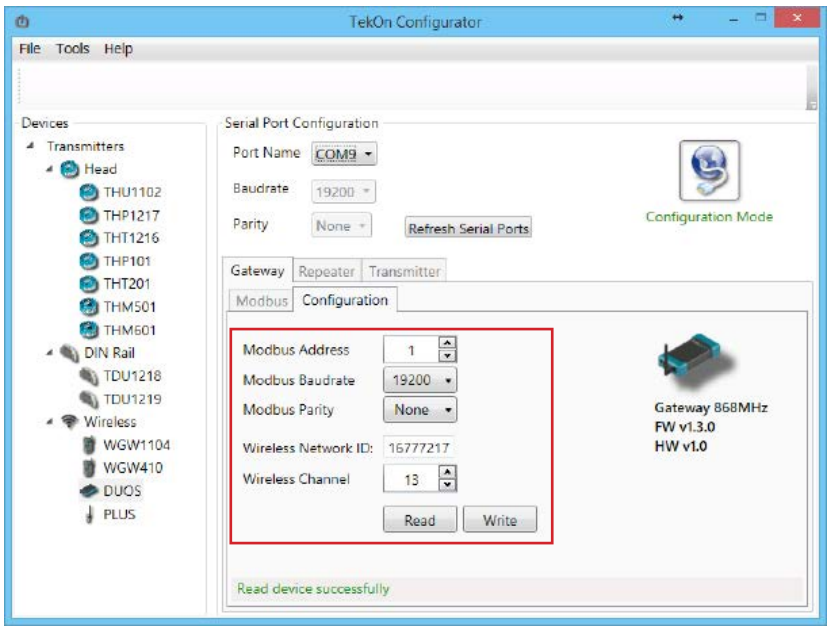


NOTE:
When 10 seconds have been exceeded, the blue LED is steady and it is no longer possible to enter configuration mode. In this case, the cable must be removed and reiserted - step 2.

step
01
CONNECT AND CONFIGURE THE DUOS WIRELESS GATEWAY

09

Take note of the device configuration data available, namely: *Modbus Address*, *Modbus Baudrate*, *Modbus Parity*, *Wireless Network ID* and *Wireless Channel*.

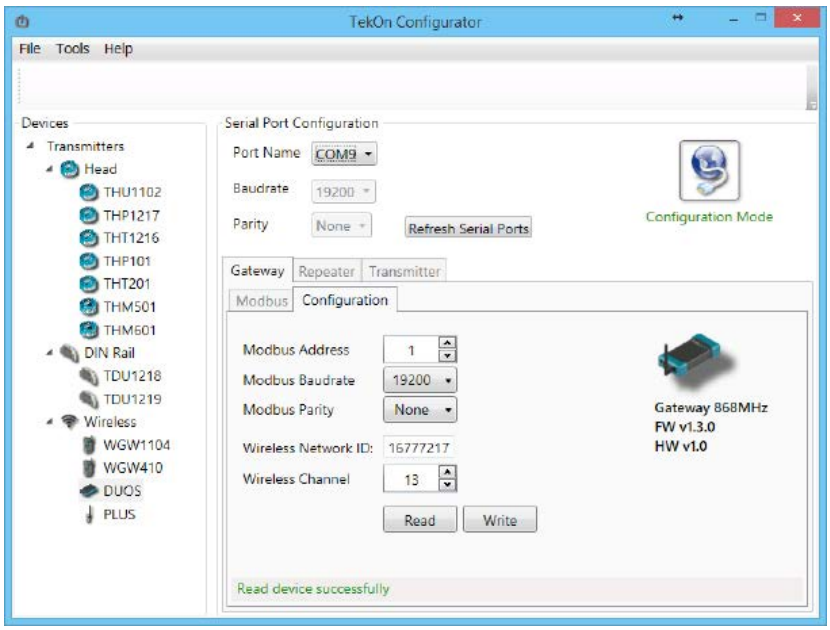


NOTE:
The wireless network connection between devices is ensured by the *Wireless Network ID* and *Wireless Channel field parameters.*

10

Click on the *Disconnect* ( ) button.

The Modbus interface and the wireless network are active if the blue LED is on and steady and the red LED is flashing once per second.

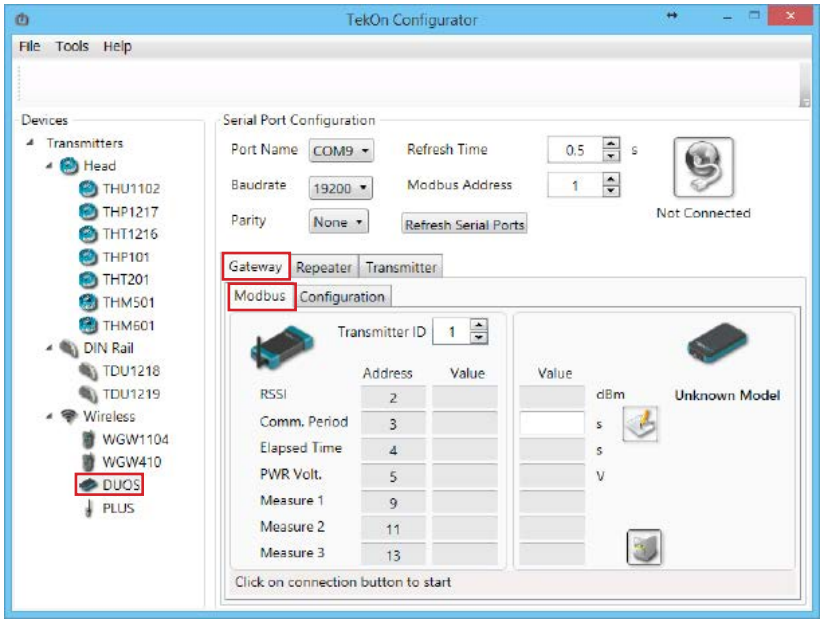


step
01
CONNECT AND CONFIGURE THE DUOS WIRELESS GATEWAY

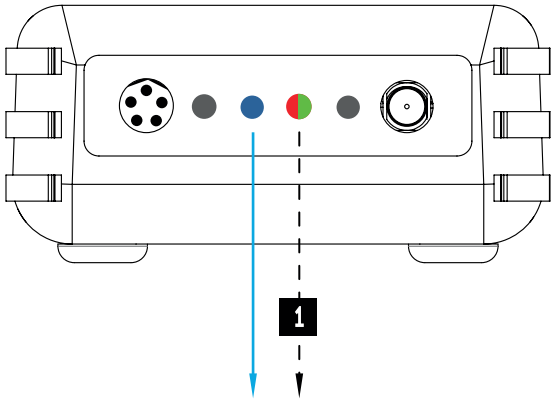
11

Modbus Communication

Open the *Modbus* tab of the *Gateway* and set the previously saved configurations.



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



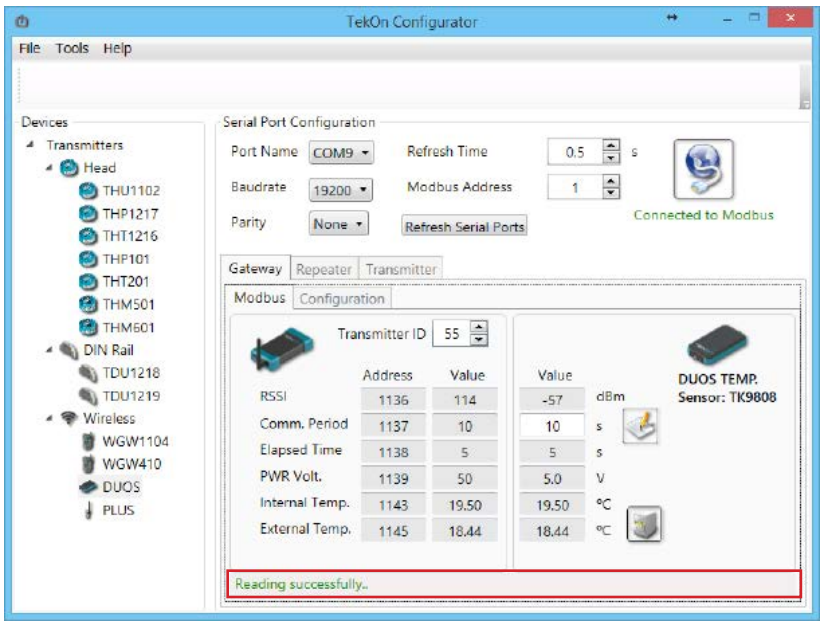
LED switched on and steady

1 Red LED flashes every second whenever it sends beacons to new elements to join the network.

step
01
CONNECT AND CONFIGURE THE DUOS WIRELESS GATEWAY

12

Click on the *Connect* ( ) button and check the operation status at the bottom of the window.



The messages *Connected to Modbus* and *Reading successfully* will appear if the *Serial Port* configuration parameters are correct and the Modbus connection established.
If the blue LED is on and steady and red LED flashes once per second, the *Gateway* is fully operational on the Modbus and wireless interfaces.

step
02
CONNECT AND CONFIGURE THE DUOS WIRELESS TRANSMITTER

The following steps are valid for any *Transmitter* from the *DUOS* system.

The device (previously mentioned as "unknown model"), as well as the firmware and hardware versions, will be detected when the USB is set. The Tekon Configurator software graphical interface is then adjusted to the detected device.

01

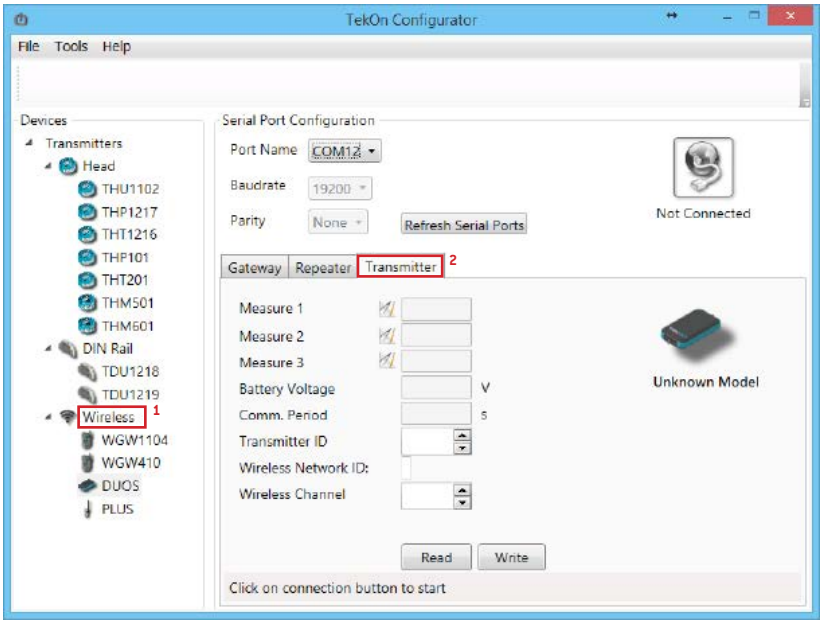
Connect probe to the *DUOS Wireless Transmitter*.

The *DUOS Temp Wireless Transmitter* is the device chosen for this guide.

NOTE:
Although the transmitters are physically equal, probe compatibility is different. This means that the *DUOS TEMP Wireless Transmitter* is only compatible with temperature probes (models: Plug and Play probe and Temperature Probe), whereas the *DUOS Hygrotemp Wireless Transmitter* is only compatible with temperature and humidity probes (models: TK07-PFT5 and TK07-MFT9-HC01).

02

Open a new window of the *Tekon Configurator Software* and select the menu *DUOS* >> *Transmitter*.

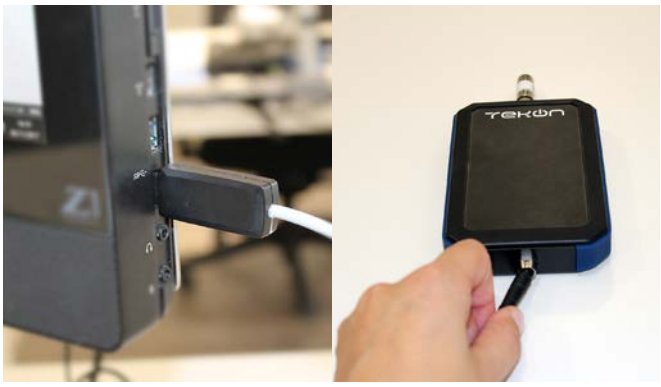


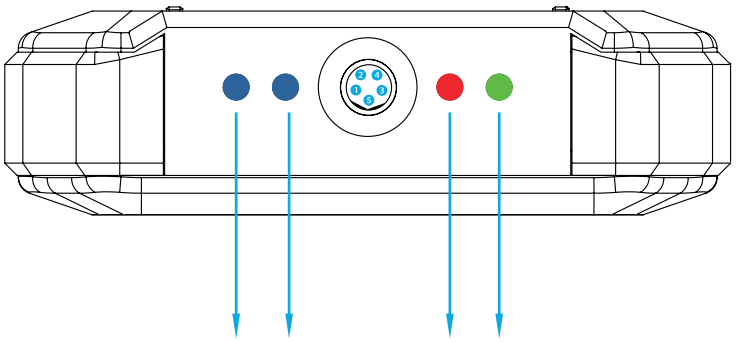
step
02
CONNECT AND CONFIGURE THE DUOS WIRELESS TRANSMITTER

03

Connect the *DUOS TRANSMITTER SARC* cable to the computer and then to the transmitter.

After cable connection, all LEDs stay active during 10 seconds.

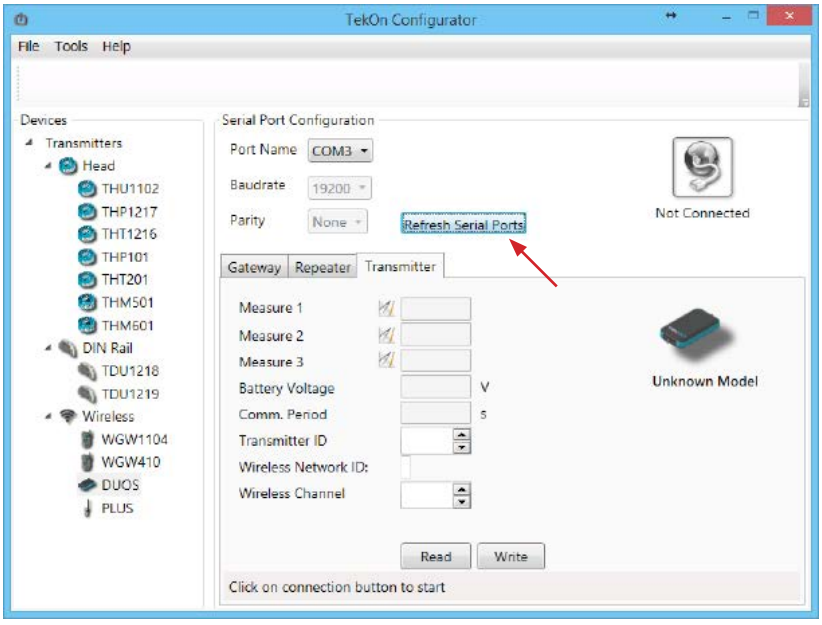




LED switched on and steady

04

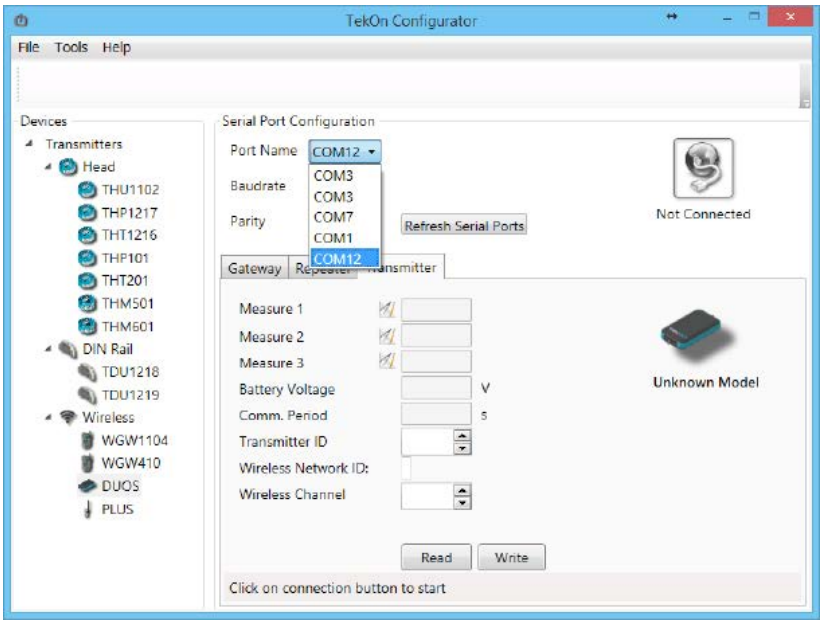
Click on the *Refresh Serial Ports* button.



step
02
CONNECT AND CONFIGURE THE DUOS WIRELESS TRANSMITTER

05

Select the *Port name* of the device. [3]



06

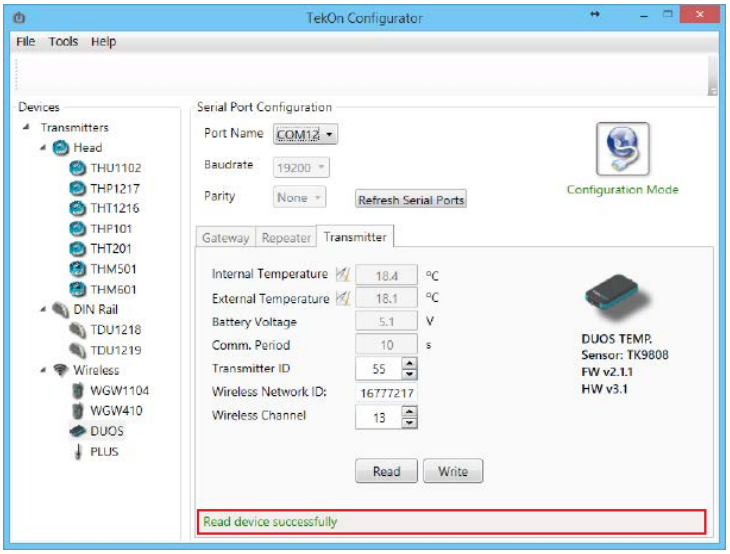
Remove the cable from the *Transmitter* side and reinsert it. This will access the device's configuration input window during 10 seconds.

[3] You can check the device port name in the Device Manager menu in the Windows operating system.

step
02
CONNECT AND CONFIGURE THE DUOS WIRELESS TRANSMITTER

07

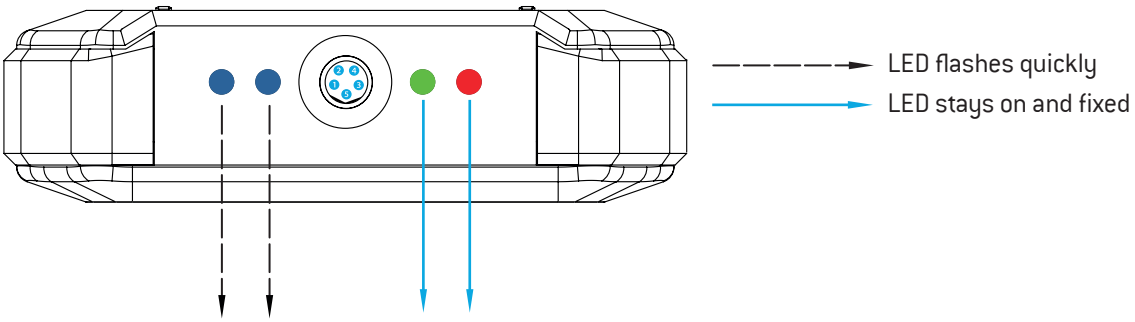
The status string at the bottom of the software window gives feedback on reading operations.



The device's identification data is now available in the software window.
In this guide, the *DUOS TEMP Wireless Transmitter* has been considered.

Click on *Connect* [ ] button to enter configuration mode. These configurations are read automatically.

In configuration mode, the *Transmitter* activates 4 LEDS: 2 blue LEDs flash and the red and green LEDs remain active and steady.



NOTE:
After reinserting the cable, you have 10 seconds to enter configuration mode by clicking on the Connect [ ] button, while the blue LEDs flash slowly.
When the 10 seconds have been exceeded, the blue LEDs are steady and it is no longer possible to enter configuration mode.
In that case, the cable must be removed from the Transmitter and reiserted - step 3.

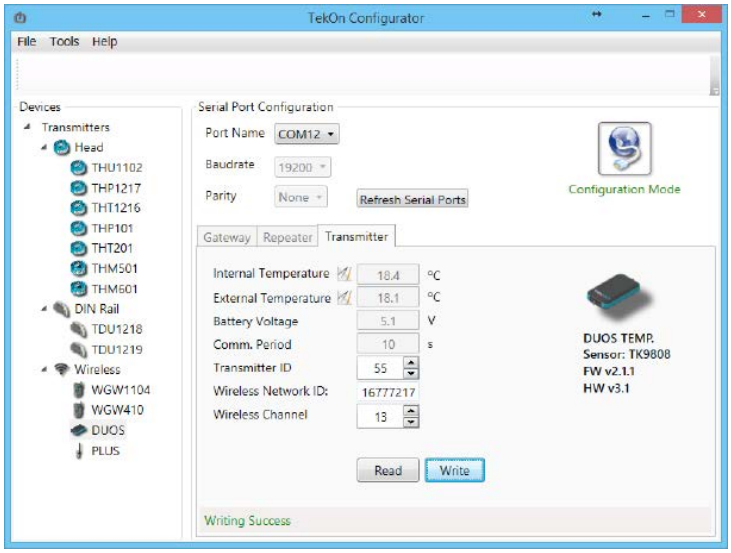
step
02
CONNECT AND CONFIGURE THE DUOS WIRELESS TRANSMITTER

08

Configure the *Wireless Network ID* and the *Wireless Channel* previously obtained from the *Gateway*. The wireless connection between both devices is ensured by the *Wireless Network ID* and the *Wireless Channel* parameters.

Ensure that the *Transmitter ID* is unique in the network. Each device must have a different *Transmitter ID*. Change it (if necessary) and take note to view the data later.

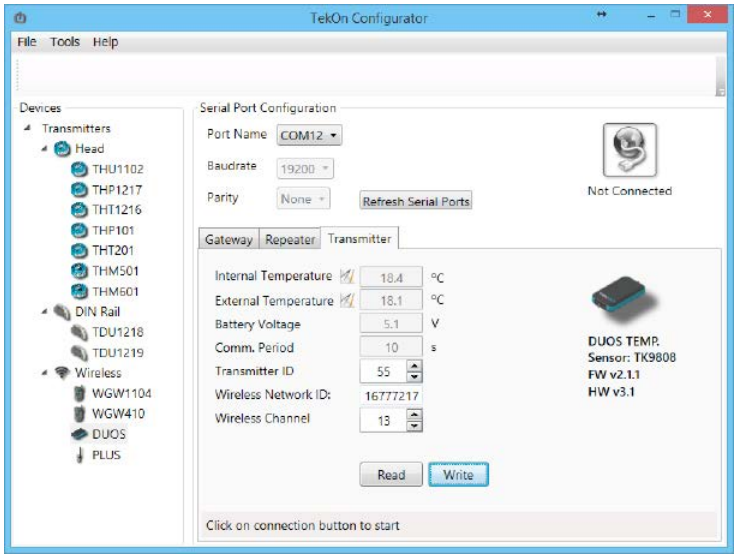
Click on the *Write* button to update the settings for the *Transmitter*.



step
02
CONNECT AND CONFIGURE THE DUOS WIRELESS TRANSMITTER

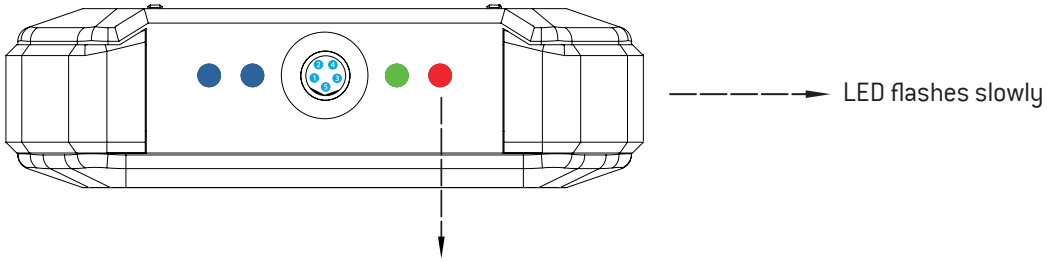
09

Click on the *Configuration Mode* ( ) button to exit setup and start the equipment in normal operation mode.

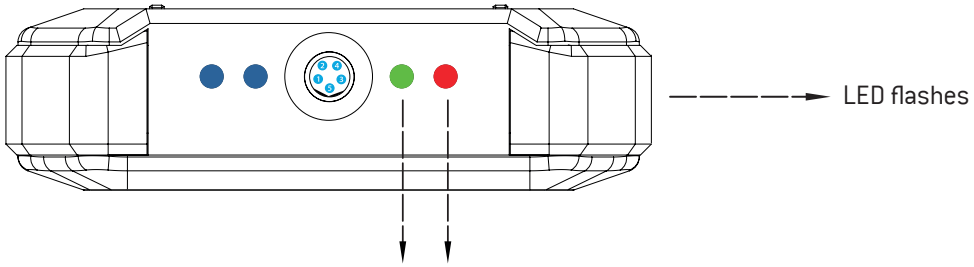


After this procedure:

- The *Transmitter* awaits connection to the *Gateway*, when only the red LED flashes;



- The *Transmitter* is connected via wireless and its data is available in the *Gateway*, when the red and green LEDs flash.



NOTE:
If the green LED does not flash, communication as not been established. 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).
The *Transmitter LEDs* remain active during 1 minute. After this period, all LEDs shut down in order to optimise battery life.

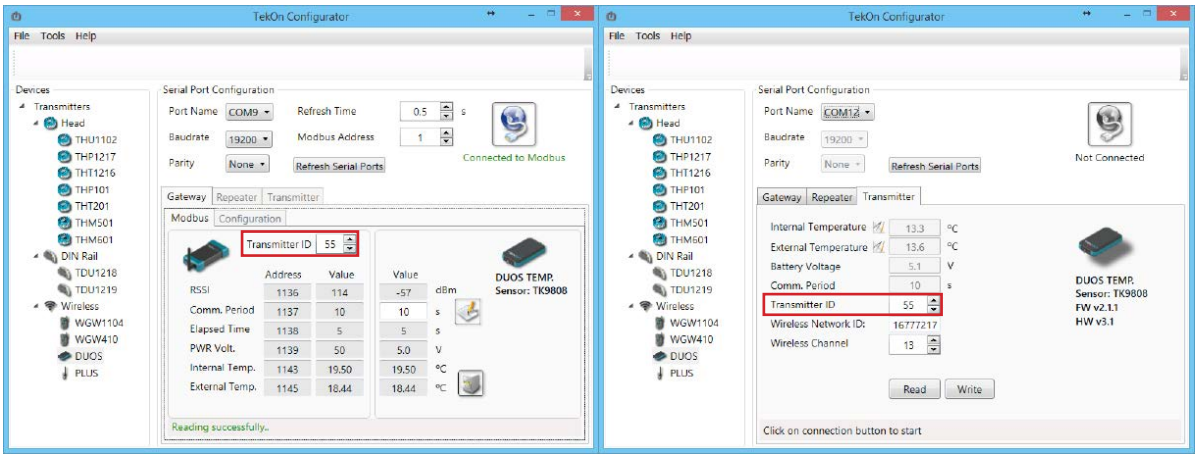
To reset the transmitter, the batteries should be removed, during - at least - 50 seconds (in sleep mode) or instead, as the transmitter has a magnetic switch, a magnet can be used to reset it by passing the magnet close to the transmitter's front side in the blue LED's area.

step 03

CHECK WIRELESS COMMUNICATION BETWEEN THE DUOS TRANSMITTER AND THE GATEWAY

01

Place the two windows of Tekon Configurator software devices' side by side, in order to analyse communication between both devices.



02

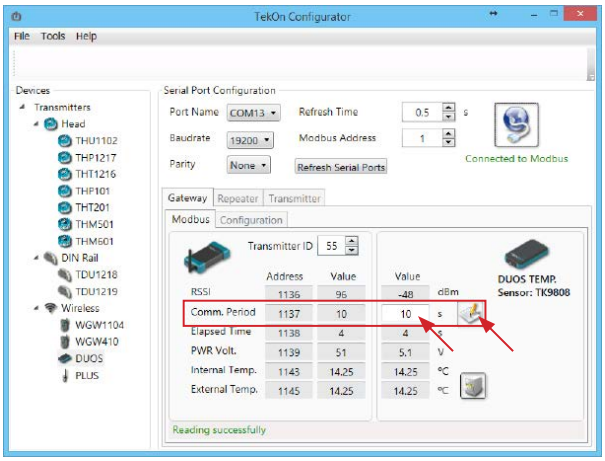
Select the configured *Transmitter ID* in the *Gateway* window. After this, it is possible to access the address window of the *Transmitter* in analysis.

The communication between devices is successfull when the *Communication Period* field is in compliance with its duration cycle. Therefore, as soon as the cycle duration has finished, it will turn back to 0.

Communication does not occur if the *Communication Period* field presents a higher value than the *Elapsed Time* field.

In the following example, it was established that the temperature monitoring cycle (or *Elapsed Time*) is 2 seconds. Therefore, the *Communication Period* field will turn back to 0 as soon as it reaches 2 seconds and the analysed parameters (in this case, the temperature) will be updated in accordance with ambient conditions.

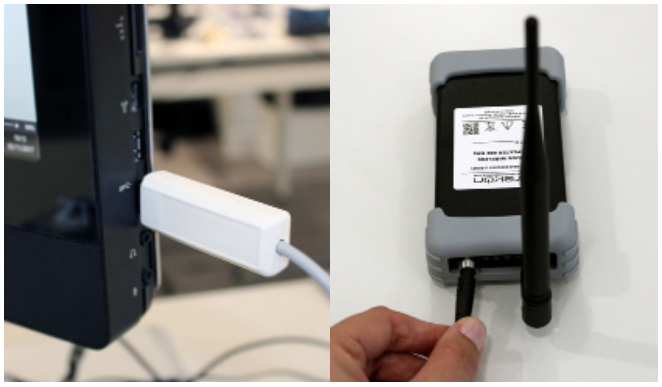
You can define the communication period of the *Transmitter* (or the *Elapsed Time*) in the write field by clicking on the *register* ( ) button.



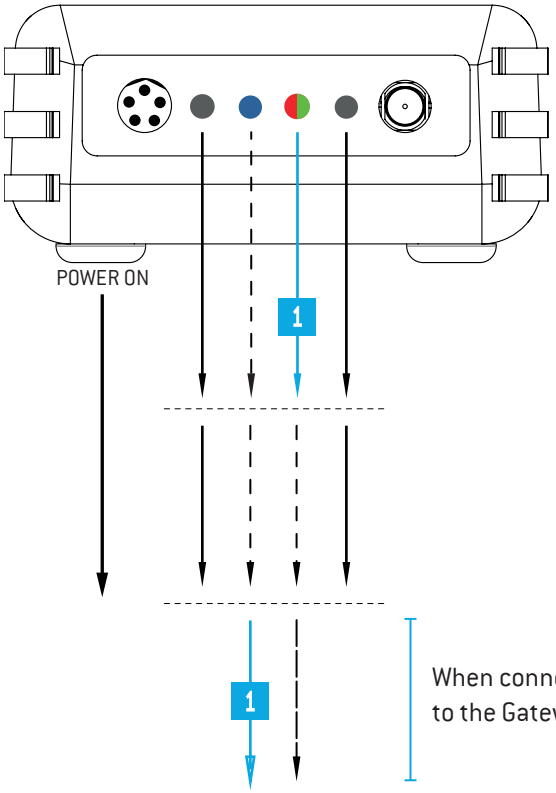
step
04 CONNECT AND CONFIGURE THE DUOS WIRELESS REPEATER

01 Connect the antenna to the *Repeater*.

02 Connect the *DUOS RS485-USB* cable to the computer and then to *Repeater*.



Check the device connection through the LEDs signage.



LED switched off

LED flashes slowly

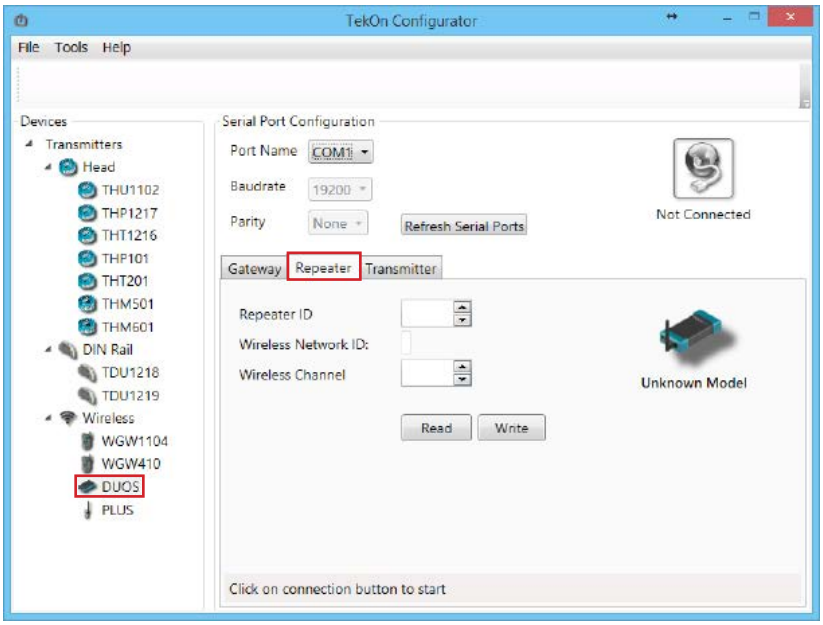
LED flashes quickly

1 LED switched on and steady (red/green LED)

step
04 CONNECT AND CONFIGURE THE DUOS WIRELESS REPEATER

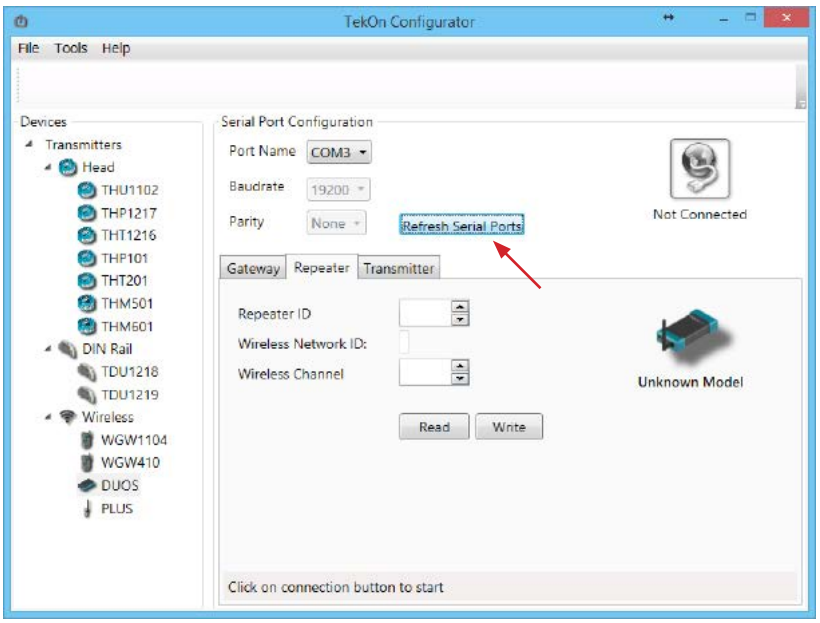
03

Open the *Tekon Configurator Software* and select the menu *DUOS* >> *Repeater*.



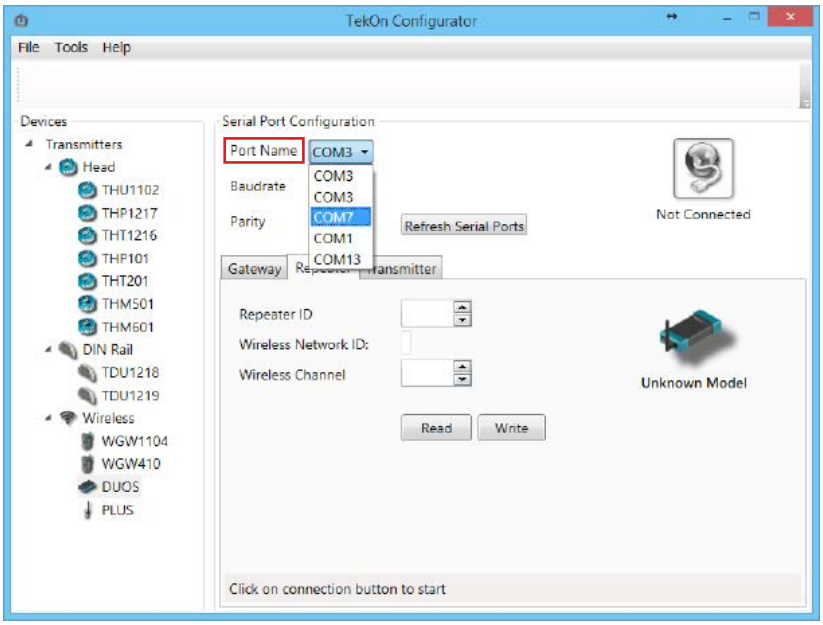
04

Click on *Refresh Serial Ports* button.



step
04 CONNECT AND CONFIGURE THE DUOS WIRELESS REPEATER

05 Select *Port name* of the device.[4]



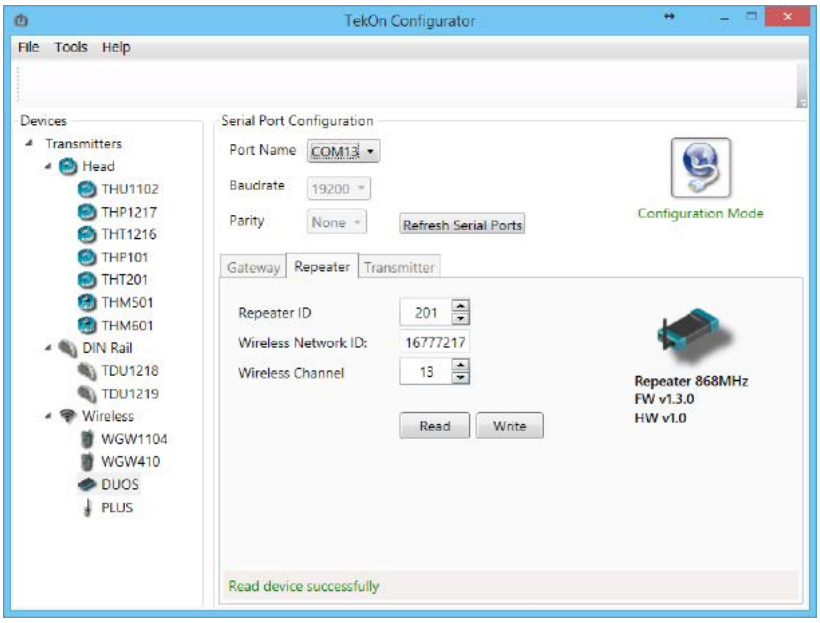
06 Remove the cable from *Repeater* and reinsert it. After reinserting the cable you have 10 seconds to enter configuration mode by clicking on the *Connect* ( ) button, while the blue LED flashes slowly.

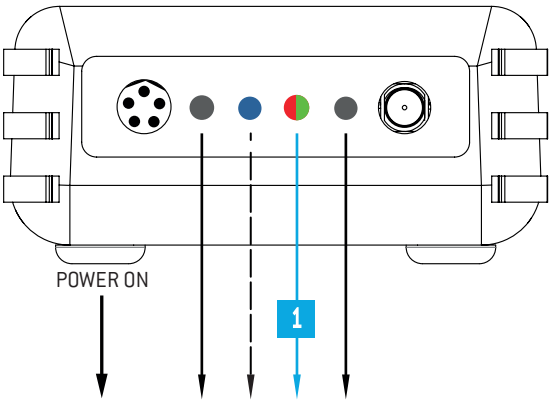
NOTE:
When the 10 seconds have been exceeded, the blue LED remains steady and it is no longer possible to enter *Configuration mode*. In that case, the cable must be removed from Repeater and reiserted.

[4] You can check the device port name in the Device Manager menu in the Windows operating system.

step
04 CONNECT AND CONFIGURE THE DUOS WIRELESS REPEATER

07 Click on the *Connect* ( ) button to verify the device's configuration data.





LED switched off

LED flashes slowly

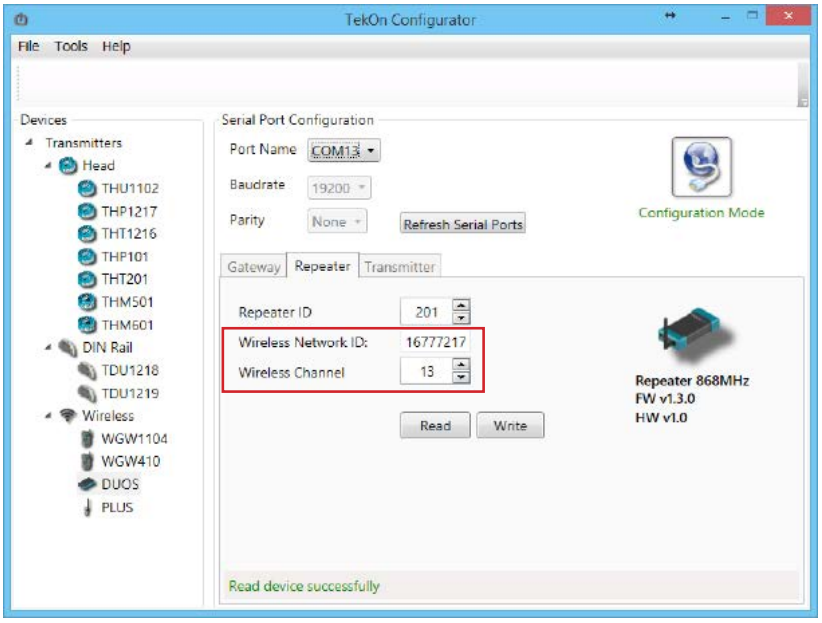
LED flashes quickly

1 LED switched on and steady (red/green LED)

step
04 CONNECT AND CONFIGURE THE DUOS WIRELESS REPEATER

08

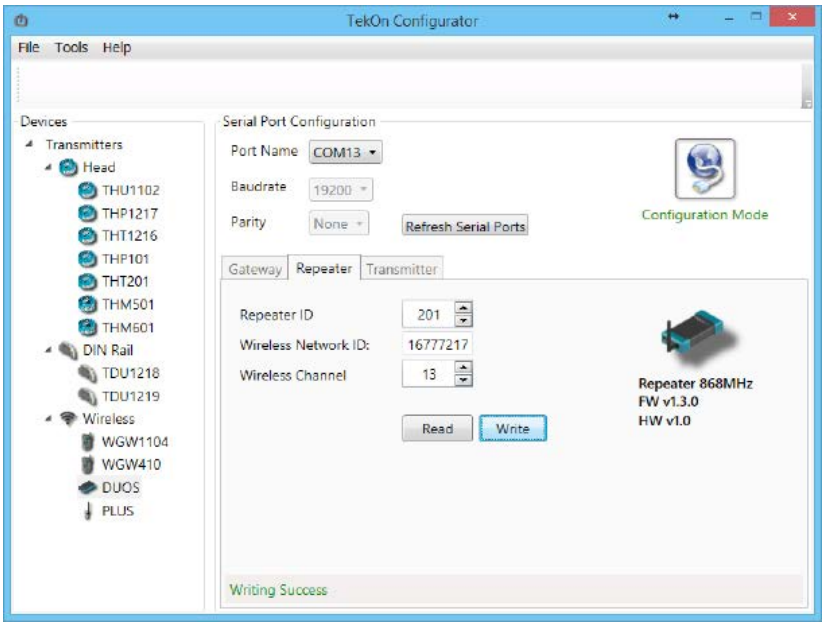
Make sure that *Wireless Network ID* and *Wireless Channel* in the *Repeater* window have the same values as the ones that were obtained in the *Gateway* configuration window.



NOTE:
If there is more than one *Repeater* in the network, make sure that the *Repeater ID* is unique in order to avoid network conflict.

09

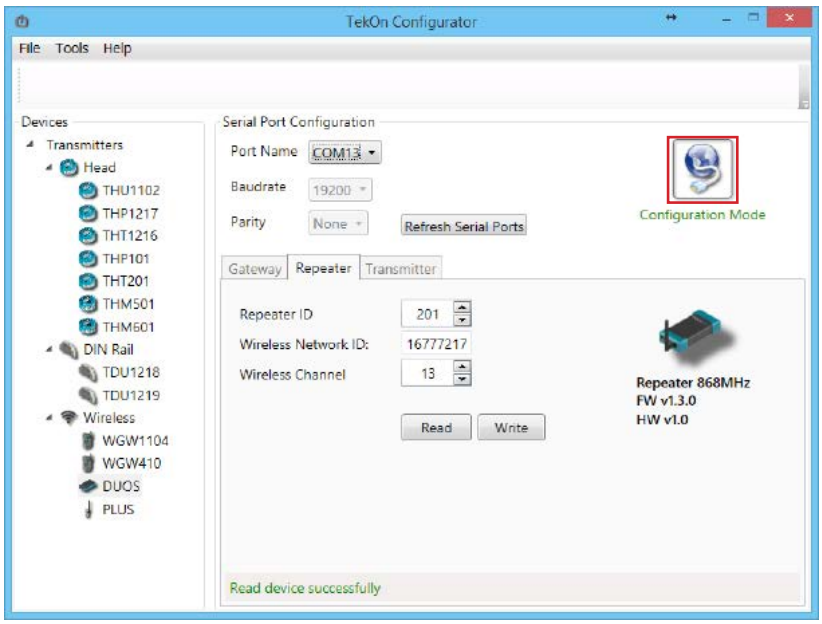
Change configuration fields (if necessary) and click on *Write* ( ) button to update the *Repeater ID* parameter.



step
04 CONNECT AND CONFIGURE THE DUOS WIRELESS REPEATER

10

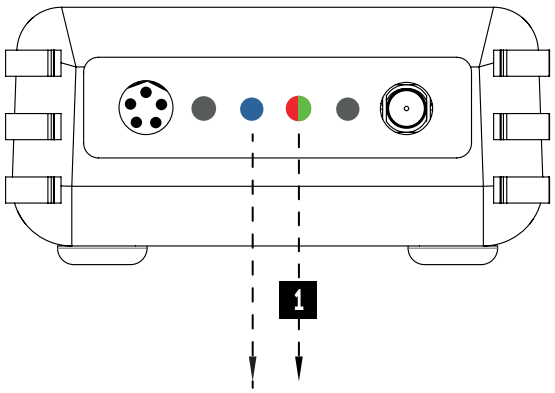
Click on the *Configuration Mode* ( ) button to exit the setup programme.



NOTE:
In order to establish communication between the Repeater and the Gateway, make sure that both devices are at a distance of at least 3 meters or remove the antenna from the repeater (in case both devices are near each other). These procedures will guarantee communication quality.

At this moment, it is possible to check if:

- The *Repeater* is trying to connect to the network when the red LED flashes every second.

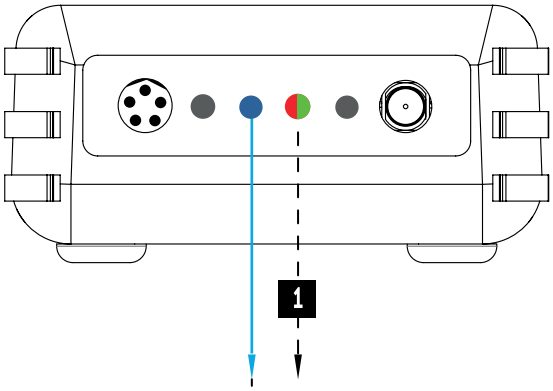


LED flashes slowly

1 Red LED flashes until communication can be established

step
04 CONNECT AND CONFIGURE THE DUOS WIRELESS REPEATER

- The *Repeater* is connected to the wireless network when red and green LEDs flash.



LED switches on and remains steady

1 Red/green LED flashes as soon as connection between the devicesas been established.

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