

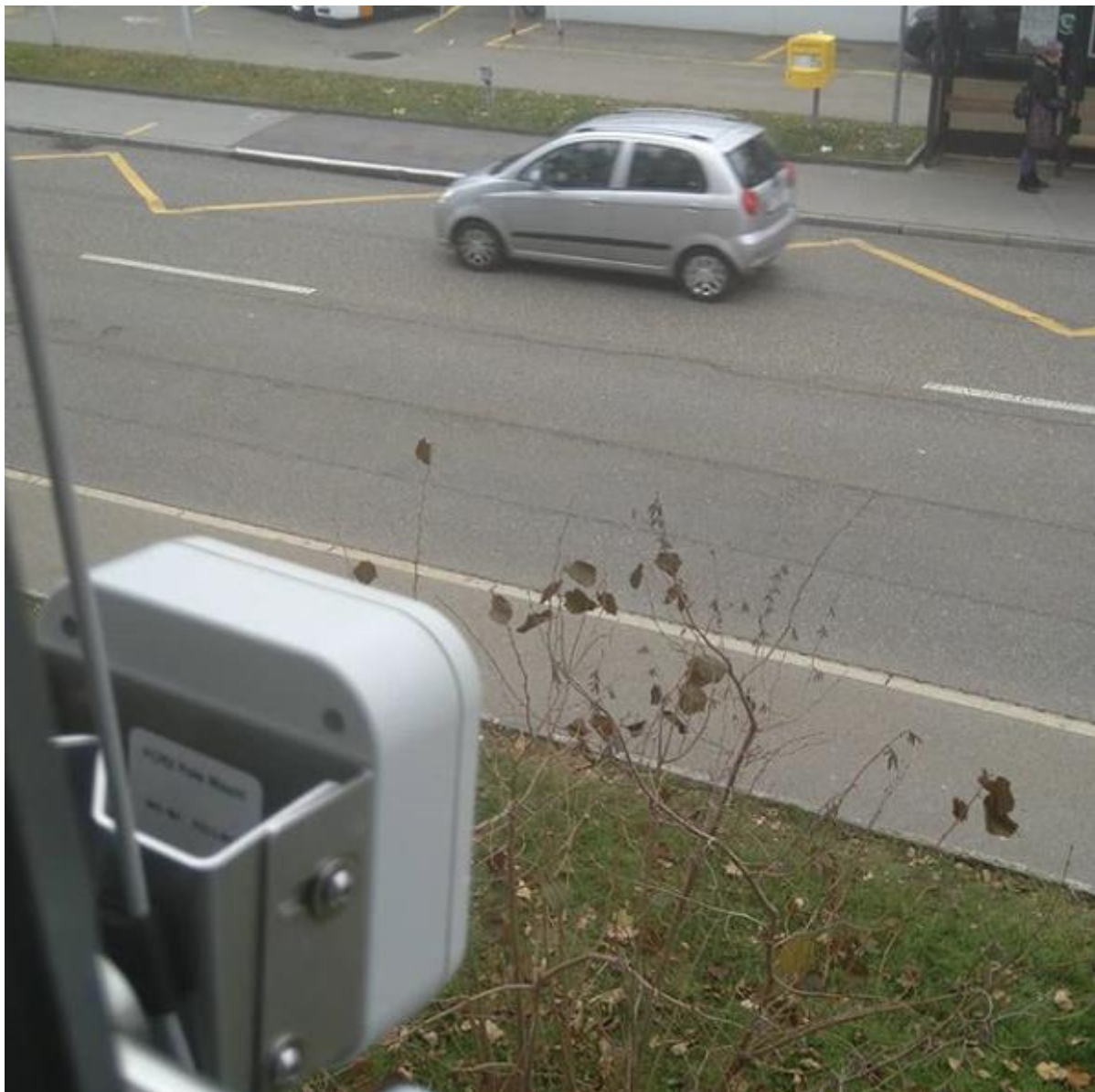
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QUICKSTART GUIDE

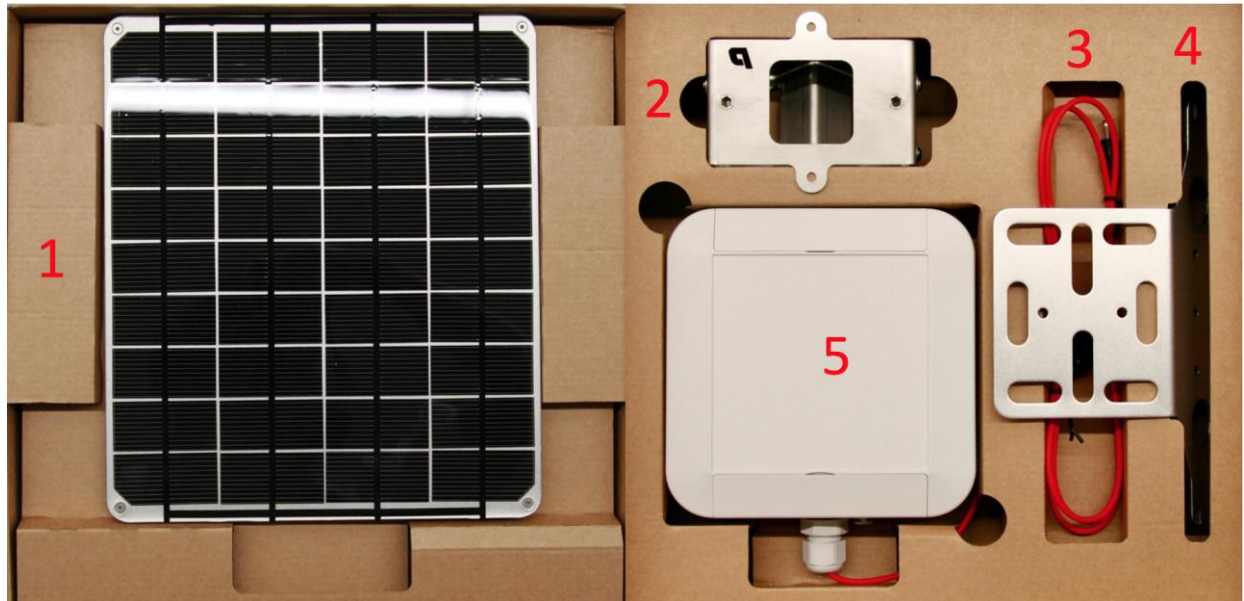
LoRaWAN™ Radar Traffic Counter Solar-Powered

TCR-HSS
TCR-LSS



What is in the box

Please check for the following content in your box.



Optional

1. Solar Panel 18V
2. MT40 Pole Mount
3. Extension Cable
4. Solar Panel Bracket

Device

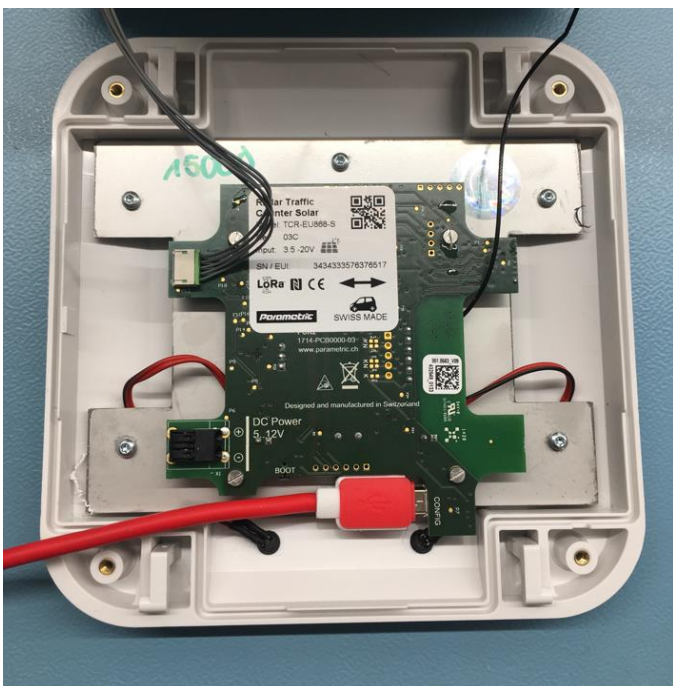
5. TCR-HSS or TCR-LSS

Setup

You can open the device to access the USB configuration port to change device settings.

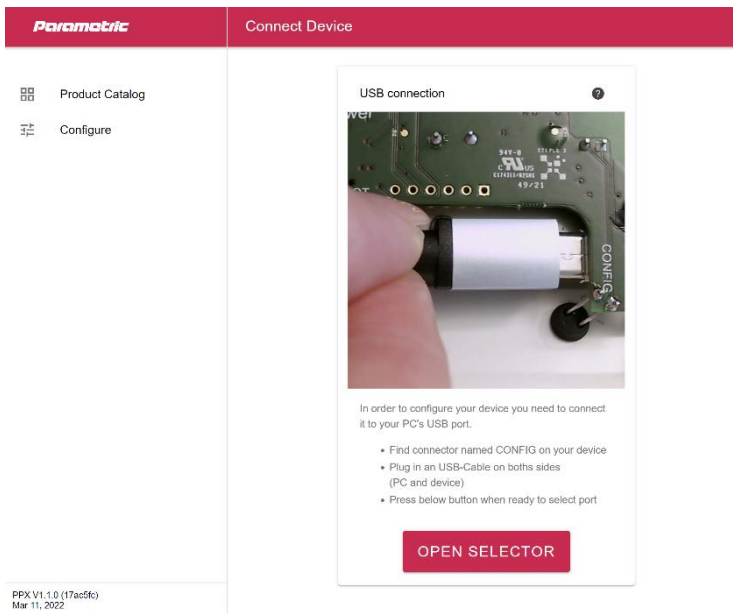


- Remove the four screws from the casing to gain access to the device.
- Carefully open the enclosure while making sure not to yank the cables connecting the two electronic parts in the top and the bottom of the casing.



- Connect the sensor to your Computer with a USB Cable using the Config Port.
- Use PPX to set your LoRa keys: <https://ppx.parametric.ch/>

Open PPX Setup Tool

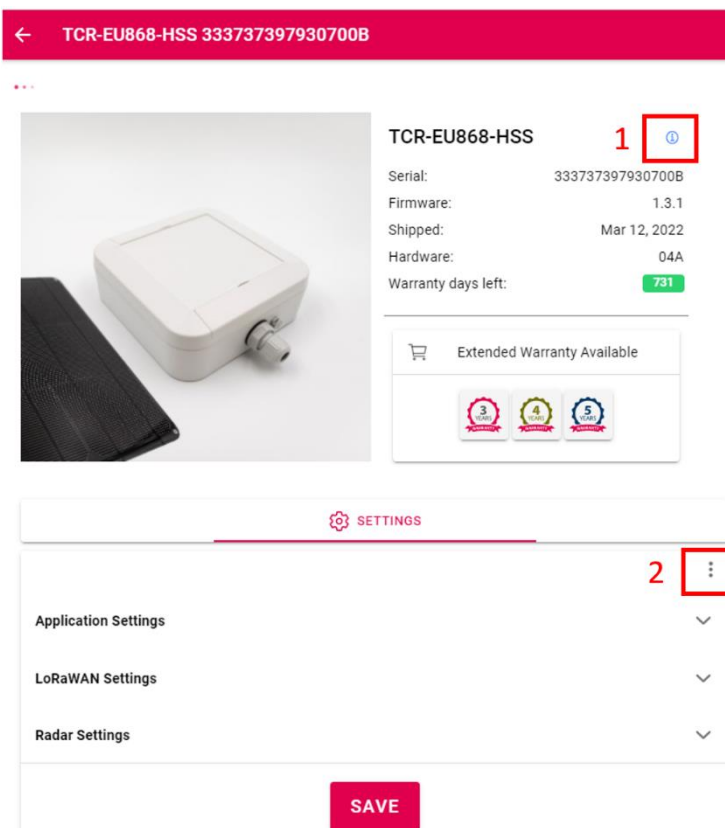


Open the free Parametric Product Explorer (PPX) Tool by opening the following URL: <https://ppx.parametric.ch/connect>

In order to configure your device you need to connect it to your PC's USB port.

- Find connector named CONFIG on your device
- Plug in an USB-Cable on both sides (PC and device)
- Press "Open Selector" button when ready to select port

Overview PPX Configurator Tool



Start the PPX Configurator tool. After some seconds you will see the device information and settings.

Device information includes: sensor type, serial number, firmware, shipping date, hardware, and warranty days left.

Clicking the "Information" icon (1) leads to the device's product catalogue page where you can find the device documentation.

Clicking the three dots (2) sets the default settings.

Extended Warranty Available leads you to the Parametric Store to upgrade your device's warranty.

Always press 'Save' after changing settings.

Settings

Overview of Application Settings

Operation Mode Timespan
Trigger Hold Off [s] 0
Uplink Interval [min] 10

Operation Mode

Timespan – count objects and send sum after interval.

NotZero – Same as Timespan but does not send if counters are 0 (zero).

Trigger – Send on every detection. Use Hold Off Time to prevent sending on every event.

CapacityAlert – Set limit on how many people may enter a shop.

Trigger Hold Off [s]

Time to re-arm trigger.

0...600s (0 = no suppression).

Uplink Interval [min]

Set the sending interval in minutes (1...1440 minutes). During this time, all persons will be counted and sums are transferred. After transfer, counters will be reset.

Overview of LoRaWAN Settings

Modem Enabled
Device Class A
Confirmed Uplinks
Link Check Interval 1440
DevEUI 333737397930700B
AppEUI 8CAE49CFFFFFFFF01
AppKey 5ED3553AD10E5ADE41F44AA4E4823F0B
Channels All

Confirmed Uplinks

Send uplinks with ACK requests.

LinkCheck Interval

After this interval, send LinkCheckReq with next uplink. Set to zero to disable Linkcheck completely.





DevEUI, AppEUI, AppKey

Enter your LoRaWAN Keys

Payload Type

Choose between Parametric and Cayenne LPP compatible payload formats.

Overview of Radar Settings

Radar Settings		^
Autotune		<input checked="" type="checkbox"/>
Left To Right Lane Distance	400	
Right To Left Lane Distance	800	
Speed Class 0		
Speed Class 1		
Speed Class 2		
Speed Class 3		
Beam Angle	80	
Sensitivity	95	
Mounting Angle	90	
Mounting Pitch	0	

Autotune

If enabled, the sensor will measure up to 20 objects passing by. Then the radar sensitivity will be set automatically.

Speed Class 0 ... 3

Adjustable speed classes ranging 80km/h ... 120km/h.

Radar Sensitivity [%]

You can set the radar module from 10% (fairly sensitive) to 100% (very sensitive).

SBX Solar Charger

TCR Solar-Powered devices are equipped with SBX MPTT Solar Chargers and high-quality NiMH Battery Packs. You can check the status of the battery by pushing the user button. Unless the user button is pushed, the LEDs are not switched on to save energy.



Status is indicated by 3 LEDs (1)

- 01 Battery Gauge LED indicates battery gauge
- 02 Error LED indicates device errors
- 03 Charging LED indicates power input

Initial Charge Level

After connecting the battery (or after a reset by pressing the button for 30s), the SBX charger initializes the battery once. This is done by charging up to the Initial Charge Level (see table below).

Battery Pack	Nominal Battery Voltage	Initial Charge Level (*)	Normal Operation
NiMH 6S1P (Standard)	7.2V	8.1V	6.6V – 9.0V
Li-Ion 2S2P	7.4V	7.4V	6.0V – 8.4V

Initial charge is indicated by a fast-blinking Battery Gauge LED (V4.1.0 and newer).

01 Battery Gauge LED

After pressing the user button, the Battery Gauge LED will display the following states for about 30s.

LED Status	Description
OFF	Battery Empty
Blinking	Battery Partially (1-99%) Charged
ON	Battery Full

02 Error LED

After pressing the user button, the Error LED is only ON if there is a serious hardware problem with the battery or charger.

LED Status	Description
OFF	No Error
Blinking 1x	Battery Not Connected
Blinking 2x	Battery Too Cold
Blinking 3x	Battery Too Hot
Blinking 4x	Battery Voltage Too Low. Initial Charging Is Active

03 Charging LED

The Charging LED is always activated.

LED Status	Description
OFF	No Power Input
ON	Power Source Input
Blinking	Charging Active

Installation



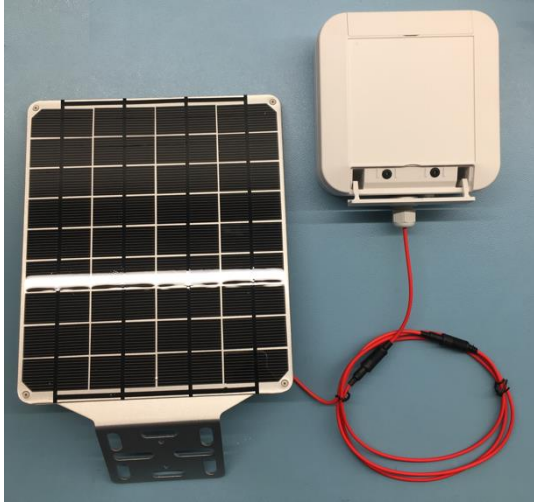
- TCR-S devices are shipped with a disconnected battery for safety reasons. **Connect the battery pack cable to the circuit board.**
- If the battery LED blinks rapidly, the battery voltage is too low to turn on the TCR-S sensor. This is to avoid a deep discharge of the battery.



- We recommend you pre-charge the battery using the included USB charging adapter.
- Charge the battery until the voltage is sufficiently high and the TCR-S will turn on.



- Check for the two direction LEDs under the lid to turn on. Both LEDs blink while the device connects to the LPWAN.
- Fix the solar panel bracket to the back of the solar panel using the provided flat washers and nuts.



- Connect the solar panel to the solar panel extension cable and the extension cable to the sensor.
- You will hear a « click » when the cables are connected securely.
- Ensure that the cable gland is fully tightened.

IMPORTANT

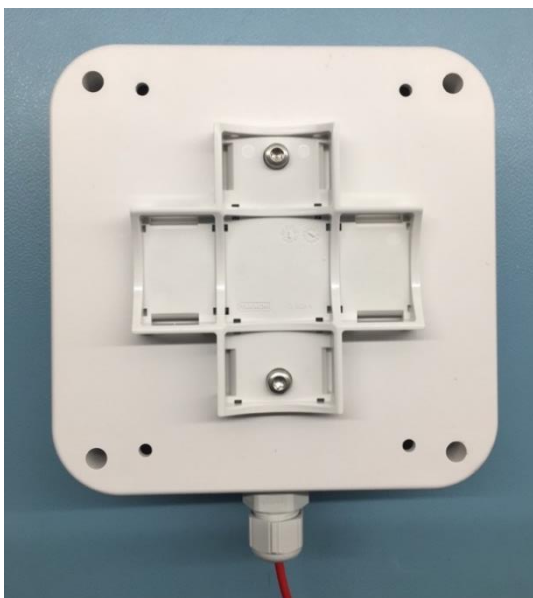
Radar unit will be switched on when the voltage is above 6.6.

When the solar charger is powered the first time, the battery will be charged to a minimum of 8.1V before switching on the radar.

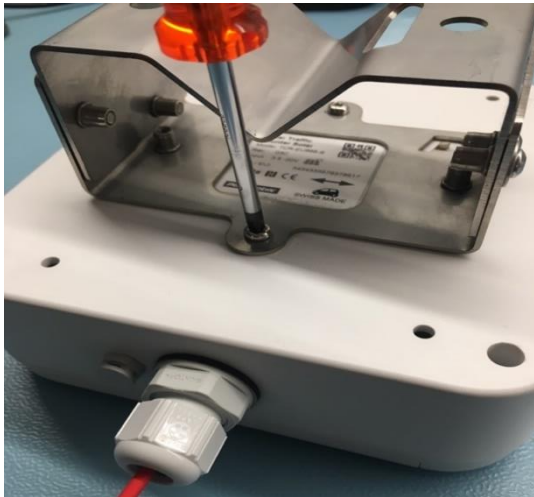
This is because batteries could be discharged during transport.

Solution a) : Wait until the power goes on

Solution b) : Connect a power supply 12V / 1A to the solar panel terminals to charge the battery manually.



- WPMB Universal Mounting Bracket can be attached with 2 screws.

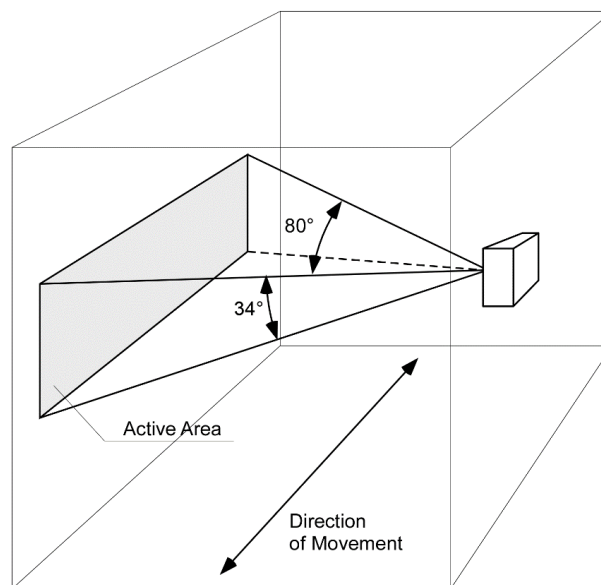


- Optional MT40 tiltable pole mount needs to be attached to the TCR.

Optimal Placement

TCR Solar-Powered are 1D sensors measuring Traffic along a virtual line.

The device can be directed horizontally or with a tilt up to -40° .



Installation scenarios

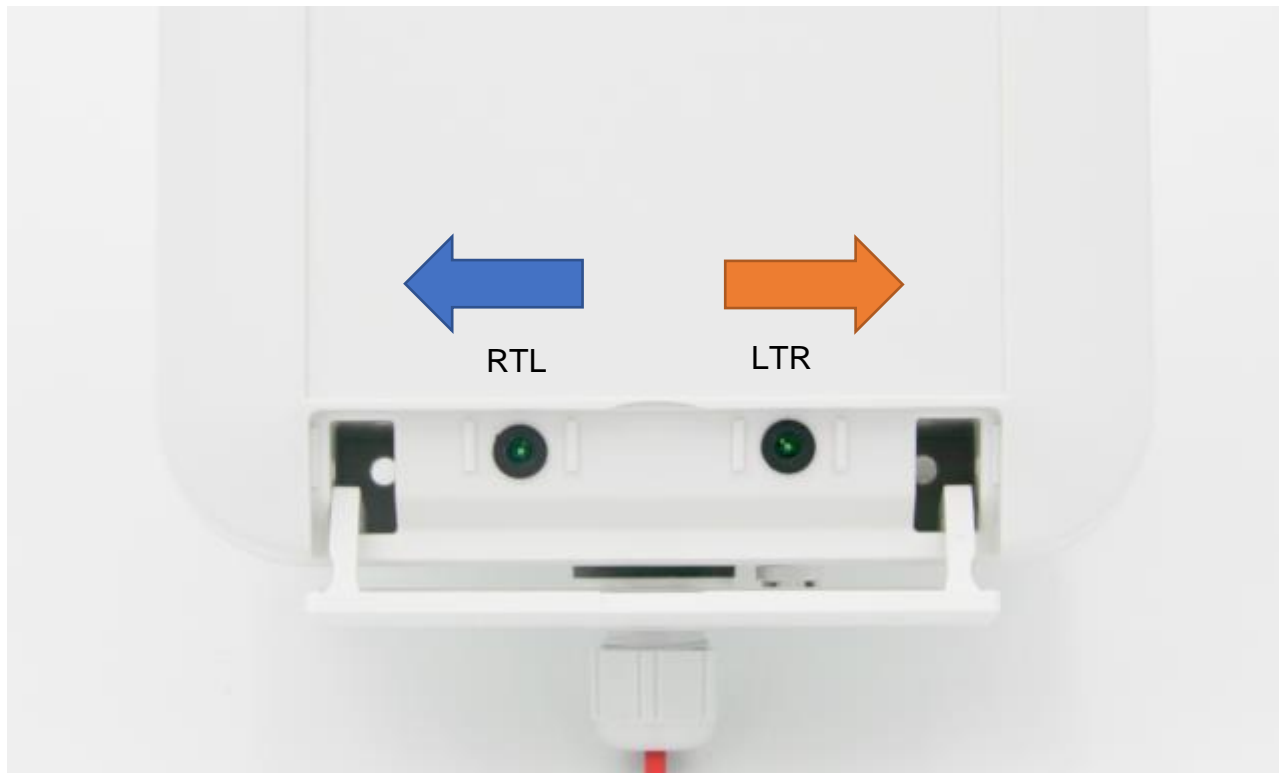
Counting bicycles: Place at saddle height

Counting people: Place at hips height

Counting cars: Place at door handle height

Testing

Counting functionality can be checked by 2 direction LEDs.



- **RTL LED** blinks when traffic detected from right
- **LTR LED** blinks when traffic detected from left

If both LEDs are blinking, the device is trying to connect to the LPWAN.



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