TCR-SLE GEN2 Quickstart

Important Note

The information in this section is for Parametric products as at 31/12/2023 and will not be subject to any updates in the future.

Thank you for choosing a Parametric Analytics product. You have chosen a quality product Made in Switzerland. Each counter is handmade and individually tested.

This Quick Start Guide explains all the steps necessary to get the device up and running. Click on the images to enlarge them.

Further information like LoRaWAN® integration, payload decoding can be found in the TCR Users Manual.

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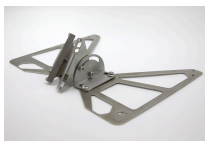
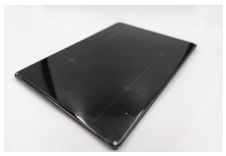
1. UNBOXING

Check content

Open the box and check the contents.

	**TCR-SLE** Live Radar Traffic Counter GEN2, Solar powered
	**2244** External 868MHz Outdoor Antenna, N Type(M) Connector, l=243 mm
	**M12SOL** Adapter plug for connecting Parametric's SOL17 or SOL9 panels to the M12 socket on the side of the counter.
	**SOL-EXT4** Extension cable for solar panels, 120cm (4 feet)
	**1943** USB Charging Adapter for pre-charge the counters without connecting the solar panel.

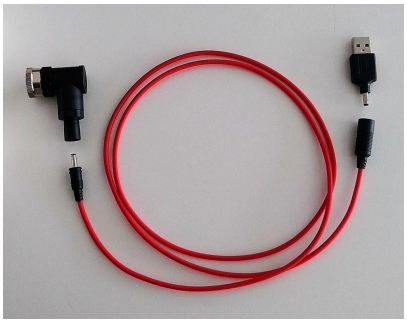
Optional parts when ordered together with the counter.

	**MT80-15** Bracket to mount the device to a pole or flat surface. The holder can be tilted. Mounting screws for the counter are included. **Material to attach the holder to a mast is not included.**
 	**SOL9-KIT** The kit shared_content a rugged **9W** solar panel (SOL9) and Parametric's adjustable solar pole (SOLMT) as well as mounting nuts. **Material to attach the mount to a mast is not included**
 	**SOL17-KIT** The kit shared_content a rugged **17W** solar panel (SOL17) and Parametric's adjustable solar pole (SOLMT) as well as mounting nuts. **Material to attach the mount to the mast is not included**

Charge battery first

As long as the device is not yet installed outdoors, it should be charged with the included USB adapter. This keeps the battery fresh and prevents damage from deep discharge.

Push the plug from **SOL_EXT4** cable into the socket of the **M12SOL** adapter. Then connect the plug of the USB Adapter with the other end.



Connect USB Adapter with an USB port of your PC or (better) a USB hub.

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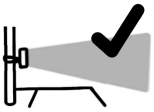
2. PLANNING

To achieve the most accurate measurement possible, planning the installation is essential.

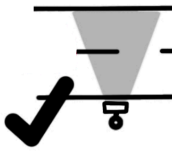
Horizontal or Top Down?

The devices can be operated both directly next to the road or elevated and looking down from above. We recommend using a laser measuring tool or a laser pointer to align the device correctly.

	When mounted on a pole or mast you should point the sensor to the middle of the road (center line). This can be done easily by adjusting the tiltable bracket MT80-15. The bracket can be placed about 3-4 meters above ground. Please check the max range of the sensor. **Important: The pole must not move in the wind**
	When mounted next to the street we recommend a mounting height of 1.2-1.5m above ground. Line of sight should be completely horizontal.

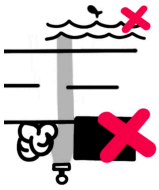
Important Rules

The device works best when the following rules are observed.



Lateral to movement
TCR are side radars that detect motion from both directions simultaneously. The movement should be linear. Therefore place the sensor parallel to the movements direction and **keep away from curves, crossings, driveways**

Distance to object
LS-Devices: The sensor must be placed at least **50cm** away from the target.
HS-Devices: The sensor must be placed at least **3m** away from the target.



Avoid obstacles in FOV
Make sure there are no obstacles such as walls, street signs, shrubberies, trees in the field of view. When placed beside water the device might detect the waves.

LTR vs RTL

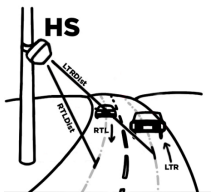
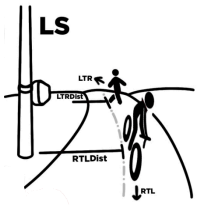
The TCR traffic counters distinguish between 2 directions.

RTL
objects which come from the right and disappear to the left. The left LED will pulse once in this case.
LTR
objects which come from the left and disappear to the right. The right LED will pulse once in this case.

Measure distance to lanes

In order for the device to determine the velocities, the distance to the object must be known. The distance can be determined with a tape measure or a laser distance meter. Measurements are taken from the middle of a track to the front of the device.

- RTLDist = Distance in cm to the RTL movement line.
- LTRDist = Distance in cm to the LTR movement line.

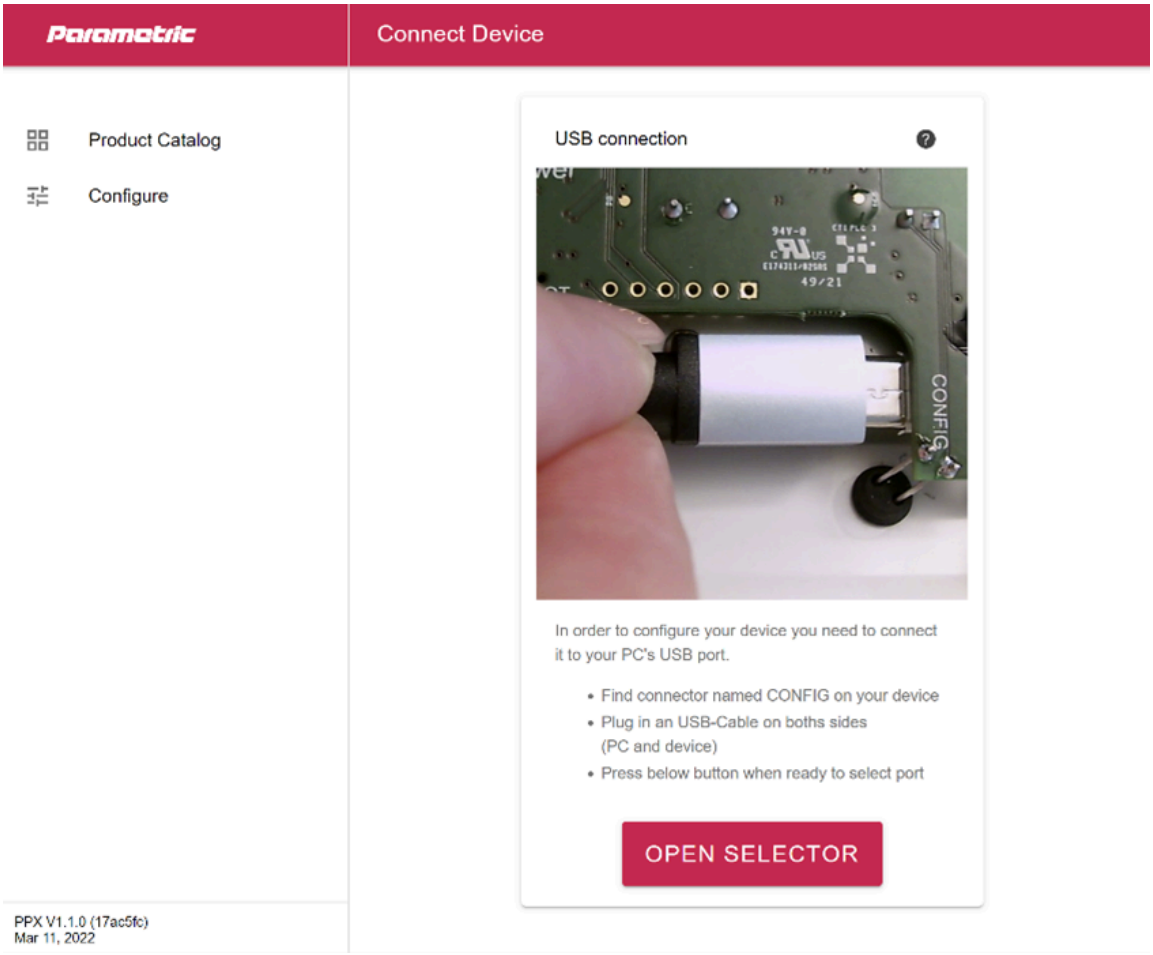
Situation	
	**Two lanes, cross traffic (2L2D)** This is typical for HS applications such as measuring traffic on interstate roads. RTLDist and LTRDist are different.
	**Cross traffic on one lane (1L2D)** This is typical for low speed traffic (LS) measuring bicycle lanes or small paths. In this case get the distance to the center of the track and set RTLDist and LTR Dist to the same value.

3. CONFIGURATION

Connect USB cable

Open the service lid and connect a USB-to-Micro-USB cable Connect the other end to a Windows PCs USB-Port. The RTL LED should start to blink.

Configure using PPX

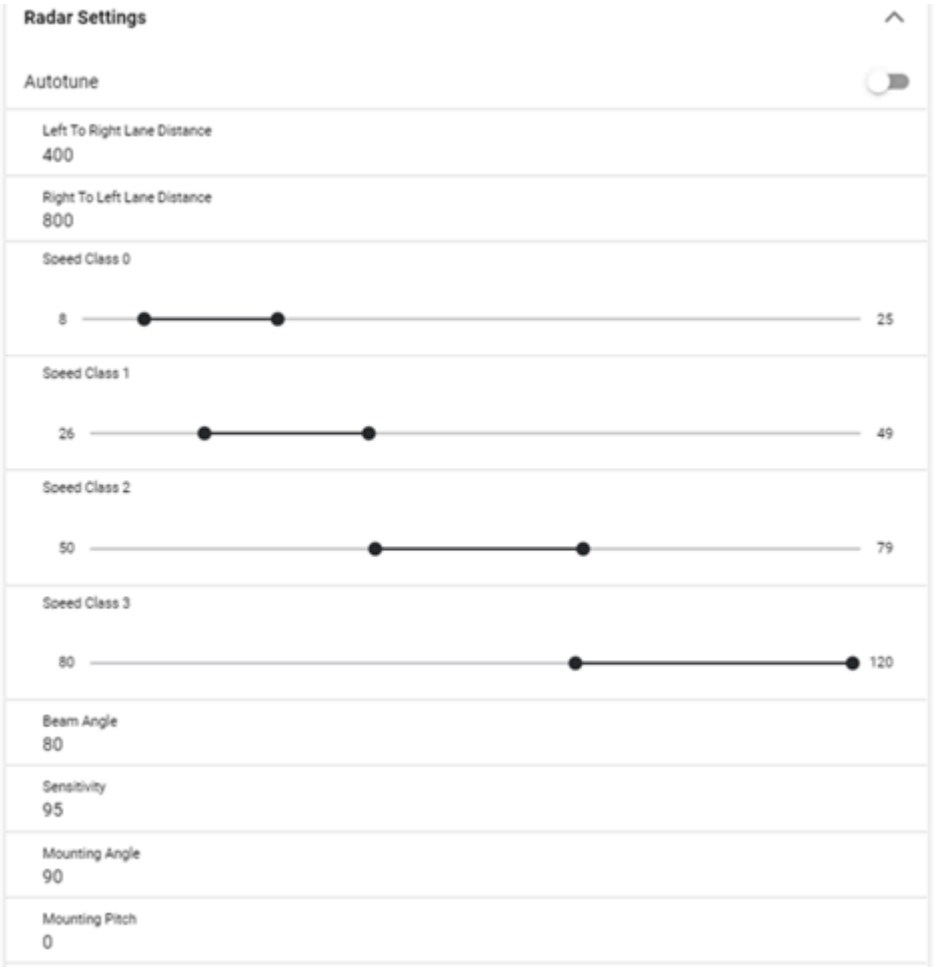


While the device is connected to the PC open **ppx.parametric.ch** to access the online configuration tool. Follow the instructions on the screen to establish a connection.

Set Distance to Lanes

Once connected open Radar-Settings and find *Left To Right Lane Distance* and *Right To Left Lane Distance*

- Enter *LTRDist* value you measured in #measure-distance-to-lanes) into the field **LTRDist**
- Enter *RTLDist* value you measure in #measure-distance-to-lanes) into the field **RTLDist**
- Press *Save*



Sensitivity

Turn on autotune to allow the radar to adjust the sensitivity.

After entering *LTRDist* and *RTLDist* the sensitivity is automatically determined based on those values. The further the distance to the measurement, the higher the sensitivity.

Note: Small adjustments of sensitivity can be done manually. If the ratio (sensitivity vs. RTL/LTR) is not correct, the radar may incorrectly categorize the measured object.

Radar Settings

Radar Enabled

Channels
1

Sensitivity
50

Beam Angle
80

Beam Direction
0

LTRDist (distance to object approaching from the left)
150

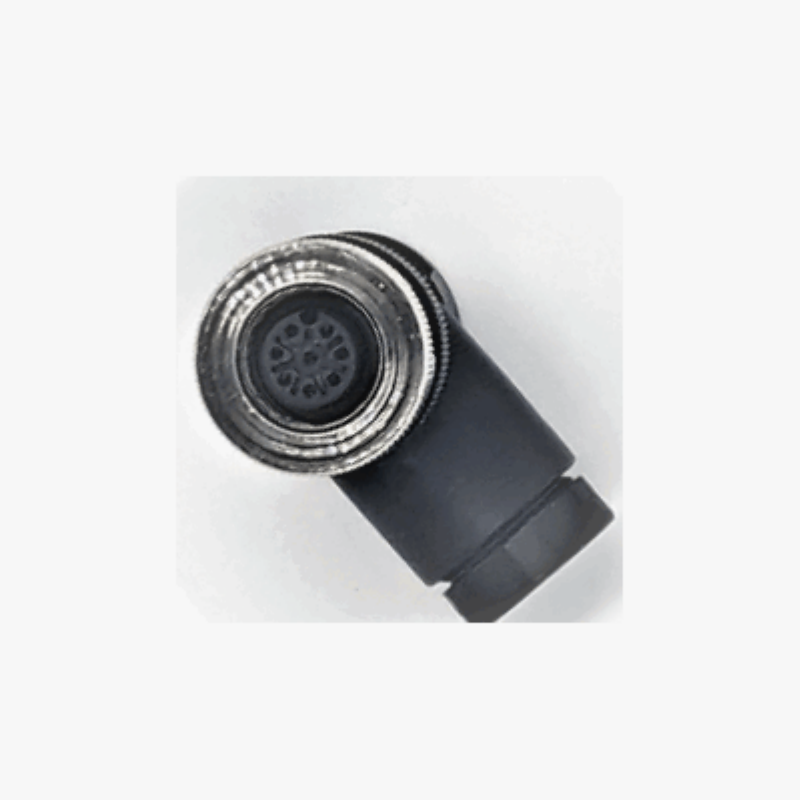
RTLDist (distance to object approaching from the right)
150

Autotune

4. INSTALLATION

M12 Solar Adapter Plug

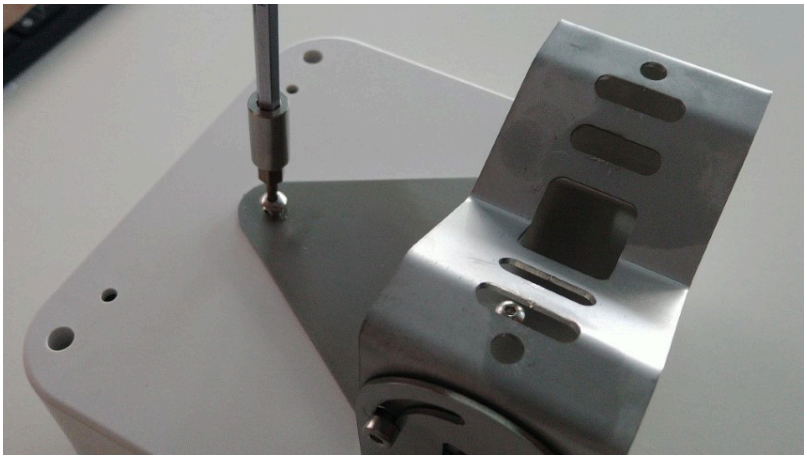
The M12 connectors have a coding notch (A Coding).



> Important:
>
> - Check the pins before plugging in
> - Rotate the plug so that the notch matches the pin in the socket
> - Carefully insert the plug by hand
> - Gently tighten knurled screw by hand

Plug the MP12SOL adapter onto the M12 socket and tighten the ring by hand.

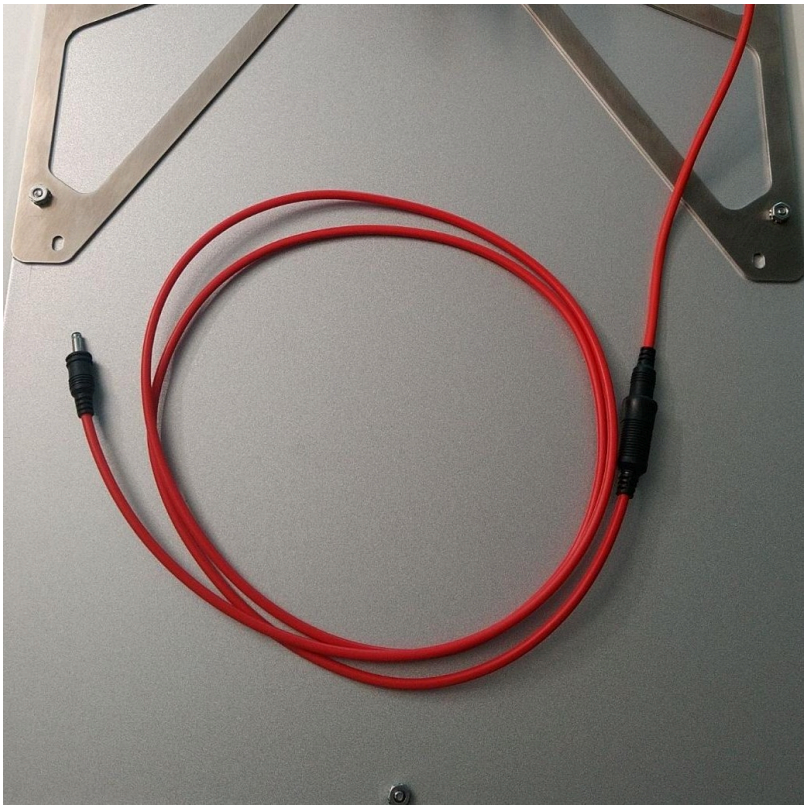
Mount MT80



Carefully tighten the MT80-15 holder with the supplied screws. Use a 25 HEX screw driver for that.

> Warning: Using longer screws could crack the enclosure.

Extend the Solar Cable



Use the SOL-EXT4 extension cable if you mount the solar panel more then 20cm away from the counter.

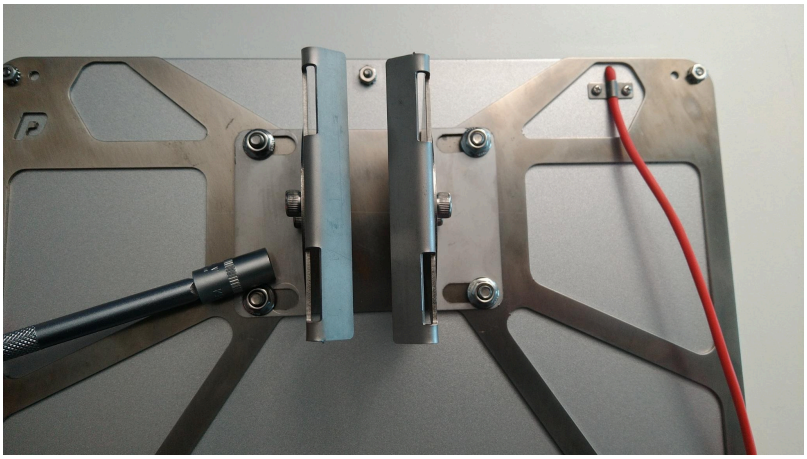
Installing the Counter

If you mount the counter to a pole or mast use pipe clamps or metal straps of suitable length to secure MT80-15 bracket.

Installing the Solarpanel

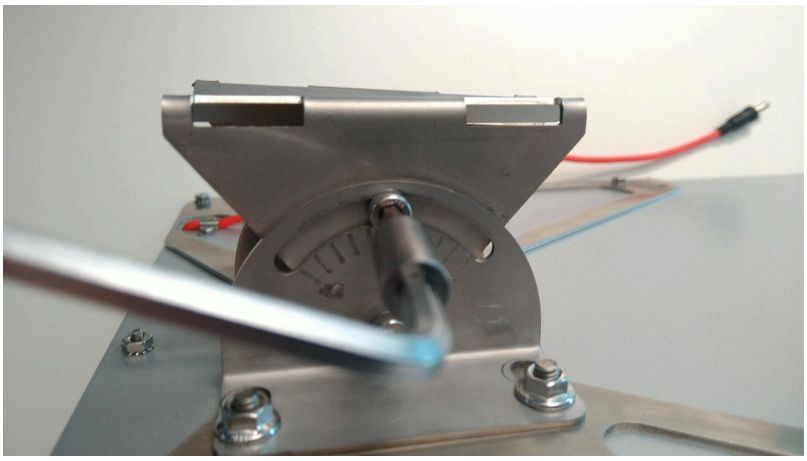
Mount the solar panel in a place where it gets enough sunlight during the day. Use pipe clamps or metal straps of suitable length to secure the bracket to the pole.

Adjust to pole diameter



Adjust SOLMT bracket to match your pole diameter.

Adjust azimuth



You can change the angle of the solar panel to harvest more solar energy. Or you can fix the panel in a vertical position so that no snow or dust can remain on it.

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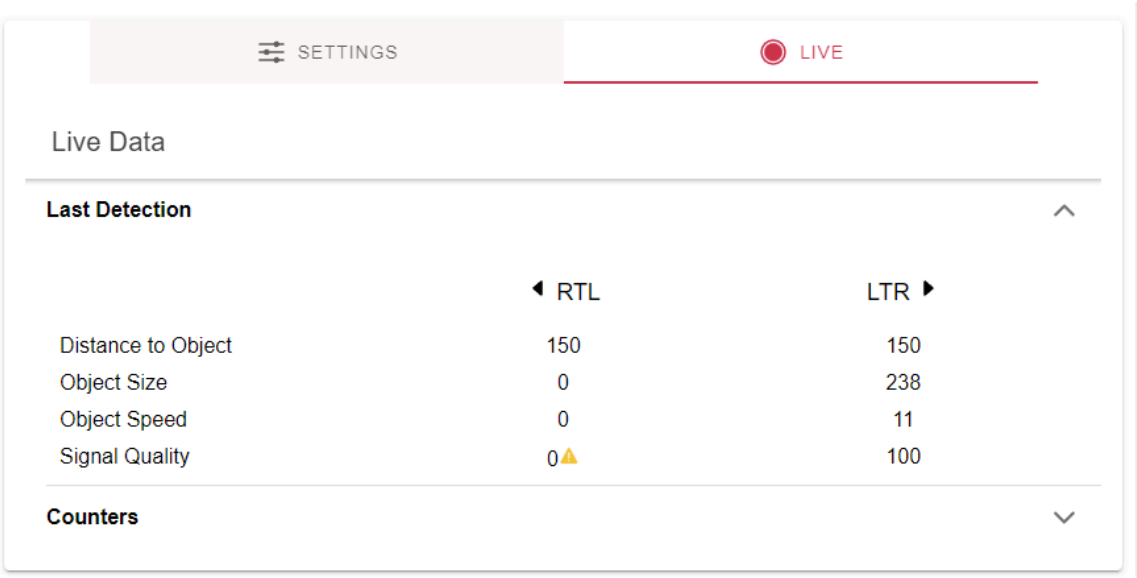
5. TESTING

Live Data Monitoring

Go outside to your TCR, connect the USB cable and start live measurements on site. While the device is connected to the PC open ppx.parametric.ch to access the online configuration tool.

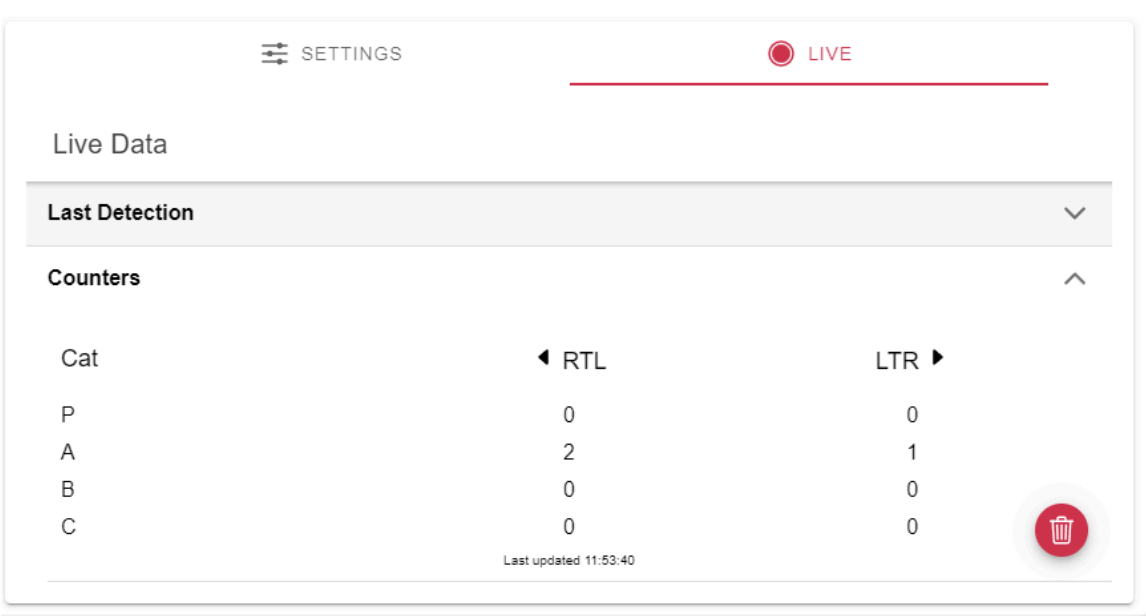
Last Detection



Last Detection gives you an insight to the last radar measurement. This is what the radar “sees”.

Category	Description
Distance to Object	LTRDist and RTLDist setting
Object Size	the length of all radar reflexions seen
Object Speed	the lateral velocity
Signal quality	should be 100% when the object is in field of view and not too near

Counters



Counters is a table with all Categories an left / right counter values. Values are updated regularely

Adjust your values

The main challenge with the TCR devices is to find a suitable Distance/Sensitivity Setting.

If the sensitivity is to high, the object might blur and therefore gets too big (Size value) If the distance is incorrect the size get too big too.

With Autotune enabled the Radar Sensitivity will be controlled automatically. It’s comparable to the automatic exposure setting at a photo camera.

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