TOPGRD & COM HUB RELAY – USER GUIDE

KEYWORD(S):
TOPGRD, COM HUB RELAY, COM HUB RELAY 8, COM HUB RELAY 24, INSTALLATION, CONFIGURATION, DEPLOYMENT, MAINTENANCE

DATE:
29. OCTOBER 2025

STATUS:
RELEASED

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1 CONTENT

2 REFERENCE DOCUMENTS

Using this guide, it is advised to also familiarize yourself with the following documents. They may be referenced in this guide when necessary.

No.	Document Name
[1]	TOPGRD Sensor Documentation
[2]	COM HUB Relay Documentation
[3]	COM HUB Relay Changelog Documentation
[4]	User guide - COM HUB Relay credentials
[5]	Relay 32 XP Module User Guide

Table 1: Reference documents

3 OVERVIEW

The **TOPGRD** sensor [1] operates in the 77GHz frequency range. This smartmicro radar can be used in tandem with the **COM HUB Relay** interface to provide a comprehensive solution for traffic detection at signalized intersections worldwide.

The COM HUB Relay has 2 versions:

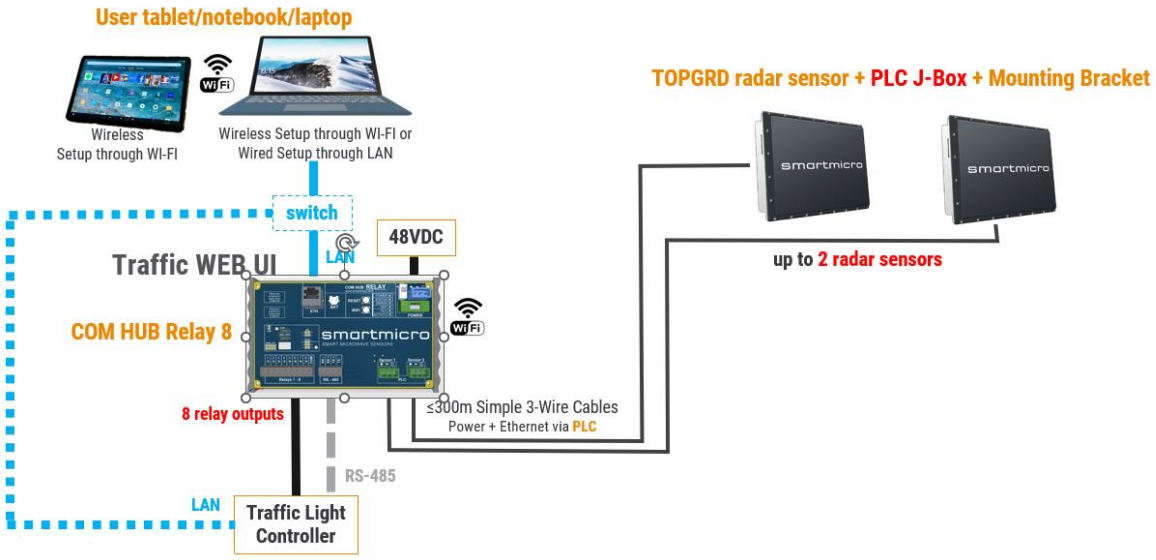
- **COM HUB Relay 8**, which interfaces with maximum 2 TOPGRD sensors via Power Line Communication [2] and provides maximum 8 relay outputs
- **COM HUB Relay 24**, which interfaces with maximum 4 TOPGRD sensors via Power Line Communication [2] and provides maximum 24 relay outputs

This edge device can then be interfaced to traffic controllers as required. It can also be connected to the **Relay 32 XP Module** to supplement another 32 relay outputs. [5]

This document is a step-by-step user guide covering all aspects of this system, from sensor configuration and installation to deployment and maintenance.

4 SYSTEM COMPONENTS & CONFIGURATION

A typical configuration is as depicted in Figure 1.



If a COM HUB Relay 24 is used, there are two Ethernet ports, the description and usage of which are as follows:

- One 1Gbit speed Ethernet interface and RJ45 LAN connector for Uplink.
- One 100Mb Ethernet Interface for connecting additional modules like the Relay 32 XP Module.

5 SYSTEM PRE-CONFIGURATION, INSTALLATION, DEPLOYMENT & VALIDATION

This section details the system pre-configuration, installation, deployment and validation in a step-by-step process of the system configuration depicted in Figure 1. For this document, a wired setup through LAN is initially assumed.

5.1.1 PREREQUISITES

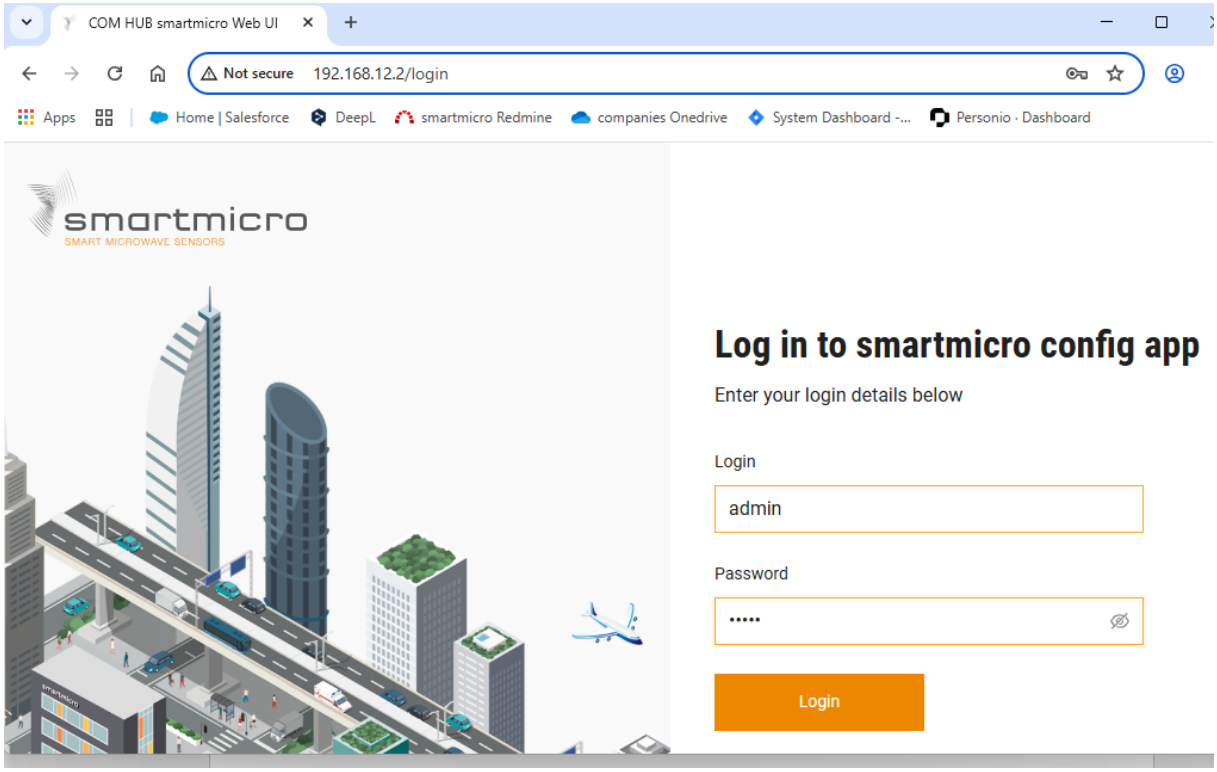
For this installation, you will need the following:

- TOPGRD sensor with compatible satellite firmware. Please check the COM HUB Relay changelog document [3] for firmware compatibility with the COM HUB Relay firmware that you possess.
- Smartmicro brackets
- PLC J-Box
- Cable (3 wires, for PLC) to connect PLC J-BOX with COM HUB Relay
- Steel bands
- Flat Screwdriver
- Hex key (supplied with PLC J-Box)
- COM HUB Relay 8 or COM HUB Relay 24.
- Ethernet cable with RJ45 connectors.
- Laptop/Computer with a configured IP of 192.168.12.x and with a subnet mask of 255.255.255.0, where x is any value from 1-255, except for 2.
- Relay 32 XP Module - optionally required if the number of usable relays needs to be expanded, and only compatible with the COM HUB Relay 24.

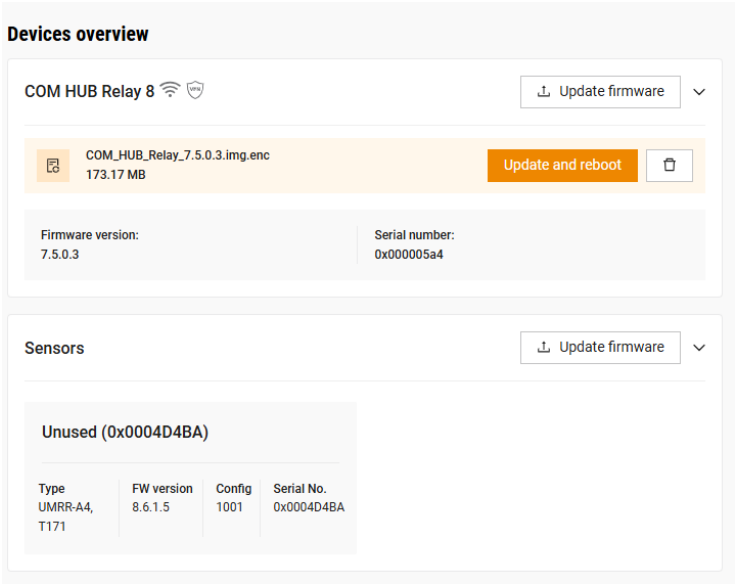
5.1.2 TRAFFIC WEB UI PRE-CONFIGURATION

The COM HUB Relay and sensors are configured by a web-based platform called the Traffic Web UI. This is accessible from any browser once the COM HUB Relay is connected to the PC.

- Connect the system as seen in Figure 1 with a TOPGRD and a COM HUB Relay connected to a laptop with an Ethernet cable.
- In a browser, connect to the COM HUB Relay at its default IP of 192.168.12.2. If you face any connection issues, ensure that your laptop's IP is configured as mentioned in Section 5.1.1
- Log in to the COM HUB Relay using "admin" as the default username and "admin" as default password. From COM HUB Relay firmware version 7.5.0.3 onwards, the password can be changed but the username cannot be changed. [4]

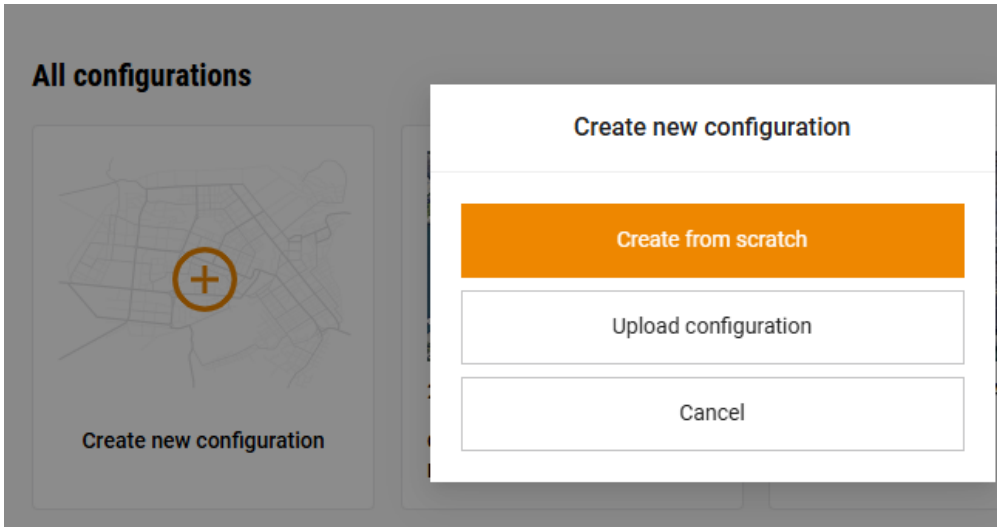


- In the dashboard, check if the COM HUB Relay and the sensor that you've connected should be recognized in "Device Overview". If not recognized, check the compatibility of the firmware of the TOPGRD with that of the COM HUB Relay in the changelog. [3]

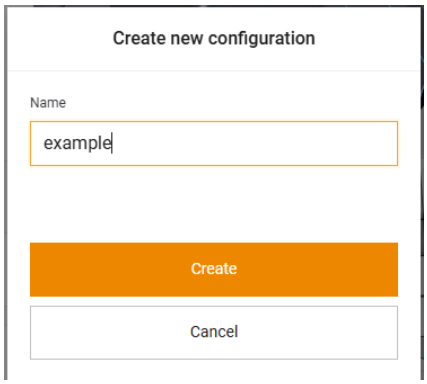


5.1.3 SENSOR AND COM HUB RELAY CONFIGURATION WITH TRAFFIC WEB UI

A configuration needs to be created to send to the sensor to get data from the sensor. Follow the steps below to do so. You can also contact the smartmicro support team to arrange a training session if further information is required. A new configuration is created as follows: Dashboard> All Configurations>Create New Configuration> “Create from scratch”.



- Give the configuration a name, and click on “Create”



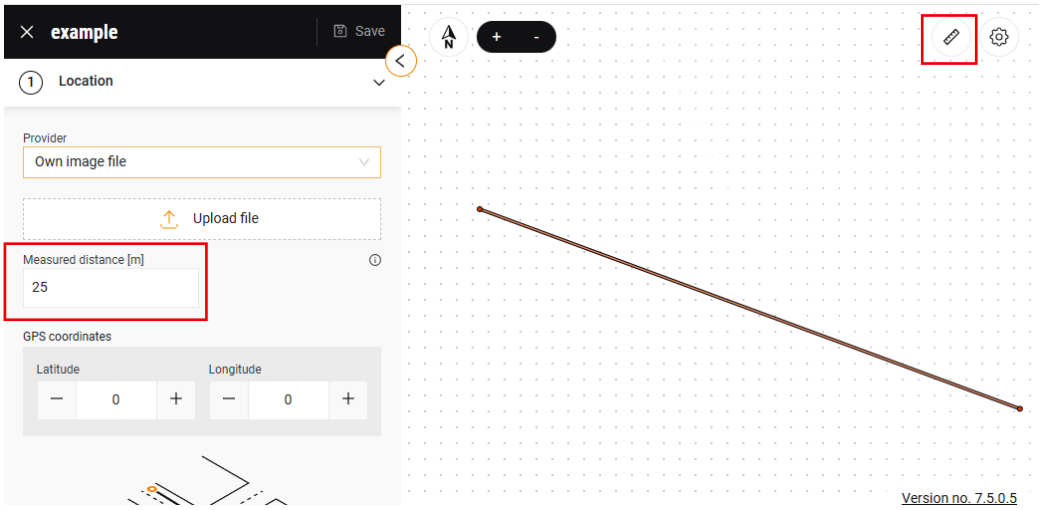
When creating a new configuration for a radar system, following steps are needed:

- Upload an intersection map or drawing, see §5.1.3.1
- Draw lanes, see §5.1.3.2
- Draw detection zones and allocate event trigger and/or data functions, see §5.1.3.3
- Drag and drop radar beam, see §5.1.3.4
- If needed, add polygons, see §5.1.3.5
- Set communication parameters correctly, see §5.1.3.6
- Activate the configuration to the connected devices, see §5.1.3.7

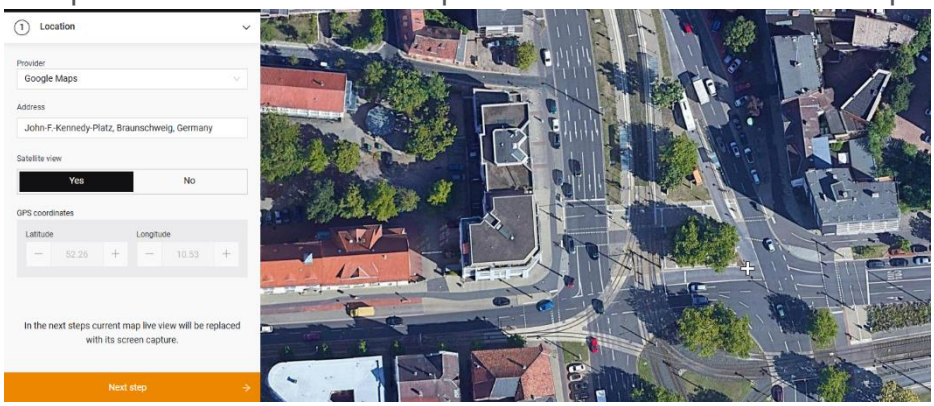
5.1.3.1 LOCATION

This tab is used to load the underlying image upon which the configuration is created. The different options are elucidated here:

- Provider: Either “Google Maps” or “Own Image file”. “Google Maps” will download a satellite image from Google, while “Own image file” allows the user to upload his own image onto the configuration. For the latter option, a scale of the distance between any two points must be provided by the user. Scale is selected as highlighted on the top right, and when the scale appears, the endpoints can be moved, and then the measured distance should be provided as highlighted below.



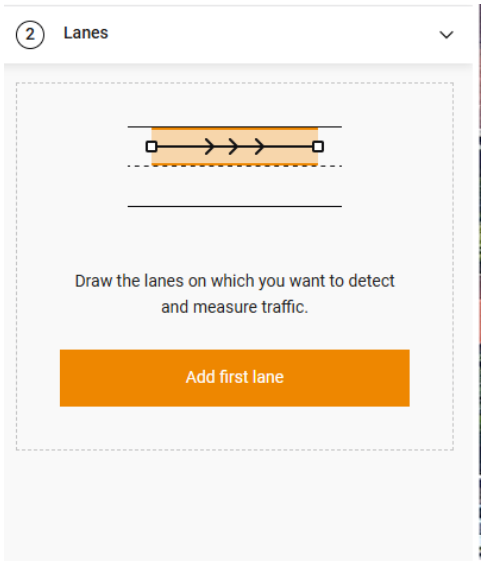
- Address: If Google Maps is selected, the address of the installation can be zeroed in by typing in the address in the address bar. A search menu is also available to help the user in case of ambiguity. Once the map is located, the mouse can be used to pan in all directions to zero in on the area of interest. The search can also be conducted by entering GPS coordinates.
- Satellite view: can be toggled ON or OFF. It is recommended to press “Yes” as it helps with accurate lane depiction later in §5.1.3.2.
- GPS Coordinates: shows the GPS coordinates of the current location
- Next Step confirms the location and replaces the live view with a screen capture.



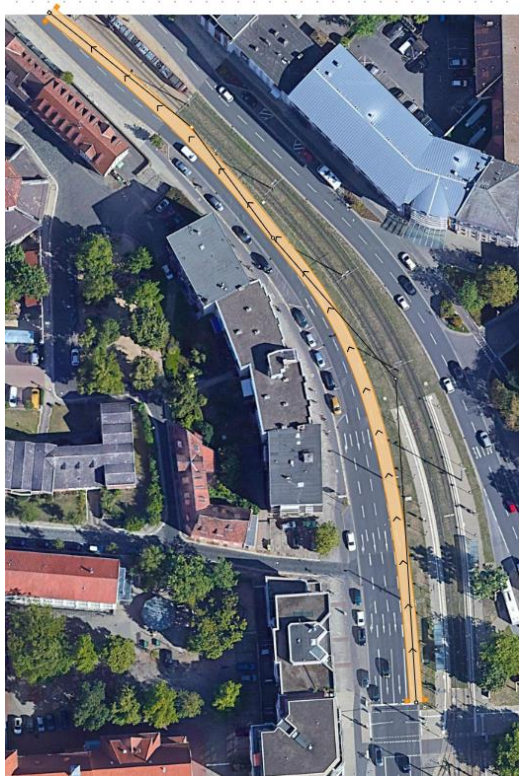
5.1.3.2 LANES

This tab is used to define lanes upon the image loaded in the previous step. Lanes should be created in all areas where detection is required and should mirror real-life lane configuration

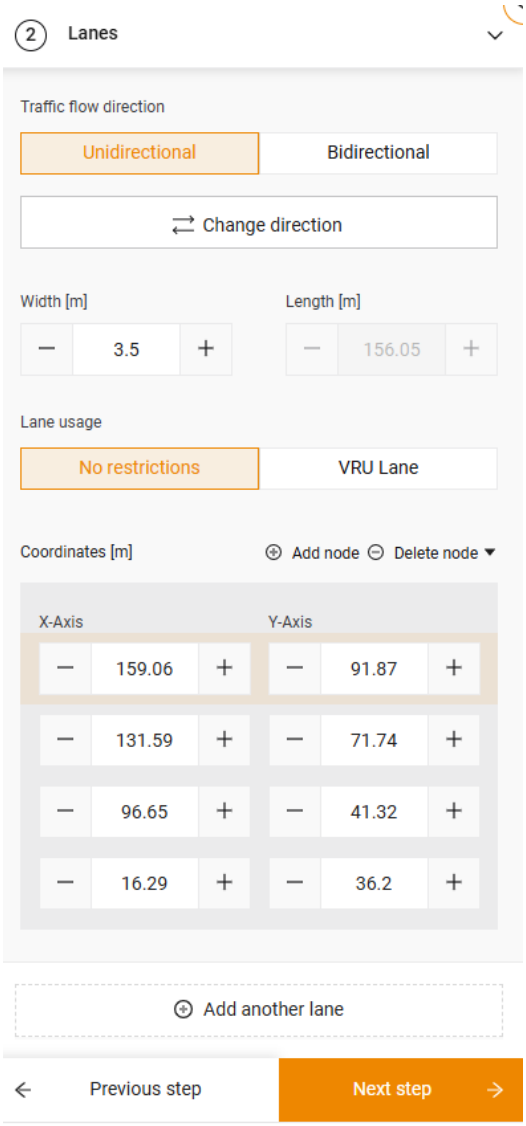
- Press the “Add first lane” button. Click on the map once to define the start-point of the lane. Click on the map a second time to define the endpoint of the lane. The endpoint should extend at least until end of the sensor beam, which is later defined in §5.1.3.4. The start point and end point can be redefined at any point by clicking and holding on the nodes present at these points and moving them with the mouse. A visual simulation is provided in the Traffic Web UI which explains how the lane can be drawn as well.



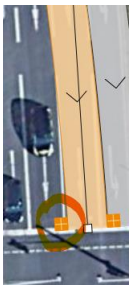
- Once a lane is created, there are several features available to change its geometry and properties to make sure the traffic in the actual lane is reflected.
- Hover the mouse point anywhere over the black line to spot a white dot highlighted in red below. If clicked this creates a node. This node can then be pressed and held with mouse to create curvature in the line to reflect the geometry of the actual lane in the image. Several nodes can be added to recreate the geometry of lanes with unconventional shapes.



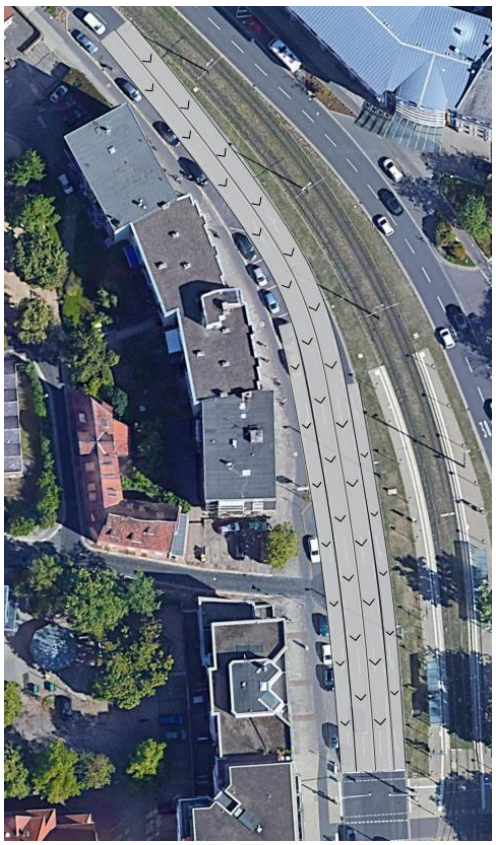
- Once a lane with the appropriate geometry has been created, the following options are available as depicted in the image below:
    - Traffic flow direction: Unidirectional/Bidirectional – The former setting tracks the flow of traffic in one stated direction as seen by the arrows on the lane, while the latter ensures that the sensor tracks traffic in both directions.
    - Change direction: Allows the user to change the direction of the lane, if the traffic flow direction is set to unidirectional.
    - Length: Shows the current length of the lane in m.
    - Width: Shows the current width of the lane in m and allows the user to change the width of the lane.
    - Lane Usage: “No Restrictions” is for all traffic while “VRU Lane: is for lanes that are reserved for bicycles and pedestrians only.
    - Coordinates: Displays and allows the users to manually change the coordinates of the lane. Also allows the user to add or delete nodes. Co-ordinates are defined according to the point chosen in the “Location” section defined in §5.1.3.1.
    - Add another Lane: Allows the user to create another Lane.
    - Next Step: Once all lanes are configured, the user can then move on to creating zones.



- If a new lane should be created which is symmetrical to an existing lane, the plus button highlighted in red can be used to create such a lane. A plus button to the left mirrors a lane to the left while the plus button to the right mirrors a lane to the right of the existing lane.



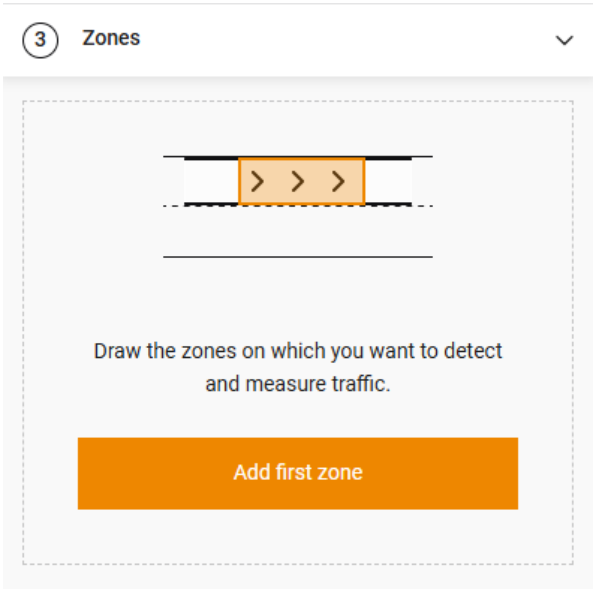
- An example of an intersection with four lanes superposed on the map is seen below.



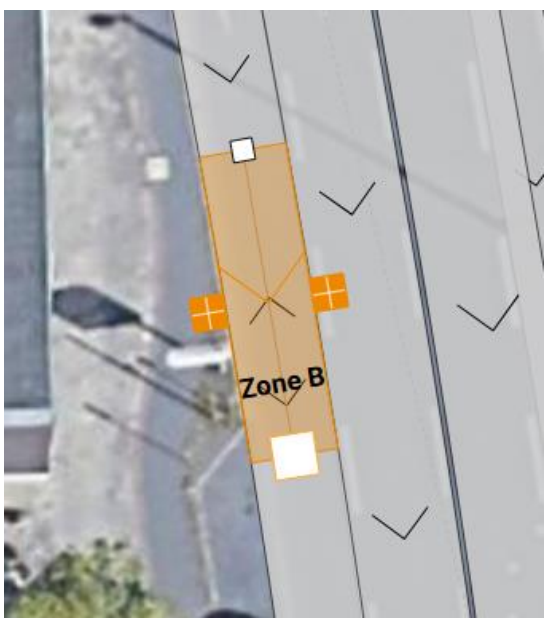
5.1.3.3 ZONES

Zones are user- defined areas in lanes, where some specific event or data from the sensor may be obtained. The creation of zones is required to get either event trigger data or to get statistical data.

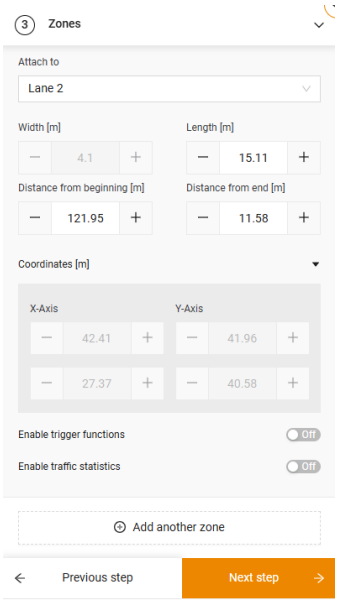
- Press the “Add first zone” button. Click somewhere on one of the lanes once to define the start-point of the zone. Click somewhere a second time to define the endpoint of the zone. The zone length is defined by these two points, whereas the zone width automatically takes on the width of the lane it is present on. The start-point and end-point of the zones can be redefined at any point by clicking and holding on the nodes present at these points and by moving them with the mouse. A visual simulation is provided in the Traffic Web UI which depicts the creation of a lane.



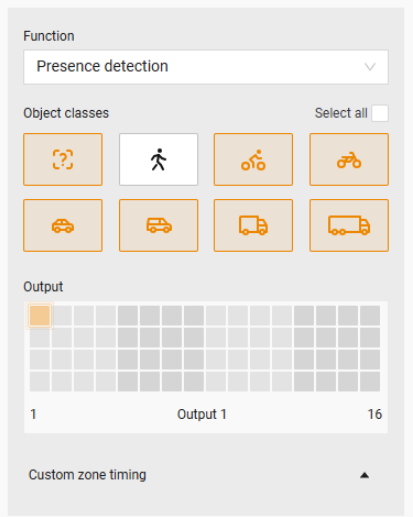
- If the zone the lane is attached to is bidirectional, the zone direction can be changed at will by dragging one of the nodes depicted in white to the opposite direction.



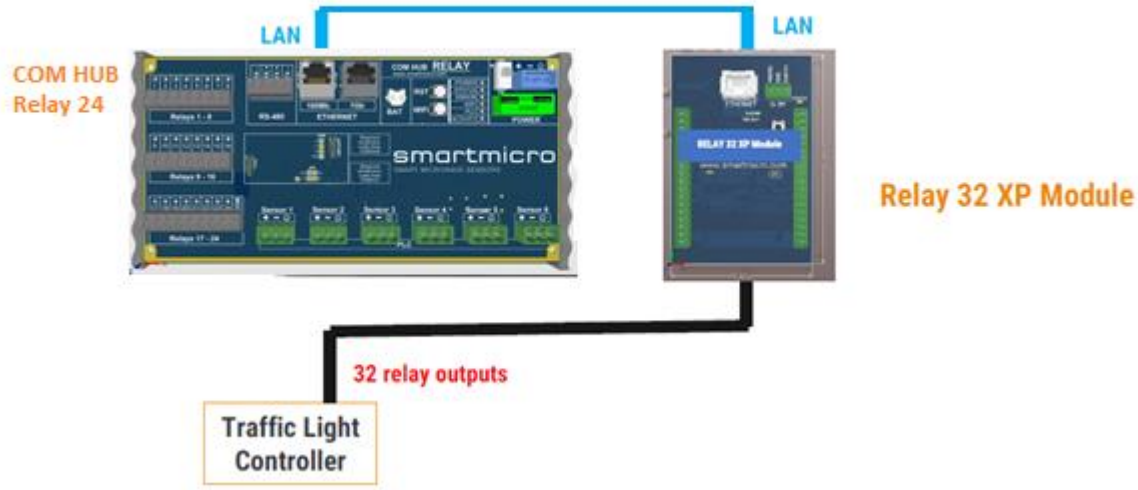
- Once a zone has been created, the following options are available on the Traffic Web UI as seen in the image below:
    - Attach To: This option allows the zone to attach to one of any of the defined lanes, or alternatively to be detached entirely from any of the lanes.
    - Length: Shows and allows the user to change the length of the lane in m.
    - Width: Shows and allows the user to change the width of the lane.
    - Distance from beginning/end: Shows the distance of the zone from the beginning/end of the lane it is attached to.
    - Coordinates: Displays and allows the users to manually change the coordinates of the zone. Co-ordinates are defined according to the point chosen in the "Location" section defined in §5.1.3.1.
    - Enable trigger functions – toggles trigger functions
    - Enable traffic statistics – toggles traffic statistics
    - Add another zone – Allows the creation of additional zones.
    - Next Step: Allows the user to progress to the next step in the configuration once all necessary zones have been created and configured.



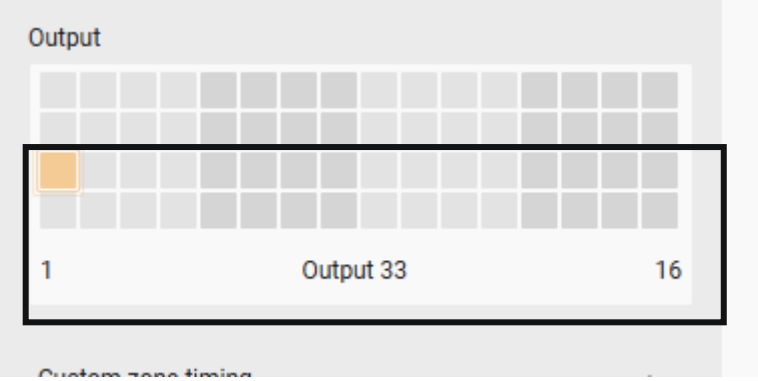
- Trigger Functions: When toggled on, it allows the zone to be configured to an output of the COM HUB Relay. For COM HUB Relay 8 and COM HUB Relay 24, the first 8 and 24 virtual outputs are mapped in chronological order to the physical relays respectively. Various functions and custom zone timings are available, further information for which can be found in the Full sensor documentation [1]. When a zone is mapped to a relay, the output mapped depicted will be in orange, as seen in the example below where the zone is mapped to Output 1. Object classes can also be defined (the buttons in orange are the active classes).



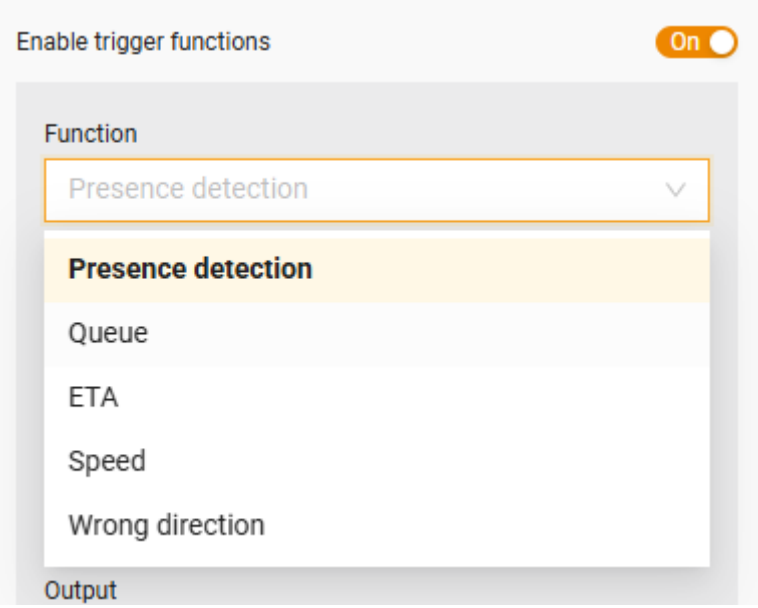
- Optionally, if a Relay X32 module is used, it can be connected to the COM HUB Relay 24 only and not the COM HUB Relay 8. It is connected to the 100Mb ethernet port as seen below.



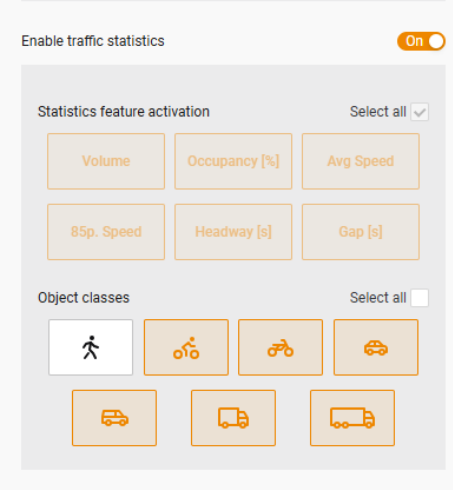
- For the above configuration, the last 32 outputs (outputs 33-64) will then be used as highlighted below. Further information on connecting the Relay 32 XP Module can be found in [5].



- The different possible trigger outputs are as follows. A detailed description of these can be found in Section 5.2.5 of [1].



- Traffic Statistics: Once enabled, traffic statistics with several features will be sent by the sensor via MQTT streams once deployed. Further information about this can be found in the Full Sensor documentation in Section 5.2.4 [1]. The interval time for these reports is fixed to 300 seconds.

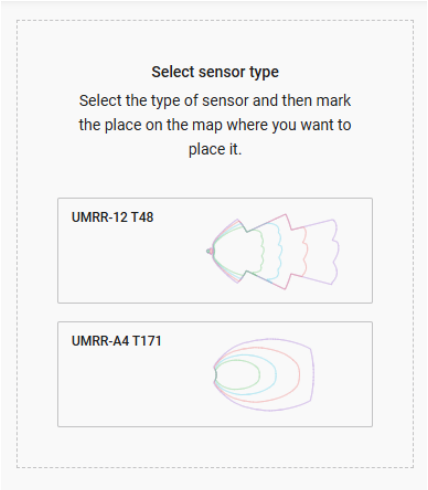


- Once all the necessary zones have been created, the user must later ensure that they fall within the appropriate sensor beam range for a given object class, which is further elucidated in §5.1.3.4.

5.1.3.4 SENSORS

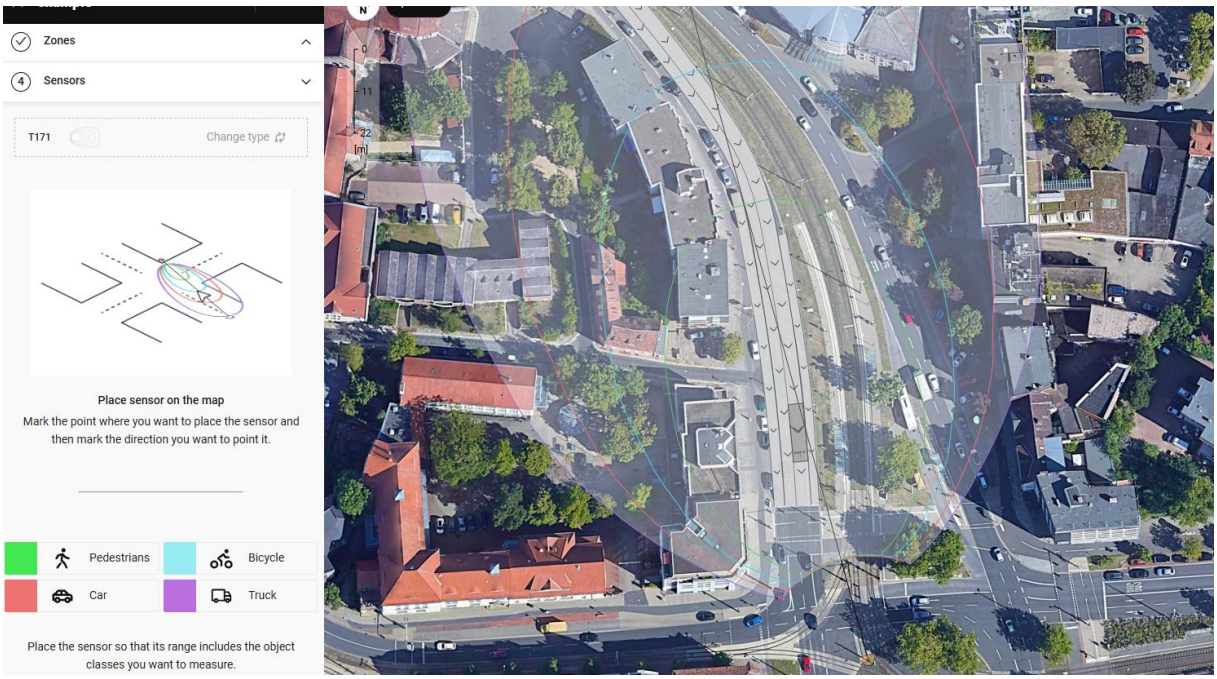
In this step, the sensor used, the sensor position, and other parameters relating to the sensor are defined.

- Select sensor type: Click on the "UMRR-A4" T171 selection box (this is TOPGRD radar).



- A sensor beam is generated which you must then place on the map at the point where you would like to install the sensor with a left-click of the mouse. Then, moving the mouse left or right would change the sensor beam angle left or right, and once this is satisfactory, a further click confirms the sensor beam. This point and the angle must be chosen after site-surveying. This can be done by Google Street View or by visiting the site in person. This includes:

- Choosing a location where all the lanes and zones of interest are adequately covered by the sensor beam depicted. The color coding for the different object classes is seen in the image below.



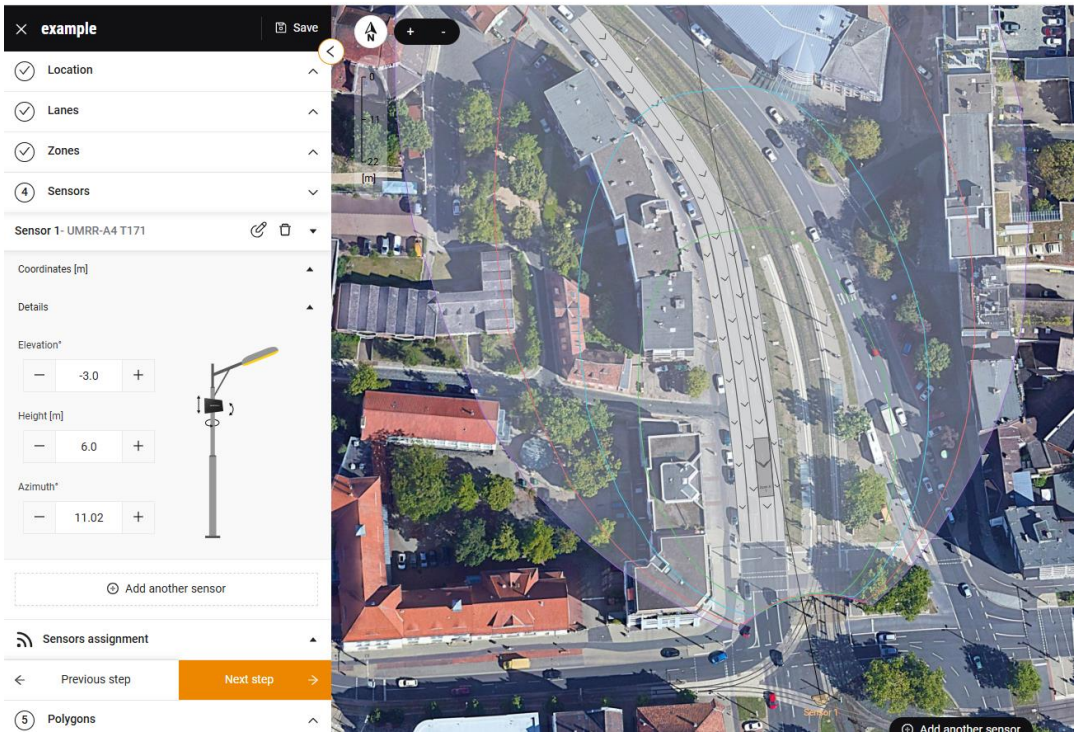
- Choosing a location where the sensor has a free line of sight to the area which it must detect.

- After the location has been determined, mounting details of the sensor must be determined. For this, project planning is required to determine, to the best extent possible, the height, the elevation angle, and the azimuth angle, in which the sensor beam can be said to be free of objects that can block the view of the radar (occlusion), or objects that can cause the radar signal to bounce off of several objects before returning to the radar detector (multipathing, leading to phantom objects). Further information can be found at [6].

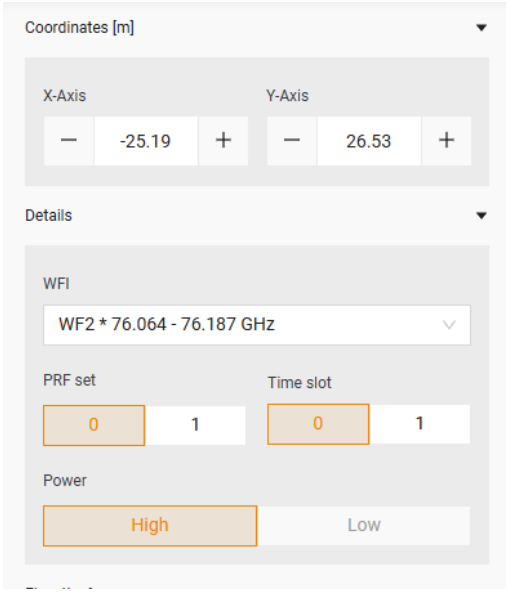
  The rule of thumb for installation is:

  - Height:6m
  - Elevation angle: -8 degrees
  - Azimuth angle: Angle between the sensor and zones of interest should be less than 15 degrees. It can be altered by clicking on the line of sight (black line) of the sensor, and moving it left or right

- Once this is determined, these can be entered into the Traffic Web UI as highlighted in black to show the corresponding beam range and shape. Minor adjustments can then be made.

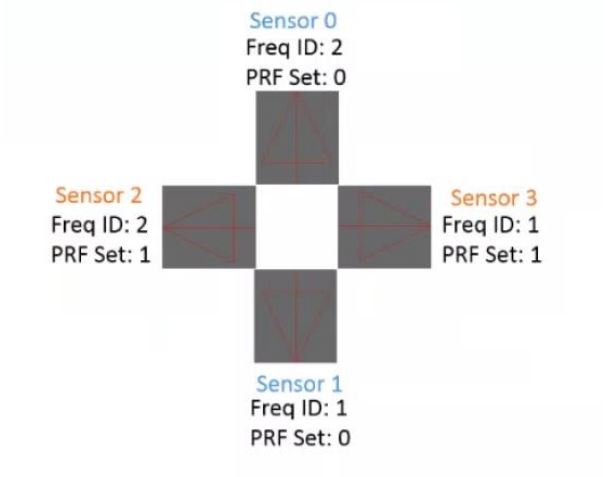


- Coordinates and details of the waveform of the sensors can be seen and altered as seen below. In case of more than one sensor, care must be taken to set the waveforms in different frequency bands to avoid radar interference.

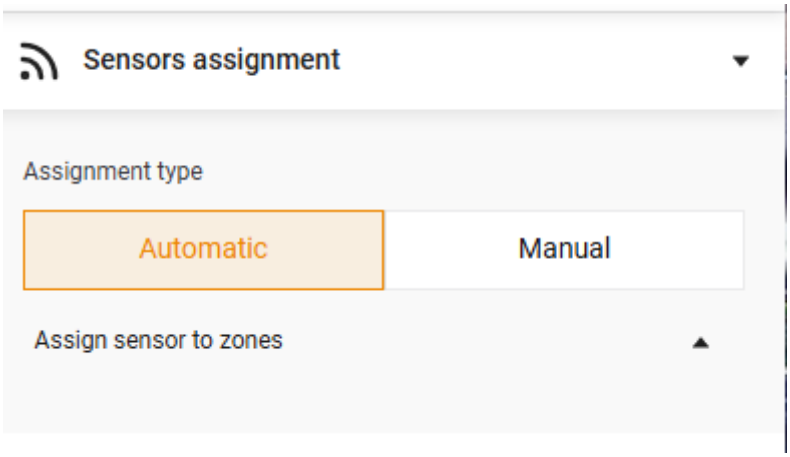


- WFI – The frequency bands ID setting allows the user to configure the sensor to a frequency band. Opposite-facing sensors must be in two different frequency bands, for example WFI1 and WF2.
- PRF Set – Allows the user to select the Pulse Repetitive Frequency (PRF) Set ID. If a second pair of sensors facing each other exists, it is recommended to have them on a different PRF set from the first pair of sensors
- Time Slot – Can be chosen between 0 and 1.
- Power – Selects if the sensor is in the high-power mode or the low power mode.

- An example of the configuration of 4 sensors in an intersection is as seen. The Freq ID label in this figure refers to the "WFI" setting.



- In the event of more than one sensor in the configuration, sensors can be manually assigned to zones if required by setting Assignment type to "Manual". "Automatic" Assignment checks the coverage of the zones and automatically assigns them to the appropriate sensors.

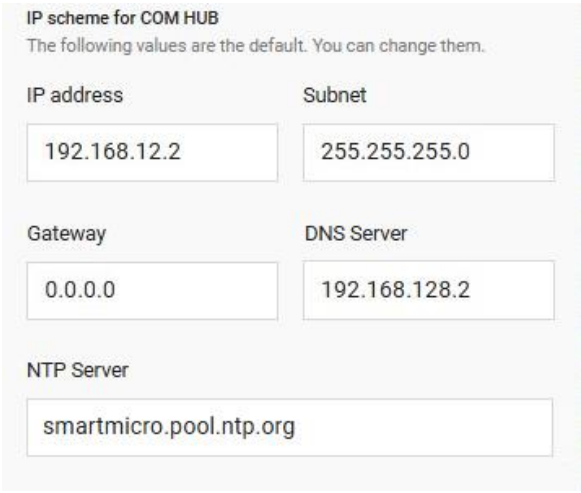


5.1.3.5 POLYGONS

Polygons are user-defined areas wherein properties that do not apply to the rest of the detection area can be applied. They have multiple use-cases and are typically used in special scenarios where the standard installation procedure may not be sufficient to ensure reliable detection. For further information, refer to [1].

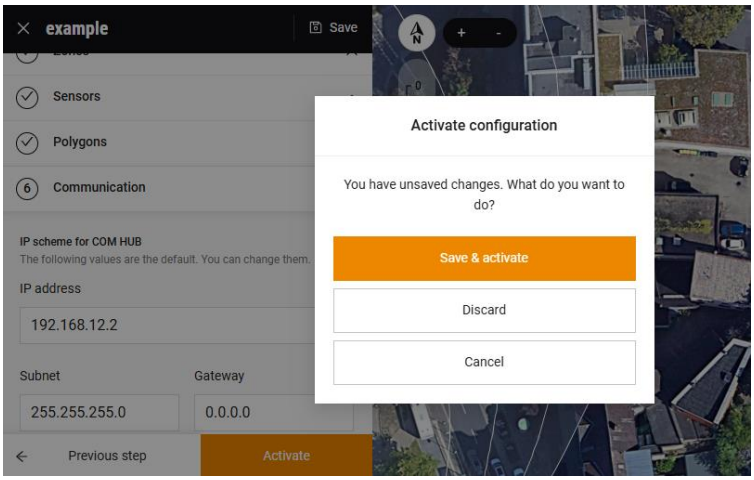
5.1.3.6 COMMUNICATION

In this tab, the default IP settings of the COM HUB Relay are displayed and can be changed if required. It is important to note that this only saves the settings, but the actual implementation of these settings is only performed in the Deployment phase in Section 5.1.4. In addition, the NTP server can also be chosen, which is available from COM HUB firmware version 7.6.1.x.



5.1.3.7 ACTIVATION

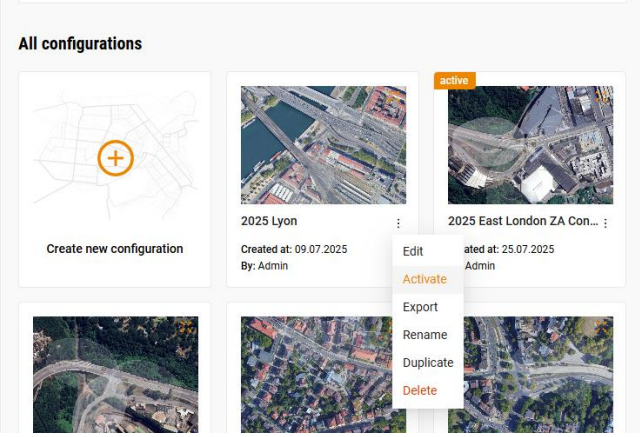
Once paragraphs 5.1.3.1 to 5.1.3.6 have been performed, the configuration can be activated by pressing on “Activate”. The user is then asked if they would like to “Save & Activate” the current configuration or “discard” it. The former option is then to be selected to save the current configuration into the COM HUB Relay and select it for further deployment.



Multiple configurations may be created, saved and stored in the COM HUB Relay using the steps elucidated in Paragraphs 5.1.3.1. to 5.1.3.6. However, only one configuration can be set as “active” at a given time.

In Dashboard>All Configurations> “:” menu, the following options are available.

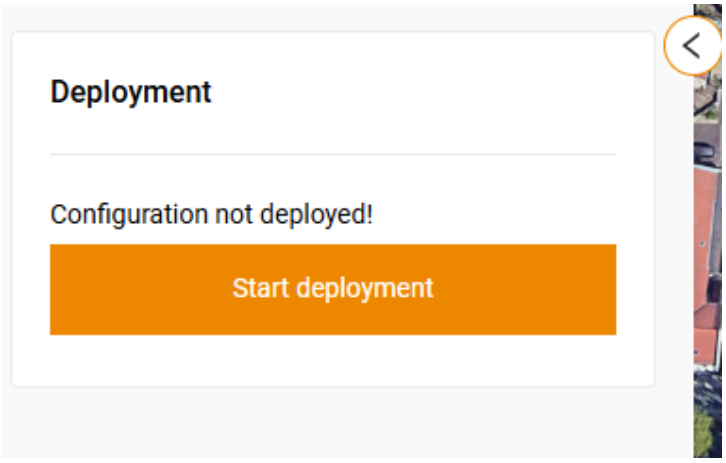
- Activate – To activate the selected configuration.
- Export – To download the configuration onto your local computer.
- Edit – To edit the configuration.
- Rename – To rename the configuration
- Duplicate – To duplicate the configuration
- Delete – To delete the configuration.



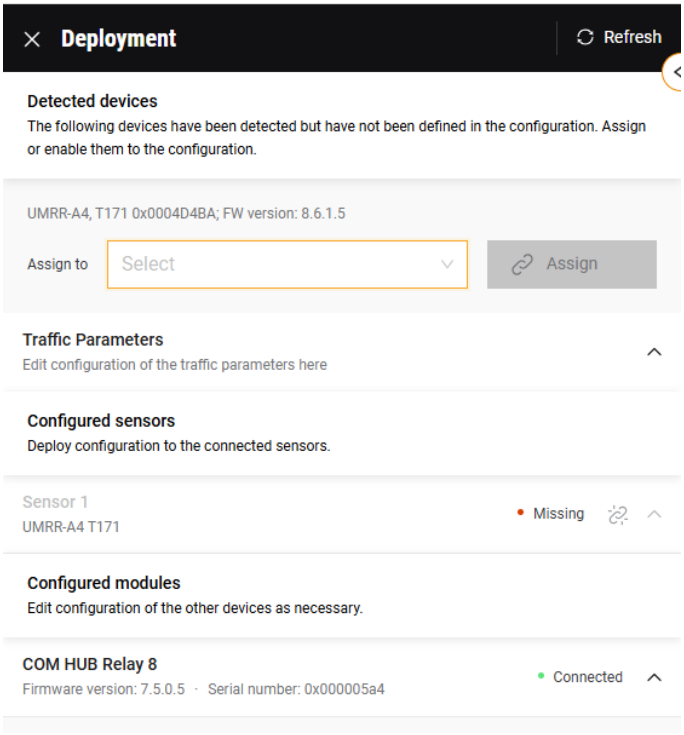
If the user would like to exit the config, press ‘x’ on the top left to navigate back to dashboard.

5.1.4 INSTALLATION & DEPLOYMENT

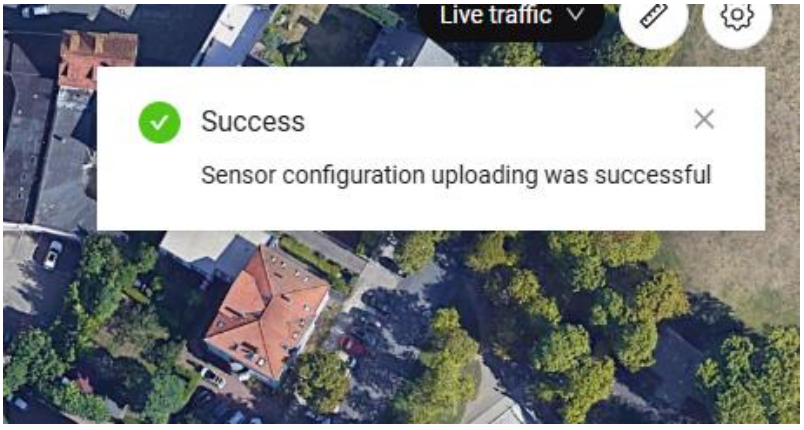
- At the required installation point, install the sensor by mirroring the exact conditions you created in the configuration in §5.1.3.4
- At the height noted in §5.1.3.4, install the sensor connecting it to the PLC J-Box using a flat screwdriver, and secure it using the bracket of choice. Steel bands may also be used when necessary.
- On the controller side, connect the sensor to the COM HUB Relay as was performed in the pre-configuration phase. Power the sensor and connect it to a computer.
- Login to the COM HUB Relay, and in the dashboard, navigate to Deployment > Start Deployment to send the activated configuration from the previous step to the sensor. This process must be repeated each time the configuration is subsequently edited.



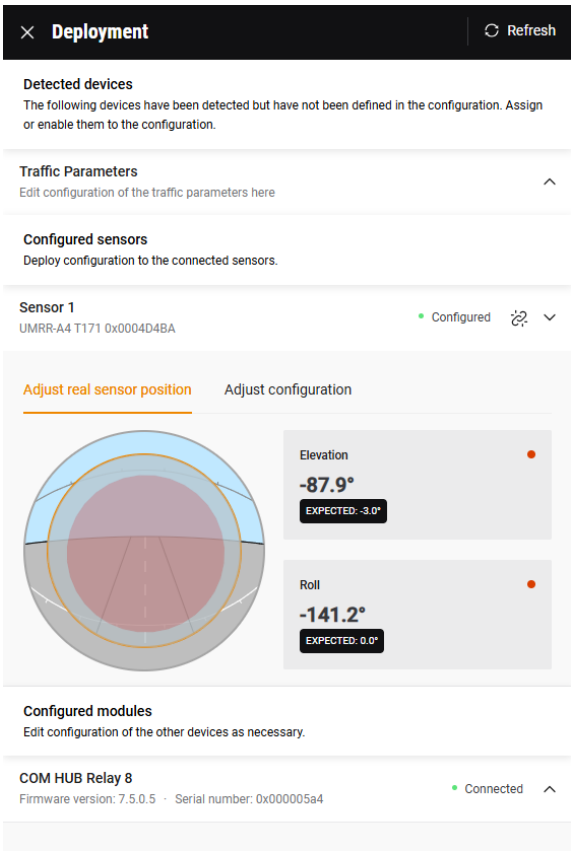
- The COM HUB Relay should be able to identify the sensors connected along with their serial number and firmware versions. The sensors then need to be linked to the sensors created within the configuration. Click on “Select” under Assign to, select the label of the sensor used in the configuration and press “Assign”. In the event of a multi-sensor configuration, care must be taken to assign both sensors individually to the correct sensor label.



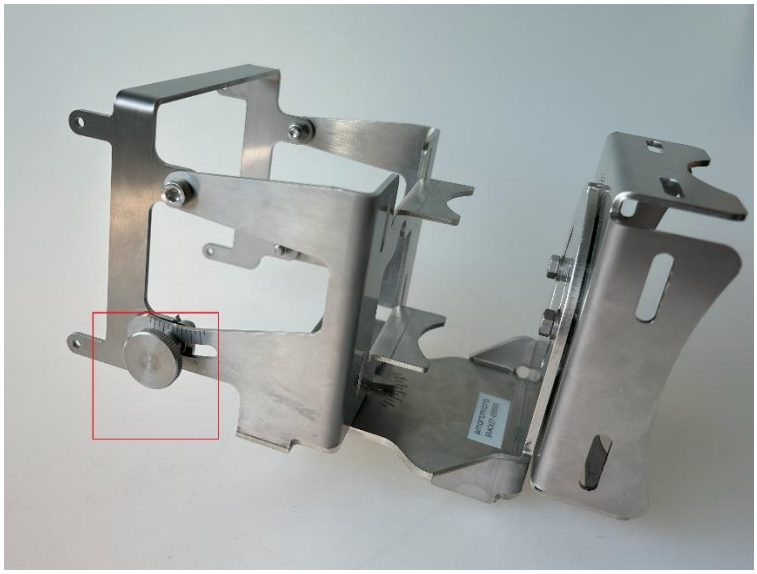
- The user should then receive the following message, indicating that the configuration was successfully uploaded to the sensor.



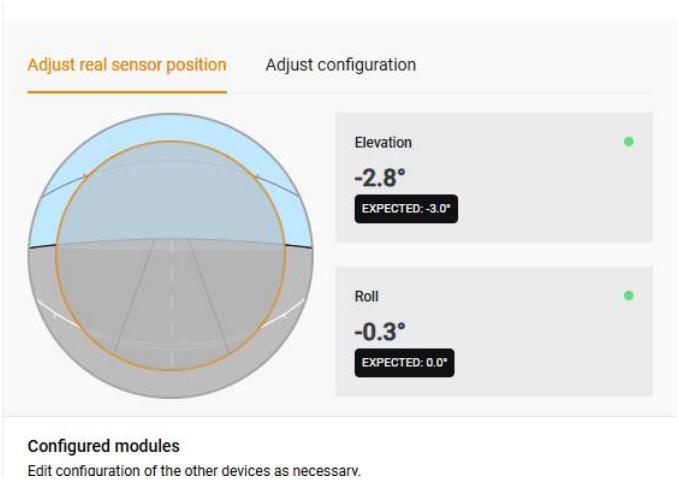
- After setting the sensor at the correct height, and uploading the configuration, the user receives feedback from the sensor regarding its elevation angle and roll by clicking on “Adjust Real Sensor Position”.



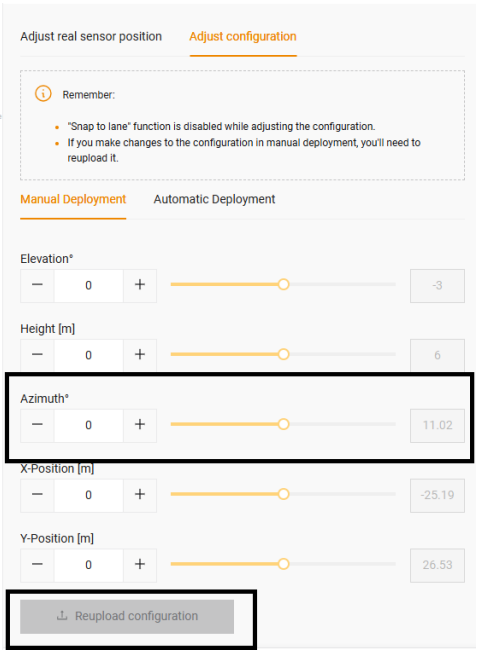
- The elevation angle can be changed by the knob on the bracket highlighted below. Change it until it reaches the angle that you've set in the configuration, which will then give you a green signal. The roll angle should always be 0 degrees.



- An example of a sensor with the elevation and roll angle set correctly to within an acceptable range of deviation is seen below.

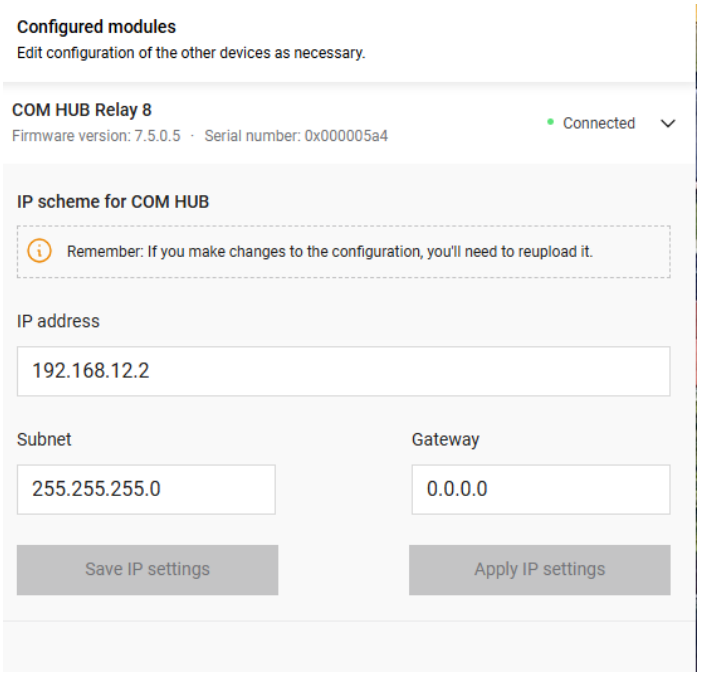


- For the azimuth angle, it is recommended to have the sensor facing the road in approximately the same manner as was set in the configuration. After this, when you begin to observe objects appearing in the configuration, go to adjust configuration>Manual Deployment> Azimuth Angle, and increase or decrease the azimuth angle until all the vehicles appear in the correct lanes for the entirety of the distance of the lanes, and can be verified by visual feedback from looking at the road. Once this is satisfactory, press on "Reupload Configuration". An "Automatic Deployment" option is available from COM HUB Version 7.6.x.x.



- Press “Snap to lane” and set to “live traffic” on the top right corner of the map, if it’s not set already.

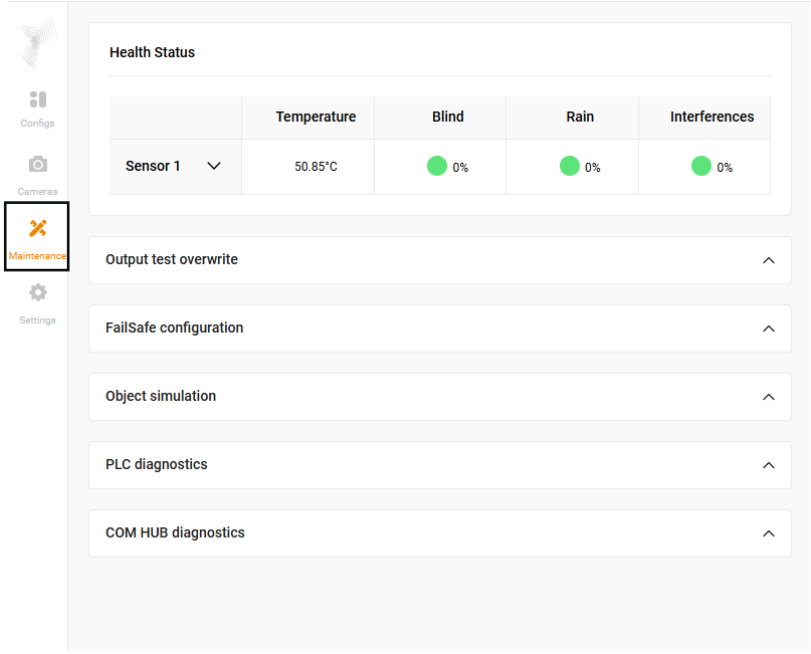
- In the deployment page, go to “COM HUB Relay 8”> IP scheme for COM HUB Relay. Pressing “Apply IP settings” here would then change the IP scheme of the COM HUB Relay, as well as the NTP server settings. “Save IP Settings” would record the settings in the Traffic Web UI, but the actual implementation would only be performed with “Apply IP Settings”.



- At this point, the sensor is installed, should function properly and deliver data as required.

5.1.5 MAINTENANCE & DATA VISUALISATION

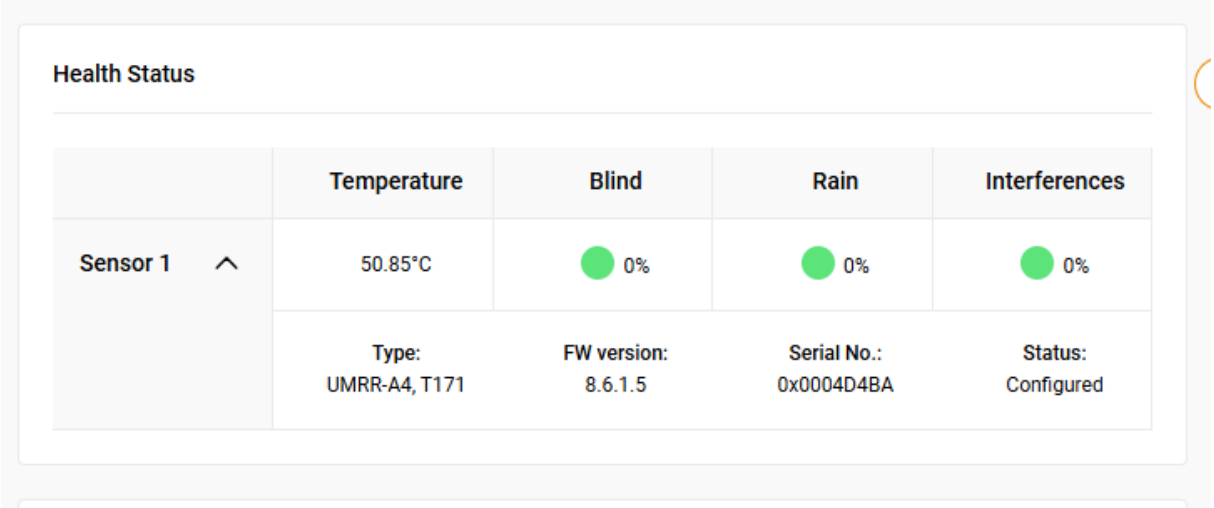
The maintenance tab can be used to monitor and check the system. It is accessed from the Dashboard as highlighted below.



5.1.5.1 HEALTH STATUS

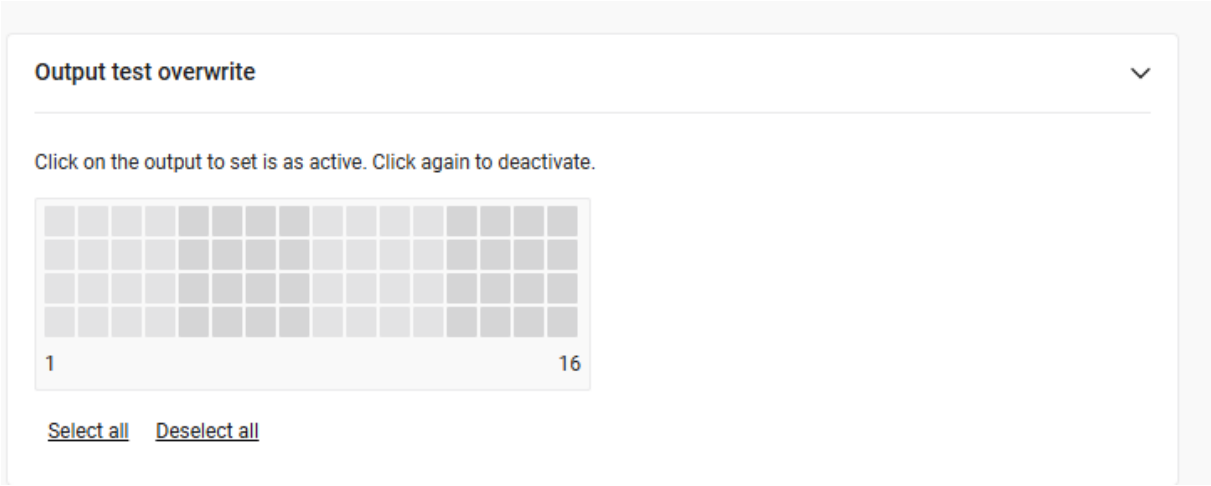
In this section, the health status of the connected sensors can be viewed, along with other details of the sensor such as its serial number, firmware, type and whether it is configured or not. It also provides information about the following.

- Temperature: The current temperature of the sensor
- Blind: the percentage to which the field of view of the sensor may be blocked. If there is a red signal here, this must be investigated, and site surveying must be performed to determine the cause of this issue. It is reported as a percentage value, and a green/red signal is used to distinguish between tolerable/ potentially intolerable values.
- Rain: The included rain detection algorithm of the sensor can detect if there is a presence of heavy rain or snow conditions, where sensor performance may be reduced. It is reported as a percentage value, and a green/red signal is used to distinguish between tolerable/ potentially intolerable values.
- Interference: The sensor detects if there are frequency interferences from sensors or other devices in the vicinity that may hamper the performance of the sensor. It is reported as a percentage value, and a green/red signal is used to distinguish between tolerable/ potentially intolerable values.

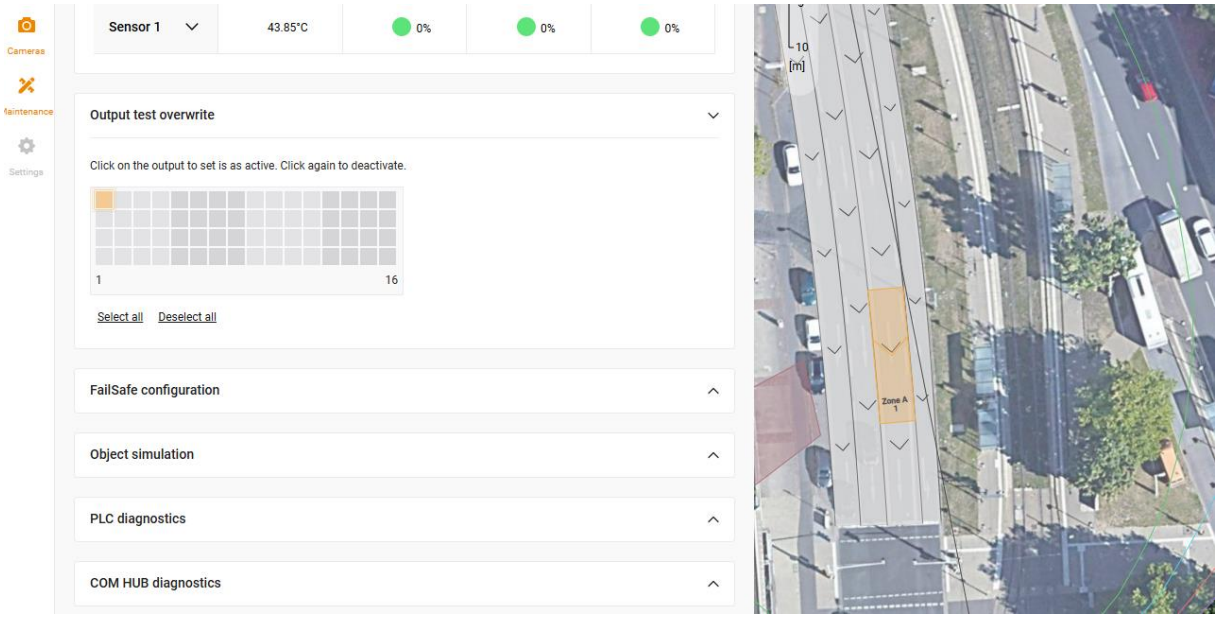


5.1.5.2 OUTPUT TEST OVERWRITE

The output test overwrite function can be used to check the relays of the COM HUB Relay, as well as for testing outputs while integrating into a traffic controller. As mentioned in Section 5.1.3.3, the first 8 or 24 outputs have been mapped to the physical relays present on the COM HUB Relay 8 or COM HUB Relay 24. Thus, these can be forced ON or OFF by clicking on the required output.



On the Traffic Web UI, any zone with triggers configured to an overwritten output will also be turned on, and the corresponding triggered zone is also visually highlighted in orange as seen in the example below.

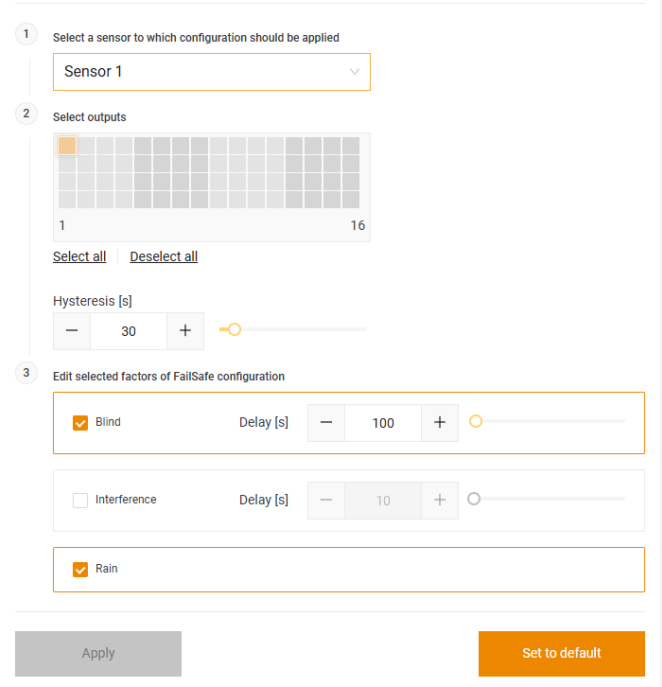


On the COM HUB Relay, an active relay will also have its corresponding relay LED on.

5.1.5.3 FAILSAFE CONFIGURATION

For the blind, rain and interference statuses mentioned in §5.1.5.1, the sensor provides a failsafe mode, wherein certain or all outputs can be turned on in the event of failure in the health statuses. This provides the user with an error signal, which can be used to alert the operator to check the configuration and the health statuses to diagnose potential issues. In the failsafe configuration menu seen below, the following options are available, listed in numerical order in line with the menu

1. Used to select the sensor to which it applies using a dropped down menu
2. Selecting the outputs that must be turned off in the event of a failsafe, and to provide hysteresis if required
3. Selecting the health status for which the failsafe should be applied. A delay can also be provided as required



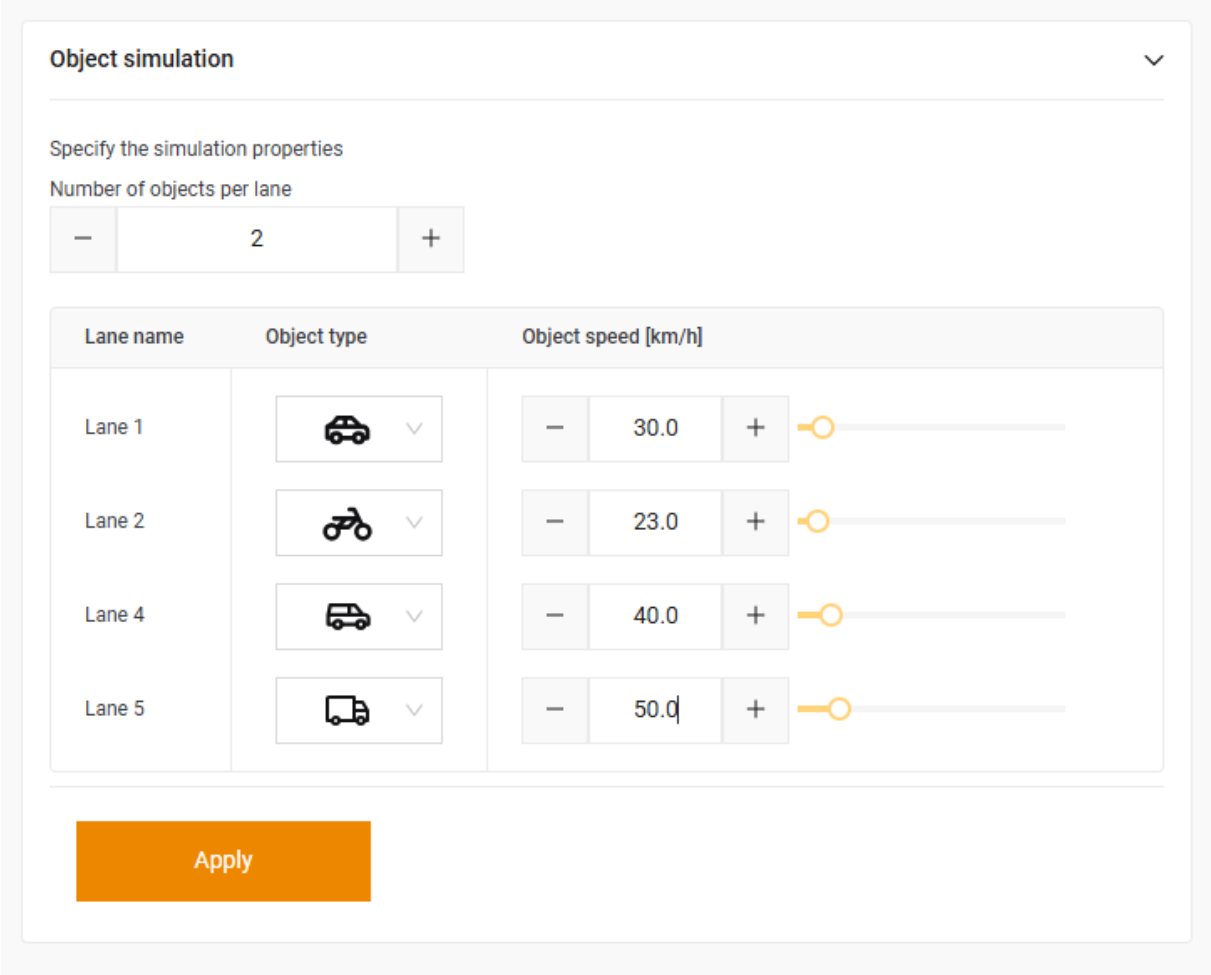
Once the required operations are selected, “Apply” must be selected to send this configuration to the sensor. “Set to default” sets it back to the default settings, which is also seen in the example above.

5.1.5.4 OBJECT SIMULATION

A simulation mode is provided for testing sensor configuration and output behavior prior to installation.

In the example given below, the following options are elucidated.

- Number of objects per lane – To define the number of objects to be simulated per lane. For this example, 2 objects are to be simulated
- Lane Name – Displays the lane name
- Object Type – To select the object type to be simulated which can be chosen by a drop-down menu. Lanes 1,2 3,4 have the object types of cars, motorbikes, transporters and short trucks respectively
- Object Type – To select the object speeds to be simulated in km/h which can be chosen by a drop-down menu. Lanes 1,2 3,4 have object speeds of 30 km/h, 20 km/h, 40km/h and 50 km/5 respectively.

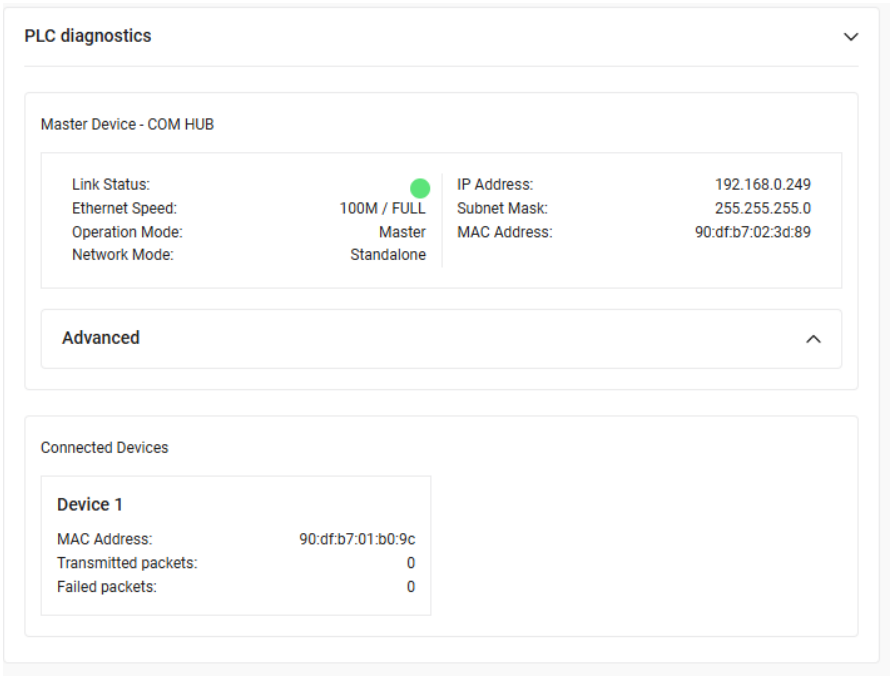


Once Apply is selected, the sensor needs to be changed from “Live Traffic mode” to “Simulation” mode on the top right of the screen, the simulation will be seen on the map, and the user will get data in the form of outputs and statistical streams according to the simulation, and not according to any live sensor detected data. An example of the simulation is seen below. As can be seen, the simulation mode triggers the zone as well.

To get back live sensor detection, switch back to “Live traffic mode”.

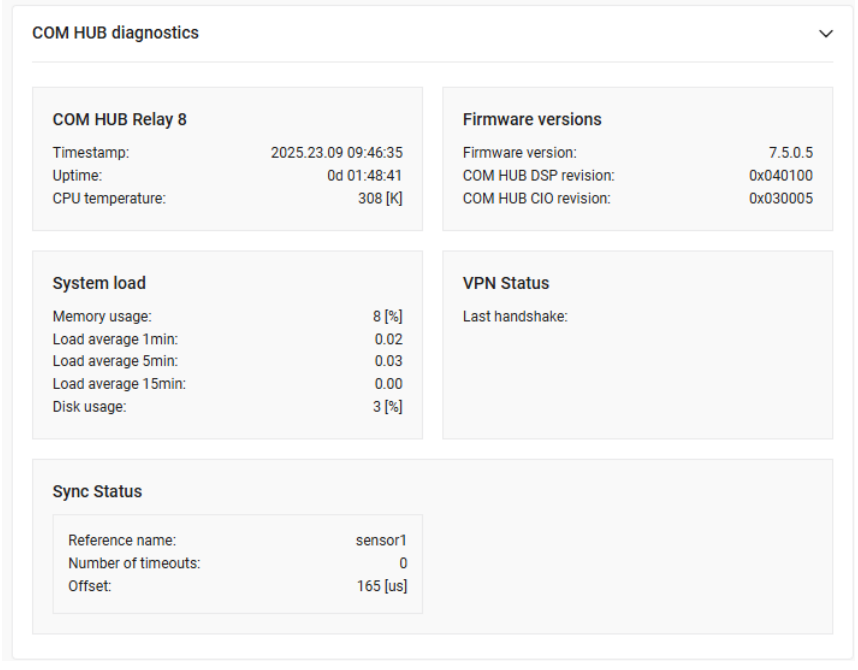
5.1.5.5 PLC DIAGNOSTICS

In the PLC diagnostics tab, communication diagnostics about the COM HUB Relay as well as the connected devices are provided as seen below.



5.1.5.6 COM HUB RELAY DIAGNOSTICS

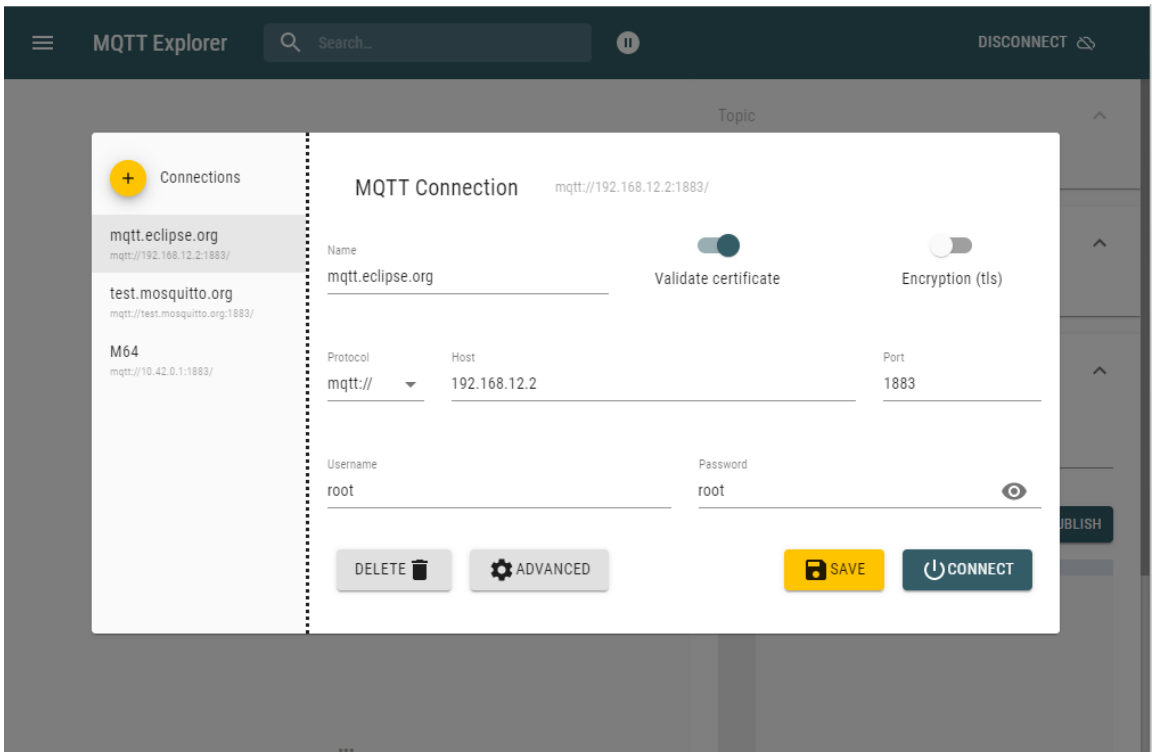
Diagnostical information about the COM HUB Relay is provided in this tab as pictured below.



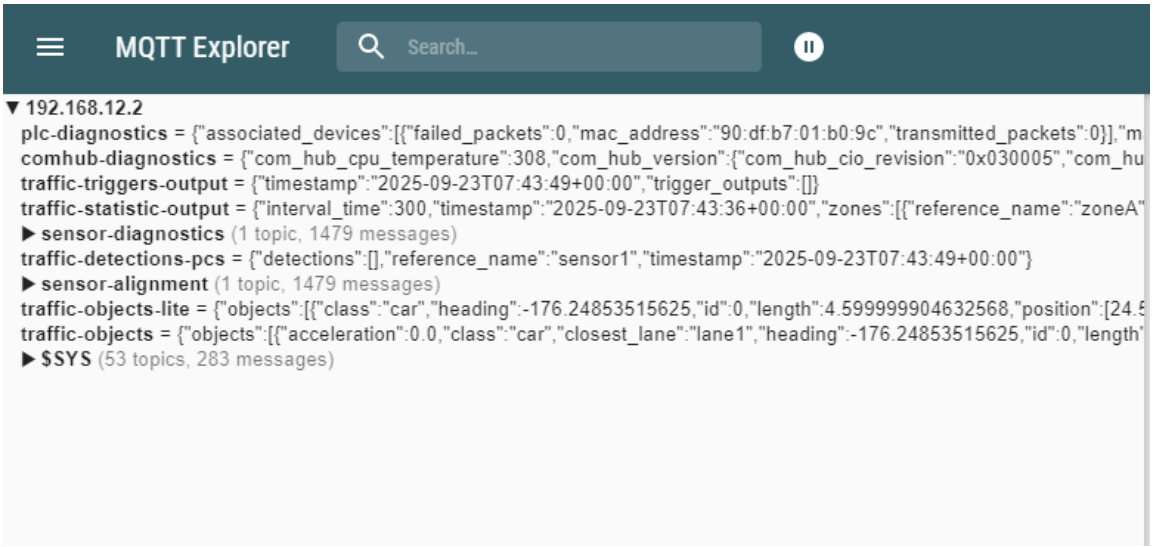
The number of timeouts option highlighted informs the user about the performance of the time synchronization. A non-zero number of timeouts must then be investigated as it can have several causes such as, for instance, disturbances in communication or cabling.

5.1.5.7 STATISTICAL DATA VIA MQTT STREAMS

Statistical data is available via MQTT streams and can be viewed by using a MQTT client application such as MQTT Explorer. To log into MQTT Explorer, the credentials and settings seen in the image below are used.

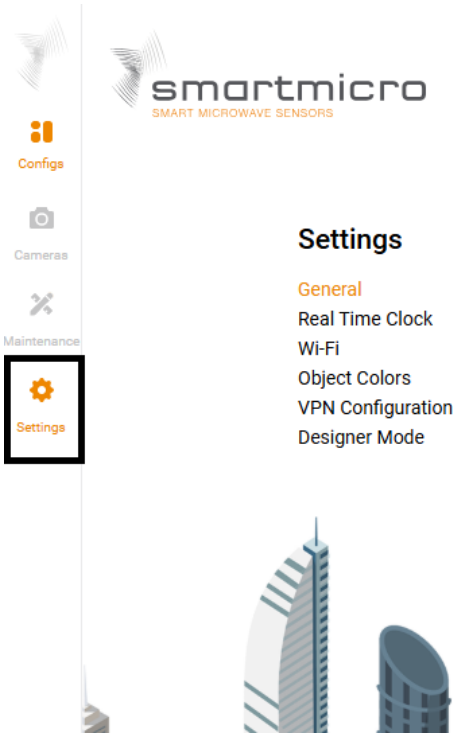


After logging in, the following streams are seen. Diagnostic data, triggering data, object data, and statistical data are provided. For further information, see [2].



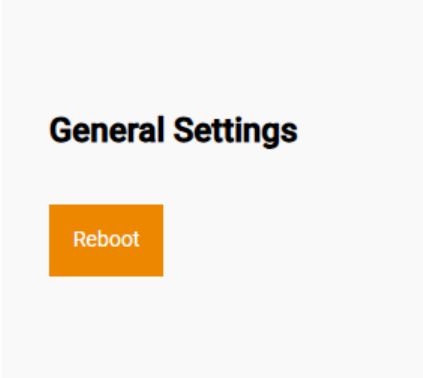
6 SETTINGS

The Settings tab provides several additional settings to configure the COM HUB Relay and the displayed data according to user preferences, as well as allowing changes in connection. It can be accessed from the Dashboard menu as highlighted.



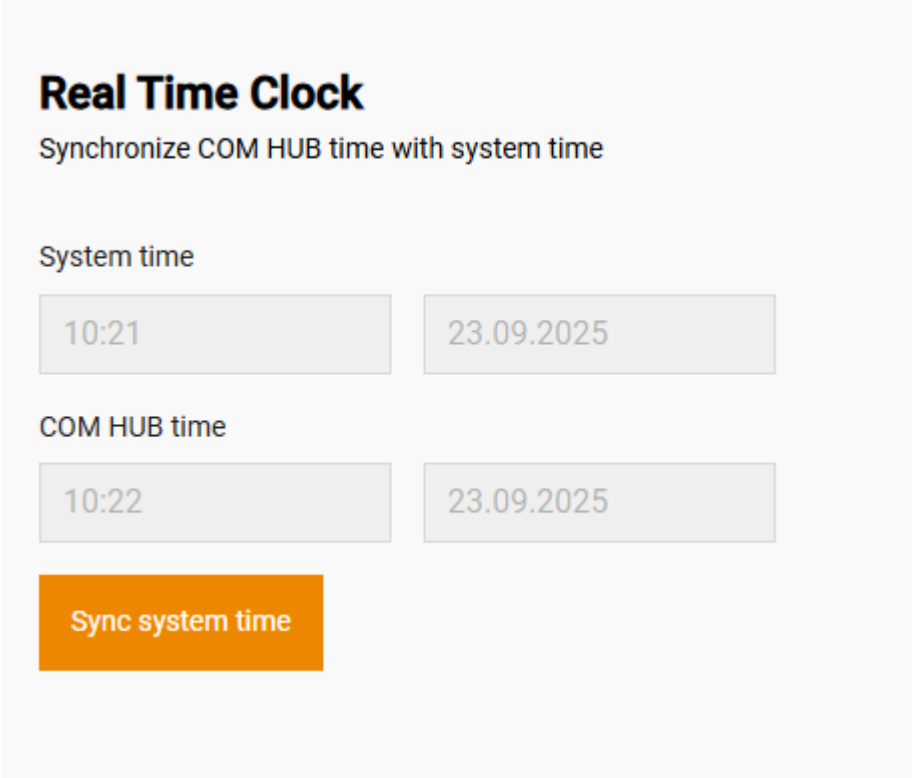
6.1 GENERAL SETTINGS

A software reboot of the COM HUB Relay can be performed here.



6.2 REAL TIME CLOCK

The time of the COM HUB Relay and the local computer time (system time) can be viewed here, and the COM HUB Relay can be synchronized to the local computer time with the “sync system time” button if necessary.

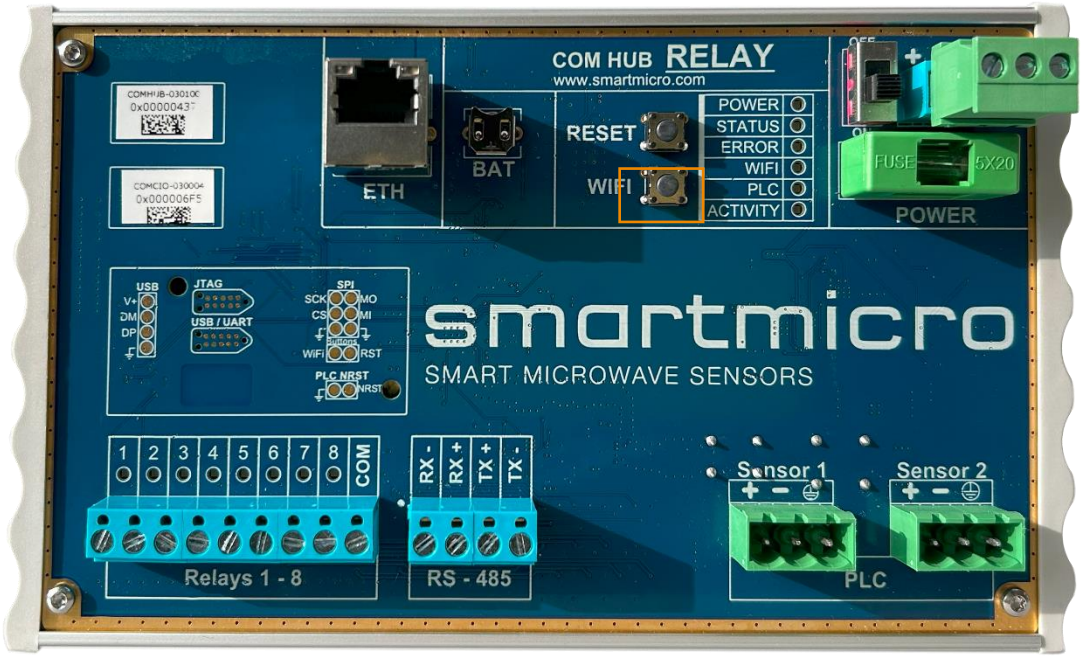


6.3 WI-FI

The Wi-Fi settings to connect to the COM HUB Relay wirelessly can be seen and edited here. Once connected to Wi-Fi with a device, the user can remotely connect to the COM HUB Relay by using the COM HUB Relay's IP address.

Press the physical "WIFI" button on the COMHUB Relay (highlighted in orange below).

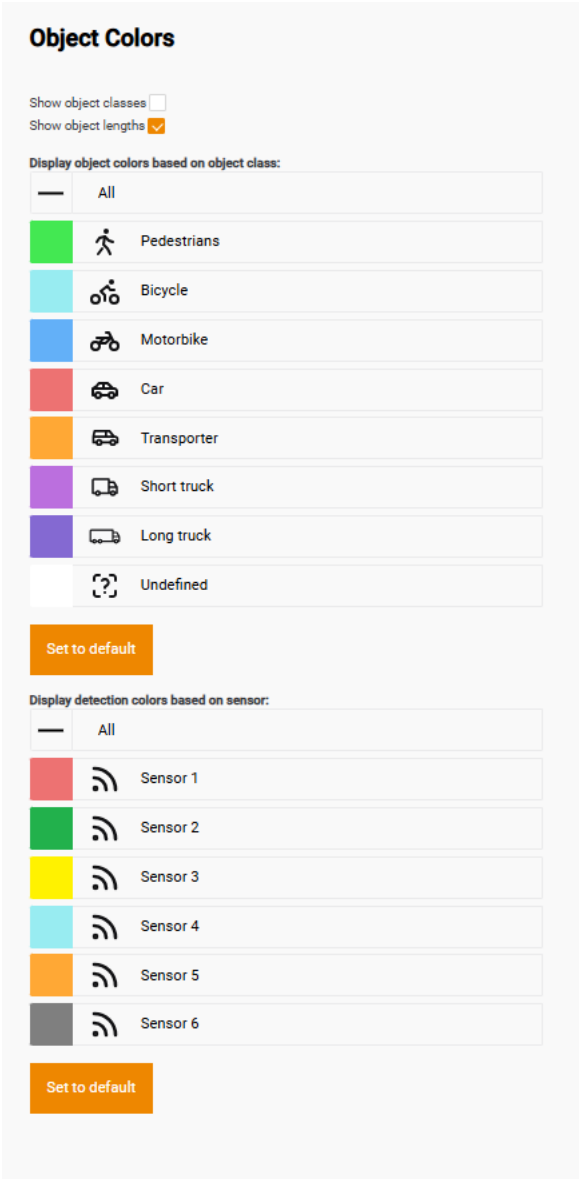
The "WIFI" LED indicator should now turn orange, indicating that the Wi-Fi capability has now been switched on.



After connecting to the Wi-Fi using the credentials above, the Traffic Web UI of COM HUB Relay can be reached at 192.168.10.1.

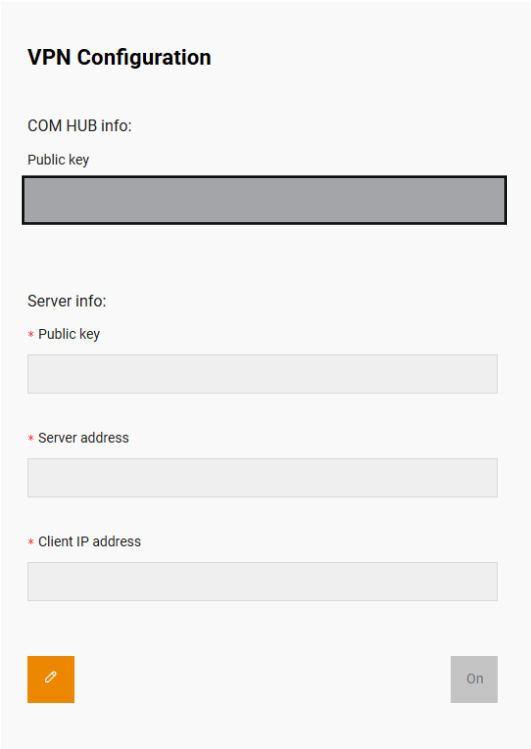
6.4 OBJECT COLORS

In this setting, aesthetical options such as changing the color of the object classes, changing object color based on length, and toggling the display of object classes and lengths can be configured according to the user's preference.



6.5 VPN CONFIGURATION

The VPN Configuration for the COM HUB Relay can be edited in this tab.



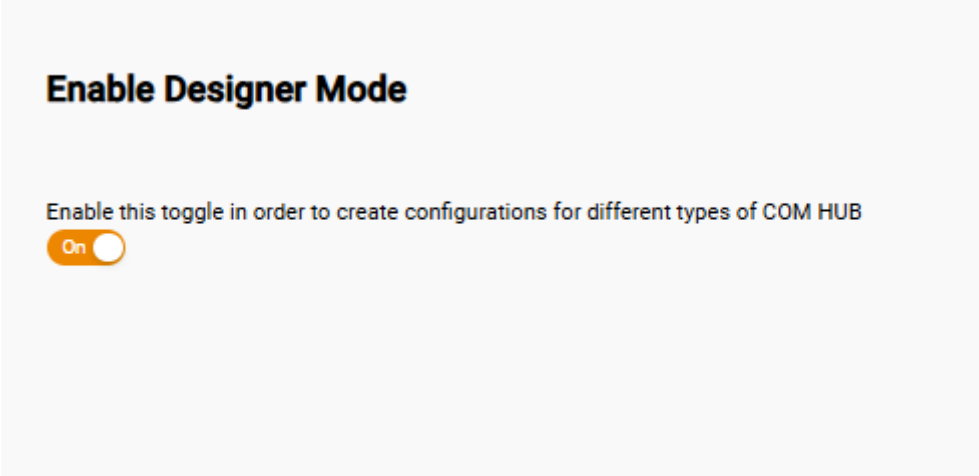
Please note that only WireGuard VPN is supported. The COM HUB Relay operates as a WireGuard client, and typically, the customer is responsible for providing a WireGuard VPN server.

However, if needed, access to the smartmicro WireGuard server remote connection can be arranged upon request.

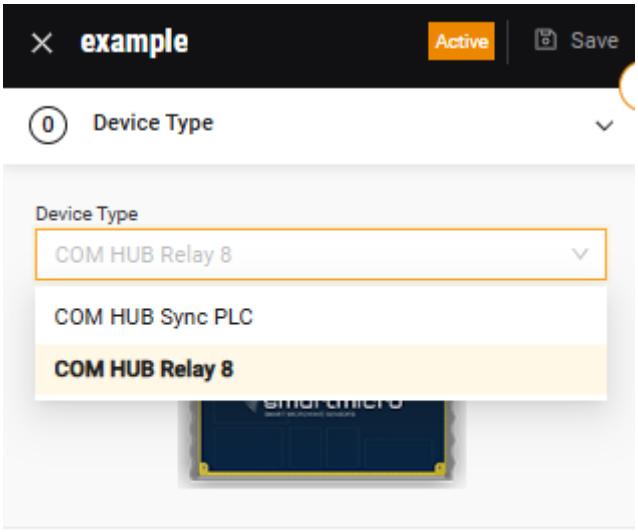
Before proceeding, please check with your IT department to confirm whether they can provide a WireGuard VPN server. If not, kindly verify if you are allowed to install the WireGuard client on your PC to connect to our server.

6.6 DESIGNER MODE

This tab allows the user to enable creation of configurations for other types of COM HUB Relay.

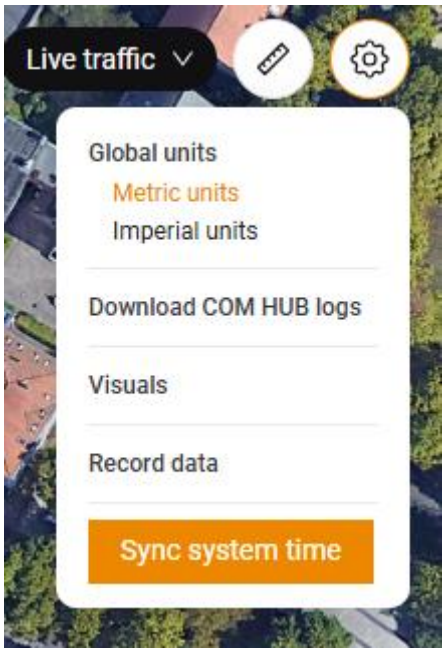


Once this is toggled on, navigate to the Configuration section from §5.1.3, and the following tab will appear allowing the user to create configurations for other COM HUB types.



7 ADDITIONAL SETTINGS

On the top right of the map, some additional settings are provided, which can be accessed by pressing the gear icon.



These options are as follows:

- Global units: Can be toggled between metric and imperial units
- Download COM HUB Relay logs: Can be used to download COM HUB Relay logs to send to smartmicro in case of any bugs or defects in detection.
- Visuals: Allows for options such as toggling on and off the viewing of lanes.
- Record data: Records data that can then be send to smartmicro developers for debugging along with the logs. Records of up to 5 minutes are allowed
- Sync system time: Allows the user to synchronize the COM HUB Relay with the local computer time.

The ruler button toggles a ruler that is placed on the map.

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