

## CAPTURE LOOP

v1.0.0

Vehicle detection sensor for barriers and gates - Radar + Ultrasonic



①

1. Front cover
2. Radar module
3. Ultrasound module
4. Dip switch
5. Mounting bracket

②

③

④

⑤

### 1 TECHNICAL SPECIFICATIONS

Technology:	Microwave doppler radar + Ultrasonic Module
Transmission frequency:	24,150 GHz
Transmitter radiated power:	< 20 dBm EIRP
Transmitter power density:	< 5 mW/cm <sup>2</sup>
Detection mode:	Motion + Vehicle presence
Detection zone:	Radar: 15 m ; Ultrasonic: 7,65m Ultrasonic Field of View area: 60 cm <sup>2</sup> at 7 m. distance
Minimum detection speed:	3-4 Km/h
Vehicle speed	3 to 50 Km/h
Supply voltage:	12V/24V AC/DC - 50 - 60 Hz i(nsert a 1A fuse on external power supply)
Max power consumption:	< 2 W
Output/Input:	2 outputs: NO/NC configuration (Normally open/closed) Max. load voltage: 42V peak or DC; Max. load current: 500 mA 1 input: wake/inhibit
Mounting height:	1 m to 3 m (recommended 1,5 m)
Protection class:	IP65
Temperature range:	-30 °C to +60 °C
Inclination angles:	+/- 45°
Materials:	ADA + Polycarbonate
Weight:	650g with cable
Cable length:	10 m.

Technical data may be changed without prior warning.

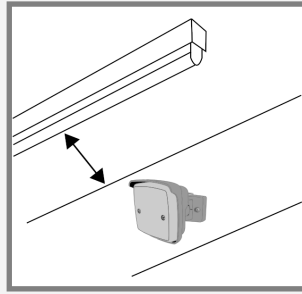
\* The use of the sensor other than described cannot be guaranteed by the manufacturer.

\*\* Under optimal ambient conditions.

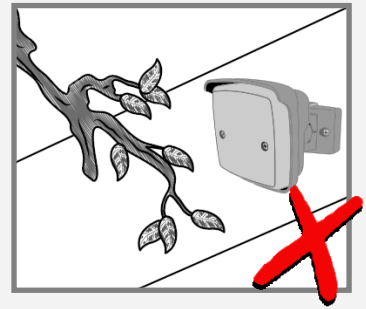
## 2 MOUNTING ADVICE



Avoid unstable surfaces and vibrations.



Mount sensor away from fluorescent or HID light sources.



Objects such as fans, plants, etc must not protrude into the detection area.

## 3 WIRING

<b>BROWN</b>	+ SUPPLY VOLTAGE
<b>YELLOW</b>	- 12-24 V AC-DC
<b>GREEN</b>	
<b>RED</b>	OUTPUT 1 (NO/NC)
<b>BLUE</b>	
<b>PINK</b>	OUTPUT 2 (NO/NC)
<b>GRAY</b>	
<b>WHITE</b>	INPUT 3V3
<b>WHITE</b>	NOT CONNECT

Connect the wires to the automation as shown in the picture.

**Outputs:** Each output can be set to activate when a detection is made, either by the radar or the ultrasonic sensor, or both: Radar, Ultrasonic, Radar & Ultrasonic

This configuration will be possible via Capture App.

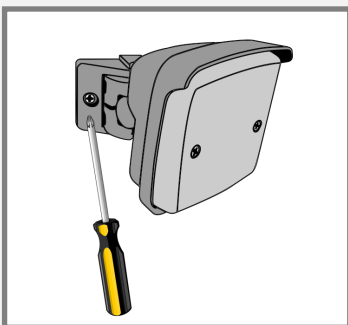
**Input:** The input accepts a maximum voltage of 3.3V and enables four functionalities:

Use **INHIBIT** to deactivate output e.g. while swing gate is moving into sensing zone.

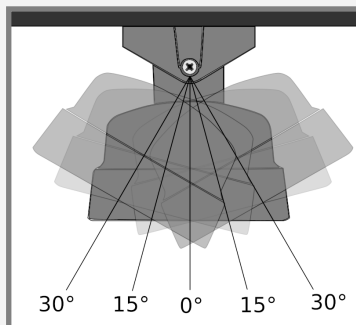
Can be set **LOW** to inhibit when input signal is low

Can be set **HIGH** to inhibit when inputs signal is high

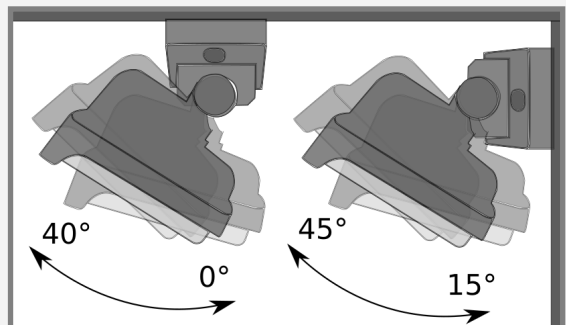
## 4 MOUNTING



Tilt completely the sensor on one side to have access to fixing holes.

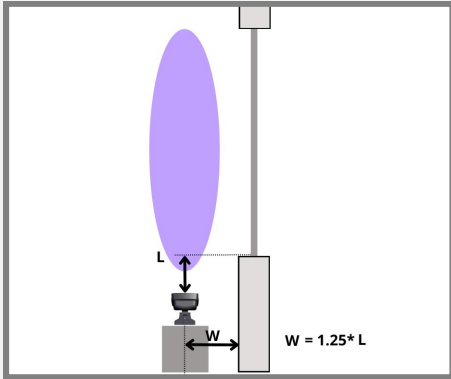


Adjust horizontal angle.



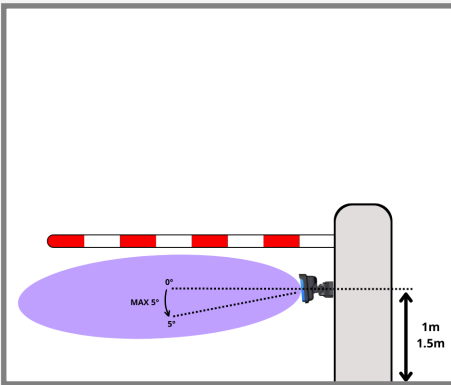
Adjust the vertical angle depending on the mounting height.

## 5 INSTALLATION RECOMMENDATIONS



For optimal sensor function, follow the mounting distances indicated: **W** is the distance from the wall, **L** is the distance from the corner of the wall.

$$W = 1.25 * L$$

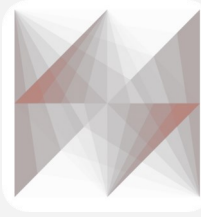


For optimal sensor function, follow the mounting Height and inclination indicated:

- At 1 m. : No vertical inclination angle
- At 1.5 m. : 0° to 10° Downwards

## 6 SMARTPHONE APPLICATION

The radar can also be configured through the free **CaptureRadar** app, available for Android and iOS. The only way to access the change of advanced parameters is to request the password from the dealer.



Search "**Capture Radar Startec**" on your App Store, or use the QR\_Code.



## 7 APP INITIAL SETUP

Quick installation configuration:

- 1) After opening the app, select your device from the list. Fig 1
- 2) Enter the default password "capture" and press ok. (For security reasons, we recommend that you change it later). Your smartphone will ask you to pair your Bluetooth device. Agree. Fig 2
- 3) Activate the Cross Traffic Filter before entering the calibration setup. Fig 3
- 4) Enter the "calibration setting" menu and select the position (diagonal left, diagonal right) and the mounting height. The Radar will then use the AutoTune function to automatically set the appropriate parameters. Fig 4
- 5) The configuration is finished. Optional: In the "calibration setting" page (Fig 4) it is possible to plot the radar detection in real time. And it is possible to adjust the ground projection by changing the angles and the minimum and maximum detection distances.

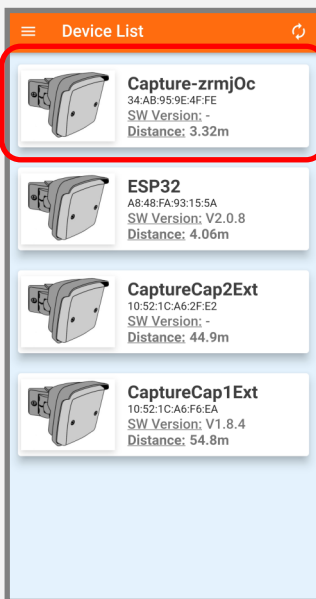


Fig 1

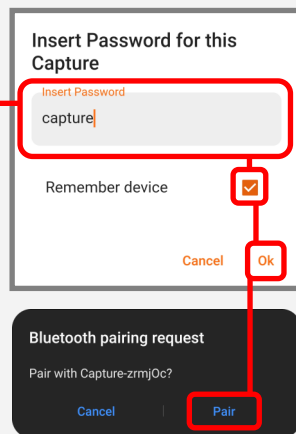


Fig 2



Fig 3

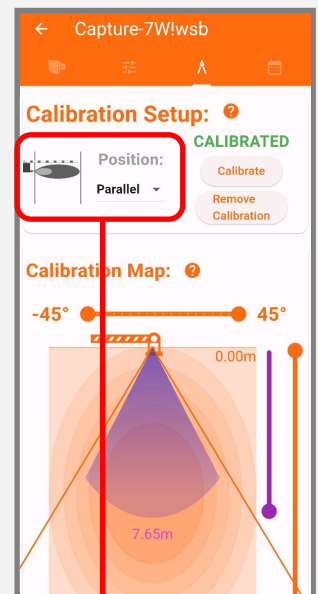
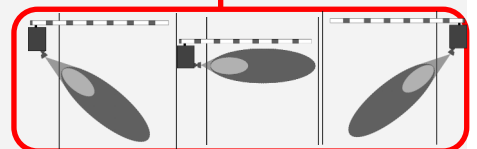
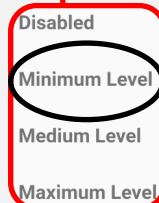


Fig 4



# 7 CALENDAR SCHEDULER



To use this feature, plug in the battery before the installation.

The calendar function allows you to program the operating times of the radar. To activate this function, you need an initial configuration via the free app **App Capture**. After launching the app on your smartphone, connect to the radar to automatically synchronise the time and date.

## CONFIGURATION VIA OLED DISPLAY

Enter menu 13 *CALENDAR SCHEDULER* by pressing **both** buttons (you will hear a confirmation tone).

Select the day you want to configure and press **both** buttons to start the configuration (confirmation tone). *Fig. 1*

Select the radar starting time using the **right** button to increase by 30 minutes at a time (from 00:00 to 23:59), and the **left** button to decrease it. *Fig. 2*

Press **both** buttons to confirm the start time (confirmation tone).

Now select the ending time in the same way as previously explained. *Fig. 3*

To exit the configuration menu, keep the **right** button pressed, or just wait 30 seconds to automatically exit.

### 24h/24h operation

Simply set the same start and end time. *Fig. 4*

### Radar disabled

The radar can be disabled for the whole day. After you have entered the configuration of the day, press and hold the **left** button. You will hear a

### Configuration example

1-MON) 09:00  
20:30

2-TUE) 09:00  
17:30

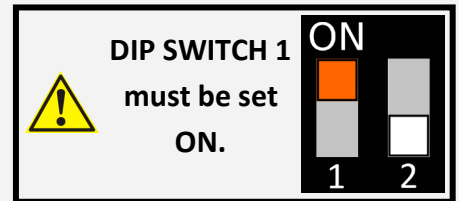
3-WED) 00:00  
00:00

4-THU) 09:00  
17:30

5-FRI) 08:30  
19:30

6-SAT) 08:30  
12:30

7-SUN) --:--  
--:--



3-WED) 09:00  
20:30 *Fig. 1*

3-WED) 09:00  
20:30 *Fig. 2*

3-WED) 09:00  
20:30 *Fig. 3*

3-WED) 00:00  
00:00 *Fig. 4*

3-WED) --:--  
--:-- *Fig. 5*

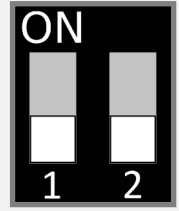
## 8 DIP SWITCH AND OTA UPDATE

Normally DIPs must be set **Off**.

**DIP 1:** when set **On**, enables battery use.

**DIP 2:** when set **On**, enables OTA (Over the air) update with the following procedure:

- Disconnect power supply and set **DIP 2 ON**;
- Connect power supply and wait until the 3 LEDs flash continuously;
- Set **DIP 2** to **Off** and create a hotspot with your smartphone. Enter SSID: "Capture" and PASSWORD: "password";
- The radar connects to the hotspot and the LEDs stop flashing. During the download, only the green LED flashes.
- At the end of the download the LEDs will flash 2 times.

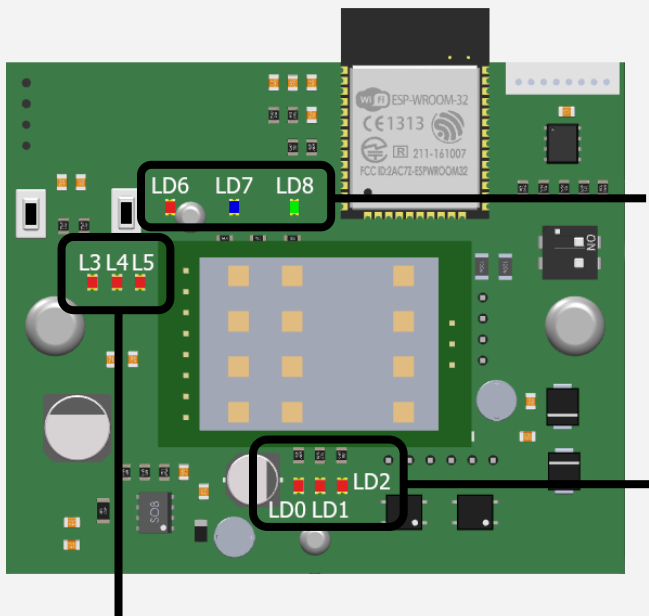


The OTA update can also be started from the smartphone app.



Only set **DIP 1 ON** during the installation in order to not drain the battery.

## 9 LED MEANING



**LD8** - Watchdog. Firmware (flashes at steady frequency).

**LD6, LD7, LD8** - Flash when switching on and during a Bluetooth pairing.

**LD0** - Power supply OK

**LD1** - Output CH1 enabled

**LD2** - Output CH2 enabled

### Radar sensor detections

**L3** - Direction (ON = approaching, OFF = receding)

**L4** - Angulation (OFF = left side, ON = right side)

**L5** - Micro-detection

## 10 COMMON PROBLEMS

The barrier remains closed. The LED is OFF.	The sensor power is off.	Check the wiring and the power supply.
The barrier does not react as expected.	Improper output configuration on the sensor.	Check the output configuration setting on each sensor connected to the automation.
The door opens and closes constantly.	The sensor is disturbed by the door motion or vibrations caused by the barrier motion.	<ol style="list-style-type: none"> <li>1. Make sure the sensor is fixed properly.</li> <li>2. Increase the tilt/inclination angle.</li> <li>3. Reduce the field size.</li> </ol>
The barrier opens for no apparent reason.	The sensor detects raindrops or vibrations.	<ol style="list-style-type: none"> <li>1. Decrease sensitivity.</li> <li>2. Enable vibrations suppression.</li> </ol>
The door stays open.	Improper output configuration (NO/NC) .	Change the output configuration.
The radar detects people as well as vehicles.	The sensitivity is too high or the maximum people magnitude threshold is too low	<ol style="list-style-type: none"> <li>1. Decrease sensitivity.</li> <li>2. Increase the maximum people magnitude threshold.</li> </ol>
Wrong clock time	The clock is not synchronised.	Connect the smartphone app to the radar to synchronize the time.
The clock always resets when power is turned off.	The battery level is low.	Replace the battery.
The calendar scheduler doesn't work.	Date and time haven't been synchronized with the smartphone app.	Connect the smartphone app to the radar to synchronize the time.
Daylight saving time (DST) shift doesn't work.	Daylight saving time is set to work properly in the european countries.	Set the calendar scheduler taking into account the time difference shift of your contry compared to Central Europe.
Cross traffic doesn't work properly	The installation type was not selected correctly.	Connect to the radar via the smartphone app and check the calibration tab. On this page you should select the installation type (diagonal left - diagonal right).
The barrier opens during raining or snowing.	The default configuration has been changed.	<p>Three settings can solve the problem:</p> <ol style="list-style-type: none"> <li>1. Set direction detection to "approaching";</li> <li>2. Disable the first meter of the detection field;</li> <li>3. Reduce the sensitivity threshold.</li> </ol>

### SAFETY INSTRUCTIONS



The manufacturer of the door system is responsible for carrying out a risk assessment and installing the sensor and the door system in compliance with applicable national and international regulations and standards on door safety.  
Only trained and qualified personnel may install and setup the sensor.  
Only authorised personnel may carry out modifications or repairs to the product. Otherwise the warranty is void.

**STARTEC**

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STARTEC hereby declares that the CAPTURE is in conformity with the basic requirements and the other relevant provisions of the directives 2014/53/UE and 2011/65/UE.



Devices with this symbol must be treated separately during disposal. This must be done in accordance with the laws of the respective countries for environmentally sound disposal, processing and recycling of electrical and electronic equipment.