STARTEC

# CAPTURE LOOP

## Vehicle detection sensor for barriers and gates
## Microwave + ultrasound

**1**

**2**

**3**

**4**

**5**
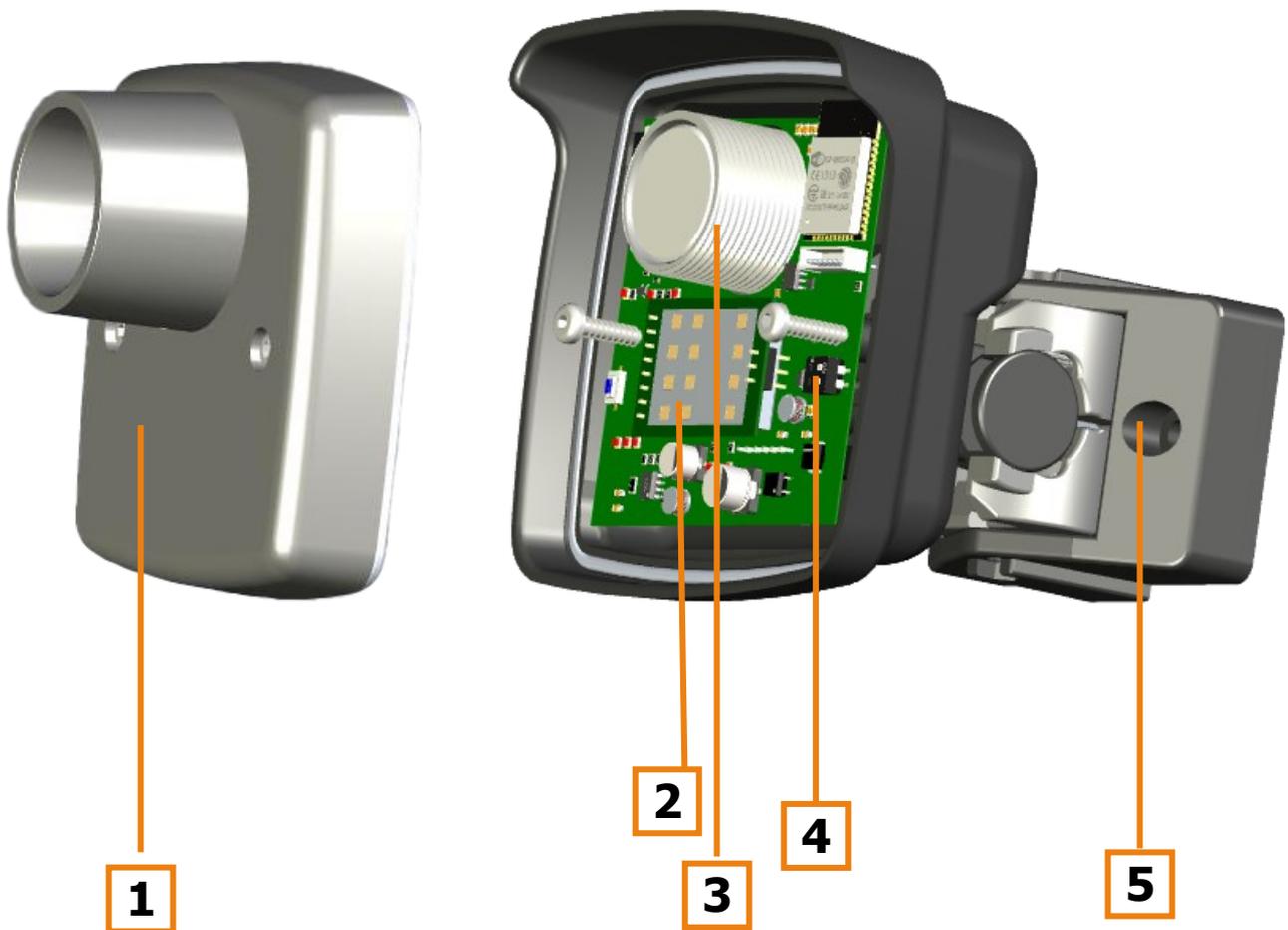
1. **Front Face**
2. **RADAR Sensor**
3. **Ultrasonic Sensor**
4. **Dip Switch**
5. **Support**

# ⅄ INDEX

# 1 ⅄ TECHNICAL SPECIFICATION

| Technology: | Microwave doppler + Ultrasonic |
| --- | --- |
| Transmission frequency: | 24,150 GHz |
| Transmitter radiated power: | < 20 dBm EIRP |
| Transmitter power density: | < 5 mW/cm$^2$ |
| Detection mode: | Motion (RADAR) + Vehicle presence (ULTRASOUND) |
| Detection zone: | Microwave: 15 m** ; Ultrasonic: 7,5m** (vehicle), 2,5 m (people)**<br><br>Ultrasonic Field of View area: 3,6 m² at 7 m. distance |
| Minimum motion detection speed: | 3-4 Km/h** |
| Vehicle speed | 3 to 50 Km/h |
| Supply voltage: | 12V/24V AC/DC - 50 - 60 Hz, protect with an 1 A fuse |
| Max power consumption: | < 2 W |
| Output/Input: | 2 opto-isolated outputs (free contacts), RADAR + presence individually configurable NO/NC (max 42V, 500 mA)<br>1 wake/inhibit input (min 5V, max 12V, 500 mA) |
| Mounting height: | 0,8 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.
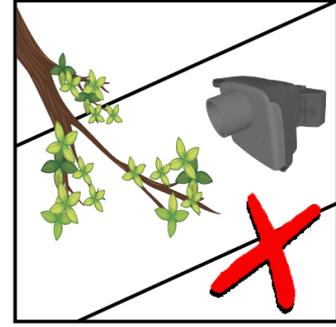** Under optimal ambient conditions.

# 2 ⟱ MOUNTING ADVICE
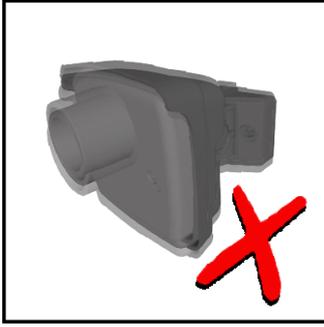
Avoid unstable surfaces and vibrations.
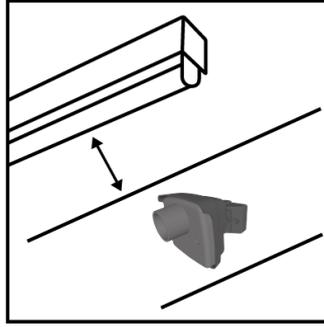
Mount sensor away from fluorescent or HID light sources.

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

# 3 ⟱ WIRING

**BROWN** + SUPPLY VOLTAGE 12-24 V AC/DC

**WHITE** -

**PINK**

**GREEN** ⟩ OUTPUT 1 (NO/NC)

**GREY**

**YELLOW** ⟩ OUTPUT 2 (NO/NC)

**BLUE** INPUT 5V

**RED** OUTPUT 5V

**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 voltage of 5V 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

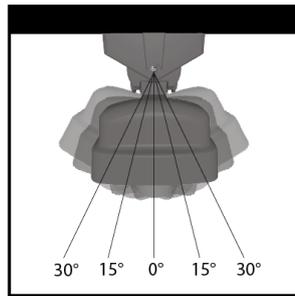Use **WAKE** to temporarily set max sensibility of radar and ultrasonic sensor.

- Can be set **LOW** to boost when input signal is low

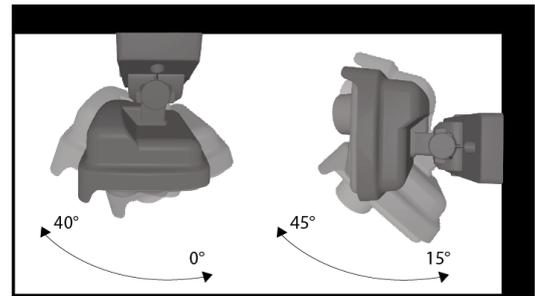- Can be set **HIGH** to boost when input signal is high
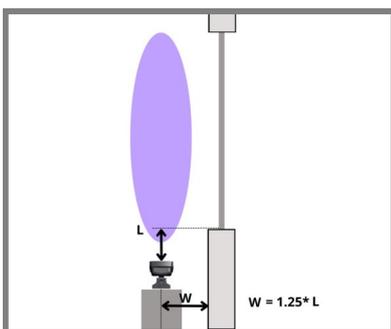
# 4 ⟱ INSTALLATION ADVICE

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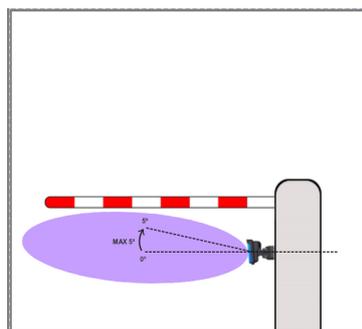
Adjust horizontal angle.

30°  15°  0°  15°  30°

Adjust the vertical angle depending on the mounting height.

40°   0°     45°   15°

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

$$W = 1.25 * L$$

For optimal operation, follow the indicated mounting angle: At any installation height, tilt the device slightly upward (5°–10°) until false detections caused by the floor disappear, as visible in the calibration screen of the app.

# 5 ⅄ CAPTURE SENSORS APP

The radar can also be configured via the Capture Sensors app, available for Android and iOS. The app is the only tool that allows modification of advanced parameters, which can be accessed exclusively by entering a password provided by the distributor or the manufacturer.

Search for "Capture Sensors" in the store, scan the QR code, or click on the Play Store / App Store icons next to it.
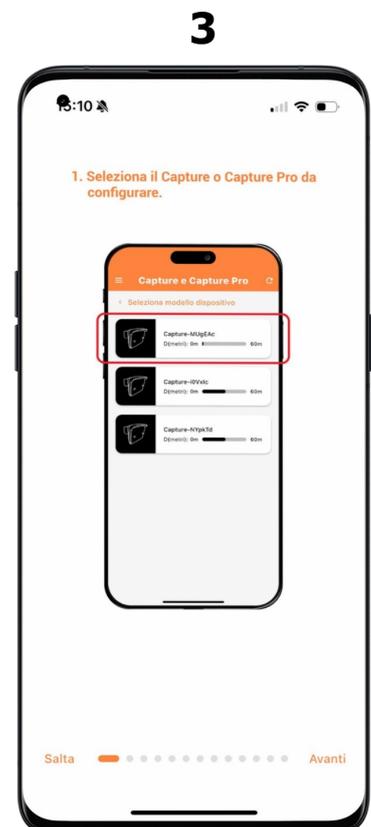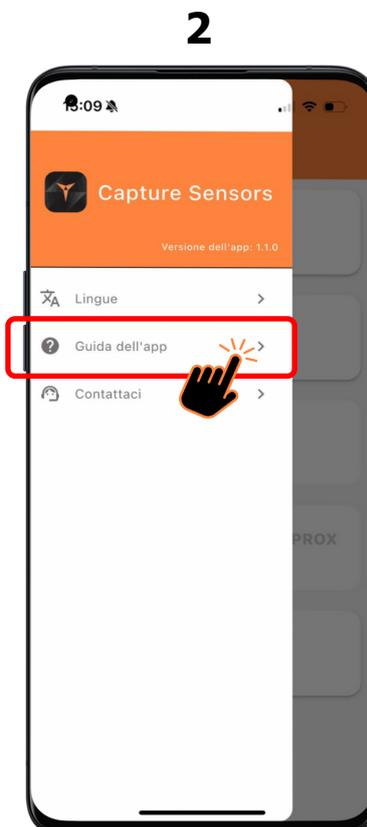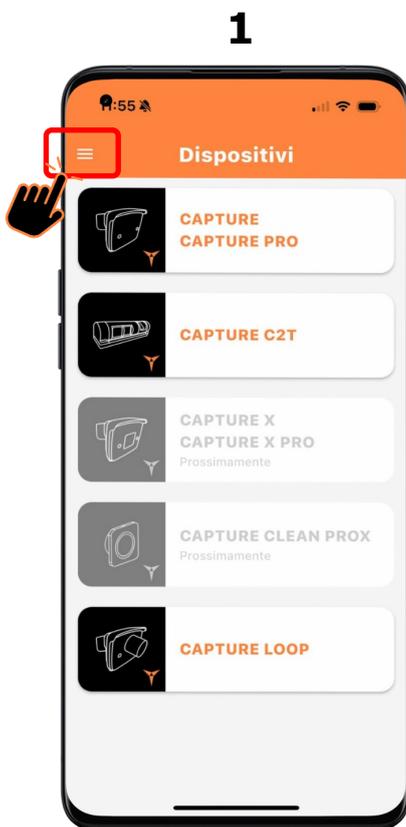
> **!** To connect to the available devices, you must enter the default password "capture"; it can then be changed later.

# 6 ⅄ APP QUICK CONFIGURATION

**Accessing the quick configuration guide:**

1. **Select the ≡ icon (three lines)** in the top left corner

2. From the side menu, choose **"App Guide"**

3. The quick guide with the main instructions will then open

**1**

**2**

**3**

# 7 ⅄ PARAMETERS CONFIGURATION

1. **Field dimension**: Regulate the width of the detection area. Starts from level 1 (minimum width), to level 7 (maximum width). More specific configuration can be set with the smartphone app;

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| -15°,+15° | -20°,+20° | -25°,+25° | -30°,+30° | -35°,+35° | -40°,+40° | -45°,+45° |
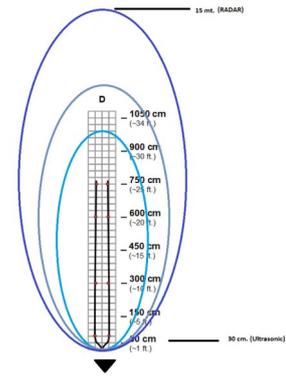


2. **Radar sensitivity**: Regulate the sensibility and anti-interference filter. Starts from level 1 (maximum sensibility + minimum anti-interference filter), to level 7 (minimum sensibility + maximum anti-interference filter);

3. **Hold-open time**: Sets the time during which the door stays open. Starts from level 1 (1 second), to level 7 (7 seconds); Longer times are configurable only with the app;

4. **Vibrations suppression**: in case of strong vibrations, you can use this filter to avoid disturbances. Selection from level 1 (no filters) to level 7 (strong filters).

5. **CrossTraffic Filtering**: it allows to ignore traffic moving parallel to the automation system.

| **Off** | The gate opens for any detected movement |
|---|---|
| **1** | A small portion of cross traffic is ignored |
| **2** | A good portion of cross traffic is ignored |
| **3** | Most cross traffic is ignored |
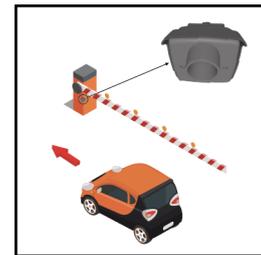


6. **Microwave radar outputs detection mode**: Sets the detection direction of approaching objects (**1**) , receding objects (**2**), both directions (**3**).
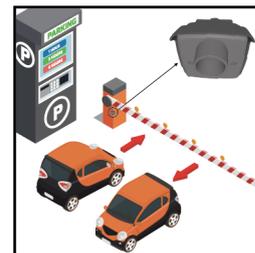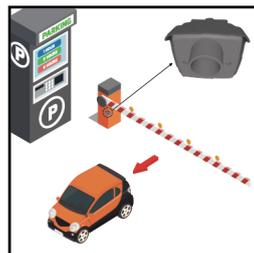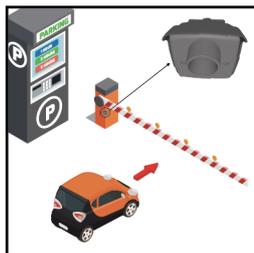
# 8 ⅄ DIP SWITCH, CALENDAR AND OTA UPDATE

Normally, the DIP switches must be set to Off.
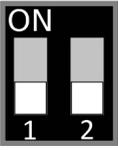


**DIP 1:** When set to On, it activates battery operation. The schedule can then be configured via the **Capture Sensors app** using a second-level password provided by the distributor or the manufacturer.

**DIP 2:** When set to On, it enables OTA (Over-the-Air) updates following this procedure:

- Disconnect the power supply and set **DIP 2** to ON;

- Restore the power supply and wait until all three LEDs flash at a steady rate;

- Set **DIP 2 to Off** and create a mobile hotspot with SSID: "Capture" and PASSWORD: "password";

- The radar will connect to the created hotspot and the LEDs will stop flashing. During the download, only the green LED will flash.

- At the end of the download, all LEDs will flash twice.

> ❗ In alternativa l'aggiornamento OTA può essere avviato dall'app per smartphone.

> ⚠ Impostare il **DIP 1** in ON solo durante l'installazione per evitare che la batteria si scarichi.

# 9 ⅄ LEDS MEANING
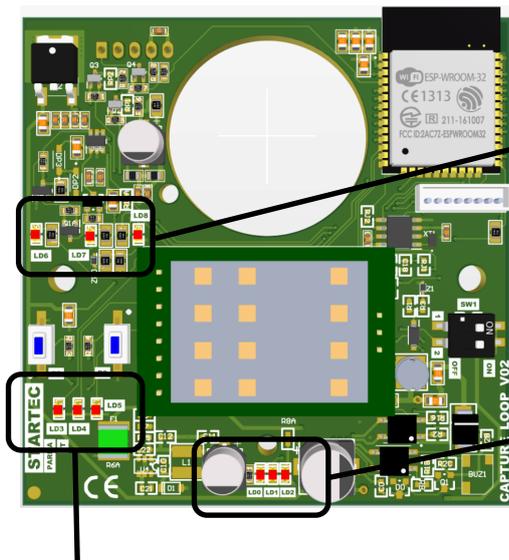


**LD8** - Watchdog. Firmware (flashes at steady frequency).

**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** - Micro-detection Direction

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

**L5** - Direction (ON = approaching, OFF = receading)

# 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 barrier opens and closes constantly. | The sensor is disturbed by the automation motion or by vibrations . | 1. Make sure the sensor is fixed properly.<br><br>2. Increase the tilt/inclination angle. |
| The barrier opens for no apparent reason. | The sensor detects raindrops or vibrations. | 1. Decrease sensitivity. |
| The barrier stays open. | Improper output configuration (NO/NC) . | Change the output configuration. |
| The sensor detects people as well as vehicles. | The sensitivity is too high or the maximum people magnitude threshold is too low. | 1. Decrease sensitivity.<br>2. Increase the maximum people magnitude threshold. |
| 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 | The battery level is low. | Replace the battery. |
| The calendar scheduler doesn't work. | Date and time haven't been synchronized with the | Connect the smartphone app to the radar to synchronize the time. |
| Cross traffic doesn't work properly | The installation type was not selected correcly. | 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. | Three settings can solve the problem:<br><br>1. Set direction detection to "approaching";<br><br>2. Disable the first meter of the detection field;<br>3. Reduce the sensitivity threshold. |

## SAFETY INSTRUCTIONS

⚠️ It is the manufacturer's responsibility to carry out a risk assessment and to install the detector and the door system in compliance with national and international regulations and applicable safety standards.
The sensor must be installed only by professionally qualified personnel.
Repairs or attempted repairs carried out by unauthorized personnel will void the warranty.

CE 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.