

BE TRACED

IOT FOR MOTORSPORT



EMERGENCY BATTERY INSTALLATION GUIDE

In case of need, the **Race Direction** will instruct the use of an emergency battery to power the **BR001 device**.

The emergency battery is required to supply power to the device **when the vehicle does not provide it**.



1. **Turn on the battery** using the side switch (**Fig. 2**).
2. **The LED will light up**, indicating that the battery is activated.
3. **Connect the cable to the appropriate charging port** of the BR001 device (**Fig. 3** and **Fig. 4**).
4. **Place the battery in the safest possible location near the device**, using the adhesive sticker on the back (**Fig. 1**).



Fig. 2 – Battery side switch



Fig. 3 – Charging port position



Fig. 4 - BR001 device power connector

Warning: The battery must be securely positioned either in the vehicle or on the back of the BR001 device.



CONTACT US



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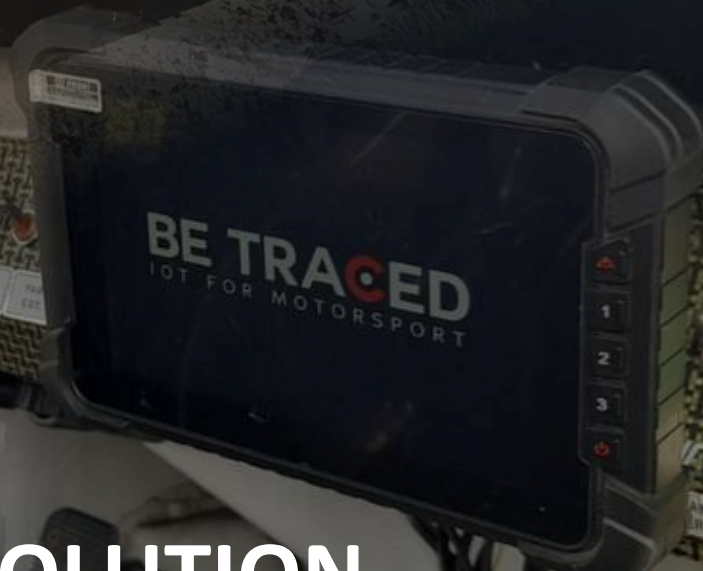
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TRACKING SOLUTION USER GUIDE

Drivers & Racing team

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Technical Note 1/2024

To all competitors and Teams,

This technical note is introduced in order to reduce the cases of incorrect installation of the BR001 device.

Careful installation and appropriate use of the device is **essential** to ensure the effective and safe monitoring of vehicles during competitions, failure to comply with the indications of this technical note could compromise the operation of the system.

All the main cases relating to the problems most frequently encountered in the tenders carried out in the first half of 2024 will be analysed below.

1) Powering the Device

The tracking device **must always be powered by the vehicle** to ensure continuous and reliable operation, it is **mandatory** to provide the device with a stable power supply with a voltage equal to or greater than **11 volts**.

It can be connected to the battery disconnect as long as it does not undergo voltage variations. The yellow wire (which allows the device to be switched on automatically) must be connected to the positive of the battery switch.



Figure 1 - White power light: device powered correctly



Figure 2 - Red power indicator light: device not powered

2) Proper installation and management of antenna cables (LTE, GNSS, IRIDIUM)

To ensure optimal signal reception and minimize interference, it is **mandatory** to follow these guidelines when installing the antenna:

- Cables (including those of the power supply) **cannot absolutely** pass next to heat sources: for example on the central tunnel if it heats up;
- Antenna cables **must not** be **twisted** or run with other cables that are sources of electromagnetic interference, such as control units, other power or intercom cables;
- The cables must **never** pass between the body and the rollbar;
- Check that the cables have not been **damaged** by passing through the hole in the roof;
- Excess cables should be left in the **back** of the vehicle, where there is no other equipment to avoid interference;
- The connectors of the antennas that reach the device **must be absolutely comfortable** and not be pulled, if the device changes position in the event of an impact they must not tear and must not remain tense while driving;
- **Do not tighten** the antenna connectors with pliers, tighten the connectors by hand checking the correct color match (LTE COLOR RED, GPS (GNSS) BLUE, IRIDIUM GRAY) (Figure 3).



Figure 3 - Antenna connectors

Particular attention is also required to the management of cables, which must not be damaged in any way: do not pull the cables or make splices, if the cable is damaged it is mandatory to buy a new antenna. After an accident or rollover, all antenna wiring and connectors should be checked again.

3) Potential problems and mistakes to avoid

Once the installation has been completed following the above instructions and/or during the race, the following problems may occur:

RED INDICATOR LIGHT ON THE DEVICE	MEANING	SOLUTION
 The image shows the Be Traced Transit device screen. The status bar at the top displays a red indicator light (a small red square) next to the signal strength icon. The screen shows the time 15:14:39 and speed 29.3 km/h.	Lack of power	- Check the wiring; - Make sure you have followed the instructions in the installation manual; - Check the correct functioning of the vehicle's electrical system; - Check that the cable is properly connected.
 The image shows the Be Traced Transit device screen. The status bar at the top displays a red indicator light (a small red square) next to the signal strength icon. The screen shows the time 15:14:39 and speed 29.3 km/h.	Lack of GPS signal	- Check the antenna cables; - Unscrew and screw the GPS signal connector back on correctly; - If the problem persists, contact Be Traced staff.

	No communication with the Be Traced server	- Check the antenna cables; - Unscrew and retighten the LTE signal connector correctly; - If the problem persists, contact Be Traced staff.
The device keeps restarting	No external power and low battery	- Review the power wiring; - Make sure you haven't reversed the polarity.

All crews are reminded that the number of the contact person to be contacted in the race field is given during the sporting checks of the race, you must **refer ONLY** to the number on the ticket delivered. Should the system suffer a malfunction during a special stage or in transfer, it will be necessary to immediately and directly contact the Be Traced staff who will arrange for the replacement of the device as required with the Race Director.

4) Technical checks and Tracking System **WARNING!!**

During the technical checks, the **correct installation** of the BR001 device by our staff or by the Technical Stewards, its operation and the positioning of cables and antenna as per this technical note will be verified.

Crews with **non-compliant installations** will not be admitted to the technical checks until correct installation and confirmed operation.

Your complete cooperation is essential in order to ensure the safety of the crews.

5) Battery

At each special test CO, a spare backup battery has been provided to be applied to the device that does not receive proper vehicle power.

6) Battery-powered device

A battery-powered device has also been set up for each special stage CO to be added to the race one in the event of a malfunction of the main device.



1. Be Traced

The Be Traced BR001 tracking device is designed to improve the safety and enjoyment of competitors. It is important to be able to manage the device and know its screens so that you can enjoy the best user experience.

Our team will be happy to help you with the installation and to clarify any doubts you may have about using our device.

Attention: To interact with the device's screen, you must press the icons on the display or the keys for at least 1 second and then move your finger away from the screen or stop pressing the corresponding key.

2. The Device

The device needs a connection to the vehicle's electrical circuit and is equipped with its own internal battery. The device must be turned on at all times. The device already has all the data of the Special Stages and the Traits in Transfer pre-installed. Once turned on, the device will show the Transfer screen where the real-time speed will be shown. Details on the "Transfer" mode can be found in section 2.2 of this manual. Interaction with the device is possible thanks to the touch screen, but also with the buttons on the right side of the device. Each key is associated with the icons that will appear on the right of the screen, in each icon there will be the number corresponding to the key to be pressed. The device is set to English mode by default, but you can translate all the information. To translate all the information contained in the device, press the icon highlighted in **Fig. 1**, after pressing you will enter the screen in **Fig. 2**, press on the highlighted bar and choose Italian (**Fig. 3**).



Fig. 1



Fig. 2



Fig.3

2.1. Device Mode

The unit has two main modes. When the device detects that it is in a stage it will go into "On Stage" mode, while in all other cases it will be in "Transit" mode:

1. "Transit": Outside of a stage, the system goes into Transit. (Section 2.2).
2. "On Stage": During a Special Stage, the system automatically enters "On Stage" mode (Section 2.3).

2.2. Transit Mode

Under "Transit" the device will show the following information:

- current time and date (green box in **Fig 4**);
- real-time speed (red box in **Fig. 4**);
- signal quality and power supply to the device (no GPS; no connection to the Be Traced server).

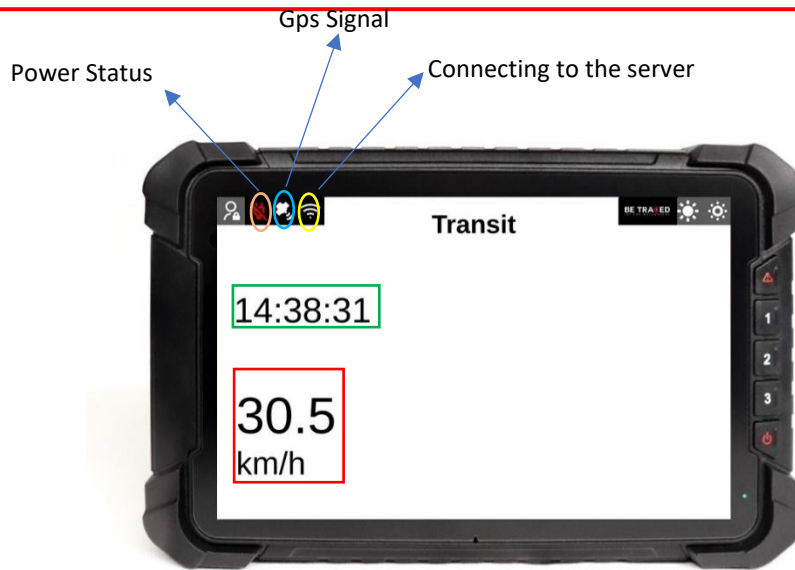


Fig.4

2.3 On Stage Mode

Before entering Stage mode, the device shows the "Prepare for Stage" mode. In this mode, the device signals to the crew when a special stage is approaching. Once you have passed the start of the test, you will enter the "On Stage" mode. In this mode, the device shows:

- real-time speed (red box in Fig. 5)
- name of the special stage (blue box in Fig. 5)
- distance traveled since the start of the test (yellow box in Fig. 5)
- current time (green box in Fig 5).

In "On Stage" mode, the "Incident Signal" button will always be present to send any distress requests.

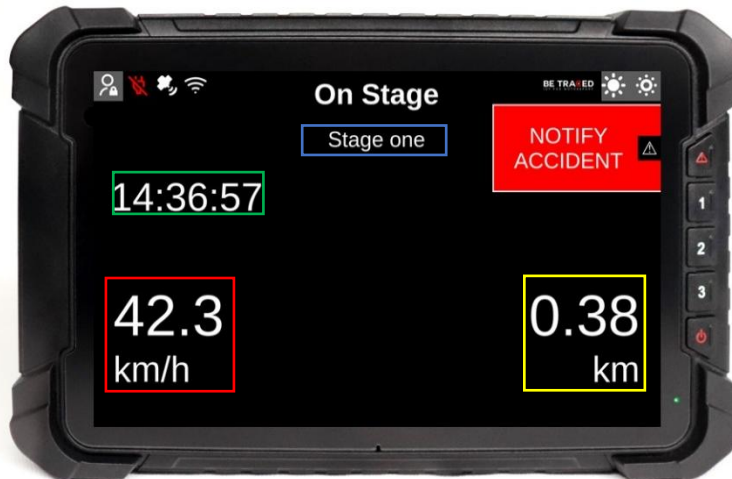


Fig. 5

At the end of the Special Stage, the "Flying Finish" screen will be shown (**Fig. 6**), which indicates the end of the Special Stage and the approach of the Stop, in this phase all safety systems remain active.



Fig. 6

The device, in "On Stage" mode, can automatically detect an incident using two parameters:

- acceleration/deceleration (calculated in force G) above the alert threshold;
- the device detects a stop in a special stage (**Attention:** if you restart in less than 50 seconds, the accident status is automatically cancelled).

The device, even if only one of the listed conditions is present, will ask the crew if they have been involved in an accident, showing the screen below. If the device detects a deceleration of more than 15G, it will automatically send the emergency signal to Race Direction.



Fig. 7

The crew must provide one of the options shown in **Fig. 7**. Tapping the OK icon will bring up the following options:

- OK ROAD CLEAR: the road is clear and the crew is fine;
- OK ROAD BLOCKED: the crew is fine, but the road is ENTIRELY blocked by the stationary car.

WARNING: It is mandatory to provide a response to this notice within 60 (sixty) seconds, otherwise as set out in NG Rally section 6.5.1 published by ACI Sport, you will incur a financial penalty established by ACI Sport in the aforementioned section.



Fig. 8



Fig. 9

Once you have selected one of the options on the screen, you can return to the main screen by pressing "Remove Status".

When an SOS is sent, the SOS icon and a message corresponding to the request sent appear on the device.

2.4 Sending a manual SOS request

Crew members have the option to send manual distress calls at any time. To send the request, simply press the "Notify Accident" icon shown on the right side of the device, or press the button corresponding to the icon or the button with the danger signal.



Fig. 10

Once pressed, the device will show the screen in Fig. 11 and pressing SOS will show the screen in Fig. 12 with the following options:

- "SOS FIRE" to request help for a fire on board the vehicle;
- "SOS MEDICAL" to request the intervention of the medical staff;
- "CANCEL" to cancel the request.



Fig. 11

You can always cancel your SOS request at any time, and it is important to do so if your request was submitted in error or is no longer needed. To delete the request, click OK or the corresponding button.



Fig. 12



Fig. 13

Pressing "Remove State" will cancel the SOS request.

2.5. Red Flag

If a serious accident or any impediment compromises the safety of the competitors on a stage, the Race Director may issue the red flag. As stated by the regulations, when the red flag is activated, all competitors who are before the involved coordinates, must immediately reduce their speed, because there is a serious accident or in any case impediments on a specific section of the special stage.

When the red flag is placed by the Race Director, the device located in the area affected by the red flag will immediately emit an acoustic signal, accompanied by a completely red screen showing the words "RED FLAG" (**Fig. 14**).



Fig.14

It is necessary to press the "ACK" icon (**Fig.14**) to send the confirmation of having received the red flag to the Race Direction, then the following screen will be shown (**Fig. 15**).



Fig.15

ATTENTION: even if the screen of the device changes after the confirmation of the red flag, the test is still **SUSPENDED**, it is therefore necessary to continue to follow the red flag procedure until the end of the Special Stage.

2.6 Slowzone

The device is able to show the presence of a Slowzone and its speed limit. As the crew approaches a Slowzone, the following warning will be displayed (**Fig. 16**).



Fig. 16

Once you enter a Slowzone, the following screen will be shown (**Fig. 17**), with the maximum speed limit.



Fig. 17

2.7 Virtual Chicane

The BR001 device is able to show a Virtual Chicane and guide the crew to face it in the correct way.

As you approach the Virtual Chicane, the screen shows the following screen (**Fig. 18**)



Fig. 18

During a Virtual Chicane, the speed limit is shown (**Fig. 19**)



Fig. 19

When the target speed is reached, the screen shows the following screen signaling the crew to resume normal speed (**Fig. 20**)



Fig. 20

2.8 Adjusting the brightness

To change the brightness of the device's screen, use the icons at the top right (**Fig. 21**).

Press on the icon circled in red to increase the brightness, while to decrease it, press on the icon highlighted by the green circle.



Fig. 21



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TRACKING SOLUTION KIT INSTALLATION GUIDE

Assistance & Mechanics

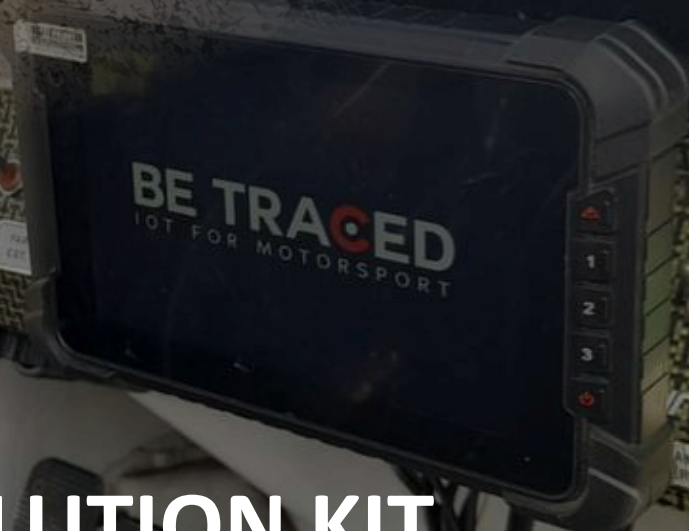


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Figure 3 - Antenna connectors

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Once the installation has been completed following the above instructions and/or during the race, the following problems may occur:

RED INDICATOR LIGHT ON THE DEVICE	MEANING	SOLUTION
	Lack of power	- Check the wiring; - Make sure you have followed the instructions in the installation manual; - Check the correct functioning of the vehicle's electrical system; - Check that the cable is properly connected.

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5) Battery

At each special stage time check, a spare backup battery has been provided to be applied to the device that does not receive proper vehicle power.

6) Battery-powered device

A battery-powered device has also been set up for each special stage to be added to the race car in the event of a malfunction of the main device.

The Be Traced kit

The Be Traced System Mounting Kit includes:

- 3-in-1 antenna, with roof mounting;
- Power cable with external interfaces;
- Ball attachment and articulated arm.



Fig. 1

ATTENTION: the kit does not include the device, which will be provided only at the end of the pre-race sporting and technical checks.

Power Supply

The Be Traced device requires external power supplied by the vehicle's battery, it allows 11 to 35 volts DC. It is mandatory to connect the power cable provided in the kit at the battery switch, in order to be able to adequately supply power to the device.

Follow the diagram below (**Fig. 2**) to connect the device to the battery:

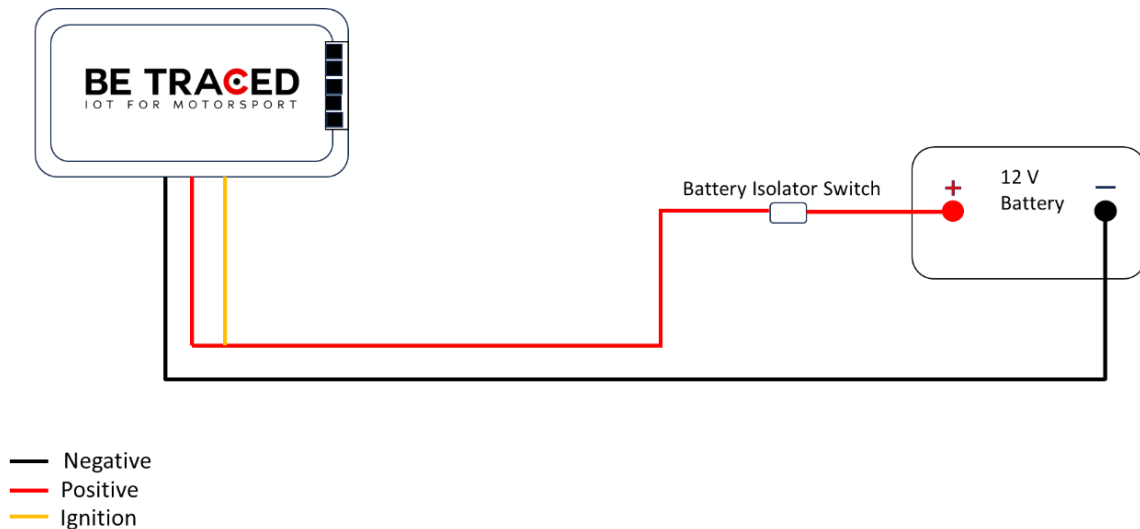


Fig. 2

The device is equipped with an internal battery that provides power in emergency situations where the vehicle's battery cannot be used.

When the device detects that it is stationary in "Transfer" mode and the stop is prolonged for more than 5 minutes, the device goes in sleep mode. Just click and hold any button to turn on the device's screen again.

After a 15-minute "Transfer" stop without power, the device automatically shuts down. The device will turn on again as soon as power is supplied again.

Mounting of the Roof Antenna

The outdoor antenna must be properly installed on the roof of the vehicle to ensure proper data transmission.

The antenna is equipped with three different cables:

- Blue cable: dedicated to the GPS signal;
- Red cable: dedicated to the GSM network signal;
- Grey cable: dedicated to satellite communication.



Fig. 3: Roof antenna

The cables must be connected to the back of the device, respecting the writings above the connectors and the colors blue, red and gray, identifiable by a colored dot located on the device:



CAUTION: Make sure you have screwed the connectors to the device correctly.

To install the antenna, it is necessary to drill into the roof of the car to insert the cables and the underside of the antenna. The hole must have a diameter of 18 millimeters (**Fig. 4**). Once the roof of the vehicle has been drilled, unscrew the bolt and washer on the underside of the antenna, remove the protective film underneath and insert the antenna into the hole created. Once the antenna is inserted, reassemble the washer and bolt (washer first then bolt) and tighten the two items securely. Manage the cables to get them to the device, strictly avoiding passing them between the roll bar and the body, to avoid malfunctions in the event of an accident.

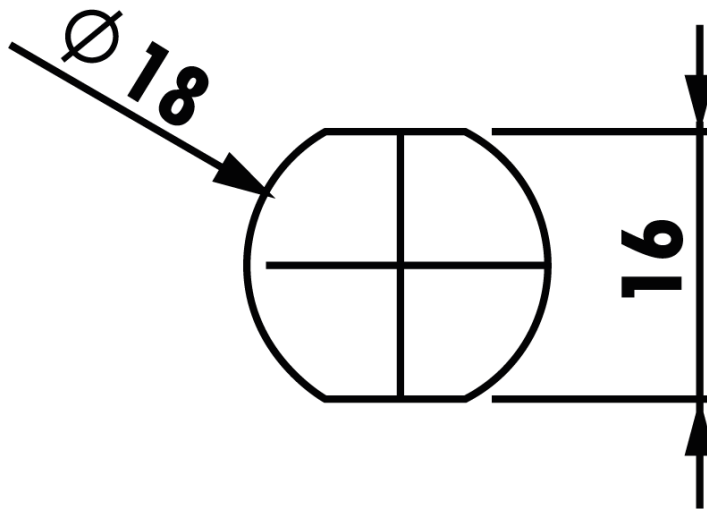


Fig. 4: Antenna hole measurement

Attention: **ONLY for cars with a high historical value** it is possible to apply the antenna on the rear window in plexiglass or in another position outside the vehicle, provided that the same has maximum visibility of the sky.

If the rear window is not oriented towards the sky it is necessary to use an L-shaped bracket or other types of bracket to be able to orient it horizontally.

In case the antenna through screw remains outside the vehicle, it is essential to isolate the hole in order to avoid the ingress of water inside the antenna with heat shrink sheath or with other adhesive tapes.



Fig. 5: Roof antenna installed on the vehicle

The recommended cable management is shown in the following images (**Fig.6, Fig.7, Fig.8, Fig.9**):

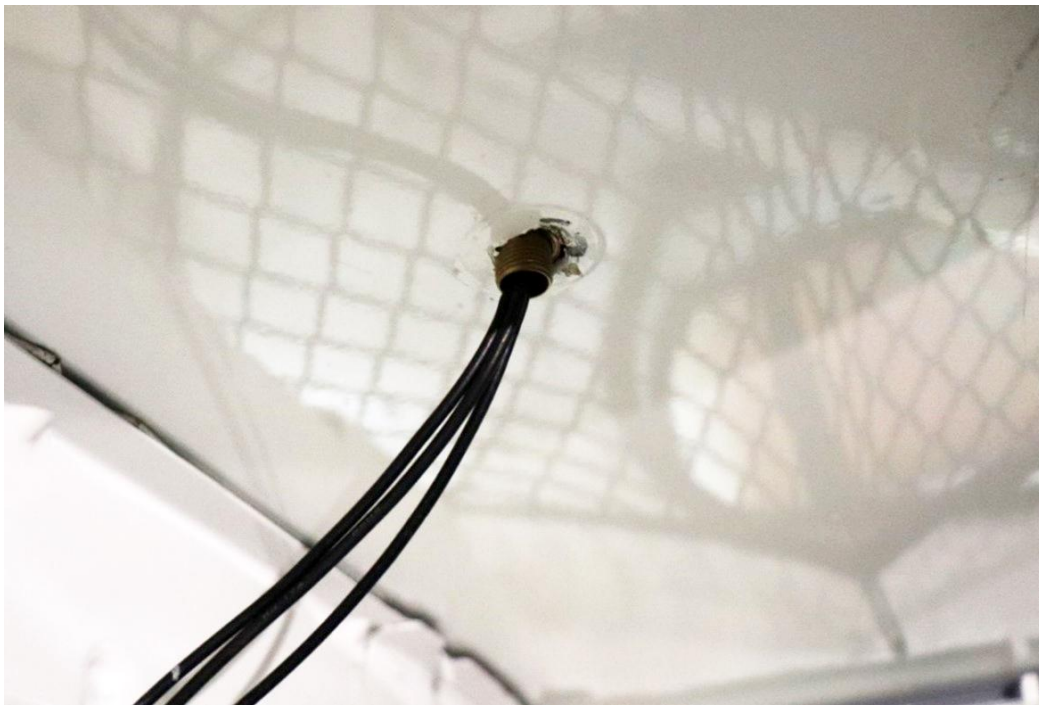


Fig. 6



Fig. 7



Fig. 8

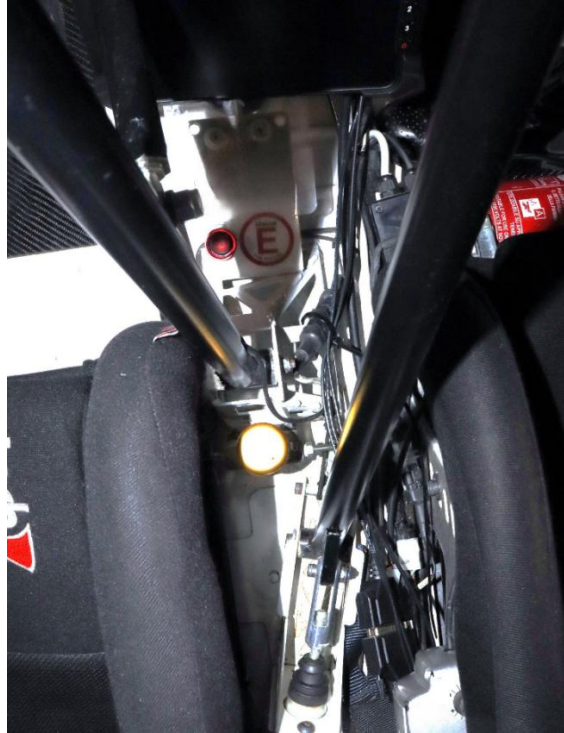


Fig. 9

Mounting the unit and its dimensions

Proper mounting of the unit must be done using the RAM mount included in the mounting kit. The stand is integrated with a ball that attaches to a small, fully adjustable arm. To adjust the arm and device, unscrew the nut on the arm.



Fig. 10



Fig. 11

The device has a length of 14 cm, width of 22 cm, thickness of 2 cm (**Fig.10**). It must be mounted in a central location and must be reachable by BOTH occupants of the vehicle. It is possible to orient the unit according to the crew's preference thanks to the RAM MOUNT arm which is fully adjustable.



Fig. 12



Fig. 13

Check for proper installation

To verify the correct installation of the device, once power is supplied, check the status of the device via the following icons:

1. External power supply, if the device is properly powered icon 1 will be displayed (**Fig.14**).
2. GPS signal, if the antenna is correctly connected, icon 2 is displayed (**Fig.14**).
3. Connecting to the Be Traced server, if the antenna is correctly connected and the device is correctly transmitting to the Be Traced server, icon 3 is shown in **Fig.14** (**Warning:** when the device is turned on, it takes a few moments to start transmitting correctly).

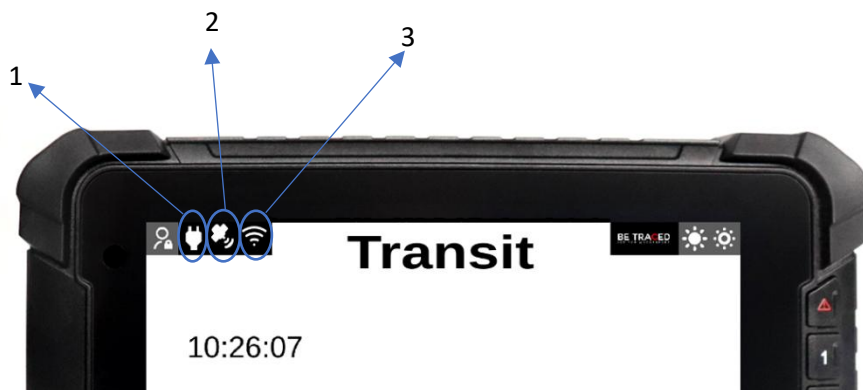


Fig. 14



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