

# CelloTrack T Installation Guide



Cellocator Division  
Pointer Telocation Ltd.

Proprietary and Confidential

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**POINTER**



# CelloTrack T Installation Guide



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### The FCC Wants You to Know

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- a) Reorient or relocate the receiving antenna.
- b) Increase the separation between the equipment and receiver.
- c) Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- d) Consult the dealer or an experienced radio/TV technician

### FCC Warning

Modifications not expressly approved by the manufacturer could void the user authority to operate the equipment under FCC Rules.

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## 1 Introduction

### 1.1 Overview

This guide provides the necessary information for technicians to install the CelloTrack T unit, and the CelloTrack Power unit. It describes how to install and verify the proper functioning of the kit elements.

### 1.2 Abbreviations

Abbreviation	Description
FB	Front Button
GSM	Global System for Mobile communications
GPS	Global Positioning System
OTA	Over the Air
PTO	Power Take-Off
SMS	Short Message Service (GSM)
IP	Ingress Protection Rating
Ah	Amper Hour
3D	3 Dimensions
LED	Light Emitted Diode

### 1.3 References

All the reference documents listed in the following table can be downloaded from the knowledge base section of the Cellocator website ([www.Cellocator.com](http://www.Cellocator.com)).

#	Reference
1.	Cello Family Hardware Installation Guide
2.	CelloTrack T Family Overview
3.	CelloTrack T Introduction
4.	<a href="#">Battery Handling Procedure for Cellocator Units</a>

### 1.4 Revision History

Version	Date	Description
1.0	29/12/2013	Initial version
1.1	30/12/2013	Removing battery handling section and add



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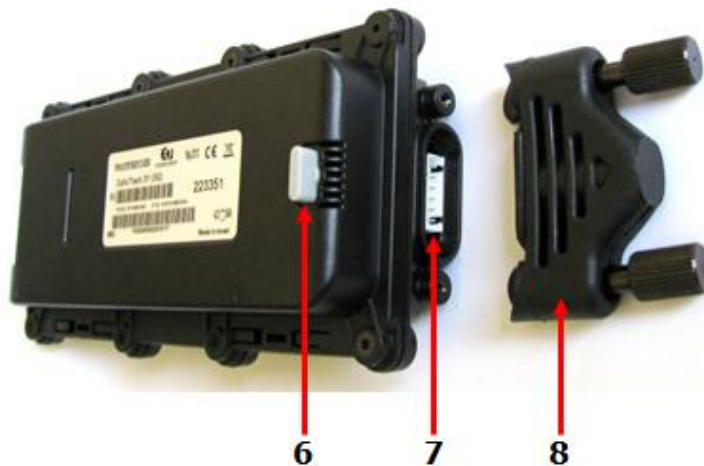
Version	Date	Description
		reference
1.2	08/07/2014	Correct LEDs names in The CelloTrack Interface section. Modify the Charging the Unit Battery section
1.3	09/12/2014	System led blinking on deactivation till all queued messages are sent (FW41u).
1.4	20/09/2015	Add FCC compliance statement Add attaching removed connector cover (section 2.3)
1.5	16/01/2017	Closing enclosure torque is 5 kgf-cm [0.5Nm], instead 4.[0.4] (section 3.3, 3.4)

## 2 CelloTrack Interfaces

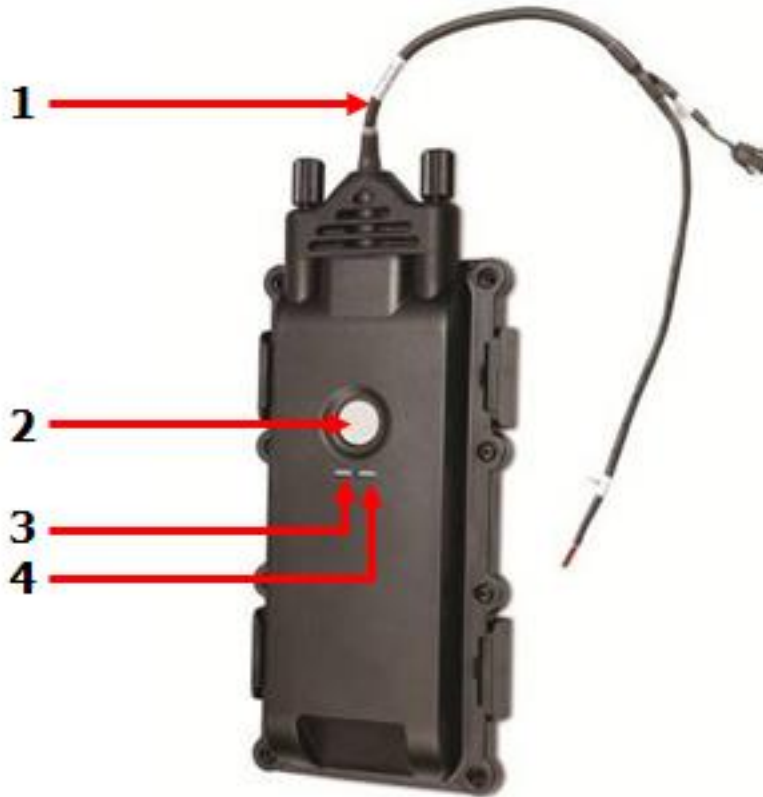
### 2.1 The CelloTrack Interface



- 1 - FB (Front Button)
- 2 - GSM LED
- 3 - SYS LED
- 4 - Cradle Tamper Switch
- 5 - Cradle
- 6 - Unit Tamper Switch
- 7 - Connector
- 8 - Connector Cover
- 9 - Opening for cable tie



## 2.2 The CelloTrack Power Interface

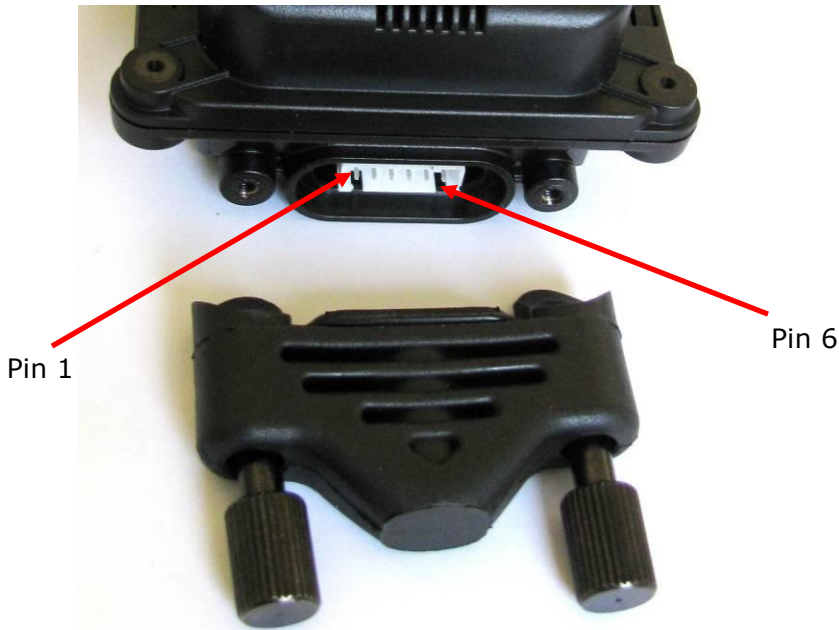


1. CelloTrack Power harness (pigtail)
2. FB (Front Button)
3. GSM LED
4. SYS LED



## 2.3 CelloTrack Connector

The CelloTrack 6-pin connector is protected by a plastic cover, providing IP67 compliance. The following illustration shows the CelloTrack unit with the rubber cover removed.



The connector pin out is as follows:

Pin 1 – VCC

Pin 2 – Ground (GND)

Pin 3 – General Purpose I/O 1 (GP1)

Pin 4 – General Purpose I/O 2 (GP2)

Pin 5 – TXD

Pin 6 – RXD

**NOTE:** Removing the connector cover revokes the unit's IP67 compliance. It is the customer's responsibility to provide proper sealing if the connector cover is removed.

**NOTE:** For reattaching removed connector cover, tighten its screws to a torque of 4 kgf-cm (kilogram force per centimeter) which is approximately 0.4 Nm (Newton per Meter).



## 2.4 CelloTrack Power Harness

The CelloTrack Power utilizes a 60-cm pigtail harness which ends with several free wires and a connector for the programming cable, as described in the following table.

Pin No.	Color	Function	Free Wire	Programming Connector Pin No.
1.	red	VCC (9-32v)	+	
2.	black	Ground (GND)	+	1
3.	orange	General Purpose I/O (GP)	+	
4.	brown	General Purpose I/O (GP)	+	
5.	green	TXD		2
6.	yellow	RXD		3

## 3 Installation Instructions

### 3.1 Installation Overview

**NOTE:** Refer to the relevant sections in the *Cello Family Installation Guide* for pre-installation, wiring and post-installation steps and information.

Perform the following steps when installing CelloTrack T devices:

1. Verify that you have all necessary parts for your installation.
2. Setup the CelloTrack (see Initial Setup for the CelloTrack and Initial Setup for the CelloTrack Power ).
3. Enable the cradle tamper switch if required (see Enable Cradle Tamper Switch).
4. Find a suitable location to mount the device.
5. Attach the CelloTrack cradle using the screws provided or double-sided adhesive tape (see Mounting the CelloTrack Device and Mounting with the Magnetic Cradle).
6. Snap the CelloTrack device into the cradle.
7. (Optional) Secure the device to the cradle using zip ties (2 per side).
8. For the CelloTrack Power:
  - i. Run cable to power source and any PTO.
  - ii. Wire accordingly.
9. Switch on the device, if not already on (see CelloTrack Activation and Deactivation).
10. Complete any required paperwork.

### 3.2 Tools and Equipment Required

Many of the following tools will assist your installation:

- ◆ Power/Data Cable (supplied)
- ◆ 5 AMP Fuses (supplied)
- ◆ In-Line Fuse Holder
- ◆ Voltmeter or Testlight
- ◆ Cordless Drill
- ◆ Drill Bit Set
- ◆ Screwdriver Set
- ◆ Socket Set
- ◆ Self-Tapping Screws
- ◆ Electrical Tape
- ◆ Wire Ties / Zip Ties
- ◆ Wire Stripper
- ◆ Butt Connectors (R,B,Y)
- ◆ Crimping Tool
- ◆ Cutting Tool





- ◆ Set Of Star Keys
- ◆ Set Of Allen Keys
- ◆ Regular Pliers
- ◆ Needle-Nose Pliers

## 3.3 Initial Setup for the CelloTrack

To setup the CelloTrack unit, perform the following steps:

**NOTE:** The unit set up should be conducted under lab conditions.

1. Loosen the eight screws and remove the back cover of the CelloTrack unit.

**NOTE:** Make sure the SIM card is not PIN protected.

2. Prepare the SIM card. If the SIM is PIN protected, insert it into a cell phone and disable the PIN code.
3. Gently slide the SIM card into the SIM holder.
4. Verify that the rubber seal (O-ring) is securely in place.
5. Close the unit and make sure not to damage the battery wires while closing it.
6. Insert the eight screws. First, tighten the central screws in diagonal order and then the other screws in diagonal order. Tighten screws to a torque of 5 kgf-cm (kilogram force per centimeter) which is approximately 0.5 Nm (Newton per Meter).

**NOTE:** For units produced before January 2017, tighten the screws to a torque of 4 kgf-cm.

7. Verify the unit is operating correctly by pressing the FB of the unit and validating that the SYSLED blinks (1 sec on / 1 sec off).

### 3.3.1 Charging the Unit Battery

The unit's battery must be charged with the provided charger before usage.



1. Plug the charger into an electricity outlet (100V/60Hz or 220V/50Hz).
2. Remove the connector cover
3. Connect the charger to the CelloTrack connector. If the battery is not fully charged the charger LED color is red.
4. Wait till the LED on the charger changes its color from red to green.
5. Disconnect the CelloTrack unit from the charger and only then you may remove the charger from the electricity outlet.
6. Reassemble the connector cover. Fasten it tight to ensure IP67 compatibility.

**CAUTION:** To prevent damage to the unit, charging the battery must take place only when the battery is connected.

**NOTE:** The charging of a fully drained battery may take up to 24 hours.

## 3.4 Initial Setup for the CelloTrack Power

To setup the CelloTrack Power unit, perform the following steps:

**NOTE:** The unit set up should be conducted under lab conditions.

1. Loosen the eight screws and remove the back cover of the CelloTrack unit.

**NOTE:** Make sure the SIM card is not PIN protected.

2. Prepare the SIM card. If the SIM is PIN protected, insert it into a cell phone and disable the PIN code.
3. Gently slide the SIM card into the SIM holder on top of the modem.
4. Verify that the rubber seal (O-ring) is securely in place.

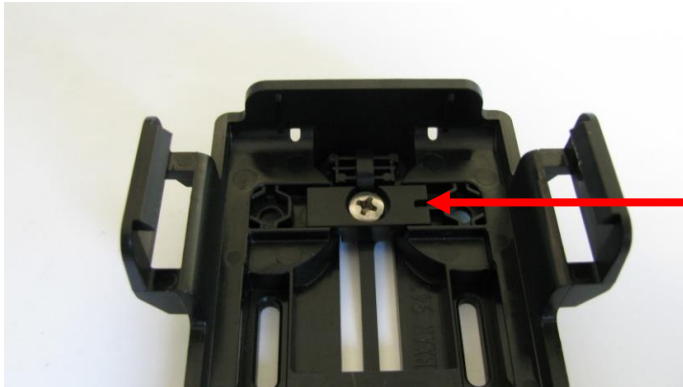
5. Close the unit and make sure not to damage the battery wires while closing it.
6. Insert the eight screws. First, tighten the central screws in diagonal order and then the other screws in diagonal order. Tighten screws to a torque of 5 kgf-cm (kilogram force per centimeter) which is approximately 0.5 Nm (Newton per Meter).

**NOTE:** For units produced before January 2017, tighten the screws to a torque of 4 kgf-cm.

## 3.5 Enable Cradle Tamper Switch

In order to detect removal of the cradle from a surface, the cradle tamper switch should be enabled.

To enable the cradle tamper switch, remove its screw and the plastic bar which hold the cradle tamper switch in its non-active position.



Screw and plastic bar which hold the cradle tamper switch in its non-active position

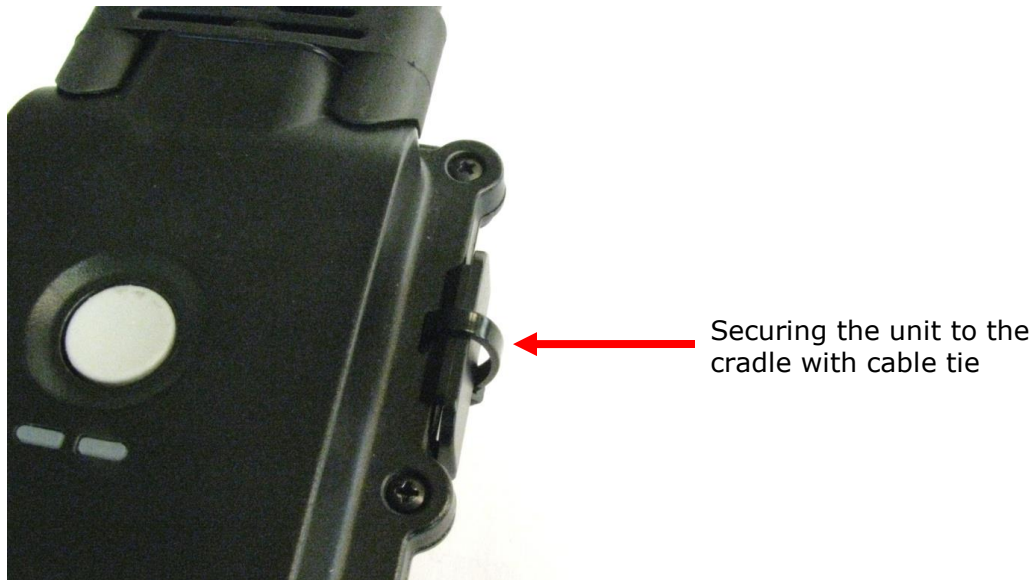
## 3.6 Mounting the CelloTrack Device

Perform the following steps in order to mount the CelloTrack 3G device correctly:

1. Remove the CelloTrack device from the cradle.
2. Take the screws (provided) and/or double-sided tape (provided) and mount the cradle to the asset you wish to track. The location where you choose to mount the cradle should have a clear view of the sky.
3. Replace the CelloTrack device securely back in the cradle ensuring that the cradle tamper switch matches the unit tamper switch.

**CAUTION:** Properly snap the device into the cradle by aligning the tamper switches of the unit and the cradle. Please be aware that the unit must be correctly fastened in its cradle in order to be switched on.

4. Attach and secure with cable ties.



## 3.7 Mounting with the Magnetic Cradle

Perform the following steps in order to mount the CelloTrack with the magnetic cradle correctly:

1. Choose a metal surface on the vehicle's body that has high iron content and make sure that it is as clean as possible.
2. Attach the CelloTrack with the magnetic cradle to the selected surface.
3. Verify that the unit is firmly attached by trying to wrench it off the vehicle's body.

### NOTES:

- This option will only work with iron/steel (i.e. ferromagnetic) surfaces.
- The vehicle's paint can be damaged when removing the magnetic cradle. When positioning the unit, it is recommended to place a sheet of paper or cloth between the magnets and the painted metal surface.

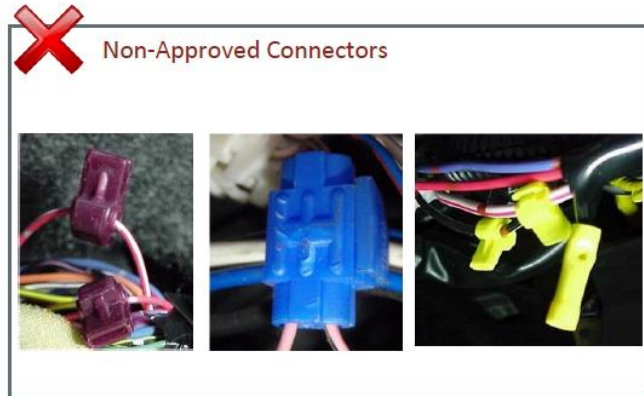
## 3.8 Wiring Guidelines for the CelloTrack Power

### 3.8.1 Connecting Wires

It is recommended to use the following method when connecting wires, such as connecting CelloTrack Power to Constant or to PTO/Ignition (refer to the full wiring diagrams in the following sections):

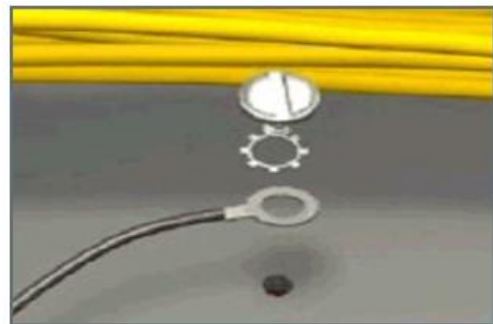
- ◆ Split the wire, insert a fuse holder wire through, and twist around.
- ◆ Use electric tape on the splice to cover the connection.
- ◆ Secure the connection with tie-wrap to ensure the connection does not come undone.

Using this method, you will create a good clean connection between two wires, limiting future potential service visits.



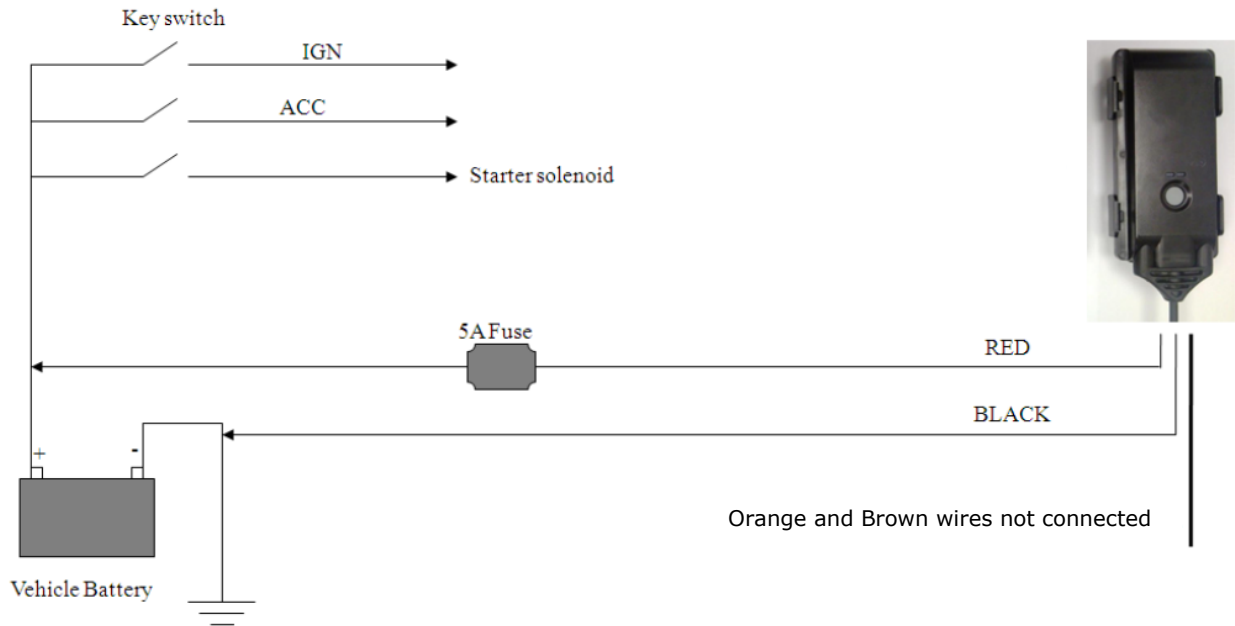
### 3.8.2 Connecting to Ground

- ◆ Black wire connects to ground (GND).
- ◆ Use a ring terminal with lock washer and self tapping screw.
- ◆ Ground connection should always be made to the vehicle chassis.

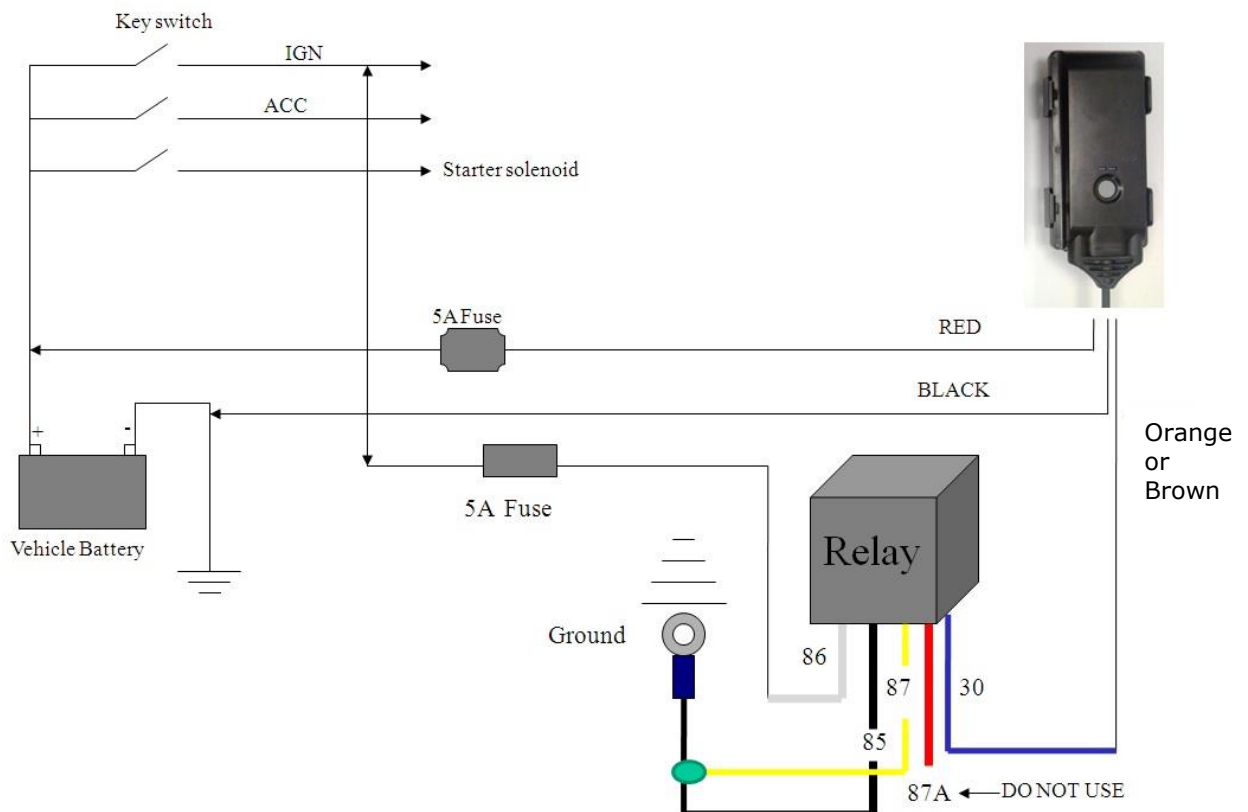




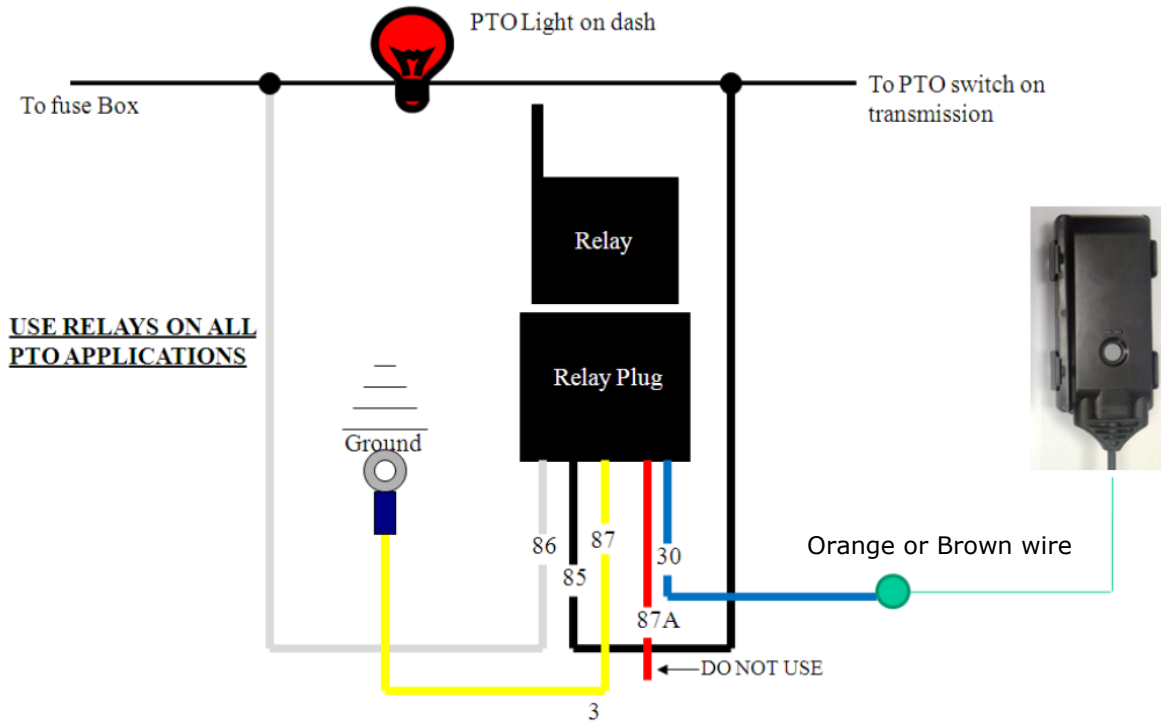
## 3.9 CelloTrack Power Wiring Connection: Digital Input not in Use



## 3.10 CelloTrack Power Wiring Connection: Digital Input Connected to Ignition



## 3.11 CelloTrack Power Wiring Connection: Wiring to PTO



## 3.12 CelloTrack Activation and Deactivation

### 3.12.1 Activation

1. After mounting and properly placing your CelloTrack device in the cradle, you may switch your unit on to begin tracking.
2. Make sure the unit is correctly and securely mounted on the cradle and the Tamper Switch is pressed.
3. Press the Front Button (FB) and hold it. The SYS LED (left LED in the picture below) should glow for about 3 seconds. Stop pressing the FB only after the SYS LED ceases glowing.
4. After several seconds the GSM LED (right LED) should blink (once) and then begins a slow flash, indicating that your device is ON and working properly.
5. Your unit is now functioning and will begin reporting as requested.

If the Tamper Switch is not pressed (the unit is out of the cradle or if Cradle Tamper Switch is enabled the cradle is removed from the asset surface) and the FB is pressed the SYS LED (left LED) begins to blink (1 sec on/1 sec off) which means that the activation has failed.



### 3.12.2 Deactivation

You can also deactivate the unit in order to store it for a long period without disassembling the battery.

To deactivate the unit, perform the following steps:

1. Dismount the unit from the cradle. Make sure the tamper switch is not pressed.
2. Press the Front Button and hold it. The SYS LED (left LED) should blink for 1 second.



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3. After the SYS LED ceases glowing, stop pressing the FB. The SYS LED blinks (0.2 seconds on / off) through the deactivation process period, which is generally very short (one blink) but may last up to 90 seconds.
4. When deactivation process is terminated, both LEDs are switched off, indicating that the unit is deactivated.

### **3.12.3 *Panic Alert***

While the unit is active, press the Front Button. The "Panic button triggered" procedure is initiated.

### **3.12.4 *Tamper Detection and Alert***

Removing an activated unit from the cradle generates a tamper detection event that will be sent immediately to the server.