

# AVL Tracking System

## TR-606D

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## **1. Introduction**

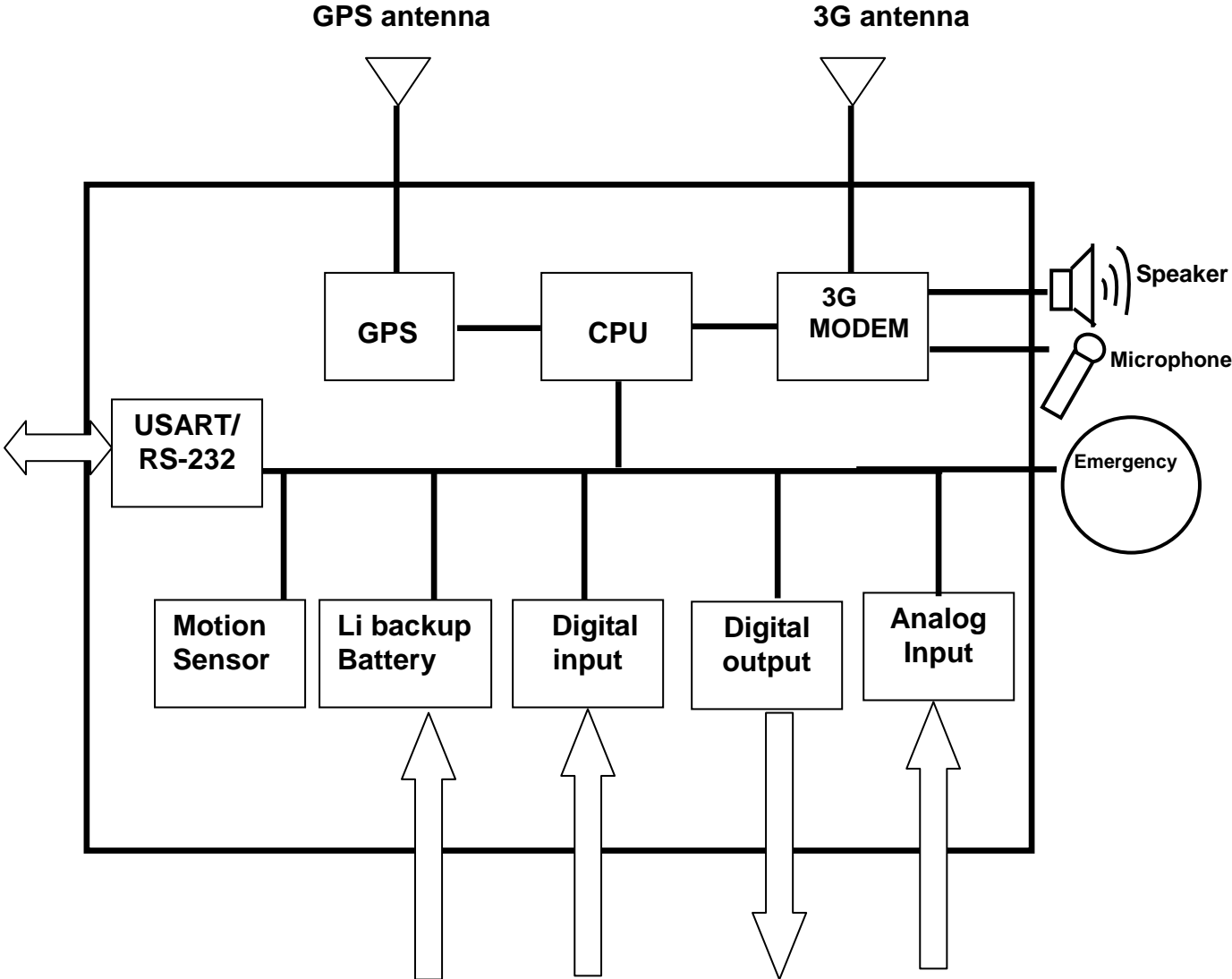
### **1.1 Introduction**

The TR-606D is a multi-functional and economically feasible communication platform for mobile positioning applications. It integrates highly sensitive GPS module, dual-band UMTS/HSDPA and quad-band GSM communication module with a powerful microcontroller that fits into a compact enclosure. The TR-606D has a solid and rigid housing, for simple installation. It provides real-time GPS positions anytime and anywhere with an open view to the sky, and offers precise positioning, and reports vehicle status to the server with necessary information shown on the map. Benefits such as enhanced fleet management, improved vehicle safety, emergency response, are all accomplished through the implementation of the TR-606D system.

### **1.2 Features**

- Dual-Band UMTS/HSDPA 900/2100 MHz WCDMA system
- Quad-band GSM/GPRS/EDGE 850/900/1800/1900 MHz system
- Built in high sensitivity GPS system
- Supports AT command via SMS/ TCP/UDP
- Remote control via SMS/GPRS command
- Real-time GPS position feedback and vehicle status monitoring
- Built-in digital outputs (3), digital inputs (3), an ACC input, 1 analog input, and 1 serial port
- Power supply for Li-ion battery and lead-acid battery
- Supports multi geo-fence function
- OTA (Over the air) firmware upgrade
- Data buffer storage 3,000 points
- Interval report depends on customization
- Power low/lost detection alarm
- Motion sensor
- 3 LED indicators for 3G, GPS, power status

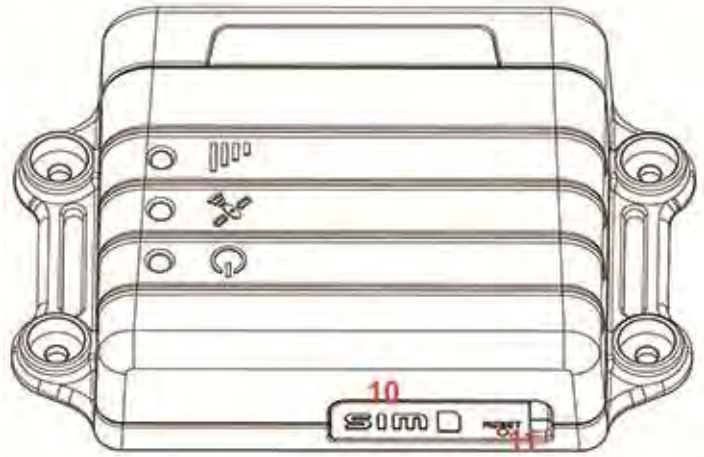
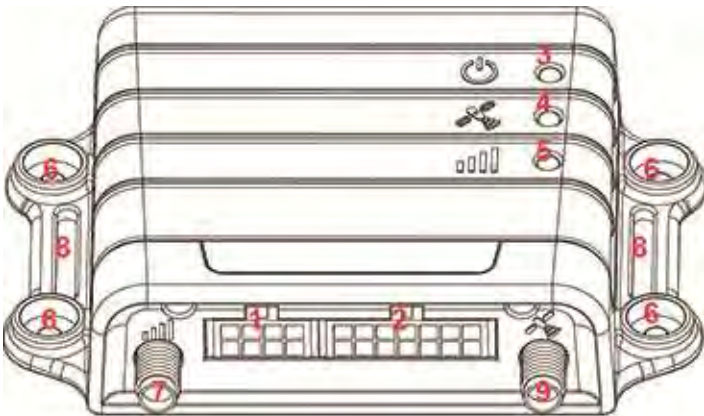
1.3 Hardware Architecture



## 1.4 Hardware specification

Item	Description	
Dimension	98 mm X 71 mm X 22 mm	
CPU	High performance line ARM-base 32-bit MCU	
GPS receiver	High Performance GPS chipset	
Temperature	Operation	-30°C ~ + 80°C
	Storage	-40°C ~ + 85°C
GPS Antenna	SMA Type connector. Active antenna ( 3.3~3.8V)	
3G Antenna	SMA Type connector.	
Communication	UMTS/HSDPA 900/2100 MHz WCDMA Quad-Band GSM/GPRS/EDGE 850/900/1800/1900 MHz	
Protocol	Voice/SMS/GPRS (TCP/UDP)	
Built-in Memory	32 Mb	
GPS logging capacity	3000 points (Cell ID 1,400 points)	
Emergency Input	Negative trigger	1
Ignition (ACC) Input	Positive trigger	1
Digital Input Port	Negative trigger	2
	Positive trigger	1
Digital Output Port	Negative trigger	3 (300 mA)
Analog Input Port	Analog Input	1( 0~28V)
Serial Port	115200 bps	
Backup battery	Internal 820 mAh Lion battery Support external Lead-acid battery (12V/24V)	
Sensor	Motion sensor	

1.5 Appearance



<b>1</b>	<b>Peripheral interface port</b>
<b>2</b>	<b>I/O port</b>
<b>3</b>	<b>Power Status LED</b>
<b>4</b>	<b>GPS LED</b>
<b>5</b>	<b>3G LED</b>
<b>6</b>	<b>For fixing device with screws</b>
<b>7</b>	<b>3G antenna connector</b>
<b>8</b>	<b>For fixing device with belt</b>
<b>9</b>	<b>GPS antenna connector</b>
<b>10</b>	<b>SIM card holder</b>
<b>11</b>	<b>Reset Button</b>

## 1.6 LED indicator

### Power Status LED (Red)

<b>LED</b>	<b>Permanently On</b>
State	Main power on, device on

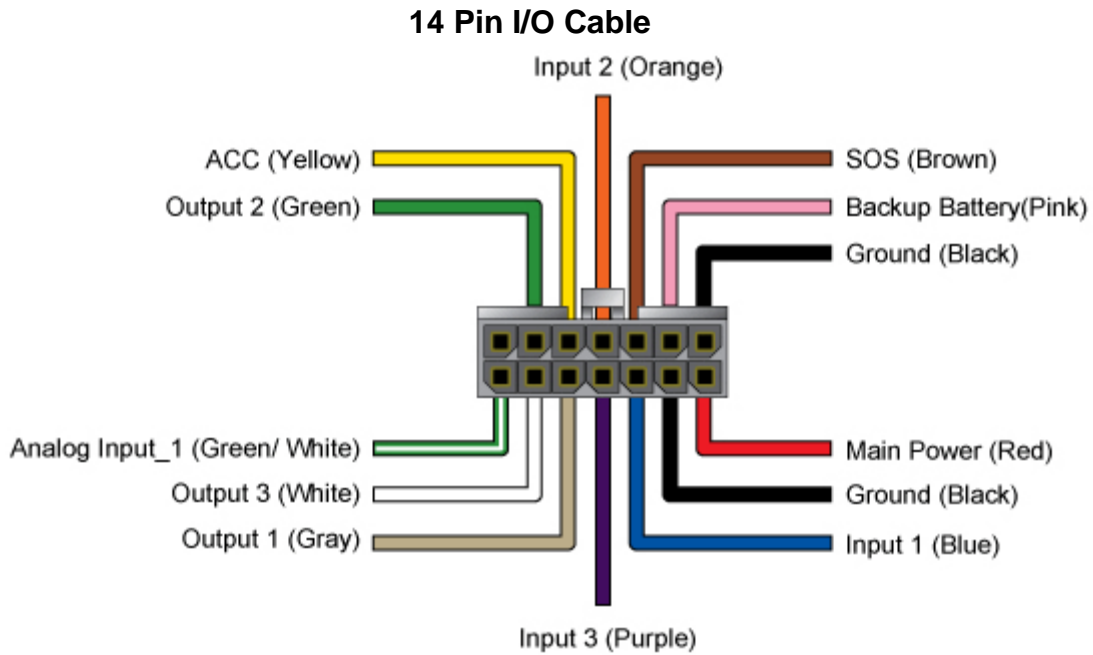
### GPS LED (Yellow)

LED	Permanently off	Fast blinking (Once every 1 second)	Slow blinking (Once every 3 seconds)
State	GPS off	GPS not fix	GPS fix

### 3G LED (Green)

LED	Permanently off	Fast blinking (Once every 1 second)	Slow blinking (Once every 3 seconds)
State	3G off	<ol style="list-style-type: none"> <li>1. TR-606D is searching 3G network</li> <li>2. SIM card is registering to 3G network</li> </ol>	TR-606D is registered full service

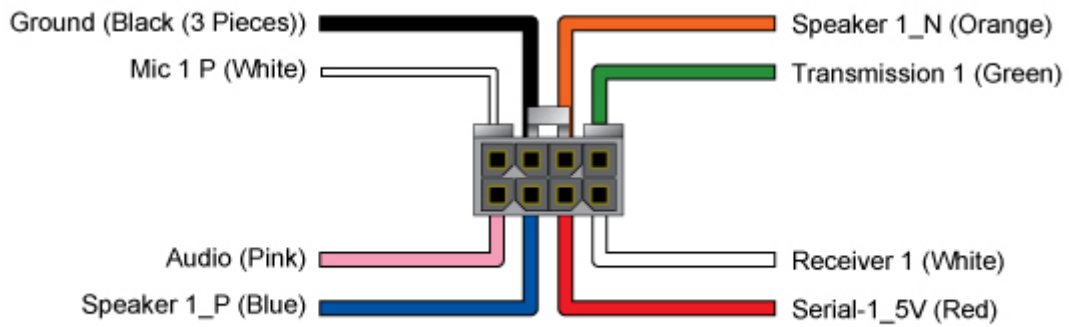
## 1.7 Cable description



Wire Color	Description
Green/ White	<b>Analog Input_1</b>
White	<b>Digital Output 3 (Negative Trigger)</b>
Gray	<b>Digital Output 1 (Negative Trigger)</b>
Purple	<b>Digital Input 3 (Positive Trigger)</b>
Blue	<b>Digital Input 1 (Negative Trigger)</b>
Black	<b>Ground</b>
Red	<b>Main Power</b>
X	
Green	<b>Digital Output 2 (Negative Trigger)</b>
Yellow	<b>ACC (Positive Trigger)</b>
Orange	<b>Digital Input 2 (Negative Trigger)</b>
Brown	<b>Emergency (Negative Trigger)</b>
Pink	<b>12V/24V Backup Battery</b>
Black	<b>Ground</b>

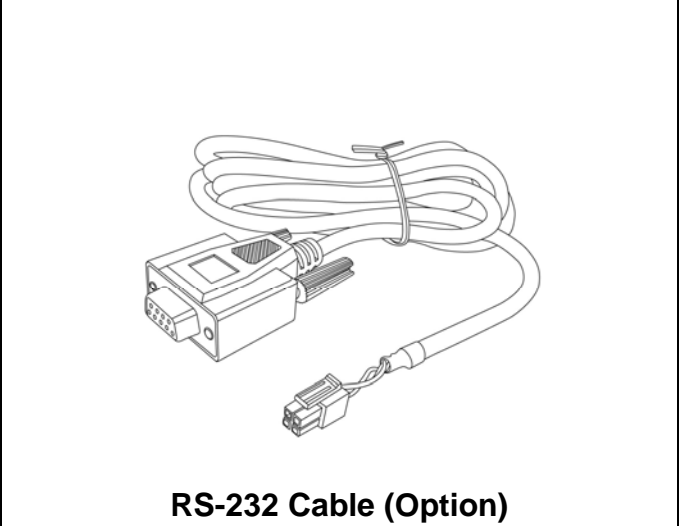
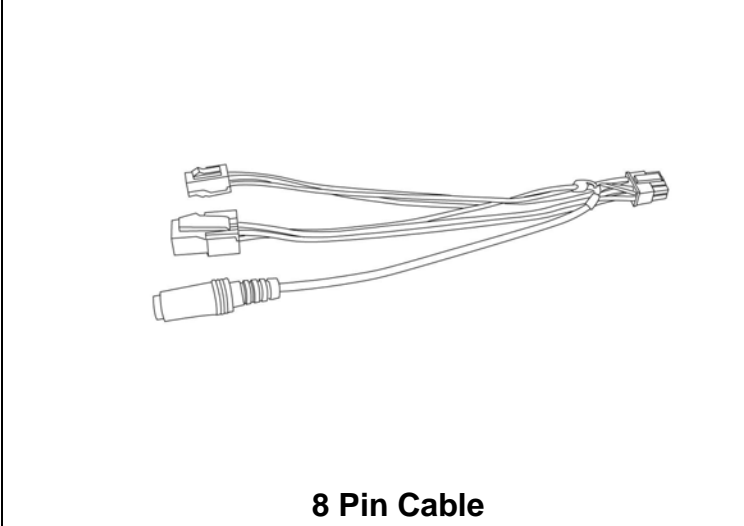
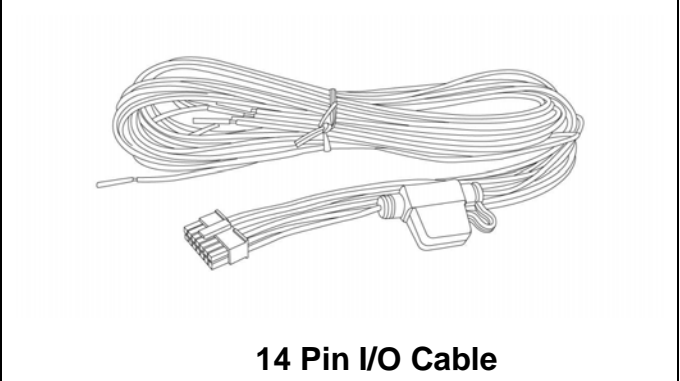
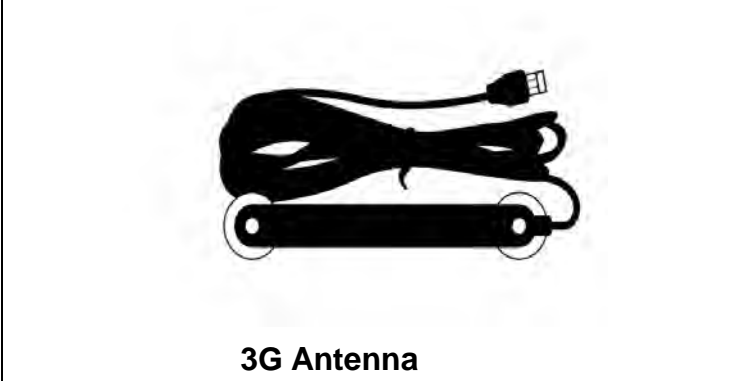
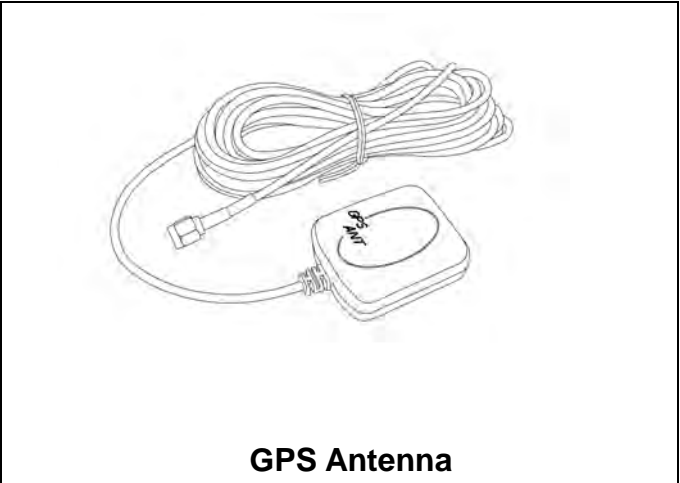
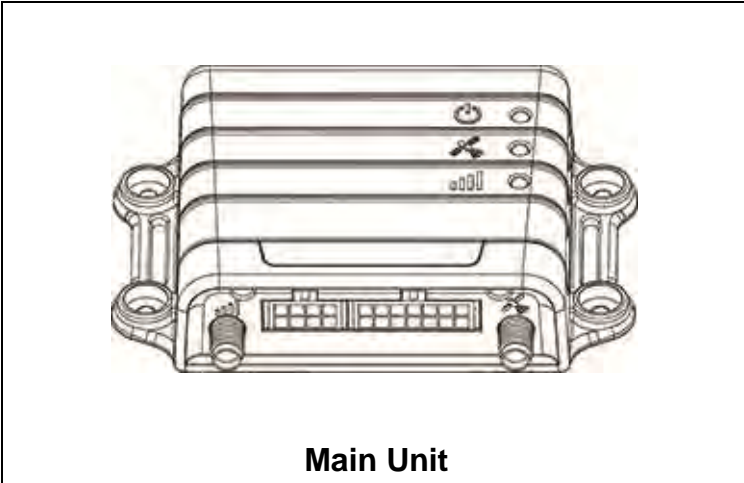


### 8 Pin Cable



Wire Color	Description
Pink	Audio_5V
Blue	Speaker 1(Positive)
Red	Serial-1_5V
White	Receiver 1
White	Microphone 1 P
Black (3 Pieces)	Ground
Orange	Speaker 1(Negative)
Green	Transmission 1

**1.8 Accessories**



## 2 Operation

For first time users, please follow the steps below to complete the pre-installation.

### 2.1 Install the SIM card



With the copper contacts facing up, align the notch on the SIM card with the notch on the SIM slot and insert the SIM card. If SIM is inserted correctly, you will not be able to see the copper contacts after inserting the card. To eject SIM card, simply, use your finger nail and apply slight pressure.

**Note:** Make sure to disable the SIM PIN entry function on the SIM card before inserting your SIM card

**Note:** Before installing or taking out the SIM card, please power off the TR-606.

## 2.2 Install the GPS and 3G antenna

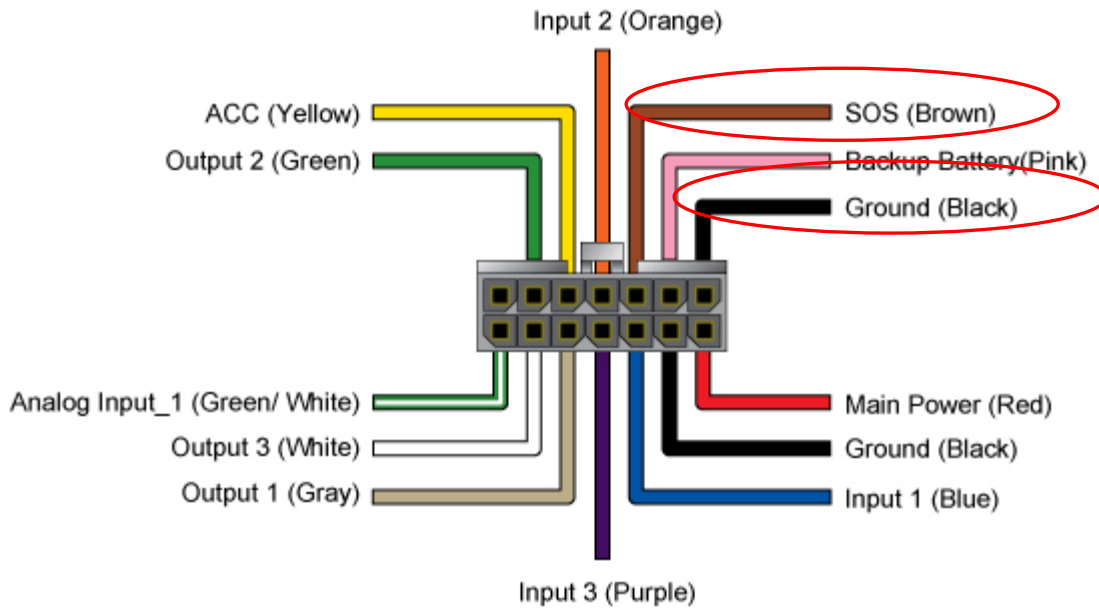


Install the 3G antenna to the 3G antenna port on the left side of the front of the device. Install the GPS antenna to the GPS antenna port on the right side of the front of the device.

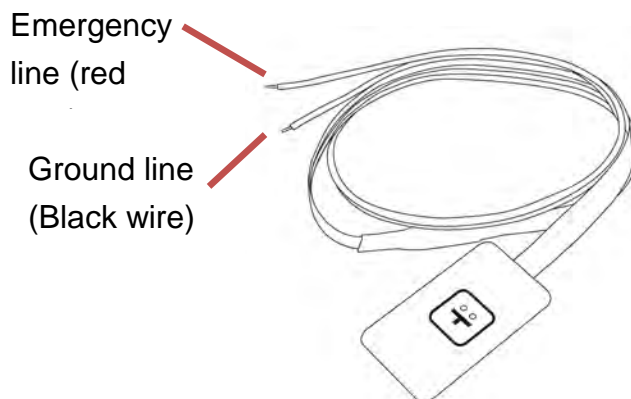
Make sure both antennas tightly screwed in place. Please refer to the photo above.

### 2.3 Installing the Emergency button

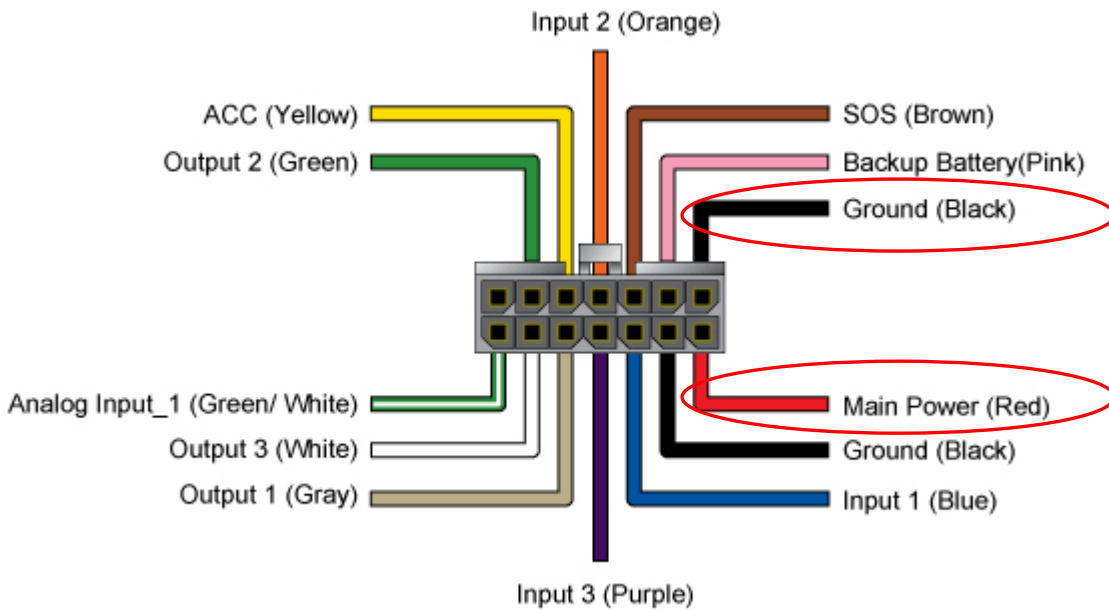
There is a line of the 14 pin IO cable for connecting push button for emergency help.



One end of the button must be connected to the emergency line and the other end must be connected to the ground line.

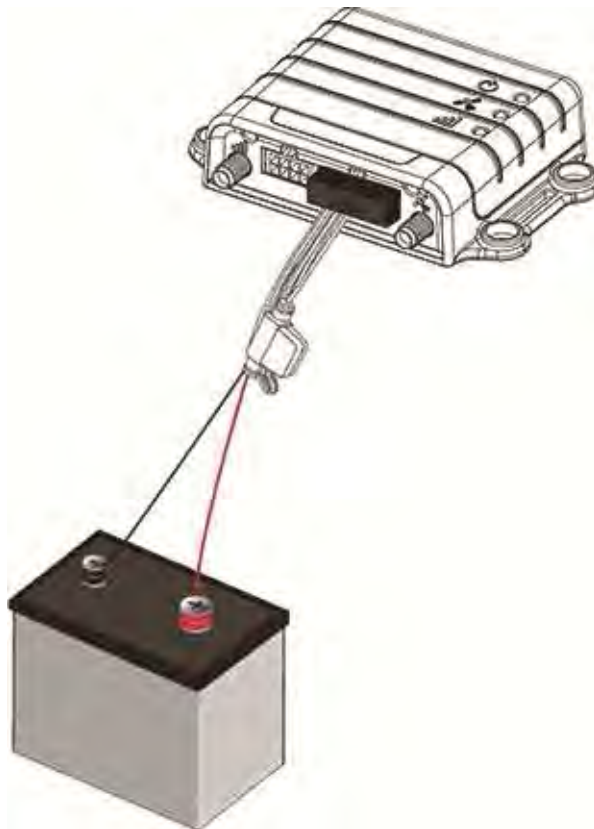


## 2.4 Connecting the Main Power

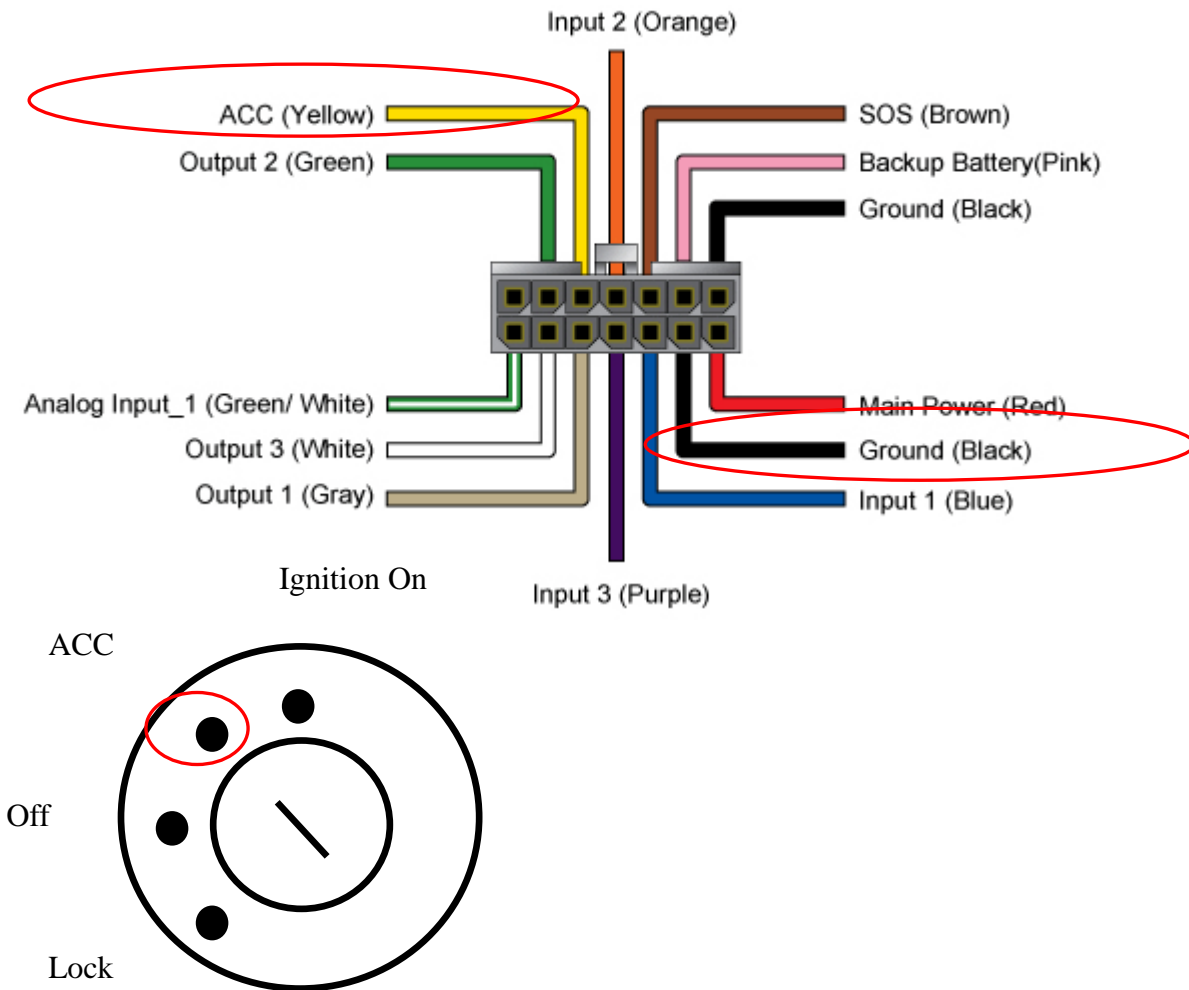


Connect the red wire from the cable to a power source of 10~36 V. Connect the black wire to ground.

**Note:** Please make sure the external power is well connected to TR-606D.



## 2.5 Connecting ignition detection line on car/asset



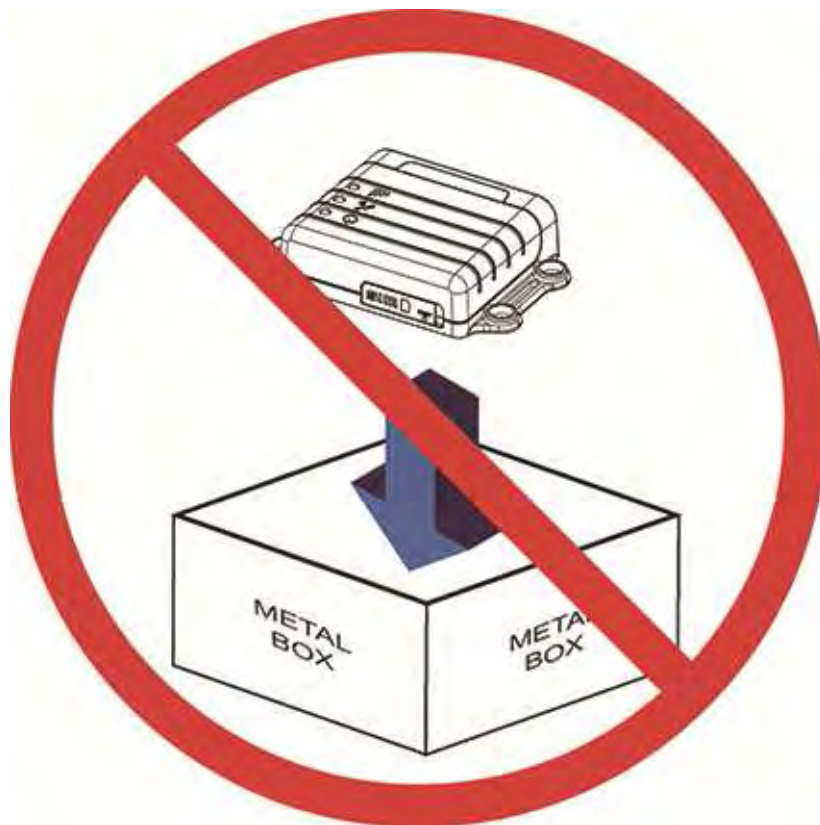
Connect the yellow wire from the cable to ACC/ignition (12V) position of vehicle/asset.  
Connect the black wire to ground.

## Installation Notice of TR-606D:

### Notice:



The GPS signal and 3G signal would be significantly reduced or fully blocked by the metal shielding material. In order to have the device work properly, please avoid installing in metal shielding environments. E.g. sealed metal box.





**Notice:**



GPS device must be placed under open sky condition to achieve the best performance. Indoor installation will severely degrade the signal and result in location fixing failure.



**Notice:**



Please use TR-606D in the area with stable GPRS/UMTS coverage area.

