

# AVL Tracking System

## TR-600



V 1.3

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## **1. Introduction**

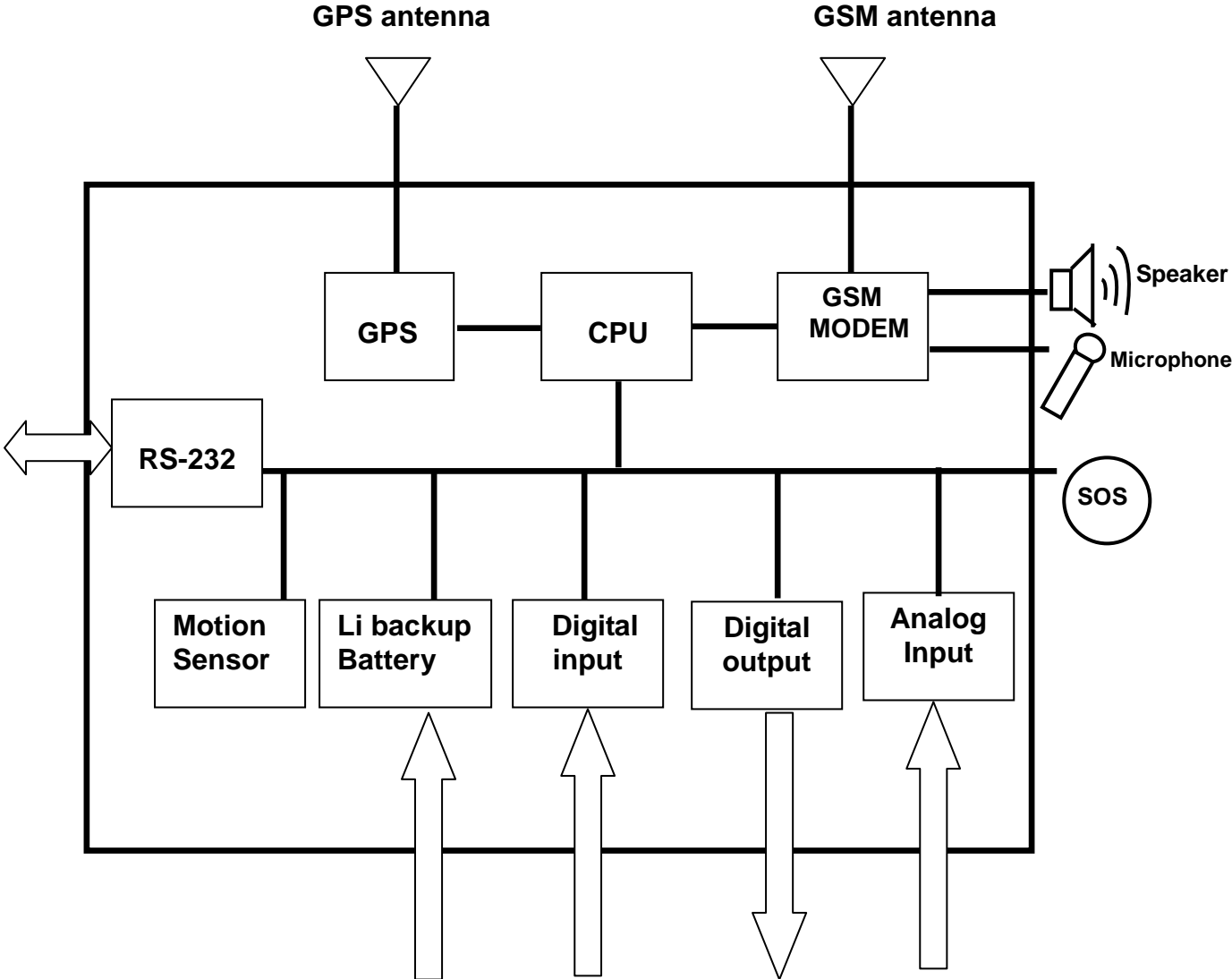
### **1.1 Introduction**

The TR-600 is a multi-functional and economically feasible communication platform for mobile positioning applications. It integrates highly sensitive GPS module and quad-band GSM communication module with a powerful microcontroller that fits into a compact enclosure. The TR-600 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-600 system.

### **1.2 Features**

- Build in Quad-band 850/900/1800/1900 MHz GSM system
- Build 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 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 updates
- Data logger for 50,000 points
- Ignition/ Power Low/ Power Lost / Speed Limit detection alarm
- 3 LED indicators for GSM, GPS, power status
- External panic button for emergency SOS (Optional)

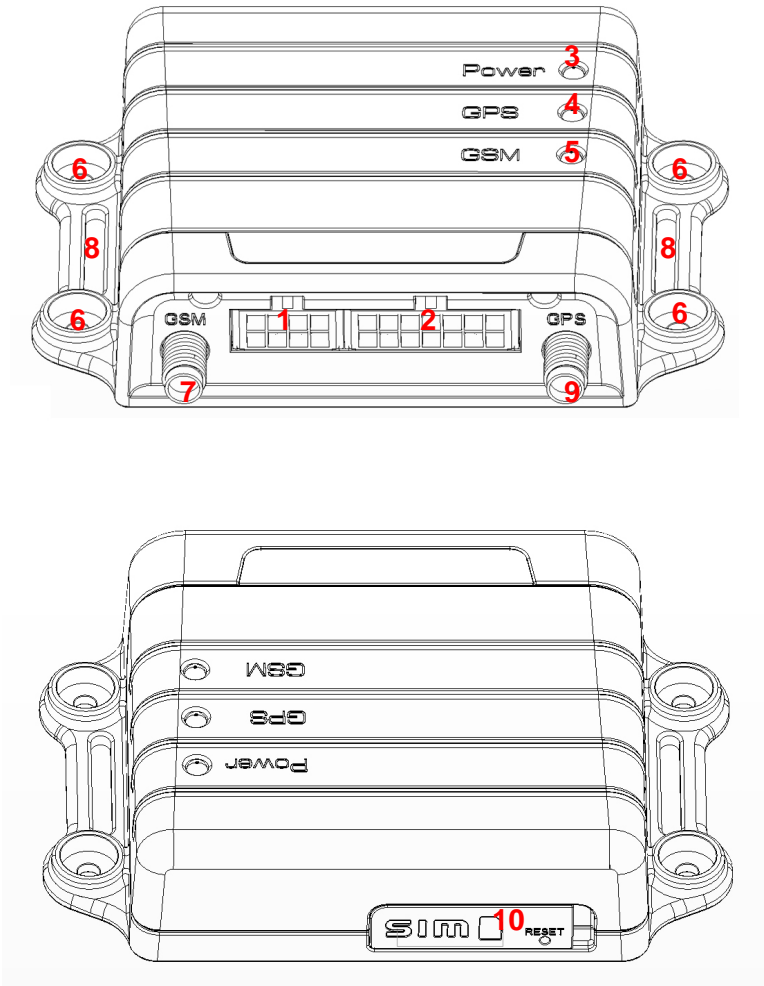
1.3 Hardware Architecture



## 1.4 Hardware specification

Item	Description	
Dimension	98 mm X 65 mm X 22 mm	
CPU	High performance line ARM-base 32-bit MCU	
GPS receiver	SiRF Star III 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)	
GSM Antenna	SMA Type connector	
Communication	Telit (GE865) Quad-band GSM 850/900/1800/1900 MHz	
Protocol	Voice/SMS/GPRS (TCP/UDP)	
Built-in Memory	32 Mb	
GPS logging capacity	50,000 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 (Option)	Internal 800 mAh Lion battery Support external Lead-acid battery (12V/24V)	
Hands-free Kit (Option)	Support external speaker and microphone	
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>GSM LED</b>
<b>6</b>	<b>For fixing device with screws</b>
<b>7</b>	<b>GSM 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>

## 1.6 LED indicator

### Power Status LED (Red)

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

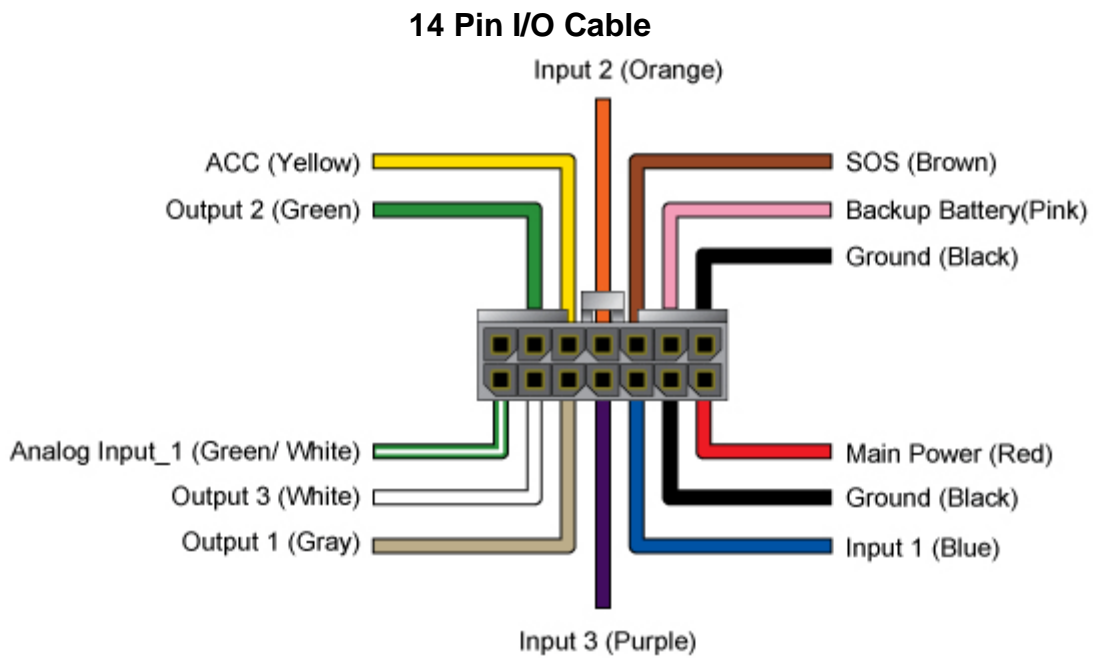
### GPS LED (Yellow)

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

### GSM LED (Green)

LED	Permanently off	Fast blinking (Once every 1 second)	Slow blinking (Once every 3 seconds)
State	GSM off	<ol style="list-style-type: none"> <li>1. TR-600 is searching GSM network</li> <li>2. SIM card is registering to GSM network</li> </ol>	TR-600 is registered full service

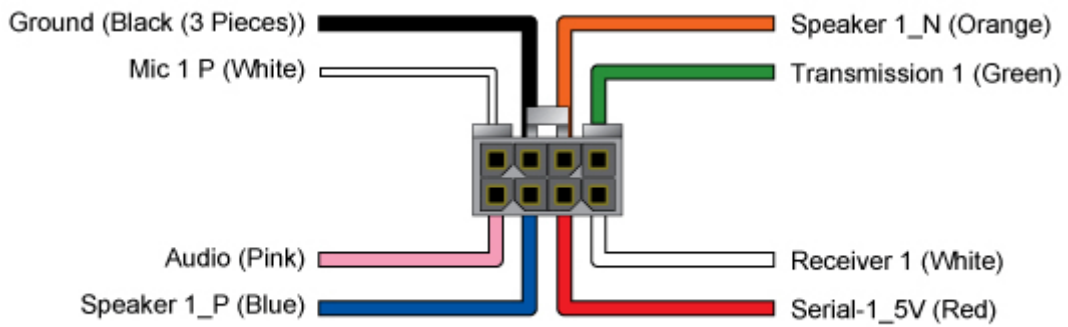
## 1.7 Cable description



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>SOS (Negative Trigger)</b>
Pink	<b>12V/24V Backup Battery</b>
Black	<b>Ground</b>

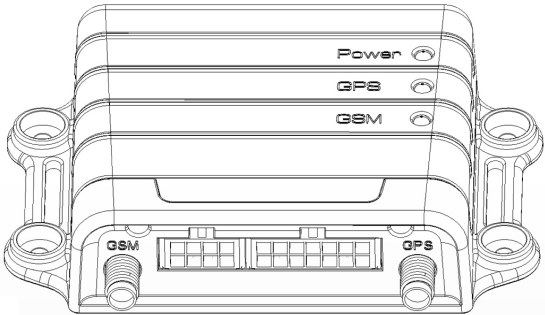
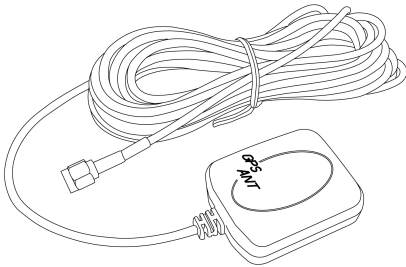
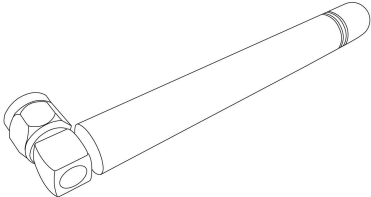
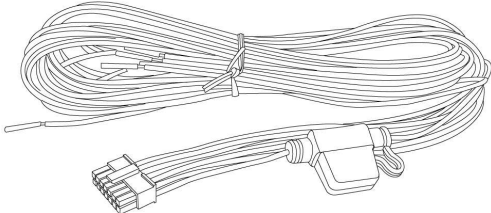

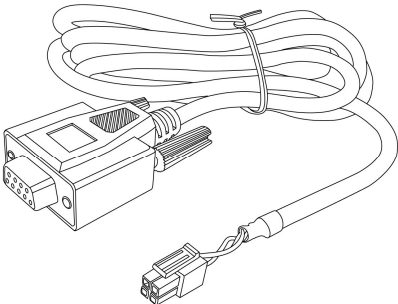


### 8 Pin Cable



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**

 <p>The Main Unit is a rectangular device with a handle on top. It features three indicator lights labeled 'Power', 'GPS', and 'GSM'. On the front panel, there are two circular ports labeled 'GSM' and 'GPS', and a central multi-pin connector.</p>	 <p>The GPS Antenna is a small, square-shaped device with a coiled cable. The cable ends in a connector that fits into the GPS port of the Main Unit.</p>
 <p>The GSM Antenna is a long, thin, cylindrical antenna with a connector at one end.</p>	 <p>The 14 Pin I/O Cable is a long cable with a multi-pin connector at one end and a smaller connector at the other.</p>
 <p>The 8 Pin Cable is a cable with a multi-pin connector at one end and a smaller connector at the other.</p>	 <p>The RS-232 Cable (Option) is a cable with a multi-pin connector at one end and a smaller connector at the other.</p>

## 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 face-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-600.

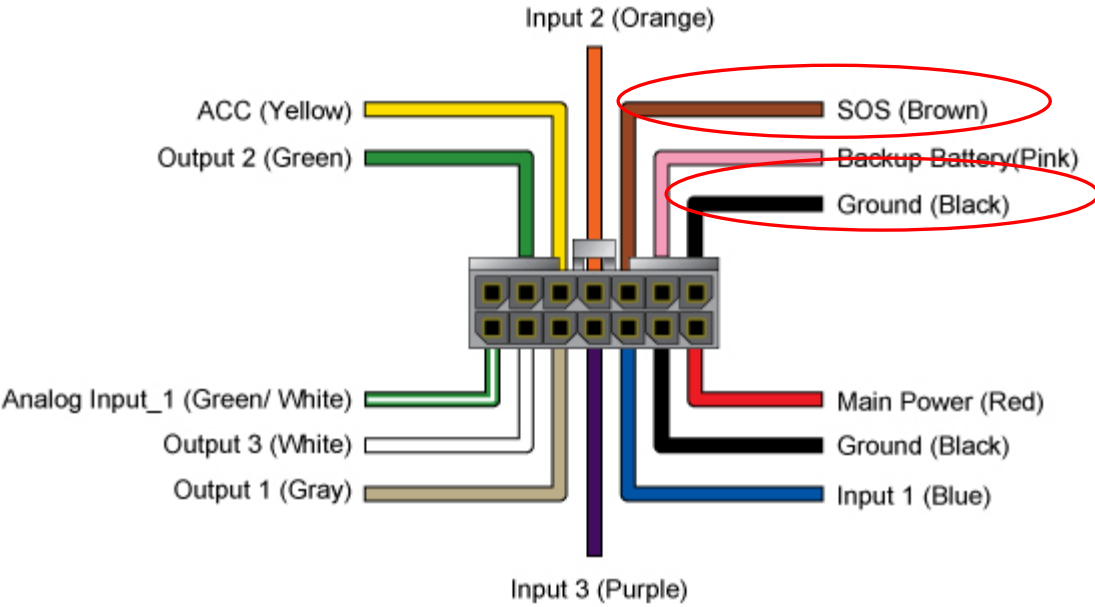
## 2.2 Install the GPS and GSM antenna



Install the GSM antenna to the GSM antenna port on the left side of the back of the device and install the GPS antenna to the GPS antenna port on the right side of the back of the device making 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 SOS line and the other end must be connected to the ground line.

