MEITRACK T1 User Guide

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Contents

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2 Product Overview

The T1 is a brand new high-end vehicle GPS tracker with market-proven quality and precise positioning. In addition to real-time tracking, it supports various peripherals and can be installed into taxies, freight cars, and buses.

3 Product Function and Specifications

3.1 Product Function

3.1.1 Position Tracking

- GPS + GSM dual-module tracking
- Real-time location query
- Track by time interval
- Track by distance
- Direction change report
- Speeding alarm
- Track by mobile phone

3.1.2 Anti-Theft

- SOS alarm
- GPS antenna cut-off alarm
- External power supply cut-off alarm
- GPS blind spot alarm
- Remote vehicle fuel/power cut-off alarm
- Engine or vehicle door status alarm
- Towing alarm
- Polygon geo-fence alarm
- Fuel monitoring

3.1.3 Other Functions

- SMS/GPRS (TCP/UDP) communication (Meitrack protocol)

- Built-in 8 MB buffer for recording driving routes (storing 8,192 GPRS cache, 256 SMS cache, and 131,072 GPS logs)
- Mileage report
- Low power alarm
- Build-in vibration sensor and acceleration sensor
- Support Over-the-Air (OTA)
- SIM card balance query
- Halt to Start and Start to Halt alarms
- Online Parameter Editor

3.1.4 Functions of Optional Accessories

Accessory		Function
iButton		Identify the driver ID and grant permission to start the vehicle.
A53 resistor voltage-output mode fuel sensor		Check fuel.
A52 digital temperature sensor + A61 sensor box		Check temperature.
Super magnet		Fix the device in place.
1 RS232 port	Handset	Used for two-way calling, SMS sending and receiving, and remote monitoring.
	Camera (Used with a Micro SD card)	Take photos.
	RFID reader	Identify the driver ID and grant permission to start the vehicle. Monitor driver attendance by RFID report.
	LED display	Display advertisements and announcements.
	A21 LCD display	Used for real-time vehicle scheduling and management.

3.2 Specifications

Item	Specifications
Dimension	105 mm x 65 mm x 26 mm
Weight	190g
Input voltage	DC 11 V to 36 V/1.5 A
Standby battery	850 mAh/3.7 V
Power consumption	65 mA standby current
Operating temperature	-20°C to 55°C
Operating humidity	5% to 95%
Working hour	200 hours in power-saving mode and 10 hours in normal mode
LED indicator	Green indicator showing the GSM signal Blue indicator showing the GPS signal
Button/Switch	1 SOS button (for sending SMSs or dialing) 1 power button
Memory	8 MB byte

Sensor	3D acceleration sensor (for wake-up by vibration and towing alarms)
GSM frequency band	GSM 850/900/1800/1900 MHz
GPS sensitivity	-161 dB
Positioning accuracy	10m
I/O port	3 digital inputs (2 negative inputs and 1 positive input) 2 analog detection inputs 2 outputs 1 RS232 port 1 USB port 1 digital temperature sensor port

4 T1 and Accessories

T1 and standard accessories:

T1 with a built-in battery   GPS antenna   GSM antenna   I/O cable + SOS button   USB cable   CD

Optional accessories:

Camera   Handset   RFID reader   A21 LCD display (dialing and SMS display)   A53 fuel sensor

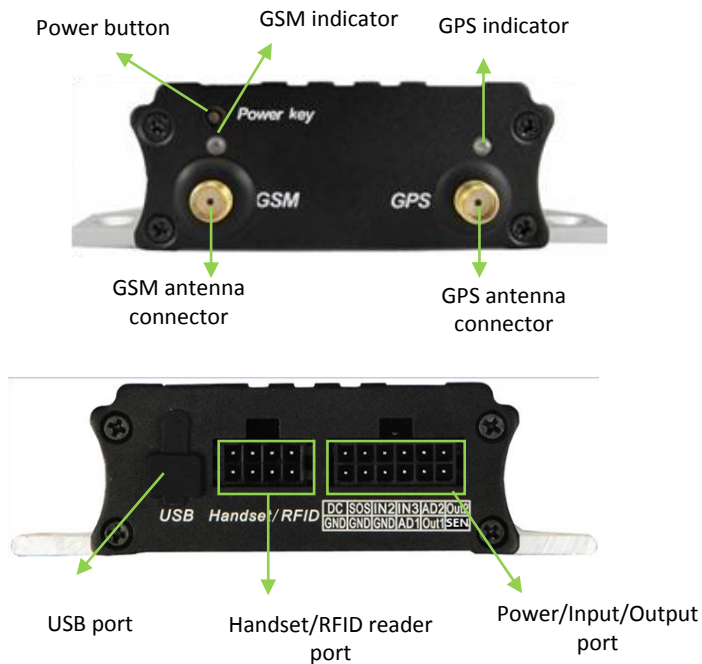A52 digital temperature sensor +
A61 sensor box   LED display   iButton

5 Appearance

6 First Use

6.1 Installing the SIM Card

To install the SIM card, perform the following operations:

1. Loosen the screw, and remove the front cover of the T1.
2. Insert the SIM card into the card slot with its gold-plated contacts facing towards the Printed Circuit Board (PCB).
3. Close the cover, and tighten the screw.

Note:

● Ensure that the SIM card has sufficient balance.

● Ensure that the phone card PIN lock has been closed properly.

● Ensure that the SIM card in the T1 has subscribed the caller ID service if you want to use your authorized phone number to call the T1.

● Power off the T1 before installing the SIM card.

6.2 Charging

When you use the T1 for the first time, connect the T1 GND (-Black) and Power (+Red) wires to 12 V or 24 V external power supply for charging. Ensure that the T1 is charged at least three hours. Eight hours are recommended.

The T1 can be installed on a vehicle only after it is configured and tested.

6.3 LED Indicator

Press and hold down the power button for 3 seconds to 5 seconds to start the T1.

GPS Indicator (Blue)	
Steady on	One button is pressed or one input is activated.
Blink (every 0.1s)	The T1 is being initialized or the battery power is low.
Blink (0.1s on and 2.9s off)	A GPS signal is received.
Blink (1s on and 2s off)	No GPS signal is received.
GSM Indicator (Green)	
Steady on	A call is coming in or a call is being made.
Blink (every 0.1s)	The T1 is being initialized.
Blink (0.1s on and 2.9s off)	A base station signal is received.
Blink (1s on and 2s off)	No base station signal is received.

6.4 Configured by Computer

This section describes how to use Meitrack Manager to configure the T1 on a computer.

Procedure:

1. Install the USB-to-serial cable driver and Meitrack Manager.
2. Connect the T1 to a PC by using the USB-to-serial cable.

3. Run Meitrack Manager, then the following dialog box will appear:

Turn on the device, then Meitrack Manager will detect the device model automatically and the parameter page will appear

accordingly.

For details about Meitrack Manager, see the *MEITRACK Manager User Guide*.

6.5 Tracking by Mobile Phone

Call or send the **0000,A00** command by SMS to the T1 SIM card number. The device will reply an SMS with a map link.

Click the SMS link. The location will be displayed on Google Maps on your mobile phone.

Note: Ensure that the T1 SIM card number has subscribed the caller ID service. Otherwise, the caller ID will be blocked.

SMS example:

Now,061314 10:36,V,26,0Km/h,96%,http://maps.meigps.com/?lat=22.513781&lng=114.057183

The following table describes the SMS format:

Parameter	Description	Remarks
Now	Indicates the current location.	SMS header: indicates the alarm type.
061314 10:36	Indicates the date and time in **MMDDYY hh:mm** format.	None
V	The GPS is invalid.	A = Valid V = Invalid
26	Indicates the GSM signal strength.	Value: 1–32 The larger the value is, the stronger the signal is. If the value is greater than 12, GPRS reaches the normal level.
0Km/h	Indicates the speed.	Unit: km/h
96%	Indicates the remaining battery power.	None
http://maps.meigps.com/?lat=22.513781&lng=114.057183	This is a map link. Latitude: 22.513781 Longitude: 114.057183	None

6.6 Common SMS Commands

6.6.1 Setting a Combined Function Phone Number – A71

SMS sending: 0000,A71,*Phone number 1,Phone number 2,Phone number 3*

SMS reply: IMEI,A71,OK

Description:

Phone number: A phone number has a maximum of 16 bytes. If no phone numbers are set, leave them blank. Phone numbers are empty by default.

Phone number 1/2/3: SOS phone numbers. When you call the tracker by using these phone numbers, the tracker will reply an SMS with the location and send geo-fence alarms and low power alarms.

If all combined function phone numbers need to be deleted, send **0000,A71**.

When the SOS button is pressed, the tracker dials phone numbers 1, 2, and 3 in sequence. The tracker stops dialing when a phone number responds.

Example: 0000,A71,13811111111,13822222222,13833333333

Reply: 353358017784062,A71,OK

6.6.2 Setting a Listen-in Phone Number – A72

SMS sending: 0000,A72,*Listen-in phone number 1,Listen-in phone number 2*

SMS reply: IMEI,A72,OK

Description:

When you call the tracker by using the authorized listen-in phone number, the tracker will answer the call automatically and enter the listen-in state. In this way, the tracker will not make any sound.

A maximum of two phone numbers can be set. Each phone number has a maximum of 16 digits. If no phone numbers are set, leave them blank. Phone numbers are empty by default.

If no phone numbers are set and commas are remained, phone numbers set before will be deleted.

If all phone numbers need to be deleted, send **0000,A72**.

Example: 0000,A72,13844444444,13855555555

Reply: 353358017784062,A72,OK

6.6.3 Setting the Smart Sleep Mode – A73

SMS sending: 0000,A73,*Sleep level*

SMS reply: IMEI,A73,OK

Description:

When the sleep level is **0**, the sleep mode is disabled.

When the sleep level is **1**, the tracker enters the normal sleep mode. The GSM module always works, and the GPS module occasionally enters the sleep mode. The tracker works 25% longer in the normal sleep mode than that in the normal working mode. This mode is not recommended for short interval tracking; this will affect the route precision.

When the sleep level is **2**, the tracker enters deep sleep mode. If no event (SOS, button changes, incoming calls, SMSs, or vibration) is triggered after five minutes, the GPS module will stop, and the GSM module will enter sleep mode. Once an event is triggered, the GPS and GSM modules will be woken up.

Note: In any condition, you can use an SMS command to disable the sleep mode, and then the tracker exits the sleep mode and returns back to the normal working mode.

Example: 0000,A73,2

Reply: 353358017784062,A73,OK

6.6.4 Selecting a Serial Port and Peripheral – C70

SMS sending: 0000,C70,*Serial port selection*,*Peripheral selection*

Reply: IMEI,C70,OK

Description:

Serial port selection = 1: The peripheral port of the device is debug port.

Serial port selection = 2: The peripheral port of the device is UART port (default)

Peripheral selection = 0: The device peripheral connects the camera (default).

Peripheral selection = 1: The device peripheral connects the handset.

Peripheral selection = 2: The device peripheral connects the LED display.

Peripheral selection = 3: The device peripheral connects the A21 LCD display.

Peripheral selection = 4: The device peripheral connects the RFID reader.

Example: 0000,C70,2,4

Reply: 353358017784062,C70,OK

For details about SMS commands, see the *MEITRACK SMS Protocol*.

Note:

1. The default SMS command password is **0000**. You can change the password by using Meitrack Manager and SMS commands.

2. The device can be configured by SMS commands with a correct password. After an authorized phone number is set, only the authorized phone number can receive the preset SMS event report.

7 MS03 Tracking System

Visit http://ms03.trackingmate.com, enter the user name and password, and log in to the MS03. (Purchase the login account from your provider.)

For more information about how to add a tracker, see the *MEITRACK GPS Tracking System MS03 User Guide* (chapter 4 "Getting Started").

The MS03 supports the following functions:

- Track by time interval or distance.
- Query historical traces.
- Set polygon geo-fences.
- Bind driver and vehicle information.
- View various reports.
- Send commands in batches.
- Support OTA updates.

For details, see the *MEITRACK GPS Tracking System MS03 User Guide*.

8 Installing the T1

8.1 Installing GPS and GSM Antennas

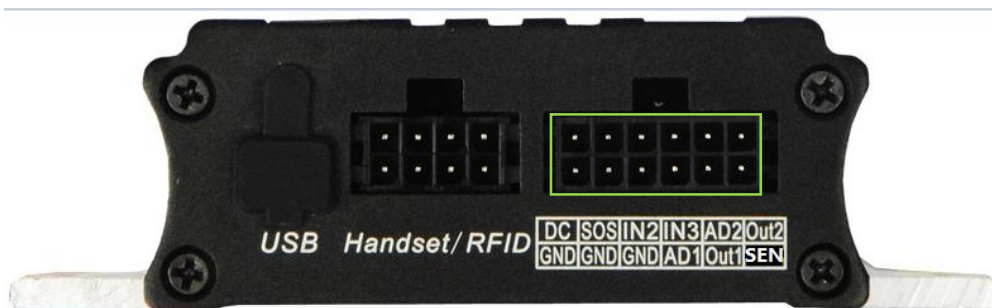GSM antenna   GPS antenna
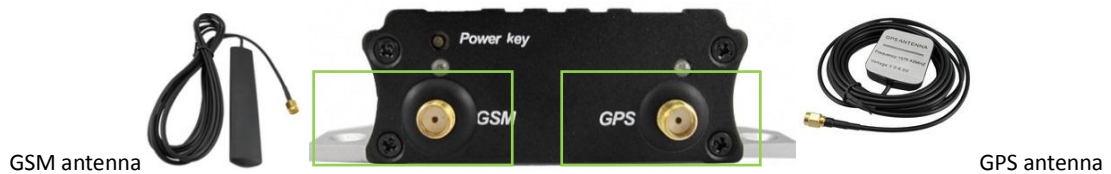
Connect the GSM antenna to the connector which is labeled "GSM". The GSM antenna is non-directional, so you can hide it in any place of a vehicle.

Connect the GPS antenna to the connector which is labeled "GPS". It is recommended that the antenna is facing up to the sky and the antenna side with words is downwards. Secure the antenna by using double sided tapes.

Note: Do not install the GPS antenna at a place with metal.

8.2 Installing an I/O Cable

The I/O cable is a 12-pin cable, including the power, analog input, digital temperature sensor input, and negative/positive input and output.


1 Power (+)	3 Input 1	5 Input 2	7 Input 3	9 Fuel sensor	11 Output 2
2 GND (-)	4 GND (-)	6 GND (-)	8 AD input 1	10 Output 1	12 Digital Temperature Sensor

| Pin Number	Color	Description
1 (Power +)	Red	Positive charge of the power input, connected to the positive charge of the vehicle storage battery. Input voltage: 11 V to 36 V. 12 V is recommended.

2 (GND)	Black	Ground wire, connected to the negative charge of the vehicle storage battery or to the negative terminal.
3 (Input 1)	White	Digital input 1, negative trigger (SOS button by default)
4 (GND)	Black	Ground wire, connected to input 1 (SOS button)
5 (Input 2)	White	Digital input 2 (negative trigger) Connect to a door trigger signal cable to detect vehicle door status. (Most Chinese, Korean, and Japanese cars are negative edge-triggered.)
6 (GND)	Black	Ground wire It can be used as a ground wire connected to an analog sensor.
7 (Input 3)	White	Digital input 3 (positive trigger) Connect to the vehicle ACC cable by default to detect the vehicle ACC status.
8 (AD Input 1)	Blue	Analog input 1 with 12-bit resolution and valid voltage 0–6.6 V Connect to an external sensor, such as the fuel sensor.
9 (Fuel sensor input)	Blue	Analog input 2 with 12-bit resolution and valid voltage 0–6.6 V The AD cable is equipped with a white plug. It is connected to the A53 fuel sensor by default.
10 (Output 1)	Yellow	Output 1 Valid: low level (0 V) Invalid: open collector Maximum voltage for output open collector (invalid): 40 V Maximum current for output low voltage (valid): 400 mA Connect to an external relay to remotely cut off the vehicle fuel cable or engine power supply.
11 (Output 2)	Yellow	Output 2 Valid: low level (0 V) Invalid: open collector Maximum voltage for output open collector (invalid): 40 V Maximum current for output low voltage (valid): 400 mA Connect to an external relay to remotely cut off the vehicle fuel cable or engine power supply.
12 (Digital temperature sensor or iButton input port)	Yellow	TTL3.3V level Connect to the A52 digital temperature sensor or iButton by default by using the A61 sensor box. Note: The DC or AC voltage that is greater than 3.3 V is not allowed. Otherwise, the device may be damaged.

8.2.1 Power Cable/Ground Wire (Pin 1/2)

Connect the power cable (red) and ground wire (black) to the positive and negative charges of the vehicle battery respectively.
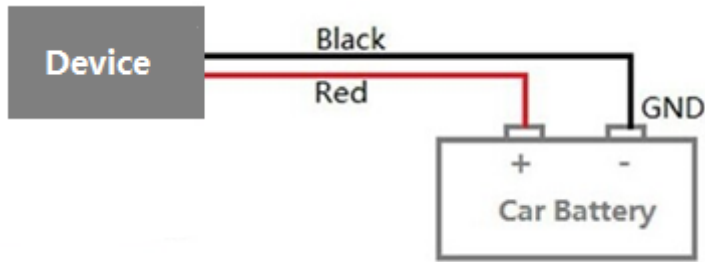
8.2.2 ACC and Door Detection (Pin 5/7)
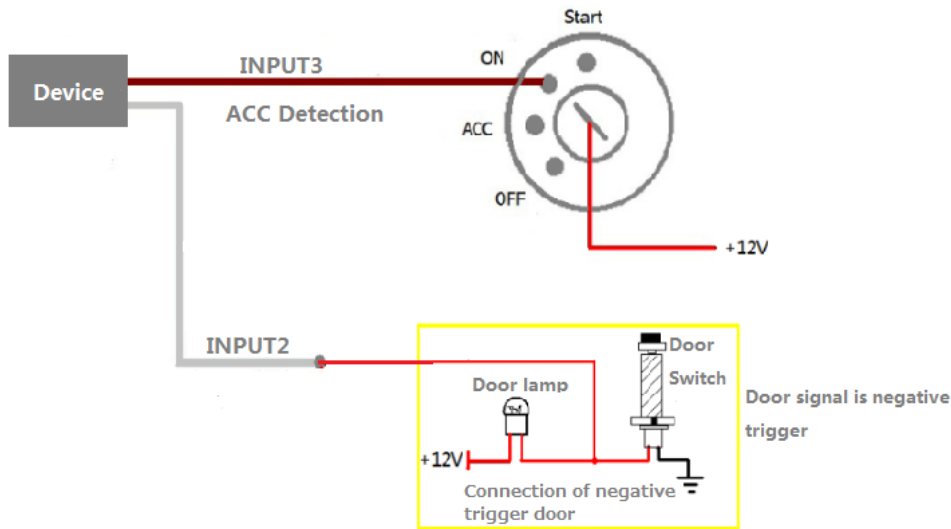
Note: If input 3 is connected to the "ACC" position, after the engine is started, the platform will read it as ON-OFF-ON. If input 3 is connected to the "Start" position, after the engine is started, the platform will read it as OFF-ON-OFF. If installed correctly, after the engine is started, the platform will read it as OFF-ON.

8.2.3 Output Control (Pin 10/11)
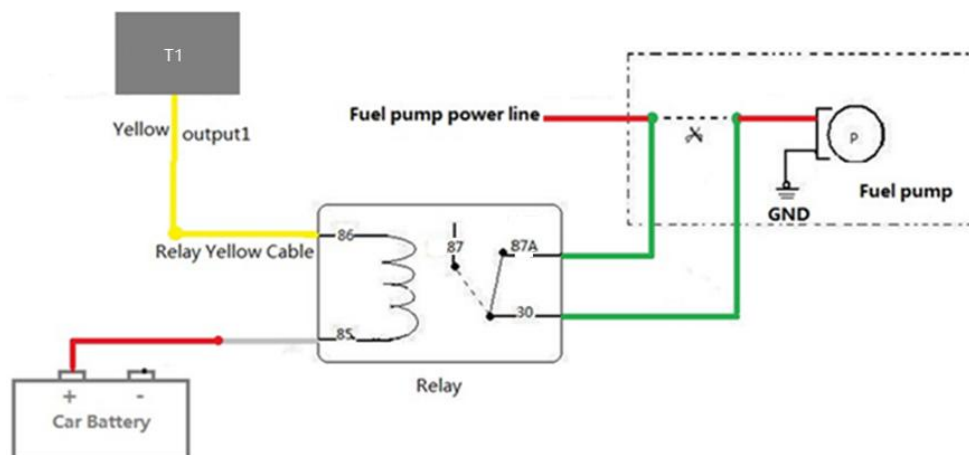
Note: To implement remote fuel and power cut-off, connect the relay to the fuel pump cable or the engine cable in series.

8.2.4 Sensor Input

For pin 8 analog input 1, a sensor whose output voltage ranges from 0 V to 6.6 V can be installed. The analog voltage calculation formula is as follows:

Voltage = (AD x 3.3 x 2)/4096

Pin 10 is connected to the A53 fuel sensor by default. You can install the sensor without calculation formula added on the platform. For details, see the *A53 Fuel Sensor User Guide*.

Pin 12 is connected to A61+A52 temperature sensor or iButton by default. For details, see the *Meitrack Temperature Sensor User Guide* and *Meitrack iButton User Guide*.

Note:

● The white plug on the T1 harness consists of the power cable (red), ground wire (black), AD2 cable (blue), and SEN cable (blue).

● The T1 can connect to a maximum of two A61 sensor boxes. You can install a maximum of eight A52 temperature sensor ports. For details, see the *MEITRACK Temperature Sensor User Guide*.
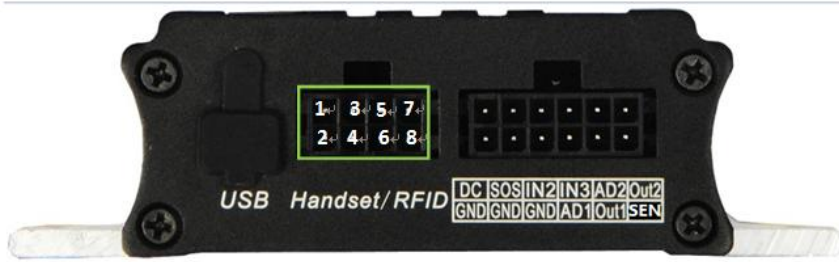
8.3 Installing the Handset (RS232 Port)
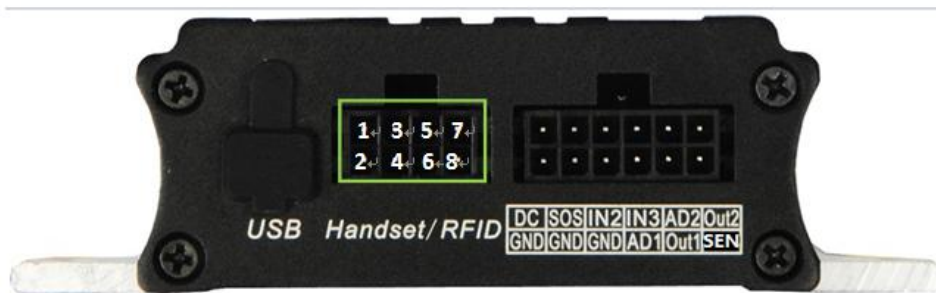
Pin Number	Color	Description
1	Red	Power output Output voltage: 5 V
2	Black	Ground wire
3	Orange	RX, T1 receives data from the handset.
4	Yellow	TX, T1 sends data to the handset.
5	Blue	Positive charge of the microphone
6	Green	Negative charge of the microphone
7	Purple	Positive charge of the loudspeaker
8	White	Negative charge of the loudspeaker

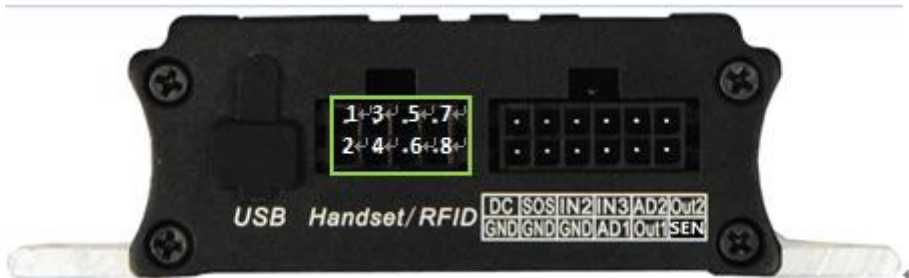Note: The RS232 port can be used with either the RFID reader or the camera at a time.

8.4 Installing the RFID Reader (RS232 Port)

Pin Number	Color	Description
1	Red	Power output Output voltage: 5 V
2	Black	Ground wire
3	Green	RX, T1 receives data from the RFID reader.
4	White	Reserved (TX, T1 sends data to the RFID reader.)
Remarks: The T1 RFID reader is not compatible with the MVT600 RFID reader. In the MVT600, the RS232 port is a Wiegand port.		

Note: The RS232 port can be used with either the handset or the camera at a time.

8.5 Installing the Camera (RS232 Port)

Pin Number	Color	Description
1	Red	Power output Output voltage: 5 V
2	Black	Ground wire
3	Green	RX, T1 receives data from the camera.
4	White	TX, T1 sends data to the camera.

To connect T1 to a camera, an 8 pin to 4 pin conversion cable is required. 8 pins are connected to T1, and 4 pins are connected to the camera.

Connect 8 pins to the device.   Connect 4 pins to the camera.

Note: The RS232 port can be used with either the handset or the RFID reader at a time.

8.6 Mounting the T1

Tighten the four screws shown in the following figure.

If you have any questions, do not hesitate to email us at info@meitrack.com.