skypatrol™

TT8850
User Guide

Revision 1.02

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0. Revision history

Revision	Date	Author	Description of change
1.02	2011-04-19	Ramiro Sanchez	Initial

1. Introduction

TT8850 is a powerful GPS locator which is designed for vehicle, pets and assets tracking. With superior receiving sensitivity, fast TTFF and GSM frequencies 850/900/1800/1900. Its location can be real time or schedule tracked by backend server or specified terminals. Based on the embedded protocol, TT8850 can communicate with the backend server through GPRS/GSM network, and transfer reports of emergency, Geo-fencing, device status and scheduled GPS position etc.. Service provider is easy to setup their tracking platform based on the functional protocol.

2. Product Overview

2.1. Appearance

2.2. Buttons/Mini USB Interface Description

Button /Mini USB Interface Description	
Power Key	ᛁ **Turn on TT8850** ᛁ **Turn off TT8850 when without charging. (If power key is enabled)**

Function Key	ᛁ **Geo-Fence mode**
	  Long press the key to enable/disable Geo-Fence ID0
	ᛁ **Geo-Fence in current position mode**
	  Long press the key to enable/disable Geo-Fence ID0. If enable Geo-Fence ID0, using the current position as the centre of Geo-Fence 0.
	ᛁ **SOS mode (default)**
	  Long press the key to active SOS alarm

Mini USB interface	ᛁ **Connect a 5V DC adapter can power TT8850 and charge the internal battery** ᛁ **Connect a 3.7V Li-ion or Li-Polymer battery can power TT8850** ᛁ **Backend server developer or administrator can use the Data Cable M to configure TT8850**

2.3. LEDs Description

There are three LED in TT8850, the description as following.

Light	Event	State
GSM light	Searching network	Fast flash
	Network has been registered	Slow flash
	Power off	Dark
GPS light	GPS has fixed	Solid
	GPS is in fixing	Fast flash
	GPS is on and GPS data wrong	Slow flash
	GPS is off	Dark
	If "LED On" is not selected, and the GPS LED will not work after turn on 150 seconds.	Dark
Power light	Power on and normal	Dark
	Charger inserted and charging completed	Solid
	Charger inserted and charging	Fast flash
	Power key was pressed and prepare to power off	Fast flash
	Abnormal	Fast flash
	Power low alert	Slow flash
	Power off or turn off the power light by command	Dark

2.4. External GPS antenna specification

There is a MMCX RF connector on TT8850 and it is for external GPS antenna. The specification of the external GPS antenna is listed in following table.

GPS antenna:	Frequency: 1575.42MHz
Bandwidth:	>5MHz
Beamwidth:	>120 deg
Supply voltage:	3.3V
Polarization:	RHCP or Linear
Gain:	Passive: 0dBi minimum Active: 15dB
Impedance:	50O
VSWR:	2
Noise figure:	<3
Connector	MMCX

3. Getting Started

3.1. Parts List

Name	Picture	Remark
TT8850 Locater		**The GSM/GPRS/GPS locator.**
AC-DC Power Adapter (Standard accessory)		**It is used to charge the internal battery of TT8850.**
TT8850 Holder With Magnet (Standard accessory)		**It is used to hold the TT8850, attached to metal with the magnet on it.**
TT8850 Data Cable (Optional accessory)		**It is the USB data cable which can be used for firmware upgrading and configuration.**

3.2. Battery Charging

ꞁ **Please connect AC-DC power adapter with TT8850.**

ꞁ **Insert the AC-DC power adapter into the power socket.**

ꞁ **During charging, the PWR LED is flashing fast. When the battery is full charged, the PWR LED will be Ever-light.**

ꞁ **You can also charge the battery by USB cable which connects TT8850 with the PC.**

ꞁ **Charging time is about 5 hours.**

Note: Before the first time using TT8850, please full charge the battery.

3.3. Install SIM Card

| First, open the cover of SIM card..
| Then insert the SIM card into the slot of SIM card according to the direction shown.
| Finally, cover the slot.

3.4. Install Device Into The Holder

| Please install the TT8850 into the holder follow the following process.

3.5. Turn on/Turn off

| Turn on:
    ⊔   Method 1: Press the Power key at least 3 seconds and release it to turn on TT8850. At the same time, PWR LED will light on.
    ⊔   Method 2: Connect device to charger or external battery, and it will turn on automatically, PWR LED will light on.
| Turn off:
    ⊔   Method 1: Press the power key about 2 seconds; PWR LED will fast flash and then turn off, it indicates that TT8850 is turned off. The time of power off is depended on the quality of network. The maximum time of power off is 90 seconds. It is only valid to turn off when using internal battery. Please note the end-user can not power off TT8850 when the power key is disabled by protocol.
    ⊔   Method 2: If using external battery, device will power turn-off when external battery disconnect.

4. Troubleshooting and Safety info

4.1. Troubleshooting

Trouble	Possible Reason	Solution
After TT8850 is turned on, the GSM LED flashes quickly always.	The SIM card is not inserted.	Please insert the SIM card into TT8850.
	The signal is too weak; TT8850 can't register to the network.	Please move TT8850 into place with good GSM coverage.
	PIN locked	Using SIM card without SIM-PIN, or unlock SIM-PIN.
Messages can't be reported to the backend server by GPRS.	The SIM card in TT8850 doesn't support GPRS.	Try a GPRS supported SIM card.
	APN is wrong. Some APN can not visit the internet directly.	Ask the network operator for the right APN.
	The IP address or port of the backend server is wrong.	Make sure the IP address for the backend server is an identified address in the internet.
Unable to power off TT8850.	The function of power key was disabled by AT+GTSFR.	Enable the function of power key by AT+GTFKS.
	Unable to power off TT8850 if charger connected or using external battery.	Disconnect charger or external battery, and try again.
No response from UART when configure TT8850 through UART	TT8850 is in power saving mode.	Remove the Data_Cable_M, and plug it in again. After this operation, TT8850 will exit from power saving mode for 10 seconds.
		Re-try TT8850 manager tool again, it will try to wake up device.
TT8850 can't get successful GPS fixing.	The GPS signal is weak.	Please move TT8850 to a place with open sky.
		It is better to let the top surface face to sky. (The same surface with indication LED)

4.2. Safety info

- **Please do not disassemble the device by yourself.**
- **Please do not put the device on the overheating or too humid place, avoid exposure to direct sunlight. Too high temperature will damage the device or even cause the battery explosion.**
- **Please do not use TT8850 on the airplane or near medical equipment.**