

ST4950 Quick Start Guide

Connect, Configure and Assemble



Figure 1: Suntech ST4950

1. Scope:

Focused initial steps to quickly connect the ST4950 to a PC, configure Network Parameter settings using SyncTrak, and assemble for use. For detailed specifications and programming information please see the Related Suntech Documentation links below or contact Suntech Support at support@suntechus.com.

2. Related Suntech Documentation:

- a. [Suntech ST4950 Documentation](#)
- b. [ST4000 Series SIM Card Information](#)
- c. [ST4000 Series-LED Activity and Diagnostic Guide](#)
- d. [SyncTrak User Manual](#)
- e. [Universal Protocol-Asset Tracking](#)

3. Required Resources:

- a. **HW:** Suntech ST4950, 6 assembly screws, Magkey, USB to Micro-USB cable, Power Cable, Mag-Cradle
- b. **HW:** SIM card: Activated, Access Point Name (APN) for carrier/network
- c. **HW:** PH#1 or PH#2 Screwdriver (Torque Driver recommended)
- d. **HW:** PC Computer: Windows 10 recommended
- e. **SW:** Suntech USB Driver: v1.1032.3 or newer, available at support@suntechus.com
- f. **SW:** Suntech SyncTrak: v5.0.6.5 or newer, available at support@suntechus.com

4. Connect the ST4950 to a PC

- a. Remove solar panel lid to access SIM card holder, Micro-USB, battery and solar connectors, see Figure 2.



Figure 2: Remove solar panel lid

- b. Insert the SIM card before connecting battery, solar panel or Micro-USB cable, see Figure 3. Note the SIM card holder slides in the direction indicated before swiveling upwards, and, must be slid back into place in order to lock the lid closed. Failure to slide the lid closed can result in a loose SIM card and a false “No Sim” reading from the device, see Figure 4.

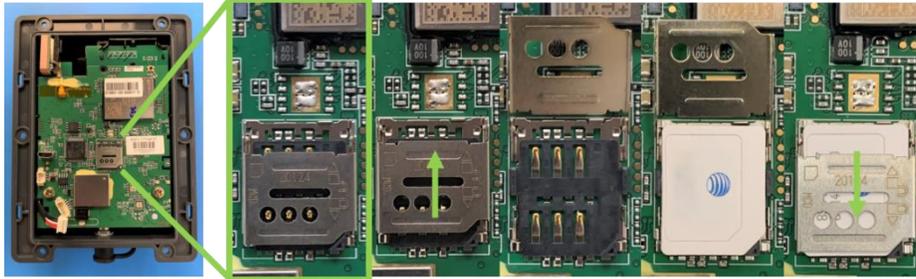


Figure 3: Install SIM card

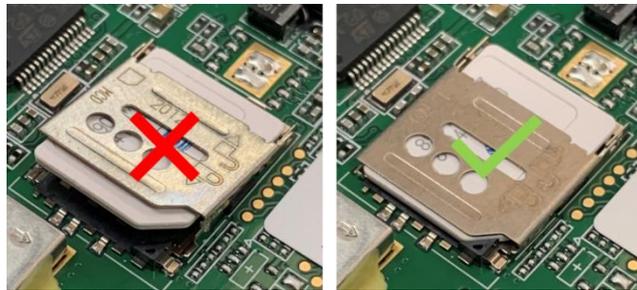


Figure 4: Ensure the SIM card holder lid is locked in place

- c. Next, connect the ST4950 cables in the following order, see Figure 5:
 - i. Short 5 wire battery connector with 2-red, 1-white, 2-black wires
 - ii. 3 wire solar panel connector with 1-red, 2-black wires
 - iii. USB to Micro-USB cable with USB end to PC, Micro-USB end into port next to solar panel.



Figure 5: Connecting cables, right image POV is oriented 90 degrees clockwise

- d. Once the battery, solar panel and Micro-USB cables are connected the device’s red and blue LED lights will begin to blink, see Figure 6, indicating the device is powered up and ready for configuration.



Figure 6: Red and blue LED lights begin to blink once connected

5. ST4950 SyncTrak Quick Start Operations

- a. Open SyncTrak. The Welcome view is displayed while the program attempts to auto-connect with the ST4950. Once connected SyncTrak switches to the Network Parameters settings tab, see Figure 7.

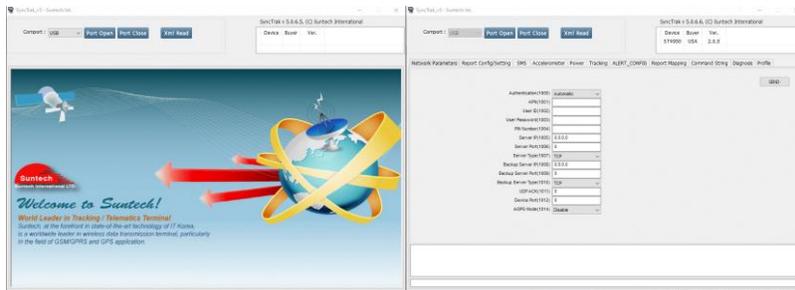


Figure 7: SyncTrak's Welcome and Network Parameters views

- b. If SyncTrak does not auto-connect to the ST4950 check the following:
 - i. USB to Micro-USB cable connection between the ST4950 and PC.
 - ii. Battery is connected to the PCB.
 - iii. Solar Panel is connected to the PCB.
 - iv. Check the COM port assigned to the ST4950. Open Windows Device Manager and expand Ports (COM & LPT). The ST4950 will connect as "USB Serial Device (COMxx)", see Figure 8 for an example. *Note: Your PC may assign a different COM port value.*

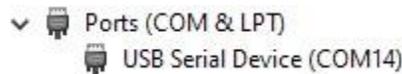


Figure 8: Window's Device Manager: Ports (COM & LPT)

- v. In SyncTrak, click the Comport USB drop down list, highlight the COM port noted in Device Manager and click the Port Open button, see Figure 9, *COM14 used as an example.*



Figure 9: Selecting the COM port. click Port Open

- c. Click the "Send" button to write settings to the device. SyncTrak will display the device's returned "OK" string in the command history indicating success, see Figure 10. The SEND button *must* be clicked before navigating to a different tab or closing SyncTrak. If the SEND button is NOT clicked all modified settings return to prior values.

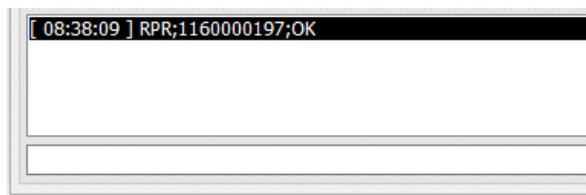


Figure 10: SyncTrak displaying connected device's OK confirmation

- d. In most cases SyncTrak will display an error message when out of range values or conflicts between settings are sent to the device, see Figure 11. If this happens review and evaluate the last change made in SyncTrak.

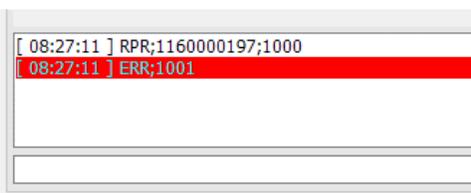


Figure 11: SyncTrak error message example

6. Configuring Network Parameters with SyncTrak

The following instructions and settings are the minimum necessary to establish communication between the Suntech device and network/server, all other device settings will be at default values. NOTE: Incorrect Network Parameters may prevent the device from connecting with network or server and is not indicative of a failed device. To fully configure the device please see the Related Suntech Documentation at the beginning of this document or contact Suntech Support at support@suntechus.com.

Authentication(1000)	Automatic
APN(1001)	
User ID(1002)	
User Password(1003)	
PIN Number(1004)	
Server IP(1005)	0.0.0.0
Server Port(1006)	0
Server Type(1007)	TCP
Backup Server IP(1008)	0.0.0.0
Backup Server Port(1009)	0
Backup Server Type(1010)	TCP
UDPACK(1011)	0
Device Port(1012)	0
AGPS Mode(1014)	Disable

Figure 12: SyncTrak Network Parameters, default values shown

- a. Navigate to the Network Parameters tab, refer to Figure 12 above as needed.
- b. **Authentication(1000):** Refer to the carrier for required SIM card authentication:

- i. If using a major carrier's SIM card and are unsure of the APN, select Automatic to start.
 - ii. If you know the SIM card's APN, select None and enter the APN in the next field.
- c. **APN(1001):** Enter SIM card's APN.
- d. **User ID(1002), User Password(1003), PIN Number(1004):**
 - i. If no User ID, Password or PIN is required: select None in Authentication(1000).
 - ii. Contact Suntech Support if you require the use of the User ID, Password and PIN fields.
- e. **Server IP(1005):** Enter Server IP address (or URL).
- f. **Server Port(1006):** Enter Server Port.
- g. **Server Type(1007):** Select Server traffic type: TCP or UDP.
- h. **NOTE: Click the SEND button before next step!**
- i. Navigate to the Diagnosis tab in SyncTrak to monitor GPS and GPRS Status, most common indications:
 - i. **GPS Status:**
 - 1. **Fixed:** GPS location fix established.
 - 2. **Not Fixed:** GPS has not established a location fix yet. If inside additional time may be necessary to establish GPS location fix.
 - ii. **GPRS Status:**
 - 1. **OK:** Device is connected to the carrier network and customer's server.
 - 2. **Limited Service or Server Communication Error:** The Server IP or Port is not correct. There may be network traffic on the SIM card, but the server may not be receiving all packets from the device.
 - 3. **No Network:** Device cannot reach the carrier network. Check Authentication(1000) and APN(1001) settings or the SIM card is not activated.
 - iii. A correctly configured device will indicate GPS: Fixed and GPRS: OK, see Figure 13.



Figure 13: SyncTrak Diagnosis Tab

- j. Navigate to the Command tab.
 - k. In the drop-down menu select "StatusReq" to send a status report to the defined Server IP (or URL).
- 7. ST4950 Assembly, Charging and Mounting**
- a. Disconnect the USB to Micro-USB cable from the PCB.
 - b. Set the solar panel lid onto the base and turn over to access the 6 assembly points, see Figure 14.
CAUTION: Ensure the solar panel cable is routed inside the case to prevent pinching the wires on the case edge.



Figure 14: Location of the 6 assembly points

- c. Using a PH#1-PH#2 Screwdriver or torque driver (2.6 +/- 0.2 in-lbs recommended), attach the base to the solar panel lid.
- d. The ST4950 can be powered On and Off after assembly with the provided MagKey, see Figure 15 for placement. Review Table 1 for LED indications, please see Related Suntech Documentation for details.



Figure 15: MagKey, Blue/Red LED locations.

Table 1: LED flash pattern when using MagKey

Action	MagKey in Position	LED Flash Pattern
Turn Device ON	3 s or longer	3 Red, then when GPRS: OK, 1 Blue
Turn Device OFF	3 s or longer	2 Blue, then 15 Red
Check Status	~ 1 s	2 Red=OFF 2 Blue=ON

- e. The ST4950 ships with a minimal battery charge. To ensure uninterrupted operation when first deployed the ST4950 should be charged overnight with the provided ST4950 power cables, see Figure 16.



Figure 16: Connecting the power cable

- f. The ST4950 can be quickly mounted using the Magnetic Cradle, see Figure 17. The cradle snaps onto the bottom of the ST4950 as shown.



Figure 17: Snap the Magnetic Cradle onto the bottom of the ST4950