ST210

User Guide

Suntech International Ltd.

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1. Introduction

This document describes Configuration, Parameter Setting and Installation Procedure of ST210 (including back-up battery).

2. Parameter Setting via SMS

For reporting GPS position, the device should be set with adjustable parameters before installation.
When SMS for setting is sent, the device replies response to predefined server though GPRS and sets corresponding parameters.
Configuration of SMS message is as below.
Each field is distinguished by ';' in SMS message, and device ID means last 6 digits of IEMI number without checksum.

2.1 Network Parameter Message

Field	Definitions	Unit	Remark
HDR	"SA200NTW"		Command type
DEV_ID	6 char.		Device ID
VER	"02"		Protocol Version

AUTH	'0' /'1'/'A'		GPRS authentication
			0 : Disable
			1 : Enable
			A : Automatic GPRS set.
			   In this case, parameters in APN, USER_ID and
			   USER_PWD field should be empty.

APN	String		Access Point Name
USER_ID	String		ID for GPRS Access
USER_PWD	String		Password for GPRS Access
SEVER_IP	String		Server IP Address
SEVER_PORT	String		Server Port
B_SEVER_IP	String		Backup Server IP Address
B_SEVER_PORT	String		Backup Server Port
SMS_NO	String		Phone number what the device sends SMS report to. This can be used for backup in the area that f GPRS condition is not good. Or, it can be used main report method when IP and Port are empty. For no use, it should be empty.
PIN_NO	String		PIN Number to release PIN lock if it is enabled

<example 1>
[command] SA200NTW;850000;02;0;internet;;;111.111.111.111;8600;;;;
[response] SA200NTW;Res;850000;010;0;internet;;; 111.111.111.111;8600;;;;
<example 2>
      SA200NTW;850000;02;A;;;;111.111.111.111;8600;;;;
       SA200NTW;Res;850000;010;A1;tim.br;tim;tim; 111.111.111.111;8600;;;;
<notes>
** If network does not require User ID and Password, these fields should be empty.

2.2 Report Parameter Setting

Field	Definitions	Unit	Remark
HDR	"SA200RPT"		Command type
DEV_ID	6 char.		Device ID
VER	"02"		Protocol Version
T1	String	Sec	Interval for sending status report in parking mode Range : 0 ~ 86400 If 0, report in parking will be sent only one time when vehicle starts parking.
T2	String	Sec	Interval for sending status report in driving mode Range : 0 ~ 60000 If 0, report in driving will be sent only one time when vehicle starts driving.
T3	String	Sec	Interval for sending status report in emergency mode Range : 0 ~ 9999 If 0, emergency report will be sent only one time when emergency state occurs.
A1	String		Number of attempts for emergency report until the device gets acknowledge from server If 0, no emergency report will be sent.
SND_DIST	String	Meter	Distance interval for sending status report. Range : 0 ~ 60000 (60km) If 0, status report related on moving distance is disabled. If not 0, stats report is send when traveled distance reaches predefined SND_DIST.
T4	String	Sec	Interval for sending keep alive string
SMS_T1	String	Min	Interval for sending status report in parking mode
SMS_T2	String	Min	Interval for sending status report in driving mode
SMS_PACK_NO	String		Report No in one SMS message
<example> [command] SA200RPT;850000;02;180;120;60;3;0;0;0;0;0 [response] SA200RPT;Res;850000;010;180;120;60;3;0;0;0;0;0			

2.3 Activate Output1

Field	Definitions	Unit	Remark
CMD_ID	"Enable1"		Enable Output1
<example> [command] SA200CMD;850000;02;Enable1 [response] SA200CMD;Res;850000;010;Enable1 **<notes>** ** Output1 line goes to active status.			

2.4 Deactivate Output1

Field	Definitions	Unit	Remark
CMD_ID	"Disable1"		Disable Output1
<example> [command] SA200CMD;850000;02;Disable1 [response] SA200CMD;Res;850000;010;Disable1 **<notes>** ** Output1 line goes to inactive status.			

2.5 Activate Output2

Field	Definitions	Unit	Remark
CMD_ID	"Enable2"		Enable Output2
<example> [command] SA200CMD;850000;02;Enable2 [response] SA200CMD;Res;850000;010;Enable2 **<notes>** ** Output2 line goes to active status. ** If OUT2 set to immobilizer, output2 line goes to active status gradually with pulse in driving mode. ** If OUT2 set to pulse type, output2 line generates pulse and returns inactive state after pulsing out automatically.			

2.6 Deactivate Output2

Field	Definitions	Unit	Remark
CMD_ID	"ReqIMSI"		Request IMSI (unique SIM ID) If received, device sends IMSI of using SIM.
<example> [command] SA200CMD;850000;02;ReqIMSI [response] SA200CMD;Res;850000;010;ReqIMSI;724031111553779			

3. Installation

3.1 Bottom case.

3.2 Remove battery cover.

3.3 Insert SIM card.

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3.4 Install back-up battery.

3.5 Lock battery cover.

3.6 Connect 10-pin event cables.

Red: VCC (8 - 30V)
Black: Ground
Blue: Ignition (8V - 32V)
  Connect to Ignition signal line of vehicle.
White: Input1. Panic Button
  When Input1 goes GND, then ST210 change Emergency mode.
  It reports emergency string by mode 1 in Emergency mode such that
  SA200EMG;850000;20081017;07:41:56;00100;+37.478519;+126.886819;000.012;000.00;9;1;0;15.30;
  110000;1
Yellow: Input2.
  When Input2 goes GND, then ST210 reports event string such that
  SA200EVT;850000;20081017;07:41:56;00100;+37.478519;+126.886819;000.012;000.00;9;1;0;15.30;
  001100;3
Green: Input3. Similar as Input2
Orange: Output1.
Brown: Output2.

Grey/Violet: These are optional. They can be allocated for UART, I2C, CAN, INPUT/OUTPUT.
Remember that if once these wires are allocated for one feature, they cannot be used for other application.

If you don't want to use Ignition and other events, you can supply power using cigar power cable.
Connect 10pin to ST210 and opposite side to cigar socket in vehicle.

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In this case, you have to set IGNITION in Service Parameter to '0'.
Refer to OperationDescription document for more detailed information about parameters.

3.7 Connect GPS antenna.

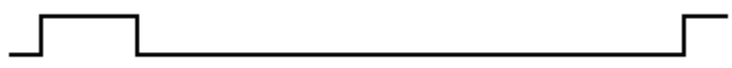ST210E needs to connect GPS antenna.
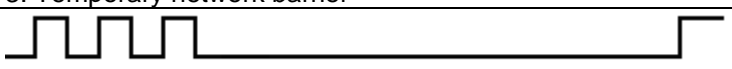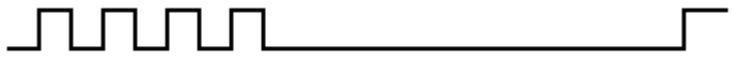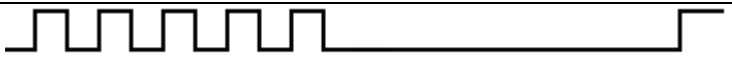

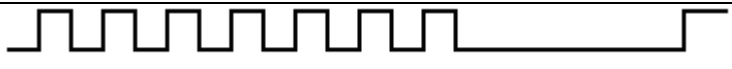## 3.8 Check GPS/GPRS operation with LEDs.
It takes 3~10 minutes for GPS connected.

Caution: Direction of ST210I is very important when installed in the vehicle. Make sure that top side of ST210I (printed "This Side Up") must face sky.
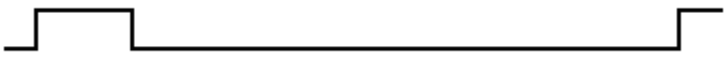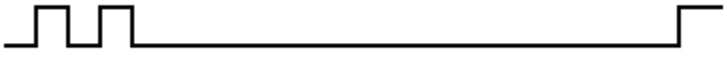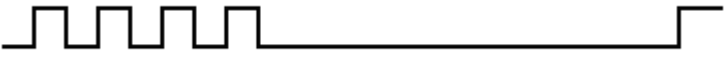
4. Trouble Shooting (LED Indicator)

4.1 Red LED: Indicates GPRS status.

GPRS	Blink Count	Remarks
Normal	1	
Server Com. Error	2	<Possible Cause> 1. Server or network parameter is wrong. 2. Server is closed. 3. Temporary network barrier
GPRS Com. Error	3	<Possible Cause> 1. Network parameter is wrong. 2. SIM is blocked about GPRS using. 3. Temporary network barrier 4. Weak GPRS signal 5. GPRS antenna connection is not firm.
No Network	4	<Possible Cause> 1. GPRS antenna is disconnected. 2. GPRS antenna or socket of GPRS antenna is broken. 3. Device is broken.
SIM PIN Locked	5	<Possible Cause> 1. SIM PIN is enabled.
Cannot Attach NW	6	<Possible Cause> 1. Weak GPRS signal. 2. GPRS antenna connection is not firm.
No SIM	7	<Possible Cause> 1. There is no SIM or SIM is not inserted properly. 2. SIM or SIM socket is broken.

4.2 Green LED: Indicates GPS status.

GPS	Blink Count	Remarks
Normal	1	
No Fix	2	 <Possible Cause> 1. If power on, GPS chipset is trying to find position during some minutes. 2. GPS antenna lays on weak or no GPS signal position 3. GPS antenna connection is not firm.
GPS Chipset Error GPS Antenna Error	4	 <Possible Cause> 1. GPS antenna is disconnected. 2. GPS antenna or socket of GPS antenna is broken. 3. Unit is broken.

The device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.
Cautions
Modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
FCC Radiation Exposure Statement:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.
This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.