

AP-GTR250

GPS based Embedded NTP Server

High Performance GPS NTP Server Solution

GPS NTP Server
Operation Status Check



AddPac

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Sales and Marketing

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Product Overview

- Compact Size Embedded NTP Server Solution for SMB
- IP based GPS Time Receiver (Location Free, etc)
- Embedded NTP Server Solution
- Simple NTP Protocol Support
- External Antenna Interface Support
- Various Antenna Support for GPS Signal (Option, Default : 10m GPS Antenna)
- Hour/Minute/Sec GPS Time Display LED
- LED Support for GPS SYNC Indication
- RS232C Console Support for Command Line Interface
- One(1) 10/100Mbps Fast Ethernet Interface Support
- Smart Web Manager for System Configuration & Management
- Window, Linux Simple Socket API Program Support
- Firmware Upgradeable Architecture

Hardware Specification

RISC
CPU

High-end
GPS

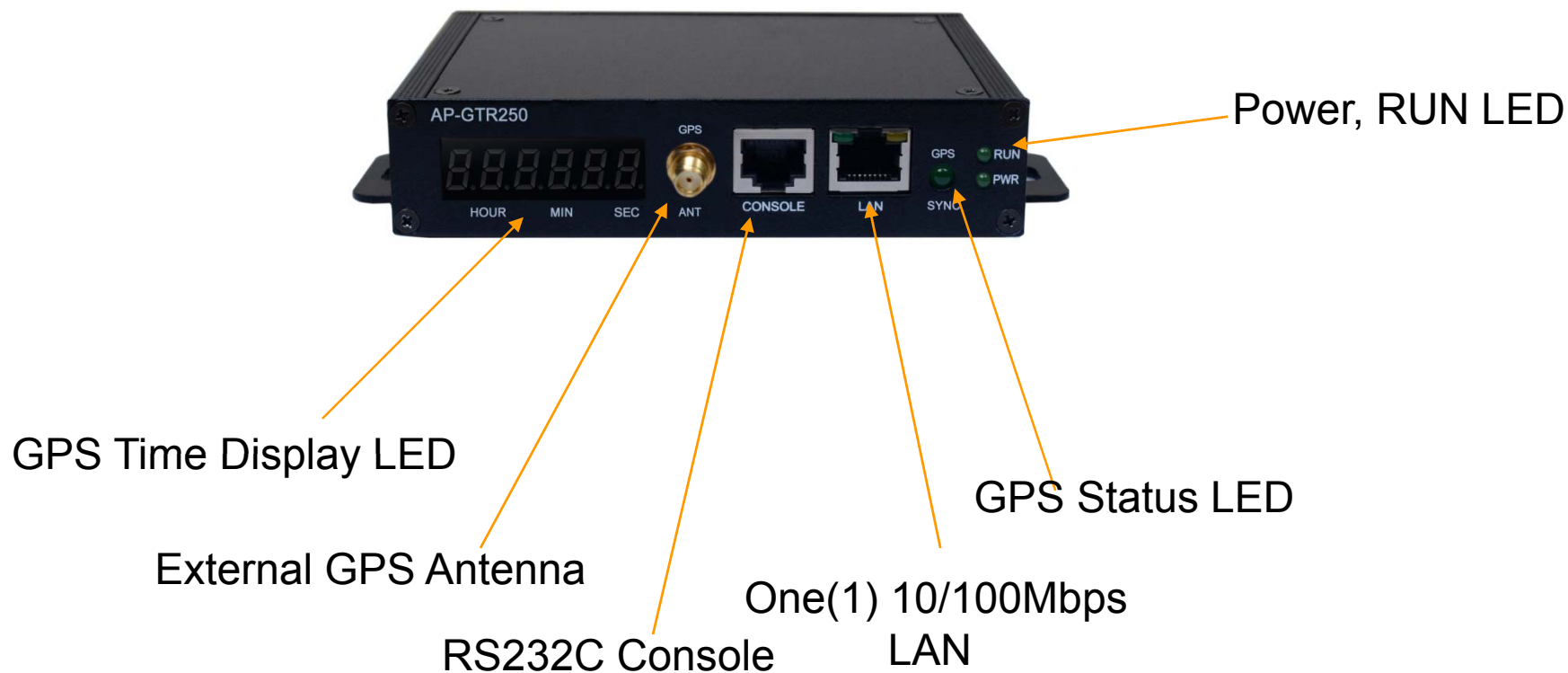
- RISC Microprocessor Computing Power
- High-end GPS Hardware Architecture
- External GPS Antenna Interface Support
- GPS Time Display LED (Hour/Minute/Sec)
- GPS Status LED Support at Front Side
- One(1) 10/100Mbps Fast Ethernet Interface
- External Power Supply with Power On/Off Switch
- GPS Antenna (Option) : Default 10M
- Dimension : 28mm x 125mm x 90mm (H x W x D)
- Weight : 0.5Kg

Hardware Specification

RISC
CPU

High-end
GPS

Front Side



Hardware Specification

AP-GTR250 Embedded GPS NTP Server

RISC
CPU

High-end
GPS

GPS Antenna



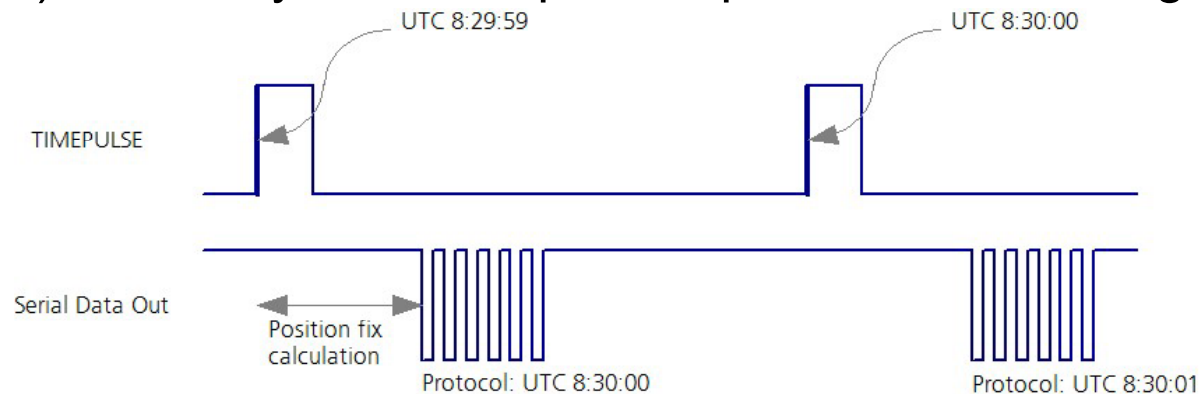
GPS Signal Processing

1. GPS Modem

- 1) Device : GPS H/W CHIP
- 2) Data Communication Interface: RS232C
- 3) Speed : 9600 bps

2. GPS Time Information Reception Method

- 1) Protocol : NMEA (The National Marine Electronics Association)
- 2) Time Information Reception Period : 1 Sec
- 3) Time Sync. Interrupt Reception after receiving Time Information



GPS Signal Reception Status Check (1)

1) Booting Message (GPS Time Sync. Signal Acquisition)

- AP-GTR250_G2 System software Revision 8.51.017
- Released at Fri Sep 29 11:21:10 2017
- Program is 1823072 bytes, checksum is 0xea210bb

- UTC Time is Fri Sep 29 05:56:58 2017
- Copyright (c) by AddPac Technology Co., Ltd. Since 1999.

- MOBILE-0: PORT(1) GPS(MAX-M8) SIM(1)**
- Allocating system mbuffer counter: 1024
- Kernel callwheelmask 0x3ff callwheelsize 1024
- Local flash disk integrity checking.
- Loading file system(ver2.2), flash-base: 0xb03d0000 ram-base: 0x94cd2698
- Loading secondary file system(ver2.2) flash-base: 0xb03c0000 ram-base: 0x956ba6a8
- [GPS] first sync time is 1506664607 = 2017-09-29T05:56:46.00Z**
- Ethernet port initialization complete
- [GPS] update RTC clock (1506664618 -> 1506664607)
- [0.000000] [GPS] soft sync update time 1506664608.000000 = 2017-09-29T05:56:47.00Z
- [GPS] update period is 1506664608.000000

GPS Signal Reception Status Check (2)

2) Command Line Information (CLI)

- Connect the console or telnet to the machine and run the following command

- GTR# `show mobile gps-time`

- `[GPS] HARD SYNC`

→ GPS signal reception status

- `[GPS] time is 1506664792 = 2017-09-29T05:59:51.00Z`

→ Current time received by GPS

- `[GPS] last update time is 1506664791`

→ Time of applying GPS time to equipment

- `[GPS] update period is 1.000000`

→ Cycle of applying GPS time to equipment

- `[GPS] hard sync count = 182`

→ A counter indicating reception of the Hard Sync signal

- `[GPS] soft sync count = 186`

→ A counter indicating reception of the Soft Sync signal

- GPS Signal Reception Status

- HARD SYNC : GPS time information and synchronization signal receiving mode
- SOFT SYNC : GPS time information receiving mode only
- NO SYNC : GPS No Signal Reception

GPS Signal Reception Status Check (3)

3) Blue LED Status Check

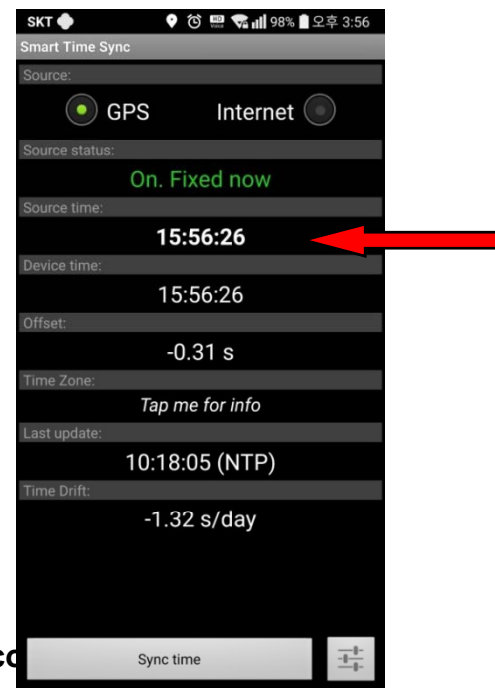
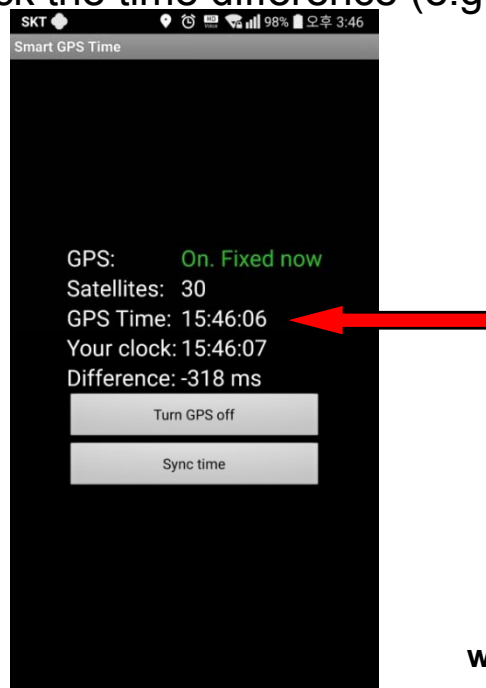
- HARD SYNC : Blue LED ON
- SOFT SYNC : Blue LED Blink
- NO SYNC : Blue LED Blink

LED Time Information Display Accuracy Check

- LED Time Information Display

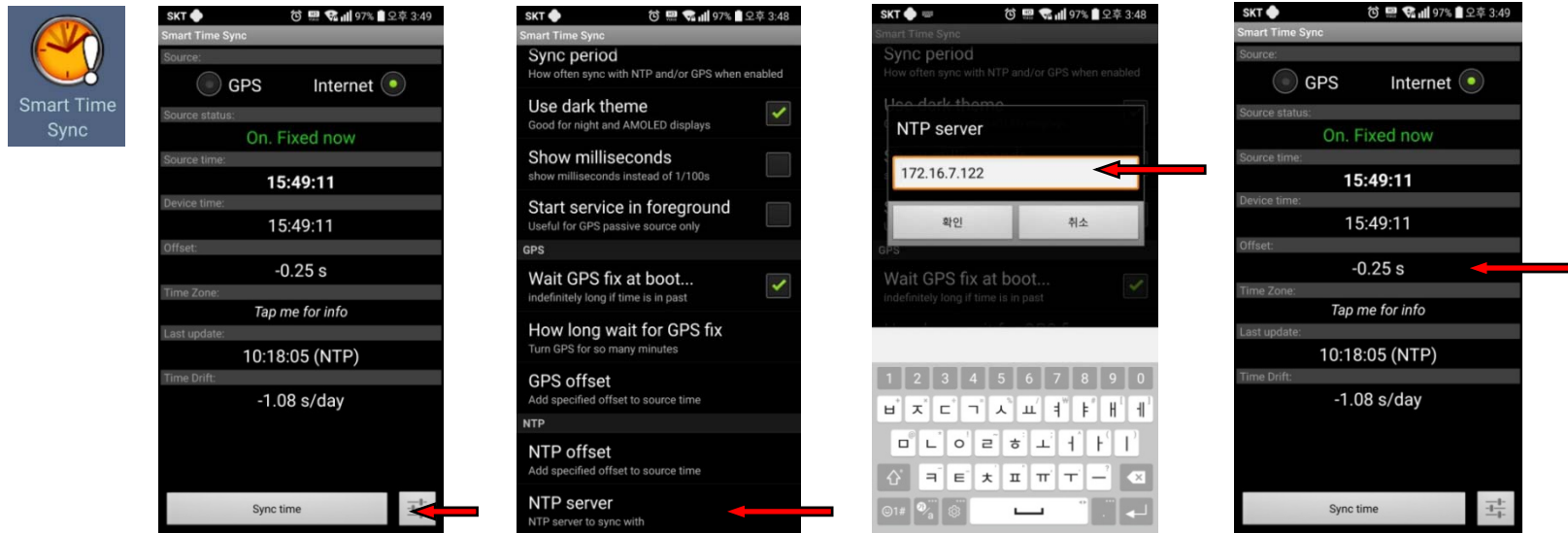


- Smart Phone's GPS App. Vs AP-GTR250's LED Time Display Comparison
 - After two(2) GPS Appl. Installation is done, compare AP-GTR250's LED displayed time information and GPS Appl. time information.
 - Check the time difference (e.g, 0.5 sec)

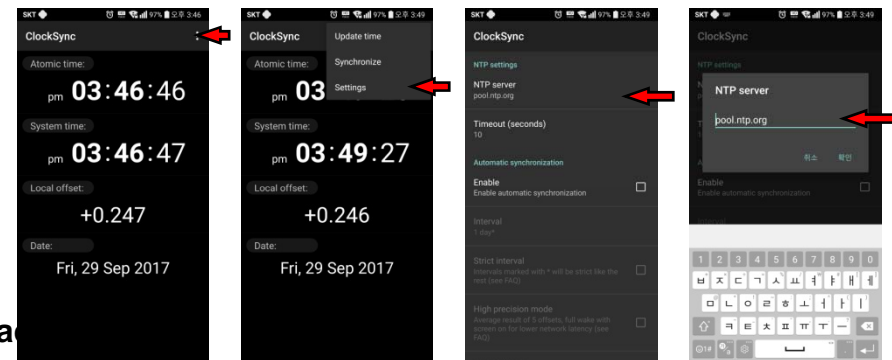


GPS based NTP Server Operation Check

- Using Smart Phone's GPS Appl., check the AP-GTR250's GPS NTP Operation Status
 - After GPS Appl.'s NTP server ip address is configured as pool.ntp.org and AP-GTR250 ip address each, compare time difference.
 - Check time difference or time offset



- Following GPS Appl. is also possible





Thank you!

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