Mini GPS v1.7.1

User Manual

| History		
Date	**Rev.**	**Description**
2009/04/28	A00	First Release
2011/09/20	A01	Second Release

1. Overview

Mini GPS is a tool which helps people to view the status of GPS receiver more con- veniently. Mini GPS is also an interface between people and GPS receivers and could change the setting of GPS receivers. For example, know the version of firmware, enable SBAS correction, change NMEA sentence, baud rate, fix update rate and so on.

2. Interface

Mini GPS has 5 function pages. Each page has its own feature. Now introduce Mini GPS depends on each page in the following. The default function page is *Status* and *About*. The user can press *CTRL+ALT+S* for the function pages on/off.

2.1. Status Page

Status Page shows the status of the GPS receiver. After set up com port and baud rate, NMEA message would translate into the GPS status of Mini GPS. Users could know the time, position of receiver, signal level of receiver and so on. Status Page also offers TTFF commands to use. User could verify the performance of receiver via these commands.
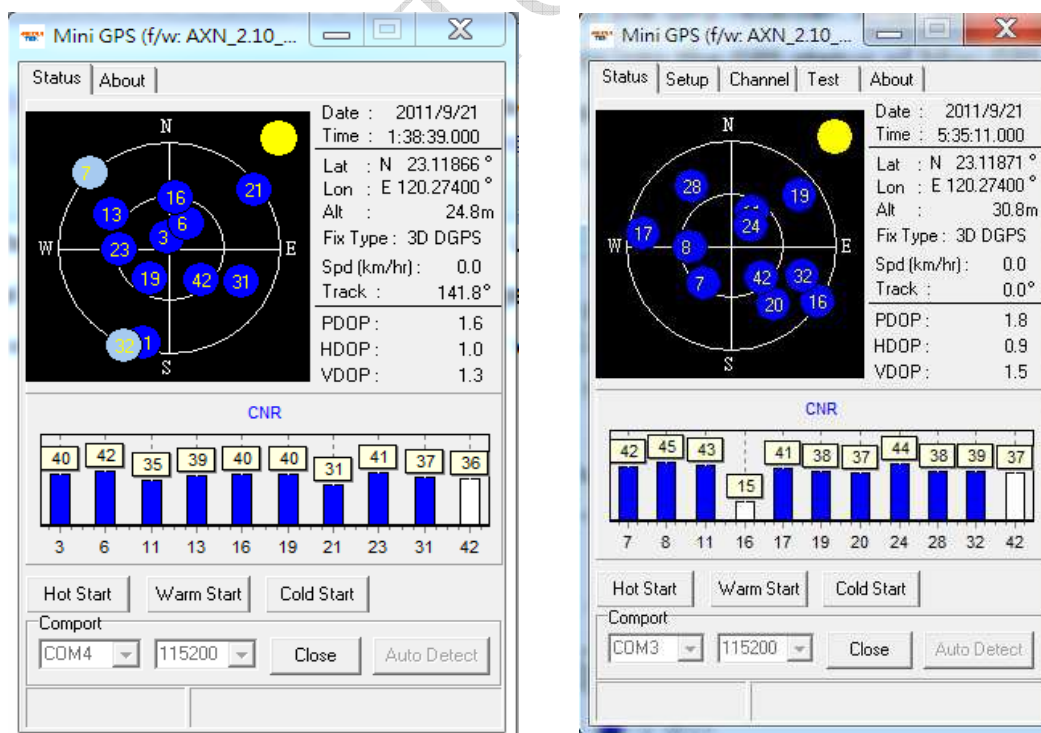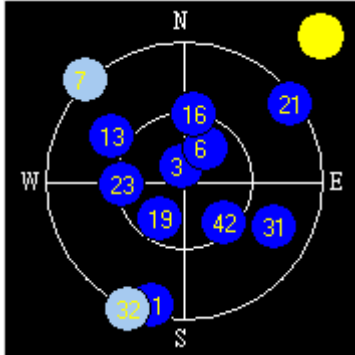
2.1.1. Sky Chart

Sky Chart shows the constellation of SV. stands for the SV with PRN 8. If the position of SV is near the center of sky chart, the elevation angle of SV is closed to 90°. On the other hand, SV is near the horizon. Besides, character 'N' means north direction whose azimuth angle is 0°. The azimuth angle increases clockwise, the range is from 0° to 359°. A satellite is spread depends on its azimuth also.

2.1.2. GPS Status

The status of receiver which includes time, position, speed , and so on. Time is UTC time and the unit of latitude and longitude is degree only. Altitude is the height based on WGS84 Datum. PDOP, HDOP and VDOP are the DOP (Dilution Of Precision) based on position, horizontal position, and vertical position separately. DOP is often used to measure user position accuracy. The value of DOP is larger, the accuracy of position is worse.
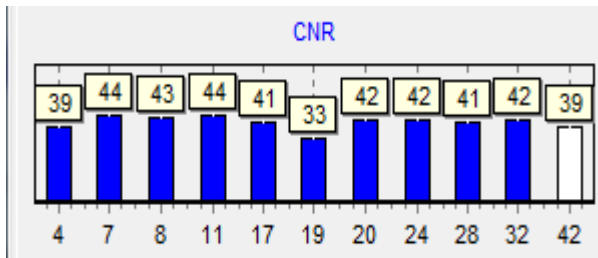
2.1.3. Signal Level
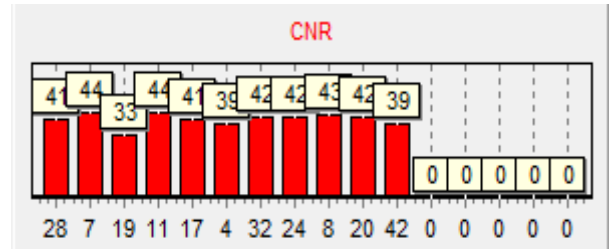
NMEA mode   Channel mode

There are 2 modes here, NMEA mode and Channel mode. Blue bar means it is NMEA mode, Red bar means it is Channel mode. Users could double click CNR chart to change mode. In NMEA mode, CNR means the signal level of SV. The number under CNR chart is the PRN of SV. In channel mode, CNR chart will show the status of internal channels. Since the view of CNR chart is too small, users couldn't view total SV once. Click mouse could view the other channel status.

2.1.4. TTFF Command
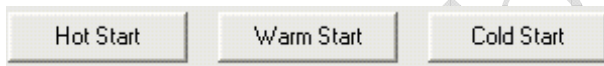
Force GPS receiver to do **Hot Start**, **Warm Start**, and **Cold Start** via these command buttons.

2.1.5. Message Bar
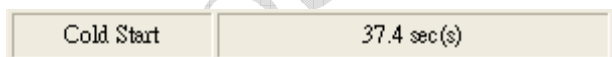
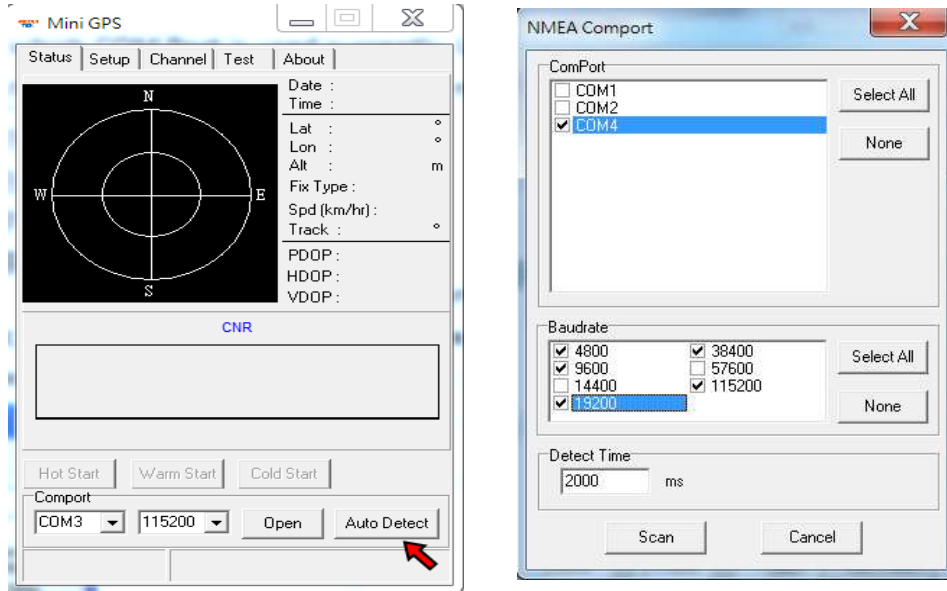The count seconds for **Hot Start**, **Warm Start**, or **Cold Start**

2.1.6. Auto Detect

This function supports to find which COM Port and baud rate is used currently. User chooses the COM Port and baud rate then press the *scan*. The *Detect Time* is 2000 ms recommended.

2.2. Setup Page

Mini GPS also could change the setting of GPS receivers. For example, the type or output frequency of NMEA sentences, Fix Update Rate, NMEA baud rate, and WAAS settings. Mini GPS could log NMEA sentences further.
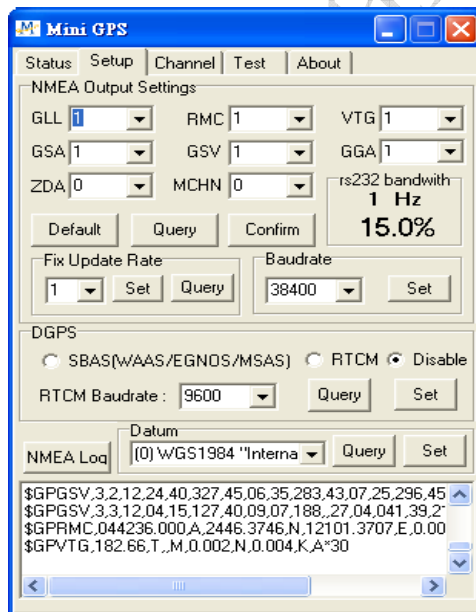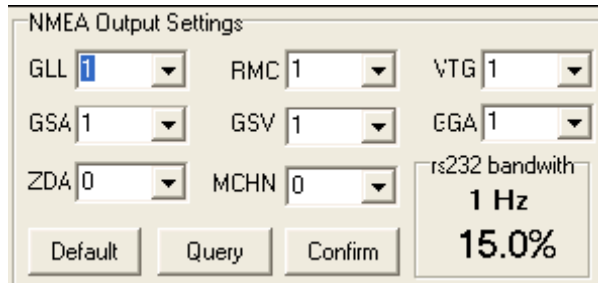
2.2.1. NMEA Message Type

There are 8 NMEA sentences could be set. Besides MCHN sentences, all of them are standard sentences of NMEA 0183. MCHN is a MTK NMEA sentence which shows the internal status of GPS channels. If users want to know the status of channels, they have to enable MCHN (Section 2.1.3, Section2.3). The number beside NMEA type is the output frequency. The value is larger, the frequency is slower. For example, under the setting of 1 Hz fix update rate, 1 means output this sentence per second, 5 means output 1 time every 5 seconds. Mini GPS will check the RS232 bandwidth also. If the throughput of NMEA is over the bandwidth, it is prohibited to update NMEA settings.

2.2.2. Fix Update Rate
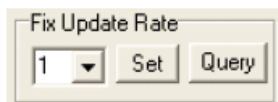
In general, GPS receiver output NMEA sentences once per second. If users want to use GPS in special case, ex: racing car. Mini GPS could increase the fix update rate, the maximum value is 10. It means output NMEA sentences every 100 millisecond. Mini GPS will check the RS232 bandwidth also. If the throughput of NMEA is over the bandwidth, it is prohibited to update the setting of fix update rate.

2.2.3. Baud rate
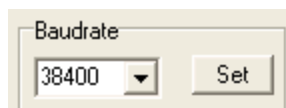
If the throughput of NMEA sentences is over the RS232 bandwidth, users could increase the baud rate speed. User may want to meet the baud rate setting of GPS tool, it is possible to

decrease the speed of baud rate. Mini GPS will check the RS232 bandwidth also. If the throughput of NMEA is over the bandwidth, it is prohibited to change the baud rate.

## 2.2.4. DGPS Enable / Disable

GPS receiver could collect the correction data from SBAS satellites or some aiding sources. Users could enable DGPS function and then GPS receiver will fix more accurately. Take SBAS for example, after enabling SBAS function, users could see a SV whose PRN number is larger than 32 if receiver acquire the signal from SBAS satellite. By the way, GPS receiver will acquire the SBAS satellite after fixing.

2.2.5. NMEA Log

Mini GPS could record NMEA sentences also.

2.2.6 Datum
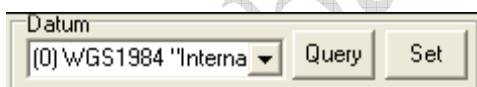
The GPS chip of MTK supports more than 200 Datum. Users could choice their-own coordinate system. User also can contact us for more details of Datum.

2.3. Channel Page

The page provides channel information. User needs to set **MCHN** of NMEA sentence setting in **Setup** Page first.
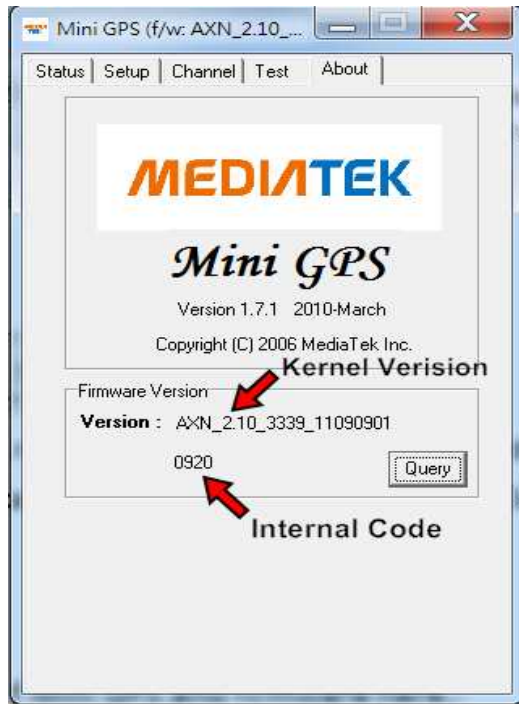

2.4. Test Page

In general situation, user does not need to set any setting of this page. Please contact us for more details if you have any question.

2.5. About Page

User could know the version of Mini GPS and firmware here.

2.3.1. Firmware Version

After pressing the **Query** button, Mini GPS will show the version of firmware.
AXN_2.10_3339_11090911 is the **Kernel Version** of MTK chip. The **Internal Code** is made by GlobalTop for firmware control.