Holux

GPS Receiver

M-215

User's Guide

OCT 2007
Rev.A

HOLUX Technology, Inc.

1F, No. 30, R&D Rd. II, HsinChu City 300, Science-based Industrial Park, Taiwan

TEL: 886-3-6687000 FAX: 886-3-6687111

Website: www.holux.com

CE

Declaration of Conformity

The following products is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the laws of the Member States relating to Electromagnetic Compatibility Directive (89/336/EEC). The listed standard as below were applied:
The following Equipment:

Product	:	GPS Receiver
Trade Name	:	***HOLUX***
Model Number	:	M-215XX (XX=A～Z)

This product is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the laws of the Member States relating to Electromagnetic Compatibility Directive (89/336/EEC). For the evaluation regarding EMC, the following standards were applied:

RFI Emission:

EN 55022	:	Emission standard
EN 61000-3-2	:	Limits for harmonic current emission
EN 61000-3-3	:	Limitation of voltage fluctuation and flicker in low-voltage supply system

Immunity:

EN 55024	:	Immunity standard

The following importer/manufacturer is responsible for this declaration:

Company Name	:	**HOLUX Technology, Inc**	
Company Address	:	**1F, No.30, R&D Rd. II, Hsinchu City 300, Taiwan（R.O.C.）**	
Telephone	:	886-3-6687000	Facsimile: 886-3-6687111

Person is responsible for marking this declaration:

Philip Yu	Vice President
Name (Full Name)	Position/ Title
October-23-2007	
Date	Legal Signature

DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2. 1077(a)

The following equipment:

Product Name : GPS Receiver

Trade Name : ***HOLUX***

Model Number : M-215XX (XX=A~Z)

Company Name : **HOLUX Technology, Inc**

It's herewith confirmed to comply with the requirements of FCC Part 15 Rules. (Class B)
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.

The result of electromagnetic emission has been evaluated by QuieTek Taiwan EMC laboratory (NVLAP Lab. Code: 200347-0) and showed in the test report.

It is understood that each unit marketed is identical to the device as tested, and Any changes to the device that could adversely affect the emission Characteristics will require retest.
The following importer / manufacturer is responsible for this declaration:

Company Name **HOLUX Technology, Inc**

Company Address **1F, No.30, R&D Rd. II, Hsinchu City 300, Taiwan (R.O.C.)**

Telephone 886-3-6687000 Facsimile : 886-3-6687111

Person is responsible for marking this declaration:

Philip Yu	Vice President
Name (Full name)	Position / Title
October-23-2007	Philip
Date	Legal Signature

Table of Contents

1. Overview

The HOLUX M-215 GPS Receiver provides a easy-to-use trip guiding tool. You are able to enjoy a brand new experience in driving with GPS Receiver. It can support USB or RS232 (PS2 connector) cable connection via, it's more convenient and flexible.

Enjoy the GPS life!

- **Applications :**
  * Vehicle tracing & Location base services
  * PDA/Notebook navigation
  * Car navigation
  * Marine navigation
  * Distance measurement
  * Sports and Recreation
  * Fleet Management
  * Vehicle Tracking

2. Packing List

Thank you for purchasing the **M-215** GPS Receiver. Before you start, make sure that the following items are included in your package. If any of these items are missing, please contact your original local *HOLUX* dealer or distributor.

1.	**M-215** GPS receiver	1 Set
2.	Suction Cup, 40mm	1 Set
3.	Velcro, 18*123mm	1 Set
4.	User guide and Driver CD	1 Pcs
5.	**M-215** Quick guide	1 Pcs
6.	Warranty card	1 Pcs

Option accessory: refer to section 9.

3. Main features

1. Built in MTK Low power consumption GPS chipset.
2. 32 parallel satellite-searching channels for fast acquisition and reacquisition.
3. Superior sensitivity up to -159 dBm.
4. Built-in WAAS/EGNOS/MSAS Demodulator without any additional hardware.
5. Low power consumption.
6. Support NMEA0183 V 3.01 data protocol.
7. 1 LED indicate to shows the GPS status of device.
8. For Car navigation, Marine navigation, Fleet management, AVL, Personal navigation, Tracking System, and Mapping device application.
9. Water proof design for industry standard IPX7.
10. Support OS :Windows 98/2000/XP/Vista

.

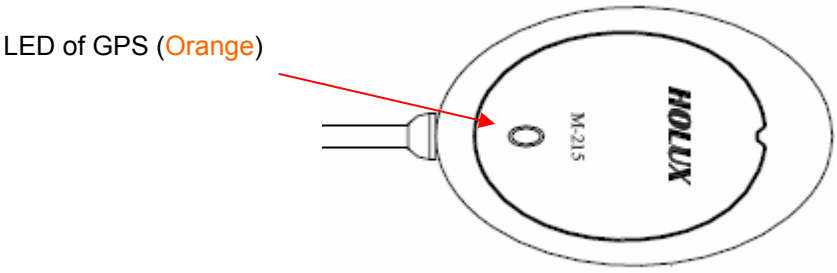
4. Specification

Specifications	• Search up to 32 satellites • Receiver : L1, 1575.42 MHz • C/A code:1.023 MHz • Update rate: 1 Hz. • Antenna type : Built in patch antenna • Minimum signal tracked : -159dBm • Dimension: 64.5 × 42 × 17.8 mm. • Weight: < 84g. • Waterproof: IPX7 • Operation temperature : -10 ℃ to + 60 ℃ • Store temperature : -20 ℃ to + 70 ℃ • Operation humidity : 5% to 95% no condensing
Positioning	◆ **Non DGPS (Differential GPS)：** • Position : 3.0 M CEP excluding SA • Velocity: 0.1M / sec. • Interval: 0.1 μs to Sync GPS ◆ **DGPS (EGNOS/WAAS/MSAS)：** • Position: < 2.2 M., Horizontal deviation 95% time < 5 M., Vertical deviation 95 % time *The above data is based on the specifications of the MTK GPS chip
Positioning Timing	• Time to reposition < 0.1 sec average • Hot start 1 sec • Warm start 33 sec • Cold start 36 sec *The above data are based on specifications of the MTK GPS chip
Protocol and Interface	◆**Output terminal: USB (CMOS Level) or RS232** • **NMEA protocol output : V 3.01** Baud rate : 4800 bps Data bit : 8 Parity : N Stop bit : 1

	• **Output format :** Standard : GPGGA (1time/1 sec), GPGSA (1 time/5 sec.), GPGSV (1time /5 sec.), GPRMC (1time /1 sec.), GPVTG (1 time/1 sec). Optional : GLL, or MTK NMEA Command.
Physical Specifications	• **Altitude: Max** 18,000 M (60,000 feet) • **Velocity:** Max 515 M./sec (1000 knots) • **Acceleration:** Max 4G • **Vibration:** 20 M/ second^3, Max.
Led Function	GPS status

5. Product Overview

M-215 Body description see below:



LED status :

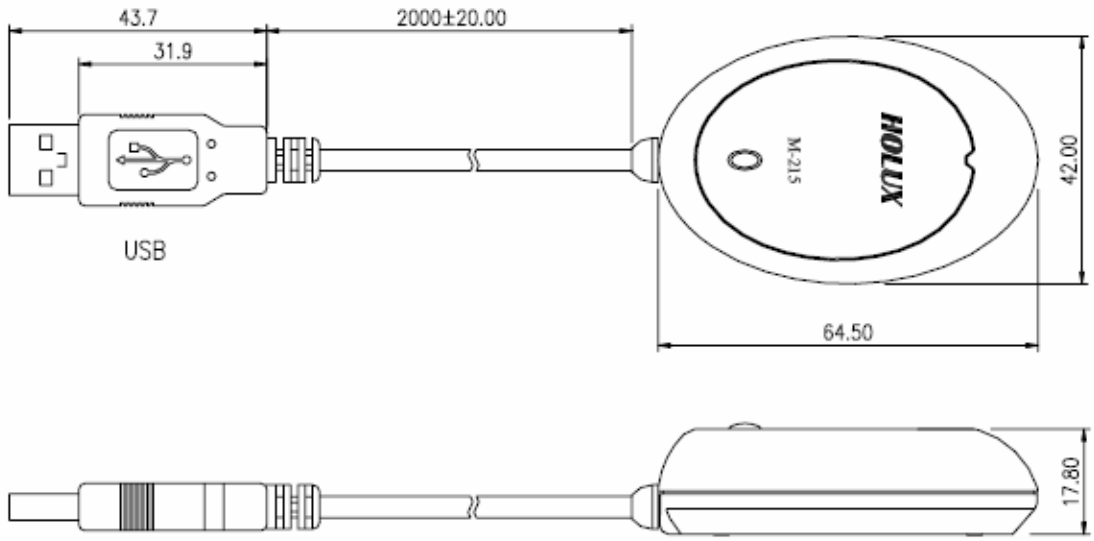
COLOR	STATUS		DESCRIPTION
Orange	Light on		Acquiring Satellites
	Blinking	1 time / 1 sec	Position Fixed

6. Configuration

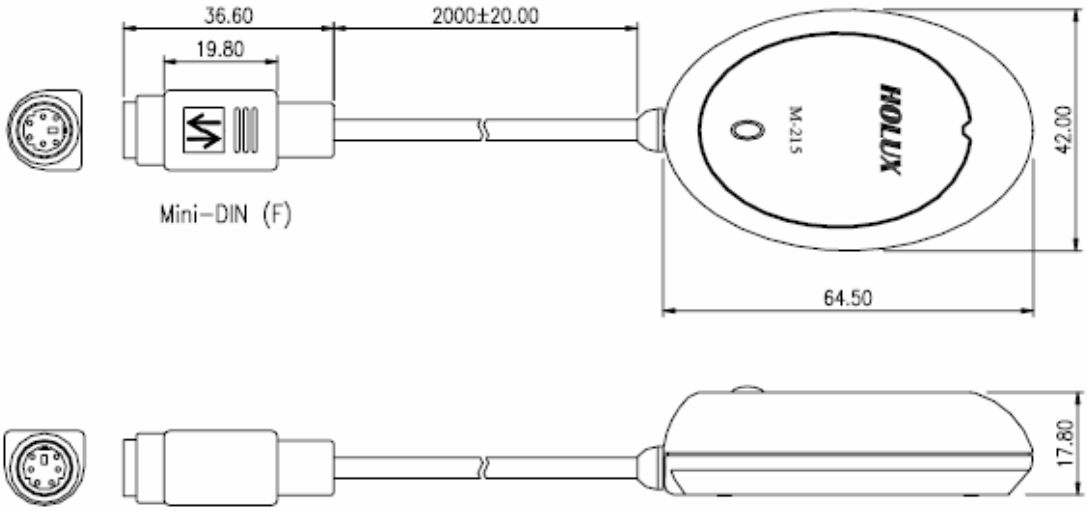
Type	Connector Type
U	USB Connector
R	RS232 (PS2 Female connector)

7. Physical Dimension

Type U : (Unit : mm)



Type R : (Unit : mm)

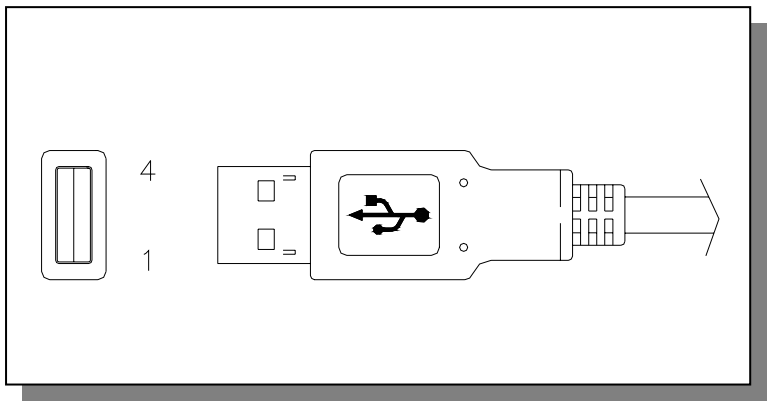


8. Output terminal and definition

Type U :

Output terminal: USB connector

Pin definition:

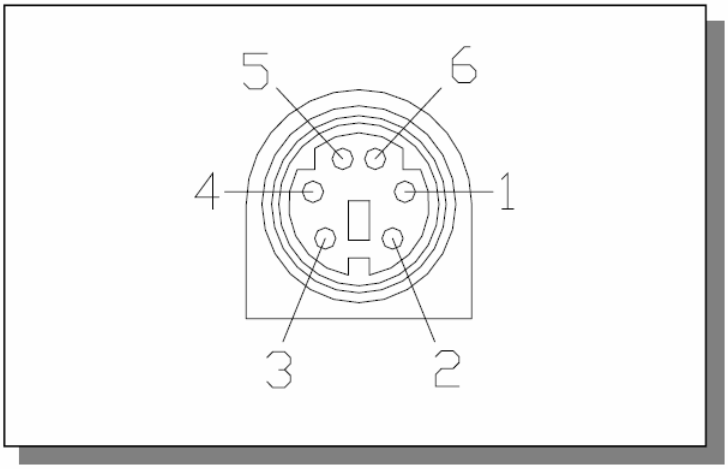


Pin	Signal Name
1	+5V
2	D +
3	D -
4	Ground

Type R :

Output terminal: **RS232 (PS2 Female connector)**

Pin definition:

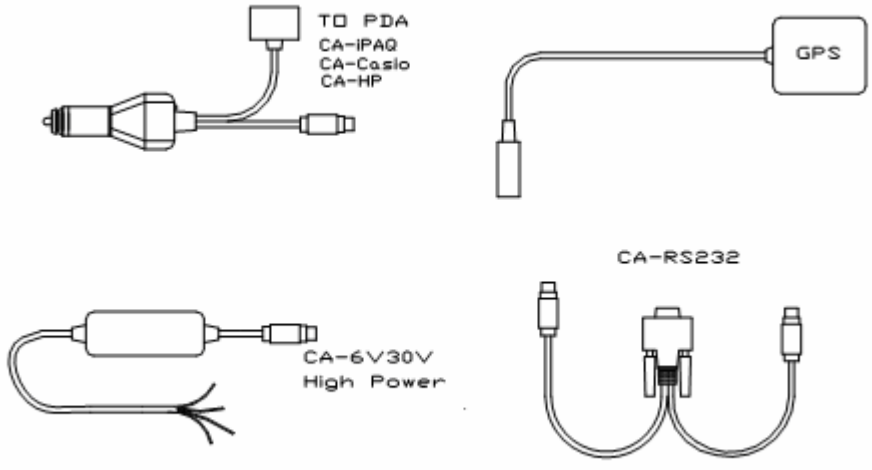


Pin	Signal
1	Tx
2	+5VDC
3	N.C.
4	Ground
5	N.C.
6	Rx

9. Optional accessory cable

The **M-215** includes an antenna in a unique style waterproof gadget. Simply connect USB connector or PS-2 female connector to one of the accessories linking to your notebook PC, PDA or other devices. The one-piece cigarette adapter allows you to connect **M-215** to your PDA. Optional accessory cables and output connector are listed and described below:

Type	Name	Function description
1	CA-RS232	Convertible cable, Comport, 5VDC input.
2	CA-6V30V	High power connector, 6-30VDC
3	A-20005	12V-26V Cigarette Adapter /Charger

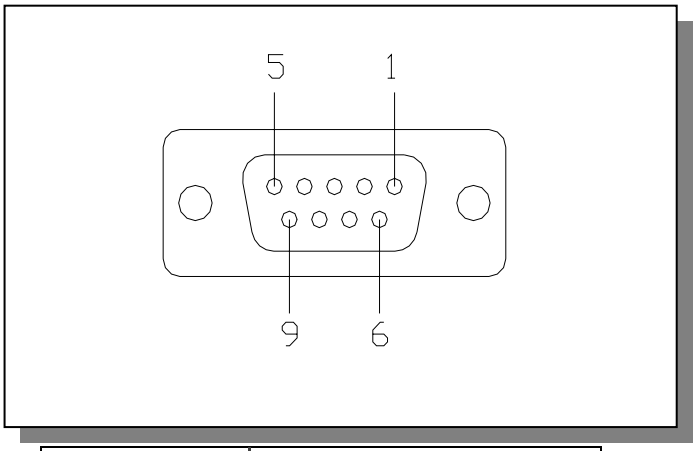


I. Type 1 CA-RS232: DB 9 pins Female and PS-2 male connector:

Cable Length to M-215: 1 meter

RS-232 to PS-2: 45 cm

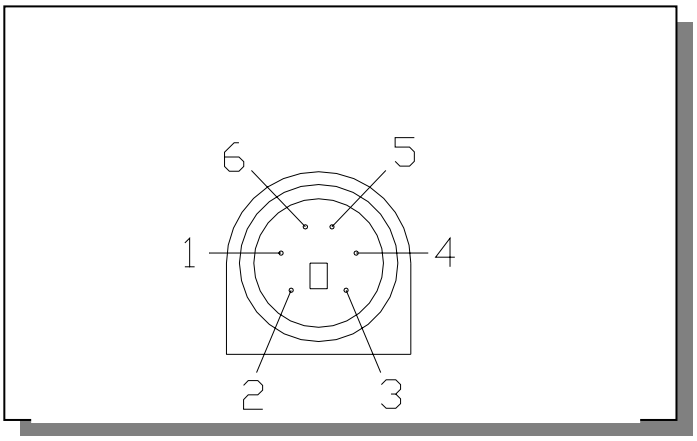
✧ DB 9 pins Female connector function definition:



Pin	Signal Name
1	N.C
2	Tx
3	Rx
4	N.C
5	Ground
6	N.C
7	N.C
8	N.C
9	DGPS in

N.C = No connection

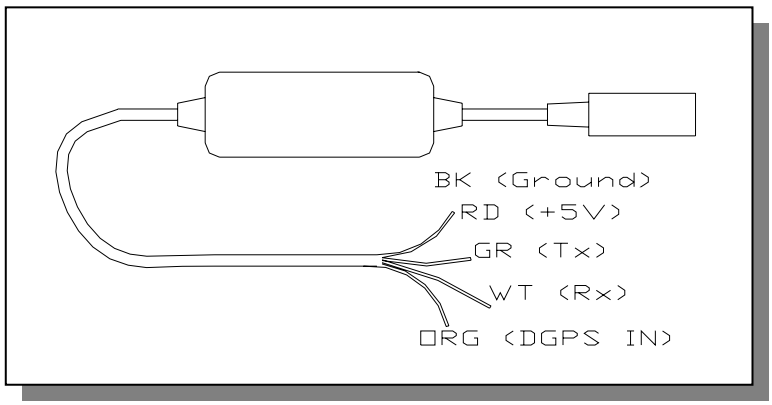
✧ PS2 composite male connector function definition:



Pin	Signal Name
1	+5V
2	N.C
3	N.C
4	Ground
5	N.C
6	N.C

N.C = No connection

II. Type 2 CA-6V30V: High power connector



Color	Signal
Black	Ground
Red	+6~30VDC
Green	Tx

III. Type 3 Car Cigarette Adapter and PDA connector

The optional cigarette adapter is with 2-meter cable for using in a car or boat. Input voltage: DC12V - 26V

10. Driver Installation

10.1 System Requirement

CPU: IBM, Pentium II or above, or other compatible PC.

Memory: above 32 MB

System: Windows 98/2000/XP/VISTA

10.2 Installation

I. Starts the driver installer from driver CD.

II. Connect **M-215** to computer. System will search new hardware and install the driver automatically.

III. Install the USB driver "***CP210x_VCP_Win2K_XP.exe*** " from the CD provided in the package.

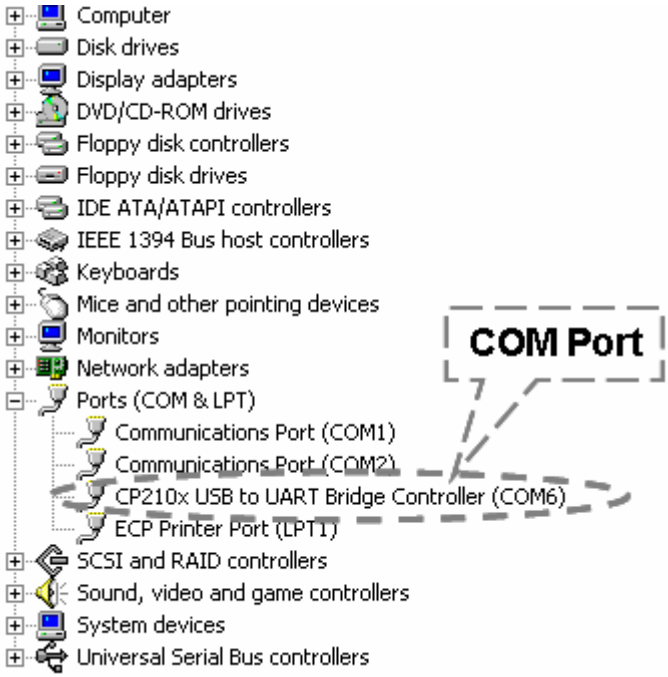
IV. Click **<Start>** menu, select → **<Setting>**, then enter→ **<Controller>**

V. After entering **<Controller>**, and select **<System>**.

VI. Select **<Device Manager>**.

VII. Find the **< Connector** (COM & LPT)**>** and check the Virtual COM Port, which was created by the USB driver.

* Please note that the virtual COM port number might be different on every computer. Before using navigation software, please confirm the COM Port numbers created by your computer and provided by your navigation software. Otherwise, the navigating software won't receive the satellite signal, because of the un-match COM Port setting.

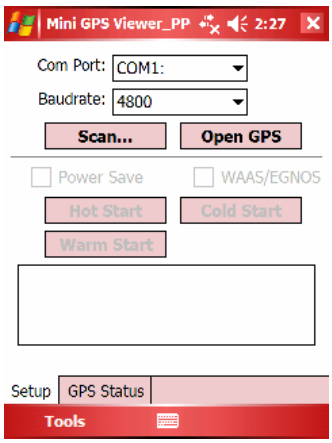


10. Installation of Mini GPS Viewer program

We provide the program "Mini GPS viewer.exe" for end users to watch the satellite signal receiving status on laptop or PDA devices.
For Windows 2000/XP OS, you can execute "Mini GPS viewer_PC" directly.
For Microsoft Pocket PC, please copy "Mini GPS viewer_PPC" to the SD card or device, and then execute "Mini GPS viewer_PPC".

11. Execute the Mini GPS Viewer program

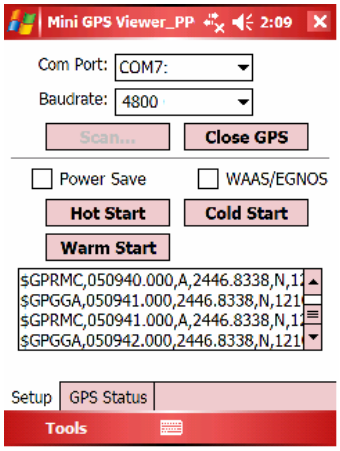
1. The following window is shown after executing Mini GPS Viewer_PPC, (see Fig. 1). The Windows 2000/XP version is has a slightly different display.



(Fig. 1)

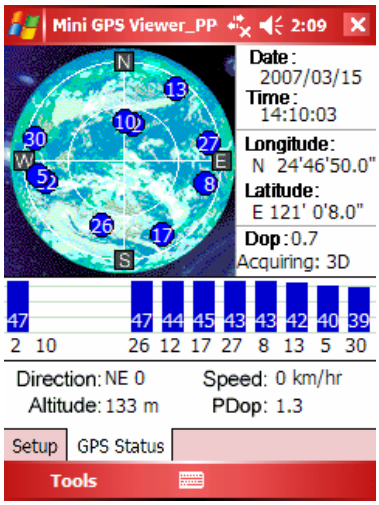
2. Setup the Baud rate: 4800, then tap the "Scan" button to scan your COM

Port. Select your COM Port respectively, and then tap the "Open GPS" button. Check log screen below to verify that the satellite data is receiving correctly.



(Fig. 2)

3. Select "GPS Status" panel to observe the GPS information status, see Fig. 3.



(Fig. 3)

4. In the "setup" panel you can see "Hot Start"、"Warm Start"、"Cold Start", which allow you to re-acquisition the Ephemeris and Almanac. Basically, the satellites are always moving in the sky, if Ephemeris and Almanac data in the GPS Logger can't meet real satellites status or if the GPS Logger has been powered off for over 0.5 hours but you are no longer in the previous position, then it will take more time for the GPS Logger to obtain a GPS position fix. We suggest that you click "Cold Start" or "Warm start" to re-acquisition.

12. Warranty

The **M-215** is guaranteed to be free from defects in material and functions for a period of one year from the date of purchase. Any failure of this product within this period, under normal operation conditions, will be repaired at no charge to the customers.

13. Troubleshooting

Problems	Possible Reasons	Methods
No GPS's CN value output but GPS timer is counting	Weak or no GPS signal at the place of M-215	Test under an open sky at a fixed location and run the Mini GPS Viewer "Cold start" function.
Cannot open the COM port	Connection interrupted or COM port is conflicted/occupied by other programs.	Check the connection again, Check and close other programs that might conflict with.

Federal Communications Commission (FCC) Statement

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. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and Logger.
- Connect the equipment into an outlet on a circuit different from that to which the Logger is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This 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 must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

This equipment is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.