

HOLUX

GPS Receiver

M-215+



User Manual

Version: 1.0



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/manufacture 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
Name (Full Name)
October-23-2007
Date

Vice President
Position/ Title

Legal Signature

Table of Contents

Overview.....	3
Packing List	4
Main features.....	4
Technical Specification	5
Product Overview	7
M-215+ INTRODUCTION	7
OUTPUT TERMINAL AND DEFINITION.....	8
USB connector	8
PS2 Female connector.....	8
RJ-45 Connector	9
Optional accessory	10
CA-RS232: DB 9 PINS FEMALE AND PS-2 MALE CONNECTOR:	10
CA-6V30V: HIGH POWER CONNECTOR.....	11
CA-USB: USB CONNECTOR.....	11
OPTIONAL CIGARETTE ADAPTER	11
Driver Installation	12
SYSTEM REQUIREMENT	12
INSTALLATION OF MINI GPS VIEWER PROGRAM	13
EXECUTE THE MINI GPS VIEWER PROGRAM	13
Troubleshooting	14
Federal Communications Commission (FCC) Statement	15

Warranty Statement

- This warranty applies to parts and services that are manufactured and sold through HOLUX. The warranty length is one year from date of purchase (starting from the date on the sales receipt). Under normal user operation, HOLUX provides free repair services.
- HOLUX is not responsible for providing repairs or replacements of any software; HOLUX does not provide any warranty service for third party software/hardware.
- Important instructions
 1. Note: This warranty does not cover damage or malfunction from the below causes: unauthorized disassembly/modification of unit, abuse or incorrect usage, accidental and other unpreventable causes, operation under variables mentioned that are different from those in this product user manual, using parts not made or sold by HOLUX, or repairs done by anyone other than HOLUX and authorized retail/service providers.
 2. Expendable parts are not covered in the warranty.
 3. HOLUX is not responsible for any program, data, or portable storage media damages or loss. Please contact your local HOLUX authorized service provider to learn more about geographical limitations, proof of purchase requests, response time agreements, and other specific maintenance service requests.

Copyright Information

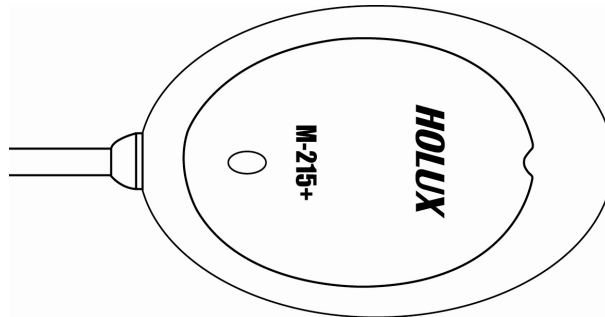
No part of this manual, including the products and software described in it, may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language in any form or by any mean, without the express written permission of HOLUX Technology, Inc.

Copyright, All Rights Reserved.

Technical Support

- If there are any questions regarding the use of this product, please log on to the website www.holux.com and see the FAQ.

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, RS-232 (PS2 connector) or RJ-45 cable connection via; it's more convenient and flexible.

Applications :

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

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.

- **M-215+** GPS receiver 1 Set
- **M-215+** Quick guide 1 Pcs
- Warranty card 1 Pcs
- Suction Cup, 40mm 1 Set
- Velcro, 18*123mm 1 Set

Option accessory: refer to section “Optional accessory”

Main features

- 1). Built in MTK MT3333 Low power consumption GPS/ GLONASS chipset.
- 2). 66 parallel searching, 22 tracking channels.
- 3). Superior sensitivity up to -165 dBm.
- 4). Built-in WAAS/EGNOS/MSAS Demodulator without any additional hardware.
- 5). Low power consumption.
- 6). 1 LED indicate to shows the GPS status of device.
- 7). For Car navigation, Marine navigation, Fleet management, AVL, Personal navigation, Tracking System, and Mapping device application.
- 8). Water proof design for industry standard IPX7.

Technical Specification

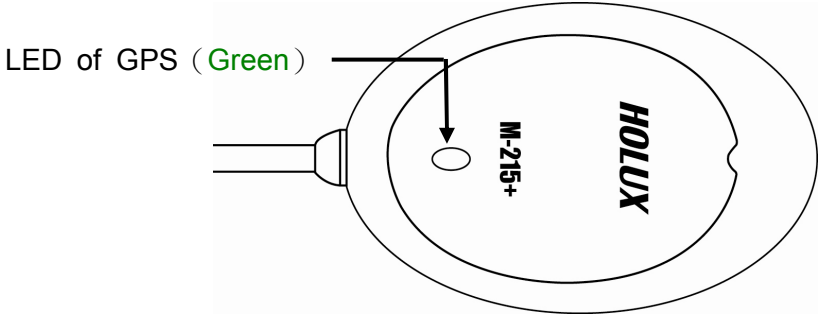
<p>Basic Specification</p>	<ul style="list-style-type: none"> • MTK MT3333 GPS/ GLONASS chipset • 66 parallel searching, 22 tracking channels • Receiver: L1, 1575.42 MHz • C/A code: 1.023 MHz • Update rate: 1Hz. • Antenna type: Built in patch antenna • Minimum signal tracked: -165dBm • Dimension: 64.5 × 42 × 17.8 mm. • Weight: < 84g. • Waterproof: IPX7 • Operation temperature: -10 °C to + 60 °C • Store temperature: -20 °C to + 70 °C • Operation humidity: 5% to 95% no condensing
<p>Positioning (refer to MTK chip specification)</p>	<ul style="list-style-type: none"> • 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): 2.5M
<p>Positioning Time (average)</p>	<ul style="list-style-type: none"> • Reacquisition: < 1 second • Hot start: < 1 second • Warm start: < 30 seconds • Cold start: < 31 seconds
<p>Protocol and Interface</p>	<ul style="list-style-type: none"> • Output terminal: USB (CMOS Level) or RS232 or RJ-45 • NMEA protocol output V.3.01 Baud rate: 4800 bps Data bit: 8 Parity: N

	<p>Stop bit: 1</p> <ul style="list-style-type: none">• Output format: Standard: GPGGA(1time/1sec), GPRMC、GNRMC(1time/1sec) GPVTG(1time/1sec), GPGSA (1time/5sec), GNGSA(2time/5sec) GPGSV(1time/5sec), GLGSV(1time/5sec)
Use Limitation	<ul style="list-style-type: none">• Altitude: < 18,000 meters (60,000 feet)• Velocity: < 515 meters/ second (1000 Knots)• Acceleration: 4 G• Jerk: 20 meters / second³, max
LED Function	GPS status

Product Overview

M-215+ introduction

M-215+ body description see below:



LED status

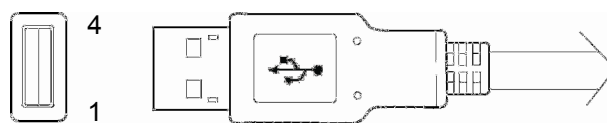
COLOR	STATUS		DESCRIPTION
Green	Light on		Acquiring Satellites
	Blinking	Position Fixed	Position Fixed

Output terminal and definition

Three kinds of output type:

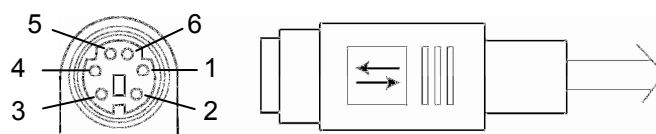
- USB connector
- PS2 Female connector
- RJ-45 connector

USB connector



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

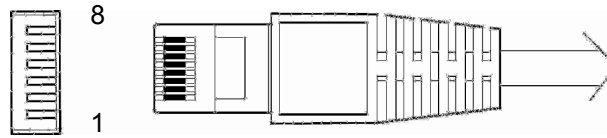
PS2 Female connector



Pin	Signal Name
1	TX
2	+5V DC
3	N.C.
4	Ground
5	DGPS IN or (N.C.)
6	RX

N. C.: No connection

RJ-45 Connector



Pin	Signal Name
1	TX
2	RX
3	N.C.
4	Ground
5	N.C.
6	N.C.
7	N.C.
8	+5V DC

N. C.: No connection

Optional accessory

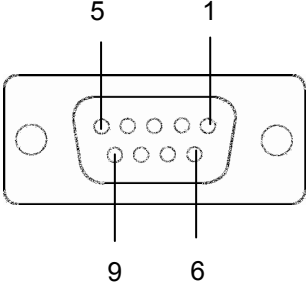
M-215+ includes an antenna in a unique style waterproof gadget. Simply connect USB connector or PS-2 female connector to one of the optional accessories linking to your notebook PC, PDA or other devices.

CA-RS232: DB 9 pins Female and PS-2 male connector:

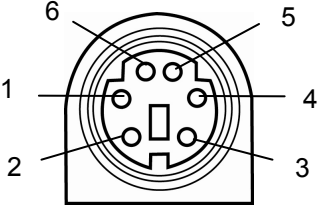
Cable Length to M-215+: 1 meter

RS-232 to PS-2: 45 cm

DB 9 pins Female connector function definition:

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

PS2 composite male connector function definition:

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

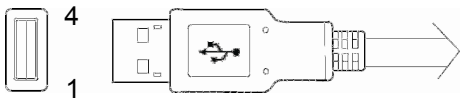
CA-6V30V: High power connector

CA-6V30V High power connector

	Color	Signal Name
	Black	Ground
	Red	+6~30V DC
	Green	TX
	White	RX
	Orange	DGPS IN

CA-USB: USB connector

The USB A Type is equipped with M-215+. The function definition is as follows:

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

Optional Cigarette Adapter

The optional cigarette adapter is with 2-meter cable for using in a car or boat.

Input voltage: DC12V - 26V

Driver Installation

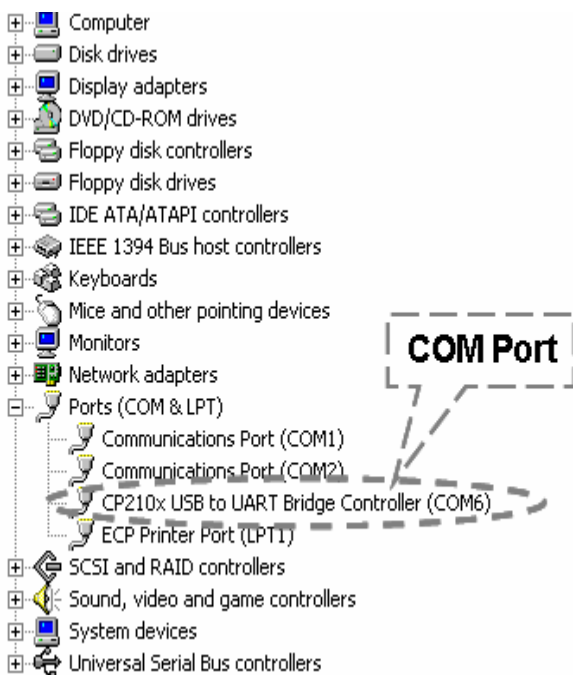
System Requirement

- CPU: IBM, Pentium II or above, or other compatible PC.
- Memory: 32 MB above
- System: Windows 98/2000/XP/VISTA

Installation

- I. Starts the driver installer from HOLUX website.
- II. Connect M-215+ to computer. System will search new hardware and install the driver automatically.
- III. Click <Start> menu, select → <Setting>, then enter→ <Controller>
- IV. After entering <Controller>, and select <System>.
- V. Select <Device Manager>.
- VI. 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.

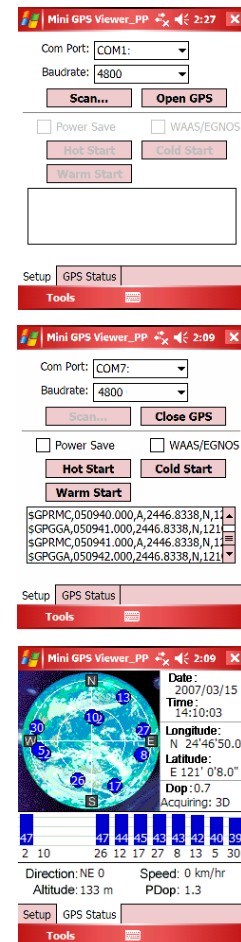


Installation of Mini GPS Viewer program

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

Execute the Mini GPS Viewer program

1. The following window is shown after executing Mini GPS Viewer_PPC, The Windows 2000/XP version is just different on display.
2. Setup the Baud rate: 4800, then tap “Scan” button to scan your COM Port. Select your COM Port respectively, then tap “Open GPS” button. Check log screen below if the satellite data is receiving correctly.
3. Select “GPS Status” panel to observe the GPS information status



4. In “setup” panel you can see “Hot Start” 、 “Warm Start” 、 “Cold Start” 、 which allow you to re-acquisition of Ephemeris and Almanac. Basically the satellites are always moving in the sky, if Ephemeris and Almanac data in GPS Logger can’t meet real satellites status upon you if GPS Logger is over 0.5 hour power off but you are no longer in the previous position , it takes more time for the GPS Logger to get GPS position fix soon. We suggest you can click “Cold Start” or “Warm start” to re-acquisition. Or you can remove the battery for 3 seconds and reinsert it, this operation is the same with “Cold Start”.

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 receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution:

Any changes or modifications not expressly approved by the grantee of this device 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.