

# MAiNNAV International Corp.

11F, 293-1, Sec. 1, Zhongshan Rd., Banqiao City, Taipei 220, Taiwan, R.O.C. Tel:+886 2 8953-6616

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## MG-950d Sport GPS data logger



**MG-950d**  
Sports BT GPS Datalogger  
**MAiNNAV**

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## Table of content

<b>A. Quick Use</b> .....	2-4
<b>B. Introduction</b> .....	5
<b>C. Feature</b> .....	5
<b>D. Specification</b> .....	5
Physical Dimension.....	5
Environmental Characteristics.....	5
GPS.....	6
LED Status .....	6
Bluetooth .....	6
Position accuracy .....	6
Interfaces.....	6
Connector.....	7
Battery.....	7
Accessory .....	7
Certification: .....	7
Warranty .....	7
<b>E. Operational characteristics</b> .....	8
<b>F. Safety Statement</b> .....	8
<b>G Earth Datums &amp;output setting</b> .....	9-11
<b>H . Bike mounting installs</b> .....	12

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## A.Quick use

### **1.Standard package**

GPS Unit +Car charger + travel charger + Li-ion Rechargeable Battery + Document CD + Warranty Card

### **2.10 hours full charge is required before using (recommendation)**

Fully charge the battery for at least 10 hours before using can last for 8 hours continuously operation facilitating the low power consumption design at 66 mA .

### **3.Turn on the Bluetooth function in your PDA or PC**

Start up **MG-950d** receiver for pairing before set off Bluetooth function in PDA or PC.

Moreover, check the device is equipped with Bluetooth function.

If not, you may need to acquire an optional CF or SD Bluetooth card.

### **4.Found a shortcut automatically in Bluetooth Manager window**

The system will automatically set up quick connect device, Mainnav in Bluetooth Manager.

Further step, click the device to connect Bluetooth receiver.

### **5.Check the Serial Port in Bluetooth Setting and Set up correct Serial Port in your map software**

Click Serial Port to confirm the COM port after pairing with the receiver. Using PDA / PC to pair the receiver. Start your map function and choose the right serial port and select "Outbound COM port ". The pass word for paring is "0000".

### **6.Switch off the Bluetooth function**

Switch off the Bluetooth function before you turn off your PDA/PC, and Switch off receiver disconnect the GPS function.

### **7. GPS data logger**

Turn on the **MG-950d** and press Power button then enter data logger recorded system, start to record your journey. Stop the data logger function, press "Power" button, it will turn off.

Check the GPS data—Using USB cable connect **MG-950d** to your PC (please install

Mainnav software application), then you could view recorded data on Google Maps. For

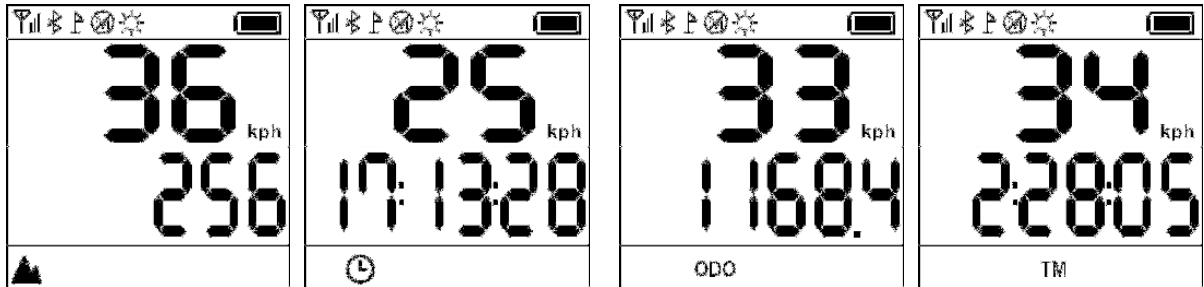
detail instruction , **please check CD ( software instruction)**

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## 8. LCD display

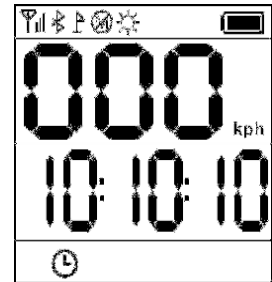
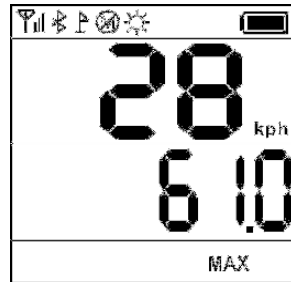
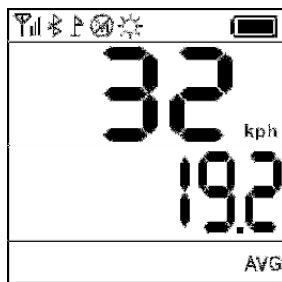
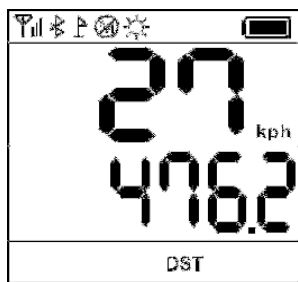


Current Speed/Elevation

Speed/time

Speed/total mileage

Speed/ trip time



Speed/moved distance

Speed/average Speed

Speed/ Maximum speed

Clear the data



GPS signal

Bluetooth on

Data logger on

Memory full

backlight on

Power

## 9.Button intro








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## 10. Function switch

Operation	display	Definition
Press Power button 2 seconds		Stay on - GPS and Bluetooth is on
When Power on , press power button 2 seconds Press 2 seconds again		Data logger is on  Data logger is off
Press back-lighted button 1seconds Press one second again		Back-lighted is on  Back-lighted is off
Press back-lighted button 5 seconds		Data turns Zero (except time)
Press back-lighted button 12 seconds		Total mileage turns Zero(ODO)
Power on—press two buttons together		switch to metric and imperial(mph)/(kph)
Power off , press 3 buttons together Adjust time zone by Power button, setting by backlight button.		Adjust time Zone
Touch pad 		Touch --Move to next page and show different data
Press this button 3 seconds 		It will move to next page automatically

1. When unit is on, press power and back-lighted button together (3 sec) ----you could switch to metric and imperial.

2. When unit is off, press two buttons together (3 seconds) ---- you could set the right time zone.

3. Press Back-lighted button 5 seconds ----data back to zero.

4.Touch pad --- move to next function

5.Press touch pad 3 seconds—it will move to next page automatically

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## . Introduction

**MG-950d** is marvelous Sport GPS with data logger. The chip designed based on SiRF Star III LP which provides the high sensitivity for personal navigation and the wireless Bluetooth transmission in the world.

This new gadget with LCD monitor is ideal for biking, driving and long journey. User could easy to view the screen while workout such as total mileage/kilometer, moved time, elevation and speed. This new device is compact and easy to carry.

**MG-950d** is a small, robust unit that records NMEA position data from a GPS. It is really convenient, economical alternative to using a laptop computer especially on long road. Simply connect the logger to a GPS during your trip then download the track data to a PC. Also, our photo map part is one of brilliant function, User could match photo in certain waypoint by their own which show on Google earth.

## C. Feature

Store up to 130,000 waypoints

LCD display and Touch pad

Automatically change to next page

Absolutely bike computer upgrading

SiRF Star III Hot start 6 sec, warm start 38sec, cold start 42 sec

Calculates precise speed and distance while you biking

Record track-logs of vehicle movement

User can select among Google earth, Satellite or Hybrid to show the track

Built-in GPS application software, could save as KMZ, CSV, GPX and NMEA

Integrated Photo with Mainnav Software

Transmission data via USB and Bluetooth

Weather Proof IPX6

Bluetooth—pair PDA or smart phone for navigation.

Replay the recorded routes/ time/ speed... point by point

Lightweight and compact --suitable for biking, hiking and traveling.

## D. Specification

### **Physical Dimension**

Size: 73(L)X49(W)x21 (H) (mm)

LCM: 33(mm)X 33(mm)

Weight:70g

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## **Environmental Characteristics**

1. Working temperature: -20°C to +75°C (internal temperature).
2. storage temperature: -55°C to +90°C.
3. input voltage: 5.5 ± 0.5VDC
4. Backup power: 3.7V Rechargeable Li-ion Battery 850mAh,

## **GPS**

- 1) Acquisition:20 channel parallel
- 2) Tracking: up to 12 satellites
- 3) Update rate: 1 second
- 4) Acquisition time
  - Reacquisition 0.1 sec, averaged
  - Snap start 3 sec, averaged
  - Hot start 6 sec, averaged
  - Warm start 38 sec, averaged
  - Cold start 42 sec, averaged

## **Bluetooth**

- 1) Transmits up to 10 meters.
- 2) Version V2.0

## **Position accuracy:**

- 1.Non DGPS (Differential GPS)
  - Position: <10 M at 2D RMS
  - Velocity :0.1 meters/second, with SA off
  - Time:1 microsecond synchronized GPS time
2. DGPS (Differential GPS) or WAAS / EGNOS ON (Built by demand)
  - Position: 1 ~ 5 meter, typical
  - Velocity: 0.05 meters/second, typical
3. Dynamic Conditions:
  - Altitude: 18,000 meters (60,000 feet) max
  - Velocity: 515 meters / second (1000 knots) max
  - Jerk: 20 meters/second, max
  - Acceleration: 4 G, max

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## **Interfaces**

- 1) USB 2.0 Bluetooth 2.0
- 2) NMEA 0183 Version 2.2 ASCII output (GPGGA, GPGLL, GPGSA, GPGSV, GPRMC, GPVTG).
- 3) Real-time Differential Correction input (RTCM SC-104 message types 1, 5 and 9).  
(Optional model)  
SiRF protocol. (optional)

## **Baud rate 9600**

## **Connector**

Battery recharging connector: Mini USB

## **Battery**

Capacity: 850mAh.

Type: Li-ion rechargeable

Normal use: 17.5 hours

## **Accessory**

1. Rechargeable battery, 850mAh
2. Car charger: Mini USB , IP:12~24V, OP:5V 500mA
3. Software
4. bike mounting
5. USB cable
6. Warranty card
7. Travel charger

## **Certification:**

RoHs

CE&FCC

## **Warranty**

All of our GPS products have the one-year warranty and repair policy from the day of purchase.

The MG-950d is warranted to be free from defects in material and function for one year from the date of purchase. Any fault product within this period under normal conditions will be replaced without any charge.

## **E. Operational characteristics**

### **Initialization**

Once the initial self-test is complete, MG-950d start the process of satellite acquisition and

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tracking automatically. MG-950D takes about 45 seconds to achieve a position fix in normal circumstances. After a position fix has been calculated, valid position, velocity and time is transmitted over the output channel.

Also, our MG-950d records NMEA position data from a GPS. It is really convenient, economical alternative to using a laptop computer, especially on long road. Simply connect the logger to a GPS during your trip then download the track data to a PC.

## **Data logger**

1. LCD screen which shows speed altitude/latitude
2. Reads NMEA data from GPS
3. Compact size and lightweight
4. Store up to 130,000 waypoints
5. User friendly Windows based Mainnav software
6. Whether proof IPX6
7. With user friendly Windows based Google earth software
8. Replay the recorded routes/ time/ speed... point by point

## **Navigation**

With the acquisition process is completed, the MG-950d sends valid navigation information over output channels. The data include:

- 1) Velocity
- 2) Error estimates
- 3) Date/time
- 4) Latitude/longitude/altitude
- 5) Satellite and receiver status

## **F. Safety Statement**

### **R&TTE / CE**

This device complies with ETSI EN 300 328-1, ETSI EN 301 489-1 / 17, EN60950.

### **FCC**

This device complies with Part 15C, Part 15B and ID Application of the FCC rules.

Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

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**BQB**

## G. Earth Datums & output setting

### ***NMEA Transmitted Messages Output Messages NMEA Sentence***

GPGLL: Global positioning system fixed data

GPGLL: Geographic position latitude \ longitude

GPGLL: GNSS DOP and active satellites

GPGLL: GNSS satellites in view.

GPGLL: Recommended minimum specific GNSS data

GPGLL: Course over ground and ground speed

### ***Global Positioning System Fix Data***

\$GPGLL,161229.487,3723.2475,N,12158.3416,W,1,07,1.0,9.0,M, , ,0000\*18

Name	Example	Units	Description
Message ID	\$GPGLL		GGA protocol header
UTC Time	161229.487		Hhmmss.sss
Latitude	3723.2475		ddmm.mmmm
N/S Indicator	N		N=north or S=south
Longitude	12158.3416		dddmm.mmmm
E/W Indicator	W		E=east or W=west
Position Fix Indicator	1		See Table 5-3
Satellites Used	07		Range 0 to 12
HDOP	1.0		Horizontal Dilution of Precision
MSL Altitude	9.0	Meters	
Units	M	Meters	
Geoid Separation		Meters	

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Units	M	Meters	
Age of Diff. Corr.		second	Null fields when DGPS is not used
Diff. Ref. Station ID	0000		
Checksum	*18		
<CR> <LF>			End of message termination

## Position Fix Indicator

Value	Description
0	Fix not available or invalid
1	GPS SPS Mode, fix valid
2	Differential GPS, SPS mode, Fix valid
3	GPS PPS Mode, Fix valid

## GNSS Satellites in View

(GSV)\$GPGSV,2,1,07,07,79,048,42,02,51,062,43,26,36,256,42,27,27,138,42\*71

\$GPGSV,2,2,07,09,23,313,42,04,19,159,41,15,12,041,42\*41

Name	Example	Units	Description
Message ID	\$GPGSV		GSV protocol header
Number of Messages	2		Range 1 to 3
Message Number	1		Range 1 to 3
Satellites in View	07		Range 1 to 12
Satellite ID	07		Channel 1 (Range 1 to 32)
Elevation	79	degrees	Channel 1 (Maximum 90)
Azimuth	048	degrees	Channel 1 (True, Range 0 to 359)
SNR (C/No)	42	dBHz	Range 0 to 99, null when not tracking
Satellite ID	27		Channel 4 (Range 1 to 32)
Elevation	27	degrees	Channel 4 (Maximum 90)
Azimuth	138	degrees	Channel 4 (True, Range 0 to 359)
SNR (C/No)	42	dBHz	Range 0 to 99, null when not tracking
Checksum	*71		
<CR> <LF>			End of message termination

## Recommended Minimum Specific GNSS Data (RMC)

\$GPRMC, 161229.487,A,3723.2475,N,12158.3416,W,0.13,309.62,120598, ,\*10

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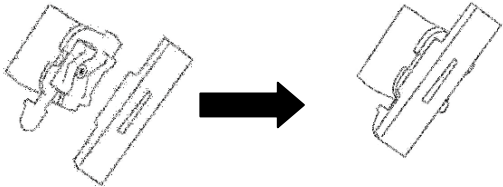
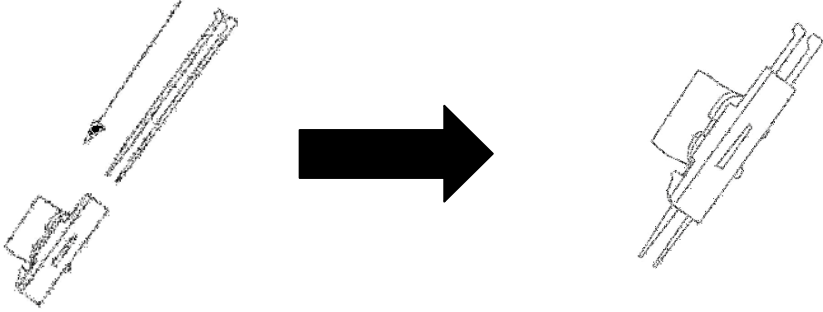
Name	Example	Unit	Description
Message ID	\$GPRMC		RMC protocol header
UTC Time	161229.487		hhmmss.sss
Status	A		A=data valid or V=data not valid
Latitude	3723.2475		ddmm.mmmm
N/S Indicator	N		N=north or S=south
Longitude	12158.3416		dddmm.mmmm
E/W Indicator	W		E=east or W=west
Speed Over Ground	0.13	Knots	
Course Over Ground	309.62	Degrees	True
Date	120598		ddmmyy
Magnetic Variation (1)		Degrees	E=east or W=west
Checksum	*10		
<CR> <LF>			End of message termination

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## Bike mounting attachment

<b>step 1</b> screw the mounting together	<b>step 2</b> combine rubber with mounting and fix on bottom (the arc part) then put string into the hole.
	
<b>step 3</b> Use string to pierce through the hole, fix the rubber and mounting	
	
<b>Step 4</b> put the mounting on handle bar and use string fix tightly, slide the Unit from two side of runner. Finished attachment.	
