

MAiNNAV International Corp.

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MG-910D

BT GPS data logger



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A. Quick Use	3
B. Introduction	3
C. Feature	3
D. Specification	4
<i>Physical Dimension</i>	4
<i>Environmental Characteristics</i>	4
<i>GPS</i>	4
<i>LED Status</i>	4
<i>Bluetooth</i>	4
<i>Position accuracy</i>	5
<i>Interfaces</i>	5
<i>Connector</i>	5
<i>Battery</i>	5
<i>Accessory</i>	5
<i>Certification:</i>	5
<i>FM Transmitter</i>	6
<i>Warranty</i>	6
E. Operational characteristics	6
F. Safety Statement	7
G Software Interface	8
H. Earth Datums & Output Setting	9
I. Mainnav GPS software application	

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A. Quick use

1. Standard package

GPS Unit + Car charger + Li-ion Rechargeable Battery + Document CD + Warranty Card + Quick Use + lanyard

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-910D** 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-910D** 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-910D** to your PC (please install Mainnav software application), then you could Show recorded data on Google Maps. For detail instruction , please check CD file (software instruction)

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B. Introduction

MG-910D is marvelous Bluetooth GPS receiver. 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. Our MG-910D is ideal for long journey and commercial tracking. This new device is compact and easy to carry.

Our **MG-910D** is a small, robust unit that records NMEA position data from a GPS. It is really convenient, economical alternative to using a laptop computer or PDA, especially on long road. Simply connect the logger to a GPS during your trip then download the track data to a PC.

C. Feature

1. Store up to 130,000 waypoints
2. SiRF Star III Hot start 6 sec, warm start 38sec, cold start 42 sec
3. Bluetooth 2.0 –transmit GPS signal for Navigation
4. Photo mapping—user could match photo to certain waypoint.
5. When move device, it will record tracks in every one seconds. When stop to move, it will record tracks in every one minute.
6. User can select among Google earth, Satellite or Hybrid to show the track
7. Reads NMEA data from GPS
8. Transmit data via USB and Bluetooth
9. Trendy looking and compact size
10. Replay the recorded routes/ time/ speed... point by point
11. Lightweight and compact --suitable for hiking, biking and walking

D. Specification

Physical Dimension

Size: 59(W) x 44(D) x 21(H) (mm)

Weight: 50g

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 700mAh,

GPS

- 1) Acquisition: 20 channel parallel
- 2) Tracking: up to 12 satellites
- 3) Update rate: 1 second

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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

LED indicate

Way of press Bottom	LED indicate	Blue	Indicate	Green	Indicate	red	Indicate
Press button 6 seconds (unit on)	Stay on	●	Power is on , not pairing	●	GPS position fixed	●	Charging
After connecting BT, press button 3 seconds (data logger and navigation function all on at the same time)	Keep flash twice	●	Paired , data is recording	●			
Press 6 seconds , the unit on (Only receiver mode)	slow flash	●	Bluetooth is paired (data logger is not recorded)		GPS not fixed	●	Lower power (need charge)
Press button 6 seconds then press 3 seconds (Only data logger function)	Snap flash	●	Data logger keep record (Bluetooth not paring)	●			
Press button 6seconds seconds in any situation (unit turn off)	off	●	Power off		Power off		fully charged

Note:

- **Press button 6 seconds, the power will be on. If you would like to use only data logger press button 3 second again the blue light will be flash 3 times then keep**

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snap flash, this mean only data logger function.

- *If you would like to use data logger as well as navigation, press on (6seconds) then pair your device. After pairing press button about 3 seconds, the BT light will be flash three times then you could use data logger and navigation at the same time.*
- *If you want to use navigation only, press button 6 seconds, the unit on then pair your device, then you could start navigation. (data logger is not on)*
- *Press button 3 seconds BT light keep flash 3 times—this means function change.*
- *Press button 6 seconds, power off.*

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

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)
- 4) SiRF protocol. (optional)

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Connector

Battery recharging connector: Mini USB

Battery

Capacity: 700mAh.

Type: Li-ion rechargeable

Normal use: 12.5 hours

Accessory

1. Rechargeable battery, 700mAh
2. Car charger: Mini USB , IP:10~30V, OP:5V 500mA
3. CD
4. lanyard

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-910D 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-910D start the process of satellite acquisition and tracking automatically. MG-910D 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.

The MG-910D utilizes initial data, such as last stored position, date, time and satellite orbital data, to achieve maximum acquisition performance.

Also, our MG-910D records NMEA position data from a GPS . It is ideal for long journey and commercial tracking. It is really convenient, economical alternative to using a laptop computer or PDA, especially on long road. Simply connect the logger to a GPS during your trip. User can

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select among Google Map, Satellite or Hybrid to show the track

Navigation

With the acquisition process is completed, the MG-910D 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

Data log

Store up to 130,000 waypoints

Record track-logs of vehicle movement

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

Reads NMEA data from GPS

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.

BQB

G. Software Interface

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NMEA Transmitted Messages Output Messages NMEA Sentence

GPGGA: Global positioning system fixed data

GPGLL: Geographic position latitude \ longitude

GPGSA: GNSS DOP and active satellites

GPGSV: GNSS satellites in view.

GPRMC: Recommended minimum specific GNSS data

GPVTG: Course over ground and ground speed

Global Positioning System Fix Data

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

Name	Example	Units	Description
Message ID	\$GPGGA		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	
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

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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

Name	Example	Unit	Description
Message ID	\$GPRMC		RMC protocol header
UTC Time	161229.487		hhmmss.sss

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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

H. Earth Datums & Output Setting

Recommended Minimum Specific GNSS Data (RMC)

\$GPRMC,

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

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