

MAiNNAV International Corp.

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MG-950DL Sport GPS logger



MAINNAV International Corp.

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1. Standard package

- ✧ Rechargeable battery, 850mAh
- ✧ Software
- ✧ Bike mounting
- ✧ USB cable
- ✧ Warranty card
- ✧ Travel charger

2. 8 hours full charge is required before using (recommendation)

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

3. GPS Start to get GPS signal --- when power on , the unit will automatically search GPS signal . About 42 seconds , the GPS fixed the signal

4. Found a shortcut automatically in Bluetooth Manager window

When unit is on, the Bluetooth is on too.

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. GPS data logger

Turn on the **MG-950DL** 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.

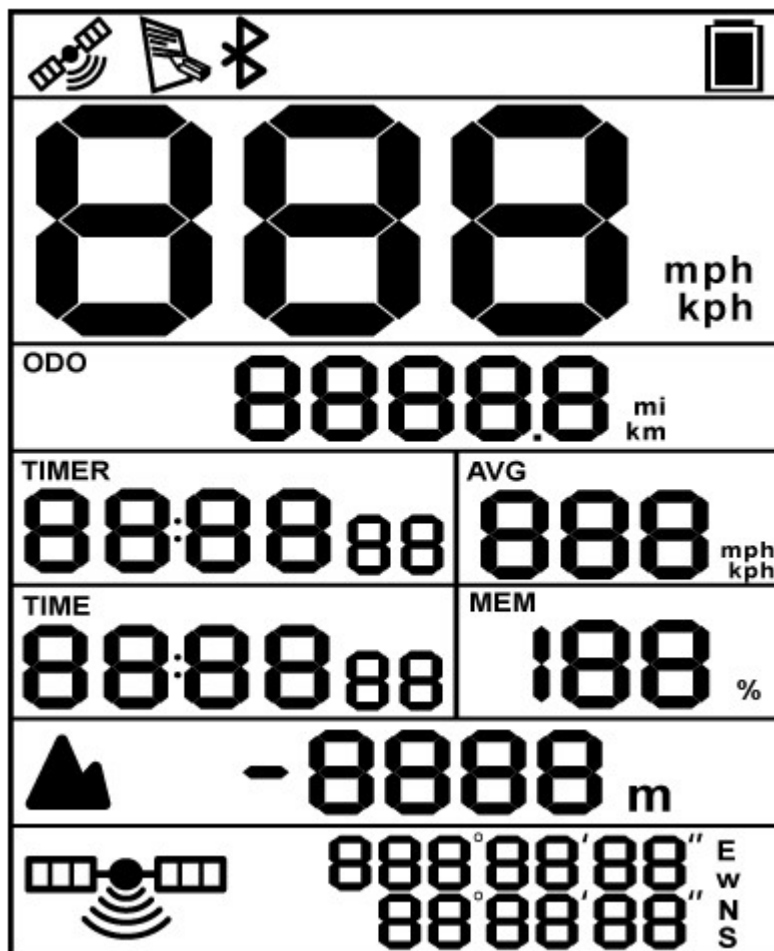
Check the GPS data—Using USB cable connect **MG-950DL** to your PC (please install Mainnav software application), then you could view recorded data on Google Maps. For detail instruction , **please check CD (software instruction)**

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7. LCD display




GPS signal




Bluetooth on


Data logger on


MEM 100 %
Memory full


Power








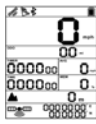

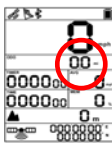


8. Button intro

Operation	Signal display	Definition
Press Power button 3 seconds		Power on and GPS start to get signal (Bluetooth is on too)
Power on after 42 sec, the GPS will fix signal		GPX fixed

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Press Power button for a while –power off		Power off
Power on –press power button about 3 seconds Data logger is on		Data logger is on
When data logger is on , press power button 1 second , data logger is off		Data logger is off
Press backlit 1 second Press backlit again , backlit is on		Backlit is on Backlit is off
Bluetooth is on when power is on		Bluetooth is on –pair your device for navigation
Battery indicate When battery flash – power is low		Power is low , need to charge
When get the GPS fix, the screen will show Latitude and longitude		 E=East longitude N= North latitude W=west longitude S= south latitude
Showing Memory indicate		When reach 100% , memory is full , please use software to delete.
Data turns zero Press setting button 5 seconds 		All data turn zero (all display figure)
Press setting button 12secnds , the ODO turns zero 		ODO turns zero
Press setting button 1 second 		Change Metric/imperial MPH / KPH

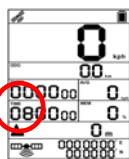
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Setting Time zone

When power off , press setting button about 3 seconds



Setting right time zone

Adjust time zone by power button , after finished press “setting” button

B. Introduction

MG-950DL is Bluetooth GPS receiver combine with small fitness computer. It is mostly designed for outdoor people who like to ride their bike, hike and mountain climb. MG-950DL has large screen which could show information on your speed, elevation, trip time, total distance, average speed, max speed, longitude, latitude and more. Unlike most other Sport GPS gadget, Mainnav MG-950DL could double as a Bluetooth GPS receiver so you can pair it with your PDA phone and laptop to turn them into a GPS navigation system. Mainnav uses SiRF Star II GPS receiver which can lock a satellite with hot start in 6 seconds, warm start in 38 seconds and cold start 42 seconds. There is enough memory to store 260,000 waypoints.

C. Feature

- Store up to 260,000 waypoints
- Large LCD display
- Automatically change to next page
- Absolutely cycle 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

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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.

Bike function

Large LCD display

Current Speed Maximum speed Average Speed

Moved distance ,

Elevation

Trip time

Total mileage /KM (ODO)

Bike mounting

Showing Longitude and latitude

D. Specification

Physical Dimension

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

LCM: 33(mm)X 33(mm)

Weight: 70g

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
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Hot start	6 sec, averaged	Warm start	38 sec, averaged
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Cold start	42 sec, averaged		
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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)

SiRF protocol. (optional)

Baud rate 9600

Connector

Battery recharging connector: Mini USB

Battery

Capacity: 850mAh.

Type: Li-ion rechargeable

Normal use: 20 hours

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CAUTION

RISK OF EXPLOSION IF BATTERY IS REPLACED
BY AN INCORRECT TYPE.
DISPOSE OF USED BATTERIES ACCORDING
TO THE INSTRUCTIONS

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
BQB

Warranty

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

The MG-950DL 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-950DL start the process of satellite acquisition and tracking automatically. MG-950DL 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-950DL 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.

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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 260,000 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-950DL 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.

RoHS

BQB

In SIG listing.

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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	
Units	M	Meters	
Age of Diff. Corr.		second	Null fields when DGPS is not used
Diff. Ref. Station ID	0000		
Checksum	*18		

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<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
Status	A		A=data valid or V=data not valid
Latitude	3723.2475		ddmm.mmmm

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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. World GMT Time zone setting

MG-950DL time zone setting is from 1~24 hour but in GMT time zone is from +1~+12 and -1~-12. For Mainnav device, time zone from -1~-12 will be deducted from 24 hours. Example : USA –New York GMT is -4 , on MG-950DL need to set 20. After setting time zone, the GPS will record correct time.

North America

Country	Time zone	GMT
Canada	Newfoundland(NST)	-3:30
	(St. Johns)	-2:30
	UTC-4 AST	-4
	(Goose Bay)	-3
	EST	-5
	Toronto	-4
	CST	-6
	Winnipeg	-5
	MST	-7
	Calgary	-6
	PST	-8
Vancouver	-7	
Nicaragua		-6
Guatemala		-6

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Honduras		-6
U.S.A.	EST	-5
	New York	-4
	CST	-6
	Chicago	-5
	MST	-7
	Salt Lake City	-6
	PST	-8
	Los Angeles	-7
	AKST	-9
	Anchorage	-8
	HST	-10
	Honolulu	-9
Costa Rica		-6
El Salvador		-6

Oceania Area

Country	Time zone	GMT time zone
New Zealand		12
		13 (October ~ March is daylight saving time)
(Australia)	AEST	10
	Sydney	10
		11 (from Apr to Oct , from Oct to March is daylight saving time)
	ACST	+9:30
	Adelaide	+10:30
	WST	8
Perth	9	
Guam		10

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European Country

Country	GMT time zone
(Denmark)	1
	2(Mar to Sep is daylight saving)
Belgium)	1
	2(Mar to Sep is daylight saving)
(Iceland)	0
(Hungary	1
	2(Mar to Sep is daylight saving)
(Spain	1
	2(Mar to Sep is daylight saving)
Greece	1
	2(Mar to Sep is daylight saving)
Poland	1
	2(Mar to Sep is daylight saving)
France	1
	2(Mar to Sep is daylight saving)
Finland	2
	3(Apr to Oct is daylight saving)
Great Britain GMT	0
	1 (Mar to Oct is daylight saving time)
Norway	1
	2 (Mar to Sep is daylight saving time)
Czech	1
	2(Mar to Sep is daylight saving time)
Vatican	1
	2(3-9 is daylight saving time)
Netherlands	1
	2(3-9 is daylight saving time)
Slovak	1
	2(3-9 is daylight saving time)
Austria	1

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	2(3-9 is daylight saving time)
Switzerland	1
	2(3-9 is daylight saving time)
Sweden	1
	2(3-9 is daylight saving time)
Italy	1
	2(3-9 is daylight saving time)
Germany	1
	2(3-9 is daylight saving time)
Monaco	1
	2(3-9 is daylight saving time)
Luxembourg	1
	2(3-9 is daylight saving time)

Asia Area

Country	GMT time zone
Turkey	2
	3 (5-10 is daylight saving time)
China	8
Japan	9
Nepal	+5:45
Indonesia	8
Thailand	7
Malaysia	8
Philippines	8
Singapore	8

Africa

Country	GMT Time zone
South Africa	2
Egypt	2

Attachment for Bike mount

1 find a position to fix on Handle bar



2 Using screw Combine these two together



3. Fix the rubber under the holder



4. put string through the holder



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5. Fix on the handle bar – circle on the handle bar



6. Tight on the handle bar and cut the over string part



7. Put the device on bike mount and finish attachment

