

# MAINNAV International Corp.

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## MG-550S 使用說明書



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## 1. 產品介紹

Mainnav's **MG-550S** GPS滑鼠型衛星接收機提供您不同的應用在汽車導航、航海、測繪、保全等等，你可以透過 **TTL**或是**RS-232**雙通道傳輸便利的傳出至你所連接的設備上，**MG-550S** 所具備的記憶鋰電池可以記憶您最後一次的定位訊息，讓您在次使用上定位更快速，低耗電的設計讓你使用更加的長效。**MG-550S** 所採用的**SiRF Star III**單晶片設計可以捕捉海平面以上**20**顆衛星並且鎖定**12**顆衛星進行定位工作，獨家的**Trickle-Power** 能效，快速的定位帶給你使用上全新的感受。

## 2. 產品特色

**MG-550S** 全功能的特性能完整的滿足您的各種應用

- 1) 快速的捕獲海平面以上**20**科衛星,並鎖定**12**科有效衛星進行定位工作。
- 2) 使用**SiRF Star III**的高效能單晶片設計。
- 3) 快速的初始化定位功能。
- 4) 支援**WAAS/EGNOS**同步衛星偏差修正(選項)
- 5) 內建記憶體鋰電池提供最後一次的定位訊息，定位更快速。
- 6) 支援 **MNEA 0183V2.2** 衛星通訊協議。
- 7) 內置磁鐵座便利吸附。
- 10) 全天候防水設計。
- 11) 雙通道輸出：**RS-232** 或是 **TTL** 訊號輸出。

## 3. 規格與參數：

### 主要參數

Frequency L1, 1575.42 MHz

C/A Code 1.023 MHz chip rate

Channels 20

Sensitivity Acquisition: -144~ -149 dBm Tracking: -155~ -160dBm

SiRF star III LP chip

### 外觀尺寸

1. Size: 57.5(W) x43(D) x 16(H) (mm)

2. Weight: 40g

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## 環境溫度

- 1) Operating temperature: -40°C to +85°C(internal temperature).
- 2) Storage temperature: -45°C to +100°C.

## 電氣特性

- 1) Input voltage: +3.3 ~ 5.5 VDC without accessories.
- 2) Backup power: 3V Rechargeable Lithium cell battery, up to 230 hours (9.6 days) discharge.

## GPS 性能規格

- 1) 衛星捕獲能力: 20 satellites parallel
- 2) 快速鎖定12顆有效衛星
- 3) 更新速率: 1 second.
- 4) 定位時間：
  - 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
- 5) 定位精度：
  - A) Non DGPS (Differential GPS)
    - Position <10 M at 2D RMS
    - Velocity 0.1 meters/second, with SA off
    - Time 1 microsecond synchronized GPS time
  - B) DGPS (Differential GPS)
    - Position 1 ~ 5 meter, typical
    - Velocity 0.05 meter/second, typical
- 5) 動態規格:
  - 高度 18,000 meters (60,000 feet) max
  - 速度 515 meters / second (1000 knots) max
  - 加速度 4 G, max
  - 暴衝 20 meters/second, max

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## 傳輸介面

- 1) 雙通道RS-232或TTL 可選擇4800-Default, 9600, 19200, 38400等傳輸速率
- 2) NMEA 0183 Version 2.2 ASCII output (GPGGA, GPGLL, GPGSA, GPGSV, GPRMC, GPVTG).
- 3) 偏差訊號修正輸入
- 4) SiRF 通訊協定.

## 4. 保固

主導國際股份有限公司提供您完善的保固條款與最好的客戶服務。

當您購買起一年內本公司提供完整的保固換新服務(產品本身瑕疵故障者); 產品配件提供3個月的保固(電池及充電器等)。

除外條款：

1. 產品序列耗損毀。
2. 人為因素或操作不當所導致的損壞

## 5. NMEA Output Message

### 5.1 NMEA Record Description

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

### 5.2. Global Positioning System Fix Data (GGA) Table 5-2

contains the values for the following example

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

**Table 5-2 GGA Data Format Name Example**

#### **Units Description**

Message ID \$GPGGA GGA protocol header UTC Time 161229.487 hhmmss.sss  
Latitude 3723.2475 ddm. mmm N/S Indicator N N=north or S=south Longitude  
12158.3416 ddm. mmm E/W Indicator W E=east or W=west Position Fix

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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

## **Name Example Units Description**

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

## **Position Fix Indicator Value Description**

0 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

**5.3. Geographic Position with Latitude/Longitude (GLL)** Table 5-3 contains the values for the following example.

**\$GPGLL,3723.2475,N,12158.3416,W,161229.487,A\*2C**

### **Table 5-4 GLL Data**

#### **Name Example Units**

#### **Description**

Message ID \$GPGLL GLL protocol header Latitude 3723.2475 ddm.m.mmmm N/S Indicator N N/S Indicator N N=north or S=south Longitude 12158.3416 dddmm.mmmm E/W Indicator W E=east or W=west UTC Position 161229.487 hhmmss.sss Status A A=data valid or V=data not valid Checksum \*2C <CR> <LF> End of message termination

**5.4. GNSS DOP and Active Satellites (GSA)** Table 5-4 contains the values for the following example.

**\$GPGSA,A,3,07,02,26,27,09,04,15, , , , ,1.8,1.0,1.5\*33 Table**

### **5-5 GSA Data Format Name**

#### **Example Units Description**

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Message ID \$GPGSA GSA protocol header Mode 1 A See Table 5-6 Mode 2 3 See Table 5-7 Satellite Used(1) 07 Sv on Channel 1 Satellite Used(1) 02 Sv on Channel 2 Satellite Used Sv on Channel 12 PDOP 1.8 Position Dilution of Precision HDOP 1.0 Horizontal Dilution of Precision VDOP 1.5 Vertical Dilution of Precision Checksum \*33 <CR> <LF> End of message termination

## **Name Example Units 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 0.13 knots Ground Course Over 309.62  
degrees True Ground Date 120598 ddmyyy Magnetic degrees E=east or W=west  
Variation(1)Checksum \*10 <CR> <LF> End of message termination **NOTE:** SiRF  
Technology Inc. does not support magnetic declination. All “course over ground”  
data are geodetic WGS84 directions.

**5.5** Course Over Ground and Ground Speed (VTG) Table 5-10  
contains the values for the following example.

**\$GPVTG,309.62,T, ,M,0.13,N,0.2,K\*6E**