

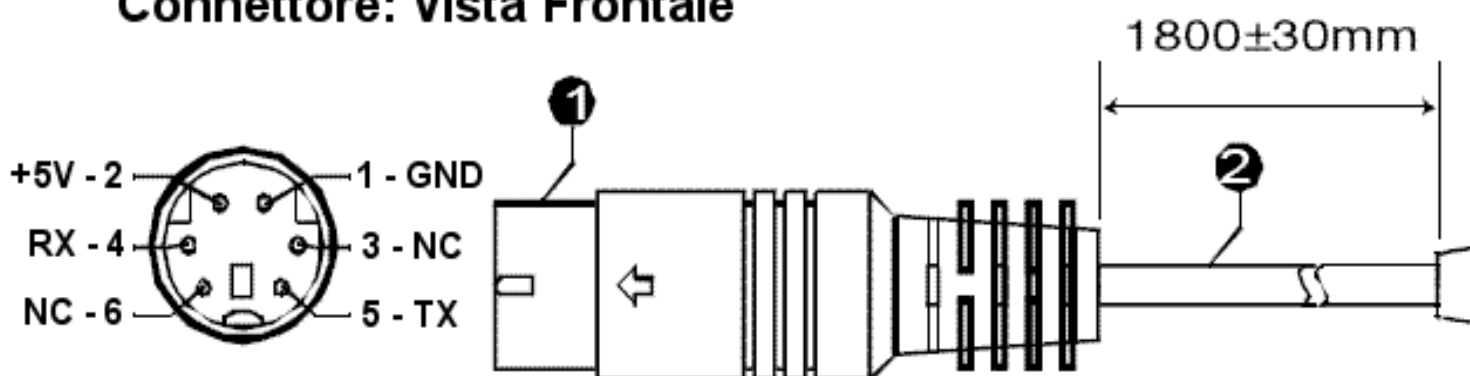


I.L. ELETTRONICA

GlobalSat
Wired by Wireless

BR-355 PS-2

Assegnazione PIN Connettore: Vista Frontale



PS/2 Connector

| Color | Function | CN1 |
|-------|----------|-----|
| Green | TX | 5 |
| White | RX | 4 |
| Red | VCC | 2 |
| Black | GND | 1 |

❶ Min Din: 6 pin male connector

❷ Wire: 3.6 ± 0.1 mm

Descrizione PIN:

VCC: l'alimentazione deve essere compresa tra + 4,5 e + 6,5 Vcc, consumo circa 42 mA

TX: dati NMEA provenienti dal Ricevitore GPS, da inviare all'apparato

RX: dati NMEA provenienti da eventuale software esterno (SiRFdemo SOFTWARE)

GND: collegare alla massa (-)



環天衛星科技股份有限公司

PRODUCT USER MANUAL

RS232 GPS RECEIVER

BR-355

GlobalSat Technology Corporation

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Features:

SiRF star III high performance GPS Chip Set
Very high sensitivity (Tracking Sensitivity: -159 dBm)
Extremely fast TTFF (Time To First Fix) at low signal level
Support NMEA 0183 data protocol
Built-in SuperCap to reserve system data for rapid satellite acquisition
Built-in patch antenna
Super-cohesive magnetic for mounting on the car
Water resisted and non-slip on the bottom
RS232 interface connection port
LED indicator for GPS fix or not fix

| | |
|---------------|----------------------------|
| LEDOFF: | Receiver switch off |
| LED ON: | No fixed, Signal searching |
| LED Flashing: | Position Fixed |

Specification:

General

| | |
|-------------|---------------------------------|
| Chipset | SiRF Star III |
| Frequency | L1, 1575.42 MHz |
| C/A code | 1.023 MHz chip rate |
| Channels | 20 channel all-in-view tracking |
| Sensitivity | -159 dBm |

Accuracy

| | |
|----------|---|
| Position | 10 meters, 2D RMS 5 meters, 2D RMS, WAAS enabled |
| Velocity | 0.1 m/s |
| Time | 1us synchronized to GPS time |

Datum

| | |
|---------|--------|
| Default | WGS-84 |
|---------|--------|

Acquisition Time

| | |
|---------------|-------------------|
| Reacquisition | 0.1 sec., average |
| Hot start | 1 sec., average |
| Warm start | 38 sec., average |

Cold start 42 sec., average

Dynamic Conditions

Altitude 18,000 meters (60,000 feet) max
Velocity 515 meters /second (1000 knots) max
Acceleration Less than 4g
Jerk 20m/sec **3

Power

Main power input 4.5V ~ 6.5V DC input
Power consumption 42mA

Protocol

Electrical level Output voltage level: 0V ~ 2.85V
Baud rate 4,800 bps
Output message NMEA 0183 GGA, GSA, GSV, RMC, VTG, GLL

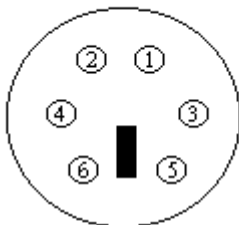
Physical Characteristics

Dimension 53mm diameter, 19.2mm height
Cable Length 65"

Operating temperature -30°C to +85°C

Pin Assignment

(MD-6) Male-type



PIN 1 : Black (GND)
PIN 2 : Red (VCC)
PIN 4 : White (RX)
PIN 5 : Green (TX)



Pin description

*** VIN (DC power input):**

This is the main DC supply for a 4.5V ~6.5 DC input power.

*** TX:**

This is the main transmits channel for outputting navigation and measurement data to user's navigation software or user written software.

*** RX:**

This is the main receive channel for receiving software commands to the engine board from SiRFdemo software or from user written software.

*** GND:**

GND provides the ground for the engine board. Connect all grounds.

SOFTWARE COMMAND

NMEA Output Command

GGA-Global Positioning System Fixed Data

Table B-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 B-2 GGA Data Format

| 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 B-3 |
| Satellites Used | 07 | | Range 0 to 12 |
| HDOP | 1.0 | | Horizontal Dilution of Precision |
| MSL Altitude ¹ | 9.0 | meters | |
| Units | M | meters | |
| Geoid Separation ¹ | | 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 |

¹SiRF Technology Inc. does not support geoid corrections. Values are WGS84 ellipsoid heights.

Table B-3 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 |

GLL-Geographic Position-Latitude/Longitude

Table B-4 contains the values for the following example:

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

Table B-4 GLL Data Format

| Name | Example | Units | Description |
|---------------|------------|-------|----------------------------------|
| Message ID | \$GPGLL | | GLL protocol header |
| 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 |
| UTC Position | 161229.487 | | hhmmss.sss |
| Status | A | | A=data valid or V=data not valid |
| Checksum | *2C | | |
| <CR><LF> | | | End of message termination |

GSA-GNSS DOP and Active Satellites

Table B-5 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 B-5 GSA Data Format

| Name | Example | Units | Description |
|-----------------------------|---------|-------|----------------------------------|
| Message ID | \$GPGSA | | GSA protocol header |
| Mode1 | A | | See Table B-6 |
| Mode2 | 3 | | See Table B-7 |
| Satellite Used ¹ | 07 | | Sv on Channel 1 |
| Satellite Used ¹ | 02 | | Sv on Channel 2 |
| | | | |
| Satellite Used ¹ | | | 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 |

1. Satellite used in solution.

Table B-6 Mode1

| Value | Description |
|-------|---|
| M | Manual-forced to operate in 2D or 3D mode |
| A | 2Dautomatic-allowed to automatically switch 2D/3D |

Table B-7 Mode 2

| Value | Description |
|-------|-------------------|
| 1 | Fix Not Available |
| 2 | 2D |
| 3 | 3D |

GSV-GNSS Satellites in View

Table B-8 contains the values for the following example:

\$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

Table B-8 GSV Data Format

| Name | Example | | Description |
|---------------------------------|---------|---------|--------------------------------------|
| Message ID | \$GPGSV | | GSV protocol header |
| Number of Messages ¹ | 2 | | Range 1 to 3 |
| Message Number ¹ | 1 | | Range 1 to 3 |
| Satellites in View | 07 | | |
| Satellite ID | 07 | | Channel 1(Range 1 to 32) |
| Elevation | 79 | degrees | Channel 1(Maximum90) |
| 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(Maximum90) |
| 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 |

Depending on the number of satellites tracked multiple messages of GSV data may be required.

RMC-Recommended Minimum Specific GNSS Data

Table B-10 contains the values for the following example:

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

Table B-10 RMC Data Format

| 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 Ground | 0.13 | knots | |
| Course Over Ground | 309.62 | degrees | True |
| Date | 120598 | | ddmmvy |
| Magnetic Variation ² | | degrees | E=east or W=west |
| Checksum | *10 | | |
| <CR><LF> | | | End of message termination |

SiRF Technology Inc. does not support magnetic declination. All “course over ground” data are geodetic WGS48 directions.

VTG-Course Over Ground and Ground Speed

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

| Name | Example | Units | Description |
|------------|---------|---------|----------------------------|
| Message ID | \$GPVTG | | VTG protocol header |
| Course | 309.62 | degrees | Measured heading |
| Reference | T | | True |
| Course | | degrees | Measured heading |
| Reference | M | | Magnetic |
| Speed | 0.13 | knots | Measured horizontal speed |
| Units | N | | Knots |
| Speed | 0.2 | Km/hr | Measured horizontal speed |
| Units | K | | Kilometers per hour |
| Checksum | *6E | | |
| <CR><LF> | | | End of message termination |