



GNSS RECEIVER

SIGMA-G2T



FOR TRE-G2T

GPS L1/L2/L2C/L5; GALILEO E1/E5A

SIGMA-G2T is a powerful receiver for high accuracy applications, such as reference stations and CORS. 216 channels of multi-frequency GPS and Galileo in a small attractive, sturdy, and watertight box, which contains the TRE-G2T board.

SIGMA-G2T is a reliable receiver for high-precision navigation systems, including high dynamics systems, for machine and traffic control, as well as for high-precision surveying and geodynamics and aerogeophysics applications.

SIGMA can operate as a receiver for post-processing, as a Continuously Operating Reference Station (CORS) or portable base station for Real-time Kinematic (RTK) applications, and as a scientific station collecting information for special studies, such as ionosphere monitoring and the like.

Two external power inputs secure the power system redundancy and eliminate system failure. The on-board power supply on the SIGMA receiver accepts any voltage from +10 to +30 volts and delivers clean filtered voltage where needed.

SIGMA-G2T

TRACKING FEATURES*

Total 216 channels: all-in-view
GPS C/A, P1, P2, L2C (L+M), L5 (I+Q)
Gallileo E1 (B+C), E5A (I+Q), E5B(I+Q)
QZSS C/A, L1C (I+Q), L2C (L+M), L5 (I+Q), SAIF
Beidou B1, B2
SBAS** L1, L5
IRNSS

In-Band Interference Rejection

Advanced Multipath Reduction

Fast acquisition channels

High accuracy velocity measurement

Almost unlimited altitude and velocity

PERFORMANCE SPECIFICATIONS

Autonomous: < 2 m

Static, Fast Static Accuracy:

- Horizontal: $0.3 \text{ cm} + 0.1 \text{ ppm} * \text{base_line_length}^{***}$
- Vertical: $0.35 \text{ cm} + 0.4 \text{ ppm} * \text{base_line_length}$

Kinematic Accuracy:

- Horizontal: $1 \text{ cm} + 1 \text{ ppm} * \text{base_line_length}$
- Vertical: $1.5 \text{ cm} + 1 \text{ ppm} * \text{base_line_length}$

RTK (OTF) Accuracy:

- Horizontal: $1 \text{ cm} + 1 \text{ ppm} * \text{base_line_length}$
- Vertical: $1.5 \text{ cm} + 1 \text{ ppm} * \text{base_line_length}$

DGPS Accuracy:

- < 0.25 m post processing;
- < 0.5 m real-time

Real-time heading accuracy:

- $0.004/L$ [rad] RMS, where L is the antenna separation in [m]

Cold/Warm Start/ Reacquisition: < 35 seconds / < 5 seconds / < 1 second

RADIO SPECIFICATION

Cellular module:

- 3.5G UMTS/HSPA Module Global (850/1900/2100) /North America (850/1900/1700-2100AWS) / Europe (900/2100)
- Internal GSM/GPRS/EDGE quad-band module, GPRS/EDGE Class 10
- Internal CDMA2000 dual band module 800/1900MHz

Internal Radio:

- UHF 360-420 MHz
- UHF 406-470 MHz
- UHF FH915
- VHF 138-174 MHz
- L-BAND/BEACON

* For the full list of standard and optional features see www.javad.com

** US WAAS, European EGNOS, Russian SDCM, Indian GAGAN, Japanese MSAS, and similar future satellite systems

*** For good observation conditions and proper length of observation session

SIGMA-G2T

DATA STORAGE

Up to 2048 MB of onboard non-removable memory for data storage

INPUT/OUTPUT

Three serial RS232 ports (up to 460.8 kbps), 7 pin ODU

High-speed RS232/RS422 serial port (up to 460.8 Kbps), 7 pin ODU/ M12, 8 pin

High-speed USB 2.0 device port (480 Mbps), 5 pin ODU

Full-duplex 10BASE-T/100BASE-TX Ethernet port, 7 pin ODU

Bluetooth® V1.2 Class 2 supporting SPP Slave Profile

CAN 2.0 port, M12, 8 pin

Two 1 PPS synchronized to GPS, GLONASS or UTC, BNC

PPS level converter (0 to 4V on 50Ohm load)

Two Event Markers, BNC

IRIG

External Reference Frequency Input/Output, BNC

External Reference Output Frequency Converter (5/10/20MHz, -2dBm to +13dBm, step 1dB)

The central pin of the RF antenna connector outputs +5 VDC to power LNA. The sourced current is 0.12A max.

POWER SPECIFICATION

Two internal Li-Ion batteries (7.4 V, 5.8 Ah each) with internal charger

Operating Time up to 18 hours

Two external power inputs, 5 pin ODU

Input Voltage +10 to +30 volts

PHYSICAL & ENVIRONMENTAL

RF antenna connector: TNC female

Operation temperature -40° C to +65° C****

Storage temperature -45° C to +85° C*****

Enclosure: aluminum extrusion, waterproof IP 67

Humidity: 100% condensing

Shock

- complies with MIL-STD- 810H (method 514.8)

Vibration

- complies with MIL-STD- 810H (method 516.8)

Dimensions: 5.2 x 2.4 x 7.48 inches (132x61x190mm)

Weight: 2.8 lbs (1.27 kg)

**** The operating temperature range of Li-Ion batteries is -30 ° C to +55 ° C

*****The storage temperature of Li-Ion batteries is -20 ° C to +45° C

SIGMA-G2T

DATA FEATURES

Up to 100 Hz update rate for real time position and raw data (code and carrier)

10 cm code phase and 1 mm carrier phase precision

IEEE 1588 protocol support for a Precision Clock Synchronization Protocol for Networked Measurement and Control Systems.

Spoofing detection

Spectrum data output

GLONASS .2mm Dynamic Calibration

Hardware Viterbi decoder

RTCM SC104 versions 2.x and 3.x Input/Output

NMEA 0183 versions 2.x and 3.0 Output

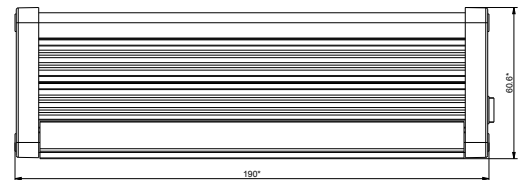
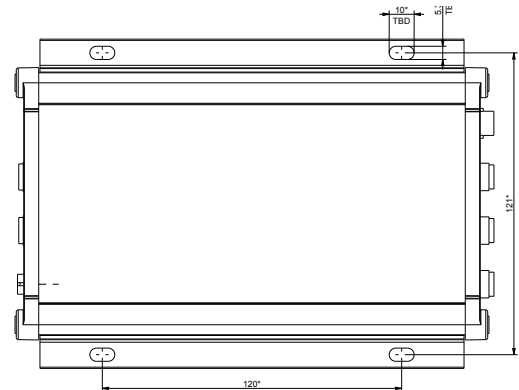
Code Differential Base/Rover

Geoid and Magnetic Variation models

RAIM

Different DATUMs support

Output of grid coordinates



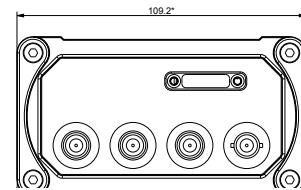
EASY MANAGEMENT WITH NETVIEW&MODEM

NetView&Modem is a free application allowing the user to easily control JAVAD GNSS SIGMA-3 receivers, i.e. allowing efficiently managing receiver parameters and commands via a user friendly graphical interface.

NetView&Modem displays spectrum data captures and allows the user to interpret them.

ROVER RTK MODE

The receiver could be able to operate as Rover RTK adapting its operative mode to the quality of the signal received, being able to select automatically its operative mode among Rover RTK, DGPS (EGNOS) or autonomous based on the corrections availability.



* All dimensions are in mm

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