



SIGMA-G₃TAJ(T)

for TRE-G3TAJ, TRE-G3TAJT

The SIGMA receiver is based on our TRIUMPH Technology implemented in our TRIUMPH Chip. For the first time in the GNSS history, we offer up to 100 Hz RTK, 216 channels of multi-frequency GPS, Galileo, and GLONASS in a small nice-looking durable watertight box with the TRE-G3TAJ or TRE-G3TAJT boards inside.

The main advantage of Sigma-G3TAJ(T) is the In Band Interference Rejection (IBIR) availability. Sigma is a powerful and 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-G3TAJT supports IEEE 1588 Standard for a Precision Clock Synchronization Protocol for Networked Measurement and Control Systems. and operates as a GPS-synchronized master clock, which allows synchronization of real time industrial distributed systems over Ethernet network with sub-microsecond accuracy. Delta 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 SIGMA receiver accepts any voltage from +10 to +30 volts and delivers clean filtered voltage where needed.

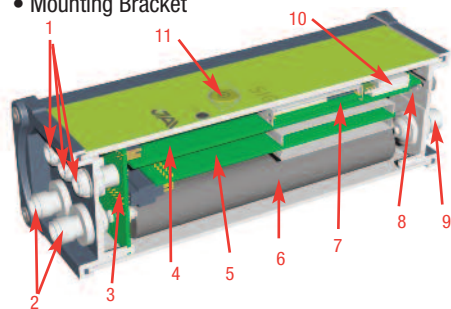
SIGMA-G3TAJ(T)

Standard Configuration

- GPS L1/L2/L2C/L5
- GLONASS L1/L2
- Update rate 1 Hz
- RAIM
- In-Band Interference Rejection
- TriPad interface
- RS232 serial port (460.8 kbps)
- External GNSS Antenna TNC Female connector
- Rechargeable Li-Ion Batteries

Optional Features

- Galileo E1/E5A
- QZSS
- Beidou B1/B2*
- Update rate 5Hz, 10Hz, 20Hz, 50Hz & 100Hz
- RTK rate 1 Hz, 5Hz, 10Hz, 20Hz, 50Hz & 100Hz
- Data recording up to 2048MB
- Multi-Base Code Differential Rover
- Code Differential Base
- Advanced Multipath Reduction
- IEEE1588 Master Clock (G3TAJT only)
- Two event markers
- Two 1 PPS timing strobes
- 1 PPS level converter
- CAN port
- External Reference Frequency Input/Output
- External Reference Output Frequency converter
- Up to 3 high-speed RS232 serial ports
- High-speed RS232/RS422 serial port
- USB port
- Ethernet
- Bluetooth® Interface
- Internal 3.5G UMTS/HSPA Module
- Internal UHF/VHF Modem
- Internal GSM/GPRS/EDGE Module
- Internal CDMA2000 Module
- External UHF/VHF, GSM/CDMA2000, Bluetooth Antenna Connectors
- WAAS/EGNOS/MSAS (SBAS)
- 2x External Power Inputs
- Mounting Bracket



1. Communication and Power Ports
2. External GNSS Antenna Connectors
3. GNSS Interconnect Board
4. GNSS Power and Communication Board with on-board SIM/UIM -card
5. GNSS Receiver with on-board Memory
6. Rechargeable Li-Ion Battery Pack
7. UHF/VHF Modem
8. SIM/UIM Card Holder
9. External UHF/VHF, GSM/CDMA2000, Bluetooth Antenna Connectors
10. 3.5G/GSM/CDMA2000 Modem
11. On/Off Button

* Board TRE_G2TH_4 or newer

Specifications are subject to change without notice.

Description

Total 216 channels: all-in-view (GPS L1/L2/L5, Galileo E1/E5A, GLONASS L1/L2/L5, QZSS L1/L2/L5, Beidou B1/B2, SBAS L1/L5) integrated receiver, rugged aluminum housing with TriPad interface and rechargeable Li-Ion battery pack

Tracking Specification

Signals Tracked
GPS C/A, P1, P2, L2C (L+M), L5 (I+Q)
Galileo E1 (B+C), E5A (I+Q)
GLONASS C/A, L2C, P1, P2
QZSS C/A, L1C(I+Q), L2C (L+M), L5 (I+Q), SAIF
Beidou B1, B2
SBAS L1, L5

Performance Specifications

Autonomous <2 m
Static, Fast Static accuracy Horizontal: 0.3 cm + 0.1 ppm * base_line_length**
Vertical: 0.35 cm + 0.4 ppm * base_line_length**
Kinematic accuracy Horizontal: 1 cm + 1 ppm * base_line_length
Vertical: 1.5 cm + 1.5 ppm * base_line_length
RTK (OTF) accuracy Horizontal: 1 cm + 1 ppm * base_line_length
Vertical: 1.5 cm + 1.5 ppm * 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 Start <35 seconds
Warm Start <5 seconds
Reacquisition <1 second

Power Specification

Battery Two internal Li-Ion batteries (7.4V, 5.8 Ah each) with internal charger
Operating Time Up to 18 hours
External Power Input Two (primary and secondary)
Input Voltage +10 to +30 volts

Radio Specifications

3.5G UMTS/HSPA Module Global (850/1900/2100) /North America (850/1900/1700-2100AWS) / Europe (900/2100)
GSM/GPRS/EDGE Module Internal GSM/GPRS/EDGE quad-band module, GPRS/EDGE Class 10
CDMA 2000 Module Internal CDMA2000 dual band module 800/1900MHz
UHF Radio Modem Internal 360-470 MHz radio transceiver, up to 38.4 kbps
VHF Radio Modem Internal 138-174 MHz radio transceiver, up to 38.4 kbps
Base Power Output 1 Watt

I/O

GNSS Antenna Connector 50 Ohm TNC, +5 VDC (100 mA) to power LNA.
Communication Ports Three serial RS232 ports (up to 460.8 kbps)
High-speed RS232/RS422 serial port (up to 460.8 Kbps)
High-speed USB 2.0 device port (480 Mbps)
Full-duplex 10BASE-T/100BASE-TX Ethernet port
Bluetooth V1.2 Class 2 supporting SPP Slave Profile
CAN 2.0
Other I/O Signals Two 1 PPS synchronized
PPS level converter (0 to 4V on 500hm load)
Two Event Markers
IRIG
External Reference Frequency Input/Output
External Reference Output Frequency Converter (5/10/20MHz, -2dBm to +13dBm, step 1dB)
Status Indicator Two LEDs, two function keys (TriPad)

Memory & Recording

Internal Memory Up to 2048MB of on-board non-removable memory for data storage
Raw Data Recording Up to 100 times per second (100Hz)

Real Time Data

Input/Output JPS, RTCM SC104 v. 2.x and 3.x, CMR
Output NMEA 0183 v. 2.x and 3.0, BINEX

Environmental Specifications

Enclosure Aluminum extrusion, waterproof IP67
Operating Temperature -40° C to +75° C***
Storage Temperature -45° C to +85° C****
Humidity 95%
Dimensions W: 132 mm x H: 61 mm x D: 190 mm
Weight 1277 g

**For good observation conditions and proper length of observation session
***The operating temperature range of Li-Ion batteries is -30 ° C to +55 °
****The storage temperature of Li-Ion batteries is -20 ° C to +45 °



JAVAD GNSS
www.javad.com

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