



GNSS RECEIVER

SIGMAD



FOR DUO-G2, DUO-G2D, DUO-G3D

We offer the multi-frequency satellite-based two-antenna system SigmaD in a small, nice-looking durable, watertight box. The system is based on our TRIUMPH Technology implemented in the TRIUMPH Chip and includes 216 channels of multi-frequency GPS, Galileo, and GLONASS. The dual-frequency code and carrier phase data from two antennas are processed to determine the heading angle and the RTK positions of the two antennas up to 50 times per second. SigmaD is a powerful and reliable receiver for high-precision navigation systems to be used in various applications, such as machine and traffic control, precision agriculture, etc.

SigmaD receiver also includes TriPad (two LEDs, ON/OFF and function button), GSM/CDMA2000 module, UHF/VHF modem, and batteries. Also, the receiver comes with a large amount of flash for data storage. Two external power inputs secure the power system redundancy and eliminate system failure. The on-board power supply on the SigmaD receiver accepts any voltage from +10 to +30 volts and delivers clean filtered voltage where needed.

TRACKING FEATURES*

Total 216 channels: all-in-view

Features/Receiver Type	G2	G2D	G3D
GPS C/A, P1, L1C (P+D)	2	2	2
GPS P2, L2C (L+M)	-	2	2
GALILEO E1 (B+C)	2	2	2
GLONASS C/A, L2C, P1, P2	-	-	2
QZSS C/A, L1 (I+Q), SAIF	2	2	2
QZSS L2C (L+M)	-	2	2
Beidou B1	yes	yes	yes
SBAS L1	yes	yes	yes

Advanced Multipath Reduction

Fast acquisition channels

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]

Pos/ fix update rateup to 50 Hz RT K+head

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

DATA STORAGE

Up to 2 GB of onboard non-removable memory for data storage

INPUT/OUTPUT

Two high speed RS232 serial ports (up to 460.8 Kbps) 7 pin ODU

High speed configurable RS232/RS422 serial port (up to 460.8 Kbps) 7 pin ODU

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

High speed USB 2.0 dual-role port (device or host), 5 pin ODU

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

CAN 2.0 port, M12, 8 pin

IRIG timecode output A134, A137, B124, B137

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

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

Two Event Marker inputs, BNC

Two LEDs, two function keys (TriPad)

Two External Power ports

Bluetooth® V1.2 Class 2 supporting SPP Slave Profile

POWER SPECIFICATION

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

Operating Time up to 15 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 zz

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

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

Weight: 2.84 lbs (1.29 kg)

**** 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°

SIGMAD

DATA FEATURES

Up to 50 Hz update rate for real time position and raw data (code and carrier)

10 cm code phase and 1 mm carrier phase precision

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

NMEA 0183 versions 2.x and 3.0 Output

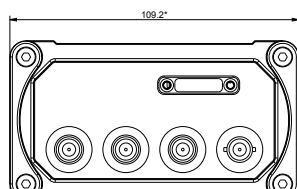
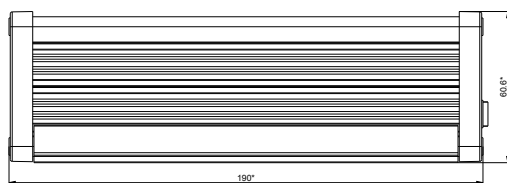
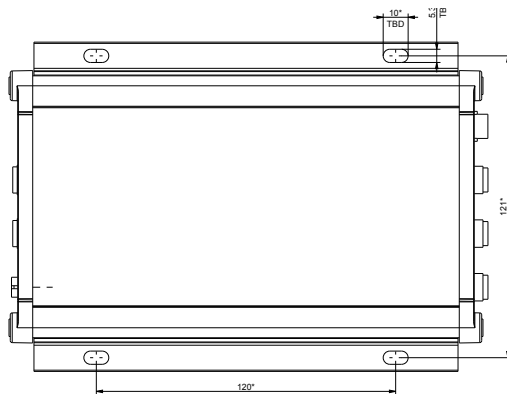
Code Differential Base/Rover

Geoid and Magnetic Variation models

RAIM

Different DATUMs support

Output of grid coordinates



* All dimensions are in mm



900 Rock Avenue
San Jose
CA 95131, USA

+1(408)770-1770
sales@javad.com
www.javad.com