



GNSS RECEIVER

SIGMADM



2 X GPS L1/L2/L5; 2 X GLONASS L1/L2/L3
2 X GALILEO E1/E5A/E5B/ALTBOC;
2 X BEIDOU B1/B2;
2 X QZSS L1/L2/L5; 2 X IRNSS L5; SBAS L1/L5

SigmaDM is the multi-frequency satellite-based two-antenna system in a small, nice-looking durable watertight box. It is based on our TRIUMPH Technology implemented in the TRIUMPH2 Chip and includes 864 channels of multi-frequency GPS, Galileo, GLONASS, QZSS, BeiDou. 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. SigmaDM is a powerful and reliable receiver for high-precision navigation systems used in various applications, such as machine and traffic control, precision agriculture, etc.

The SigmaDM receiver also includes TriPad (two LEDs, ON/OFF and function button), 3.5G module, UHF/VHF modem, and batteries. Besides, 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.

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TRACKING FEATURES*

Total 864 channels: all-in-view
GPS: C/A, L1C (P+D), P1, P2, L2C (L+M), L5(I+Q)
GLONASS: C/A, L2C, P1, P2, L3 (I+Q)
Galileo: E1 (B+C), E5A (I+Q), E5B (I+Q), AltBoc
BeiDou: B1, B1-2, B1C(P+D), B5A (I+Q), B2, B5B (I+Q)
QZSS: C/A, L1C (P+D), L2C (L+M), L5 (I+Q), SAIF
SBAS** : L1, L5
IRNSS L5

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

DATA STORAGE

Up to 16 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

Two Event Marker inputs, BNC

External Reference Frequency Input/Output, BNC

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

Two LEDs, two function keys (TriPad)

Two External Power ports

Bluetooth® V1.2 Class 2 supporting SPP Slave Profile

Two GNSS antenna connectors: 50 Ohm TNC or SMA, +5 VDC (120 mA) to power LNA

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

- 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°

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

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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

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

Spoofing detection

Spectrum data output

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

NMEA 0183 versions 2.x and 3.0 Output

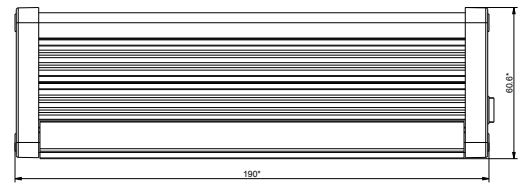
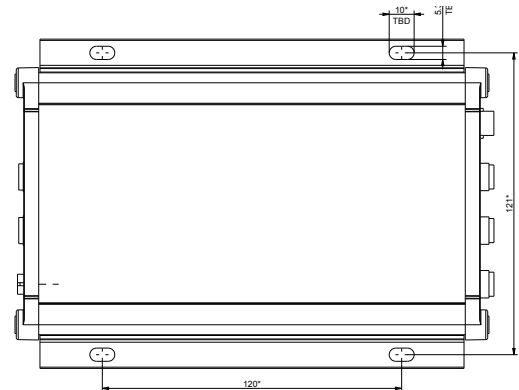
Code Differential Base/Rover

Geoid and Magnetic Variation models

RAIM

Different DATUMs support

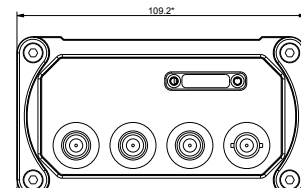
Output of grid coordinates



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.



* All dimensions are in mm

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.



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