



GNSS RECEIVER

SIGMA-3N



FOR TRE-3N

GPS L1/L2/L2C/L5, GALILEO E1/E5A/E5B/ALTBOC
GLONASS L1/L2/L3, BEIDOU B1/B2

SIGMA-3N is a powerful receiver for high accuracy applications, such as reference stations and CORS. 864 GNSS channels of SIGMA-3N allow tracking all current and future satellite signals.

The SIGMA-3N receiver includes TriPad (two LEDs, ON/OFF and function button), GSM/CDMA2000 module, UHF/VHF modem, Bluetooth, Ethernet capability, up to two serial ports, up to two event markers and 1PPS timing strobes, and rechargeable batteries.

Two external power inputs secure the power system redundancy and eliminate system failure. The CAN interface in SIGMA-3N receiver is provided complete with all associated hardware and firmware, not just the CAN bus. The same is true with all the serial RS232/RS422 ports in our receiver.

In addition to timing strobe and event marker, the SIGMA-3N receiver includes the option of complete IRIG timing system.

SIGMA-3N

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:
 - $\sim 0.004/L$ [rad] RMS, where L is the antenna separation in [m]
- Cold/Warm Start/ Reacquisition:
 - <35 seconds /<5 seconds/ <1 second

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
- Hardware Viterbi decoder
- RTCM SC104 versions 2.x and 3.x Input/Output
- NMEA 0183 versions 2.x and 3.0 Output
- Code Differential Rover
- Code Differential Base
- Geoid and Magnetic Variation models
- RAIM
- Different DATUMs support
- Output of grid coordinates

DATA STORAGE

- Up to 16 GB of onboard non-removable memory for data storage

RADIO SPECIFICATION

- 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 360-470 MHz radio transceiver, up to 38.4 kbps
- Internal 138-174 MHz radio transceiver, up to 38.4 kbps
- 1 Watt

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

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

*** 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

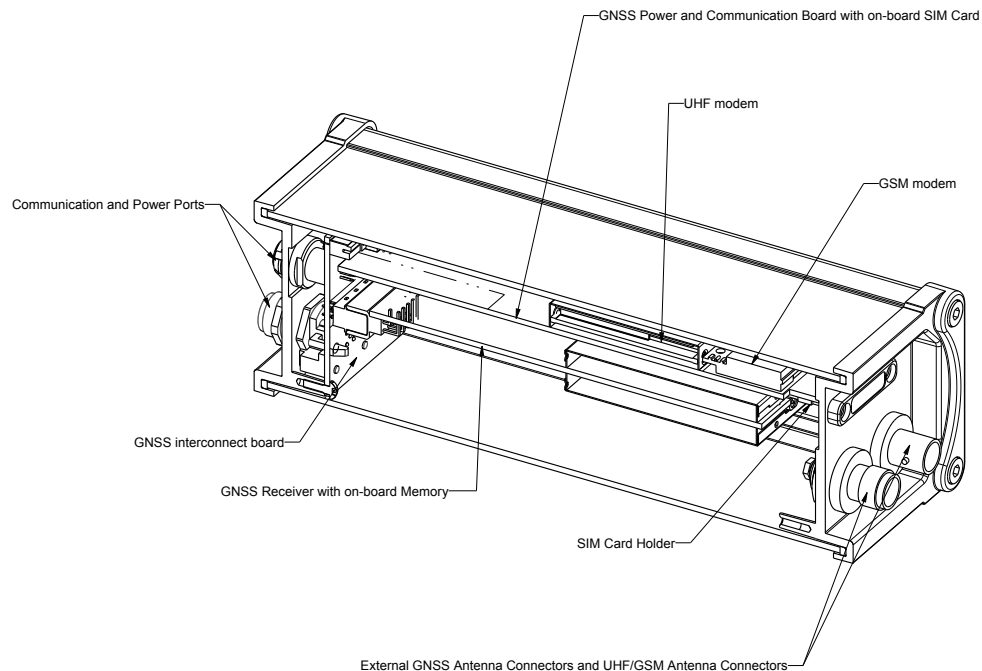
SIGMA-3N

INPUT/OUTPUT

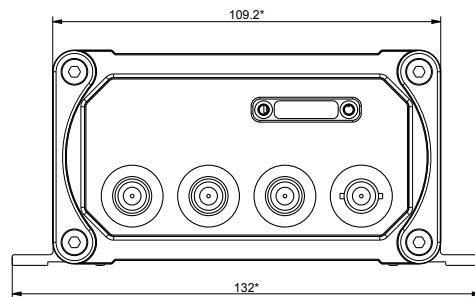
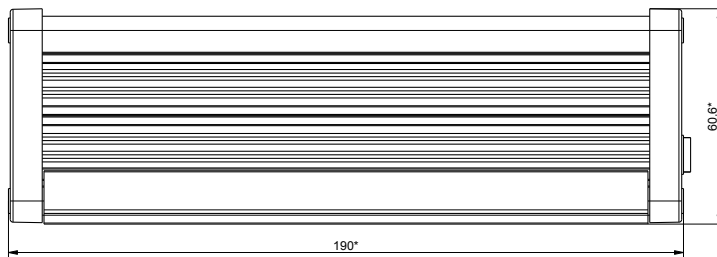
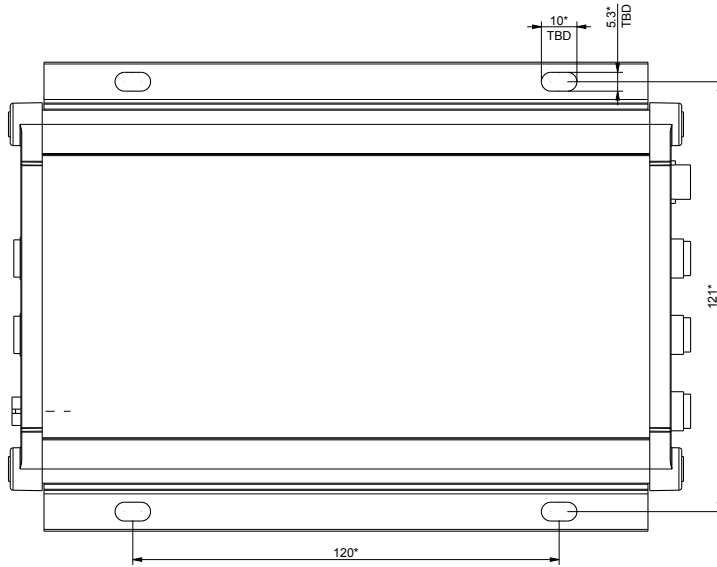
- Two External Power ports
- Two high speed RS232 serial ports (up to 460.8 Kbps)
- Two high speed configurable RS232/RS422 serial ports (up to 460.8 Kbps)
- High speed USB 2.0 device port (480 Mbps)
- Full-duplex 10BASE-T/100BASE-TX Ethernet port
- Two CAN 2.0 A/B ports
- IRIG timecode output A134, A137, B124, B137
- Two 1 PPS outputs synchronized to GPS, GLONASS or UTC
- Active edge programmable. Typical voltage level 0 to 2 volts on 50 Ohm load.
- Two Event Marker inputs
- External Reference Frequency Input/Output
- TriPad interface: Four external LED drivers, ON/OFF control and External Command inputs
- Bluetooth® Interface

POWER SPECIFICATION

- Two internal Li-Ion batteries (7.4 V, 5.8 Ah each) with internal charger
- Input Voltage +10 to +30 volts
- Operating Time up to 15 hours
- Two External power inputs: 1 - primary, 1 - secondary port(s)
- Environmental & Physical
- Operation temperature -40° C to +75° C***
- Storage temperature -45° C to +85° C****
- Enclosure: Aluminum extrusion, waterproof IP67
- Humidity 100% condensing
- High shock and vibration resistance
- Dimensions: 5.2 x 2.4 x 7.48 inches (132x61x190 mm)
- Weight: 2.8 lbs (1.27 kg)



SIGMA-3N



* All dimensions are in mm



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