



GNSS RECEIVER

## DELTA-3L

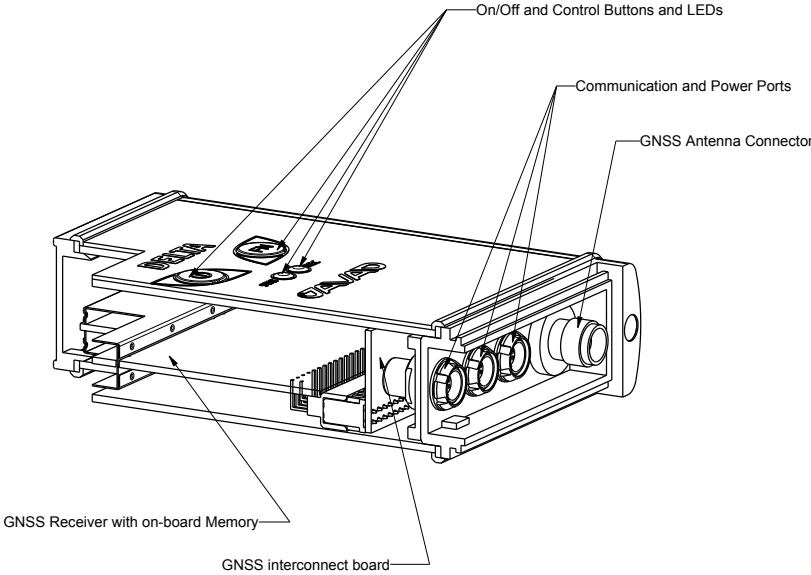
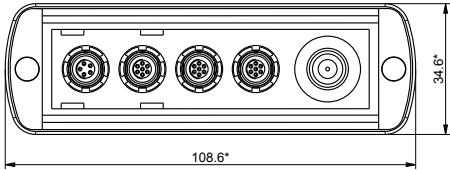
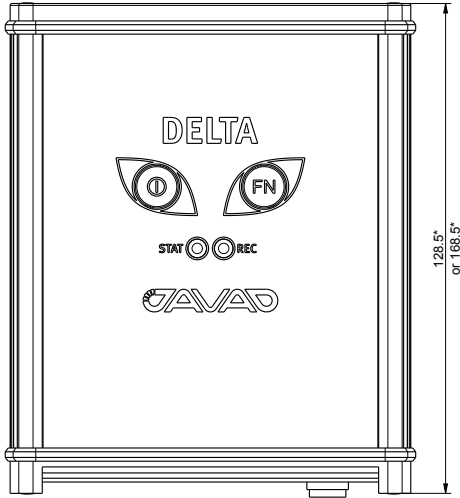


864 GNSS channels of this receiver allow tracking all current and future satellite signals. DELTA-3L is the only all-in-view receiver in the market that can track and decode the QZSS L6 (both L61 and L62) signal messages. We offer highly stable digital filters (band characteristics do not change with age, input voltages, or temperature), improved GLONASS inter-channel bias performance (due to our flat digital filter shape), excellent new multipath rejection technique, the best ever. Embedded calibrator measures phase and code delays of each signal of each band. External calibration is not required.

DELTA-3L 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.

DELTA-3L 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.

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## TRACKING FEATURES

- GPS C/A, L1C(P+D) including TMBOC(6,1,4/33) , P1, P2, L2C(L+M), L5(I+Q)
- GLONASS C/A, P1, P2, L2C, L3(I+Q)
- Galileo E1(B+C) including CBOC(6,1,1/11), E5A(I+Q), E5B(I+Q), AltBoc, E6(B+C)
- QZSS C/A, L1C(P+D) including TMBOC(6,1,4/33) , L2C(L+M), L5(I+Q), L6(L61/L62), L1S, L1Sb, L5S
- BeiDou B1, B1C(P+D) including TMBOC(6,1,4/33) , B2B(I+Q), B2, B2A(I+Q), AltBoc, B3
- SBAS\* L1, L5(P+D)
- IRNSS L5
- In-Band Interference Rejection
- Advanced Multipath Reduction
- Fast acquisition channels
- High accuracy velocity measurement

## 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:  
 $0.004/L \text{ [rad] RMS}$ , 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
- RINEX version 2.x and 3.x Output

- Precise Timing
- 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

## INPUT/OUTPUT

- 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 dual-role port (device or host)
- 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 UTC or any selected satellite system time.  
Voltage level:  $V_{oh} > 1.8V$  at 50 Ohm load  
Output Impedance: 25 to 30 Ohm (typ)
- Two Event Marker inputs
- External Reference Frequency Input/Output
- Two LEDs, two function keys (TriPad)

## POWER SPECIFICATION

- External power input
- Power consumption: 6 Watt
- Input voltage: +4.5 to +35 Volts

## PHYSICAL & ENVIRONMENTAL

- Operating Temperature:  $-40^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$
- Storage Temperature:  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$
- Humidity: 95%
- High shock and vibration resistance
- Dimensions: 4.3x1.4x5.6/max 6.3 inches (109x35x141/ max 160 mm) with connectors
- Weight: 0.92 lbs (0.42 kg)

\* 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

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## TRIPAD

TriPad is the receiver's minimum interface used to display and control data input and output.

Figure 3. DELTA TriPad

The STAT (status) LED displays the number of tracked satellites.

- Green – eight and more satellites.
- Yellow – five to seven satellites.
- Red – less than five satellites.
- No light – no satellites.

Effective number of satellites are total number of satellites tracked minus the number of non-GPS systems tracked. E.g. if 8 GPS and 5 GLONASS are tracked the effective number of satellites is 12.

The REC (record) LED displays the data recording status and blinks on each recording.

- Green – recording data.
- Yellow – less than 10 min memory left.
- Red – memory is full.
- No light - not active.

The On/Off (power) button turns the receiver on and off.

The FN button starts/stops data recording.



## OPTION AUTHORIZATION FILE (OAF)

JAVAD GNSS issues an Option Authorization File (OAF) to enable the specific options that customers purchase. An Option Authorization File allows customers to customize and configure the DELTA-3L receiver according to particular needs, thus only purchasing those options needed.

Typically, all DELTA-3L receivers ship with a temporary OAF that allows the receiver to be used for a predetermined period of time. When the receiver is purchased, a new OAF activates desired, purchased options permanently. Receiver options remain intact when clearing the NVRAM or resetting the receiver.



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