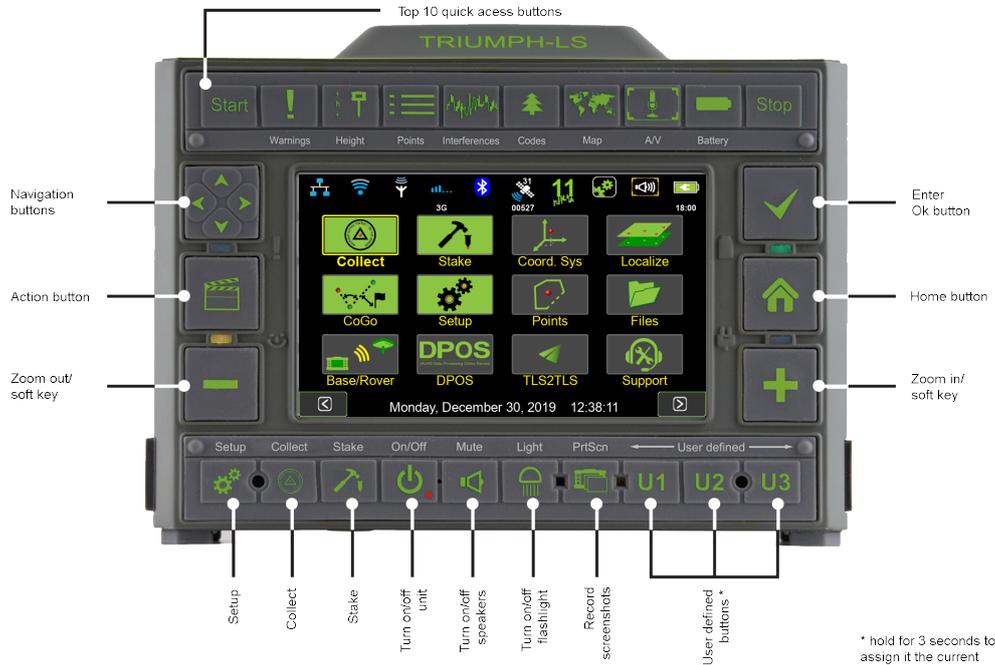


JAVAD



TRIUMPH-LS

Introducing GUIDE data collection in the TRIUMPH-LS. Visual Stake-out, navigation, six parallel RTK engines, over 3,000 coordinate conversions, advanced CoGo features, rich attribute tagging on a high resolution, large, bright display.

TRIUMPH-LS is a revolutionary new GNSS receiver that combines high performance 864-channel GNSS receiver, all-frequency GNSS antenna, and a modern featured handheld. Versatile attribute tagging, feature coding and automatic photo and voice documentation.

The TRIUMPH-LS automatically updates all firmware when connected to a Wi-Fi internet connection.

TRIUMPH-LS

Main Features*

- 864 channels
- Hybrid RTK and Beast Mode RTK
- RAIM
- Advanced Multipath Reduction
- In-Band Interference Rejection
- GLONASS .2mm Dynamic Calibration
- Integrated Controller and J-Field Software
- Six parallel RTK engines to maximize solution availability
- Automatic Engines Resets, verification and validation strategy
- Several graphical and numerical confidence reports and documentation
- Voice-to-text conversion for hands free operation and documentation
- Lift & Tilt and automatic shots for hands free operation
- Visual Stakeout (Virtual Reality)
- “DPOS it” or “Reverse Shift it” features. The most advanced RTK verification
- Photogrammetry and angle measurements with embedded cameras
- Automatic or manual photo documentation
- Automatic screen shots documentation
- Audio files for documentation
- Automatic tilt correction
- Comprehensive HTML and PDF reports.
- Comprehensive codes, tags and drawing tools
- Over 3,000 Coordinate Systems
- Automatic and free software update via Internet
- Data Recording up to 16 GB
- Real-time Data Input/Output JPS, RTCM SC104 v. 2.x and 3.x, CMR
- Real-time Data Output NMEA 0183 v. 2.x and 3.0, BINEX
- WiFi, Bluetooth, Ethernet
- Internal 4G LTE Mini Card
- Internal Radio Modem
- Lifetime Firmware & Software Updates
- 3-Year Unlimited Warranty



Internal GNSS Antenna

Versatile High Performance Geodetic Antenna

Antenna Type	Microstrip (Zero Centered)
Ground Plane	Antenna on a flat ground plane
LNA Gain	32±2 dB

GNSS Receiver

Total 864 channels: all-in-view (GPS L1/L2/L5, Galileo E1/E5A/E5B, GLONASS L1/L2/L3, QZSS L1/L2/L5, Beidou B1/B2, SBAS L1/L5) integrated receiver, rugged magnesium housing

Signals Tracked	GPS C/A, P1, P2, L2C (L+M), L5 (I+Q) Galileo E1 (B+C), E5A (I+Q), E5B (I+Q), AltBoc GLONASS C/A, L2C, P1, P2, L3 (I+Q) QZSS C/A, L1C(I+Q), L2C (L+M), L5 (I+Q), SAIF Beidou B1, B2 SBAS L1, L5 IRNSS L5
Autonomous Accuracy (rms)	<2 m
Static, Fast Static Accuracy (rms)	Horizontal: 0.3 cm + 0.1 ppm * base_line_length Vertical: 0.35 cm + 0.4 ppm * base_line_length
Kinematic Accuracy (rms)	Horizontal: 1 cm + 1 ppm * base_line_length Vertical: 1.5 cm + 1.5 ppm * base_line_length
RTK V6+ Accuracy (rms)	Horizontal: 0.4 cm + 1 ppm * base_line_length Vertical: 0.7 cm + 1.5 ppm * base_line_length
DGPS Accuracy (rms)	< 0.25 m (post-processing) < 0.5 m (real-time)
Cold/Warm Start/Reacquisition	<35 seconds/<5 seconds/<1 second

Environmental

Enclosure	Molded magnesium alloy and plastic, IP67
Color	Gray
Operating/ Storage Temperature**	-40° C to +55° C / -20° C to +45° C
Humidity	100% condensing
Vibration	In process of obtaining MIL STD 810G & 810F Certification
Dimensions	7.20 x 4.88 x 4.17 inches (183 x 124 x 106 mm)
Weight	4.63 lbs (2.1 kg)

- The standard TRIUMPH-LS Rover Rod Replacement Adapter with Steel Pole Point installed is .086 meters (.2822 feet)
- The J-Tip with J-Tip Point installed is .133 meters (.4364 feet)
- The offset when the J-Tip is installed is .047 meters (.1542 feet)

* For the full list of standard and optional features see www.javad.com
**Li-Ion batteries are the temperature limiting factor

TRIUMPH-LS

Radio

4G LTE Mini Card	LTE, HSPA+, HSDPA, HSUPA, WCDMA, GSM, GPRS, EDGE (up to 100 Mbps) LTE, EV-DO, 1xRTT CDMA (up to 100 Mbps)
MicroSIM card slots	Two; user accessible, fully sealed
Radio Modem	Internal 406-470MHz UHF radio Internal 902-928/ 868-870 MHz ISM radio (optional)
Base Power Output	1 Watt

I/O

Communication Ports	Wi-Fi (IEEE 802.11b, g, n, d, e compliant) Bluetooth V2.1+EDR power Class 2 Full-duplex 10BASE-T/100BASE-TX Ethernet High Speed USB 2.0 Host High speed USB 2.0 Device RS232 (optional) up to 460800 bps
Other I/O Signals	1 PPS, Event Marker External GNSS Antenna External Radio Antenna

Controller

ARM MPU	DM3730 Up to 1-GHz ARM® Cortex™-A8 Core; 1GB RAM
Operating System	Linux
SD card slot	High Capacity microSD Card (microSDHC) up to 32GB Class 10; user accessible, fully sealed
Display	Active matrix color TFT LCD Module Diagonal 4.3"; 800 x 480 pixels
Touchscreen	Low reflective resistive touch panel
Buttons	Navigation button Home - main screen Action button Zoom -/Zoom + Enter (Ok) button - activates enter function Three user programmable buttons On/Off button Ten quick access button
LED Indication	Battery charging status, battery status, sleep mode, warning status
Voice recording	integrated
Audio Output	integrated
Photo Camera	Two integrated cameras 3 Mpixels
Inclinometers	integrated
Compass	integrated



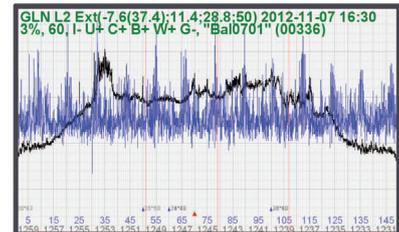
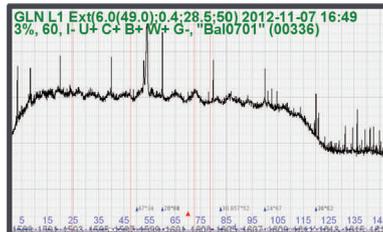
Power Management

Battery	Rechargeable, lightweight Li-Ion battery 85 Wh (nom.)
Operation Time	25 hours on one charge
External Power Input	10-30 V DC
Charging	Power management notifies user when battery needs charging and protects battery from overcharging

TRIUMPH-LS

Interference Monitoring and Reporting

The Triumph-LS has the best available interference protection. It is the only receiver that monitors and reports interference graphically and numerically. Over 100 channels are dedicated to continuous interference monitoring.



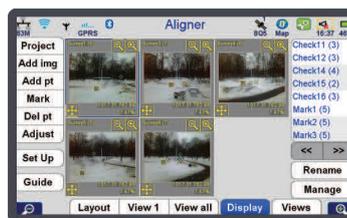
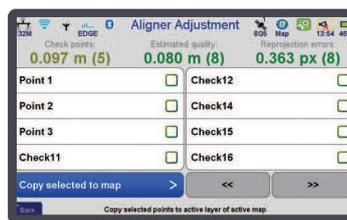
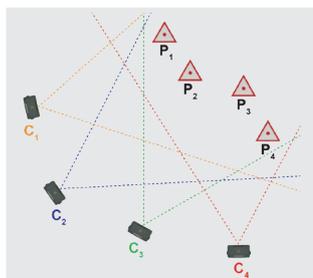
Visual Stakeout



With Visual Stakeout (VSO) the virtual location of the point to be staked can be seen by a “flag” shown on the Triumph-VS camera image. This visual aid helps to navigate quickly to the point and makes stakeout jobs fast and fun. Use VSO as an easy and convenient way to get close to the target point, and then switch to the regular stakeout mode to perform precise measurement.

Offset Survey with Photogrammetry

Offsets can be calculated using the internal camera of the TRIUMPH-LS or with an external camera!



Specifications are subject to change without notice



JAVAD GNSS
www.javad.com

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