



# TRIUMPH-VS

TRIUMPH-VS is a revolutionary new GNSS complex that combines high performance 216-channel GNSS receiver, all-frequency GNSS antenna, and a modern featured handheld. All-in-one TRIUMPH-VS is a new word in survey.

The breathtaking “Lift & Tilt” feature allows surveying in the automatic mode: suffice it to lift TRIUMPH-VS near vertical on the survey mark, and survey will start, sensors continuously compensate for leveling offsets, audio tones keep you informed of the survey progress. When you are happy with survey result, just tilt the TRIUMPH-VS and walk to the next point. The file will be closed automatically. On the next point repeat these steps again.

Compact, lightweight, reliable TRIUMPH-VS changes the idea of surveying, opens new horizons in this industry. There are no longer GNSS receiver, GNSS antenna, and controller separately, there is TRIUMPH-VS: ready, steady... new!

# TRIUMPH-VS

## Integrated GNSS Antenna



Antenna Type	Microstrip (Zero Centered)
Ground Plane	Antenna on a flat ground plane
Capability	L1 GPS/GLONASS/Galileo L2 GPS/GLONASS L3 GLONASS L5 GPS E5 Galileo
Frequency	1565~1610 MHz 1165~1253 MHz
Antenna Gain	1565~1610 MHz - 5.0 dB typ. 1165~1253 MHz - 4.0 dB typ.
Axial Ratio	3.0 dB max.
Output Impedance	50 Ohm
LNA gain	32±2 dB
Noise Figure	1565~1610 MHz - 1.7 dB typ. 1165~1253 MHz - 1.7 dB typ.

## GNSS Receiver

Total 216 channels: all-in-view (GPS L1/L2/L2C/L5, Galileo E1/E5A, GLONASS L1/L2/L3, SBAS)

Tracking Channels GPS L1/L2/L2C/L5; Galileo E1/E5A; GLONASS L1/L2/L3; SBAS

Signals Tracked L1/L2 C/A and P Code & Carrier

Autonomous <2 m

Static, Fast Static Accuracy  
Horizontal: 0.3 cm + 0.5 ppm \* base\_line\_length  
Vertical: 0.5 cm + 0.5 ppm \* base\_line\_length

Kinematic Accuracy  
Horizontal: 1 cm + 1 ppm \* base\_line\_length  
Vertical: 1.5 cm + 1.5 ppm \* base\_line\_length

RTK (OTF) Accuracy  
Horizontal: 1 cm + 1 ppm \* base\_line\_length  
Vertical: 1.5 cm + 1.5 ppm \* base\_line\_length

DGPS Accuracy  
< 0.25 m Post Processing  
< 0.5 m Real Time

Cold Start <35 seconds

Warm Start <5 seconds

Reacquisition <1 second

Internal Memory Up to 2048MB of onboard non-removable memory for data storage

Raw Data Recording Up to 100 times per second (100Hz)

Data Type Code and Carrier from GPS L1/L2/L2C/L5, Galileo E1/E5A, GLONASS L1/L2/L3

Real time data outputs RTCM SC104 versions 2.x and 3.x Input/Output

ASCII Output NMEA 0183 versions 2.x and 3.0 Output

Output Data Code and Carrier



## Environmental

Enclosure Molded magnesium alloy and plastic, IP55

Color Black

Operating Temperature\* -35° C to +75° C

Storage Temperature\*\* -40° C to +85° C

Humidity 100% condensing

Dimensions W:178 mm x H:109 mm x D:178 mm

Weight 1700 g

Lift&Tilt

\* The operating temperature of Li-Ion batteries is -30 ° C to 55 ° C

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

# TRIUMPH-VS

## Radio

GSM/GPRS/EDGE Module	Internal GSM/GPRS/EDGE quad-band module, GPRS/EDGE Class 10
SIM card slots	Two SIM cards can be used; user accessible, fully sealed
UHF Radio Modem	Internal 406-470MHz radio transceiver, up to 38.4kbps
Base Power Output	1 Watt

## I/O

Communication Ports	Wi-Fi (IEEE 802.11b/g) Bluetooth V2.0+EDR Class 2 supporting SPP Slave and Master Profiles Full-duplex 10BASE-T/100BASE-TX Ethernet port High Speed USB 2.0 On-The-Go port High Speed USB 2.0 Device port
Other I/O Signals	1 PPS synchronized Event Marker

## Controller

Processor	OMAP3530 600MHz; 512 MB RAM and 512MB NAND Flash
Operating System	Microsoft Windows CE 6.0
Memory	512 MB
SD card slot	High Capacity microSD Card (microSDHC) up to 32GB can be used; user accessible, fully sealed
Display	Active viewing area: 4.3" diagonal (109 mm) High visibility TFT active matrix ; WVGA, 800 x 480 pixels
Touchscreen	Sealed resistive touchscreen, Fingerprint-resistant oleophobic coating
Buttons	Four-way directional Navigation button Standard key functions include: Home - main screen FN -action button -/+ - Cancel (Zoom -)/Accept (Zoom +) Enter (Ok) button - activates enter function Five user programmable buttons On/Off button
Enunciators	Three LEDs: battery charging status, battery status, sleep mode
Voice recorder	integrated
Audio Output	integrated
Photo Camera	Two integrated cameras 3 Mpixels
IMU	integrated
Compass	integrated



## Power Management

Battery	Intelligent, rechargeable, lightweight Li-Ion battery pack, 63.0 Wh (nom.). Battery easily changed in field without tools Charging via power adapter
Operation Time	Operates no less than 9 hours on one charge
External Power Input	10 to 30 V power input connector for charging or direct power input
Charging	Power management notifies user when battery needs charging and protects battery from overcharging Charges in 3 to 5 hours

# TRIUMPH-VS



## Legs

In office you can use legs to putting on the table and best viewing

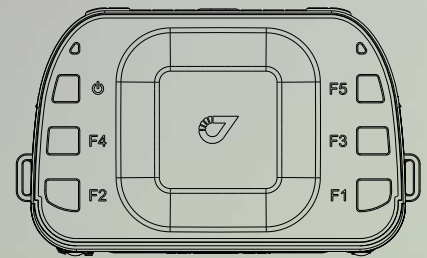
## 800 x 480 pixels high resolution "action" screen

Tap the appropriate icon on the screen to start the application.

## Quick access buttons and LEDs

The buttons allows the quick access to Home screen, choosing and opening the applications. LEDs show the battery level, charging status and sleep mode.

## Microphone and Headset jack



## High precision all-frequencies GNSS antenna

GPS L1/L2/L2C/L5. GLONASS L1/L2, Galileo E1/E5A

## Five quick access program buttons

User programmable buttons for quick receiver setup



## 3 mega pixels camera

For recording images along with GNSS data

## High capacity removable rechargeable battery pack

## Connectors

External power, two USB, Ethernet

## Mounting

Three connectors for mounting TRIUMPH-VS on tripods, monopods, poles and machines

## High resolution camera on the bottom



Specifications are subject to change without notice



**JAVAD GNSS**  
[www.javad.com](http://www.javad.com)

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