Advantages of your own base station and short baselines

Ambiguity resolution is faster and more reliable

Ambiguity resolution is more difficult and less reliable

5 miles | your own base station

far base station

30 miles
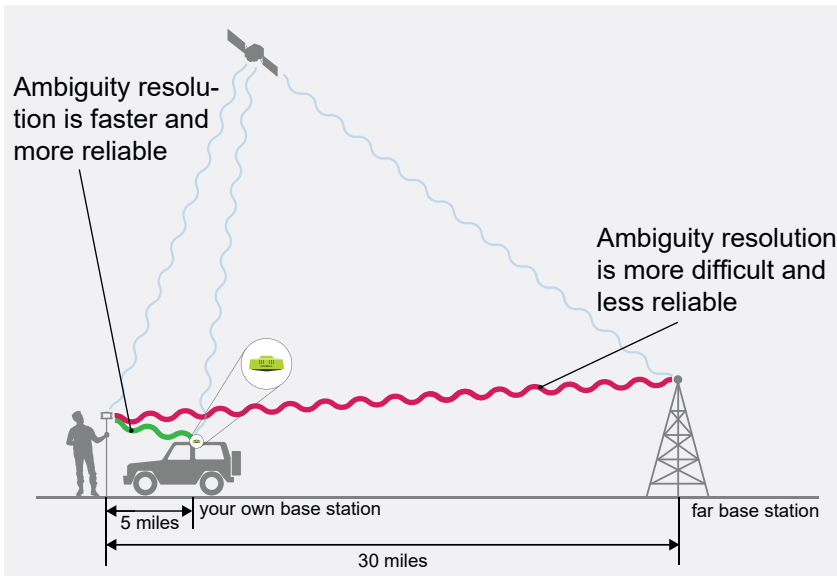
1. Shorter baselines provide significantly better **reliability** because the ambiguities are much easier to resolve and the correct ambiguity solution has an obvious contrast.

2. Shorter baseline has better **accuracy** because most of errors (like atmospheric and tropospheric effects) are common and cancel.

3. Shorter baseline ambiguities are resolved much **faster**. In longer baselines, incorrect ambiguities may pose as being correct in the statistical evaluations and it takes longer to isolate incorrect ambiguities.

4. Shorter baselines make it feasible to work in **difficult** areas (under tree canopy and in urban environments) because ambiguities have better contrast and are easier to resolve.

5. **Beast Mode RTK** is available only via our TRIUMPH-2 and TRIUMPH-1M base station. It makes ambiguity resolution up to 5 times faster because base station transmits base data 5 times per second. 5-Hz Beast Mode RTK is totally different from the up to 100-Hz RTK that is done by extrapolating the same 1-Hz data 100 times per second AFTER the ambiguities are fixed. This extrapolation technique does not improve the ambiguity resolution speed and is mainly used in applications like machine control after the ambiguities are fixed.

True 5 Hz RTK at rover
No extrapolation!
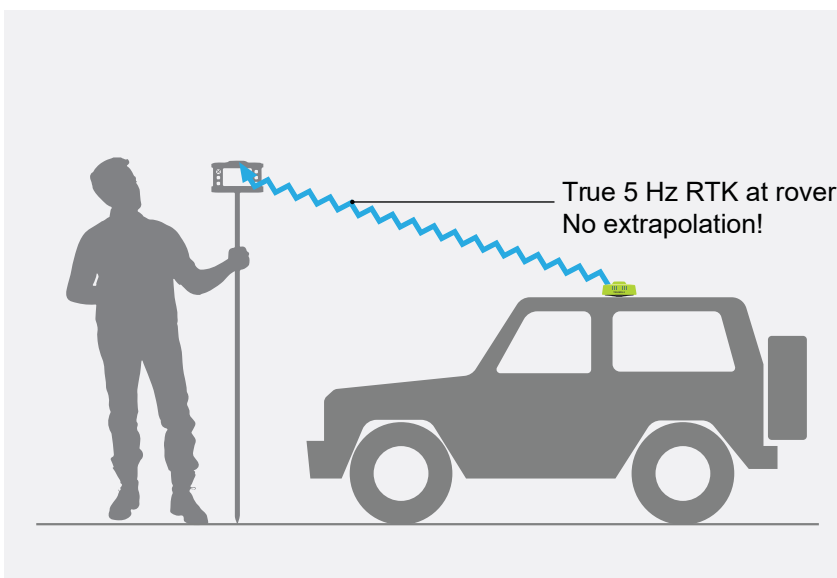
6. In addition to savings due to speed and reliability, it saves you RTN and communication charges. A complete system, Base + Rover + Radio + Controller & Controller Software, starts at **$19,990**. 0% financing available ($1,537.69 per month for 13 months) to active license US Professional Land Surveyors (PLS). Extended finance terms also available

contact **sales@javad.com** for details.

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This is **J-Mate**

J-Mate features a **camera** that can also find targets automatically, and a **laser module** for accurate distance measurements. It scans and examines the area around the intended target to ensure reliable identification. Two **precision encoders** measure vertical and horizontal angles to the target. Three **precision vials** allow a visual check on levelness of the instrument.

Take control with J-Mate + TRIUMPH-LS

Similar to using conventional total stations, to use the J-Mate you need first to establish its accurate position and calibrate its vertical and horizontal encoders. Then proceed to shoot the unknown points. This is similar to using any total station, but we have improved and automated the process.
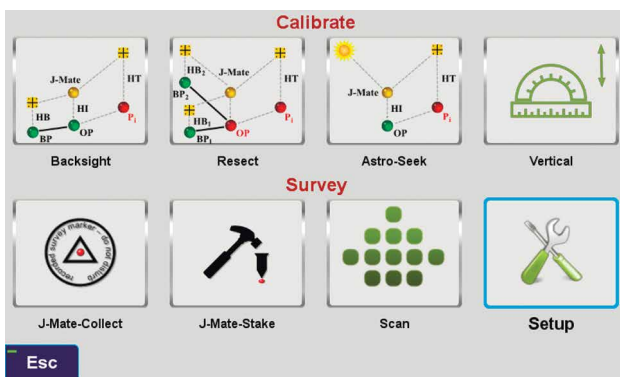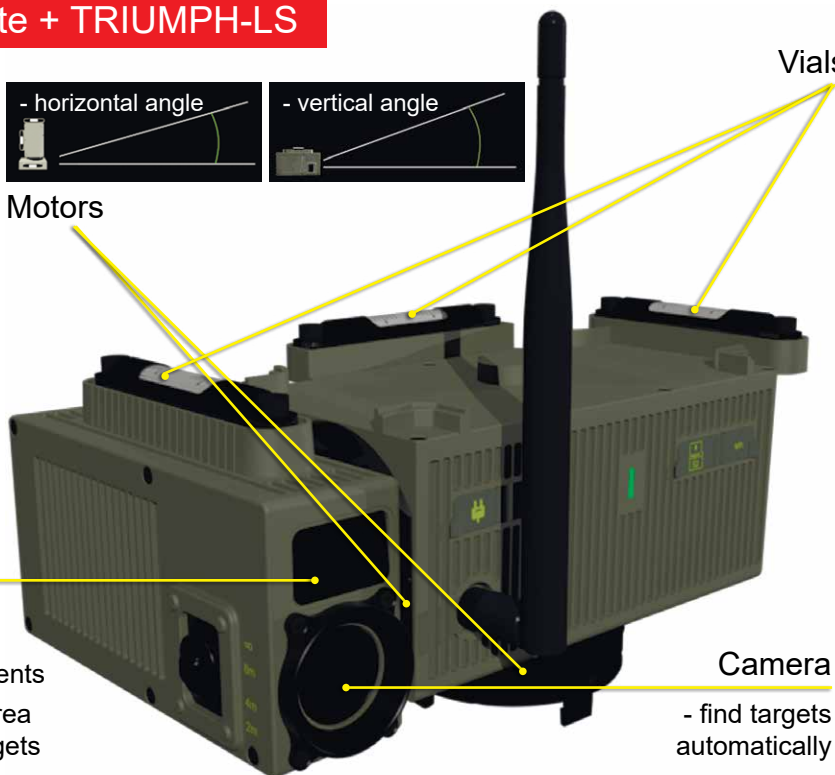
- horizontal angle

- vertical angle

Vials

Motors

Laser
- scanning
- distance measurements
- examine area around targets

Camera
- find targets automatically

Calibrate

Backsight Resect Astro-Seek Vertical

Survey

J-Mate-Collect J-Mate-Stake Scan Setup

Esc

With J-Mate you can establish your occupied position via three different ways: 1) Backsight; 2) Resection; or 3) our new Astro-Seek (more of that later).

When you click the Setup icon of the J-Mate screen you get access to parameters that tunes J-Mate to your desire.

After the J-Mate is calibrated, you can proceed with your work as normal via the Collect or Stake icon.

Backsight icon

If GNSS signals are available at the job site, click the J-Mate Backsight icon.
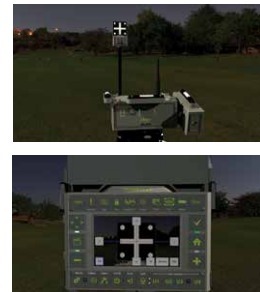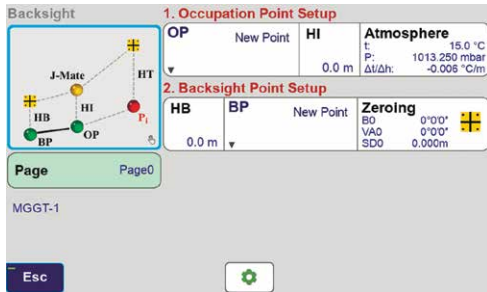
This screen appears which guides you to determine the accurate positions of the Occupation Point and the Backsight Point, to establish an azimuth and calibrate the J-Mate angular encoders.
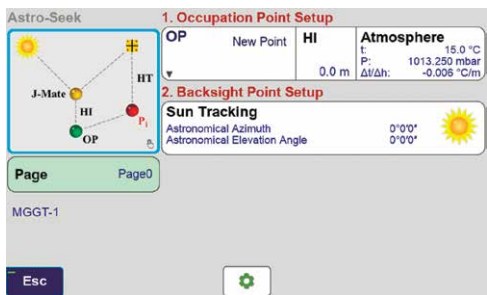
Resect icon

If GNSS signals are not available at the Occupation Point, click the "J-Mate-Resect" icon
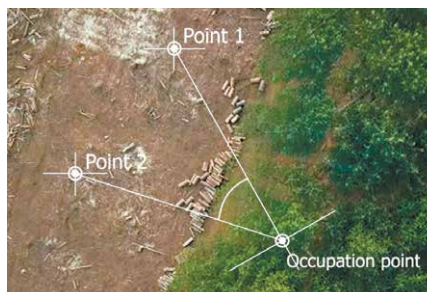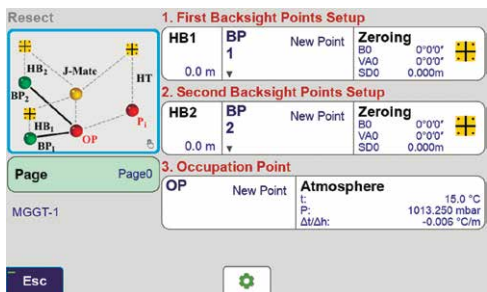
Shoot two or more known points to establish an accurate position and calibrate the encoders. Then continue to shoot the unknown points.

Astro-Seek icon

And now our new feature!

We have added a new innovative feature to the J-Mate that it can automatically calibrate itself via its automatic Sun or other astronomical objects-Seeking feature.

J-Mate-Collect

After calibration is performed, click the J-Mate-Collect icon to shoot the unknown points.
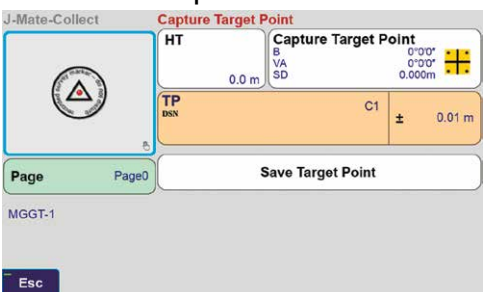
J-Mate-Stake

Click the J-Mate-Stake icon to use for stakeout.

The functions and features of the J-Mate stakeout are very similar to our conventional GNSS stakeout: RTK solutions guide you to the stake points. But with the J-Mate the camera follows the "+" sign that you carry and then the encoders and laser measurements (shown on screenshots) provide guidance to the stakeout features. This is similar to Visual Stakeout and other useful and innovative features of our TRIUMPH-LS GNSS RTK stakeout.

Smart laser scanner

J-Mate is also a camera-aided, smart laser scanner. The camera identifies redundant points that do not need to be scanned, but instead can be copied or interpolated from other readings without loss of information. That is, if the camera identifies a completely uniform flat area, it only scans the four corners of that area and interpolates in between. This feature can increase the effective speed of the scanner to much higher than its native 10-points-per-second speed.

Ordinary scanning

Improved scanning
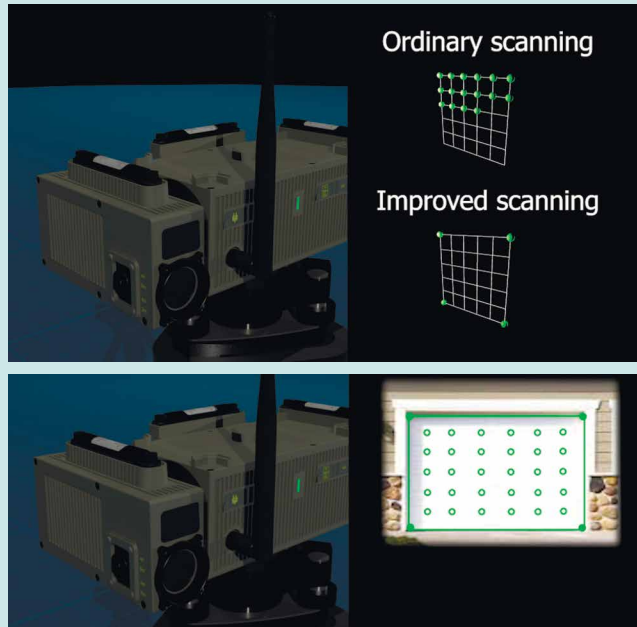
The scanning feature can also be used to find items like wires and poles and "closest-in-view" items and shoot them automatically.

Seize the day with J-Mate + TRIUMPH-LS

And all components fit in this small carrying case.

So we have a "**Total GNSS**" with a "**Robotic Total Station**" and a "**Smart Laser Scanner**". We call it our **"Total Solution"** and it can be operated by one person to perform jobs.

Hybrid RTK
Triple-Check your RTK results and ...

It triple checks the accuracy of RTK solutions by post-processing and CORS processing. In addition, if RTK can't a get fix (because of bad environment or bad communication with Base) Hybrid RTK comes to your rescue... automatically.

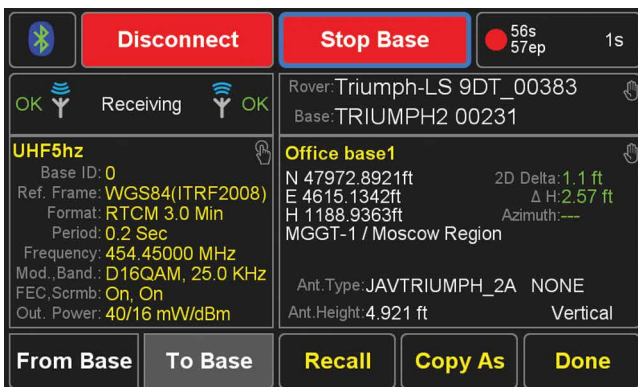## Nine Automatic Steps of Hybrid RTK
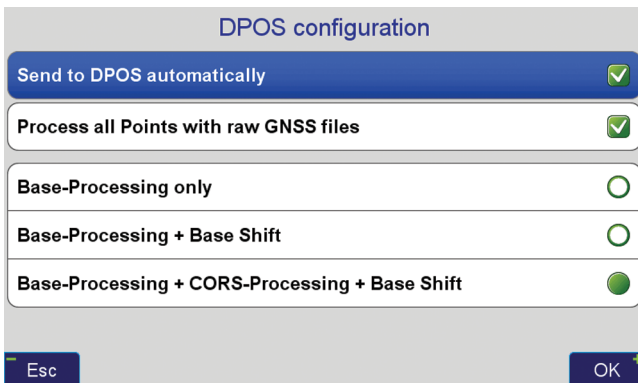### Confidence and Speed... Unlimited!

You do this ▾

1 Downloading base data.

When your RTK job is finished, go to your base and in Base/Rover screen click "Stop Base". Base data will be downloaded to TRIUMPH-LS via fast Bluetooth automatically. All of the following steps will be performed automatically too when WiFi/Internet connection is established.

Bluetooth	Disconnect	Stop Base	● 56s 57ep	1s

OK ⚊ Receiving ⚊ OK	Rover:Triumph-LS 9DT_00383 Base:TRIUMPH2 00231

UHF5hz
Base ID: 0
Ref. Frame: WGS84(ITRF2008)
Format: RTCM 3.0 Min
Period: 0.2 Sec
Frequency: 454.45000 MHz
Mod.,Band.: D16QAM, 25.0 KHz
FEC,Scrmb: On, On
Out. Power: 40/16 mW/dBm

Office base1
N 47972.8921ft
E 4615.1342ft
H 1188.9363ft
MGGT-1 / Moscow Region
2D Delta:1.1 ft
Δ H:2.57 ft
Azimuth:----

Ant.Type:JAVTRIUMPH_2A NONE
Ant.Height:4.921 ft   Vertical

From Base	To Base	Recall	Copy As	Done

DPOS options

DPOS configuration
Send to DPOS automatically	☑
Process all Points with raw GNSS files	☑
Base-Processing only	○
Base-Processing + Base Shift	○
Base-Processing + CORS-Processing + Base Shift	◉

- Esc	OK +

Automated steps ▾

2 Base data downloaded.

3 Awaiting DPOS server connection.

4 Rover points and base data sent to DPOS. Awaiting DPOS to process base-rover.

5 Rover points processed with base (relative).

6 Base data sent to DPOS to be processed with CORS data. Awaiting CORS data.

7 Base processed with CORS and corrections applied. (Absolute)

8 Base and rover points sent for CORS processing.

9 Rover points individually processed with CORS data.

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Where Have You Been With Your TRIUMPH-LS Lately

"Got some shots that he could not get with our gr5's."

"I often get 2 days of work done, in a day."

"The LS has increased our productivity 2:1."

"Truly amazing with a 4" grape vine directly overhead and the tree cover."

"I got some ridiculous 'fixes' today in some horrible situations. Reset receiver, moved around, etc. Tried to get a bad fix but had a hard time doing it."

"I often get 2 days of work done, in a day."

"Btw, pardon my French, but holy shit. I got some ridiculous 'fixes' today in some horrible situations. Reset receiver, moved around, etc. Tried to get a bad fix but had a hard time doing it."

"Since I got the Javad system, I go places NEVER BEFORE possible, and WITH confidence, because, the quality checks are there."

"This thing is bad ass!"

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