# Who Moved My 🎯 Base?

It is well known that having your own base station near your job site provides you with faster, more accurate, more reliable and less expensive solutions. If you don't know the accurate position of your base, our DPOS service will find it. Read details in the following pages.

After you start your base, If during your survey somehow your base is moved, all your rover points will be inaccurate to the amount of the base movement. But...

...But Don't Worry, Be Happy:

We will let you know instantly during your survey if your base has moved. We use:

1. Inclinometer which shows the tilt value.

2. Accelerometer which shows motion and shocks.

3. We calculate displacement. This value is accurate to 2 cm.
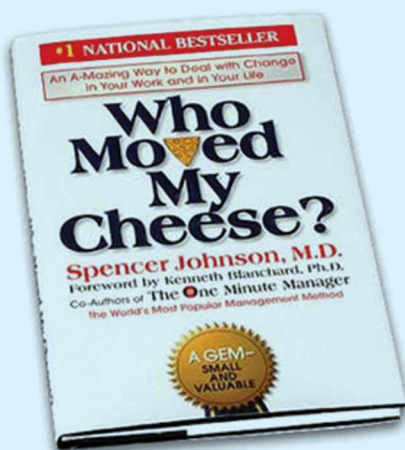
By the way, a must read book for adult professionals

Get to know J-Tip
Integrated magnetic locator in TRIUMPH-LS

No need to carry heavy magnetic locators any more. The J-Tip magnetic sensor replaces the tip on the bottom of your rover rod/monopod. Its advanced magnetic sensor send 100 Hz magnetic values to the TRIUMPH-LS via Bluetooth. TRIUMPH-LS scans the field and plots the 2D, 3D and time view of magnetic characteristics. It also shows the shapes and the centres of the objects under the ground and guides you to it.
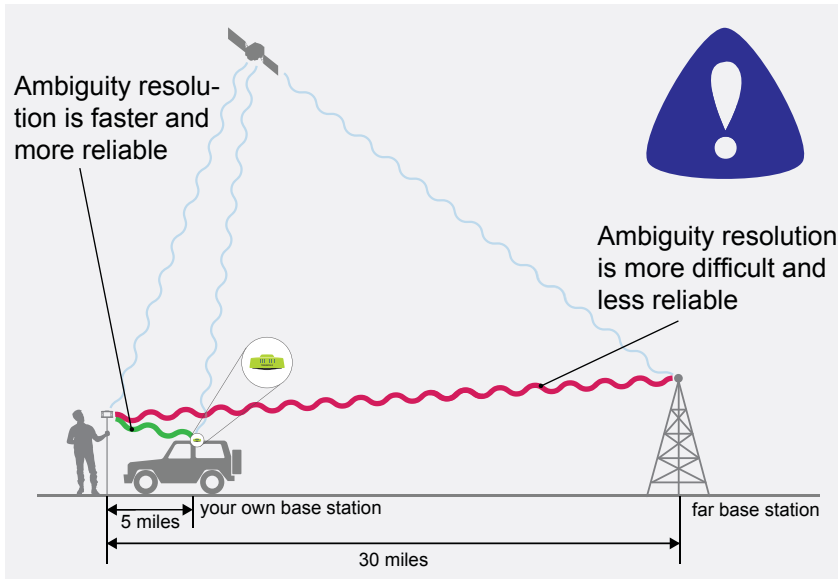
J-Tip advantages:

• J-Tip does not have "null" points around the peak and will not produce false alarms.

• J-Tip is fully automatic for all levels of magnets. There is even no "Gain" button to adjust.

• J-Tip senses the mag values in all directions. You don't need to orient it differently in different searches.

• J-Tip gives a 2D and 3D view of the field condition when you have RTK and will guide you to the object. You can actually see the shape of buried object.

• J-Tip, In Time View, shows   positive and negative mag values of the last 100 seconds and the Min and the Max since Start.

• J-Tip shows the instantaneous magnetic vector in horizontal and vertical directions.

• J-Tip works as a remote control for the TRIUMPH-LS

• J-Tip weighs 120 grams and replaces the standard pole tip. In balance, it weighs almost nothing.

• The built in camera of the TRIUMPH-LS documents the evidence after digging.

• And... you don't need to carry another bulky device.

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Advantages of your own base station...

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.

5 miles | your own base station | far base station

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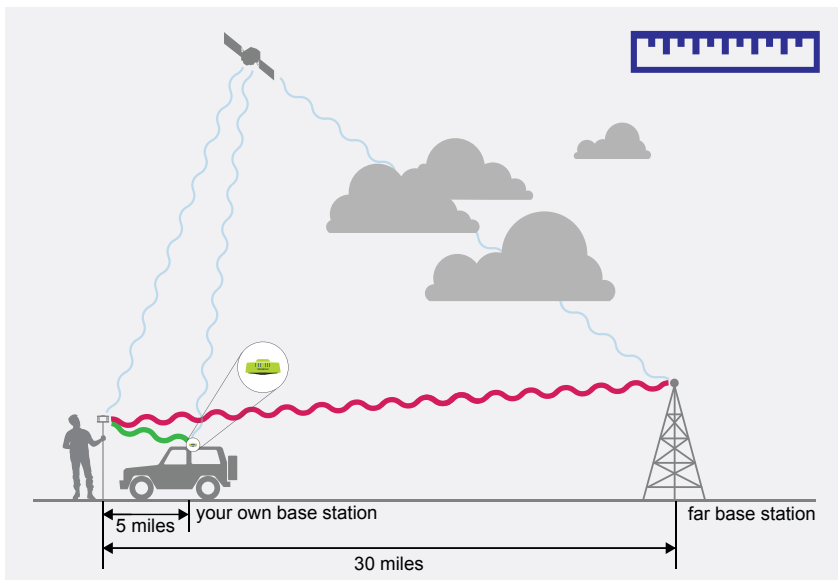
2. Shorter baseline has better **accuracy** because most of errors (like atmospheric and tropospheric effects) are common and cancel.

5 miles | your own base station | far base station

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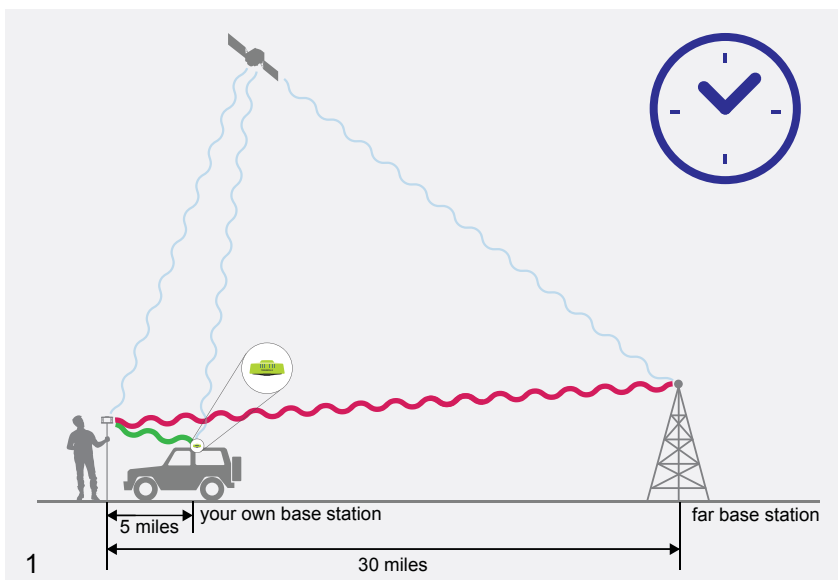
3. Shorter baseline ambiguities are resolved much **faster**. In longer baselines, incorrect ambiguities may pose as being correct in the statistical evaluations and it takes longer to isolate incorrect ambiguities.

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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 miles | your own base station | far base station

30 miles

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.
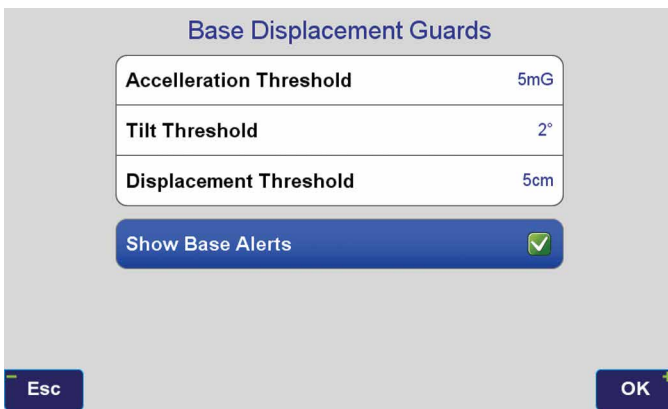

True 5 Hz RTK at rover
No extrapolation!

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.
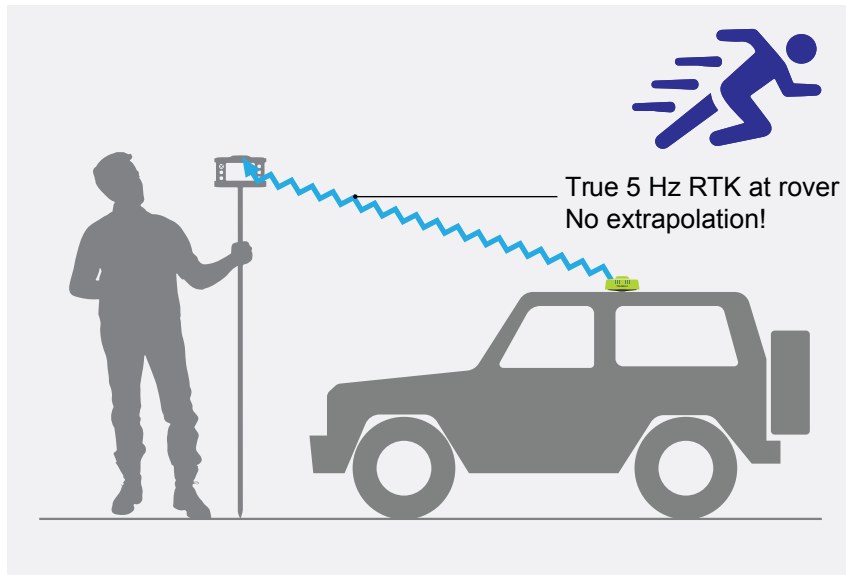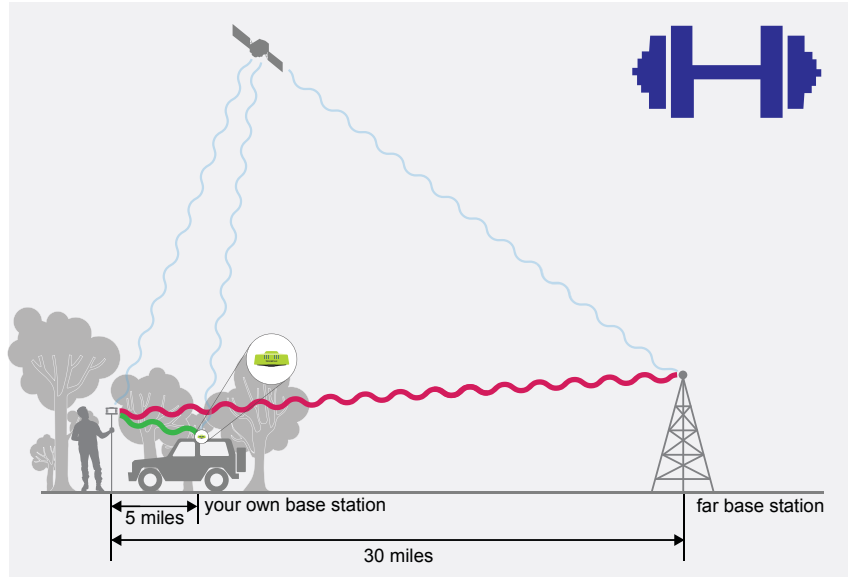
...and ensure that your base has not moved
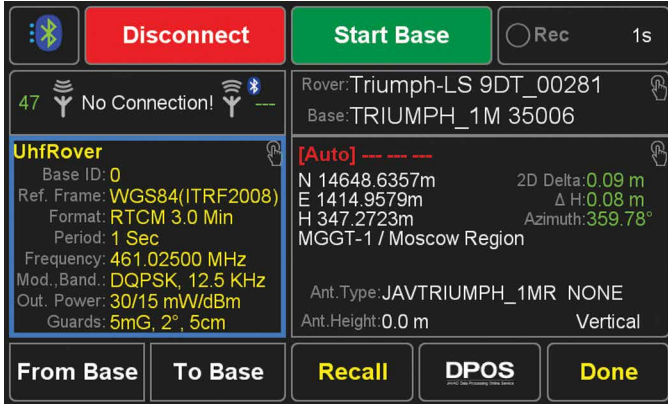
To setup for base movement alert, go to base rover setup screen and click on the left side of the screen

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Base Displacement Guards

Accelleration Threshold	5mG
Tilt Threshold	2°
Displacement Threshold	5cm
Show Base Alerts	☑

Esc   OK

You can set up threshold limits for accelerometer, inclinometer (tilt) and displacement values to create alert when these thresholds are exceeded..

Acceleration Guard

3mG	5mG	10mG
25mG	50mG	100mG
	Off	

Back   Default

Set Acceleration limit here. The units are in milliG (mG). G is acceleration in free fall. "Off" means ignore this sensor.
Our default is 5 mG

Tilt Guard

2°	3°	5°
	Off	

Back   Default

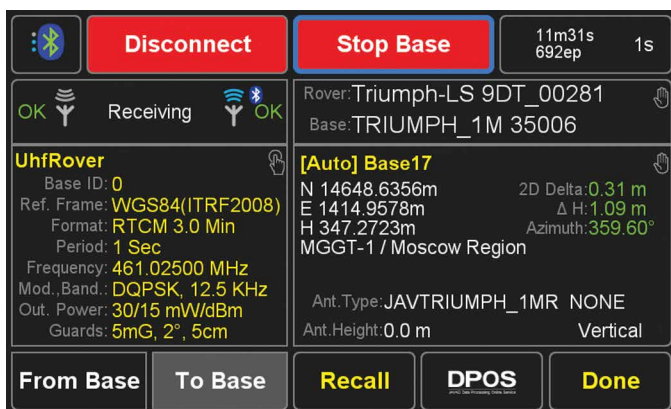Set the tilt threshold here. Units are in degree. "Off" means ignore tilt.
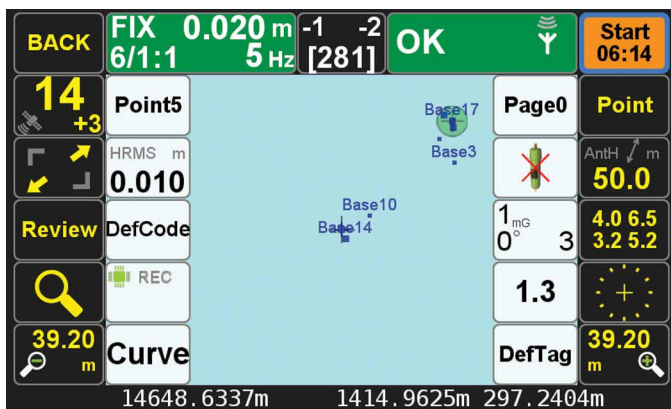Our default is 5 degrees.

...or be alerted immediately if it did.

Set the displacement threshold here. "Off" means ignore displacement.
Our default is 5 cm.

Click the "Start Base". it will change to "Stop base."
RTK corrections as well as motion values will be transmitted to the rover.
Maximum values of the motion parameters will be kept at all time.

Maximum values of the three sensors can be shown in a white box in the action screen. Top left is the acceleration in milliG, bottom left is tilt and bottom right is displacement in centimeter.
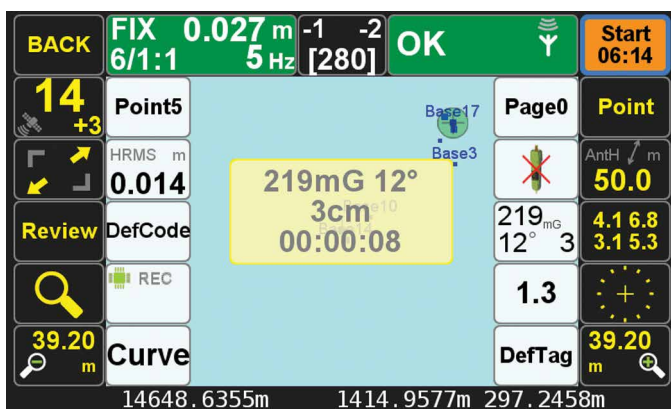
If any of the threshold values exceeds, a pop up will alert you and shows the maximum value of the sensors since you started the base. The bottom number is time since the threshold(s) exceeded.

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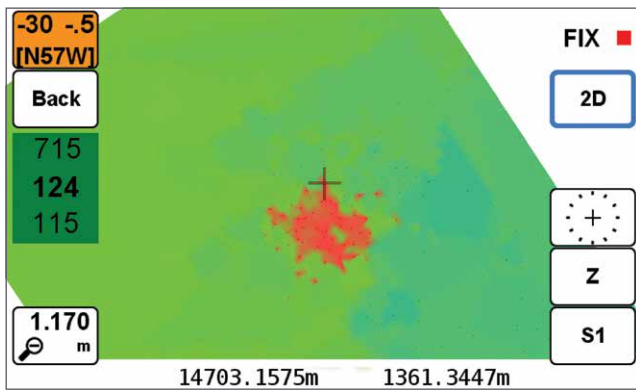
2D magnetic view of the field
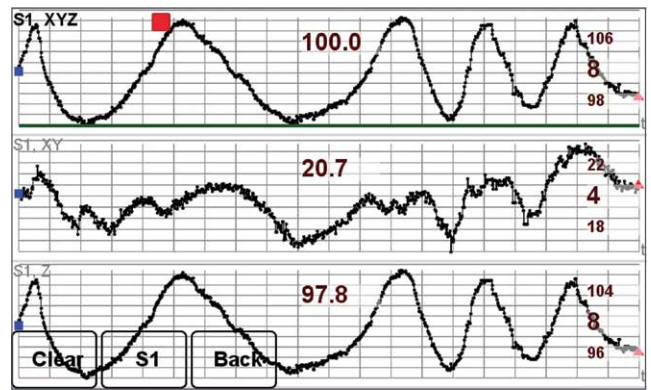
Time view of magnetic variations

Unlike conventional magnetic detectors which sense magnetic values only in one direction, J-Tip has three dimensional magnetic sensors. You can view magnetic values in **XY** (horizontal), **Z** (vertical), and **XYZ** (combined) directions.

In addition to the audio notifications, J-Tip shows magnetic values in "**Time View**" (always), and in "**Spatial Views**" (**Mag**, **2D**, and **3D** views) when you have RTK solutions.

When you have fixed RTK, hold the monopod vertical (within 5 degrees) to tag mag values with their coordinates. J-Tip scans the area 100 times per second and stores the highest mag values and shows them in a large grid. In Spatial Views, the **graphs are centered on the cell with the highest**

mag value. Only points that fit in the grid will be shown. The number of such points is shown above the progress bar. The "Clear" button restarts the process.

In Mag mode, pole tilts are corrected automatically and RTK is set to extrapolation mode.

The calculated coordinates of the object is shown in the bottom of the Mag screen.

Time graphs (above) show the magnetic values of the selected sensors in Z, XY and XYZ directions during the past 100 seconds. It also shows the Min and Max values since the Start/Rest. Click on any of the three graph component to expand it.
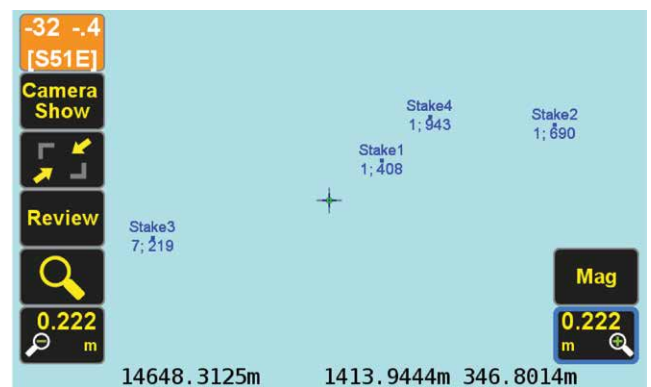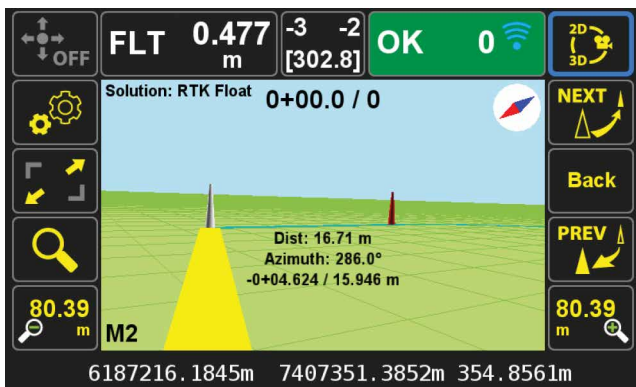
When you scan a large area, you can save all possible peak points, view them on the map and select the point with the highest peak to dig.

When you save a point, you can also save all the raw Mag sensor data for future view and research. We also plan to give you the ability to share that data with us by transferring it directly to our server for analysis and improvement.

We have not only integrated a sophisticated magnetic locator in the TRIUMPH-LS, but we have also streamlined the whole process. First the "Stakeout" screen will guide you toward the target.
Then the "Mag" screen locates your underground target and gives you its estimate of the coordinates of the underground target and a button to save it "as staked".
And finally in the "Collect" screen you can survey the target point which you have dug up and exposed. This is also the time to use the built in camera of the TRIUMPH-LS to photograph and fully document the evidence which you have recovered.

TRIUMPH-1M

$8,990

864 channel chip, equipped with the internal 4G/LTE/3G card, easy accessible microSD and microSIM cards, includes "Lift & Tilt" technology.

TRIUMPH-2

L1 **$1,990**
L1/L2 **$3,490**
with RTK **$4,990**

Total 216 channels: all-in-view (GPS L1/L2, GLONASS L1/L2, SBAS L1) integrated receiver.

The one and the only Digital Radio Transceiver in the world!

Unique adaptive digital signal processing, which has benefits: the full UHF frequency range and all channel bandwidths worldwide • the best sensitivity, dynamic range, and the highest radio link data throughput • embedded interference scanner and analyzer • compatibility with another protocols. Cable free Bluetooth connectivity with GNSS receivers and Internet RTN/VRS access via embedded LAN, Wi-Fi, and 3.5G

And all this with competitive prices!

HPT435BT/HPT135BT/HPT225BT*

$2,710

35 W UHF/VHF Transceiver

HPT404BT/HPT104BT/HPT204BT*

$1,640

4 W UHF/VHF Transceiver

HPT401BT/HPT101BT/HPT201BT*

$2,040

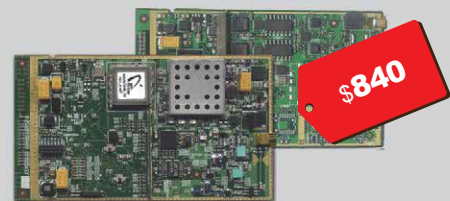1 W UHF/VHF with internal battery

L-Band/Beacon*

$1,550

Receivers for multiple applications

JLink 3G LTE BAT*

$2,735

Web-interface Wi-Fi, Ethernet, 3.5 G, UHF/VHF/FH915, internal battery

OEM Solutions

$840

902-928, 360-470, 225-255, 138-174 MHz

*Power, data cables and antenna are included.

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