

# J-Tip Users Manual



## Battery LED

- Green: fully charged
- Orange: half charged
- Red: Low battery
- Blinking Red: Empty battery

## On/Off Button

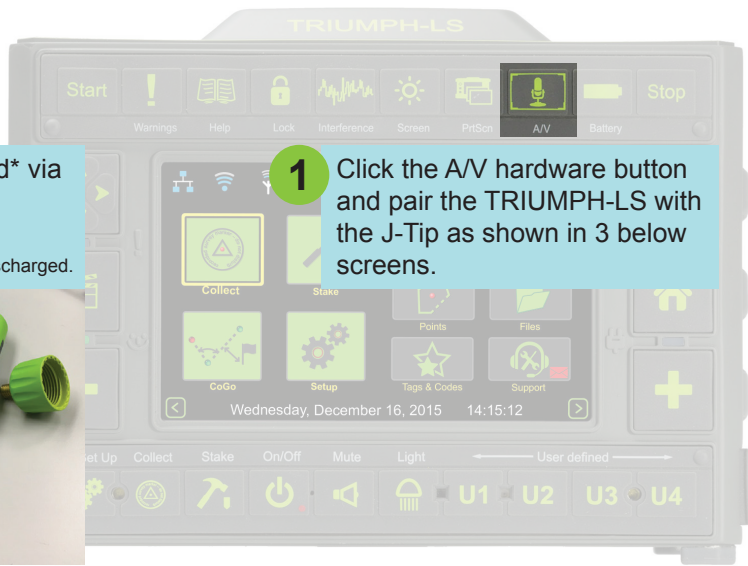
- Hold 3 seconds to turn off.
- click 3 times to unpair

## Bluetooth LED

- Blinking Red: Not paired
- Red: Paired, but not connected
- Blue: Connected

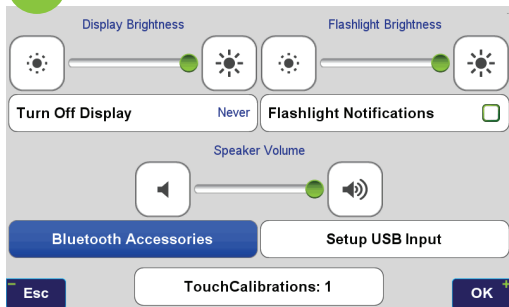
J-Tip can be charged\* via the USB port of the TRIUMPH-LS

\*About 5 hours when fully discharged.

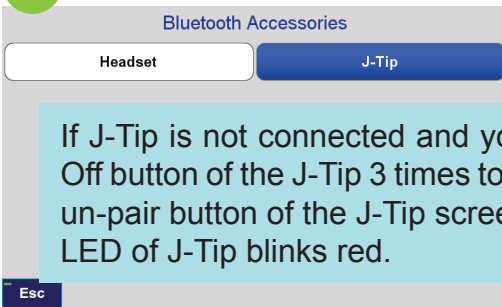


1 Click the A/V hardware button and pair the TRIUMPH-LS with the J-Tip as shown in 3 below screens.

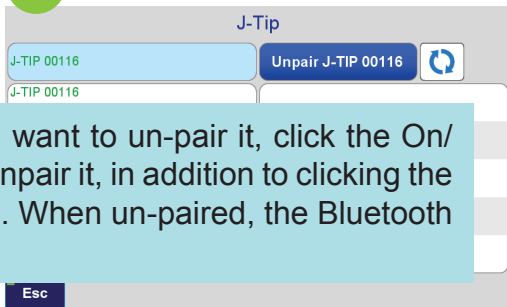
2



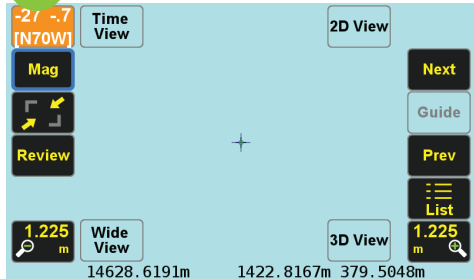
3



4



5



In the **Action Screens** of **Collect** or **Stake**, click this icon and then click the **Mag** button (above) to get to the Mag Screen on the right.



**Mag Screen**

Stopped

Current location: 0 .8

Number of points in the grid: 274

Current Value/Resume: 155.0

Maximum positive: 155.0

Center is the point with the highest Mag value

2.5 cm x 25 = 62.5 cm

0.0 (0) -24.0

Maximum negative: -24.0

Wide View

3D View

Coordinates of the peak: 599869.2599m 1875503.8313m 13.2678m

Buttons: Back, Setup, Save, Clear, D Z

Other labels: Time View, Guide, Prev, List, Review, Next, 2D View, 3D View, Wide View, 1.225 m, 14628.6191m, 1422.8167m, 379.5048m

**Update** the TRIUMPH-LS to the latest version of **J-Field** and **J-Tip**. Then upload the J-Tip firmware from the TRIUMPH-LS to the J-Tip by clicking the **"Firmware Update"** of the **Setup Screen** (on the left).

Initially and when the magnetic environment significantly changes, the sensors must be **calibrated**. Numbers in the white boxes must be near **100** in mag free areas.

Rotate the J-Tip slowly (about 4 seconds per rotation) around its three axis until you see the **successful calibration** message.

Unpair J-TIP 00116

If numbers in below boxes are much different than "100" when not close to magnets, sensors need recalibration.

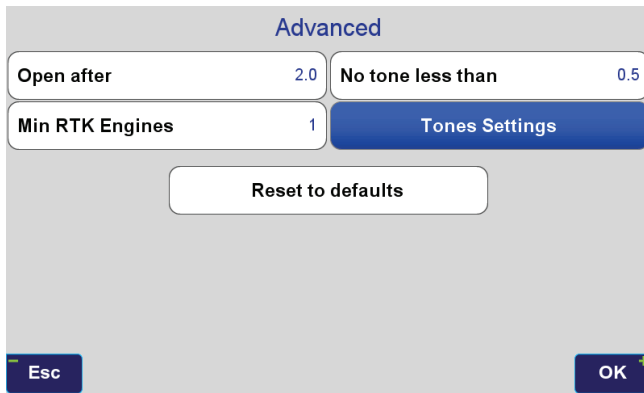
Calibrate	Gestures	80	101	100	
AutoOff After 15 min	Cell Size 2.5 cm	Internal	S1	S2	
Peak Grid Cells 21x21	Wide Grid Cells 91x91	x	-2	6	-24
Firmware Is UpToDate	Turn Off Now	y	0	13	17
		z	80	100	96
			S1S2 angle: 17.5542°		

Name: J-TIP 00116  
 Versions: rev.35, fw.6  
 Sensitivity: 2  
 Battery: 66.26 % (3762mV)  
 Up-Time: 19m31s

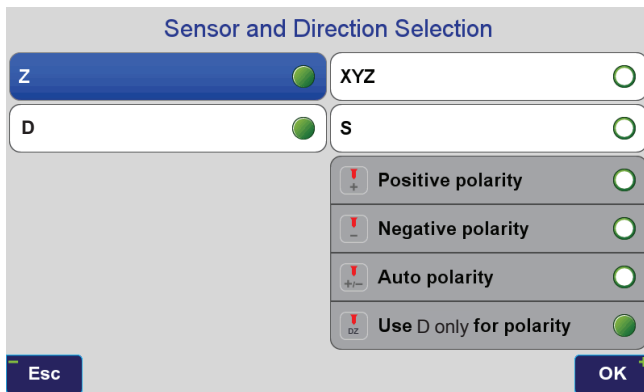
Failed: 0 Parsed: 61992

Advanced >

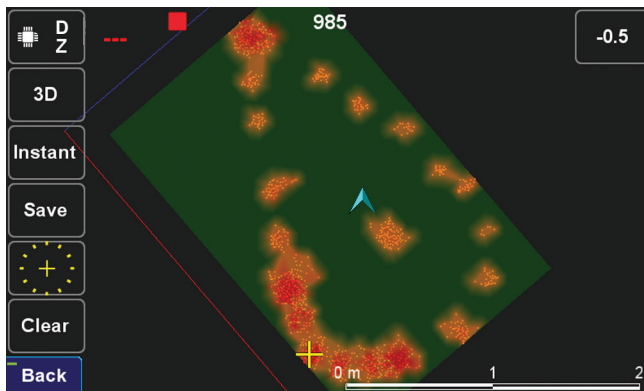
Back



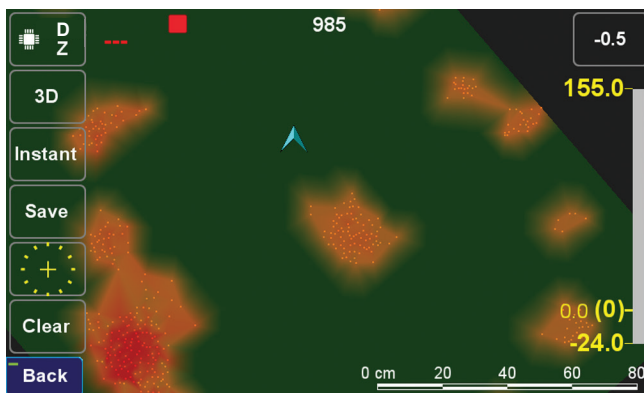
More Settings in Advanced screen.



Select Sensor and Directions in this screen.



2D scan view of the field.



Touch the center of the screen and use +/- buttons to zoom in and out.

The **Mag Screen** focuses only on the mag object with the highest mag value.

Audio and the graphical bar on the right side of the Mag Screen show the magnitude of the magnetic object.

**Audio settings are explained at the end of this document.**

When **RTK solutions** are available, mag values will be geo-tagged and digitized as you scan the field.

In “Setup” screen, “**cell size**” is the scan digitizing size.

**Peak Grid** is the grid in the Mag screen and **Wide Grid** is the grid in the Wide View.

**Open after:** Start beeping when the change in mag value is more than the selected number.

**No tone less than:** Don't beep if the mag value is less than this number.

**Min RTK Engines:** Geo tag mag values when RTK has this many number of engines fixed.

You can select **Single** (**S**, lower sensor) or **Double** sensors (**D**, lower and upper in differential mode) on **Z** or **XYZ** directions.

**D** sensors detects polarity instantly and you can start in any location.

In **S** only sensor polarity is selected as: Select the “+” option if you known the object is positive. You can start at any location.

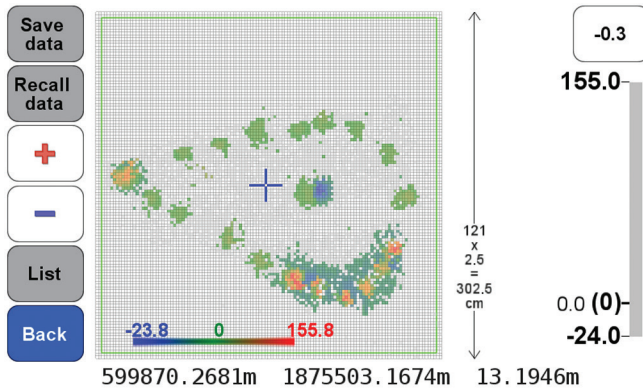
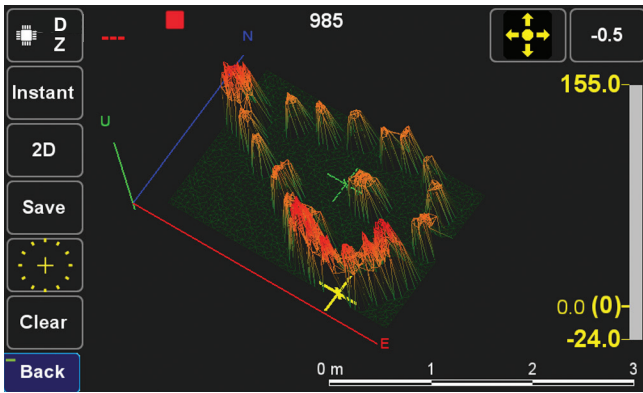
Select the “-” option if you know the object is negative. You can start at any location.

Select the “+/-” when you don't know the polarity. You must start from a clean area.

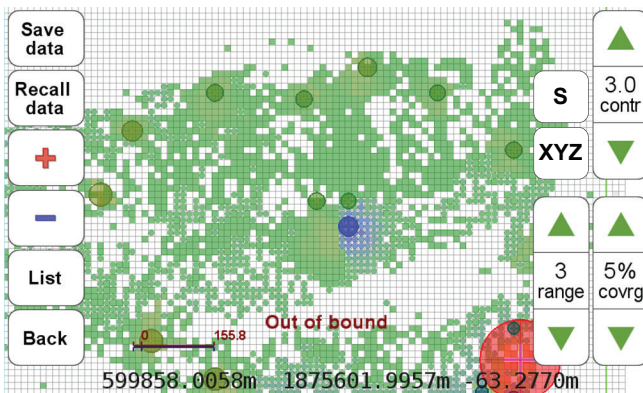
Select the “DZ” option when you want to use the S sensor value as mag value and D for polarity detection.

For the Mag graph, Wide View, 2D and 3D, if you select the S sensor, you must start in a clean area (at least one foot above the ground).

**2D and 3D views** of the field shows the magnetic objects that have been scanned.



**Above: Wide View during data collection.**  
**Right: Wide View when stopped and mag objects identified.**  
**Below: Wide View zoomed.**



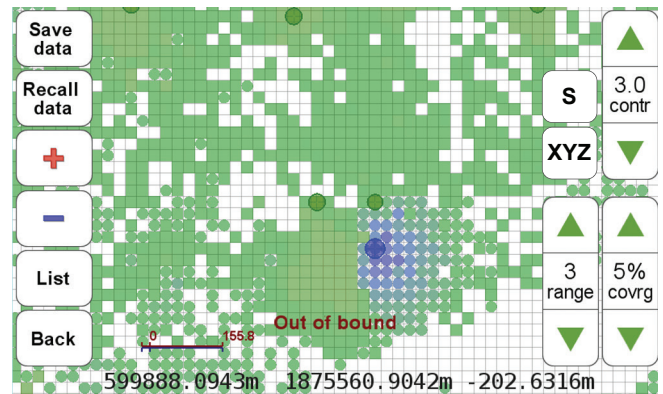
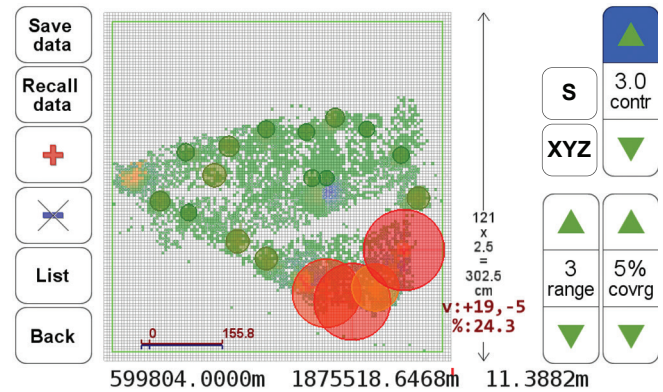
Select	Name	Mag	Avg Range	Filled Cells	Opposite C...
<input checked="" type="radio"/>	M1	155.8	68.8	29	7
<input type="radio"/>	M2	146.4	55.3	24	11
<input type="radio"/>	M3	128.8	38.5	24	16
<input type="radio"/>	M4	83.1	37.5	34	10
<input type="radio"/>	M5	32.2	5.3	25	1
<input type="radio"/>	M6	32.1	11.6	40	0
<input type="radio"/>	M7	30.6	14.1	41	1
<input type="radio"/>	M8	30.5	11.3	39	0
<input type="radio"/>	M9	25.9	9.4	34	5
<input type="radio"/>	M10	24.3	10.1	42	5

Save Zoom Guide S 3.0 contr  
 XYZ  
 3 range 5% covrg  
 Back

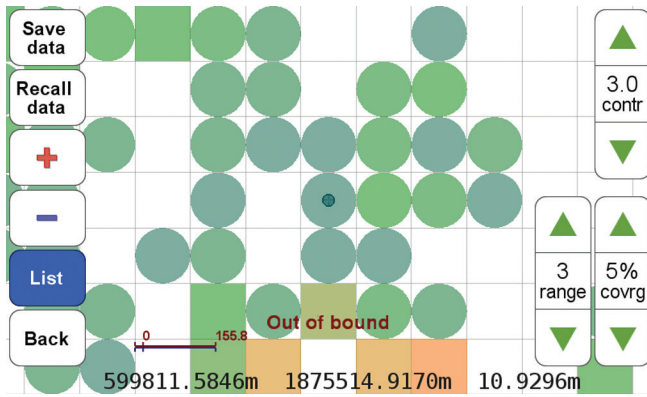
1 2  
 Mag value of the object    Average Mag value of surrounding cells    Cells with same polarity as object    Cells with different polarity

**Zooming** the 2D screen can show the shape of the magnetic objects under the ground. To get to Zoom mode, touch the center of the screen first.

When scanning is stopped, mag data is processed and the location of mag objects are determined automatically based on three parameters of “**Range**”, “**Coverage**” and “**Contrast**”. Range is the number of cells on each side of the object to be evaluated. Range of 2 defines 8 cells as the surrounding cells (9-1). Coverage is the percentage of cells that must be scanned on each side for the peak to be considered as a mag object. Also the mag value of the peak must be “**Contrast**” number higher than the average of the mag values of the surrounding cells (Range cells). S and XYZ buttons select sensor and direction.



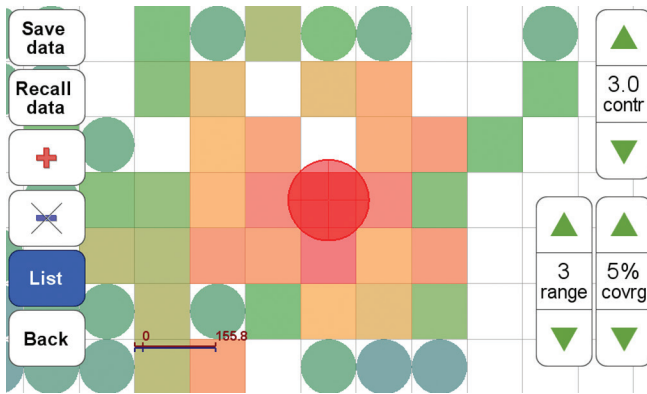
The mag data collected can be **saved and recalled** for further analysis and documentation. The “**List**” button lists the magnetic objects detected and their characteristics (Left). **Zoom** button shows details of the selected object (next page). **Guide** button guides to the selected item. **Save** button saves the selected objects as a point.



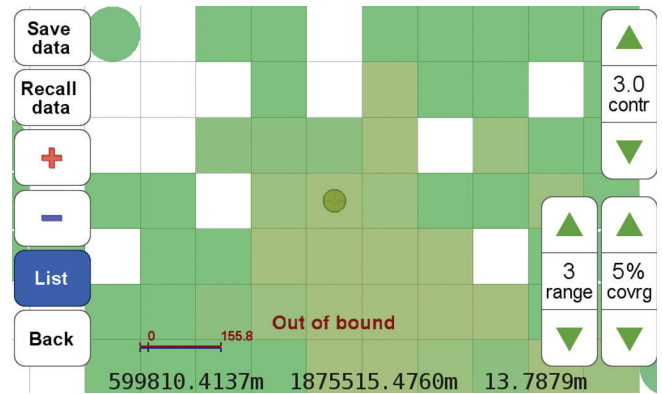
Center is the mag point and surrounding cells provide supporting data.

When zoomed to any selected point, the characteristics of the cells around the peak are shown. In figure on the left, there are three cells on each side of the peak (Range=3). Squares represent the positive and circles the negative cells. You can change the Contrast, Range and Coverage parameters and see the results.

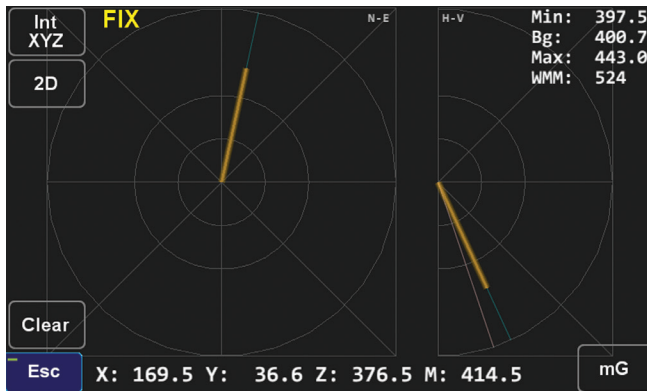
Cell size is as selected in the Setup screen.



Squares are positive and circles are negative cells.



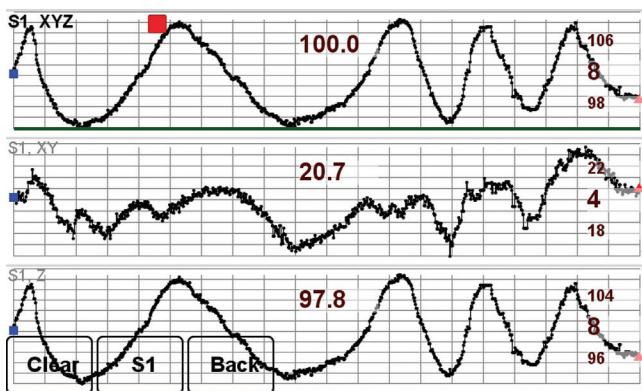
Save and Recall data for further data analysis.



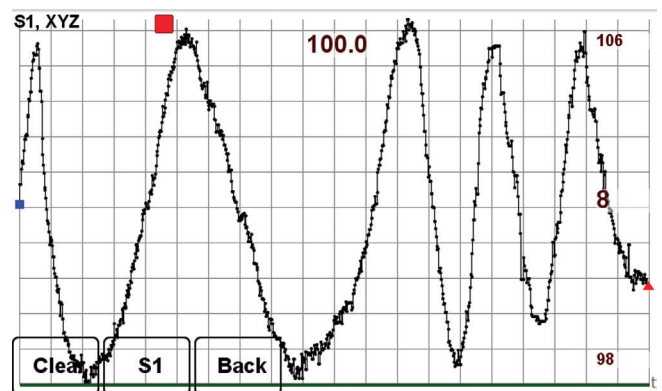
Instantaneous Vector view.

Horizontal and vertical magnetic vectors show the **instantaneous vectors** from the current position to the mag point.

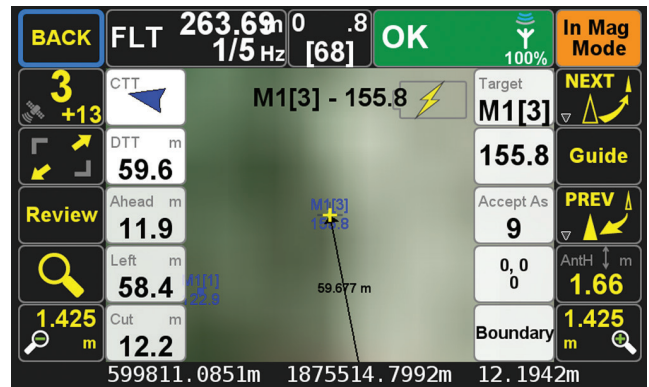
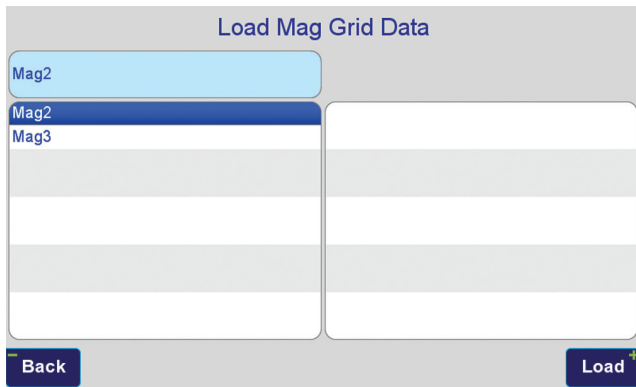
Below graphs show the Time View of the mag values of the sensors and their difference as scanning is in progress. Clicking on any graph shows its expanded view.



Time view of three components.



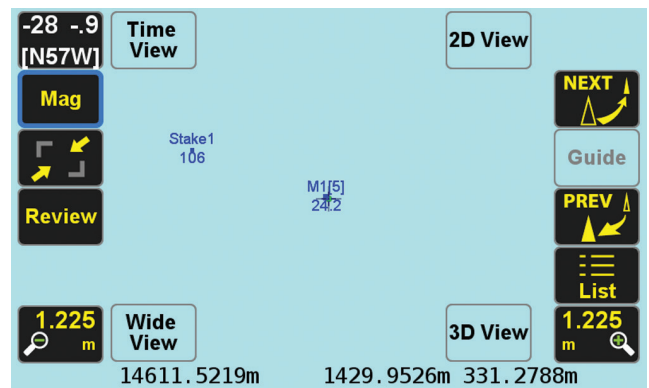
Expanded view of one component.



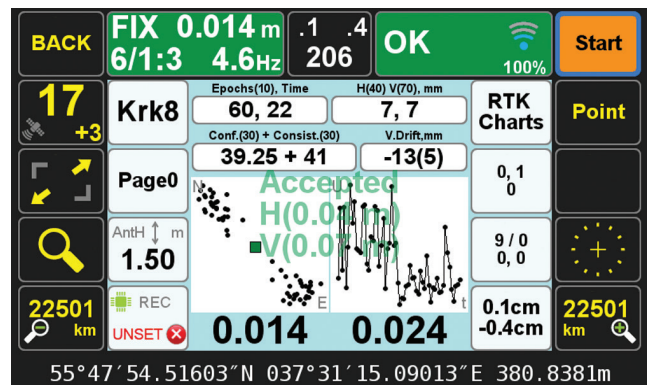
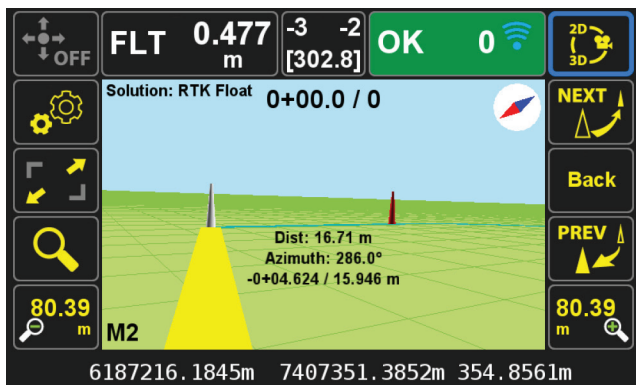
## Field View

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 documentation.



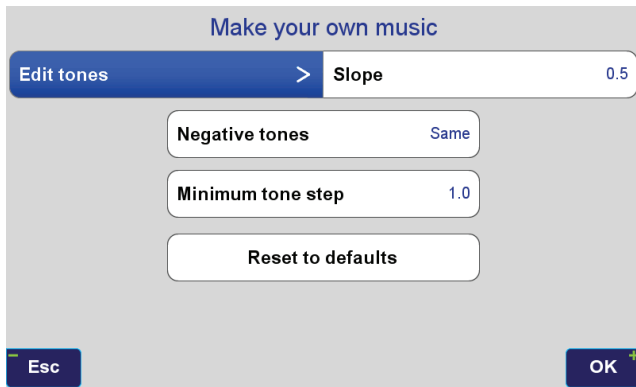
## Work Flow



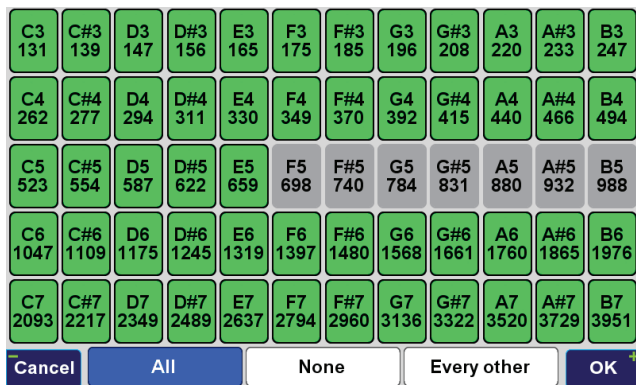
We have not only integrated a sophisticated magnetic locator in the TRIUMPH-LS, but we have also streamlined the whole process. First, the **“Stakeout”** screen will guide you towards the target.

Then the **“Mag”** screen locates your underground target and determines its coordinates. You can also save this point.

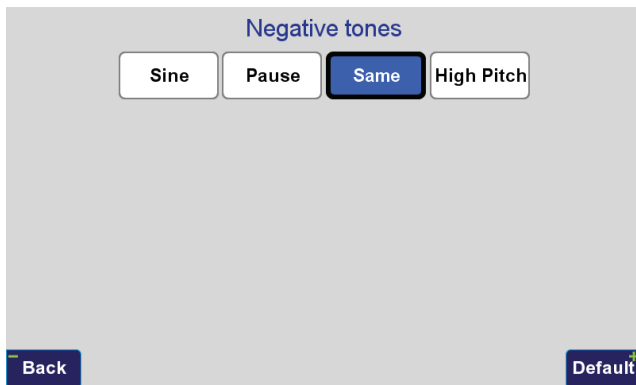
And finally in the **“Collect”** screen, you can survey the target point which you have dug up and exposed. This is also the time to use the **built in camera** of the TRIUMPH-LS to photograph and fully document the evidence which you have recovered.



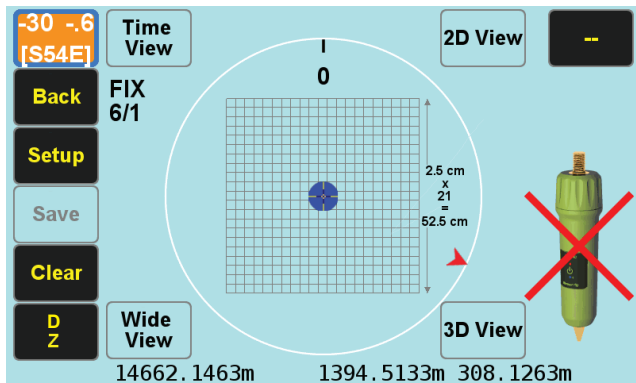
Select tone and other audio characteristics in this screen.



The 60 musical tones. Arrange your own music.



Negative mag tone selection.



Mag View when J-Tip is not connected.

## Tones and Musics

Click the **Current Value** box in the Mag Screen or the **“Tone Settings”** in the Advanced screen to make your own music for the audio tones. We have a fun system to make your tones as a function of the mag values. Click **“Edit tones”** to arrange your music.

We have selected all the **60 musical tones** and eliminated the 7 tones that are harmful to the TRIUMPH-LS speaker due to its resonant frequency.

You can also select which tones to be played. If you don't like some tones, you can de-select them. Or select the **“Every Other”** tone to have more distinctions between the tones. You can select none to de-select all, but you have to add at least **20 tones** for the selections to be accepted.

Tones will change non-linearly with the mag values according to the **“Slope”** setting. Setting of 1 makes changes linear which is appropriate for very weak mag objects. 0.2 is good for very strong mag objects. You can select **0.5 as your default**.

Slope selection does not have much impact on finding your mag object, but it is fun to see how fast tones change according to mag values.

With **“Minimum tone Step”** you can select if the tone should change with small mag value changes or not.

with **“Negative Tones”** you can select tone types for negative mag values as below:

**Same:** positive and negative mag values will have similar tones.

**Sine:** Negative tones play sine wave tones.

**Pause:** Tones will be the same, but negative values will play with short pauses inserted.

**High Pitch:** There will be a high pitch inserted between tones for the tones.