



RL8873 Receiver/Locator RT8872 Transmitter User Manual

Please inspect all products carefully upon receipt.

Included:

- RL8873 Receiver / Locator
- RT8872 Transmitter
- Grounding Rod
- Transmitter Cable
- Batteries (already installed in each device)

Note: MyTana sells each of these products separately, or as a package (RL8800)

You may receive this manual if you have purchased only one of the products– either the Locator/Receiver or the Transmitter



Electric shock hazard:

- Tool is designed to detect electromagnetic field emitted from Camera Sondes and buried metallic utilities. There are buried cables, pipes, and utilities this instrument CANNOT detect.
- LOCATING is not an exact science. The only certain way to be sure of the existence, location, or depth of buried utilities is to carefully expose (dig up) the utility.
- De-energize any circuits in or around the work area.
- Do not expose tool to rain or moisture.
- Use tool only for intended purpose as described in this manual. Failure to observe these warnings could result in severe injury or death.

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Introduction

The RL8873 Locator is specially designed to detect sondes and camera systems, and with the RT8872 Transmitter is capable of detecting buried power cables, CATV cables, gas and water pipes, sewer lines, telephone cables, fiber optic cables with sheath.

For Sonde and camera head locating a signal is generated by the sonde or camera head and the receiver detects the signal giving the user proximity cue to determine its location.

The transmitter emits a signal that is conducted or coupled to a conductors. The receiver detects the signal. You can locate the relative position of the buried conductor by following the tracing signal.

Prepare for Use

As you unpack your Locator and Transmitter, **make sure there is no shipping damage and all the parts are included.**

Both units have batteries already installed.

When you need to change batteries, battery compartments are located the back of the “head” of the receiver and the back of the transmitter. Open the compartments using a Phillips screwdriver. Install the six C batteries as marked in the receiver and eight C batteries in the transmitter.

Changing Operating Program or Program a Preset Frequency Set

► **Note: MyTana ships the RL8873 programmed to 512 Hz frequency.** If you wish to change frequencies, or store multiple frequencies (presets), follow the steps below. Programs and frequency sets can be changed at anytime using this process.

To select a new frequency or preset a new set on the RL8873 LOCATOR/RECEIVER

- 1. Press, and hold depressed, the POWER ON Button.
- 2. Pressing the GAIN DOWN Button will toggle through available configurations. The RL8873 offers the following modes:
 - **512** - offers 512Hz Camera/Sonde locating mode only
 - **CAL**- selected for calibration of system (for authorized use only)
 - **U3**- offers the following frequencies:
 - (camera/sonde mode) – 512Hz, 640Hz, 8kHz & 33kHz
 - (line mode) – passive 50hz & 60hz, passive rF, 512hz, 640hz, 8khz, 9khz, 33khz, 65khz, 82khz, 200khz, 478khz



To select or preset frequencies beyond 512, toggle to **U3** mode.

- 3. Once in **U3**, release the POWER ON Button. “**PRO**” will be displayed at the top of the LCD.
- 4. Short press the FREQUENCY Button to toggle to the desired frequency.
- 5. Select the displayed frequency by holding down the FREQUENCY Button for 2+ seconds. The top of the LCD will display the preset/program number for this frequency, and will increase by one each time a new frequency is selected. If you do not want to program more presets, skip to #7.
- 6. Short press the FREQUENCY Button to toggle to the next desired frequency, and repeat #5.
- 7. Pressing the POWER ON Button will exit the setup menu and save the selected frequencies for availability during normal operation.
 - If you ever need to change your Locator from Line mode to Camera/Sonde mode — follow steps 1 and 2 above to return to 512 (Sonde) mode. Release buttons.

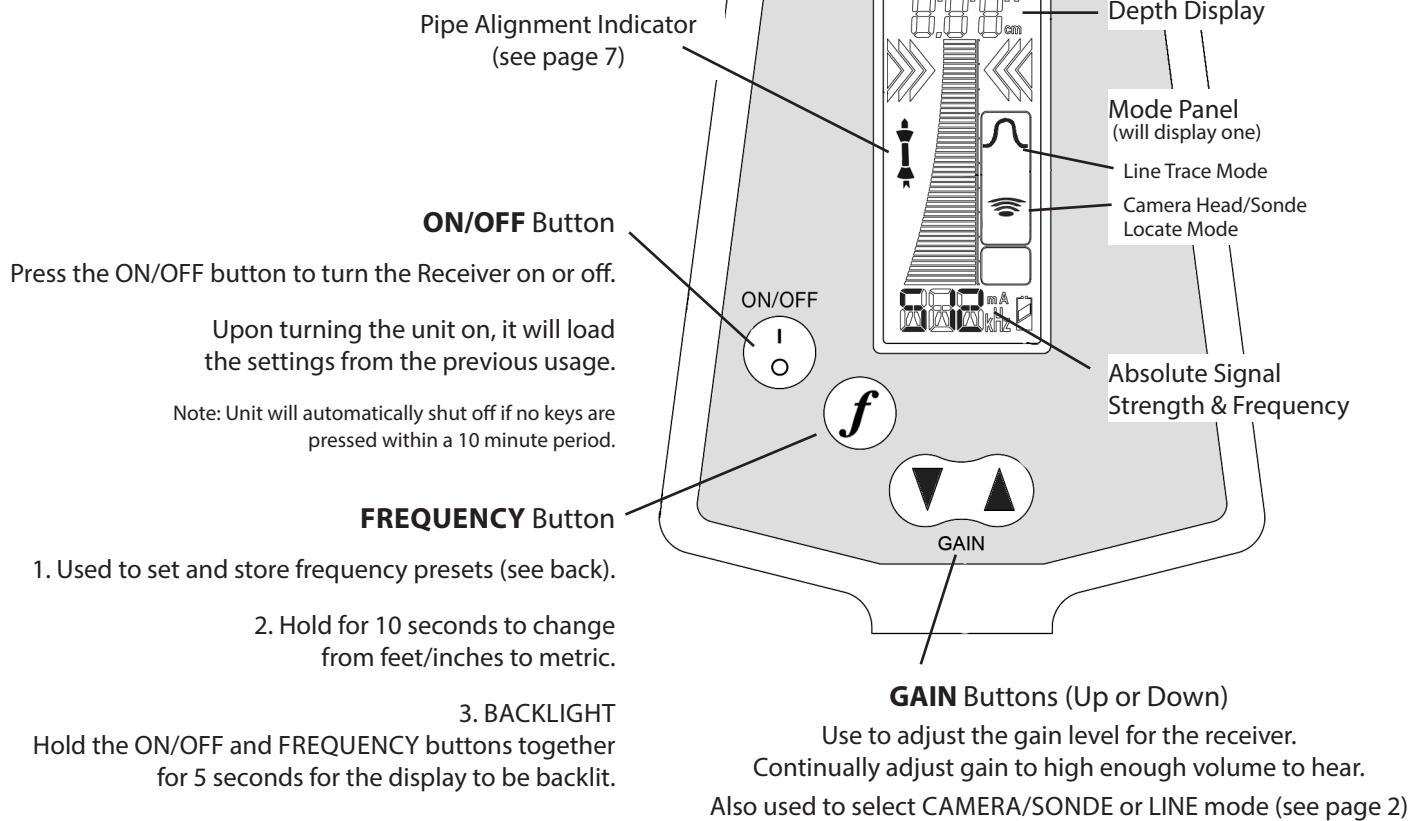
To select a new frequency or preset a new set on the RT8872 TRANSMITTER

- 1. Press and hold depressed the POWER ON Button.
- 2. Pressing the INFORMATION Button will toggle through available configurations. Repeat pressing until **U5** is displayed in the Frequency indicator section of the LCD.
- 3. Once in **U5**, release the POWER ON Button. “**PRO**” will be displayed in the LCD.
- 4. Press the FREQUENCY Button to toggle through the available frequencies.
- 5. To select and store the desired frequency press the INFORMATION Button. The program/preset number of the selected frequency will be displayed on the LCD.
- 6. Continue to toggle through and select the desired frequencies,
- 7. Pressing the POWER ON Button will save the selected frequencies for availability during normal operation.
 - Once presets are saved and you want to change frequency: Power On, and push **f** to select the frequency you want.

Available Frequencies (Note: LINE frequencies are available ONLY if using transmitter box)

					
MODE	LINE	SONDE	MODE	LINE	SONDE
Passive 60Hz	.	.	33kHz	.	.
512Hz	.	.	65kHz	.	.
640Hz	.	.	82kHz	.	.
815Hz	.	.	116Hz	.	.
8kHz	.	.	200kHz	.	.
8-9Hz	.	.	478kHz	.	.
9kHz	.	.	Passive RF	.	.
			Passive 50Hz	.	.

RL8873 Receiver Controls and Indicators



Absolute Signal Strength

The RL8873 Locator receiver provides the operator with a direct measurement of the receiver's signal strength. The measurement is displayed with three numerical digits (ex: 485) located at the bottom of the LCD display. The measurement range is from -100 to 999 indicating a very weak signal (-050) to a very strong signal (999).

Absolute Signal Strength is independent of the GAIN setting or meter reading. It gives the operator information about the actual amount of signal being radiated from the conductor and received by the receiver.

Measuring Absolute Signal Strength at any time is done by reading the number at the top of the LCD display. The Absolute Signal Strength is displayed even when the meter reading is off scale (too high or too low).

Gain Change Indication

The GAIN up and down Buttons are used to increase and decrease the gain in small amounts. If the meter reading is very low, pressing the GAIN UP Button will center the meter reading to mid-scale. Likewise, if the meter reading is very high, pressing the GAIN DOWN Button will center the meter reading to mid-scale.

Digital Depth Estimate

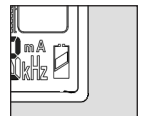
The RL8873 Locator estimates the depth automatically. The depth is displayed at the top of the LCD display in feet or inches. Digital depth is useful in quickly determining the depth of the conductor during path locating.

To change the Depth Measurement from CAMERA/SONDE to LINE Mode, hold the Frequency Key for three seconds and the next setting will appear.

- Caution must be exercised when using the digital depth feature, as tilted magnetic fields and adjacent conductors can significantly influence this measurement. The operator should periodically check for adjacent conductors and tilted magnetic fields when taking push Button depth readings.

Low Battery

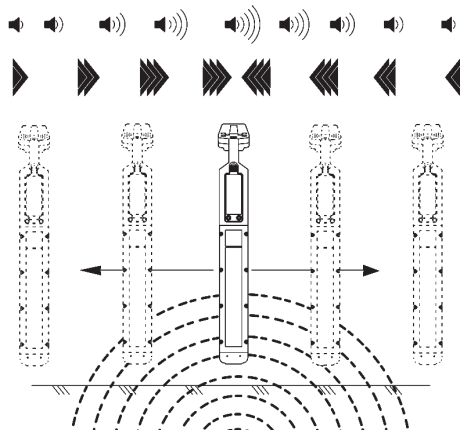
The RL8873 Locator will indicate low battery condition by displaying low battery icon at the bottom right of the LCD screen.



Locating Mode - Simultaneous Peak and Null

In the line locate mode the unit will operate the audio, the signal strength and the graph in a peak function, while also displaying line direction indicators (operating on null antenna).

When the receiver is directly above the cable or pipe, a PEAK (Highest graph reading and highest audio tone) will occur. When moving the receiver to left or right of the PEAK point, the graph reading will decrease. When the receiver is moved beyond the PEAK, the meter reading will begin to fade. The 3-digit signal strength reading will read the highest when directly over the target conductor. (see below)



Trace the path by walking away from the transmitter at a moderate pace. Move the receiver to the left and right while walking, following the indications.

As you trace the path, the meter reading may slowly fade as you move away from the transmitter. Press and release the GAIN Buttons as needed to compensate for changes in level (higher or lower). One of the following may occur:

- a junction where the signal divides and goes several directions.
- a break in the cable or shield.
- a change in the depth of the cable or pipe.
- an insulated pipe fitting.
- a slack loop of cable.

If you can no longer trace the path, even with the GAIN set to maximum, connect the transmitter to the far end of the path and trace back to the point where you lost the signal.

- Mark the straight sections of the path every few feet.
- Mark sharp curves, loops, and cable bundles every few inches.

Sharp changes in the path cause the receiver PEAK and NULL indications to behave differently than when tracing a straight path. **Practice on the path that you know has turns and laterals in it. This will help you to recognize the conditions within the field.**

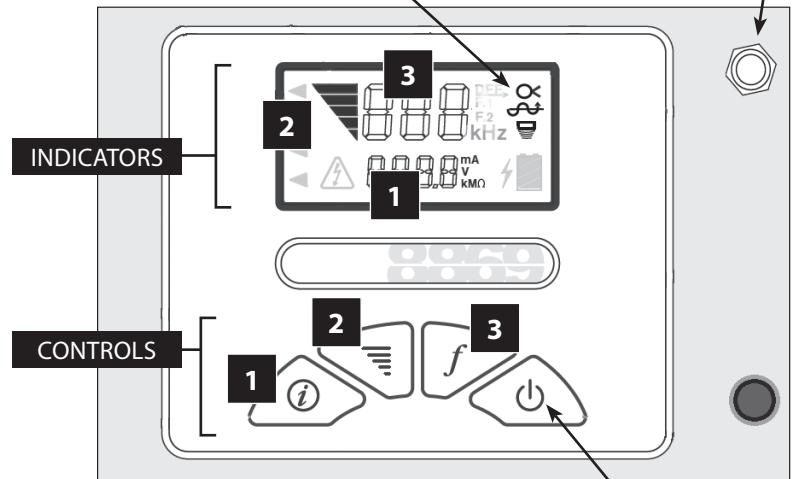
RT8872 Transmitter Controls and Indicators

Load Rate Indicator

Indicator symbol flashes to indicate signal transmission via coupler induction or direct connection.

Transmitter Output Jack

The Red/Black Cord, Coupler and Flexicoupler connects here to create a direct connect or coupler inductive circuit on the buried utility.



1 Relative Resistance, Voltage and Current

The transmitter can display the resistance, voltage and amperage of the transmitted frequency.

NOTE: This is a relative measurement based on the feedback from the transmitted signal.

2 Output Signal Level

Adjusts the power output from the Transmitter.

3 Frequency

Selects frequencies by toggling through available frequencies. 8kHz, 65Hz, 200 Hz, 480Hz, 33kHz & 82kHz are standard on the 8872.

Transmitter Power ON/OFF

Frequency and other LCD segments visible indicates unit is on.

CAUTION



Do not connect to live or energized power cables



Always turn transmitter OFF before connecting and disconnecting test leads

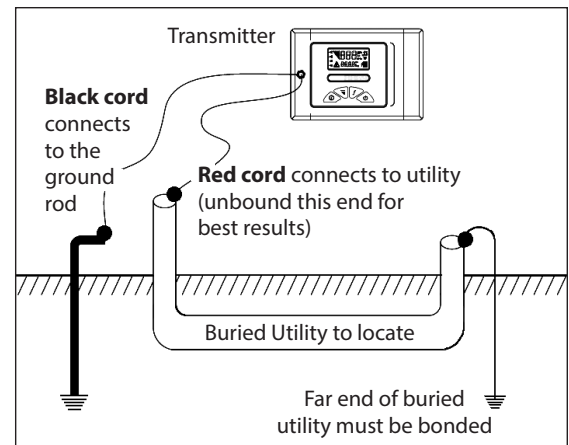
Direct Connection

Direct Connection is the most reliable method of signal application.

- Relatively free of interference, achieves the greatest amount of signal strength
- All frequencies may be used.
- The far end of the utility must be grounded

Connect the red test cord to an existing ground point or an exposed metallic section of the utility. Place the ground rod approximately 10 feet from this point, at an angle of 90° to the buried cable or pipe. Push the ground rod into the ground 8 to 10 inches. Connect the Black test cord to the ground rod.

Plug the Red/Black test cord into the TX OUTPUT JACK. Select the FREQUENCY. The Power Output Indicator, Load Rate Indicator and the Frequency will be displayed.



Flexicoupler Connection

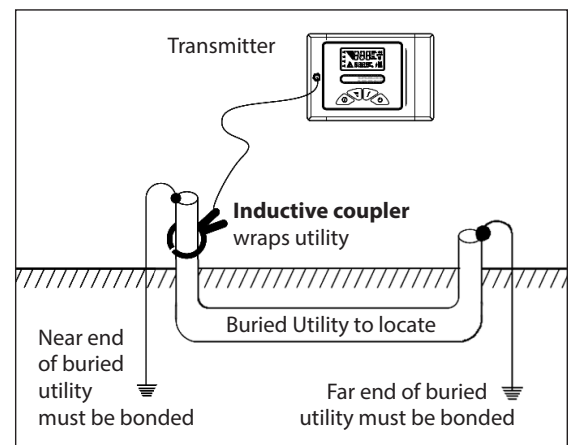
The optional Flexicoupler and hard coupler are very easy to use

- Services do not have to be interrupted
- The operation range is shorter than for Direct Connection methods
- The tracing signal can be affected by neighboring cables and pipes.
- The red/Black test cord or the ground rod are not needed for this method.

Successful coupler operation requires an insulated conductor that is grounded on both near and far ends.

Loop the Flexicoupler around the cable and connect the two ends, or clamp the hard coupler around the cable. It is important to connect the coupler around the cable needing to be traced. Connect the coupler around the wire closer to the outgoing cable not near the system ground. The result will be a stronger signal. By connecting near the grounding, the range will also be shorter, and difficulty may arise determining one cable from another.

Plug the coupler test cord into the TX OUTPUT JACK. Always select the frequency designated by the coupler. The most common is the 82 kHz FREQUENCY, but coupler are available in multiple frequencies.

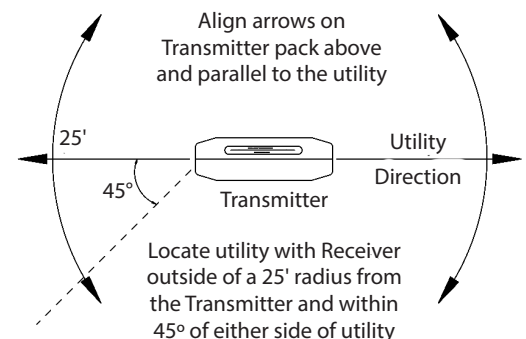


Inductive Connection

- This method is convenient to use, and services are not interrupted.
- No test cords or connections are needed.
- The cable or pipe must have good insulation or non-conductive coating, or the operating range will be short.

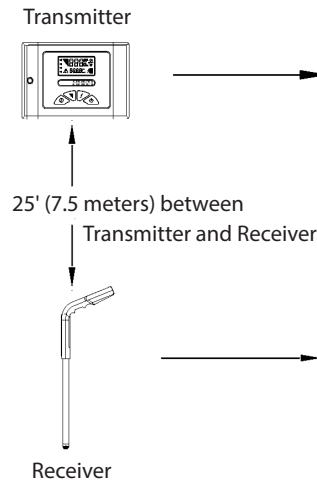
Turn the transmitter ON. Select 82kHz Frequency. Place transmitter on its side as close as possible to the path of the cable or pipe. Align the ARROWS on the SIDE OF THE TRANSMITTER in line with the cable or pipe. First, locate the broad transmitter Null, then move toward the expected cable path while looking for the signal carried by the cable.

Start tracing the path with the receiver 25 feet from the transmitter. Search in the 90° zone as shown right. Locate the cable or pipe, and follow the path. If the signal becomes weak, move the transmitter to a point 25 feet behind the last strong signal, and continue searching.



Blind Search

The Blind Search locating technique is used if the operator is not aware if a buried utility exists. Two people are needed for this technique. The transmitter and the receiver are held 25 feet away from each other. Each operator walks at the same speed keeping a distance of 25 feet from each other. When the receiver gives an audio response, then a buried utility is present between the receiver and the transmitter.



Selecting the Tracing Signal

The choice of **LOW** (512hz, 640hz), **MID-RANGE** (8khz, 9khz, 33khz), **HIGH** (65khz, 82khz, 200khz, & 478khz) frequency is dependent on the conditions of the locate.

The frequencies each have their advantages. It is recommended to begin by using the frequencies, and continue as long as you are confident in the results. If the signal is very weak try to adjust the connection or grounding. If there is no improvement in signal then try 8 kHz, 9kHz or 33kHz. Repeat adjustments of ground and connection point again before switching to 65khz, 82khz, 200khz, & 478khz.

Lower frequency signal is usually preferred to the high frequency signal, because it is much less susceptible to locating errors caused by nearby cables or pipes. The low frequency locating range is also much longer than the high frequency. The low frequency signal will not travel well through disconnected shield bonds or insulated pipe bushing.

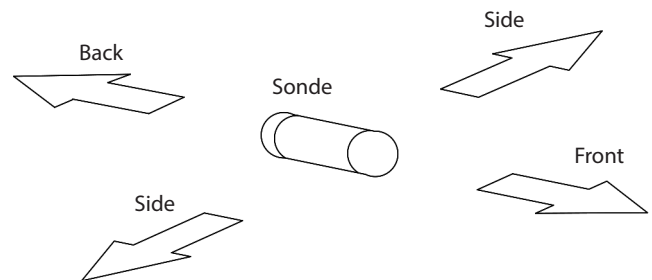
Mid-range frequencies take the best of both high and low frequency. The mid-range frequency is not very susceptible to bleed off or coupling, but it can jump impedance on the utility better than the low frequencies. It is still best to use low, but mid-range frequencies are some of the most common frequencies used to locate.

The high frequency signal is also better for "jumping" disconnected shield bonds or grounds, or tracing signal may indicate one of these characteristics. The locating range is quite short for the high frequency signal so the transmitter must be repositioned more often during the tracing operation. This Frequency is also useful for applying a signal using transmitter induction and for coupler application using the Flexicoupler or the hard coupler.

Locating a Sonde or Camera Head

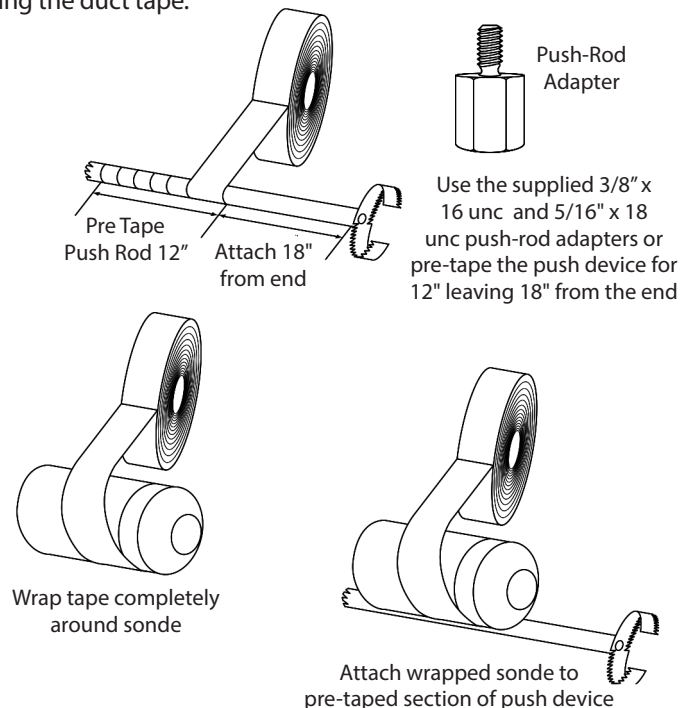
Before you begin, you must choose a Sonde or camera head that will match the same frequency as the receiver. You will need a Sonde with a frequency of 512Hz to use with the RL8873 Receiver.

The key to Camera/Sonde locating success is practice and patience. Before going out on your first locate, it is a good idea to take your receiver and Sonde out and try locating the Sonde and calculating the depth.



Attaching a Push Device to the Sonde

Attaching a push rod to the Sonde can be accomplished by using the coupling on the end of the Sonde. A spring coupling is recommended to allow the Sonde to move easier. Or, if you need to attach the Sonde to a sewer auger, it is recommended you use duct tape and apply as the shown in the figure below. If taping the Sonde on a metal pushing device, it is recommended to place the battery side of the Sonde closest to the device. This will allow for the best performance. Wrap the snake for approximately 1 foot in the location where the Sonde is going to be attached. Also attaching the Sonde 18 inches behind the cutting head is recommended. First, wrap the Sonde in the duct tape and then attach the Sonde to the snake using the duct tape.



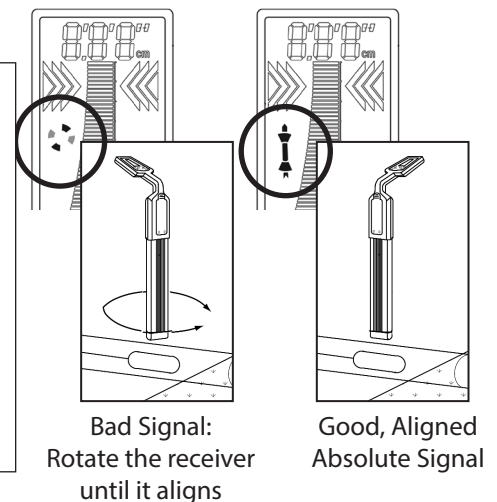
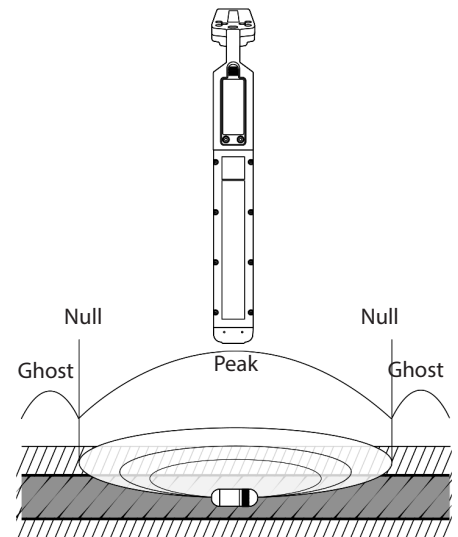
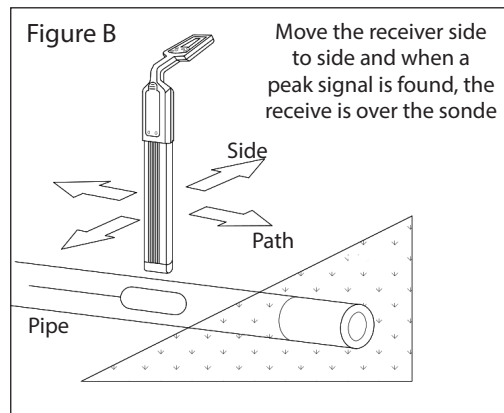
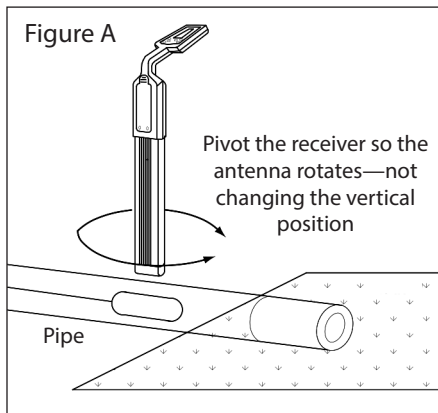
Locating a Sonde

Hold the receiver antenna directly above and in line with the Sonde, as shown below. The receiver sensitivity needs to be adjusted for a meter reading indication between 60% to 80%.

The radiation pattern of the Sonde is shown below. The PEAK signal is when the receiver is held directly over the Sonde with the antenna in line with the Sonde. Both Ghost signals can be located behind and in front of the Sonde. By locating the ghost signals, the user is confirming the accuracy of the locate.

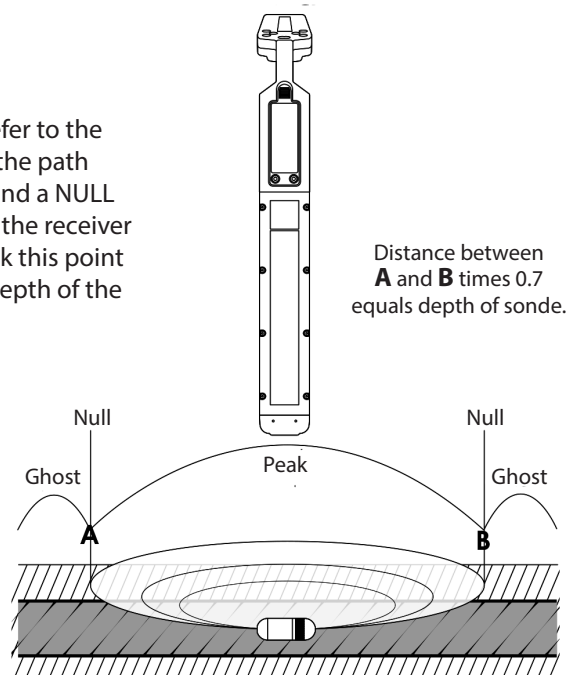
Start by following the suspected path of the pipe and use the RL8873 Locator to locate the Sonde. Stop locating when the PEAK reading is found. Then rotate the receiver as shown in the figure right. When pivoting the receiver, do not change the vertical position. The receiver will indicate a PEAK when the receiver antenna is in line with the Sonde. (Figure A)

Now move the receiver side to side (across the path of the pipe) as shown right. When the PEAK is found, the receiver is directly over the Camera/Sonde. Mark this location. Next, check for ghost signals in front of and in back of the Sonde to confirm the location. (Figure B)



Depth Measurement of Camera Head or Sonde

Once the line has been located, the depth can then be found. Refer to the figure below for a reference. Start by moving the receiver along the path behind the Sonde with the antenna in line with the Sonde and find a NULL between the PEAK ghost signals. Mark this point (A). Then move the receiver along the path in front of the Sonde and find another NULL. Mark this point (B). Next, measure the distance between these two points. The depth of the pipe is 0.7 times the distance between the two points.



Receiver Specifications

Operating Frequency	Passive 50Hz & 60Hz, Passive RF, 512Hz, 640Hz, 8kHz, 9kHz, 33kHz, 65kHz, 82kHz, 200kHz, 478kHz
Antenna Mode	Peak & Null (horizontal & vertical coil)
Audio Indication	Variable pitch audio
Operating Temperature	-4°F to 133° (-20°C to +55°C)
Battery Type	6: C alkaline batteries
Battery Life	
Continuous	40 hours
Intermittent	82 hours (10 minute auto shut off)
Dimensions	30.3" x 3.75" x 9.4"
Weight	3 pounds
Signal Strength	Analog LCD bar graph Absolute Signal Strength readout 0 - 999
Gain Control	Up/down button for automatic centering and manual control
Dynamic Range	126 dB
Depth Measurement	
Automatic	Auto 3 digit readout to 30 feet
Manual	Bubble level triangulation for verification of automatic readout in congested environments

Transmitter Specifications

Operating Frequency	Passive 50Hz & 60Hz, Passive Rf, 512Hz, 640Hz, 8Khz, 9Khz, 33Khz, 65Khz, 82Khz, 200Khz, 478Khz
Operating Temperature	-4°F to 133° (-20°C to +55°C)
Hook-up Method	Direct Connection, Inductive Coupling (with optional coupler), Transmitter Induction
Load Matching	automatic from 5 Ω to 30,000 Ω
Battery Type	8: C alkaline batteries
Battery Life	Greater than 30 hours* *depending on load, frequency and power setting
Dimensions	8.4" x 5.57" x 2.6"
Weight	2.2 lbs (0.99kg)

Warranty

This instrument is under warranty for one year from the date of delivery against defects in material and workmanship (except batteries). We will repair or replace products that prove to be defective during warranty period.

This warranty is void if after having received the instrument in good condition, it is subjected to abuse, unauthorized alterations or casual repair.

No other warranty is expressed or implied. the warranty described in this paragraph shall be in lieu of any other warranty, including but not limited to, any implied warranty of merchantability or fitness for a particular purpose. we are not liable for consequential damages.

Factory Service

If your Locator or Transmitter is not working properly, call **MyTana Support** at 651-222-1738 for assistance. If the product is in need of repair, MyTana will provide instructions and a Return Goods Authorization (RGA) for returning the product to the service center.

RGA:

Send it prepaid to:

MYTANA
Attn: Repair (include RGA #)
746 Selby Ave
St. Paul, MN 55104

Note: There is a minimum charge for repair and handling.



www.MyTana.com

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