VIVAX METROTECH

vLoc3-MLA
Marker Locator Adapter
User Handbook

(English Edition)

Version 1.6

P/N: 4.04.000137

vLoc3-9800

vLoc3-5000

vLoc3-Pro
vLoc3-XLF

(Receivers not included)

Table of Content

Service & Support

1.1   Serial Number and Software Revision Number

Always quote your receiver and transmitter model number, serial number, and software revision number when requesting product support. They can be found as follows: (for reference only)

1	Model & Serial Number

NOTE
The Marker Locator Adapter serial number can be found on the side of the unit.

The software revision number can be found in the "About" screen, which is described in the user menu later in this manual.

1.2   Worldwide Sales Offices and Service Centers

Worldwide Sales Offices and Service Centers	
World Headquarters, United States of America **Vivax-Metrotech Corporation** 3251 Olcott Street, Santa Clara, CA 95054, USA T/Free: 1-800-446-3392 Tel: +1-408-734-3880 Fax: +1-408-734-1415 Website: www.vivax-metrotech.com Email: SalesUSA@vxmt.com	**Central/South America and the Caribbean** **Ventas para América Latina** 3251 Olcott Street, Santa Clara, CA 95054, USA T/Free: 1-800-446-3392 Tel: +1-408-734-3880 Fax: +1-408-743-5597 Website: www.vivax-metrotech.com Email: LatinSales@vxmt.com
Canada **Vivax Canada Inc.** 41 Courtland Ave Unit 8, Vaughan, ON L4K 3T3, Canada Tel: +1-289-846-3010 Fax: +1-905-752-0214 Website: www.vivax-metrotech.ca Email: SalesCA@vxmt.com	**France** **Vivax-Metrotech SAS** Technoparc - 1 allée du Moulin Berger, 69130 Ecully, France Tel: +33(0)4 72 53 03 03 Fax: +33(0)4 72 53 03 13 Website: www.vivax-metrotech.fr Email: SalesFR@vxmt.com
Germany **Metrotech Vertriebs GmbH** Am steinernen Kreuz 10a, 96110 Schesslitz, Germany Tel: +49 9542 77227-43 Website: www.vivax-metrotech.de Email: SalesEU@vxmt.com	**United Kingdom** **Vivax-Metrotech Ltd.** Unit 1, B/C Polden Business Centre, Bristol Road, Bridgwater, Somerset, TA6 4WA, UK Tel: +44(0)1793 822679 Website: www.vivax-metrotech.co.uk Email: SalesUK@vxmt.com
China **Vivax-Metrotech (Shanghai) Ltd.** Building 10, Lane 1158 Zhongxin Rd., Songjiang District, Shanghai, China, 201615 Tel: +86-21-5109-9980 Website: www.vivax-metrotech.com Email: SalesCN@vxmt.com.cn	

Introduction

2.1   vLoc3-MLA

The vLoc3-MLA accessory attaches to the base of the vLoc3-Pro, vLoc3-XLF, vLoc3-5000, or vLoc3-9800 receivers to locate passive markers buried above non-metallic services or points of interest. This manual covers all three mentioned receivers as the functions are the same across all three. Still, the locator screen will be slightly different in appearance.
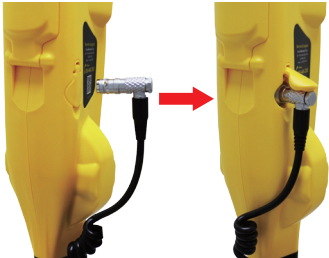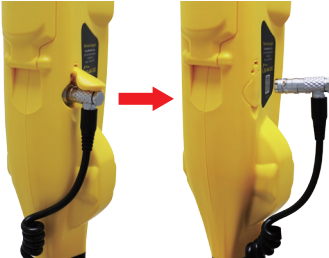

Markers are available in many shapes and sizes, but the most commonly used marker is the ball marker, which has a range of over 4' 9"/1.5m. Markers operate over a range of frequencies. Different frequency markers are used to identify different services and are identified by color. The industry standard colors are listed below:

Telecom (Orange)	Cable paths, buried splices, buried service drops, load coils, conduit stubs, fiber optic facilities, all types of splices, bends, depth changes, manhole covers, road crossings **Frequency: 101.4 kHz**
Power (Red)	Cable paths, service drops, conduit stubs, road crossings, all types of splices, buried transformers, service loops, street lighting, bends, manhole covers, distribution loops **Frequency: 169.8 kHz**
CATV (Black & Red)	Cable paths, fiber optic facilities, buried service drops, road crossings, buried splices, bends **Frequency: 77 kHz**

Non Potable Water (Purple)	Reclaimed water, private campuses, valve boxes, road crossings, path making, buried valves, tees, meter boxes, main stubs, service stubs **Frequency: 66.35 kHz**
Water (Blue)	Pipeline paths, service stubs, PVC pipeline, all types of valves, road crossings, tees, cleanouts, casing ends **Frequency: 145.7 kHz**
Sewage (Green)	Valves, all types of fittings, cleanouts, service stubs, laterals, path marking of non-metallic facility **Frequency: 121.6 kHz**
Gas (Yellow)	Pipeline paths, main stubs, service stubs, tees, road crossings, all types of valves, meter boxes, stopping fittings, depth changes, transition fittings, squeeze points, pressure control fittings, electrofusion couplings, all types of fittings and joints **Frequency: 83 kHz**
Power Europe (Red & Blue)	Cable paths, service drops, conduit stubs, road crossings, all types of splices, buried transformers, service loops, street lighting, bends, manhole covers, distribution loops **Frequency: 134 kHz**

2.2   Set-up

Attaching the vLoc3-MLA Accessory	
Step 1: Take the vLoc3-MLA accessory and push-fit it onto the end of the vLoc3 series receiver blade. Ensure it clicks to lock into place.	

Step 2: Now take the 8-pin ninety-degree connector and plug it into the accessory socket on the vLoc3 receiver.	
Step 3: Push the provided cable retainer over the blade and cable so that the cable is secured.	

Removing the vLoc3-MLA Accessory

Step 1: To remove the MLA accessory, first, remove the cable retainer by pulling it over the vLoc3 receiver blade. Now unplug the accessory from the vLoc3 receiver accessory socket.	
Step 2: To remove the accessory, it is necessary to simultaneously push the two-yellow retaining buttons positioned on both sides of the accessory. It is best to use the thumb and middle finger to do this. With the buttons, depressed pull the accessory from the blade of the vLoc3 receiver.	

2.3   Operating the vLoc3-MLA Accessory

When not being used as a standard cable locator, the vLoc3-MLA accessory enables the vLoc3 series receiver to be operated in two other configurations:
•   Dedicated marker locator
•   Dual cable locator and marker locator

Note
Line depth and current measurements are not available when the vLoc3-MLA accessory is activated in the Dual locate mode. Switch to a line locate mode to view depth and current on the line.

2.3.1   Switching Between Configuration

Use long presses on the button to switch between modes.

Dedicated Marker

In this configuration, the unit is dedicated to locating markers. The screen of the vLoc3-MLA will look similar to the illustration below:
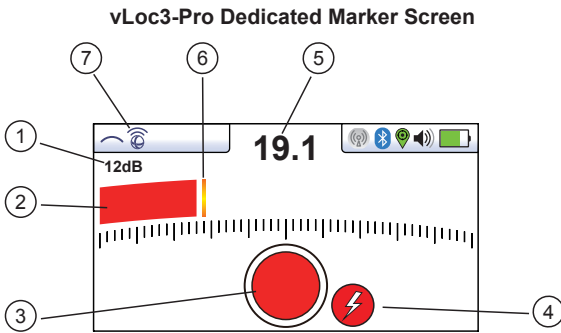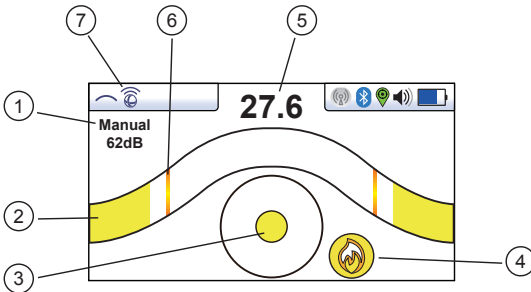
vLoc3-Pro Dedicated Marker Screen

1	Bar graph gain setting
2	Signal strength from Marker, used for pinpointing its position
3	Marker detection ball (Not adjustable)
4	Marker type
5	The numeric value of the bar graph
6	Peak level indicator
7	Marker icon indicating marker detection active

vLoc3-5000 Dedicated Marker Screen
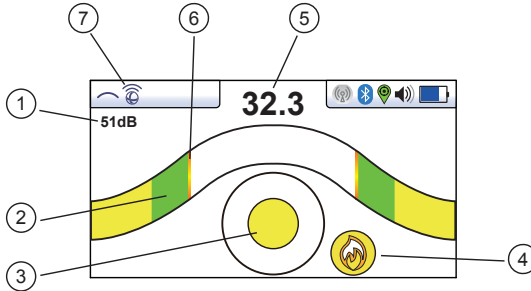
1	Bar graph gain setting
2	Signal strength from Marker, used for pinpointing its position
3	Marker detection ball (Not adjustable)
4	Marker type
5	The numeric value of the bar graph
6	Peak level indicator
7	Marker icon indicating marker detection active

vLoc3-9800 Dedicated Marker Screen

1	Bar graph gain setting
2	Signal strength from Marker, used for pinpointing its position
3	Marker detection ball (Not adjustable)
4	Marker type
5	The numeric value of the bar graph
6	Peak level indicator
7	Marker icon indicating marker detection active

Note that the ball icon 🔘 only is illuminated, indicating that the dedicated configuration is selected. The color of the bar graph and marker detection ball is also set to the color of the marker. If the line icon 🔘 ⊘ is illuminated with the ball icon, this indicates that the Dual configuration is activated (Dual mode is described later in this document).

Either use the *f* pushbutton to select the marker type that is to be located. Or use a long press on the *i* button to enter the user menu. Select the "Marker Type," which will then cause the display to show the complete range of markers available together with their operating frequencies. Use the "+" and "-" keys to scroll up and down through the options. Press the button to make your selection, then the *i* button to exit this screen.

Menu	
About	↵
Speaker volume	🔊
Sonde Configuration	↵
Backlight	Medium
Frequency	↵
Locate Perspective	↵
Marker Type	↵

Power (169.8kHz)
Water (145.7kHz)
Sanitary (121.6kHz)
Telephone (101.4kHz)
Gas (83kHz)
CATV (77kHz)
Non-Potable Water (66.35kHz)
Power Europe (134kHz)

Tip
**Pressing and holding the *f* button will short cut you to the frequency screen. Exit by pressing the *i* button.**

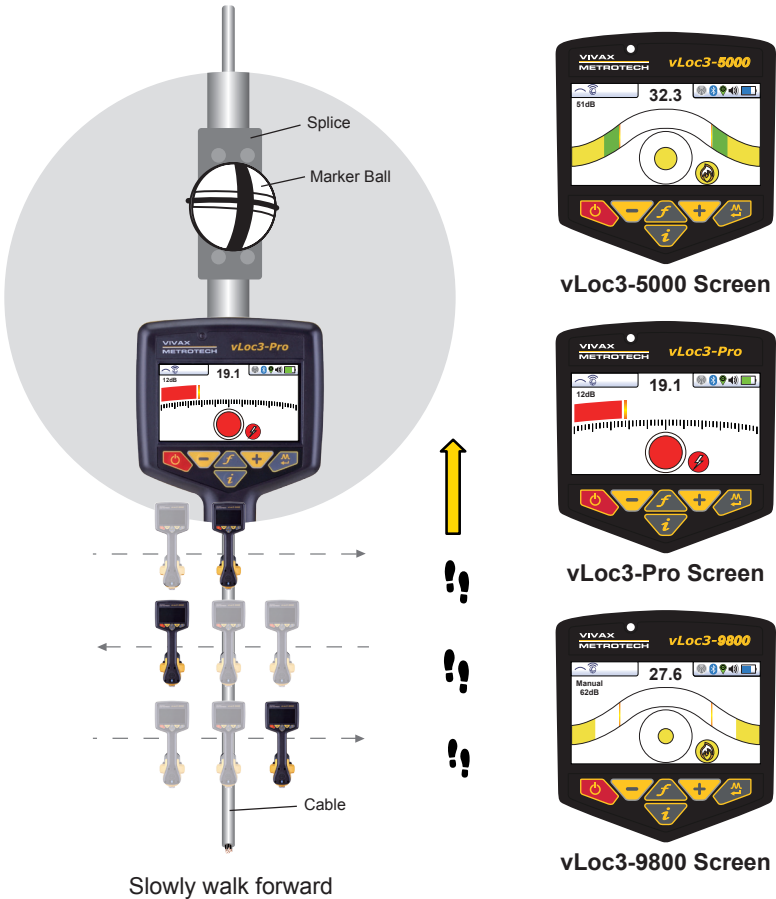### Detecting a Marker in the Dedicated Mode
Switch on the locator and select the correct marker frequency.

Sweep the area where the marker is to be located. Use a slow, deliberate arm sweeping motion moving forward, making sure no area is missed.

Sweeping action

Slowly walk forward
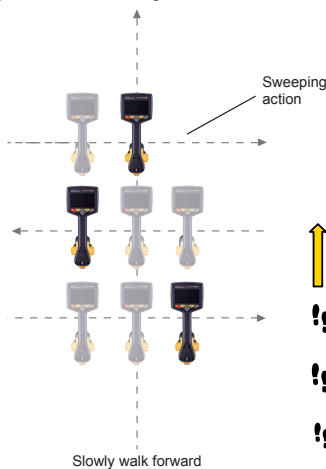
When in range of the marker, an audio tone is heard from the speaker. Along with the audio tone, the icon in the center of the display (2) will start to fill.

Move the locator forward and back, left and right, until the largest signal is detected. Note the bar graph (1) will also respond. Use the "+" and "-" pushbuttons to keep the signal on the scale. The bar graph should be used to pinpoint the position of the marker.

Splice

Marker Ball

Cable

Slowly walk forward

vLoc3-5000 Screen

vLoc3-Pro Screen

vLoc3-9800 Screen

2.3.2   Marker Depth Estimation in Dedicated Mode

It is only possible to take depth measurement of a marker, when in the dedicated mode.

Procedure:
1.   Switch the receiver to the Dedicated Marker mode.
2.   Pinpoint the position of the marker, as previously described.
3.   Position the locator on the ground directly over the marker.

4.   Press the [i] button. The display will change to something like the illustration shown below.

5.   Hold the unit steady and on the ground until the display changes to the below. Do not raise the locator until the display on the right is shown:

6.   Raise the locator 8" *(20cm)* and again press the [i] button as indicated by the animation. The depth estimation will be displayed similar to the one shown below:
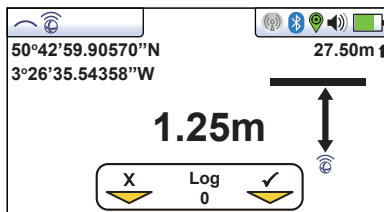
7.   If the marker signal is not valid because either it is very shallow, or the signal is weak because the marker is very deep, the depth indicator will be replaced by dashes below.
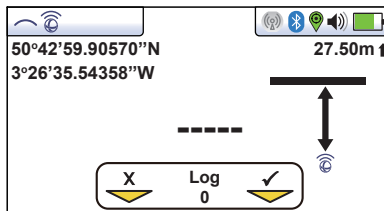
Tip
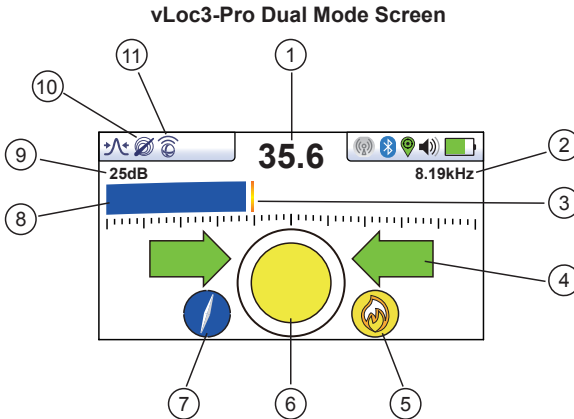**The accuracy of the depth readings will depend mainly on the accuracy of the 8" *(20cm)* lift. Taking care to lift the distance accurately will yield the best results.**

2.3.3   Dual Configuration

In this configuration, the unit can be used to trace an energized cable or pipe while simultaneously looking for the presence of markers. For example, if a cable has markers indicating the position of splices or T joints, the cable can be traced, when a marker is approached, the unit will respond indicating the position of the marker.
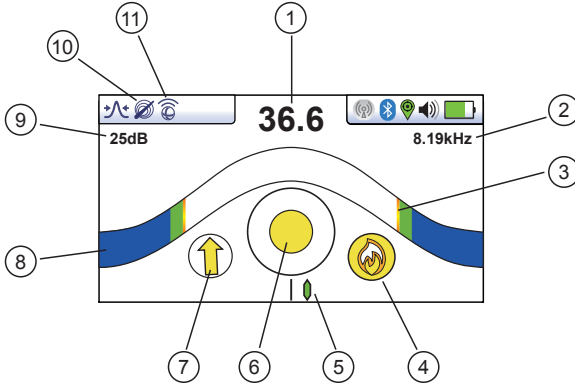
Enter the dual configuration, as previously described. The following icon should be displayed in the top left screen �e 🚫 .

The locator screens will look similar to the illustrations below.

vLoc3-Pro Dual Mode Screen

1	The numeric value of line signal strength from the energized line
2	Line locate frequency selected
3	Peak level indicator
4	Line left / right indicator
5	Marker type, graphic
6	Marker signal strength
7	Compass line direction indicator
8	Bar graph signal level from Line
9	Line locate gain setting
10	🚫 Line icon indicating line locate is active
11	� Marker icon indicating marker detection active

vLoc3-5000 Dual Mode Screen

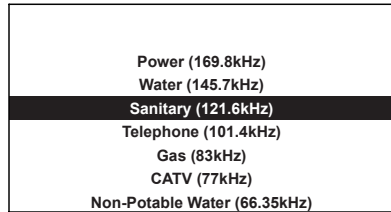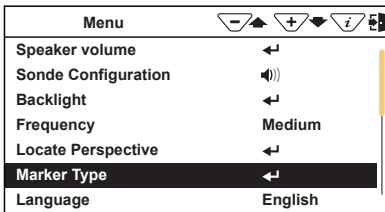| 1	The numeric value of line signal strength from the energized line
2	Line locate frequency selected
3	Peak level indicator
4	Marker type, graphic
5	Line left / right needle indicator
6	Marker signal strength
7	Compass line direction indicator
8	Bar graph signal level from Line
9	Line locate gain setting
10	⌀ Line icon indicating line locate is active
11	⌒ Marker icon indicating marker detection active

vLoc3-9800 Dual Mode Screen
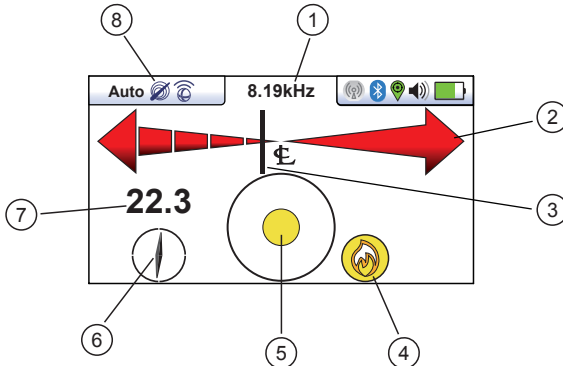
1	Line locate frequency selected
2	Left / Right Line locate graphic
3	Left / Right indicator
4	Marker type graphic
5	Marker detection indicator
6	Compass line direction indicator
7	Marker Numeric Signal level
8	Indicates Dual mode selected

Select the marker type to be detected. When in the Dual Configuration selecting the marker type is done through the user menu. Press and hold the [i] button and use the "+," "-" keys to scroll to the marker type option. Press the enter key to access the available marker types. Scroll as before, to the desired marker, and press the return button to select.

Menu	
Speaker volume	↵
Sonde Configuration	◀)))
Backlight	↵
Frequency	Medium
Locate Perspective	↵
Marker Type	↵
Language	English

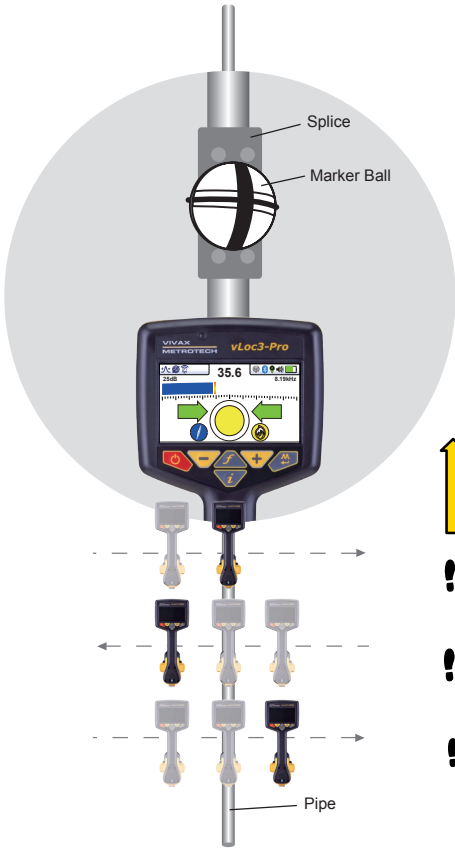| |
|---|
| Power (169.8kHz) |
| Water (145.7kHz) |
| **Sanitary (121.6kHz)** |
| Telephone (101.4kHz) |
| Gas (83kHz) |
| CATV (77kHz) |
| Non-Potable Water (66.35kHz) |

Note that both icons are now illuminated, indicating that dual configuration is activated. Energize the cable with an active signal as instructed in this user handbook.

Select the antenna configuration by using the pushbutton. Note that the left/right arrows indicate the cable position and **not** the marker position.

Use the ƒ pushbutton to match the transmitter frequency (Some active frequencies may not be available in the dual-mode as they may affect the marker locate function.) Use the locator to identify the position of cable or pipe. Trace the line using the same technique as a standard vLoc3 series locator. The bar graph indicates the signal strength from the cable. The bar graph is always colored blue in the Dual configuration mode and does **not** indicate signal distortion or marker type.

In the Dual configuration mode, the "+" and "-" pushbuttons alter the sensitivity of the cable locate bar graph. It is not necessary to alter the sensitivity to the marker locate function. The sound is from the line position. In Dual configuration, the marker has no sound associated with it.

As a marker is approached, the marker locate icon will start to fill up. Move the locator forward and back, left and right to obtain the largest signal. If pinpointing is required, select dedicated configuration and use the bar graph to pinpoint the exact position.

Splice

Marker Ball

Pipe

Slowly walk forward
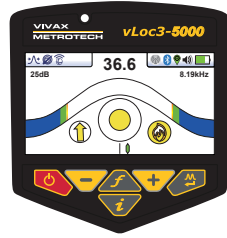
vLoc3-5000 Screen

vLoc3-Pro Screen

vLoc3-9800 Screen

Glossary

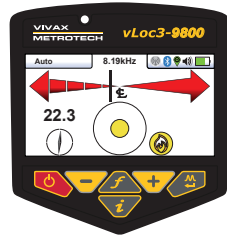|	
Active Locate	A locate where a transmitter is used to apply a signal to a buried pipe or cable, the position of which is then located by a receiver tuned to the same frequency.
Active Signal	A signal applied by the locator transmitter to a buried line. Typical, this is a very precise frequency.
Attenuation	The reduction of an electromagnetic signal from a pipe or cable.
Clamp (or Coupler)	An accessory used to apply the transmitter signal to an insulated line, removing the need to connect the transmitter signal directly to a conductor or cable sheath.
Compass	Line direction indicator (although visually like a compass, this is the only relation to a compass.)
Coupling	The act of signals transferring to lines to which they were not originally applied. The coupling can be "direct" where the target line has an electrical connection to another line, or "induced" where the signal radiates from the target line to another line or lines.
Display	The information visually available on the dot matrix display.
Line	A generic term for any buried pipe or cable.
Null	A minimum response to a buried line.
Marker	Passive marker used to mark the position of non-metallic services or points of interest.
Passive Locate	A locate where the receiver searches for a wide range of signals that radiate from buried pipes or cables. These signals come from a variety of sources in the environment and couple to the buried (& overhead) lines. Typical examples 50/60Hz and LF/VLF radio.
Passive Signals	A wide range of signals that radiate from buried pipes or cables. These signals come from a variety of sources in the environment and couple to the buried (& overhead) lines. Typical examples 50/60Hz and LF/VLF radio.
Peak	A maximum response to a buried line.
Pinpoint	Using a receiver to identify the exact position of a buried line.

Response	The indication that the receiver gives which is caused by the signals it is receiving. This can be visual, audio, or both. Typically, it is displayed on the locator's dot matrix display and audibly from a loudspeaker in the receiver housing.
Search (sweep)	This describes the act of looking for a buried line within a given area.
Sonde	A small transmitting coil which may be built into a product such as a sewer camera or packaged as a small self-contained battery-powered transmitter. A receiver tuned to the same frequency can locate the position of the Sonde. Frequently they are used for locating sewer cameras and non-metallic pipes.
Target Line	The buried pipe or cable to be located.
Trace	Using a locator to following the path of a buried line.

◇◇◇

Illustrations used in the preparation of this manual will inevitably show some resemblance to similar illustrations from other manufacturers. Some manufacturers have given permission for the use of their graphics is given credit for these use. This statement is intended to attribute such credit.

◇◇◇

Disclaimer: Product and accessory specification and availability information are subject to change without prior notice.

METROTECH

VIVAX
METROTECH

Notes:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

VIVAX
METROTECH

Vivax-Metrotech Corporation
3251 Olcott Street, Santa Clara, CA 95054, USA
Toll Free: 1-800-446-3392
Phone: +1-408-734-3880
Website: www.vivax-metrotech.com

VIVAX   METROTECH   VIVAX
                                  METROTECH