VM-550/VM-560 User Guide V1.4

Introduction
This guide describes the operation of the VM-550 and VM-560 pipe and cable locators. Both are general purpose locators used to detect buried pipe and cable services in a variety of situations.

The operations of the two systems are very similar. The main difference is in the operational frequencies:
- VM-550 Frequencies: 50 or 60Hz, 8 kHz, 480 kHz
- VM-560 Frequencies: 50 or 60Hz, 8 kHz, 480 kHz

The VM-550/VM-560 is supplied with 1 watt transmitter with both direct connection and induction capabilities. An inductive clamp and LPC live separation filter are also available as optional accessories. The VM-560 is supplied with an inductive clamp and LPC Separation Filter.

Transmitter Operational Controls

Receiver Operational Controls

Accessories

WARNING
The same applies to setting the signal level. A short press on the resulting signal radiating from the cable may be zero and therefore not detectable. Do NOT use the VM-550/VM-560 to identify if cables are live. Always dig with caution.

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Receiver Display Functions

Sensitivity Setting Indicator

Dependent on the method selected, the desired frequency can be selected by:
- Direct Connection
- Induction Mode
- Signal Clamp Mode

WARNING
DO NOT attempt to make a connection to a live conductor. Only make a connection to de-energized or dead cables. It is possible to connect to the sheath of active cables but this should only be attempted by qualified and authorized personnel.

Method:
Plug the direct connection leads to the transmitter. Connect the red lead to the cable or pipe and the black one to a suitable ground. Ideally this should be a ground stake placed at right angles to the probable route of the target line. If it is not possible to use a ground stake, connect the black lead to a grounded structure such as the rim of a manhole cover or other buried metallic structure. Try to avoid fencing as this will create interference from the return signal traveling along the fence.

If necessary clean the connection point with a wire brush to ensure a good electrical connection.

Locating a Cable in the Power (50/60Hz) Mode

1. Hold the locator vertically in the area that is required to be searched. Press the "f" pushbutton to enter the frequency menu. The display will show the present frequency selected in large numeric's in the centre of the screen.

2. Select the desired frequency by pressing the "f" pushbutton. As a general rule the higher frequency will have a clearer more stable reading and will jump insulating joints on pipes but has the disadvantage that it is more likely to jump to other utility nearby. The lower frequency is better for tracing a particular utility as it is more likely to keep to the utility line the transmitter is attached to. If in doubt, start with the lower frequency and switch to the higher one if it is not possible to detect a stable reading.

3. Sweep the locator left to right along the suspected route of the cable. As the locator approaches the cable the meter reading will increase. Pinpoint the position by detecting the largest signal.

4. To confirm the direction of the cable, rotate the locator until the largest signal is detected. The direction of the cable is then directly ahead.

5. Continue to locate the cable along the route.

6. Depth measurements are not possible in the power (50/60Hz) mode, if pressed by accident it will show N/A.

WARNING
This method involves making a direct connection to the Cable or Pipe.

Changing the Locate Frequency

Press and hold the depth measurement/frequency selection pushbutton until the frequency menu is entered. The display will show the present frequency selected in large numeric's in the centre of the screen. Use the "f" or "r" pushbuttons to select the desired frequency. Press the depth measurement/frequency selection pushbutton to re-enter the locate screen.

Note
The battery condition as indicated on battery icon.
ON/OFF pushbutton will alter the output from low to high. Always start with the low setting and switch to high if it is not possible to detect a stable reading on the receiver. Using the low setting will also prolong the battery life.

If unsure of the quality of connection to the service, set the frequency of the receiver to match the transmitter, hold the receiver over the suspected position of the target utility line as below. Place the transmitter over the suspected position of the target utility line as below.

Switch on the transmitter and set the output to low output. Only switch to high if the signal received is too low. Only the high frequency is available in induction mode.

Start locating the line a few paces from the transmitter. Starting too close will be difficult as the signal radiated through the air from the transmitter will be greater than that from the cable. Trace the cable in the normal way.

Now press the depth measurement/frequency selection button. There will be a short delay before a depth estimate will be displayed.

**NOTE**
The depth measurement is an approximation. Depth indications can be effected by field distortion caused by adjacent utility lines or changes in direction and depth. Always use depth measurements as an aid to line verification but NEVER use them to decide if mechanical digging is safe. Always dig with care. An aid to determining if the depth is correct is to repeat a depth measurement with the locator vertically in line with the cable or pipe.

The induction mode is useful in situations where access to a cable or pipe is not possible. Remove the direct connection leads so that the transmitter automatically selects itself into the induction mode.

Using the clamp does NOT require a ground connection from the transmitter. However, the signal quality will be better if there is a ground at both ends of the cable.

**LPC Separation Filter**

The LPC separation filter is used to safely inject a trace tone to a live cable via a domestic mains socket, so that the cable can be traced from the premises to the connection in the street. It is suitable for connecting to voltages between 100V AC and 250V AC.

**Method**
1. Plug the LPC into the output socket of the transmitter.
2. Set the LPC rotary switch to match the two indicator lights.
3. Plug the LPC to the mains socket and then switch back on.
4. Set the LPC rotary switch to match the two indicator lights.
5. Set the transmitter to the frequency to be located.
6. Locate the line as described in the section Direct Connection Mode.

**NOTE**
A transmitter ground connection is not required with this method as the ground is made within the mains socket.

**Changing Batteries**

**Transmitter**
1. A low battery is indicated by the icon of the receiver display.
2. To replace the batteries unscrew the two retaining screws on the end of the transmitter. Remove the battery cover and take out the old batteries.
3. Replace with four D type alkaline batteries.
4. Always replace all the batteries. Having batteries with different charge may result in batteries being reverse polarised which may then leak or overheat.
5. Replace the battery and hand tighten the retaining screws.

**Receiver**
1. A low battery is indicated by the icon of the receiver display.
2. To replace the batteries unscrew the end cap on the handle end of the VM-540/VM-550.
3. Remove and replace BOTH batteries with fresh 1.5V alkaline AA (LR6).
4. Replace end cap.

**Service Center Information**
If the equipment does not function properly, replace the batteries as described above. If the equipment still malfunctions, contact one of the Vivax-Metrotech Customer Service departments, or call the factory for the nearest authorized Vivax-Metrotech repair station.

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

**EMC Compliance**
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

**EMC Compliance**

**Class B digital device, pursuant to part 15 of the FCC Rules.**

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