VIVAX METROTECH

vLoc3 Series Remote Antenna User Guide

(English Edition)

Version 1.3

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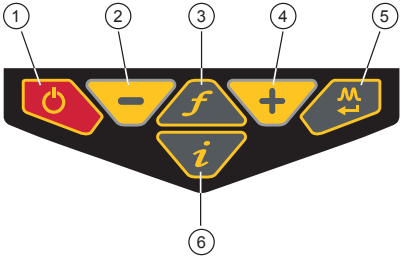
1. vLoc3 Remote Antenna Introduction

The remote stethoscope antenna can help identify a particular cable in a cable tray or where cables are bunched together.

This user guide covers the remote antenna with the frequency range of 512Hz to 200kHz, the SD frequencies, and the SiS frequencies. The SD frequency is a receiver option that needs to be ordered, and the SiS frequency is only available on the vLoc3-5000 receiver and SiS transmitter.

WARNING
The remote stethoscope antenna is a useful tool to help identify cables. However, it should not be used as identification before an unused cable is cut. Always follow company procedures when cutting disused or isolated cables.

The vLoc3 Series Keypad



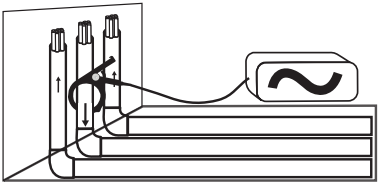
1	On/Off button
2	Reduce sensitivity
3	Select frequency
4	Increase sensitivity
5	Enter key
6	Depth and information

2. Standard Operation - 512Hz to 200kHz

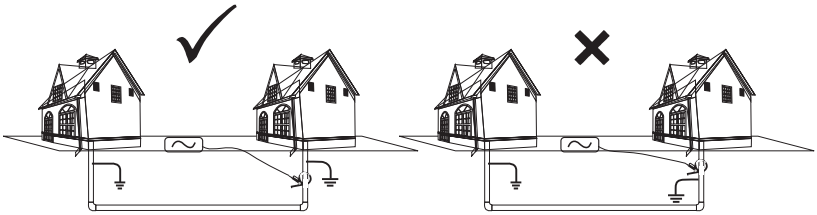
2.1 Applying the transmitter signal

Using the Transmitter Signal Clamp

The signal clamp applies a signal to the target cable and shares an equal amount with other cross bonded cables, so although it can create multiple signals, the largest one is most likely to be the target cable.



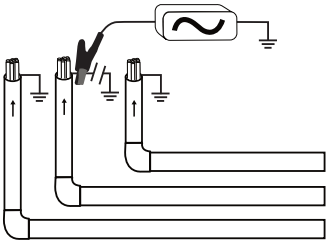
When using the signal clamp, both ends of the target cable should be grounded. Apply the clamp below the ground point. Applying the clamp above the ground point will prevent the signal from finding the return path through the ground, so it is not advised.



Note: Applying the SiS or SD signals requires the use of the SiS Signal clamp.

Using the Direct Connection Method

If it is not possible to use a signal clamp, but you can confirm that the cable is out of service and de-energized, use the direct connection method to apply the signal. Removing any cross bonding between cables prevents the signal from traveling along commonly bonded cables.
A low frequency is preferred in this application because they are less likely to leak or bleed over to other cables.

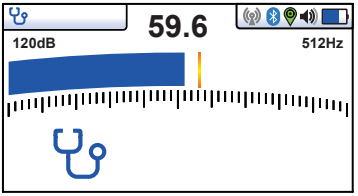


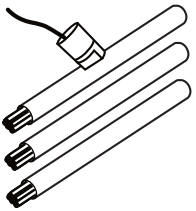
Using the Induction Method

The Induction method is least preferred because the signal will be applied on all cables near the transmitter.

2.2 Identifying a cable with the remote antenna

1. Connect the remote stethoscope antenna to the accessory input of the receiver. The correct settings and user interface will be automatically selected.
2. Match the frequency of the vLoc3 receiver to that of the transmitter.
3. Place the stethoscope on each of the suspected target cables. Place with the flats of the antenna in line with the route of the cable.





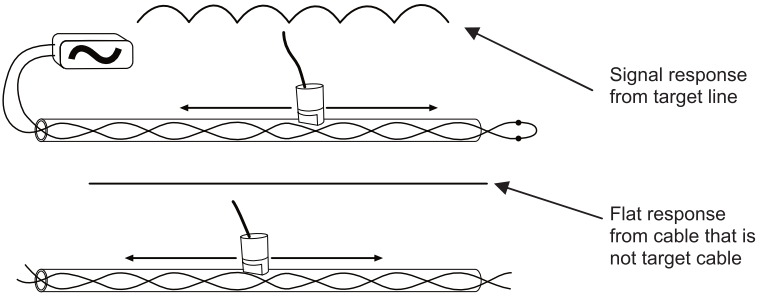
4. Note the strongest signal as displayed on the bar graph in conjunction with the dB gain setting. The strongest signal will indicate the probable target cable.

TIP
The remote antenna stethoscope can be used to help identify disused and isolated cables. This process can be further enhanced if the cable is isolated and is of twisted cable construction.

WARNING
Only attempt this on disused, de-energized cables.

2.3 Enhanced "loopback" method of cable identification

1. Connect the transmitter to two of the cores of the cable. At the far end, short together, these two conductors making a loop.
2. Set the transmitter to a low frequency such as 640Hz and set the output to maximum.
3. At the point of interest, run the remote stethoscope antenna along the suspected target cable. If the correct cable is being assessed, the signal will increase and decrease in sympathy with the cables conductors twist within the cable.

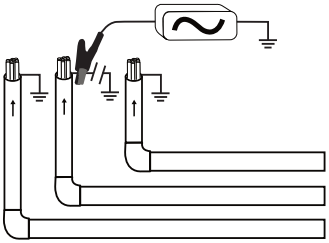


4. If the signal is a steady level and does not rise and fall, this is probably not the target cable.

3. Using the SD Signal

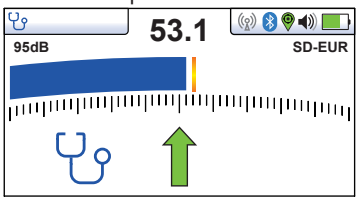
The Remote Antenna is also capable of detecting SD signals.

1. Apply the signal using the direct connection method. Remember to isolate the cable beforehand, as below. It is also preferable to use the ground stake as an independent ground. Using the station ground may result in multiple signals as the signal will return along commonly bonded cables.

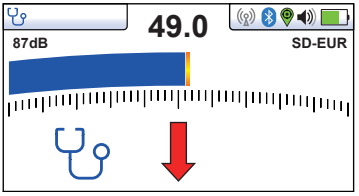


2. Select an SD signal on the transmitter (either SD-USA or SD-EUR).
3. Connect the remote antenna to the vLoc3 receiver. Place it on the red lead of the transmitter with the arrow pointing away from the transmitter. Place with the flats of the antenna along the line of the cable.

4. Select the frequency using the "f" button to match the transmitter. The screen should look similar to the picture below.



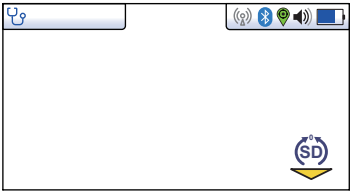
5. If necessary, adjust the sensitivity so that the bar graph is on the scale. Note that the green arrow is pointing forward, indicates that the signal is flowing forward. If the arrow was red and pointing backward, it will be necessary to perform an SD reset before proceeding. However, if in doubt, always perform the reset to ensure the antenna and receiver are synchronized.



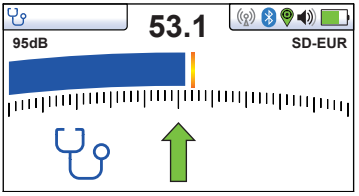
3.1 Performing a remote antenna SD reset

Connect the transmitter to the service to be identified, place the antenna on the red cable as previously described with the label pointing away from the transmitter.

Press the "i" button. The screen will change to something similar to the below.



Press the "Enter" button as indicated by the "SD" icon. The screen will then revert to the one below with an arrow pointing forward, indicating that the reset was successful.



The system is now ready to identify the cable at the location of the interest.

NOTE

Note that the SD reset will revert to the default setting if the vLoc3 is switched off.

3.2 Identifying a cable with SD mode

Having confirmed that the antenna is synchronized with the receiver, proceed to the cable's location to be identified. Place the antenna on each of the suspected cables, in turn, ensuring the correct orientation, i.e., the arrow on the antenna pointing away from the transmitter.

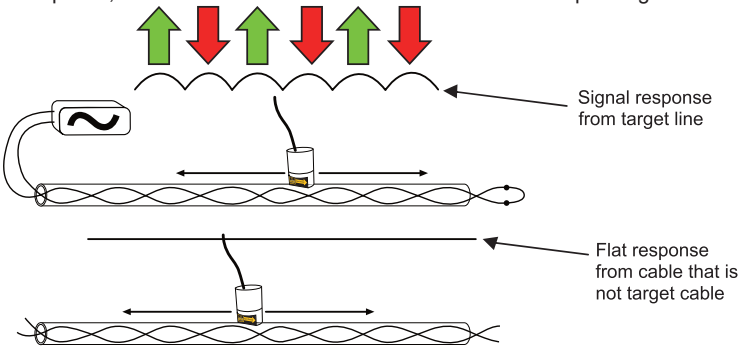
Note the signal strength on each cable and also which arrow is illuminated. The target cable will have the strongest signal and will have the green forward arrow illuminated.

3.3 Enhancing the loopback method of cable identification with the aid of the SD signal

As described before, a more reliable method of loop backing the signal on the cable is possible if the cable is out of service. This method can be further enhanced with the aid of the SD signal.

Now set up the transmitter as in the illustration below, with the far end connected and with the transmitter connected across a twisted pair of cable. Set the transmitter to SD EUR or SD USA and perform an SD reset as described above.

At the location of interest, hold the antenna on each of the cables in turn. Run the antenna along the cable keeping the arrow on the antenna pointing forwards. On the incorrect cable, the signal level will be small and steady. On the correct target cable, the signal will rise and fall in sympathy with the cables twist. If on the target cable, at alternate peaks, the arrows will switch from forward to backward-pointing.

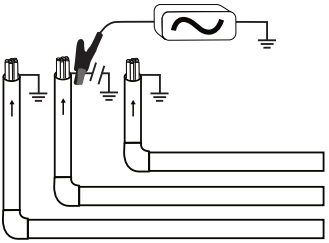


4. Using the SIS Signal

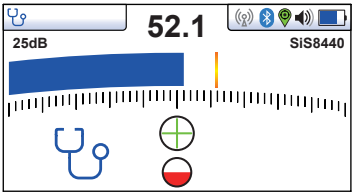
The use of a Remote Antenna to help identify a cable can be further enhanced with the use of a Signal Select Signal.

Method:

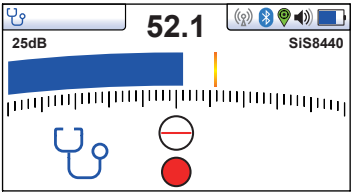
1. Apply the signal using the direct connection method. Remember to isolate the cable beforehand, as below. It is also preferable to use the ground stake as an independent ground. Using the station ground may result in multiple signals as the signal will return along commonly bonded cables.



2. Select an SIS signal from the transmitter (there are many available, but lower frequencies will create less bleed off to other lines, SiS 491Hz is a good frequency to start with).
3. Connect the remote antenna and place it on the red transmitter lead. Place it with the arrow on the remote antenna, pointing away from the transmitter. Select the frequency using the "f" button so that it matches the selection on the transmitter. The screen should look similar to the below picture.



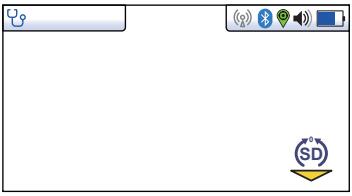
4. If necessary, adjust the sensitivity so that the bar graph is on the scale. Note that the front half of the circle is red, indicating slight signal distortion, and the polarity sign is "+." Indicating that the signal is flowing forwards.
5. If the "-" polarity is indicated as below, it will be necessary to perform an SIS reset before proceeding.



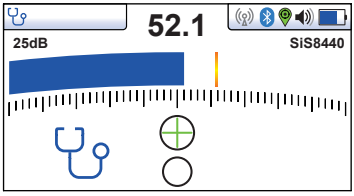
6. However, if in doubt, always perform the reset to ensure the antenna and receiver are synchronized.

4.1 Performing a remote antenna SIS reset

As previously described, connect the transmitter to the service to be identified, and place the antenna on the red cable. Press the "i" button. The screen will change to something similar to the below.



Now press the "Enter" key. The screen should now show something similar to the below with the "+" icon showing little or no red shown in the distortion indicator.



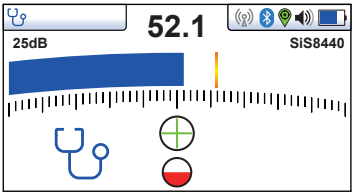
The system is now ready to identify the cable at the location of interest.

Note that the SiS reset will revert to the default setting if the vLoc3 is switched off.

4.2 Identifying a cable using SiS

Having confirmed the antenna is synchronized with the receiver, proceed to the cable's location to be identified. Place the antenna on each of the suspected cables, ensuring the correct orientation with the flats in line with the cable and the arrow on the antenna pointing away from the transmitter.

Note the signal strength on each cable and also which polarity is indicated. The target cable will have the strongest signal and will have a "+" polarity.



4.3 Enhancing the loopback method of cable identification using the SIS signal

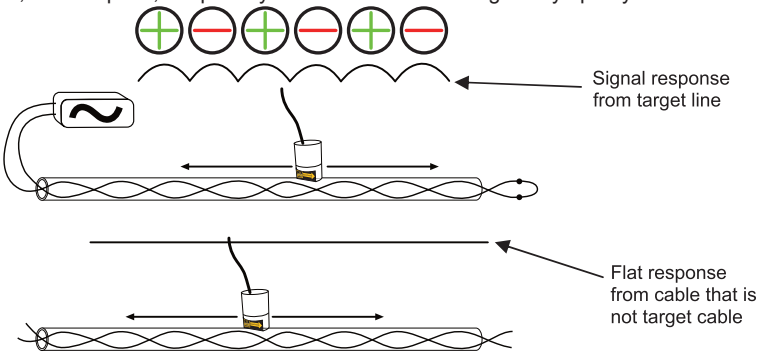
As described before, a more reliable method of loop backing the signal on the cable is possible if the cable is out of service. This method can be further enhanced with the aid of the SIS signal.

Method:

Set the transmitter to a SiS frequency such as SiS 491Hz perform a SiS reset as described above.

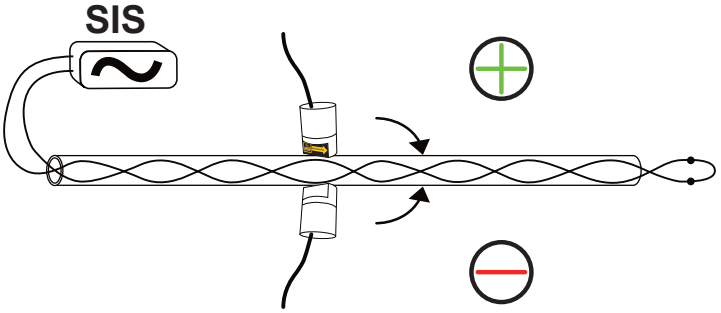
Now set up the transmitter as in the illustration below, with the far end connected and with the transmitter connected across a twisted pair of cable.

At the location of interest, hold the antenna on each of the cables in turn. Run the antenna along the cable keeping the arrow on the antenna pointing forwards. On the incorrect cable, the signal level will be small and steady. On the correct target cable, the signal will rise and fall in sympathy with the cables twist. Also, if on the target cable, at each peak, the polarity indicator will also change in sympathy from "+" to "-".



Further confirmation can be achieved by the following:

- Run the antenna along the cable with the flats in line with the cable, stopping at a positive (+) peak signal.
- Rotate the antenna around the cable keeping the antenna at the same point along the cable.
- If on the correct cable, when directly on the opposite side of the cable, the signal will again peak, but the polarity indicator will show "-".



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