VIVAX METROTECH



vScan and vScan-SE

User Manual

Vivax-Metrotech Corporation

4.04.000278 04/16/2026 V1.0

VIVAX METROTECH

Scan the QR code to obtain the latest online manual

Check for the latest online manual

Knowledge Center
https://vivax-metrotech.com/support/knowledge-center/

Vivax-Metrotech Corporation

General Safety & Care Information

◆ Who Can Use This Equipment

- People suitably trained in the use of pipe and cable locators should only use this equipment.

◆ Work-site Safety

- Always comply with your company's work practices and safety codes.
- Always comply with local, state, federal, and national applicable work practices and safety codes.
- Unless having the required authorization, license and appropriate training – **do not** make connections to any pipe, cable or conductor.
- Unless otherwise stated on the product labelling and in the product's user handbook, this product is not "intrinsically safe" and should not be used in areas requiring "intrinsically safe" approvals.
- The equipment should not come in contact with corrosive or hazardous chemicals, gases or dust.
- **Do not** directly connect this equipment to cables or pipes that have a potential difference to ground of greater than 25V AC.
- **Always remember to dig safely.**

◆ Equipment Safety

- **Do not** open the enclosures (housings) of either the transmitter or receiver.
- Place the ground stake firmly in the ground before connecting the cable from the transmitter.

◆ Batteries and Environmental Safety

Vivax-Metrotech products use four types of batteries:

- Alkaline batteries – non-rechargeable
- Nickel metal hydride batteries – rechargeable
- Lithium-ion batteries – rechargeable
- Lithium-metal batteries – (small non-rechargeable button cells for "clock" applications)

◆ Alkaline Batteries (non-rechargeable)

- When replacing the alkaline batteries – use only the size and type specified – **do not** mix battery types (rechargeable and alkaline).
- **Do not** mix partially discharged and fully charged cells in the same battery pack – **do not** mix old with new.
- **Never** attempt to charge alkaline batteries.

◆ Nickel Metal Hydride Batteries (rechargeable)

- When using rechargeable batteries, use only the correct charging device supplied or specified by the manufacturer. The battery pack or the battery charger will contain circuitry to manage the charging process – other chargers, even if they have the same connector, polarity, voltage & current rating, will not have the same control circuitry and can cause damage to the product, overheating, and in extreme cases, fire or harm to the individual.
- **Do not** assume that if the plug fits it is the correct charger – a charger with the correct part number **must** be used – just because it is a Vivax-Metrotech charger **does not** mean it is the correct charger.
- Before using for the first time, charge rechargeable batteries for six hours. If at any time the rechargeable batteries **do not** last as long as anticipated, fully discharge them, then charge for six hours.
- Care should be taken when charging batteries – **never** repeatedly recharge batteries (or turn power off & on) without using the instrument. If used with an inverter in a vehicle, charge the product, then unplug the charger and **do not** charge again until the rechargeable batteries have been used for at least 10 minutes. Failure to do this could result in overcharging the battery, which will shorten its life and, in some circumstances, cause overheating or fire.
- If ever the product becomes hot during the charging process, **immediately** unplug the charger and use the rechargeable batteries for at least 10 minutes before recharging. If this recurs the next time the unit is charged, return it immediately to Vivax-Metrotech for repair.
- **Do not** charge batteries for prolonged periods of time. Charging for an extended period could overcharge the battery, reduce battery life, and, in extreme circumstances, cause damage to the locator or start a fire.

◆ Lithium-ion Batteries (rechargeable)

- Lithium-ion batteries – some products use Lithium-ion batteries.
- These are custom-made battery packs and should not be dismantled or damaged.

◆ Lithium-metal Batteries (non-rechargeable)

- Commonly known as "button cells" these are small, non-rechargeable batteries used to power internal "clocks" within some units (similar to computers). Generally, they have a life of three to five years.
- Under no circumstances should any attempt be made to charge these batteries.

◆ Transportation of Lithium-ion and Lithium-metal Batteries

- The Lithium-ion and Lithium-metal batteries used in Vivax-Metrotech products meet the required safety standards and include the designated protection circuitry.
- When batteries with Lithium-ion and Lithium-metal batteries are transported, or products containing Lithium-ion batteries, the packaging **must** include specified warning labels and shipping documentation containing the appropriate information. **Please contact Vivax-Metrotech Customer Service (USA 1-800-446-3392, International +1-408-734-3880 (USA Pacific Time Zone)) for more details.**

- Regulations require specific labelling requirements for the shipping of products containing Lithium-ion batteries and spare battery packs (battery packs that are not inside a product). There are also standards for packaging and weight limits, and the packaging must be marked with the appropriate warning labels. **Please contact Vivax-Metrotech Customer Service (USA 1-800-446-3392, International +1-408-734-3880 (USA Pacific Time Zone)) for more details.**
- Vivax-Metrotech vScan and vScan-SE products using Lithium-ion batteries are classified as "not restricted", they can be shipped normally by road/rail/sea & air (passenger & freight aircraft) without restrictions. If at any point Vivax-Metrotech manufactures a product containing batteries that would fall under “hazardous cargo” restrictions, it will be clearly noted on the product labelling and in the user handbook.

◆ General Rules Regarding Disposal of Batteries

- **Never** disassemble a battery or battery pack.
- **Never** dispose of in a fire or water.
- Dispose of batteries in accordance with your company’s work practice and any local, state, federal or national standards or recognized best practice. Always dispose of batteries responsibly.



IMPORTANT
Remember - Batteries contain dangerous chemicals – They can be affected by water ingress or excessive heat; they can explode or catch fire. They can also cause electric shocks.

◆ Care of Equipment

- Use equipment only as directed in this user handbook.
- **Do not** immerse any part of this equipment in water.
- Store in a dry place.
- Keep equipment in the case provided when not in use.
- If left for a prolonged period of time, remove alkaline batteries.
- Keep the unit clean and free of dust and dirt.
- Protect against excessive heat.

◆ Care When Interpreting the Information Provided by the Locator

- Like all locators, this instrument is locating and providing depth and current readings based on electromagnetic signals that radiate from the buried cable or pipe. In most cases, these signals will enable the locator to pinpoint both position depth and current correctly.
- **Beware** – in some cases, other factors will distort electromagnetic fields radiating from the cable or pipe being located, resulting in incorrect information.
- Always locate responsibly and use information learned during your training to interpret the information provided by the locator.
- **Do not** provide information regarding the depth of cable or pipe to anyone unless authorized to do so by your company.
- **Remember** that depth measurements are to the centre of the electromagnetic field or pipe – in the case of pipes, this may be significantly deeper than the top of the pipe.

◆ American & Canadian Safety Notices

USA

- This transmitter and receiver comply with the general conditions of operation, pursuant to part 15 of the FCC Rules.
  - o CFR 47 Part 15
- Changes or modifications not expressly approved by the manufacturer could void the user’s authority to operate the products.

CANADA

- Equipment is for use by trained operators only, and not for general household or consumer use.
- Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference that may cause undesired operation of the device.

EUROPE

- Vivax-Metrotech confirms that the location system is compliant with relevant provision of European directive 1999/5/EC and the low voltage directive 2006/95/EC.
  - o EN 55011
  - o EN 61000-4-2: A1 & A2
  - o EN 61000-4-3
  - o EN 61000-4-8: A1
  - o EN 61000-6-2
  - o EN 61000-6-3
  - o EN 61010-1
  - o EN 61010-2-031
  - o EN 61010-2-032
  - o ETSI EN 300 330-2
  - o ETSI EN 301 489-1
  - o ETSI EN 301 489-3

Table of Contents

1. Introduction....1
1.1 Service & Support....1
1.1.1 Serial Number and Software Revision Number....1
1.1.2 Worldwide Sales Offices and Service Centers....2
2. Power Supplies....3
2.1 vScan and vScan-SE Receiver Batteries....3
2.1.1 Alkaline Batteries....3
2.1.2 Charging the Receiver Optional Lithium-ion Battery Pack....3
2.2 vScan Transmitter Batteries....4
2.2.1 Alkaline Batteries....4
2.2.2 Charging the Transmitter Lithium-ion Batteries....5
3. Register a Locator with the VMMap Cloud....6
3.1 How to register a locator with the VMMap Cloud....6
4. User Controls/Connections....7
4.1 vScan and vScan-SE Receivers Overview....7
4.1.1 What's in the box:....7
4.1.2 Receiver Controls....8
4.2 vScan Transmitter Overview....8
4.3 Receiver Menu System....9
4.4 Locate Modes and Screens....10
4.4.1 Display....10
4.4.2 Locate Modes....10
4.4.3 Warnings/Alerts....11
4.4.3.1 Shallow Line Alert....11
4.4.3.2 Swing Alert....11
4.4.3.3 Signal Overload Alert....11
4.4.3.4 Overhead Signal Alert....11
5. Locating....13
5.1 Switching the Locator on and off....13
5.2 Passive Locating....13
5.2.1 Detecting Radio Signals....14
5.2.2 Detecting Power Signals....15
5.3 Active Locating....16
5.3.1 Direct Connection....16
5.3.2 Signal Clamp....17
5.3.3 Induction (33 kHz)....18
5.3.4 Detecting Active Signals....20
5.4 Taking Depth and Current Measurements....21
5.4.1 Depth in power mode....21
5.4.2 Checking for depth errors due to signal distortion....21
5.5 When to use 33 kHz or 131 kHz Mode....21
5.6 Metal Locate Mode (vScanM Cover Detector)....22
5.6.1 Locating a Buried Cover....22
5.7 Locating Non-metallic Pipes or Ducts....22
5.8 Advanced Locating Techniques....24
5.8.1 Two Person Sweep....24
5.8.2 “Swamping” an area with Signal (broad induction)....25
5.8.3 Nulling Out a Signal (Induction Mode)....25
5.8.4 Capacitive Coupling....26
5.9 Calibration Check....26

5.9.1 The vScan and vScan-SE Receivers....26
5.9.2 vScan Transmitter Check....27
5.10 GPS....28
5.11 Creating “Points of Interest” (POI)....29
5.12 vScan Bluetooth....29
5.13 vScan-SE built-in WiFi....30
5.13.1 How to connect the vScan-SE receiver to WiFi....30
5.13.1.1 Phone Connect....31
5.13.1.2 Office Connect....32
5.13.1.3 Advanced....32
5.13.2 How to select the active network....33
5.13.3 How to remove WiFi from vScan-SE Receiver....33
5.14 vScan-SE data synchronization with VMMap Cloud....34
5.15 vScan-SE Firmware OTA Update....34
5.16 MyvScan (Does not apply to vScan-SE)....36
5.16.1 Using MyvScan....36
5.16.2 Navigating around MyvScan....37
6. Glossary....38

1. Introduction

1.1 Service & Support

1.1.1 Serial Number and Software Revision Number

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



1 Model & Serial Number

NOTE

The transmitter model & serial number can be found at the bottom of the transmitter and also inside the transmitter, between the battery tray and the main module.

Software Revision Number: For the receiver, the software revision number is displayed on the LCD during the startup sequence or in the "About" section of the user menu. The user cannot identify the software revision for transmitters without displays.

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: +1-408-904-4964
Website: www.vivax-metrotech.com
Email: SalesUSA@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

Germany

Metrotech Vertriebs GmbH
Am steinernen Kreuz 10a,
96110 Schesslitz, Germany
Tel: +49 9542 77227-42
Website: www.vivax-metrotech.de
Email: SalesEU@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

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

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

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

2. Power Supplies

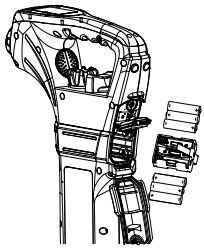
WARNING
Read section 1.1, General Safety & Care information, of this document to learn more about the safe use, charging, handling/shipping and disposal of batteries.

The vScan and vScan-SE are supplied with an alkaline battery holder as standard. Both the transmitter and receiver can be supplied with optional Lithium-ion rechargeable batteries.

2.1 vScan and vScan-SE Receiver Batteries

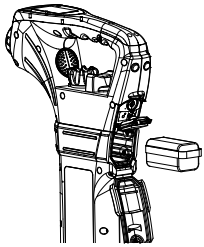
2.1.1 Alkaline Batteries

The vScan and vScan-SE require six AA-type alkaline batteries. To replace the batteries, unscrew the ¼-turn fastener on the battery compartment and open the internal battery door. Remove the battery holder and replace all the batteries.



NOTE
Mixing good and discharged batteries may result in excessive heat or even fire.

2.1.2 Charging the Receiver Optional Lithium-ion Battery Pack

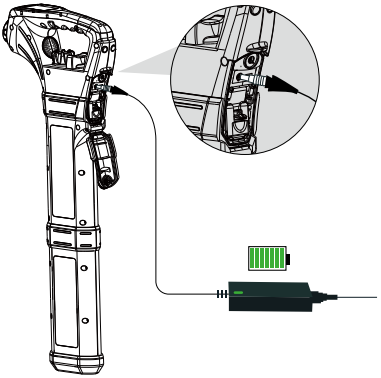


The Lithium-ion batteries in the vScan and vScan-SE are charged inside the receiver. Unscrew the ¼-turn fastener of the battery compartment (do not open the internal battery door).

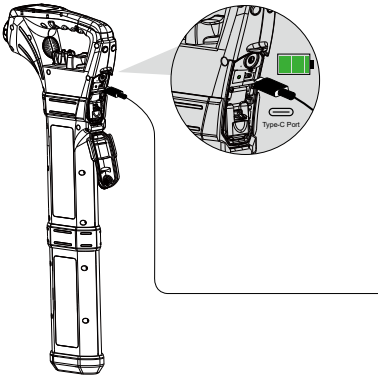
NOTE
The vScan and vScan-SE receivers use different charging interfaces!

vScan receiver: You need to align the red dot on the charger plug with the dot on the charging socket and to connect. Connect the supplied charger to the mains and to switch it on. The charging LED on the charger will illuminate red until the batteries are charged. The LED will then turn green, indicating full charge.

vScan-SE receiver requires a USB-C PD (Power Delivery) Charger that supports 12V, 15V or 19V Outputs and will not charge on a 5V-only adaptor. Connect the provided charger installation adapter socket to the power supply. After connecting the power supply, a yellow light near the Type-C charging interface on vScan-SE lights up. When the yellow light turns green, it indicates that the battery is fully charged.



vScan Charging Status



vScan-SE Charging Status

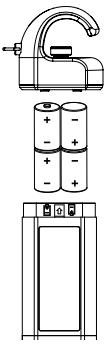
NOTE
Do not insert rechargeable batteries in the dry cell (alkaline battery) holder. Only use the rechargeable battery pack supplied by Vivax-Metrotech.

2.2 vScan Transmitter Batteries

Low battery condition is indicated by the following:

- Very slow pulsing from the sounder (Short pulse every 1.5 seconds).
- The active LED pulses in the same way as a sounder.
- The transmitted signal has a slow pulse, in the same way as the sounder. (This informs the receiver operator that the transmitter batteries have a low charge.)

2.2.1 Alkaline Batteries



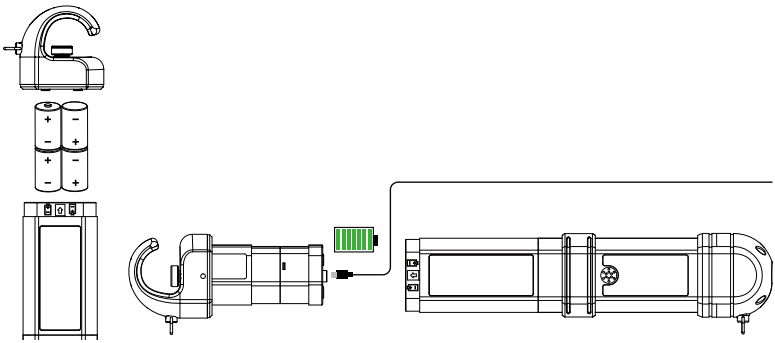
The vScan transmitter requires four D-type alkaline batteries. To replace the batteries, unscrew the two retaining fasteners of the battery compartment. Remove the old batteries and replace **them all**.

NOTE
Mixing good and discharged batteries may result in excessive heat or even fire.

2.2.2 Charging the Transmitter Lithium-ion Batteries

Li-Ion battery pack with USB-C port
Remove the battery pack by unscrewing the two fasteners of the battery compartment. The battery pack requires a USB-C PD Charger that supports 12V, 15V or 19V Outputs and will not charge on a 5V-only adaptor. Connect the provided charger installation adapter socket to the power supply. After connecting the power supply, a yellow light near the Type-C charging port turns on. When the yellow light turns green, it indicates that the battery is fully charged.

Li-Ion battery pack with 2-pin LEMO connector
Remove the battery pack by unscrewing the two fasteners of the battery compartment. Align the red dot on the charger with the dot on the charging socket at the base of the battery, then connect. Connect the charger to the mains to switch it on. The charging LED on the charger will illuminate red until the batteries are charged. The LED will then turn green, indicating full charge.



WARNING
Only use the charger supplied. Using any non-recommended chargers may result in damage to the equipment and possibly a fire or explosion.

3. Register a Locator with the VMMap Cloud

To sync data from vScan-SE with the VMMap Cloud Webserver, you must create an account in the VMMap Pro app.

3.1 How to register a locator with the VMMap Cloud

1. Navigate to the Login page by following the VMMap Cloud Web Portal link: *https://vmmap-new.vxmt.com/en/login*



2. Log in to your account using your email address and password. If you do not have an account, use the “Register” button to register for a new account, then log in and continue this process.

3. Go to Settings > Resource Management 

> Manage Locators 

4. Select Create New Entry .



5. Fill in the locator details in the dialogue box, then press “Add”.

Download the VMMap Pro App by scanning the QR code below and login to your account.

VMMap Pro App (iOS)

VMMap Pro App (Android)

4. User Controls/Connections

4.1 vScan and vScan-SE Receivers Overview

4.1.1 What's in the box:

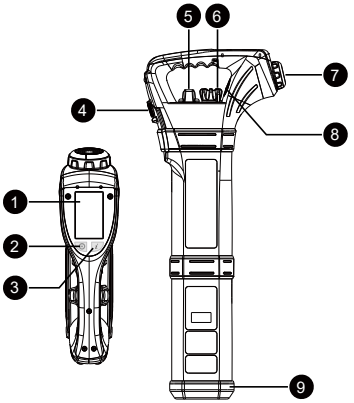


1. vScan or vScan-SE Receiver
2. vScan Transmitter*
3. Receiver alkaline battery holder
4. Kit carry bag*
5. Transmitter strap*
6. 6a. Mini-USB lead for vScan
   6b. USB-C lead for vScan-SE
7. User manual
8. Direct connection lead*
9. vScan transmitter stand*
10. Ground stake*

*Receiver, Transmitter and Accessories are sold separately

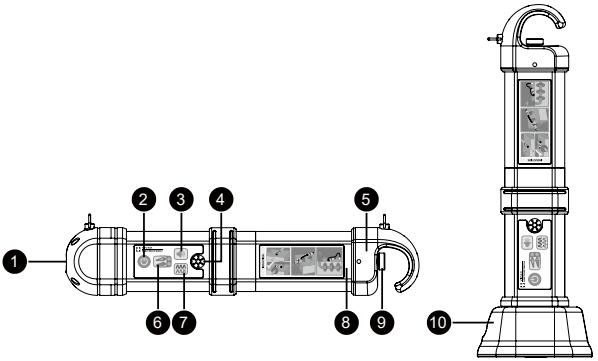
NOTE
vScan-SE requires a USB-C PD (Power Delivery) Charger that supports 12V, 15V or 19V Outputs and will not charge on a 5V-only adaptor.

4.1.2 Receiver Controls



1. Display
2. On/Off button. Also used to navigate in the menu.
3. Depth/Current. Long-press enters the menu option.
4. Battery compartment. Also charging and data transfer sockets
5. Mode switch. Also used to navigate menu functions
6. Sensitivity control
7. Removable headphone speaker
8. Fixed general-purpose speaker
9. Removable wear boot

4.2 vScan Transmitter Overview



1	Direct connection socket	Automatically selects direct connection or signal clamp when connected. Always ensure the weatherproof bung is replaced when not in use. If the connection socket is not being used, induction mode is selected automatically.
2	On/Off pushbutton	Long-press to switch on or off
3	Speaker volume pushbutton	High/low settings
4	Speaker	Tone indicates connection quality or low battery
5	Battery housing cover	Retains batteries and has a hanging hook
6	Output level pushbutton	Press to change from battery save to high signal output
7	Pulse/Continuous pushbutton	Switch signal to pulse when in high noise environments
8	Batteries	4 type-D cells or bespoke rechargeable Li-ion battery
9	Battery cover retaining screws	Hand tightens only
10	Tx foot	Use to stand the transmitter vertically when inducing over a wider area or nulling the signal over an unwanted cable/pipe.

NOTE
When using alkaline batteries, a black molded hook at the end of the transmitter serves as the battery housing cover, retaining and connecting the batteries. If using the rechargeable custom Lithium-ion battery pack, the hook is built into the Lithium-ion battery pack. All transmitters are supplied with the battery housing cover for the alkaline batteries, even if rechargeable batteries are specified. This ensures that alkaline batteries can be used if the rechargeable batteries are fully discharged.

4.3 Receiver Menu System

vScan and vScan-SE configurable system menus allow users to set preferences. Several receiver functions can be turned on or off through the menu.

Open the system menu by holding down the "i" button for 2 seconds.
To exit a menu or return to the previous menu, briefly press the ON/OFF button.

About - Use the Up/Down paddle to select "About". Click the "i" button to confirm the system information, including user name, software version, Cal date, product information, etc.

Volume - Use the Up/Down paddle to select "Volume". Click the "i" button to change the volume level. There are 4 volume levels available. "0" represents volume off.

WiFi, Cloud and Firmware features (Applies only to vScan-SE)
WiFi - Use the Up/Down paddle to select "WiFi". Click the "i" button to set up WiFi and its different options.

- Flight mode: When "Flt Mode" is turned on, WiFi will be unavailable.
- Saved: Display WiFi that has already been added. Select the network to be used for WiFi connection. Press the "i" button to confirm.
- Add: Select the method required to connect to WiFi. (Phone, Office or Advanced)
- Remove: Select to remove added WiFi. Press the "i" button to remove the network.

Cloud - When connected to a WiFi network, the vScan-SE data log synchronizes with the VMMap Cloud in the backend.

Firmware - When connected to a WiFi network, the vScan-SE receiver will communicate with the VMMap Cloud and compare the current version with the version installed on the receiver. When an update is detected, firmware will be automatically downloaded from the Cloud and installation information will be prompted at the next startup.

Cal Check - Use the Up/Down paddle to select the "Cal Check". Click the "i" button to confirm and perform a self-check/calibration check on the device. The self-test/calibration results will be displayed on the screen.

GPS - Display active GPS data.

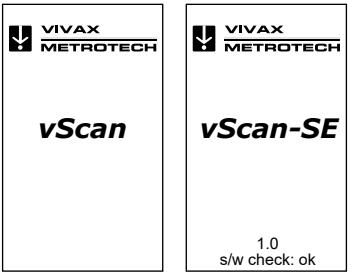
Bluetooth and Datalog features (Applies only to vScan)
Bluetooth - The Bluetooth feature enables the vScan to communicate with external devices, such as high-accuracy GPS, via a radio link. vScan can also create data logs in the VMMap Cloud via the VMMap Smartphone app.

Datalog - Display the memory occupied by the total storage and log storage of the device, as well as the remaining memory information.

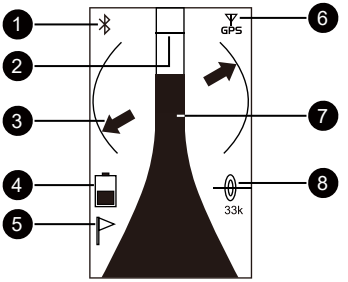
4.4 Locate Modes and Screens

4.4.1 Display

The display uses a dot-matrix format. The contents of the screen are dependent on the function being performed. Details of these screens are revealed further in the user handbook.



Start Screens



Locate screen

1. a. vScan receiver display Bluetooth icon
   b. vScan-SE receiver display WiFi icon
2. Peak level indicator
3. Compass (line direction indicator)
4. Battery level indicator (also alert indicator)
5. Point of interest flag
6. GPS icon
7. Signal strength bar graph
8. Mode in use

4.4.2 Locate Modes

The vScan and vScan-SE receivers give the user a choice of locating screens. The choice of the screen depends on the application and user preference. Change the operating frequency by clicking the up/down paddle.

vScan and vScan-SE Locating Modes:


Power (50/60)


Radio mode


Metal Cover Detection


Active 33kHz


Active 131kHz


512Hz, 640Hz, 8kHz,32768Hz

4.4.3 Warnings/Alerts

Alerts

Warnings or alerts can be indicated by three different methods:

- Audio - an audible warning sound will be emitted
- Vibe - a vibration device situated in the handle will activate
- Visual - an alert icon will replace the battery icon

NOTE
The receivers will continue to operate in a warning/alert condition unless configured to "shut down".

How warnings/alerts communicate their message is user configurable using the MyvScan desktop app.

4.4.3.1 Shallow Line Alert



The shallow line alert will be triggered when a shallow line is detected.

4.4.3.2 Swing Alert



The swing alert will trigger if the angle of swing exceeds 30 degrees from the vertical. No alarm will be activated if the angle is more than 65 degrees from the vertical as it will be assumed that the locator is not in use at this time.

4.4.3.3 Signal Overload Alert



The signal overload alert will trigger if the input signal exceeds the allowable limits. This situation is very unusual and will only occur in extreme situations.

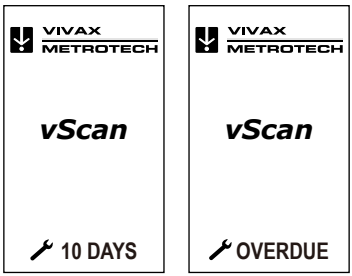
4.4.3.4 Overhead Signal Alert



The overhead signal alert is triggered if the receiver detects a significant signal radiating from above, for instance, an overhead cable.

Warnings

If configured in MyvScan, the startup screen will indicate the number of days to the next service, such as:



Other warnings will be displayed during startup if configured in MyvScan.

NOTE
The “next service” warning is not applicable to vScan-SE because it is not compatible with the MyvScan App.

Icon	Warning	Action Required
	Upload Warning (For vScan Only)	Connect to MyvScan and upload the data log.
	Rental Expired Warning	Return to the rental company.
	Cal Check Warning	Go to the user menu and select “Cal Check”. If it continues to fail, return to the service centre for repair.

NOTE
“Upload Warning  ” is only applicable to the vScan receiver. The vScan-SE receiver data log will be synchronized with the VMMap Cloud.

These warning icons will continue to be displayed until the relevant action is taken.

If desired, the MyvScan desktop application can be used to configure these warnings so that if no action is taken the unit will shut down.

5. Locating

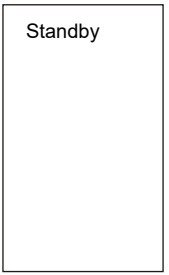
5.1 Switching the Locator on and off

To switch on, momentarily press the On/Off button. Allow a short period for the startup screen to show, similar to the one below.





To switch off, press the On/Off button; the vScan Receiver will display “Standby”.



NOTE
The “Standby” feature is only applicable to vScan. The vScan-SE is not compatible with this feature.

While in standby, the locator electronics are in a “sleep” mode using minimal battery power. After a set period (as set by MyvScan), the unit will automatically switch fully off. If, however, the On/Off button is momentarily pressed while in “Standby”, the unit will revert to full functionality within a very short period. A long press when in “Standby” will fully switch off the unit.

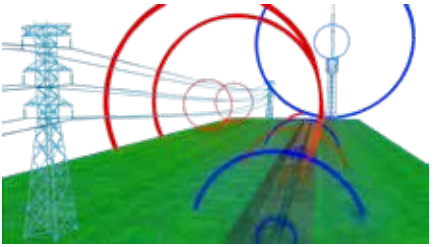
Note also that, if the internal GPS option is fitted, the GPS unit is powered when in “Standby”, ensuring almost immediate functionality when powering up from the “Standby” screen.

Auto Shutdown
If set in MyvScan, the unit will automatically shut down after a period of inactivity. This is to prevent the unit from being accidentally left switched on. Before shutting down, the unit will emit a series of beeps to warn the operator that it is about to switch off. The switch-off can be cancelled by momentarily pressing either the “i” or “On/Off” button.

5.2 Passive Locating

NOTE
The compass indicator is not active during passive location.

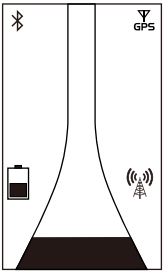
Passive locating refers to the process of detecting signals that “naturally” occur on pipes and cables. These tend to fall into two categories, Radio signals and Power signals.



Radio signals are created by low-frequency radio transmitters. These are used for broadcasting and communications. They are positioned throughout the world. As the frequencies are very low, the signals tend to penetrate and hug the curvature of the Earth. When signals cross a long conductor, such as a pipe or cable, they are re-radiated. It is these re-radiated signals that can be detected by the Radio mode.

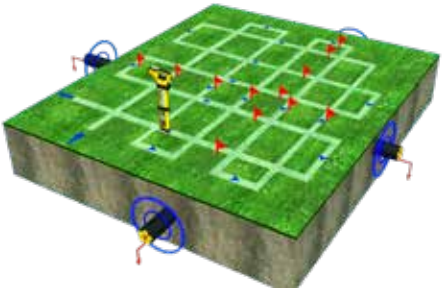
Power signals are created by mains power running through the supply cables. These signals are 50 or 60Hz, depending on the country. For instance, the UK uses 50Hz power, and the USA uses 60Hz. When electrical power is distributed throughout the network, some of it returns to the power station through the ground. These stray currents can jump onto pipes and cables and also create power signals. Note that there must be an electrical current flowing to create a detectable signal. For instance, a live cable that is not in use may not radiate a detectable signal. Also, a very well-balanced cable, i.e. exactly the same current flowing in live and neutral, will cancel out and may not create a signal. In practice, this is unusual as there is usually enough imbalance in the cable to create a good detectable signal.

5.2.1 Detecting Radio Signals

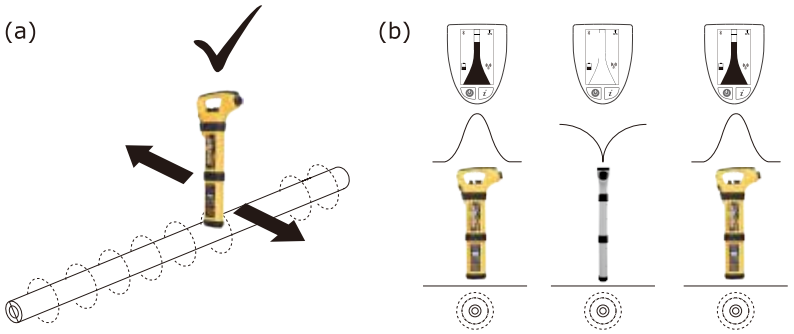


1. Switch on the vScan or vScan-SE receiver and select Radio mode using the mode paddle.
2. Hold the vScan or vScan-SE vertically and away from likely positions of cables or pipes.
3. Adjust the sensitivity control so that the bar graph reading is just starting to show some movement. The sensitivity control should be at or close to maximum sensitivity. Note that the compass feature is not available for the Power or Radio modes.

NOTE
Note that there will be no sound from the speaker until the meter reading is above approximately 10% of full scale.



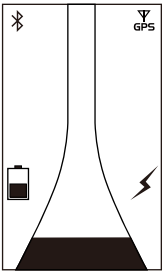
4. Keeping the vScan or vScan-SE vertical, walk across the area to be checked.
5. Continue in a grid across the area.
6. If at any time, the meter reading starts to increase, carefully move the locator forward and back to detect the maximum signal. Use the peak-level indicator to confirm the correct position.



7. Rotate the vScan or vScan-SE on its axis to obtain the maximum signal. The vScan or vScan-SE is now directly over the line, and with the blade across the line.
8. The direction can also be found by rotating until the smallest signal is detected. The blade is then in line with the cable/pipe.
9. Continue to locate the position of the line at regular intervals until its course is known through the target area.

NOTE
In busy environments, it is not always possible to look at the meter and take note of traffic movements around you. In these situations, it is best to locate the line's position primarily by sound rather than by meter response. In very noisy situations, even the speaker's sound may be drowned out. In this instance, unscrew the speaker earphone and place it close to the ear to hear the sound from the detected line.

5.2.2 Detecting Power Signals



1. Locating Power signals is very similar to detecting Radio signals, as they are both passive signals.
2. Hold the vScan or vScan-SE vertically and away from likely positions of cables or pipes.
3. Adjust the sensitivity control so that the bar graph reading is just starting to show some movement. The sensitivity control should be at or close to maximum sensitivity.
4. Now follow the procedure described above in the Radio mode section.

5.3 Active Locating

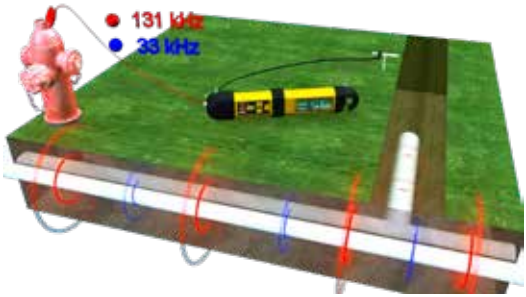
The term “Active Locating” describes the action of locating a cable or pipe by detecting a specific signal that has been injected into that line. It has the benefit that, unlike passive detecting, the operator is in control of the signals and can therefore be more specific about what line is detected. Active signals can be used for line tracing or identification. Also, passive signals are not always present on a line, so using active signals ensures more lines are detected.
To inject a signal requires the use of the vScan transmitter. The signal can be injected into or applied to the target line in various ways.

5.3.1 Direct Connection

This method involves making an electrical connection to the cable or pipe.

WARNING
When connecting to a cable, only connect to the sheath of that cable. The direct connection leads are not designed for connection to live cables.

WARNING
Do not touch the metal parts of the connection clips when connecting to the line or when the transmitter is on.



WARNING
Only authorized personnel should make connections to cables.

To make a direct connection, insert the direct connection connector into the vScan transmitter. Insert the ground stake into the ground a few meters perpendicular to the line. Connect the black lead to the ground stake. Now take the red lead and connect to the target line.

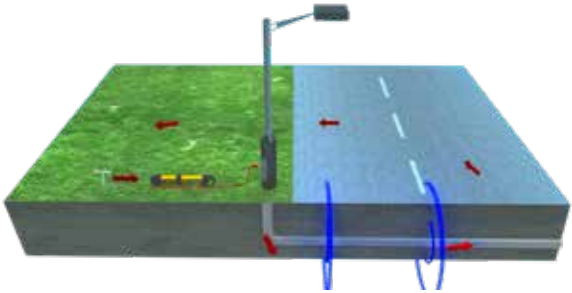
Switch on the transmitter by pressing and holding the on/off button down for a couple of seconds. The transmitter will emit a tone. The better the connection to the line and ground, the lower the tone will be. Check for a good connection by disconnecting and then reconnecting the red lead. If no tone change is heard, recheck connections.

Things that can affect the quality of the connection are:
1. Rusty pipe connection point: Clean the connection area with a wire brush.
2. Poor grounding: Try inserting the stake into damp ground. Dampen the surrounding ground with water. If the issue persists, try connecting to a manhole cover surround. Avoid connecting to fence railings, as these may create return-signal currents along the fence that will interfere with the locating signal.

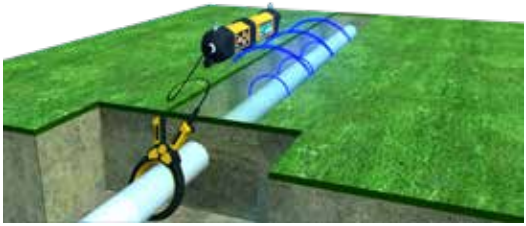
The output of the vScan transmitter can be set to battery-save or high-output levels. Always start with a low output and increase the output if the received signal is not strong enough. Setting the output to high when it is not required may result in some of the signal “bleeding off” onto other services and will drain more power from the battery.

Also note that the transmitter transmits two frequencies simultaneously (33 kHz and 131 kHz). The purpose of these two frequencies is explained in section 4.5, when to use 33 kHz or 131 kHz.

When connecting to a ferrous material, it is sometimes not possible to find a suitable place to apply the connection clip. If this is the case, use a magnet to make contact with the line and then clip the red clip to the magnet. A good example of this is connecting to a street lighting circuit. Usually, it is the practice to connect the sheath of a lighting cable to the metallic inspection cover of a streetlamp. Making a connection to the inspection plate will energize the cable via the plate and sheath. Usually, there is nothing on the plate on which to clip, so using the magnet on the plate provides a suitable clipping point.



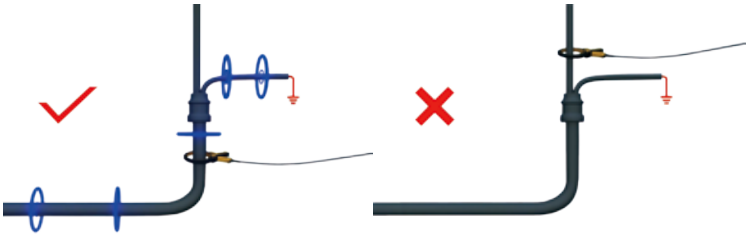
5.3.2 Signal Clamp



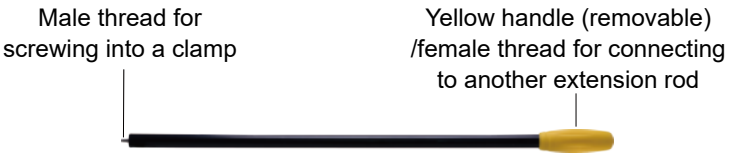
In many situations, it is not possible to gain access to a cable to make an electrical connection, or, if there is, it is not safe to do so. The signal clamp provides an efficient and safe method of applying a locate signal to a cable.

NOTE
Note that for best results, the cable should be grounded at both ends.

When using the signal clamp, both ends of the target cable should be grounded to enable the current to flow. When applying a clamp close to a grounding point where multiple grounds or a grounding bus exists, ensure that you place the clamp around the target line and not to the ground bus/other grounds to avoid the transmitted signal also being applied to an unwanted line.



Clamp Extension Rod
A useful accessory to the clamp is the extension rod:



The extension rod is fitted with a 10mm threaded male stud. This male thread screws into the handle of the signal clamp to extend the distance of the clamp. This is very helpful in areas with difficult access, such as manholes or overhead cables. (Not to be used on uninsulated overhead power cables.)

The extension rod is also fitted with a female thread in the handle, which enables the rods to be fitted together to further extend the range. To access this thread, slide the yellow handle off the rod.

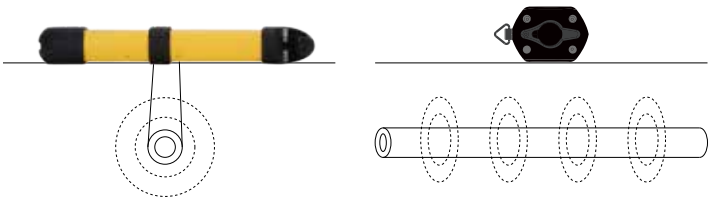
To operate the clamp jaws when attached to the rod, gently pull on the clamp cord to open them. Release the cable to close them.



5.3.3 Induction (33 kHz)

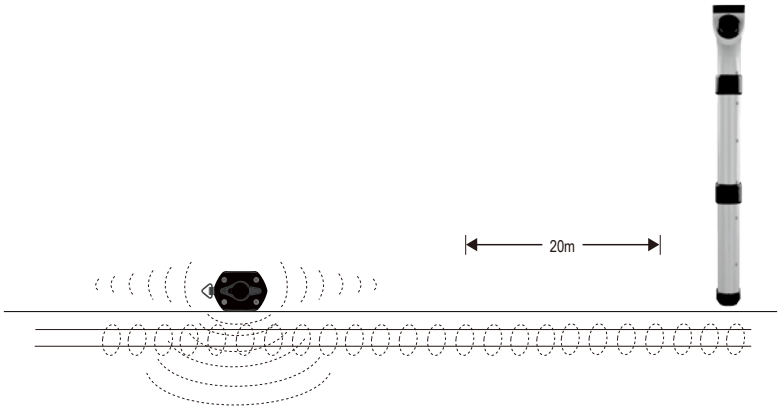
With no direct connection lead or signal clamp connected, the transmitter will automatically begin radiating a signal around it. These signals will penetrate the ground and couple onto buried lines. The signal will then travel along the line, which can be detected with the vScan or vScan-SE locator.

Applying an induction signal to a line.

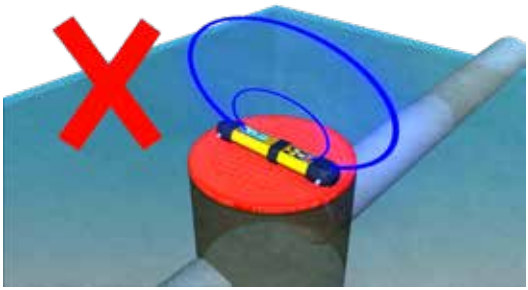


Remove any connections from the output connector. Switch on the transmitter, place it over the suspected position of the line, and position it across the line as above.

The induction mode is particularly useful when there is no access to the line, but it should be noted that it is the least efficient method for applying a signal and is also prone to signals being applied to adjacent lines.

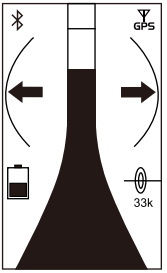


Also note that the signal will radiate out to the side of the transmitter as well as below. For this reason, it is recommended that, when applying a signal using the induction method, a distance of at least 20m be maintained from the transmitter when pinpointing or taking depth readings. Locating closer than 20m is possible, but the operator should be aware that the signal directly received from the transmitter may be strong enough to influence the results.



When using the induction mode, avoid placing the transmitter over metallic manhole covers, as this will severely reduce the effectiveness of the transmitter and, in extreme cases, cause damage to the transmitter's circuitry.

5.3.4 Detecting Active Signals



Apply an active signal to a line using one of the methods outlined above in section 5.3, active locating.

Switch on the receiver and select the desired locate frequency. For general purposes, select 33 kHz.

Note that the screen will now show the addition of a compass (line direction indicator). In the presence of a locate signal, the compass will align itself parallel to the line being located. This ensures the operator is aware of the line's direction.

Hold the locator vertically and rotate it about its axis until the compass points across the display, as above.

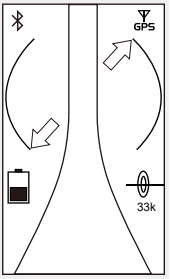
Adjust the sensitivity control so that the display indicates approximately 50%. Keeping the vScan or vScan-SE receiver vertically, move forward slightly. If the bar graph increases, you are moving toward the line. If it decreases, you are walking away from it. Move toward the line until a maximum signal is achieved. It may be necessary to reduce sensitivity to keep the bar graph on scale. This is normal and should be expected. Try to keep the receiver vertical and avoid swinging it, as this may create false readings.

Move the locator back and forth to ensure the maximum signal is detected. Use the peak level indicator to assist.

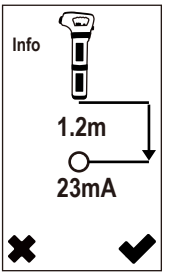
With the maximum signal found and the compass running across the bar graph, the receiver is now directly over the line and exactly across it.

Continue to trace the line to its destination or source.

NOTE
The compass will not rotate through a full circle as the bar graph is in the way. When the compass is outside its rotation range, the arrows will appear as line drawings. To bring it back within the range of the compass, rotate the locator in the direction indicated by the arrows.



5.4 Taking Depth and Current Measurements



If the depth measurement feature is activated, depth measurements can be taken. To take a depth measurement, first pinpoint the line's position as above. Place the tip of the vScan or vScan-SE on the ground, ensuring it is vertical and across the line. Momentarily press the “i” button. The screen will change to a screen like the one below.

If the current measurement feature is activated, the signal current value will also be displayed. This feature is useful for confirming that the detected signal is radiating from the correct line. In the event the signal is “bleeding off” onto other services, these signals will generally be less than that of the originating signal. However, care should be taken as the signal current will gradually reduce over the length of the line, but watching for a sudden drop in current over distance should indicate that either:

1. There is a ground fault on the line, which is shunting the signal to ground.
2. There is a “T” off the mainline.
3. The operator has migrated from the connected line to a line which has some signal that has bled off from the main line.

Note that the current reading will be displayed only when 33 kHz or 131 kHz modes are selected.

5.4.1 Depth in power mode

Depth measurements are available in Power mode; however, signals radiated from power cables are more prone to distortion, which can reduce measurement accuracy. When using your vScan or vScan-SE to determine depth in Power mode, take additional care and precautions when performing the measurements.

5.4.2 Checking for depth errors due to signal distortion

One way to determine if the depth measurement is likely to have been affected by distortion is to take a depth reading at ground level, then raise the vScan or vScan-SE a known distance, such as 0.5m. Retake the depth reading at the new depth and confirm that the depth has increased by this amount. If the depth has changed for reasons other than the actual change, the readings should be treated as suspect.

WARNING
Never mechanically dig over the path of a buried pipe or cable. Always dig carefully.

5.5 When to use 33 kHz or 131 kHz Mode

Apart from the induction mode, the transmitter transmits both 33 kHz and 131 kHz simultaneously, so no adjustments are required on the transmitter.

As a rule, 33 kHz will provide the best compromise between clarity of signal and effects of “bleed off” to other services. However, there are times when the high 131 kHz frequency will be beneficial. These are:

1. Locating pot-ended cables: Pot-ended cables are generally not grounded. This means the signal will not reach the pot end. Using a higher frequency will encourage the signal current to flow.
2. Small diameter cables: Higher frequencies tend to flow better on small diameter cables, although the rule “first try 33 kHz” still applies.

3. Locating old cast iron pipes: These tend to have mechanical connections between sections, which rust over time and prevent an electrical connection between pipe sections. The 131 kHz signal will tend to jump across these joints and continue down the line.
4. Poorly grounded cables: Generally, higher frequencies will travel along a poorly grounded cable better than lower frequencies.

5.6 Metal Locate Mode (vScanM Cover Detector)

The metal locate mode is used to detect buried manhole covers. For this feature, be sure to order vScanM. The cover locator has been designed to respond to most metal covers.

5.6.1 Locating a Buried Cover

Before locating a buried cover, it is necessary to perform a simple setup procedure.



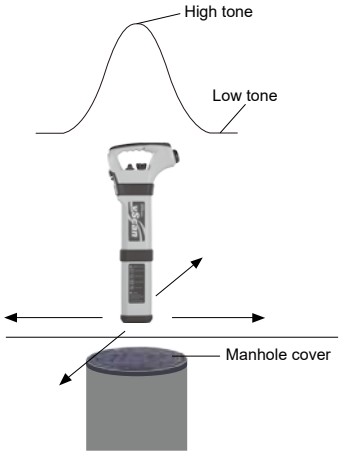
Switch on the vScanM and select the cover detection mode using the mode paddle. The cover detection icon should be shown on the screen.
Hold the vScanM well away from any metallic objects.
Momentarily press the "On/Off" button. The bar graph will show a near-zero deflection, and there should be a slow pulse sound from the speaker. The unit is now set up.



NOTE
The sensitivity control does not function in Metal mode.

Hold the locator just a small distance from the ground (approximately 2" or 50mm). Now sweep the area in a grid action in a similar way to sweeping for a buried cable. Keep the locator vertically and avoid swinging it. As a metallic object approaches, the bar graph will start to deflect more, and the speaker tone will increase.

Find the peak signal by moving the locator forward and back and then side to side. Use the peak level indicator to help pinpoint the position of largest signal. The largest peak signal will indicate the position of the center of the buried cover.



5.7 Locating Non-metallic Pipes or Ducts

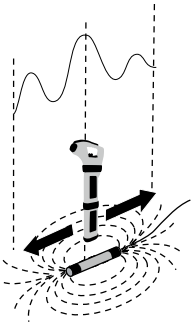
Locating non-metallic pipes or ducts is not possible using conventional locating techniques. However, it is possible to detect small transmitting devices (sondes) if they are inserted into a non-metallic pipe or duct. Sondes are available in a range of sizes and transmitting ranges. A popular one is the D38 sonde that has a diameter of 38mm and a range of 5m.

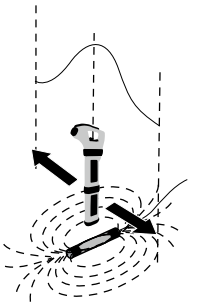
The sonde is typically attached to a drain rod (10mm fitting) and pushed down the pipe or duct and periodically located as it is pushed along.

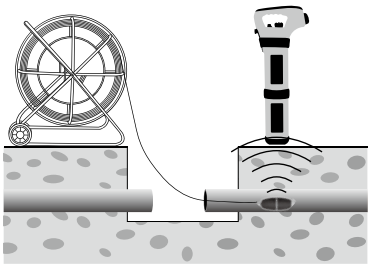
Locating sondes method:



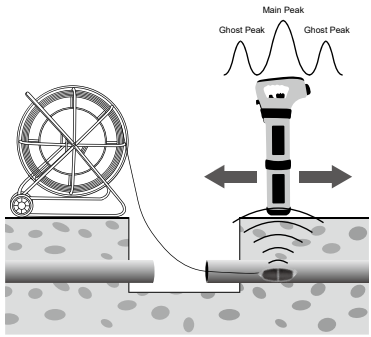
1. Switch on the sonde by connecting the battery. Connect it to the pushrod and place it at the start of the pipe run.
2. Switch on the vScan or vScan-SE receiver and select sonde mode using the mode paddle. The sonde icon will now be visible on the screen.
3. Position the receiver above the sonde as indicated below: (The rotational orientation of the receiver is 90 degrees to that used when line locating)



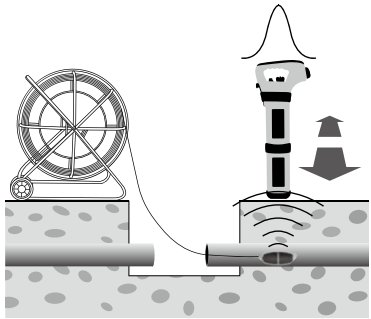




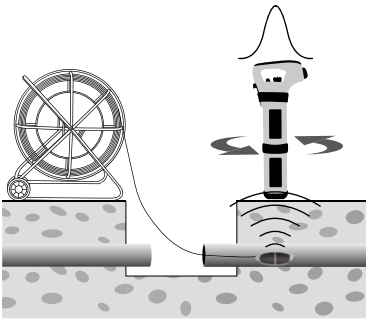
4. Adjust the sensitivity control so that the bar graph reads approximately 75%. Now move the receiver forward and back to detect the largest signal. You will also notice that there will be a “ghost signal” in front and behind the sonde. This is normal and characteristic of locating sondes.



5. Now sweep left and right over the sonde to obtain a second peak. Note that there are no ghost signals when sweeping left to right over the sonde.



6. Finally, check that the receiver is in line with the sonde by rotating it on its axis to obtain a peak signal. The receiver is now over the sonde and in line with it.



7. If a depth estimation is required, place the vScan or vScan-SE receiver on the ground, having pinpointed the sonde as above. Press the “i” button to display the depth. To exit the depth screen, either wait for the depth screen to “time out” or momentarily press the on/off key, which will return the receiver to the locate screen.
8. Now push the sonde in a couple of meters and repeat the above to mark out the route of the pipe or duct. Keep the insertion intervals small (2 to 3m) so as to ensure the sonde is not lost.

Using the vScan or vScan-SE receiver to Locate Camera Heads (vCam range)
Some receivers have a low-frequency sonde mode active, either 512Hz or 640Hz. These modes are designed to be compatible with the vCam range of sewer inspection cameras. Refer to the relevant vCam user manual for full instructions on locating camera heads.

5.8 Advanced Locating Techniques

5.8.1 Two Person Sweep

This is an induction method technique and is used to quickly check an area for any metallic services.

Method:
1. Select the area to be checked. One person holds the transmitter, and the other holds the vScan or vScan-SE receiver.
2. Attach the carry strap to the transmitter. This is important because it makes carrying the transmitter more comfortable and allows it to be held close to the ground, ensuring maximum coupling to the services below.
3. Switch on the receiver and select 33 kHz line mode.

Stand at least 5m apart, holding the equipment as shown, i.e., with the transmitter and receiver aligned with the direction of walking.

Adjust the receiver's sensitivity so the meter reads approximately 20%.



Walk slowly across the site keeping parallel with each other. As a service is approached, the signal level on the receiver will increase. When the signal reaches its maximum, stop the transmitter and place it on the ground. Then, pinpoint the service's position with the receiver in the usual way. Mark this position and, if necessary, plot the route across the site.

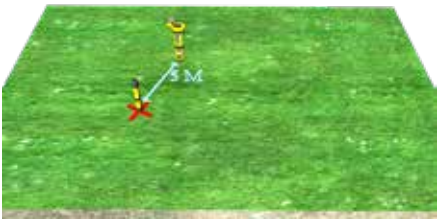
Continue the sweep across the site, then, if possible, repeat the process at 90 degrees to the previously done sweep.

5.8.2 "Swamping" an area with Signal (broad induction)



A quick way to check an area for services is to "swamp" the area with a signal. To do this, insert the transmitter into the foot that comes with it and place it on the ground as shown in the picture.

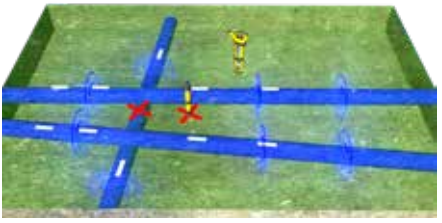
Switch on the transmitter. The Induction signal will radiate outward through 360 degrees into the ground, ensuring any cables and pipes in close proximity to the transmitter will have a signal induced into them.
Position the vScan or vScan-SE receiver approximately 5m from the transmitter and with the flat of the blade pointing directly at the transmitter. Switch it on and adjust the sensitivity so that approximately 20% reading is observed.



Walk slowly around the transmitter, watching for an increase in signal level. At an increase, pinpoint the signal source and mark the ground at the maximum point. Repeat until the complete circle is checked. Finally, check the route of the detected services by placing the transmitter in the more conventional way (i.e., flat on the ground and perpendicular to the service) and tracing the signal through the area.



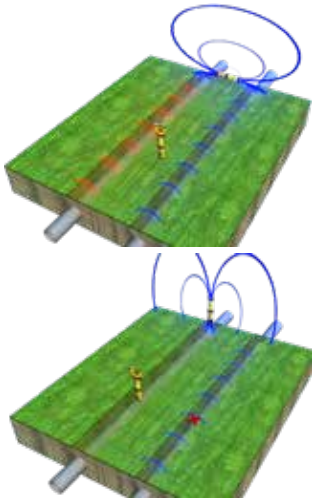
Note that, when the transmitter is positioned vertically as above, there is no signal induced directly below the transmitter. It is therefore necessary to move the transmitter approximately one meter to the side and repeat the locate exercise in case a service crossed directly below.



5.8.3 Nulling Out a Signal (Induction Mode)

In congested areas, it can be difficult to trace a particular service. This is generally the case when two or more services are routed close to each other, for instance, along a pathway. Using the induction mode in this situation will make the situation worse, as the signal will induce onto adjacent services as well as the target service.

This situation can be greatly improved by using the "nulling out" technique.



Method:

1. First, locate the services using induction in the usual way.
2. Now position the vScan or vScan-SE receiver exactly over the unwanted signal. The person at the transmitter end can now hold the transmitter vertically over the position of the unwanted signal. Move the transmitter side-to-side across the line of the unwanted service whilst asking the person at the receiver end to indicate when the signal is “nulled out”. Insert the transmitter into the Tx foot and place it in the null position.
3. The signal should now only be visible in the wanted service but not in the unwanted service.
   Note that only one service at a time can be nulled out using this method, so if there are more than two services, the above may need to be repeated to null out other services.

5.8.4 Capacitive Coupling

There may be times when a direct connection is not possible, and it is not possible to deploy a signal clamp as a means of signal injection. If this is the case, an alternative is to use the “capacitive coupling” technique. This uses the high frequency (131 kHz) part of the signal. The high frequency can couple to a service simply by being near it.

Method:

1. Identify the service to be energized. Wrap the red direct connection lead around the cable. If possible, wrap more than once around, as the more surface area in contact with the cable, the better. Take the black lead and connect it to a suitable ground. Create your own ground if possible, using the ground stake.
2. Switch on the transmitter. Note that there will not be a tone change to indicate a good connection, as only a very small amount of signal will be transferred to the cable, but there should be enough to trace the cable for a short distance.



5.9 Calibration Check

5.9.1 The vScan and vScan-SE Receivers

The vScan and vScan-SE have been designed as robust and stable cable damage avoidance tools. However, as with all safety equipment, it is advisable to check its functionality. As the receivers are the signal processing part of the kit, Vivax-Metrotech has designed into the equipment a calibration and functionality check.

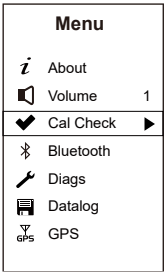
vScan

Results are automatically recorded within the equipment and can be used in conjunction with MyvScan (vScan only) to print out a calibration check certificate and to store a complete calibration check history of the receivers.

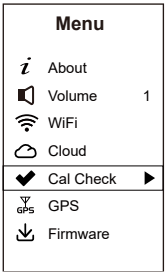
vScan-SE
The results are sent to the VMMap Cloud, where they are stored and can be printed as needed.

Method:

1. Firstly, identify an area that is free from cables and erroneous signals, such as computer monitors, extraction fans, fluorescent lighting, etc. If in doubt, switch to each mode and set the sensitivity to maximum; check that the background noise is below 10% of full-scale deflection. Also, check that there are no activated vScan or other transmitters in the vicinity.
2. Switch on the receiver and press the “i” button until the “Menu” screen appears.
3. Use the paddle to navigate down to the “Cal Check” option. Press the “i” button to initiate the calibration check.

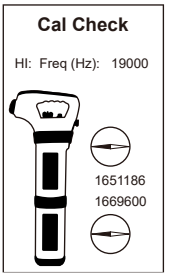


vScan Menu

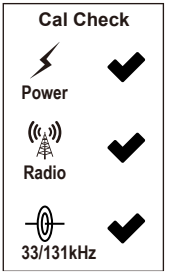


vScan-SE Menu

4. When the device performs calibration checks, the right screen may appear. (Some models do not have this screen, but the process is the same)



5. If the device passes the calibration checks, the right will be displayed. The results are automatically stored with the equipment and can be reviewed later.
6. If one or more of the checks fail, the ticks will be replaced by a cross at the relevant position. If this occurs, try the test again in a more noise-free environment. If the unit continues to fail the tests, return to Vivax-Metrotech or one of its approved repair centers for further investigation.



7. Note that this “vCal Check” does not test the metal cover detector of the vScanM. To check this, simply check that the unit detects a 6” (150mm) metal cover at a range exceeding 6” (150mm).

5.9.2 vScan Transmitter Check

As the transmitters are not measuring devices, it is not necessary to perform calibration checks on the equipment. However, it is advisable to perform this quick and easy functionality check.

Method: Induction

1. Set the transmitter down on a wooden chair or table so that it is off the ground. Set it in the orientation as shown.
2. Switch on the transmitter and set the output to low. Set the receiver to 33 kHz sonde mode. Set the sensitivity control so that the largest notch is pointing directly at the mode switch, as shown in the right figure.
3. Slowly alter the distance from the transmitter until the meter just reads full scale. Check the distance from the transmitter is 2 to 3m.





Method: Direct Connection

1. Connect the direct connection leads to the transmitter. Switch on the transmitter and set it to low output. Short the two crocodile clips together and note a major change in the speaker's tone.
2. Switch the output to high and listen for a further drop in tone.
3. If there is no change in tone, check the condition of the direct connection leads, and if possible, try a different set of leads. If there is still no change, return to Vivax-Metrotech or one of its approved repair centers for further investigation.

5.10 GPS

GPS is a factory-fit option that must be requested at the time of ordering.

The function of the GPS feature is to attach positional information to any recorded logs. The process is automatic and requires no further interaction from the operator. The accuracy of the data will vary depending on satellite availability and the quality of the satellite signal. Satellite availability will vary throughout the day, but should always be adequate. Things that can affect the quality of the signal are:

- Working in built-up areas. This causes the signal to bounce off buildings, creating errors. Working close to high buildings, for instance, will affect the signal more than working close to low buildings.
- Dense overhead foliage, such as large tree branches.

With good satellite reception, 5m or better accuracy should be possible in most instances.

For positional information to be attached to records, a valid GPS signal must be detected. If no GPS data is being detected, the record will still be logged, but without GPS data.
If the GPS option is fitted, a GPS icon will appear on the screen. The condition of the GPS signal can be determined as follows:



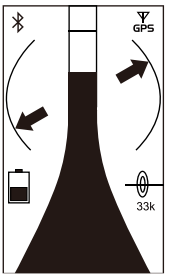
GPS Icon

- No GPS icon = GPS not fitted
- Flashing icon = GPS not receiving a valid signal. Looking for satellites.
- Solid icon = valid GPS signal detected.

NOTE
Note that when the unit is switched on, the GPS icon may flash for an extended period as the GPS circuitry acquires satellites. This time will vary depending on satellite availability. The first time the unit is switched on, it may take up to five minutes to detect a valid signal, but subsequent times should be much less.

Note that there will be no satellite access within buildings.

The vScan has quick-start-up circuitry for the GPS. They work by holding power to the GPS circuitry for 30 minutes (or as set by MyvScan) after switching off. The circuitry is activated when the unit is put into the “Standby” mode. If the unit is switched back on from the “Standby” mode within the 30-minute time period, and provided GPS is available, the GPS lock will be almost instant.

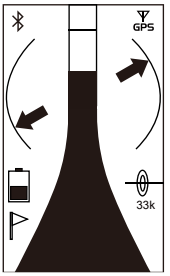


The “Standby” mode is not necessary on vScan-SE. The vScan-SE unit has a battery backup that retains GPS lock information when the unit is powered off for short periods. The vScan-SE uses the main battery as a backup to retain GPS lock information. This will be lost if the battery is removed.

5.11 Creating “Points of Interest” (POI)

Sometimes it is desirable to create lines or points of interest that can be easily extracted from the data log. To do this, double-click the “i” button. A flag will appear on the screen indicating that this portion of the data log is being highlighted. For a point of interest, remain in the same spot and double-click again to remove the flag.

To create a line of interest, double-click to create the flag. Locate the section of the line that is of interest, then double-click again to stop it from being highlighted.



vScan
Use “MyvScan” to retrieve that data. Section “Data Management”/ “Set Filters” sets the conditions to retrieve the data or use a predefined template (Areas of Interest).

vScan-SE
All data, including “POI” data, is uploaded to VMMap Cloud. The data can be filtered and viewed via the VMMap Cloud user interface.

5.12 vScan Bluetooth

NOTE
Bluetooth applies to vScan only. The vScan-SE primary data interface uses WiFi instead of Bluetooth.

Bluetooth is a factory-fit option that must be requested at the time of ordering.

Bluetooth connections are BLE-only (Bluetooth Low Energy) and initiated by the Smartphone App “VMMap” (iOS and Android). The vScan switches the Bluetooth device OFF if a BLE connection is not established within 2 minutes of powering on. It can be switched back on in the menu. For very sensitive Radio Mode surveys, it is recommended to switch Bluetooth OFF.

The vScan screen shows the status via the Bluetooth icon:
- No icon = Bluetooth is not fitted or has been deactivated in the menu.
- Icon flashing = Bluetooth is activated but not paired with a device.
- Icon solid and not flashing = Bluetooth is paired with a device.

When the Bluetooth and VMMap app are connected. The data in the vScan receiver can be created and synchronized to VMMap. The data can also be queried or downloaded through VMMap.

To connect to VMMap via Bluetooth, you need to log in or register for an account on the VMMap Cloud. Scan the QR code below to download the VMMap smartphone app.

VMMap app (iOS)

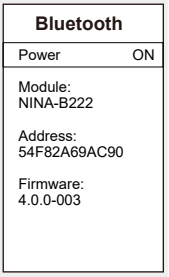
VMMap app (Android)

TIP
When the Bluetooth icon is flashing, the Bluetooth module is emitting strong radio signals that will interfere with the Radio mode. Once the unit is paired, the effects are minimal. For this reason, it is strongly advised to disable the Bluetooth feature when not in use.

To disable the Bluetooth module, select Bluetooth in the menu.

Note the Bluetooth module setting. If Bluetooth "Power" displays the "On" status, press the "i" key to turn off the Bluetooth.

Exit the menu and check that the Bluetooth icon is no longer visible in the top left-hand corner of the display.



5.13 vScan-SE built-in WiFi

vScan-SE uses a built-in WiFi module to connect to wireless networks as the data interface. After the receiver is connected to WiFi, the vScan-SE will seamlessly synchronize data logs and software updates over-the-air (OTA) with the VMMap Cloud. This greatly improves data management efficiency and the convenience of vScan-SE system maintenance.

5.13.1 How to connect the vScan-SE receiver to WiFi

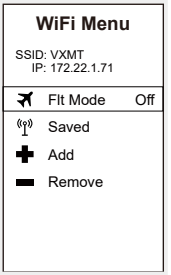
The vScan-SE supports multiple methods of establishing a WiFi connection.

- **Phone Connect** is the most straightforward for use in the field, and it is recommended to use this where possible.
- **Office Connect** is for establishing a connection to a router in the office or home. It can also connect the locator to a nearby mobile phone without modifying the mobile phone hotspot password.
- **Advanced** is for use in the field when it is not possible to modify the password for the mobile phone hotspot.

1. Switch to the vScan menu interface by holding down the "i" key for 2 seconds, use the paddle to select "WiFi," and press the "i" key to confirm.
2. Select the "Add" button, press the "i" key to confirm and enter the "WiFi Connect" interface.

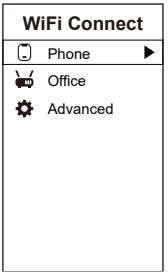
3. Choose one of the methods for the WiFi connection.

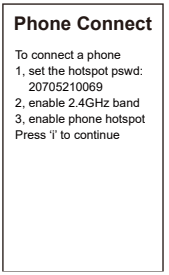
NOTE
Connecting to WiFi requires ensuring that Flight Mode is turned off. Enabling Flight Mode will result in the inability to connect to WiFi.



5.13.1.1 Phone Connect

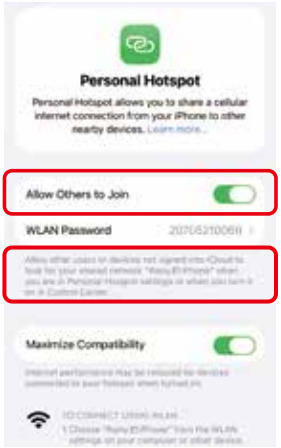
1. Select “Phone”, press the "i" key to confirm and enter the operation prompt interface.
   Use a phone to provide a WiFi hotspot for the vScan-SE receiver, and follow the on-screen prompts.





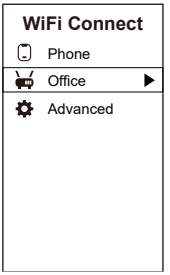
2. Open the phone hotspot and set the hotspot password to the numerical password provided on the vScan-SE screen.

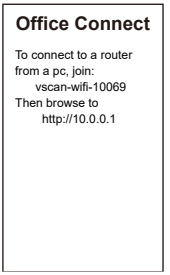
Tip
Users may need to enable “compatibility mode”, especially on iPhones. But it could also be on some Android phones, as the vScan-SE only supports 2.4GHz.



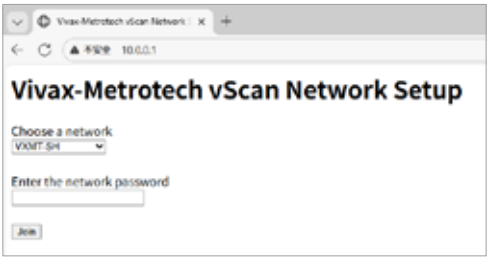
3. After setting the hotspot password, press the "i" key to continue, and the vScan-SE receiver screen will display the model name of the phone hotspot.
4. Select the hotspot model name, press "i" to confirm, and connect to WiFi.
5. Go back to the locate screen. The WiFi icon will appear in the upper left corner of the screen.

5.13.1.2 Office Connect

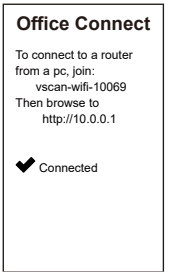




1. Select “Office”, press the "i" key to confirm and enter the operation prompt interface.
   Use a PC to provide WiFi for the vScan-SE receiver, and follow the on-screen prompts.
2. Open the WiFi network settings on the PC and connect to the WiFi name specified on the vScan-SE screen, such as vScan-wifi-10069.
3. Open the PC browser and enter http://10.0.0.1 URL. Choose a network and enter its password to join the WiFi.



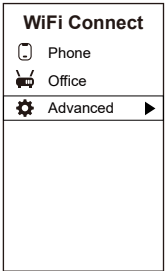
4. Return to vScan-SE, the screen has already displayed "Connected", indicating that WiFi is connected.

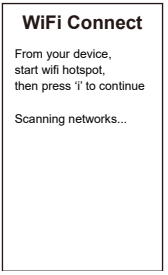


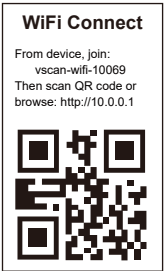
5. Go back to the locate screen. The WiFi icon will appear in the upper left corner of the screen.

5.13.1.3 Advanced

1. Select Advanced, press the "i" key to confirm and enter the operation prompt interface.
2. Open the WiFi network settings on your device and connect to the WiFi name specified on the screen, such as vScan-wifi-10069.





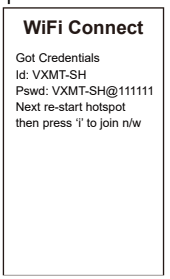


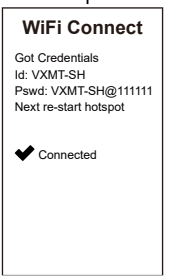
3. Scan the QR code or browse *http://10.0.0.1* to enter the vScan Network Setup interface. Choose a network and enter its password to join the WiFi.





4. Return to the vScan-SE and press “i” to finish network setup.

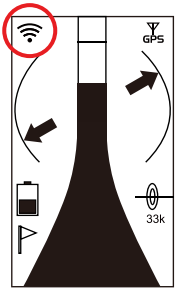




5. Go back to the locate screen. The WiFi icon will appear in the upper left corner of the screen.

5.13.2 How to select the active network

When the device starts up, it will search for the last known active network. If successful, the WiFi icon will display on the main screen.

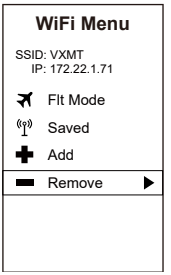


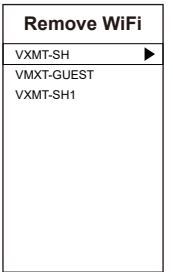
To change the active network:

1. Switch to the vScan menu interface, use the paddle to select “WiFi” and press the "i" key to confirm.
2. Select "Saved", press the "i" key to display saved networks.
3. Use the paddle to select the desired network and press the "i" key to activate it. The vScan-SE will now connect to this network if it is in range.

5.13.3 How to remove WiFi from vScan-SE Receiver

1. Switch to the vScan menu interface, use the paddle to select “WiFi” and press the "i" key to confirm.
2. Select the “Remove” button, press the "i" key to enter the WiFi deletion interface.
3. Select the WiFi name to be deleted, press the "i" key to confirm deleting the WiFi. The deleted WiFi network will no longer be recorded on this device.



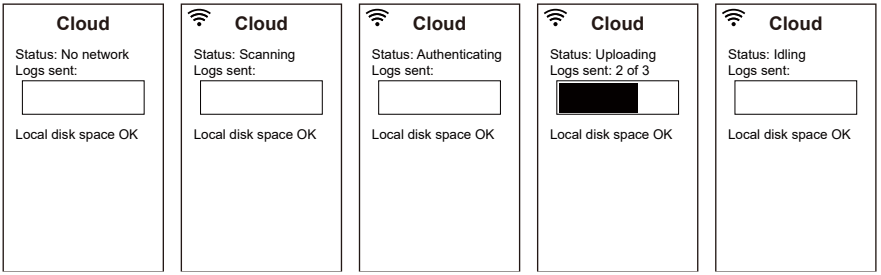


5.14 vScan-SE data synchronization with VMMap Cloud

When connected to a WiFi network, the vScan-SE synchronises with the VMMap Cloud in the background. Users can continue to collect data and operate the vScan-SE as normal.

The locator will first upload any old historical logs that have not been uploaded.

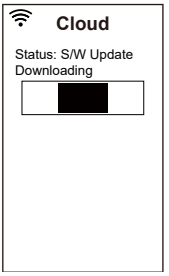
Once it is up to date, the vScan-SE will check for new logs every few seconds and upload any new data from the current activity. When it is not checking or uploading, the screen will periodically say 'Idling'. The other states are shown in the drawings below:

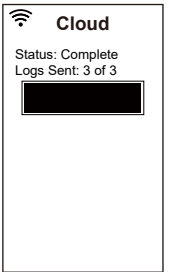


Offline | **Scanning for data logs** | **Connecting to the cloud** | **Uploading logs** | **Idling**

5.15 vScan-SE Firmware OTA Update

1. When connected to a WiFi network, the vScan-SE will communicate with the VMMap Cloud Webserver and compare the current firmware release to the one installed on the device.

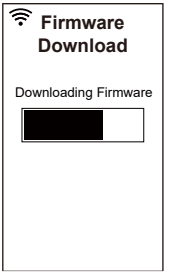




2. At next power on, the vScan-SE will prompt you to install the update now or later. The device will continue its normal boot-up process and operation if you select later.

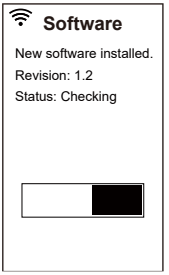


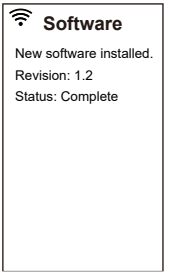
3. If “Install Now” is selected, the firmware update begins
4. Once complete, the user is asked to repower.



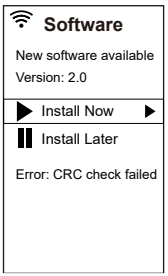


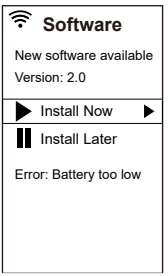
5. On reboot, the firmware update is checked.
6. If the check succeeds, a ‘Complete’ message is shown.

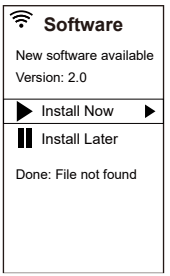


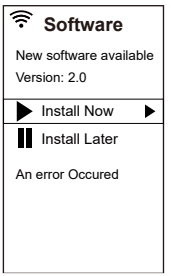


7. Error Messages









The OTA update is downloaded in the background without interrupting the user's workflow if a new update is available. Users can continue to collect data and operate the vScan-SE as normal.

Firmware download takes place at the same time as data logs are uploaded from the device to the VMMap Cloud.

5.16 MyvScan (Does not apply to vScan-SE)

MyvScan is a powerful desktop software package which supports features available in the vScan receivers products range, including vScan and vScanM. It cannot be used for the vScan-SE.
MyvScan can be downloaded from the website: *www.vivax-metrotech.com*

MyvScan enables the user to:
- Configure the locator
- Select locator features
- Select defaults
- Manage warning, test & calibration and service schedules

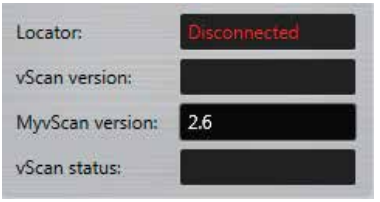
Data Management
- Select and manage data and data files
- Produce reports
- Print calibration check certificate
- View, save and export reports

About
- Register Product
- Update Locator and desktop application software
- Set the location of data files on the computer. (Default settings are set by the program)
- Contact us
- Help

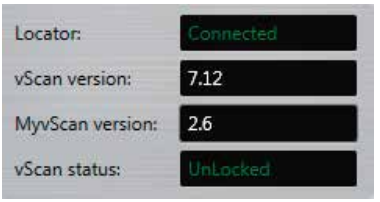
5.16.1 Using MyvScan

Launch MyvScan by double-clicking on the MyvScan icon.

To start using MyvScan, you must connect to a locator. With the unit switched off, open the battery compartment door to reveal the Mini-USB socket. Connect a suitable lead with a standard USB connector on the other end. Connect to a standard USB port on your computer.
With the locator switched off, the bottom left of the home screen will show the right.



Switch on the locator, and the text will turn green and display “Connected” as below. Note that the software revision of MyvScan (not to be confused with the locator software) will also be displayed together with the vScan receiver lock status. To unlock or lock the locator, a lockout dongle is required.



5.16.2 Navigating around MyvScan

When MyvScan is first launched, you will see the home page as below:



The screen is split into two main areas:

- To the left, you have the three main options:
  - Configure Locator
  - Data Management
  - Options (Note that a red dot will appear on the Options bar if a software update is available)
- To the right is a first-time use page that helps describe the features available. Checking the “Do not show this again” box will prevent it from displaying on future occasions when switched on.

Clicking one of these will also reveal a sub-menu relating to these topics.
To the right, the black area is your work area for the selection you made on the left.
The right-hand side also has some navigation aids:



The arrows to the left and right allow you to navigate to the next or previous screen.
The numbers and ticks along the bottom indicate how many pages are associated with the area and how many have been visited.
Follow the on-screen instructions and make selections as necessary.

6. 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. Typically, 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. 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. 
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: 50Hz/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 via 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 and hence whatever it is attached to or in. Frequently used for locating sewer cameras and non-metallic pipes.
Target Line	The buried pipe or cable to be located.
Trace	Using a locator to follow the path of a buried line.

Illustrations used in the preparation of this manual will inevitably resemble similar illustrations from other manufacturers; some manufacturers have given permission for the use of their graphics and are credited accordingly. This statement is intended to attribute such credit.

vScan-SE Open-Source Software Notice
The software included in vScan-SE is licensed under the GPL and other open-source licenses. These licenses are available at *https://github.com/Vivax-Metrotech/open-source*.

Vivax-Metrotech will provide a free copy of the open-source code upon request via email to SalesUK@vxmt.com. This offer is valid for three (3) years from the date of purchase.
This offer is valid to anyone in receipt of this information.

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

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

© 2026 Vivax-Metrotech Corporation