VIVAX METROTECH

vScan Avoidance Tool

Technical Specifications V1.3

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A. The vScan System

The vScan receiver, and optional transmitter, are used for locating buried utilities. The vScanM incorporates all the vScan features plus a metal cover locating mode.

The system is designed for use by those of all skill levels from the new user to those with extensive experience. A comprehensive range of optional accessories is available.

Using the vScan & vScanM is intuitive. The user interface and controls are in line with the industry standard, while a suite of new features assists the user in achieving an accurate locate in a productive manner and provides proof of the locate and the data collected. Features can be turned off or configured using MyvScan, which also handles transfer and management of data.

B. Typical Applications

- Locating to avoid known or unknown buried pipes and cables
- Locating to find, trace and pinpoint buried pipes and cables Locating buried non-metallic pipes and pinpointing blockages (requires the use of a Sonde transmitter)
- Data logging: - captures and stores key information regarding the locate as proof of quality of locate
- Locating buried metal covers (vScanM only)

C. Typical Users

- Utility and communication companies and their contractors
- General contractors, building and plant maintenance companies
- Municipalities, councils, railways and local and state government agencies

D. Receiver Assembly

Item	Parameter
Construction	High-impact thermoplastic (ABS) injection molded housing
Weight	Standard: 5.2lb *(2.2kg)* With Metal detect option: 5.9lb *(2.4kg)*
Dimensions	27in x 11in x 3in *(69cm x 28cm x 7.5cm)*
Display	240 x 400 pixel, 2.7” (6.9cm) Monochrome, high resolution, WQVGA dot matrix screen. TFT, Sunlight readable and with backlight
Receiver Antennas	2 x Peak antennas,1 x compass antenna and metal detect antenna array (vScanM only)
Loudspeaker	Internal (fixed) loudspeaker and a removable speaker on a curly cord, complies with health and safety output level requirements.
Vibration Module	DC motor
Battery Options	- Supplied with 6 x AA Alkaline batteries - Custom Lithium ion rechargeable battery pack (7.2V, 6700mAh) with charger (Input: 100-240V AC, 50/60Hz, 1.0A; Output: 8.4V, 2.0A) is optional.
Battery Life	- Alkaline – typically 12 hours intermittent use at 70ºF (21ºC) - Li-ion – 40-50 hours intermittent use at 70ºF *(21ºC)*

External Connectors	- 1 x Mini USB socket for data transfer / programming - 1 x Socket for battery charger
Controls	- 2 x Pushbuttons - Rotary control - Paddle Control
Compliance/Approvals	- Complies with European standard CE (Directive 99/5/EC) • EN 55011 • EN 61000-4-2: A1 & A2 • EN 61000-4-3 • EN 61000-4-8: A1 • EN 61000-6-2 • EN 61000-6-3 • EN 61010-1 • EN 61010-2-031 • EN 61010-2-032 • ETSI EN 300 330-2 • ETSI EN 301 489-1 • ETSI EN 301 489-3 - Complies with FCC Rules Part 15 • CFR 47 Part 15

E. Receiver Operational

Item	Parameter
Information Displayed	- Signal strength - moving bar graph - Peak hold indicator (indicates peak signal) - Mode indication (33kHz, 131kHz, Power, Radio, Sonde) (vScanM also includes metal cover location mode) - Compass (line direction indicator) - Line location - depth & current measurement - Sonde location - depth measurement - Battery condition - Speaker volume - Bluetooth and GPS status (if fitted) - Configuration menu & submenus - Customer definable start up screen - System self-test and calibration verification

	- Alert icons • Swing alert • Shallow line alert • Overhead signal alert • Signal overload alert • Service reminder action required alert (other alerts, more…)
Alert Notification Methods **(all user configurable)**	- Visual alert: - on screen warning - Audio - "Vibe" Vibration in handle - Shutdown unit
Locating Frequencies	- Active modes: 32.768kHz, 131.072kHz - Radio mode: 16.5kHz to 23.9kHz - Passive modes: 60Hz plus harmonics, Power 50Hz plus harmonics - Metal Detect (vScanM only), frequency not applicable - Sondes: 32.768kHz, 512Hz and 640Hz Sonde modes
Controls	- On/off - Info (depth/current - configurable) - Rotary Gain Control - Paddle (mode and menu navigation)
Location Assist Tools	- Orientation to line guidance in active mode (compass line direction indicator)
Data Logging	- Integrated data logging (time based) • Uses internal Real Time Clock • 4GB data storage (included) • High-speed data transfer (via USB cable) • Data management system (using MyvScan desktop application) - All locate, date and time parameters stored for each data point (one second) - If using internal GPS (via Bluetooth), mapping data is also recorded with coordinates and date time - Data transfer from vScan to MyvScan via the USB connection
MyvScan **(locator and data management desktop application)**	- MyvScan can be download free from *www.vivax-metrotech.com* - MyvScan (desktop application) & vScan (locator) software update utility - Import log files from vScan - Manage the locator configuration and personalization - Manage and export data - Export formats: .xls, .csv, .shp, .kml, .jpg, .pdf, .xlsx

	- View data on GIS maps or Google Earth™, requires data to be stored with optional GPS co-ordinates - Full manipulation of data for training identification or mapping purposes - Standard templates available - Print latest receiver calibration check certificate - Personalize with company/user name etc - Install company specific start up screen - Lock out features/modes (requires lock out dongle)
Performance	- Sensitivities **Mode** — **Sensitivity at 3.2ft *(1m)*** 50Hz/Power mode — 5mA 33kHz mode — 15µA 131kHz mode — 10µA Metal detect — 150mm (6”) cast iron cover detectable at 250mm (*10”*)
Lateral Performance. (Using **Single, undistorted signal source)**	Lateral accuracy: - up to 9ft *(3m)* – 3% of depth - over 9ft *(3m)* – 5% of depth
Depth Performance **(Using Single, undistorted signal source)**	Depth measurement accuracy: 2.5% of depth. over 9ft *(3m)* – 5% of depth
	Current measurement – Accuracy +/- 5% of detected signal, measured in mA rms.
	Depth range: Dependent on strength of signal radiating to locator. Maximum practical line depth: 23ft *(7m)*

F. Transmitter Assembly

Item	Parameter
Construction	High impact ABS
Weight	3.3lbs *(1.5kg)* (with Li-ion batteries) 3.7lbs *(1.7kg)* (with Alkaline Batteries)
Dimensions	18.1in x 3.5in x 2.6in *(46cm x 9.0cm x 6.5cm)*
Display	2 x LED interface
Audio	Internal Sounder
Controls	4 x pushbuttons
External Connectors	- 1 x 3 pin connection socket – (XLR)

	- Charging socket on rechargeable battery
Batteries Options	- Standard battery pack – using 4 x alkaline “D” cells - a custom Lithium ion rechargeable battery pack (7.2V, 5200mAh) with charger (Input: 100-240V AC, 50/60Hz, 1.0A; Output: 8.4V, 2.0A) is optional
Battery Life	At 1 watt i.e. full output setting. - Alkaline – typically 30 hours continual use at 70ºF (21ºC) - Li-ion – typically 36 hours intermittent use at 70ºF *(21ºC)*
Output Protection	Output protected against accidental connection to up to 240V AC
Approvals	- Complies with European standard CE (Directive 99/5/EC) • EN 55011 • EN 61000-6-4: 2007 • EN 61000-4-3: 2006 • EN 61000-4-2: 1995 A1 & A2 • EN 61000-4-8: 1994 A1 • ETSI EN 300 330-2 : 2006 • ETSI EN 301 489-1 : 2005 • ETSI EN 301 489-3 : 2002 - Complies with FCC Rules Part 15 • CFR 47 part 2 • CFR 47 Part 15

G. Transmitter Operational

Item	Parameter
Transmitting Frequency by Mode	- Induction mode • 33kHz (32,768Hz) - Connection mode • 33kHz (32,768Hz) • 131kHz (131,072Hz) • Both signals transmitted simultaneously - Clamp mode • 33kHz (32,768Hz) • 131kHz (131,072Hz) • Both signals transmitted simultaneously

Output Power Settings	- Battery saving – transmitter defaults to low output power when first switched on to conserve battery life - High output – additional power can be selected when required
Transmitting Mode **Power output**	Combined power 1 watt
Output voltage	Maximum output voltage = 35V RMS
Output current	Maximum output current = 200mA RMS
Controls	- 4 x pushbuttons • On/Off • Speaker volume • Signal output level • Pulse/continuous output signal
Visual Indication	2 x LED indicating low and high output level
Audio indication	- A change in tone confirms a good connection - Tone pulsing or continuous to reflect Tx output - Slow pulse tone to indicate low battery
Compatible with Receivers	vScan Rx

H. Environmental (both receiver and transmitter)

Item	Parameter
Temperature Range	Operating: -4ºF to 122ºF *(-20ºC to 50ºC)* Storage: -40ºF to 140ºF *(-40ºC to 60ºC)*
Weather Proof	IP54
Maximum Humidity	80%
Shipping Weight	Rx: 7.83lbs (3.55kg) Tx: 6.11lbs (2.77kg)
Shipping Dimension	Rx: 28.7in(L) x 11.8in(W) x 3.4in(H) *(73cm x 30cm x 8.6cm)* Tx: 19.5in(L) x 5.4in(W) x 5.4in(H) *(49.5cm x 13.8cm x 13.8cm)*

I. Accessories

Item	Parameter
Standard Equipment	**Receiver:** - USB data cable - Carry bag (when both Rx & Tx are purchased together - otherwise an option) - User handbook - MyvScan configuration and data management utility download from www.vivax-metrotech.com **Transmitter:** - Direct connection lead on tangle-free cable organizer (red and black leads, 10ft *(3.5m)* long with crocodile clips) - 1 x T type ground stake - 2 x connection magnets (UK market only) - Tx foot stand - Carry bag (when both Rx & Tx are purchased together - otherwise an option)
Optional Accessories	**Receiver Optional Accessories:** - Custom Lithium ion rechargeable pack with, 100-240V AC mains charger – typically 40 hours' intermittent use at 70ºF (*21ºC*) (with full backlight turned on). Re-charging cycles approx. 500 times life cycle. Battery life varies with temperature. - Sondes - D18, D38 and D64 - 12V DC charging lead **Transmitter Optional Accessories:** - Custom Lithium Ion battery pack and charger – typically 28 hours' continual use at 70ºF (*21ºC*). Re-charging cycles approx. 500 times life cycle. Battery life varies with temperature. - 2" (50mm) transmitter clamp - 4" (100mm) transmitter clamp - 5" (125mm) transmitter clamp - Clamp extension rod - Live plug connector (240V AC) (to connect and use transmitter on lines carrying up to 240V AC) - Live cable connector (480V AC) - 10m extension ground cable

J. Factory fitted options (not retrofit-able)

Item	Parameter
GPS Factory Fitted Option	- GPS module (internal) – enhances data logging and data management - Overview: The GPS option is internal and powered from the receiver's battery. Accuracy is typically better than 5m (16ft) and is dependent on satellite availability. - Weight: 0.07lbs *(30g)* (may vary depending on manufacturers availability) - Indication: Satellite lock indicated by icon on the display
Blue tooth Factory Fitted Option	- Bluetooth module (for communicating to external devices such as high accuracy GPS)
Metal Cover locator (vScanM)	- Detects all metal types. - Sensitivity: 150mm (*6"*) cast iron cover detectable at 250mm (*10"*)

K. Warranty

Vivax-Metrotech vScan system, excluding batteries, are warrantied for a period of two years from date of invoice accordance to the Vivax-Metrotech warranty policy which is available on our website www.vxmt.com. The vScan is a sophisticated unit and should only be repaired and service by your local VXMT office, distributor or authorized service center.

All products are designed and manufactured in accordance with ISO 9001:2008.

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