STANLAY™

MXL⁴ PRECISION PIPE & CABLE LOCATOR

MULTI FREQUENCY. HIGH PERFORMANCE. DATA LOGGING.
PRECISION PIPE & CABLE LOCATION EQUIPMENT WITH
GPS TRACKING & BLUETOOTH CONNECTIVITY OPTIONS

2020-21

LOCATE. AVOID. TRACE. MEASURE DEPTH. MAP. BURIED PIPES & CABLES
CABLE & PIPE AVOIDANCE PRIOR EXCAVATION
CABLE ROUTE TRACING

Quality in Construction. Delivered.

NEW C.SCOPE MXL4 & MXT4

PRECISION PIPE AND CABLE LOCATION EQUIPMENT. MULTIFREQUENCY. HIGH PERFORMANCE

The new MXL4 and MXT4 from C.Scope have been designed to set a **new benchmark in Precision Buried Pipe & Cable locating** as well as still delivering **all the advantages** and **familiar operating** practices associated with the original MXL and MXT. The new 2017 product updates are loaded with new features which enable operators to find more buried utilities by delivering improved levels of performance and helping to reduce the effects of human error.

The **MXL4 Pipe and Cable Locator** is driven by **Powerful Digital Signal Processor Technology**. **Advanced software programming** enables the MXL4 to provide high performance in **cable route tracing** & **buried cable & pipe detection**.

Multiple Active frequency options for direct injection &/or induction include 512Hz, 640Hz, 8kHz, 33kHz, 131kHz & dual frequency 33+133 kHz to allow the operator choose a frequency ideal for that location or application; Utilization of lower frequencies is ideal for long distance route tracing where as high frequencies should be utilized in application such as small dia pipelines with welded joints. Dual frequency should be used to assist in the detection of smaller dia buried cables such as telecom & sheathed fiber optical & lighting spurs.

Human error can be a contributory factor associated with cable strikes. To address this issue, intelligent features such as an **Automatic Daily Self Test** function and a **Dynamic Swing Sensor, Peak Hold, Alarm Zone™** help ensure that the best working practices are adhered to and are being applied on-site.

The **Data Logging option** now included as standard provides an invaluable insight into working practices and help to identify key training requirements.

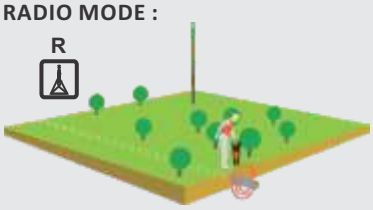
Using the **MXT4 Transmitter with the MXL4 Locator** maximize the full performance capabilities of the new Locator. The MXT4's **Class leading One Watt 4-level adjustable Power Output** with full **data logging** capability makes it possible to apply a detectable signal onto **Deeper and Harder to Detect Pipes and Cables** for complex locate tasks.

The new MXL4 range is one of the most advanced yet easy to use high performance buried cable & pipe location equipments for telecom & construction project executives, to perform the task of medium to long distance cable route tracing & avoidance of risk of cable strikes.

POWER MODE :

Detect & trace buried energized metallic power cables using the locating receiver alone in Power mode.

RADIO MODE :



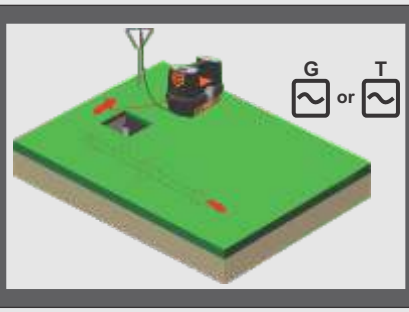
Locate a wide range of buried metallic utilities/conductors, whether or not they are carrying current, using the locating receiver alone in Radio mode.

ALL SCAN MODE :

Innovative **All Scan** mode uniquely listens for all frequencies ranging from the lowest of the 50Hz Power signals right up to and including 33kHz. This all in–one mode detects unusual frequency signals present on pipes and cables often overlooked in the conventional Power, Radio or Transmitter Mode. All Scan Mode can often speed up the locating process with just one sweep of the site.

GENERATOR/TRANSMITTER MODE :

Trace the route of specific services such as Armored Telecom Cables, Power Cables and Metallic Pipes by connecting the MXT4 Signal Generator to the metallic cable or pipe utility and trace the signal using the locating receiver operating in the 'Generator/Transmitter' mode. In this mode the operator can also measure depth of the utility .There are two methods by which the signal of the signal generator / transmitter can be applied to buried services as illustrated below i.e a. Conductive Locating By Direct Connection or Using a Wraparound Induction Signal Clamp OR by using Inductive locating mode of the MXT4 Signal Generator:



Conductive Locating

Inject the signal to a service using alligator clamps for conductive line tracing by direct connection.

Inductive Locating

Induce a signal on to buried metal services remotely from the surface without physically connecting to that service. Significantly increases capability to locate buried services

Optional Extended Capability : Inductive Signal Clamp

Connect the signal to a service using Signal Clamp for conductive line tracing, where a direct connection to the service is not possible.

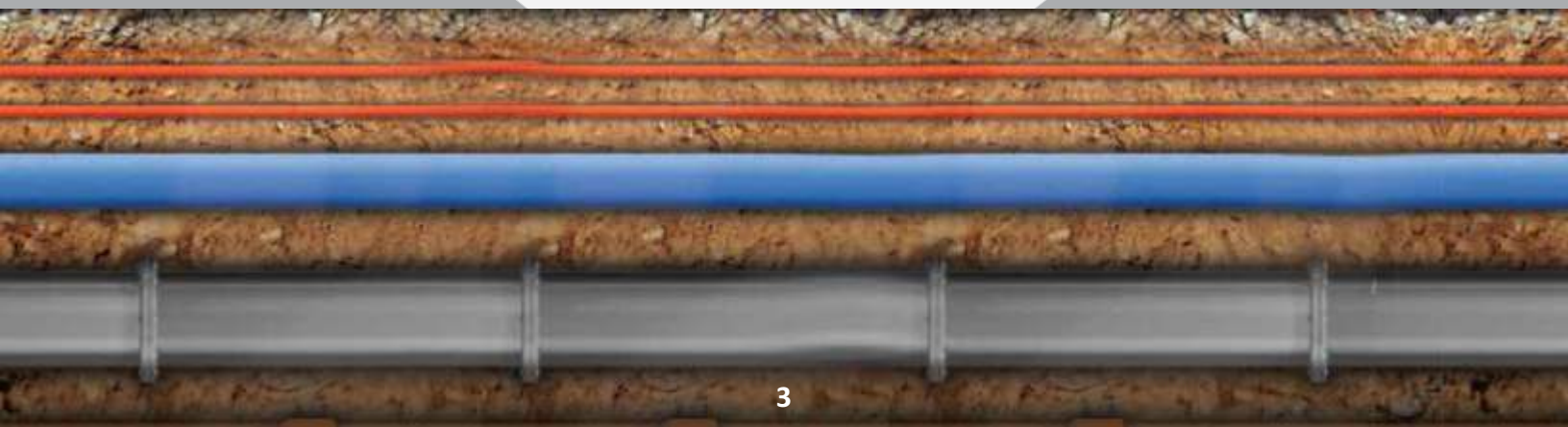
C.SCOPE MXL4 OVERVIEW

- Power Mode.
- Radio Mode.
- Multifrequency Transmitter Mode.
  Low: 512Hz, 640Hz
  Medium & High: 8kHz, 33kHz, 131kHz
  CF: 33+131kHz combined frequency
- All Scan Mode.
- Accurate Depth Indication.
- Signal Current Measurement.
- Overload Protection
- Alarm Zone™
- Peak Hold
- Data Logging
- Automatic Noise Rejection.
- Dynamic Swing Sensor.
- Automatic Daily Self Test (ADST).
- Data Logging of all Locator activity - one year data can be stored.
- USB Data downloading - result of each ADST is recorded and can be used to produced a product validation certificate using PC tool kit when connected via USB to a computer.
- High Resolution Backlit Liquid Crystal Display.
- No Periodic Calibration required.

MULTIFREQUENCY
4 OPERATING MODES
LIVE DEPTH MEASUREMENT
AUTOMATIC NOISE REJECTION

C.SCOPE MXT4 OVERVIEW

- One Watt 4-level adjustable Power Output.
- Six Signal Outputs
  New Simultaneous 33+131kHz Combined Frequency
  512Hz, 640Hz, 8kHz, 33kHz, 131kHz
- Pulsed or Continuous Output Signal.
- Three Signal Application Techniques.
  -Direct Connection
  -Wraparound
  -Induction
- Automatic Daily Self Test (ADST)
- Data Logging of all transmitter activity
- Data Transfer by USB
- High Resolution Liquid Crystal Display
- No Periodic Calibration Required.
- In-built Accessory Tray



C.SCOPE MXL4 MULTI FREQUENCY PIPE & CABLE LOCATOR

- **SIMULTANEOUS 33 + 131kHz COMBINED FREQUENCY**
- **131kHz (HF)FOR QUICK SHORT DISTANCE TRACING & UNEARTHED CABLES**
- **33kHz FOR UTILITY AVOIDANCE**
- **8kHz FREQUENCY FOR MEDIUM TO LONG DISTANCE TRACING**
- **512Hz & 640Hz FOR SPECIALIST LONGER DISTANCE TRACING & SONDE USE IN PIPE DETECTION**

Mode Selection Switch
- Power Mode.
- Radio Mode.
- Transmitter Mode.
- All Scan Mode.

On/Off Trigger.

Sensitivity Adjustment Control.

Control Panel :
- Depth Measurement Button
- Frequency Selection Button
- Signal Current Measurement Button.

LCD Backlit Digital Display

Detachable Loudspeaker.

IMPACT RESISTANT

IP65
WATER, IMPACT & DUST PROOF

Impact Resistant Twin Wall Construction.

Impact Resistant Replaceable Wear Foot.

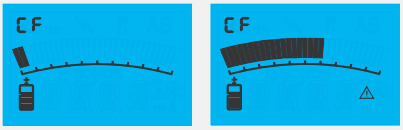
Fingertip Controls

Detachable Loudspeaker

Built In Dual Battery Pack

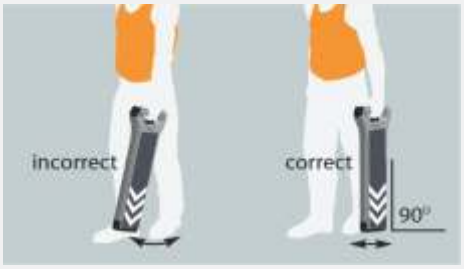
LCD with Automatic Backlight.

Daily Self Test



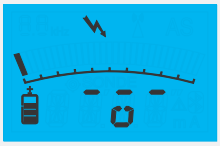
The **'Self Test'** is performed the **first time** the locator is switched on **each day** and takes approximately **4 seconds.** The self test checks the two internal aerials and all the operating modes mentioned to ensure that YOU know that your equipment is fit for Usage.

Dynamic Swing Sensor.



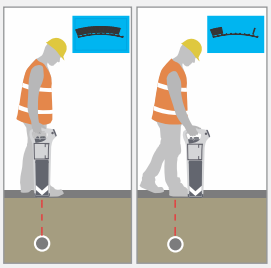
The **Locator** should **always be held at 90.** If you are **excessively swinging** the Locator, it's **dynamic swing sensor** will **alert** you with a **tone sound.**

Alarm Zone™



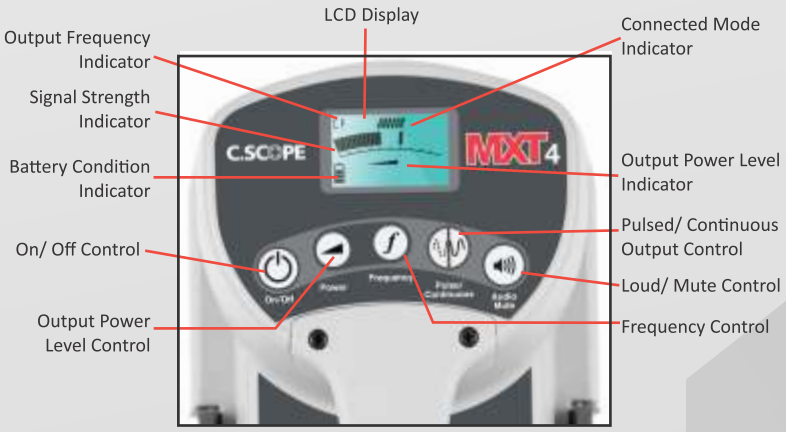
The XL4 Locator has a programmable automatic depth measurement feature intended to alert the user to the presence of unusually shallow pipes or cables in depth range upto 0.3m.

Peak Hold



Each time the Locator response reaches its peak position, a single 'Peak Hold' line will continue to remain showing on the bar graph for two seconds to assist you to return to the correct peak position.

C.SCOPE MXT4
MULTI FREQUENCY TRANSMITTER



LCD DISPLAY

Control Panel:
- On / Off
- Output Power Adjustment
- Frequency Selection
- Pulsed / Continuous
- Loud / Mute

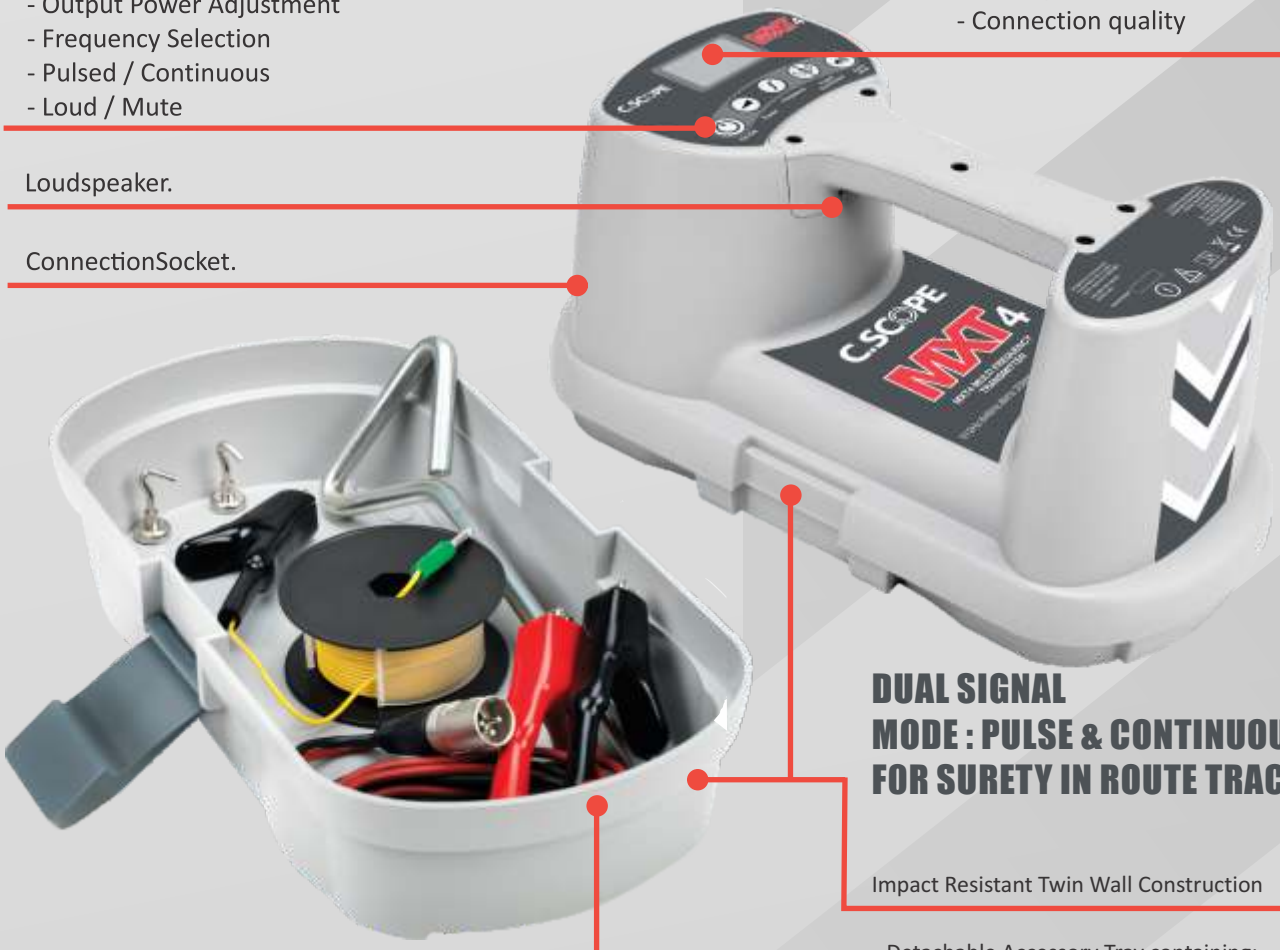
Loudspeaker.

ConnectionSocket.

DATA LOGGING TRANSMITTER

4 POWER LEVELS

LCD clear digital display indicating:
- Functions selected
- Power level
- Battery condition
- Connection quality



IP65
IMPACT & DUST PROOF IMPACT RESISTANT

DUAL SIGNAL
MODE : PULSE & CONTINUOUS FOR SURETY IN ROUTE TRACING

Impact Resistant Twin Wall Construction

Detachable Accessory Tray containing:
- Direct Connection Leads
- Earth Stake
- Connection Magnets
- 10m Auxiliary Earth Lead
- Instruction Manual
- Designed with space to also carry a Signal Clamp or other accessories.

C.SCOPE MXL4

FOUR DETECTION MODES :

The MXL4 has four detection modes to select from signal current measurement mode. Each mode provides specific advantages.

POWER mode identifies buried electricity cables by detecting the main frequency signal travelling along the cable itself, when current is being drawn.

RADIO mode detects re-radiated 'radio' type signals that are often present on metal pipes and cables.

GENERATOR/TRANSMITTER mode is used to detect the signal applied to a metal pipe or cable by a C.Scope MXT4 Transmitter. The ability to select from a simultaneous 33kHz+131kHz, 33kHz, 131kHz, signal as well as 8kHz, 512Hz and 640Hz signals gives the operator more versatility to detect and trace utilities. The Transmitter mode is also used for detecting the signal from a C.Scope Sonde or Stanlay traceable duct rodder when tracing in non metallic pipes such as sewers, drains or telecom cable ducts.

AS

ALL SCAN mode detects **all frequencies** of signal from the **lowest of the Power signals** right up to and **including 33kHz.** This mode can detect unusual signals appearing in the frequency gaps between conventional Power, Radio and Generator modes and is invaluable as a 'final check' before excavation work begins.

Data Logging

DATA LOGGING: Full data logging capability - upto a year of data is logged every second of use. The free to download C.Scope PC tool kit & C.Scope relay Smart Phone App analyses stored data allowing training requirement to be quickly identified.

Signal Current Measurement The MXL4 can monitor the true strength of the MXT4 Transmitter signal applied to a buried service irrespective of its depth. This is ideal for identifying the layout of a pipe or cable network.

DEPTH MEASUREMENT (Available in MXL4 only) When used with an MXT4 Signal Generator, the depth of buried pipes, cables and Sondes can be indicated at the push of a button.

AUTOMATIC DAILY SELF TEST (ADST) The MXL4 have **comprehensive self test circuitry. ADST** fully examines the locator, including the receiving aerials **every day when it is first switched** on. This gives the operator confidence that the equipment is working to its optimum before it is used. The **test result is recorded** and can be printed out as a **System Validation Certificate** when required by connecting the locating receiver via USB to the computer.

DATA LOG TRANSFER VIA USB Data from the Data Logging versions of the MXL4 **can be transferred** at any time **to a PC for analysis via the data connection socket in battery compartment.**

MXL4 DBG Model: Additional features

DATA LOG TRANSFER VIA BLUETOOTH™ The MXL4 DBG Model has the additional features of **bluetooth** to download data **wirelessly** onto C.Scope relay Smart Phone App installed on any android Smart Phone.

GPS

In-built GPS also allow a record to be kept of exactly where the locator have been used that can then be viewed in partnership with **Google Earth™** or **Google Maps™**. Additionally, the locator may be paired to third-party GPS survey equipment, via the locators in-built Bluetooth™ facilitating 'one-pass' underground utility surveys to be undertaken.

RECEIVER TECHNICAL SPECIFICATION :

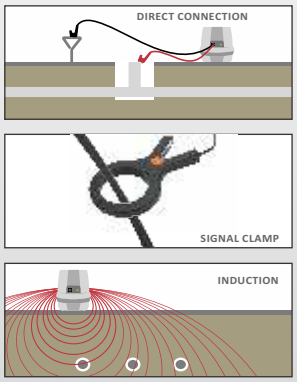
LOCATOR FEATURES	MXL4-D	MXL4-DBG
Power Mode	●	●
Radio Mode	●	●
Generator/Transmitter Mode 131 kHz, 33+131kHz (CF), 33kHz, 8kHz, 512Hz, 640Hz	●	●
All Scan Mode	●	●
Depth Measurement	●	●
Signal Current Measurement	●	●
Overload Protection	●	●
Alarm Zone™	●	●
Peak Hold	●	●
Dynamic Swing Sensor	●	●
No Periodic Calibration	●	●
Automatic Daily Self Test (ADST)	●	●
Data Logging (2GB Memory)	●	●
Data Transfer via USB Communication Port	●	●
Data Transfer via Bluetooth™		●
GPS (Built In)		●
Display (LCD)	●	●
Batteries, Operating Time	8 X AA (LR6), 40 Hours + Spare Battery Holder	
IP65 Environmental Rating	●	●
Size	720mm X 280mm X 65mm	
Weight	2.65kg	
Locate Accuracy	Better than 10% of Depth	
Depth Accuracy	±5% @ 1m	
Depth Resolution	0.1m(0.4")	
Current Measurement	0.1mA to 100mA	

LOCATOR PERFORMANCE	FREQUENCY	SENSITIVITY @1m depth	DETECTION DEPTH (max)
Power	50-400Hz	5mA	3m
Radio	10kHz-30kHz	25µA	2m
Transmitter	33+131kHz (CF) 131kHz,33kHz,8kHz,512Hz,640Hz	5µA	5m
All Scan	50Hz-33kHz	100µA	3m
Sonde	33kHz,8kHz,640Hz,512Hz	--	9.9m (Max)

C.SCOPE MXT4 FEATURES

C.Scope MXT4 Signal Generators are vital pieces of equipment used with C.Scope MXL4 Precision locator that significantly improve operator safety and enable better location of pipes and cables even in challenging environments. The MXT4 transmitter works on 6 signal frequency outputs options including 33kHz+131kHz(CF), 512Hz, 640Hz, 8kHz, 33kHz, 131kHz(HF) giving the operator choice on how the buried services can be energised and then detected.

SIGNAL APPLICATION TECHNIQUES
The MXT4 transmitter offers three alternative ways to apply a Signal Generator signal:



DIRECT CONNECTION : allows specific pipes or cables to be individually traced, identified and their depths measured. This requires use of Direct Connection leads to inject the signals directly into the cable or pipes at a suitable access point. This mode is the most effective method for pinpointing pipes and cables. The direct connection leads also provided the options of built in magnets to apply signal where crocodile clamps are found difficult to use.

INDUCTIVE SIGNAL CLAMP (OPTIONAL) : If it is difficult or inconvenient to use Direct Connection, then the signal clamp can be utilised to successfully energise an armored optical fiber cable, street lighting cable etc.

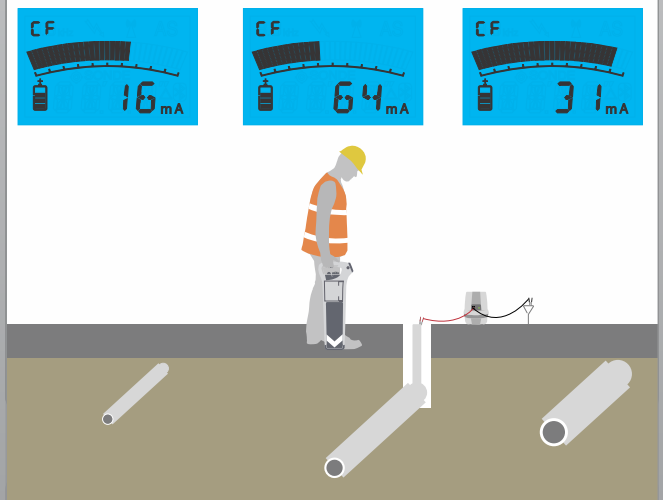
INDUCTION : allows the Signal Generator to induce a detectable and traceable signal to previously unknown, undetected or inaccessible underground metal pipes or cables without any direct connection. This is also referred to as a Blind Search and significantly increases capability to locate or trace buried services.

- **POWER OUTPUT :** The MXT4 has a **four position power level adjustment** so that the user can control **how much power to use and when.**
- **LOUDSPEAKER :** The MXT4 has a clear audible signal output to indicate when it is in operation. There is also the facility to mute the audio if required.
- **PULSED OR CONTINUOUS SIGNAL OUTPUT :** The MXT4 offer the choice of a Pulsed or Continuous signal output enabling operators to switch to the Pulsed Mode in high interference situations and keep on tracing.
- **LCD CLEAR DIGITAL DISPLAY :** The MXT4 has a large, clear and easy-to-read backlit LCD mounted behind a tough protective polycarbonate lens. The display indicates clear information about the functions selected, the power level being used and battery condition.
- **ACCESSORY TRAY :** The MXT4 Signal Generator has a large detachable accessory tray as its base. It can house all of the standard accessories (Direct Connection Leads, Earth Stake, Connection Magnets, 10m Auxiliary Earth Lead) and the Instruction Manual and also many of the optional extras such as Signal Clamps, Sondes and Signal Injectors.
- **ROBUST & DURABLE CONSTRUCTION :** The MXT4 twin wall construction is robust and durable. It also provides IP65 standard protection against dust and water ingress.
- **CALIBRATION :** The MXT4 does not require periodic re-calibration, helping to significantly reduce running costs and downtime.
- **DATA LOGGING :** The MXT4 Signal Generator will automatically record and store how when and for how long the instrument has been operated, Twelve months of data can be stored before being overwritten. It is therefore possible to keep a full audit trail of the activity of the signal generator and its functionality. Data can be transferred to a PC using USB socket built in the signal generator.
- **AUTOMATIC DAILY SELF TEST :** The signal generator will undertake automatic daily self test and prior first use of every single day of operation and will provide Pass / Fail Indication on the LCD display.

TRANSMITTER TECHNICAL SPECIFICATION :

SIGNAL GENERATOR FEATURES	MXT4
Max Power Output	One Watt
No. of Adjustable Power Output Levels	4
Generator Frequencies 33+131kHz(CF), 512Hz, 640Hz, 8Hz, 33kHz, 131kHz(HF)	●
Pulsed / Continuous Output Signal	●
Signal Connection Modes	●
- Direct Connection 131kHz, CF 33+131kHz, 33kHz, 8kHz, 640Hz & 512Hz	●
- Wraparound	●
- Induction 33kHz, 131kHz, CF 33+131kHz, 8kHz	●
Automatic Daily Self Test (ADST)	●
Data Logging of Signal Generator usage	●
Data Transfer via USB	●
Display (LCD)	●
Accessory Tray	●
No Periodic Calibration	●
Batteries	4 x D (LR20)
IP65 Environmental Rating	●
Size	360mm X 180mm X 230mm
Weight	3.4kg

SIGNAL CURRENT MEASUREMENT :



Identify Layout of Pipe or Cable in Complex Networks

NOTE: Supply of Signal Clamp Is OPTIONAL

C.SCOPE XL4 DBG SERIES OPTIONS

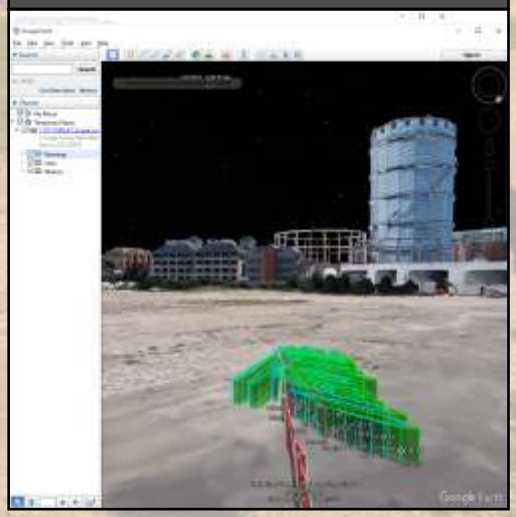
DATA LOGGING • BLUETOOTH • GPS

Acquire Utility Scan Data With GPS Overlays Of Survey Conducted

Transfer Data Via Bluetooth To Smart Phone

Transfer Data Via Email To PC Automatically

View Data on PC



View Data in Google Maps on Smart Phone

View Data in Google Earth on Smart Phone

* C.Scope Relay App is downloadable on any latest Android Smart Phone from Google play
* C.Scope PC Toolkit is downloadable from C Scope website cslocators.com/data-logging

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