FARNELL

C.Scope Catalogue

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Pipe and cable tracing solutions for contractors

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U-SCAN

CABLE AVOIDANCE TOOL

Avoid pipes and cables with the new U-SCAN

> *"Any contractor who commences digging operations without first making full use of cable tracing equipment is just plain crazy!"*

We all know the problems. Any contractor involved with ground-working operations knows how poorly marked underground pipes and cables can turn a simple job into a nightmare.

Major cable strikes cost lives and cause massive disruptions to local homes and businesses. Even in its most minor terms accidental damage to pipes and cables costs the contractor big money. There is not only the actual cost of reinstatement, but also machine and man downtime, penalty costs for jobs running late and, inevitably, spiralling insurance costs.

Safety is a major consideration in today's working practices. The Health & Safety Code of Practice places a legal obligation on contractors to take all reasonable steps to avoid damage to underground services. It is no understatement of the situation to say that any contractor who commences digging operations without first making full use of cable tracing equipment is just plain crazy!

C-SCOPE HAVE THE SOLUTION

The U-SCAN is designed to be used alone in vital cable avoidance applications. THE U-SCAN is an important safety tool which should form an essential part of every contractor's basic equipment. Even where plans of services are available, it pays to check their accuracy with U-SCAN. Plans can be wrong and, whether the plans are accurate or not, it is the contractor who is responsible for damage during excavation work.

The U-SCAN is constructed of robust, high impact polyethylene, and is designed to withstand the type of environment usually associated with civil engineering sites. Ease of use was a prime consideration during the design phase of the U-SCAN on the simple philosophy that a simple to use safety product is most likely to get used. The result being a light, well-balanced, and highly usable piece of equipment.

The U-SCAN meter is a vital additional feature not normally found on equipment at U-SCAN'S price level. The meter allows highly accurate identification of conductors far more clearly than outdated audio-only systems. The meter housing includes a battery condition indicator and a bleep tone indicates sufficient battery power every time the machine is switched on.

AN INDUSTRY

In Scansmitter mode the U-Scan has a dual frequency capability so that, should the need arise, it is fully compatible with other leading makes of cable detection equipment. Step-by-Step diagrammatic operating instructions are printed on the side of the machine for instant on-site reference.

Power Mode

In the POWER MODE, U-Scan alerts the user to the existence of power cables which are carrying electrical current. When current flows along a cable, a magnetic field is created around the cable and it is this magnetic field which is detected by U-SCAN operating in its POWER MODE.

The more current that is being carried by a cable, the larger is the magnetic field and the easier the cable is to detect.

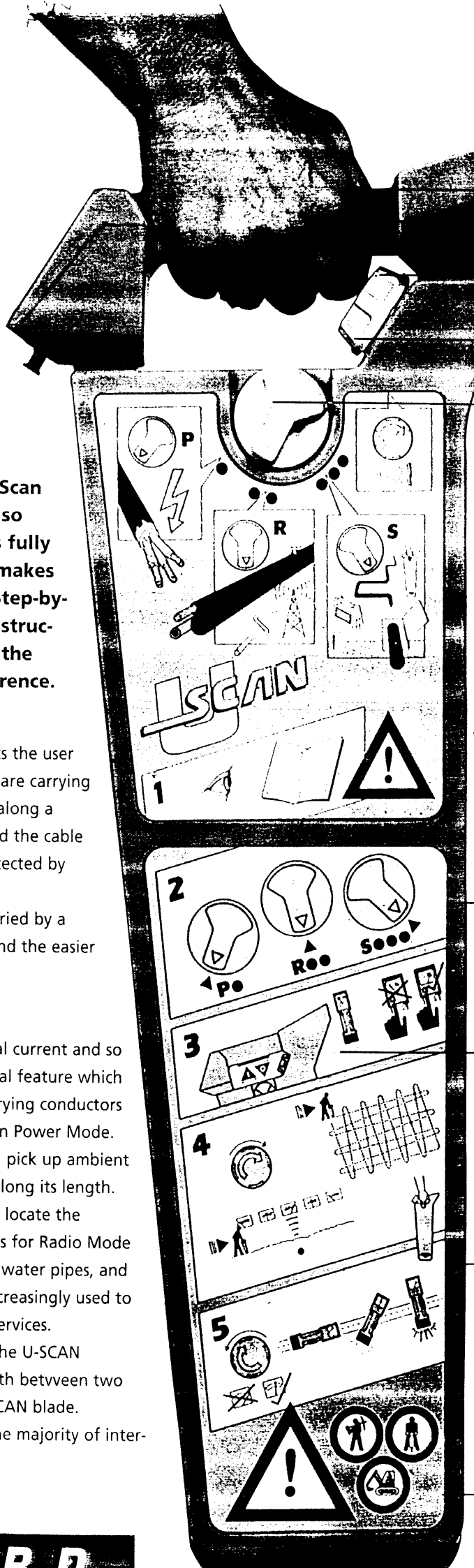
Radio Mode

Not all cables are carrying electrical current and so U-SCAN's Radio Mode is a vital additional feature which enables the majority of non-current carrying conductors to be detected in just the same way as in Power Mode.

Every conductor in the ground will pick up ambient radio signals which will be re-radiated along its length. The U-SCAN, in Radio Mode, is tuned to locate the strongest of these signals. Typical targets for Radio Mode will be telephone cables, metal gas and water pipes, and the metallised tracer tapes which are increasingly used to mark the position of recently installed services.

Unlike simple single coil locators, the U-SCAN measures the difference in signal strength betvveen two coils set one above the other in the U-SCAN blade.

U-SCAN is thus able to eliminate the majority of interference from extraneous signal sources.



Signal strength meter

Battery check button

Automatic ON/OFF control

Sensitivity Control

Mode Select Control

P: For locating cables carrying electric current
R: For locating metallic telephone or electric cables, gas pipes, water pipes and tracers
S: For tracing path of cables/pipes carrying Scansmitter signal

Battery compartment hatch (on rear side)

High impact polyethylene casing IP65 rating

Diagrammatic summary of operating instructions - Please read manual before using for the first time

Quality Construction ISO 9001

Improved antenna provides clearer signals and enhanced

STANDARD

Add the powerful Scansmitter for the complete answer to pipe and cable locating and tracing

The Scansmitter can be added to the U-SCAN to provide the user with the most comprehensive solution to the type of everyday utility tracing problems which the contractor is likely to encounter.

Whereas the U-SCAN alone is capable of detecting a huge variety of pipes and cables which are carrying their own signals, the Scansmitter can be used to put a unique artificial signal on to one or more services so that this service can be traced in preference to any other.

Access to services to make the connection to the Scansmitter is not always straightforward and so great versatility has been incorporated into the design so that even direct physical connection is not essential in order to achieve results. The Scansmitter is fitted with a permanently operating dual frequency capability so that, should the need arise, its signal is detectable by other leading makes of cable detector.

DIRECT CONNECT MODE

Direct connection is a positive way to inject the Scansmitter's unique pulsed signal into one particular conductor. Direct connection would normally be achieved either inside a building where the service terminates or via an appropriate inspection cover. A change in pitch of the Scansmitter operating reference tone indicates that a good connection has been made. The Connected Mode of operation is automatically selected as the connection leads are inserted into the Scansmitter.

Using the U-SCAN, switched to the Scansmitter Mode, the service may be traced up to 350 metres from the point of connection.

INDUCED MODE

The Scansmitter features an induction coil fitted into its base which is capable of inducing a signal into services in its near vicinity thereby eliminating the need for any physical connection between the service and the Scansmitter. In use the Scansmitter would be placed above but not directly over the suspected position of the pipe or cable which needs to be traced. The signal thereby induced into the service may then be followed using the U-SCAN in the Scansmitter mode in exactly the same way as in connected mode. Induced mode may also be used in a cable avoidance situation where it is considered desirable to enhance the natural signals being carried on all the services in a vicinity. In this application the Scansmitter would be placed near to an inspection cover or any location where the maximum number of services are likely to pick up the Scansmitter's unique pulsed signal. The Induced Mode of operation is automatically selected when the connection leads are withdrawn from the Scansmitter.

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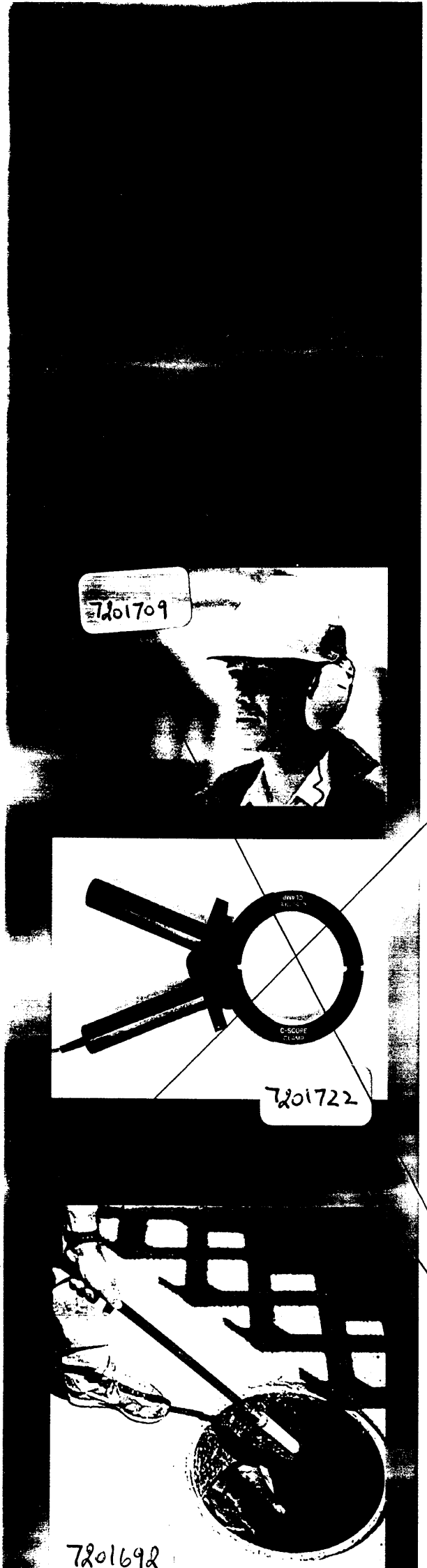
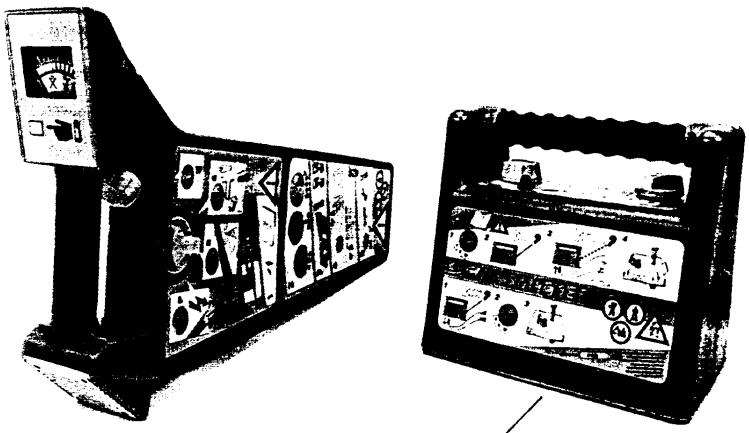




ACCESSORIES

METAL COVER LOCATOR MD100. It is sometimes necessary to locate individual metal objects under the ground such as stopcocks, inspection and manhole covers. In these situations the MD100 metal locator optional accessory is a valuable tool which can save hours of searching. The MD100 fits on to the Scansmitter with an extendable stem for easy fatigue free operation.

HEAVY DUTY HEADPHONE YIRHP. In noisy road environments a headphone is a highly useful option to U-SCAN's built in loudspeaker. Access to the headphone socket is via a weatherproof cover on the base of the U-SCAN handle. Using the headphone in conjunction with the visual indication meter provides the user with the most accurate information about the services being traced.

THE SIGNAL CLAMP

The quality of the connection is a key factor in the successful use of the Scansmitter. The Signal Clamp allows immediate and safe injection of the Scansmitter signal into any service which the signal clamp (diameter 75mm) can be clipped around.

The C-Scope Signal Clamp is a robust high performance product designed to operate with the standard Scansmitter. A separate, matched clamp is available for use with the U-SCAN DX.

TRACING PLASTIC AND NON-METALLIC PIPES

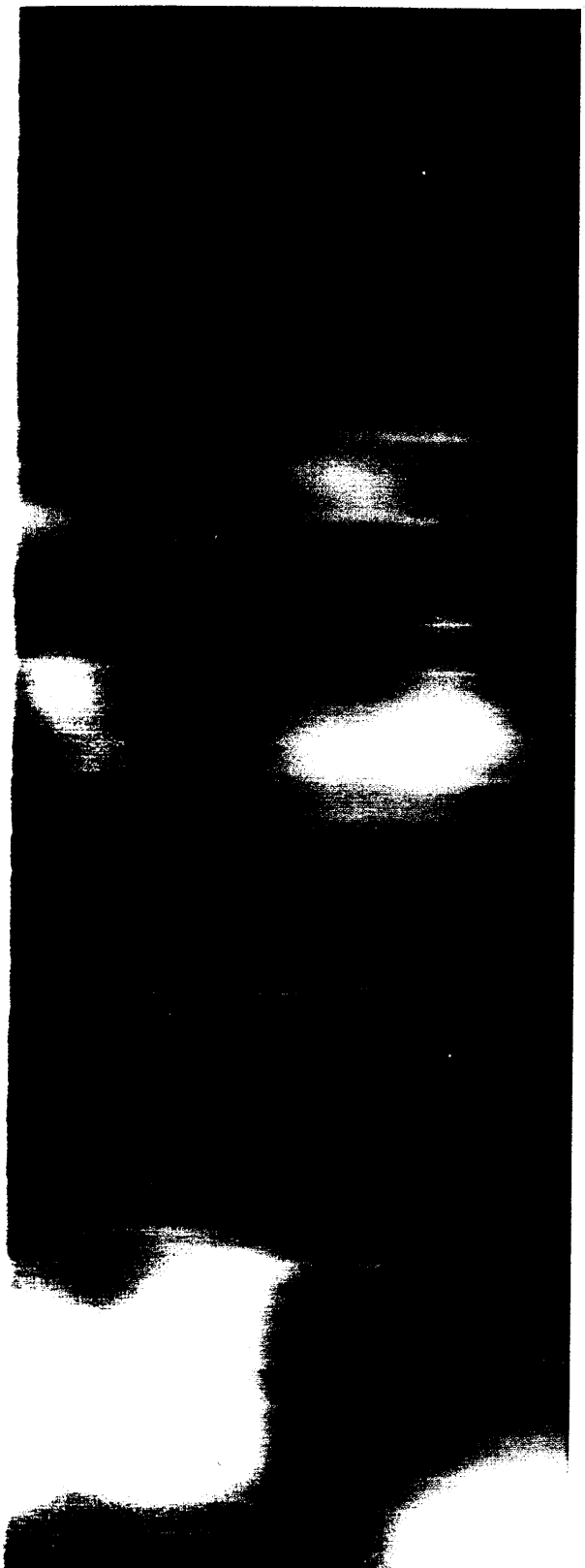
MINITRAN WATERPROOF TRANSMITTER. In cases where clay, concrete or plastic pipes need to be traced, the Minitran self-contained transmitter can be propelled along the pipe, usually by rods or with the flow of water. Utilising its own 9 volt battery supply the Minitran transmits a unique pulsing signal to the surface where it can be tracked by the U-SCAN operating in the Scansmitter mode. Typical range in normal conditions: 5 metres.

The precise location of pipe blockages is a prime use of the Minitran which can eliminate the considerable cost and disruption of trial holes and other traditional inspection methods.

SCANSMITTER

THE COMPLETE KIT

Performance, precision. More information for the line technician



Where does that line go? Which cable do we connect on to? How deep to bore to miss that gas main? Where shall we joint these cables? What direction do we need to trench to find that pipe?

The Site Engineer faces a barrage of questions on site and he needs answers . . . FAST.

The U-SCAN DX system has been developed to meet this need. The U-SCAN DX is for the professional who needs more information than the standard U-SCAN can provide.

The U-SCAN DX system has been designed with the user's budgetary constraints in mind. The U-SCAN DX is a high performance Precision Locator at a price little more than an ordinary Cable Avoidance Tool.

U-SCAN DX

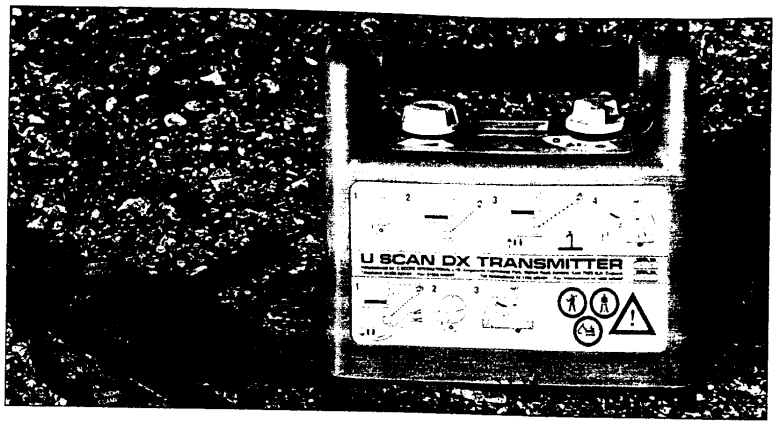
The U-SCAN DX features the same robust, weather-protected housing of the well known industry-standard U-SCAN. The performance of all operating modes is optimised and a totally new antenna array fitted into the U-SCAN DX blade adds the powerful additional feature of depth measurement.

POWER MODE: Select Power Mode and the U-SCAN DX can detect current carrying power cables with precision and to a high degree of resolution. The exact centre of the signal source can be located swiftly and without ambiguity by observing the signal intensity meter. The meter also indicates battery condition by a momentary press of the switch on the meter fascia panel. The precise direction of a cable can be determined from the meter 'null' point.

RADIO MODE: Re-radiated ambient radio signals being carried on underground conductors will be detected by the U-SCAN DX operating in the Radio Mode. This vital feature allows the identification of a wide variety of live and dead cables, telecommunications cables, metal pipes, and metallised tracer tapes.

TRANSMITTER MODE: Depth measurement is possible as soon as a signal from the DX Transmitter has been successfully applied to the service which is being tested. There are no complicated adjustments to make when taking a depth measurement. Using the signal intensity meter to place the U-Scan DX directly above and at right-angles to the signal carrying conductor, the base of the U-Scan blade is rested on the ground while the depth measurement button is pressed. Within a couple of seconds the depth of the conductor is indicated on the upper scale which is calibrated from 0 to 3 metres.

U-Scan DX Receiver Part No ZUDXI-28.



DX TRANSMITTER

The DX Transmitter functions in essentially the same way as the Standard Scansmitter. The output power is higher to cater for the greater signal transmission distances likely to be required by the professional line engineer. A signal strength meter is fitted so that the quality and strength of the applied signal can be closely monitored. The application of the signal is confirmed by a reduction in pitch of the Transmitter operating reference tone. The signal generated by the DX Transmitter is 28KHz continuous and may be detected by both the standard U-Scan and the U-Scan DX.

CONNECTED MODE: Insertion of the leads automatically selects the connected mode of operation. The Transmitter signal may be traced using the U-Scan DX receiver and depth measurements are possible.

SIGNAL APPLICATION VIA CLAMP: A high quality of signal may also be applied through the use of the C-Scope Signal Clamp. High accuracy depth measurements are possible in this mode.

INDUCTIVE MODE: Indirect connection of the DX Transmitter signal may be achieved through the induction coil fitted in the base of the DX Transmitter. The high power signal output of the DX Transmitter is sufficient to perform long range tracing applications with minimal coupling to adjacent running services. Depth measurements are possible in this mode.

MINITRAN DX SONDE

The Minitran DX Sonde is designed to work in conjunction with the U-SCAN DX. It emits a powerful 28KHz continuous signal detectable by both the standard U-SCAN and the U-SCAN DX. Additionally the U-SCAN DX is capable of measuring the depth of the Sonde to a high degree of accuracy. The depth of the sonde is measured on the lower scale of the U-SCAN DX which is calibrated 0 to 9 metres.

The ability of the U-SCAN DX to measure the depth of services and of its own dedicated Minitran Sonde presents a wide range of potential applications in the NO-DIG industry. Measuring the depth of existing services in the roadway, for example, can provide the contractor with the vital information he needs to steer underground boring tools. Fitting a transmitter to the bore tool itself can provide precise information about the location of the tool at any given time so that appropriate adjustments to its pitch and direction can be made.

C-Scope Research & Development is working with the No-Dig industry to find new areas where DX technology can save money, save time, and improve the efficiency of 'moling' operations.

DEPTH MEASUREMENT FACILITY

DX Transmitter Signal Generator Part No TDXI-28

SPECIFICATION

U-SCAN Sales and Service is available throughout the UK, Europe and Worldwide via a network of agents and distributors. For a demonstration or more information about U-SCAN'S powerful capabilities call UK - (44) 1233 629181 or FAX on (44) 1233 645897

U-SCAN DX

1) On/Off Confrol on handle activated when in use.
2) Three posifion function select switch
   - P - Power mode for detecting live imbalanced cables
   - R - Radio mode for detecting re-radiated radio signals
   - Tx - Transmitter mode for detecting conductors carrying the signal generated by the U-SCAN DX Transmitter. This mode is also used for depth measurements
3) Sensitivity Control
4) Depth push button: above in Tx mode only will give an accurate depth indication when pressed
5) Battery Check: push button gives visual indication of battery condition on the meter.

Visual Indicator
Large, high accuracy, easy to read meter with ruggedised taut band movement. Shock resistant. Mounted behind 3mm polycarbonate panel for maximum protection. The meter gives an indication of the following:
1) Signal strength.
2) Depth in Tx mode with button pressed 0.5 - 3.0m (LINE) 1- 9m (SONDE)
3) Battery condition.

Audio Indicator
Built-in waterproof loudspeaker socket provided for headphones loudspeaker automatically disabled when headphones are used.

Depth of Detection
The U-SCAN DX will typically detect conductors to the following depths:
P - 3 metres. R - 2metres. Tx - 3 metres.

Sensitivity at 1m
P - 7mA rms. R -12μA rms. Tx - 2-μA rms

Frequency
The frequency and filter characteristics are chosen to yield the optimum signal-to-noise ratio with a high degree of selectivity.
P - 50 to 500 Hz. R - 15 to 20 kHz.
Tx - 28kHz ± 1%.

Response Width 5% of depth
Location Accuracy 10% of depth

Depth Measurement
Active in Tx mode only activated by push button
Range: 0.5 - 3 0m (LINE)
1.0 - 9.0m (SONDE)
Accuracy better than ±5% of depth @ 1m.

Batteries
Type: 8 x AA Alkaline (IEC type LR6)
Life: 40 hours intermittent use @ 20°C.

Weight
3.0 kgs (including batteries).

DX TRANSMITTER

Controls
1) Three position function knob:
   a) Off
   b) On
   c) Battery Check
2) Output level control

Typical tracing range
Induced mode: 200m
Direct Connected Mode: 350m

Frequency
28 kHz ±1% all modes continuous

Meter
Indicates direct connected current and battery condition.

Audio Indication
Pulsed Audio tone indicates unit is operating. Audio pitch changes to indicate good connections.

Output Power
300mW (max)

Batteries
Type 8 x AA Alkaline (IEC type LR6)
Check: Battery condition indicated on meter.

Weight
2.5 kgs (including batteries).

Please note the performance figures stipulated above can be affected by site conditions such as soil type, moisture and temperature.

Construction
Both units are robustly constructed with the main bodies being made from high-impact polyethylene. The U-SCAN is environmentally protected to a high standard (IP65) and has all weather capabilities The batteries are easily replaced via an external cover.

Maintenance/Service
The equipment is designed and manufactured to be simple and easy to use and maintain. A full back-up service is provided by C-Scope Customer Service department. Should recalibration be necessary a rapid 48-hour service is available. A full range of accessories are available including signal clamps and sondes. Our R&D Dept is constantly reviewing our range of accessories. If you have a particular requirement for a specific accessory then please contact us.

C-SCOPE

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