

Line Location System

Line Location System

- to detect and trace cables and pipes
- fast and simple to operate
- with features designed to avoid potentially dangerous power cables, pipes and other services
- suitable for Water, Gas, Rail and Power Utilities, Contractors and Telecommunication
- shows the signal level received and marks the maximum with a marker
- operators work with both the audio signal and the visual confirmation at all times
- power, radio and active modes
- semi-automatic sensitivity control
- depth measurements in active and passive modes
- signal strength display
- compatible with existing 33kHz systems
- class-leading high power transmitter
- depth measurement is possible at the push of a button even when using power mode



Rx receiver

- passive location of power and radio signals
- active location of 33kHz transmitted signals
- semi-automatic sensitivity control
- depth measurements in active and passive modes
- continuous signal strength display
- peak indicator
- audio output via loudspeaker with volume control
- single-finger function "key control"
- dual sensors for Auto Backlight
- auto off function

Technical Data

Rx receiver	
Frequency range:	
Power Mode	50 Hz to 250 Hz
Radio Mode	15 kHz to 23 kHz
Tx mode	33 kHz
Location depth	0.3 m to 7 m; Depth accuracy (best) +5%
Depth measurement	up to 4 m
Sensitivity at 1m depth	50 Hz: 7 mA; Radio: 10 µA; 33 kHz: 3 µA
Operational time	> 40 hours
Power supply	10 x IEC R6 1.5 V
Temperature range	Operation -20 °C to +55 °C Storage -40 °C to +70 °C
Weight kg/each	2.5 kg
Dimensions	max. 67 x 26 x 10 cm
Protection category	IP 56



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Tx transmitter/generator

- 33kHz continuous or pulsating
- class leading power output
- high (0.5 W) and low (0.1 W) power settings
- simple push-button control
- air cored antenna
- induction or direct connection
- induction in two planes of antenna orientation



Tx transmitter	
Transmitted power	0.1 Watt / 0.5 Watt (switchable)
Frequency	33 kHz
Type of signal	Pulse and continuous signal (switchable)
Operational time	> 40 h
Power supply	6 x IEC R20 1.5 V
Temperature range	Operation -20 °C ... +55 °C Storage -40 °C ... +70 °C
Weight	2.6 kg
Dimensions	26 x25.5 x 14 cm
Protection category	IP 56

Scope of delivery

- **complete set:** Rx receiver, Tx transmitter, connection and earth leads, earth spike, carrying bag and operating manual
- **Rx receiver:** Rx receiver, operating manual
- **Tx transmitter:** Tx transmitter, connection and earth leads, earth spike and operating manual

Service and Repair

- annual calibration is a simple test, with no part dismantling required, reducing calibration cost
- any repairs are carried out by quick replacement of modules

Optional accessories

Tx

- connection cable Schuko 230 V, connection cable Telecom,
- connection cable coaxial

Rx

- earphones

Transmitter Clamp 100 mm

- to connect a transmitter signal onto live or dead cables and pipes

Pipeline Transmitter Probe

- self powered, to locate non-metallic pipes

The principles of Line Location

The alternating electromagnetic field which forms around almost every metallic line is the basis for modern line location technology, called magnetic field location, based on the transmitter/receiver principle.

There are two main versions of passive and active location.

Passive location

Passive location detects signals which are already present on the cable or line without input from the location system.

These might be 50/60 Hz or radiofrequency currents, or a protective current (CCP). These currents produce concentric magnetic fields around the cables or pipelines.

This method requires that the object to be located is long, metallic and earthed at both ends, otherwise there will be no signal circuit. Power cables generate a 50 or 60 Hz signal and use surrounding cables and metallic lines as return conductors to the starting point. Radio signals between 15 and 23kHz are generated by long wave transmitters and also use the surrounding cables and lines as return conductors. Receivers can be used for passive location.

Active location

For active location, a generator induces an artificial signal onto the cable. This means the cable can be precisely identified, its route traced and its depth accurately measured. If the cable is poorly or not at all accessible, or already live, there are various coupling methods to induce the signal onto the line.



Flexible Coupling Technology

Inductive coupling

Inductive coupling is used where there is no direct access to the cable or pipe to be located. To do this, a frequency generator is placed on the ground above and in line with a buried conductor. The generator induces a signal on the cable, metallic pipe or other conductor.

Galvanic coupling

Galvanic coupling is the ideal solution when the conductor to be located is easily accessible. Use the red terminal of the coupling accessory to connect to the line; the black terminal is connected to an earthing rod or another independently earthed metal object. Now the cable can be traced using the location system.

Coupling using transmitter tongs

The advantage of coupling using transmitter tongs is that the conductor can remain in service during location as no direct contact to the conductor is required. The transmitter tongs are simply placed around the cable or pipe. The induced measuring current then facilitates fast and simple location.

