

INFRASTRUCTURE SOLUTIONS

PROBES AND MONITORING SYSTEMS

Professional Pipe, Sewer and Drainage Route Inspection and
Blockage Detection Solutions



System Overview

Comprehensive diagnostic guide for pipe, duct and drainage systems.

Scope of the Guide

This user manual covers the specifications of **Radiodetection** probes, flexible rods (Flexrods), and accessories related to FlexiTrace systems.

This product range is used to trace the routes of pipes, channels, sewers, and drainage systems, and to pinpoint the exact location of blockages or collapses.

Capacity and Utilization

Radiodetection probes can detect objects at depths of up to **15 meters (49 feet)**. With diameters ranging from 12.7 mm (0.5 in) to 64 mm (2.52 in), they offer solutions suitable for a wide variety of applications.

- All depths indicated represent the maximum reliable working depth; in some cases, probes may operate at greater depths.
- The probes can be attached to a flexible rod, pushed through pipes, or smaller probes can be "blown" through pipes with spray machines.
- For situations where a probe is towed along a string, an optional flat end cap with a ring is available.



Probe Components

The basic component configuration of a standard probe is listed below:



1. Probe Body



2. M10 Male End Cap



3. Flat End Cap (with Ring)



Compact and Standard Probe Models

Superior performance, from small pipes to standard networks.

Super Small Probe (S13)

A very small probe designed for use in small pipes and channels, capable of navigating through tight bends. It is used with flexible rods or blown through the pipe/channel. Available as a kit.

will be delivered.

Dimension	Diameter 12.7 mm (0.5"). Length 70 mm (Flat Cap) / 87 mm (M10 Cap)
Location Depth	2 meters (6.6')
Battery / Lifetime	2 x V393 silver oxide batteries (8 hours of use)
Signal / Pressure	33 kHz continuous / 2 bar (20 m water depth)
Order Code	10/S13-33-KIT

Small Probe (S18)

A small probe, particularly useful for small-scale applications. It is used with flexible rods or inserted by blowing/pulling it through a pipe/duct. Available as a complete kit.

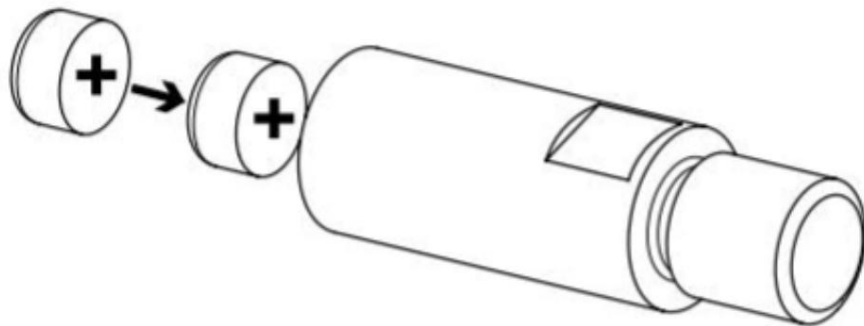
Dimension	Diameter 18 mm (0.7"). Length 82 mm (Flat Cap) / 97 mm (M10 Cap)
Location Depth	4 meters (13')
Battery / Lifetime	2x CR1/3N or 1x D1/3N plug (8 hours of use)
Signal / Pressure	33 kHz continuous / 2 bar (20 m water depth)
Order Codes	10/S18-33-KIT 10/S18/82-33-000 10/S18-FLAT END CAP

Standard Probe

It combines a compact size with a powerful signal. It is supplied with an M10 male threaded end cap and is available in 512 Hz, 8 kHz or 33 kHz options. The 512 Hz version is particularly suitable for use in cast iron pipes.

Size & Depth	Length 105 mm (4.1"), Diameter 39 mm (1.5") Depth: 5 meters (16")
Battery & Pressure	1 AA battery (8 hours of use) 2 bar - 20 m (65') water depth

Signal Options	512 Hz, 8 kHz or 33 kHz continuous
Order Codes	10/SC0412-512 (512Hz), 10/SC0412-8 (8kHz), 10/SC0412-33R (33kHz)



Harsh Conditions and Special Application Probes

High durability for sewage, cast iron, and corrosive environments.

Slim Probe

To locate the canal structures.
The probe used has a slim design.

Dimension	Length: 198 mm, Width: 22 mm
Depth	3.5 meters (11.5')
Battery	1x AA battery (12 hours of use)
Signal	33 kHz continuous
Order	10/SD0322-33R

Sewer Drill

In abrasive sewer applications
Durable housing for use.

Dimension	Length: 168 mm, Width: 64 mm
Depth	8 meters (26')
Battery	1x PP3 (15 hours of use)
Signal	33 kHz continuous or pulsed
Order	10/SA0337-33R

Super Sounder

It has a very robust casing, deep.
suitable for use in sewers
robust probe.

Dimension	Length: 318 mm, Width: 64 mm
Depth	15 meters (49')
Battery	1x PP3 (5 hours of use)
Signal	33 kHz continuous or pulsed
Order	10/SB0338-33R

BendiSonde

In applications where flexibility is required
and 3 used in cast iron pipes
In the segmented final.

Dimension	Length: 475 mm, Width: 23 mm
Depth	6 meters (20')
Battery	1x AA battery (15 hours of use)
Signal	512 Hz continuous
Order	09/AS133621 (Without cover)

Probe Positioning Procedure

Professional search steps for accurate and rapid identification in the field.

Preliminary Preparation and Rapid Testing

A new or freshly charged battery should be used at the beginning of each day, and preferably before starting work. Ensure that the probe and the locator are operating on the same frequency.

Rapid Test Procedure: The probe is positioned at a distance equal to the nominal depth range from the locator. Position it. Point the locator at the probe so that the blade is aligned with the probe, and With sensitivity set to maximum, check if the bar graph is showing **more than 50%** of the value.

Search Steps

Probe positioning works on the exact opposite principle of cable positioning:

1. Insert the probe, which is attached to the flexible rod, into the drain or channel where you wish to locate the source of the probe.
2. Hold the locator vertically, with the blade **perfectly aligned** with the probe. Ensure accuracy. Adjust the bar chart to display a value between 60% and 80%.
3. A probe radiates a field in the shape of a vertex from the center of its axis, and **ghost signals** are generated on either side of it .

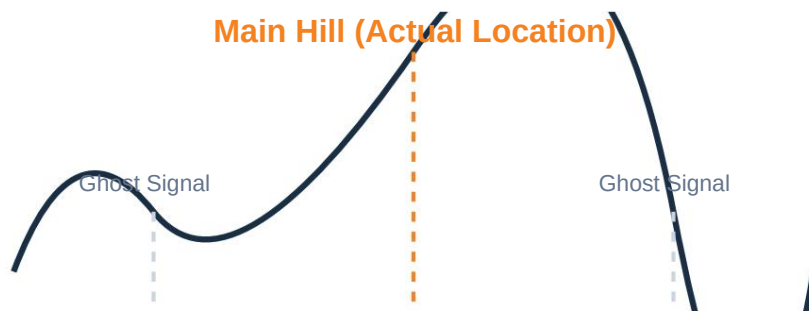


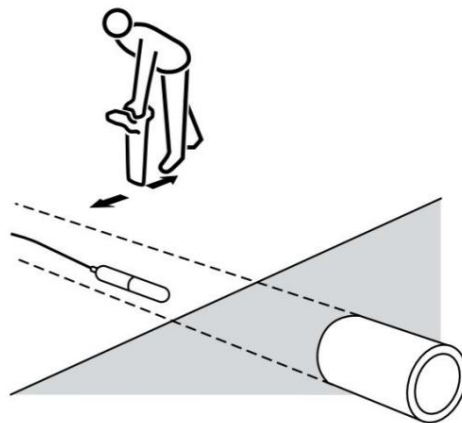
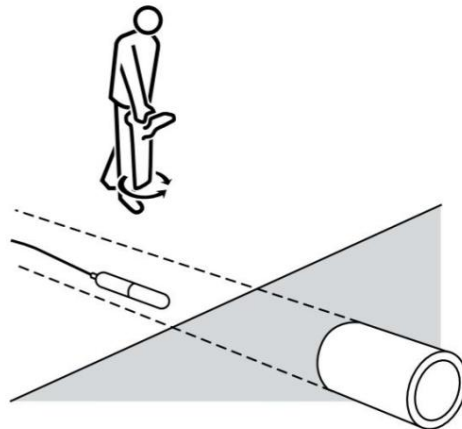
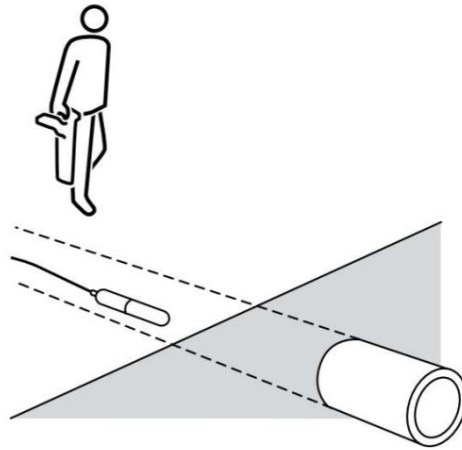
Figure 1: Signal field emitted by the probe and location of ghost signals.

Location Verification (Steps A, B, C)

Locating ghost points accurately confirms the location of the main hill. Detecting ghost signals. Move the positioner sideways and back and forth along the axis. After that, only the main peak will remain. Reduce the sensitivity to keep it low and follow these steps:

- **Step A:** Keeping the blade aligned with the probe, move the locator back and forth to obtain a clear line of sight. Wait until the peak response appears.

- **Step B:** Rotate the positioner as if the blade were a pivot, until a clear apex is visible on the screen.
Repeat the process until it appears.
- **Step C:** Move the locator from side to side until the screen shows a clear peak response.
Move it. Mark the point and proceed.



Depth Calculation and Transmission Rods

Manual depth determination and FlexiTrace system details.

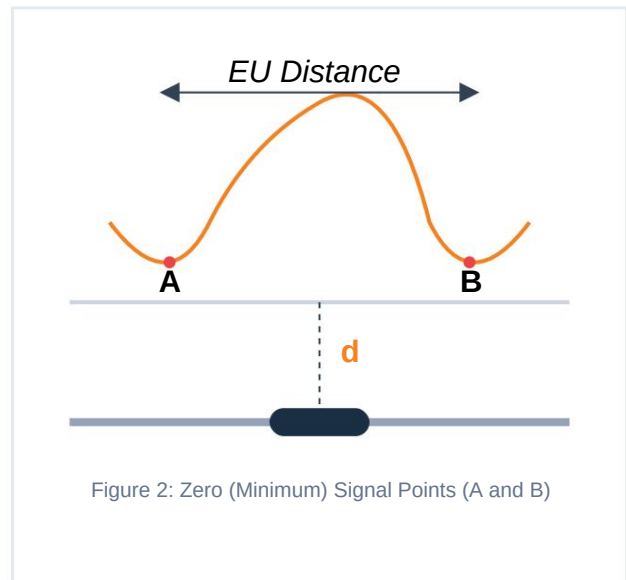
Measuring Drilling Depth

If the locator device is not providing depth measurements or the probe is too deep, the following "Zero Point" method can be used to manually calculate the depth:

1. Position the detector in front of the probe, and increase its sensitivity to locate the ghost signal while it's aligned with the probe.
2. Between the main peak and the ghost signal, there is a zero (minimum) signal point (**Point A**).

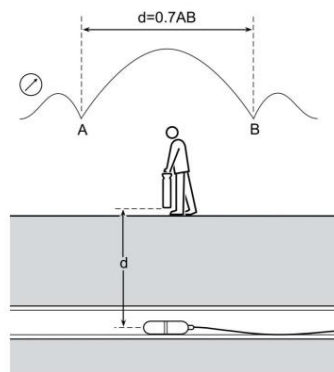
Now move behind the probe and find the second zero point between the ghost signal 3 and the main peak (**Point B**).

4. Measure the distance between points 'A' and 'B' and multiply by **0.7** to find the approximate depth .



Depth Calculation Formula:

$$d = 0.7 \times AB$$



FlexiTrace and Flexible Rods

FlexiTrace Radiodetection

It is a flexible rod containing conductive wires along its entire length, with a transmission probe at its end. It is used to trace lines in pipes and channels where the diameter restricts the use of larger probes, detecting blockages and collapses **up to a depth of 3 meters** . Depending on the transmitter connection method, only the probe or the entire length can be energized.



Flexible Rods

They are used to insert and push probes into pipes, channels, drains, and sewers.

It is made of glass fiber inside a polypropylene sheath that is resistant to abrasion, most solvents, oils and acids.

- The minimum bending radius is 250 mm (10").
- It has a brass piece at each end.
- It features a 62 mm long collar with a suitable female M10 x 20 mm thread for attaching probes.



Connectors and Fittings

Adapters required for integrating the probes into Flexrod and systems.

Accessory	Purpose & Description	Order Code
Spring Link	It has M10 male and M10 female threads. It is inserted between the flexrod tip and the probe. The probe's tube... It is used to reduce the shock it receives when hitting a wall and to allow it to move more smoothly in corners.	10/SU0335
Flexible Rod Adapter	Brass fitting with a 10 mm female thread on one end and a 12 mm male thread on the other. It is used to screw a radio detection probe onto a flexible rod.	04/ B-103-4-100F
Empty Connector	A brass part with a 10 mm female thread at one end and a blank end at the other suitable for machining/threading specific rods.	10/SU0343
A Pair of Buoys	It has a 10 mm thread. It attaches to both ends of the sewer and super probe. It allows the probe to float in flowing water. Its progress is controlled by attaching a rope to the buoy. It can be done.	10/SU0344
Plastic / Reed Stick Connection	It has a 10 mm female thread on one end and a 3/4 inch male thread on the other. For attaching probes to a standard cane or drainage rod. It is used.	10/SU0339



Important Warnings and Contact Information

Important considerations before use.



Security and Warranty Notes

- **Intended Use:** The probes are designed and must be used solely for position determination purposes. Failure to do so may result in damage to the probe and void the warranty.
- **Explosive Atmospheres:** The probes are not classified as '*intrinsically safe*' for use in applications involving hazardous and flammable gases .
- **Frequency Compatibility:** The vast majority of radiodetection probes transmit at **33 kHz** and are compatible with many detectors. For 512 Hz and 8 kHz probes, check compatibility with your device's user manual.

About Us

With over 25 years of experience , **Enermak Energy** provides reliable solutions in the energy and infrastructure sectors. Closely following global developments, our company places quality and sustainability at the heart of all its operations. With its experienced team and strong technical infrastructure, it implements projects that meet standards and have a long lifespan.

HEAD OFFICE:

1234th Street No: 125 06370
Ostim – ANKARA

COMMUNICATION:

Tel: +90 (312) 385 11 02 E-
mail: info@enermak.com
Website: www.enermak.com



📍: 1234.Sokak No: 125, 06370 Ostim - ANKARA / TÜRKİYE
☎: +90(312) 385 11 02 (pbx)
📠: +90(312) 385 11 95
✉: info@enermak.com

