

10.3.2 Available transmitter clamps

Although transmitter and receiver clamps look the same, they have different internal windings. To prevent the wrong clamp being connected, transmitters and receiver clamps have plugs of a different orientation.

Standard signal clamp

The standard clamp applies the transmitter signal very selectively and effectively to a target cable up to 100mm diameter at 8/33kHz frequency or up to 75mm diameter cable at 512Hz.

The standard and small clamps have a double spring action for positive toroidal contact.

Small signal clamp

The small signal clamp is useful for applying an 8kHz and 33kHz signal to a target cable in a pedestal or other place with limited space. The clamp is suitable for cables up to 50mm diameter.

Current Direction (CD) and Current Measurement (CM) clamp

The CD/CM clamp plugged into the accessory socket of the transmitter enables CD and CM signals to be applied to individual cables.

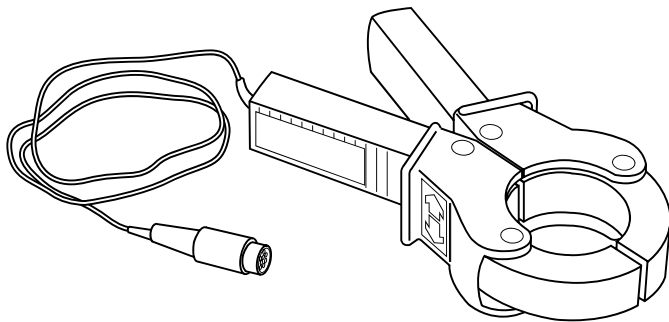


Figure 11.5 CD clamp

⚠ WARNING! The transmitter must only be connected to live services using the appropriate accessory such as a plug connector or live cable connector.

10.4 Sondes

10.4.1 When to use a sonde

A sonde transmitter is a small battery powered signal transmitter that can be inserted into non-metallic ducts, drains or sewers so they can be located and traced with a receiver. A wide range of transmitting sondes is available to suit different applications. Sondes can also be used to pinpoint joints in iron gas pipes, locate blockages in plastic water pipes and monitor the progress of horizontal boring tools.

10.4.2 Choosing a suitable sonde

Check that the sonde has sufficient range for the application and is dimensionally small enough and sufficiently robust for the application. Ensure that the frequency of the sonde corresponds with the receiver frequency; the receiver will not locate the sonde unless the frequencies are the same. Sondes are marked with their transmitting frequency. Ensure that the means of propelling the sonde is available together with the correct fittings and couplings.

10.4.3 Preparation

Insert a new battery into the sonde. A new battery or a freshly recharged battery should be used at the beginning of each day and preferably at the start of each new job.

Before inserting the sonde, check that the sonde and receiver are at the same frequency and working correctly. To do this, place the sonde on the ground at a distance from the receiver that is equal to the rated depth of the sonde. Point the receiver at the sonde with the antenna in line with the sonde (the opposite of using the receiver to locate a line) and check that the bar graph reading exceeds 50% at maximum sensitivity.

10.4.4 Propelling a sonde

Sondes have a male thread at one end for connecting to drain rods, or to other devices for inserting and propelling the sonde along a drain or duct. Sondes may be floated along drains at the end of a tether and floats are available for fitting to the sewer sonde and super sonde. Sondes can be strapped to high-pressure water jets or similar devices used for cleaning, maintaining and inspecting drains. Sondes used in underground drilling and boring operations are normally housed in the boring or drill head behind the boring or drill bit.

10.4.5 Locating and tracing a sonde

Insert the sonde in the drain or duct access and locate it while it is still just in view at the drain or duct entrance. Hold the receiver vertical directly over the sonde with the antenna in line with the sonde. Adjust the receiver sensitivity so the bar graph reads between 60% and 80%.

The sonde radiates a peak field from the center of its axis with a ghost signal at each end of the peak. Move the receiver a little way behind and then in front of the axis of the sonde to detect the ghost signals. Finding the two ghost signals positively confirms the locate. Reduce the receiver sensitivity to lose the ghost signals but still indicate a clear peak response directly over the sonde. Receiver sensitivity is now set for tracing the duct or drain unless the distance between sonde and receiver changes.

Propel the sonde three paces along the drain or duct and stop. Place the receiver over the supposed position of the sonde. Do not adjust the sensitivity level.

To locate a sonde:

1. Move the receiver backwards and forwards and stop when the bar graph indicates a peak. You can use the LCD compass to orient the blade of the receiver with the direction of the sonde.
2. Rotate the receiver as if the blade is a pivot. Stop when the bar graph indicates a peak.
3. Move the receiver from side to side until the bar graph indicates a peak.
4. Repeat 1, 2 and 3 with the antenna vertical and resting on or just above the ground. The receiver should then be directly above the sonde with the antenna inline with it. Mark the position of the sonde and its direction.
5. Propel the sonde a further 1 or 2 meters, pinpoint, and mark the position. Repeat this pinpoint procedure at similar intervals along the line of the drain or duct until the survey is completed.

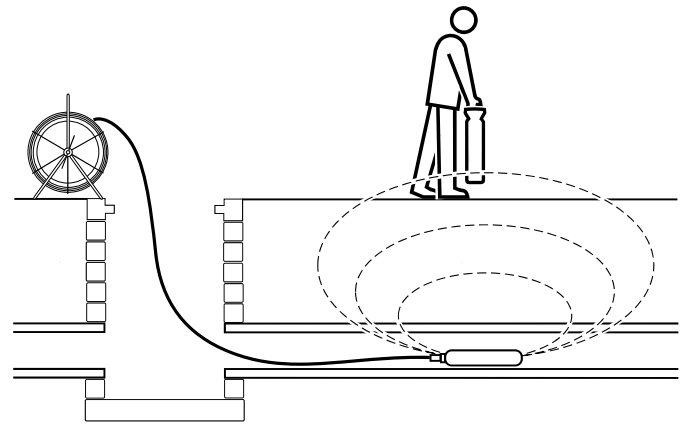


Figure 10.6: Sonde deployment

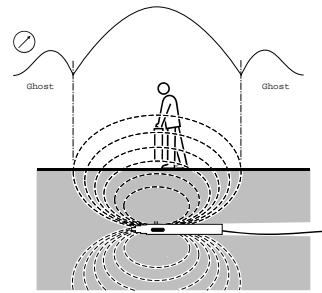


Figure 10.7: Locating a sonde

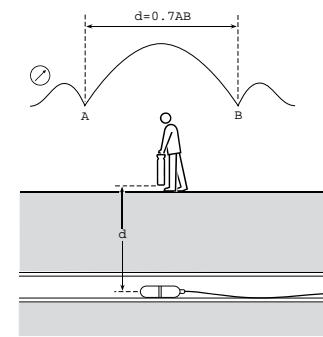


Figure 10.8: Calculating sonde depth

10.4.6 Checking sonde depth

The RD8000 receiver will automatically display the depth of a located sonde providing the receiver is correctly oriented and positioned above the sonde. Using the LCD compass as a guide, rotate the receiver until the compass indicates the sonde is in East/West position.

Calculation method

Pinpoint the sonde. Move the receiver in front of the sonde and still with the antenna in line with it, increase sensitivity to find the peak of the ghost signal. Move the receiver to behind the sonde ensuring that the receiver blade is always in line with the sonde. Find the null positions A and B (See Figure 10.8). Measure the distance between them and multiply by 0.7 to give an approximate depth measurement.

10.4.7 Types and range of sondes

Standard sonde

The standard sonde combines compact size with a strong signal and is the standard sonde for most applications unless a smaller size, greater depth or rugged construction sonde is required.

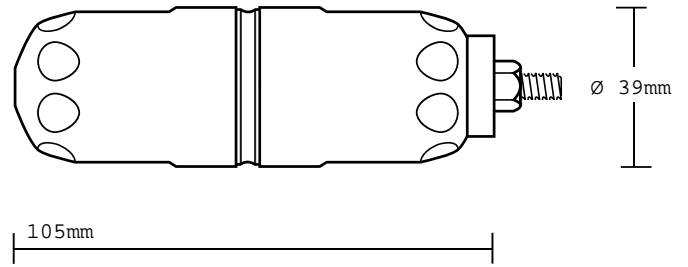


Figure 10.9: Standard sonde

Super small sonde

This is a specialized sonde particularly suitable for no-dig applications. This type of sonde has an interchangeable battery compartment so that the length of the sonde can be altered. Shortening the length of the sonde means that fewer batteries can be accommodated and this will affect battery life.

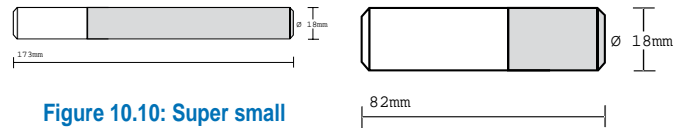


Figure 10.10: Super small sondes

Sewer sonde

This sonde incorporates a very strong housing and makes the sonde suitable for use in municipal sewer systems. The sonde has a long life for daily use in all conditions.

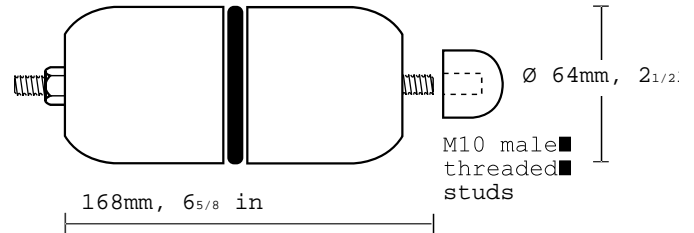


Figure 10.11: Sewer sonde

Super sonde

A particularly rugged sonde for use in deep sewers.

FlexiTrace

The FlexiTrace is a traceable plastic covered fiberglass rod incorporating wire conductors and is used for locating small diameter, non-metallic pipes to a depth of to 3 meters. The FlexiTrace can be inserted into a pipe or duct as small as 12 mm/0.5 inch internal diameter with a minimum bend radius of 250mm. Batteries are not required, as the FlexiTrace is powered by the RD8000 transmitter.

The FlexiTrace can be used in two modes: Sonde mode or Line mode. In sonde mode only the tip of the FlexiTrace is energized whilst in line mode its whole length is energized.

To use as a sonde, connect both transmitter leads to the FlexiTrace stud terminals. As the FlexiTrace terminals are not color coded it does not matter to which terminals the leads are connected. To use the FlexiTrace in line mode, connect the red transmitter lead to a FlexiTrace terminal and ground the black lead.

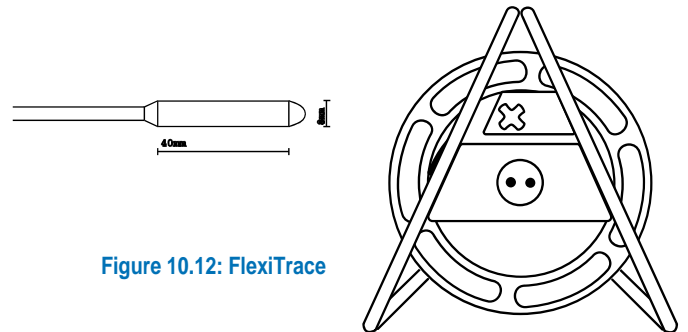


Figure 10.12: FlexiTrace

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