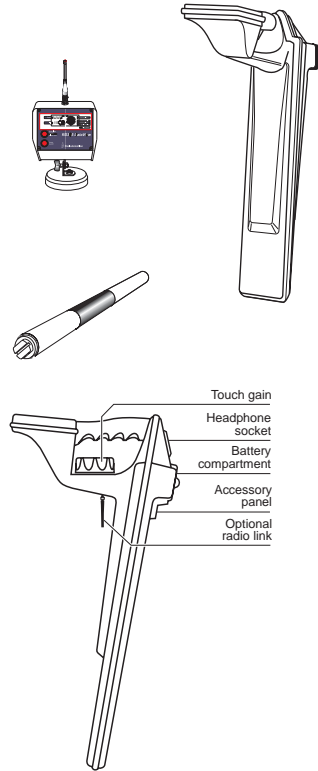




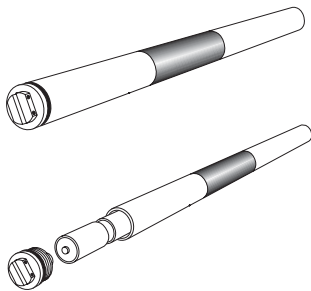
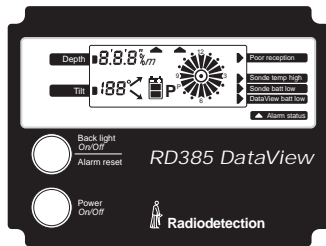
Radiodetection RD385L User Guide

Revision 3 - 9/2000

Radiodetection RD385L User Guide



385L_receiver.eps.art



The RD385L System

The RD385L System is designed to help in the operation of guided boring machines, and comprises:

RD385L Receiver

A hand held receiver, which receives information from the Sonde relating to roll, tilt, depth, location, Sonde battery status and Sonde temperature. It can also be used as a cable/pipe locator.

RD385 DataView (optional)

A remote display which indicates roll, tilt and depth information from the RD385L Receiver. Located at the bore machine to provide information for steering.

RD385 DataSonde

The DataSonde is installed in the head of the bore tool, and contains the sensors that measure tilt, roll angle, temperature and battery life.

Note: The RD385 Sonde has not been designed for use in percussive type bore machines.

Bore heads may need to be modified to our specification to ensure adequate protection for the Sonde and to allow successful signal transfer from the Sonde to the RD385L Receiver.

If in doubt, please request installation drawing from any Radiodetection office.

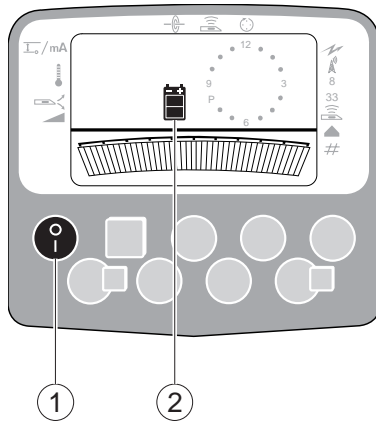
RD380 Sonde; ND 1249.Q1.

RD380 Sonde (in percussive environment); ND 1249.Q5.

RD385 Sonde: ND1327.Q1.

RD385 Sonde (extra protection): ND1327.Q.

Radiodetection RD385L User Guide



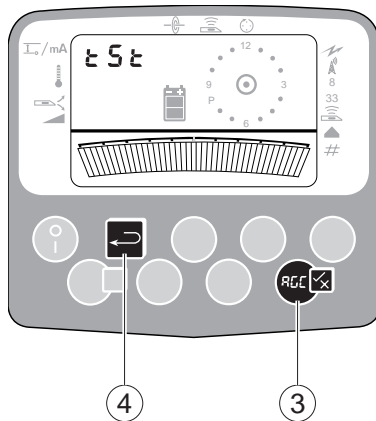
Function Keys

On/Off (1)

Press to turn Receiver On or Off. If no control key pressed, auto switch off after 5 mins preceded by audible warning.

Batteries (2)

Continuous indication of Receiver battery status. DataSonde battery status displayed when Temperature/Battery key pressed.

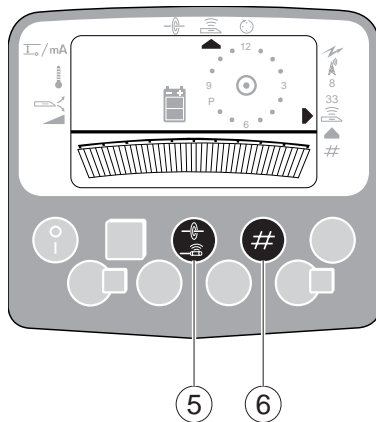


Self Test (3)

To initiate a self test of the Receiver press and hold the Reset key and press the AGC key once. 'tSt' is displayed followed by either 'PAS' (Pass) or 'FAL' (Fail).

Reset (4)

Press to cancel previously selected Depth, Current or Temperature/Battery functions.





Line/Sonde (5)

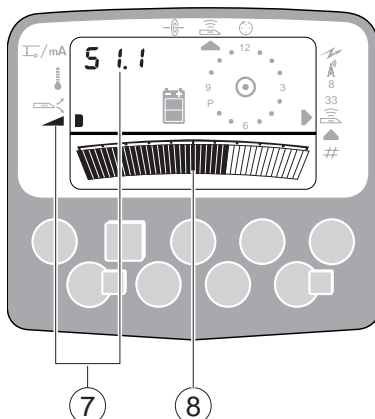
Press to select Line, Sonde or Accessory mode, flag on LCD indicates which is selected.

Mode (6)

Press to select the following modes, flag on LCD indicates which is selected:

-  50/60 Hz line locate mode.
-  Radio frequency locate mode.
- 8** 8 kHz Transmitter/Sonde Frequency locate mode.
- 33** 33 kHz Transmitter/Sonde Frequency locate mode.

Sonde DataSonde locate mode.



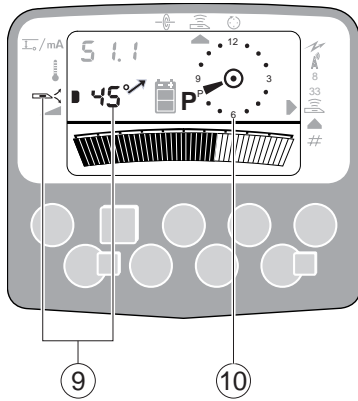
Gain (7)

Indicates Receiver gain level which is set by Touch Gain control unless Automatic Gain Control (AGC) is selected.

Bargraph (8)

Indicates Receiver response to a signal.

Radiodetection RD385L User Guide

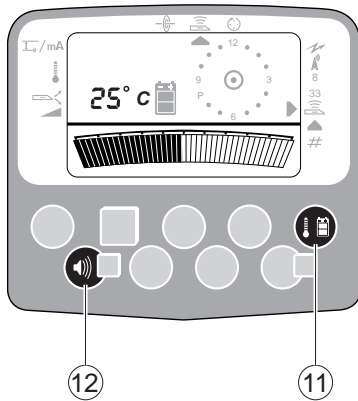


Tilt Angle (9)

Continuously displayed in DataSonde mode.

Roll Angle (10)

Continuously displayed in DataSonde mode. When at display segment marked 'P' a Sonde Park initiates, saving 65% battery consumption.

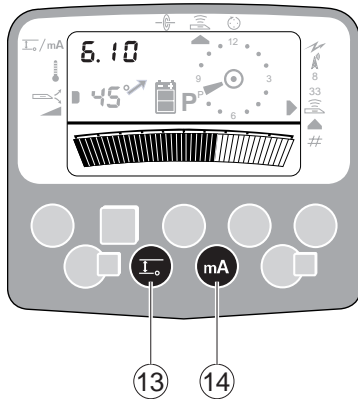


Temperature/Battery (11)

Press to display DataSonde temperature and battery status.

Speaker (12)

Press to increase or decrease audio volume.



Depth (13)

Press to display estimated depth to Line/Sonde.

Current (14)

Press to display target line signal current (mA).

Sonde Depth Calibration

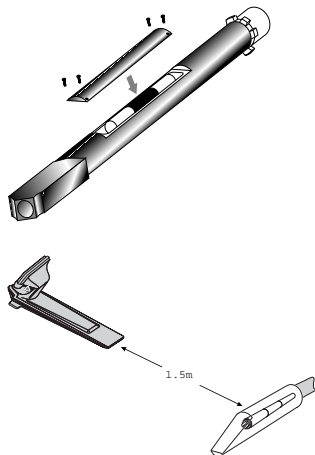
This procedure must be performed before each bore.

Fit the Sonde into the bore head and lay on the ground in an area free of metallic objects or structures.

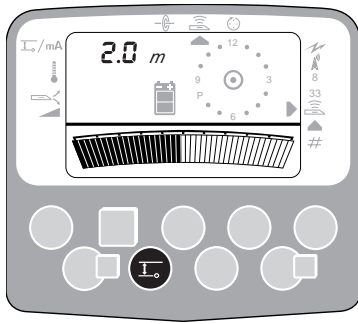
Position the Receiver 1.5 - 2.5 m (5 - 8 ft) from the bore head.

Select the DataSonde mode.

Press the Reset and Depth keys together. LCD displays 'cAL'.

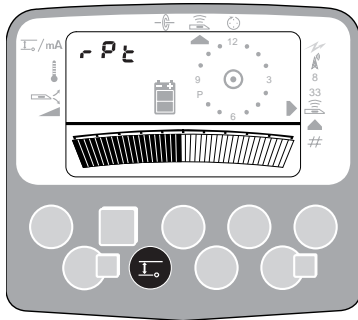


Radiodetection RD385L User Guide

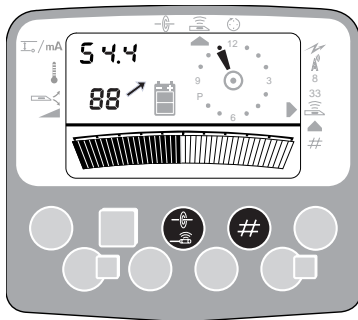


Press the Depth key to calibrate. The Receiver will display the calculated depth, beep twice and return to the DataSonde mode.

To exit the calibration mode press the Reset key. The previous calibration will be retained.



If during calibration the LCD displays 'rpt', repeat the calibration procedure checking that the Receiver to bore head distance is within 1.5 - 2.5 m (5 - 8 ft) parameter.

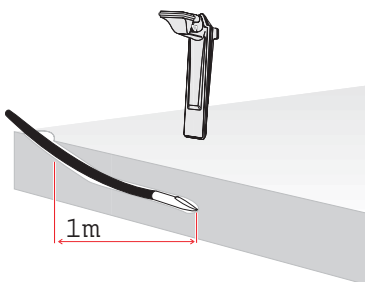


Pinpointing the Sonde

Select the DataSonde mode.

When the Receiver pinpoints the Sonde the bargraph and digital display indicate the maximum signal response.

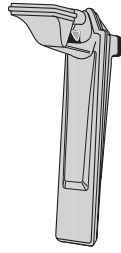
To keep the bargraph on scale adjust the Touch Gain control. Clockwise increases gain - anticlockwise decreases gain.



Start the bore and pinpoint the Sonde after approximately 1 m (3.3 ft).

The bore must be stopped to pinpoint the Sonde.

Radiodetection RD385L User Guide

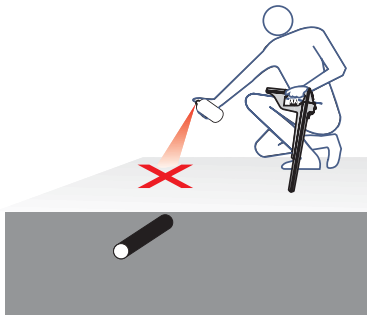
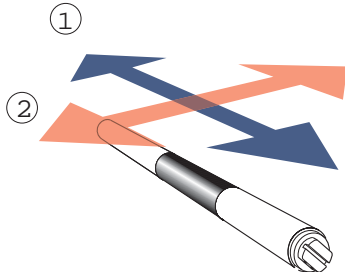


Move the Receiver from side to side to obtain a peak response (1).

Move the Receiver forwards and backwards (2) to obtain a second peak response.

Rotate the Receiver as if a pivot to obtain a third peak response.

Repeat to be directly over and in line with the bore head.

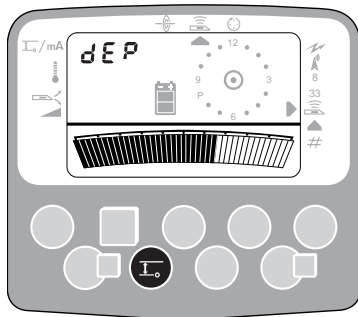


Mark the pinpointed position over the DataSonde. Pinpoint and mark at regular intervals.

Depth Measurement

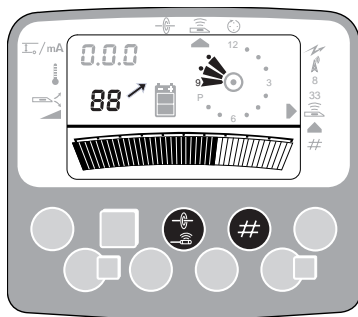
Stop the bore head and carry out the 'Pinpointing the Sonde' procedure. Rest the Receiver on the ground, holding it vertical and in line with the Sonde.

Press the Depth key, the LCD will display 'dEP' followed by the estimated depth.

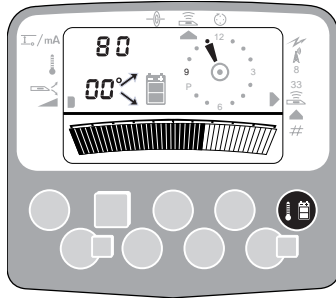


Reading the Roll Angle

Roll Angle is continuously displayed in the DataSonde mode, by the 16 segment indicator when the bargraph shows over 20% signal strength. The bore head can be rotating to a maximum of 50 rpm.



Radiodetection RD385L User Guide



Reading the Tilt Angle

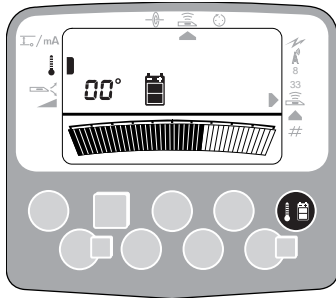
Tilt Angle is continuously displayed in the DataSonde mode, when the bargraph shows over 20% signal strength. A more stable reading will be obtained if the bore head is stationary.

Maximum Tilt Angles are:

RD380 Sonde - 25°

RD385 Sonde - 45°

If using RD380 Sonde, Tilt Angle is only displayed when Roll Angle is at 12 o'clock.

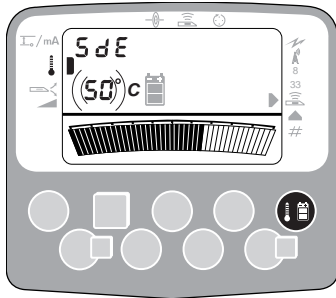


Temperature/Battery

Press to display Sonde temperature and battery status. Sonde temperature should be read at each pinpoint.

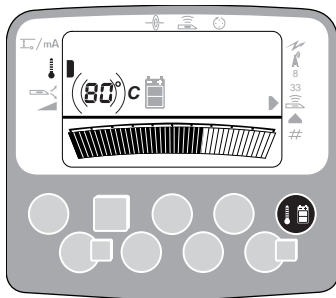
At 50°C (120°F) an alarm will be displayed.

With every 5°C increase an alarm will be displayed (385 Sonde only).

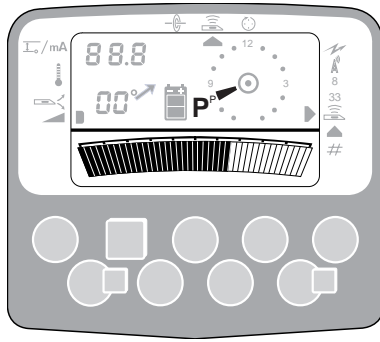


At 80°C (170°F) the bore must be halted to allow the sonde to cool or damage may occur. The Sonde stops transmitting Roll/Tilt information until it has cooled to 50°C.

If the bore head is water cooled, continue water flow to assist cooling.



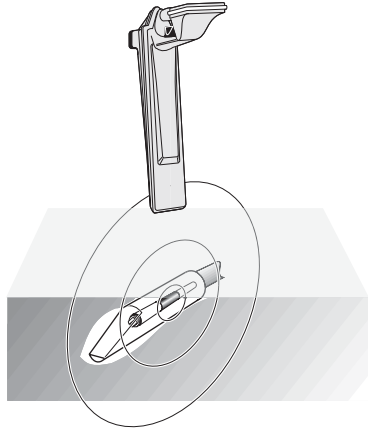
Radiodetection RD385L User Guide



Parking the Sonde

Leaving the Sonde in the Park position saves 65% battery consumption.

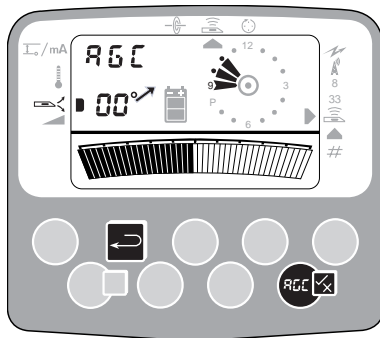
Rotate the bore head until the 'P' segment is displayed. After 15 seconds a 'P' is displayed. After 5 minutes the Sonde will switch off.



Power Save Mode

After 10 minutes of no rotation the Sonde will transmit a pulsed signal if not in the Park position.

Rotating the bore head returns the Sonde to normal operation.



Automatic Gain Control (AGC)

There may be long periods during bores when it is sufficient to know just Roll and Tilt information.

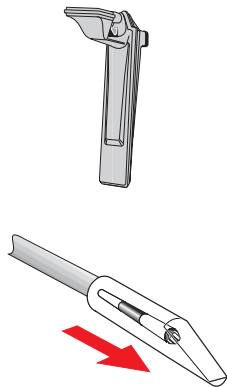
During these periods the AGC option can be used. When in the AGC mode the Receiver will automatically adjust the sensitivity to keep the bargraph on scale and so ensure continuous Roll and Tilt information.

Method:

Pinpoint the DataSonde as previously described.

Press the AGC key. The top left of the display will now show 'AGC' and the bargraph will show approximately 50%.

The Receiver can be kept stationary until the bore passes out of range. Operating any control returns the Receiver to the normal mode.



Radiodetection RD385L User Guide

RD385 Slim Sonde

The RD385 Slim Sonde is designed to be used for small diameter utilities installation (i.e. fibre optic links to domestic properties).

Battery

Insert the battery into the Slim Sonde observing the correct polarity - positive end in first.

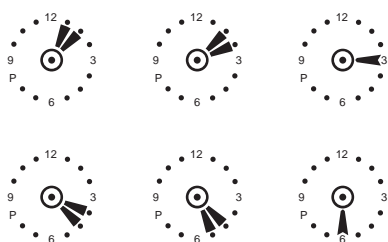
Note: Remove the battery when the Slim Sonde is not in use.

Do not insert the battery reversed for storage (as with some sondes), this will cause it to be discharged.

RD385L Mode Selection

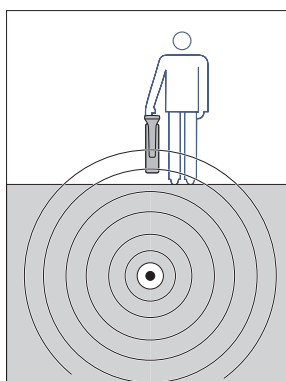
Press the Mode key to select the DataSonde mode. The pointers on the LCD will indicate DataSonde and 8 kHz.

Press the Mode key again to select 33 kHz DataSonde mode which is the Slim Sonde operating frequency.



Roll Indication

When operating in the 33 kHz DataSonde mode a single LCD segment is displayed at the 12, 3, 6 and 9 o'clock points and two LCD segments at the 1, 2, 4, 5, 7, 8, 10 and 11 o'clock points, as shown in the example.

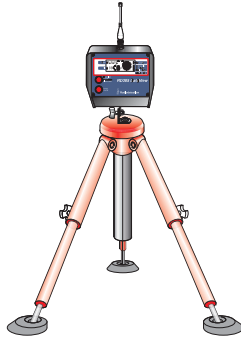


Locate Modes

The RD385L Receiver has a number of modes which allow it to be used as a standard cable/pipe locator.

Recommended Radiodetection transmitter - RD400HPTx.

Radiodetection RD385L User Guide



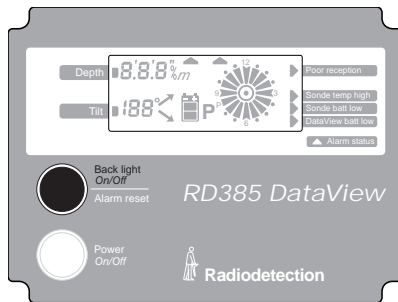
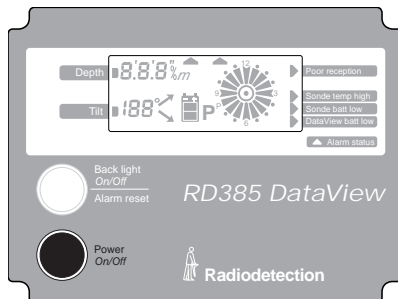
DataView

Check that the DataView batteries are good.

Ensure that the Receiver and DataView have their antennas fitted.

Position the DataView on the bore machine or on a tripod so that the display is clearly visible (ideally 1.5 m above ground level, with the antenna vertical) by the machine operator.

Switch the DataView On.



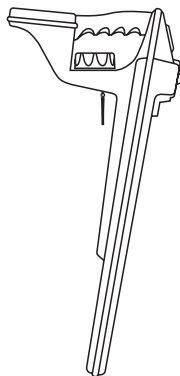
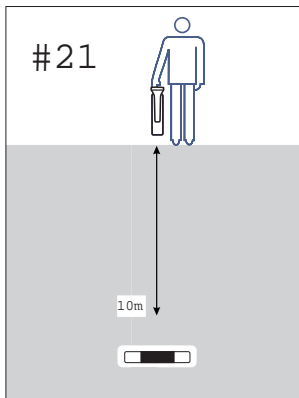
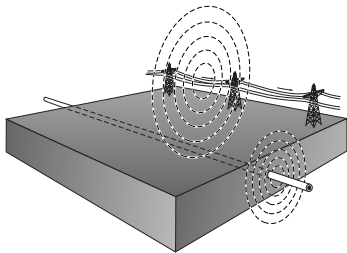
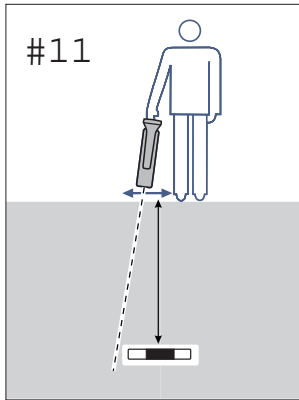
The DataView display will mimic the Receiver display while the data is being received with good signal strength.

The DataView is fitted with a Backlight. Pressing the Backlight key on the DataView front panel illuminates the light. Operating the Backlight will effect the life of the batteries.

The Backlight is only On while DataView is displaying data and switches Off when there is no data to display.

The DataView display may flash, indicating an alarm condition is activated. Press the Reset key to cancel. The alarm condition will then be displayed.

Radiodetection RD385L User Guide



Error Codes

Error #2

Too much signal during self test, this can happen because there is another transmitter switched on during the test.

Error #9

Indicates that the signal is too small or too large to measure depth or current. If measuring depth to a target line check the Transmitter settings.

Error #11

Indicates that the Receiver is being moved while estimating depth.

Error #12

Indicates too much interference from external power sources to estimate depth.

Error #13

Indicates too much interference from external power sources to estimate current or depth.

Error #20

Indicates that current/depth to be measured is out of Receiver range.

Error #21

Indicates that the Sonde or target line is deeper than the maximum depth range, 10 m (33 ft) for Sonde or 3 m (10 ft) for target line.

Warning

The RD385L detects almost all buried cables and most conductors, but there are some which do not radiate signals and which the RD385L cannot detect. The RD385L does not indicate whether a signal comes from a single cable or several buried side by side or one above another.

Radiodetection RD385L User Guide

Trouble Shooting

When reporting any problem to your Radiodetection Dealer/Supplier it is important to quote the following:

Receiver Serial Number.
Software Revision Number

Software Revision Number is displayed on the LCD during switch on.



Warning

Do not remove or replace the radio antennae fitted to the Receiver and Dataview units, this invalidates the product radio licence and manufacturers warranty and may result in damage to the equipment.

Replacement should only be undertaken by qualified Radiodetection service personnel.



Warning

Radiodetection Receivers detect almost all buried cables and most conductors, but there are some which do not radiate signals and which Radiodetection Receivers cannot detect. Radiodetection Receivers do not indicate whether a signal is from a single cable, several buried side by side or one above another.

This equipment is NOT approved for use in areas where hazardous gases may be present.

Reduce audio level before using headphones. Ni-Cad batteries should be disposed of in accordance with your Company's work practice, and/or the relevant law or guidelines in your country.



Warning

The operation of any cable and pipe locator may be affected when used in close proximity to ferrous materials such as manhole covers and parked cars. Keep a one or two meter distance from these objects when taking critical measurements such as depth and current readings. Standing too close to the locator when wearing steel toe capped boots may also affect the readings.



This instrument, or family of instruments, will not be permanently damaged by reasonable electrostatic discharge and has been tested in accordance with IEC 801-2. However, in extreme cases temporary malfunction may occur. If this happens, switch off, wait and switch on again. If the instrument still malfunctions, disconnect the batteries for a few seconds.

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Radiodetection

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