

DRILLTRACK USER MANUAL

Revision 1 - 11.99





Foreword

It is important that you read this user guide before operating your Radiodetection **DrillTrack** system. This manual and all its contents are subject to change. Radiodetection Limited reserves the right to modify the product without notice. Some product changes may have taken place after this user guide was published. Contact your local Radiodetection dealer for the latest information on Radiodetection **DrillTrack**.

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IMPORTANT NOTICE

Radiodetection makes every effort to ensure that all technical information, statements and recommendations about Radiodetection Trenchless products are based on information believed to be reliable, but the accuracy or completeness thereof is not guaranteed. In no event shall Radiodetection be liable for any loss, inconvenience or damage whether direct, incidental, consequential or otherwise resulting from breach of any express or implied warranty of merchantability, fitness for a particular purpose, or otherwise, with respect to the equipment, except as set forth herein.

Before utilizing the product, the user should determine the suitability of the product for its intended use.

The user assumes all risks and liability whatsoever in connection with such use.
This equipment is NOT approved for use in areas where hazardous gases may be present.

COMPLIANCE STATEMENT

This equipment complies with FCC requirement Part 15 and 90, as appropriate and European EMC Directive 89/336/EEC, as amended, for use in a commercial and light industrial environment.

The DrillTrack Receiver to DrillTrack DataView radio link complies with:-
USA FCC Part 90, radio ID #E86DTR100
EU EN 300 220

This product must not be connected to the mains supply, either directly or indirectly via an adaptor or battery eliminator. Such connection, or any changes or modifications made to this product not expressly approved by Radiodetection Ltd could void the user's authority to operate the equipment. Do not remove or replace the radio antennae fitted to the DrillTrack Receiver and DrillTrack DataView units, as this invalidates the product radio licence and manufacturers warranty and may result in damage to the equipment.

Note: Appropriate units of this equipment have been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the user manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

All **DrillTrack** units are weatherproof to NEMA 3R and IP54

All **DrillTrack** units are shock and vibration tested to IEC68

All **DrillTrack** units are manufactured according to the International Quality Norm ISO 9001



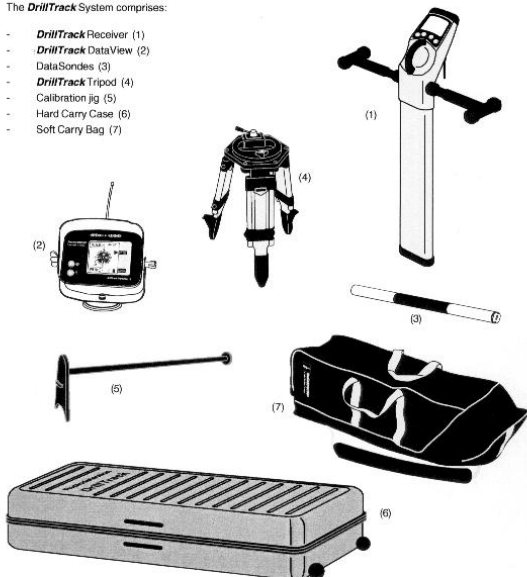
DrillTrack System Overview ...

Introduction.

The Radiodetection **DrillTrack** system is designed to provide guidance information for horizontal directional drilling machines.

The **DrillTrack** System comprises:

- **DrillTrack** Receiver (1)
- **DrillTrack** DataView (2)
- DataSondes (3)
- **DrillTrack** Tripod (4)
- Calibration jig (5)
- Hard Carry Case (6)
- Soft Carry Bag (7)





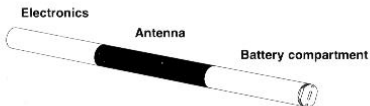
DataSonde...

The Radiodetection DataSondes.

The DataSonde is installed in the drillhead/sonde housing.

To ensure optimum DataSonde performance and protection, the DataSonde should be securely fitted in the drillhead/sonde housing. DataSondes may need minor modifications to ensure a secure fit. O-rings or electrical tape are an acceptable means.

All Radiodetection DataSondes are constructed in three main sections.



Battery compartment

Batteries are inserted in the back end of the DataSonde with the positive end first. Always use ALKALINE batteries.

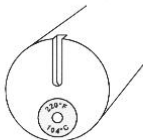
Antenna

The antenna is positioned in the middle section of the DataSonde. The slots in the drillhead/sonde housing should be positioned over the antenna section of the DataSonde to allow the electro magnetic field from the DataSonde to be generated without any restriction.

Wrong positioning or length of the slots will effect the signal range and battery life of the DataSonde.

Electronics

The sensors for measuring the Roll position, the tilt, the DataSonde temperature and the battery status are located in the electronics section of the DataSonde.



The slot in the front end of the DataSonde fits the anti-roll pin in the drillhead/sonde housing to stop the DataSonde from rotating inside the drillhead sonde housing, when drilling.



DataSonde...

Short Range DataSonde (SDS)

| | |
|--------------------------|--------------------------|
| Approximate Signal range | 4m (13 ft) |
| Battery life | 10 hrs |
| Frequency | 33 kHz |
| Size | 25,4 x 203 mm (1 x 8 in) |



Medium Range DataSonde (MDS)

| | |
|--------------------------|---------------------------|
| Approximate Signal range | 10m (32 ft) |
| Battery life | 20 hrs |
| Frequency | 8 kHz |
| Size | 32 x 380 mm (1.3 x 15 in) |



Long Range DataSonde (LDS)

| | |
|--------------------------|---------------------------|
| Approximate Signal range | 16m (52 ft) |
| Battery life | 12 hrs |
| Frequency | 8 kHz |
| Size | 32 x 380 mm (1.3 x 15 in) |



Medium Range Dual Frequency DataSonde (MDF)

| | |
|--------------------------|---------------------------|
| Approximate Signal range | 10m (32 ft) |
| Battery life | 12 hrs |
| Frequency | 8 and 33 kHz |
| Size | 32 x 380 mm (1.3 x 15 in) |



Long Range Dual Frequency DataSonde (LDF)

| | |
|--------------------------|---------------------------|
| Approximate Signal range | 16m (52 ft) |
| Battery life | 20 hrs |
| Frequency | 8 and 33 kHz |
| Size | 32 x 380 mm (1.3 x 15 in) |



Datasonde...

Powersave Modes.

All Radiodetection DataSondes have two powersave modes for reducing battery consumption while the DataSonde is not operating.

Standby Mode

A DataSonde will enter in the Standby Mode during drilling operation when there is no rotation for ten minutes. In the Standby Mode the DataSonde will send a pulse signal every ten seconds. Starting rotation will make the DataSonde to return to full operation and exit the Standby Mode. In the Standby Mode the battery consumption will be reduced to 50%.

Park Mode

In the case that a Directional Drilling operation will be stopped for a certain period of time, at a lunch break or at the end of a working day, the DataSonde can be put into a Park Mode to save 65% of the battery consumption. To enter in the Park Mode the DataSonde has to be set to the "P" rotate position. This is the position on the clock between eight and nine. After leaving the DataSonde in this rotate position for ten minutes, on the Receiver display a large "P" will be displayed. The DataSonde will stop sending data and locate signal and will enter the Park Mode. Starting rotation will make the DataSonde to return to full operation and exit the Park Mode.

Overheat Warning.

Exceeding of the DataSonde its maximum temperature will permanently damage the DataSonde and will avoid any warranty.

The Temperature of the DataSonde is continuously displayed on the DataView at the directional drilling machine. The DataSonde temperature is also displayed on the information screen of the **DrillTrack** Receiver.

A temperature overheat indicator is located at the front of the electronics endcover and indicates if the DataSonde has exceed its maximum operating temperature of 104 °C (220 F)



temperature has not exceeded its maximum.



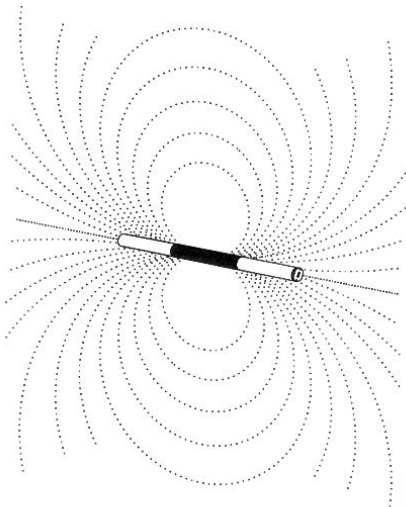
temperature has exceeded its maximum.

The DataSonde can also be internally interrogated by a Radiodetection authorized service repair center, to verify the exact high temperature reached.



DataSonde...

DataSonde Magnetic Field





DataSonde

Dual Frequency DataSonde Change Method.

The **DrillTrack** Dual Frequency DataSondes will always operate in the 8 kHz frequency operating mode when the batteries are fitted.

In most cases the 8 kHz frequency is the most reliable frequency to use. It will give a more precise locate position and a more accurate depth than other available operating frequencies.

Though there might be cases when no 8 kHz signal can be received with the **DrillTrack** Receiver, due to high interference levels.

The **DrillTrack** Dual Frequency DataSondes allow the user to toggle between 8 to 33 kHz during drilling operation, using a coded rotation sequence.

When the batteries are next replaced or the battery endcap removed for longer than ten seconds, the DataSonde will resume operation at 8 kHz.

Before starting the change over to the higher frequency, it is needed to pull back to the last position where all DataSonde information was available.

The DataSonde will change frequency using the 3 step coded rotation sequence outlined below:

- 1 - Set to Park, wait for "P" and for **DrillTrack** Receiver to beep twice.
- 2 - Rotate to 3 o'clock, wait for overtilt indicated and for **DrillTrack** Receiver to beep twice.
- 3 - Rotate again to 3 o'clock, wait for **DrillTrack** Receiver to beep twice.

As the DataSonde changes frequency the **DrillTrack** Receiver frequency will also change automatically. All relevant information from the DataSonde will then be displayed on the screen.

The **DrillTrack** Receiver can also be manually set (in the setup menu).

Confirm operation has changed to the new frequency by pressing **1** key on the **DrillTrack** Receiver, which indicates current DataSonde frequency or by setting (in the setup menu). All relevant information from the DataSonde will then be back on the screen.

Note

After been powered down, the Dual Frequency DataSonde will revert back to 8 kHz operating mode automatically.

Note

When using the Dual Frequency DataSonde, it is important to calibrate the **DrillTrack** Receiver in both 8 and 33 kHz

