

RD7000™



Utility cable
and pipe locator



Radiodetection
AN SPX COMPANY

Ergonomic design

Light weight, with high contrast LCD display providing clear information in any light condition.

Centros™

Improves the accuracy and repeatability of measurements delivering unprecedented responsiveness in the field.

eCAL™

Validate your RD7000 against its original factory calibration using Centros™ Manager on your own PC.

Peak/Null Mode

Simultaneous screen view with proportional arrows enables swift identification of magnetic field distortion due to ground effects or nearby utilities.

RD7000

Delivering fast, accurate, reliable and repeatable locate information for all utilities.

Locating specific pipes and cables in large underground networks is becoming increasingly complex. Ground distortion effects, caused by differing soil types and proximity to other conductors, make the operator's job more difficult and time-consuming. The most important requirements for a locator under these circumstances are ease of use, accuracy and reliability. Radiodetection's RD7000 addresses this need with several groundbreaking features that deliver accurate, reliable and repeatable measurements.

The new RD7000 range of locators are powerful successors to the industry standard RD4000 SL, TL, PL and DL family. RD7000 delivers exceptional performance in areas of interference.

Ergonomics: The RD7000 is ergonomically designed to deliver a superior performing locator that provides the user with a light weight, energy efficient and exceptionally well balanced tool. The RD7000 is 28% lighter than the industry standard RD4000, which encourages extended use. Despite its weight and form, the RD7000 retains the environmental durability associated with an IP54 rating, meaning you can operate it in almost any environment. The receiver and transmitter feature a large, high contrast, backlit LCD screen that provides the user with clear information in any light conditions. The intuitive and responsive interface is designed so the operator can access any feature with ease. The keypad uses a self explanatory icon set that is consistent on both the transmitter and the receiver.

Centros™: For 30 years Radiodetection has revolutionized cable locator design with over 50 software and hardware patents as part of our commitment to product improvement. This research has developed into a single entity called Centros™. Centros™ combines new and innovative algorithms with established software on a high-performance processor core. Centros™ improves the accuracy and repeatability of measurements and delivers unprecedented responsiveness in the field. Centros™ delivers powerful signal filtering and analysis allowing continued operation even in the most electrically noisy environments. Centros™ provides our customers with the most powerful measurement engine of any cable and pipe locator.

eCAL™: is a novel Radiodetection technique that allows the operator to validate the original factory calibration of the RD7000. This means the operator has confidence that the locator continues to meet its factory calibration. eCAL™ can issue and print a validation certificate without needing to return the RD7000 to a service center.

Peak/Null mode: is a tool to identify the effects of field distortion due to ground conditions or nearby utilities. Simultaneous display of Peak bar graph response and proportional Null arrows allow a quick assessment of locate conditions.

Transmitters: Radiodetection also introduces a new transmitter range. Three models, providing 1, 3 and 10 Watt outputs, use a patented system architecture and amplifier housed in a robust case. They have programmable direct connect and induction frequencies up to 200kHz. Each Tx delivers a constant current across the entire spectrum and has a high voltage mode for high impedance environments.

Additional features

- Power and Radio passive modes
- 50Hz to 200kHz frequency range
- Peak mode
- Null mode (PL and TL models only)
- Real sound
- TruDepth™
- Current measurement
- StrikeAlert™
- Depth on power (PL model only)
- Fault Find (PL and TL models only)
- Dynamic overload protection (PL model only)
- Autogain with manual control
- Selectable 50/60Hz
- Selectable metric/imperial
- Selectable language
- Selectable battery type
- Selectable frequency and function set
- Selectable antennae modes
- Settings saved on power down
- USB port for upgrades using Centros Manager
- Online warranty registration for firmware and feature upgrades
- Compatible with RD4000 accessories
- High visibility reflective labels



High contrast LCD with auto-backlight
operates from -20 to +60° Celsius
(-4 to 140° F)

Splash-proof keypad

Intuitive on-screen menus
make the RD7000 easy to
setup and provide easy
access to advanced features



High visibility reflective
safety arrows

Ergonomic robust ABS case

Choice of NiMH or alkaline
LR20 batteries (D-Cells)

Accessory connections

Headphone connection



High contrast LCD with auto-backlight
operates from -20 to +60° Celsius
(-4 to 140° F)

Splash-proof keypad

Ergonomic
robust ABS case

Base tray for accessories



Application specific products

SL, DL, TL and PL for construction, gas, water, sewer, telecoms and power industries.

Sonde detection

Enables pipe location at depths of up to 15 meters (50').

TruDepth™

Indicates depth when the locator is oriented correctly above the target for the most accurate reading.

StrikeAlert™

Alerts the operator to the presence of shallow power cables.

RD7000SL

Construction Industry

A broad range of standard active frequencies and rugged construction make the RD7000SL a reliable and versatile locator.

The entry-level product from Radiodetection is aimed at technicians who want an accurate locator that is simple to operate.

The RD7000SL has four active and two passive frequencies that cover the majority of locating tasks. The user can quickly and accurately locate the pipe or cable using Peak antennae Mode providing accurate depth and current measurement.

In addition to standard peak mode, there is a combined peak and null mode, which displays peak response (via a bar graph with digital gain) and null response using proportional arrows. This single screen view allows swift identification of distorted signals due to ground conditions or nearby utilities.

With a lightweight receiver, low power consumption and a durable case with high contrast display, the technician can use the RD7000SL all day in all weather and light conditions.

RD7000SL	
Model No.	RD7000SL
Passive Frequencies:	
Power	✓
Radio	✓
Active Frequencies:	
8kHz	✓
33kHz	✓
65kHz	✓
83kHz	✓
Features:	
TruDepth™	✓
Peak Mode	✓
Peak/Null Mode	✓
StrikeAlert™	✓
Centros™	✓
eCAL™	✓

RD7000DL

Water and Pipeline Industry

For contract technicians working in pipe location and inspection, from sewers to maritime boilers, to petrochemical plants.

The RD7000DL locator is specifically designed to detect not only active and passive frequencies but also three different sonde signals. This makes the DL the ideal product for standard cable and pipe location and the ideal solution for locating deep, underground dirty



water pipes and drains and where the pipe material does not allow the use of standard locating technology but where sondes can be deployed.

The different sonde frequencies allow the RD7000DL to locate pipes made from a wide variety of materials including: cast iron, plastic (PE), clay, fiber, concrete and brick.

RD7000DL	
Model No.	RD7000DL
Passive Frequencies:	
Power	✓
Radio	✓
CPS	✓
Active Frequencies:	
512Hz	✓
640Hz	✓
8kHz	✓
33kHz	✓
65kHz	✓
Sonde Frequencies:	
512Hz	✓
640Hz	✓
8kHz	✓
33kHz	✓
Features:	
TruDepth™	✓
Peak Mode	✓
Peak/Null Mode	✓
StrikeAlert™	✓
Centros™	✓
eCAL™	✓

High frequency location

Pinpoint and locate high impedance cables.

Depth in power mode

Allows depth measurements without using a transmitter.

8K Fault-finding

Locate cable sheath faults to within 1 meter (3') using Radiodetection's accessory A-Frame.

Dynamic overload protection

Allows use of locator in areas where excessive signals are present.

RD7000PL

Power Industry

The RD7000PL identifies the target cable reliably, even in areas of large-scale, trunked cable deployment of complex electrical networks.

One of the biggest challenges to technicians working in the power industry is locating pipes and cables when operating near high voltage environments, such as substations and conduits where the presence of large signals overpower most locators.

The RD7000PL is designed for use in areas where excessive magnetic fields, generated by high voltage equipment and cables, can prevent accurate locating. Dynamic overload protection reduces this effect, allowing uncompromised locator accuracy.

The RD7000PL has both Peak and Null modes and also a combined Peak/Null mode which allows the identification of Signal/ground distortion effects by displaying both Peak and Null response simultaneously.

In addition, the RD7000PL can indicate depth in Power mode. This is particularly useful when direct connection of a transmitter to a power cable may be hazardous or impractical.

To further assist the operator to locate cable sheath faults, 8KFF is a patented technique that locates a cable fault using an A-frame attached to the Locator. On-screen arrows help show the fault's direction and help the operator locate the fault accurately to within one meter.

RD7000PL	
Model No.	RD7000PL
Passive Frequencies:	
Power	✓
Radio	✓
Active Frequencies:	
512Hz	✓
640Hz	✓
8kHz	✓
33kHz	✓
65kHz	✓
Sonde Frequencies:	
33kHz	✓
Features:	
TruDepth™	✓
Peak Mode	✓
Null Mode	✓
Peak/Null Mode	✓
StrikeAlert™	✓
Centros™	✓
eCAL™	✓
Depth on power	✓
8KFF	✓
Dynamic overload protection	✓

RD7000TL

Telecom Industry

Large bundled pairs of cables require specialized location equipment to find a selected signal.

As the Telecommunication utilities continue to deploy highly insulated copper or fiber cables, tracing bundled cables becomes harder. The RD7000TL has additional high frequencies to help address this problem.

Most domestic telecom cables have no earth but are sheathed; using high frequencies allows tracing without needing to ground connections. Once the correct pipe or cable is located, the operator can accurately locate any cable sheath faults to within one meter using 8KFF mode with a Radiodetection A-Frame.

The RD7000TL has both Peak and Null modes and also a combined Peak/Null mode which allows the identification of signal/ground distortion effects by displaying both Peak and Null response simultaneously.

The addition of two sonde frequencies adds more capability and flexibility.

RD7000TL	
Model No.	RD7000TL
Passive Frequencies:	
Power	✓
Radio	✓
Active Frequencies:	
512Hz	✓
640Hz	✓
8kHz	✓
33kHz	✓
65kHz	✓
131kHz	✓
200kHz	✓
Sonde Frequencies:	
512/640Hz	✓
33kHz	✓
Features:	
TruDepth™	✓
Peak Mode	✓
Null Mode	✓
Peak/Null Mode	✓
StrikeAlert™	✓
Centros™	✓
eCAL™	✓
8KFF	✓

Fully digital platform

Patented Triband $\Delta\Sigma$ design provides unparalleled flexibility of power, frequency and control.

Range of transmitters

1 Watt, 3 Watt and 10 Watt power ratings and features suitable for a broad range of applications.

Robust

Constant current delivered from 200Hz to 200kHz meets the highest demands of reliability and performance.

Up to 10 Watt output

For locating deep and long distance cables and pipes.

RD Transmitters

Based on a fully digital platform, the new family of Radiodetection transmitters supports the entire range of Radiodetection RD7000 and RD8000 cable and pipe locators.

The Tx-1 is a low power transmitter. The Tx-3 has a higher current and induction capability as well as Fault Find. The Tx-10 has the highest current capability with both Fault Find and CD modes as standard.

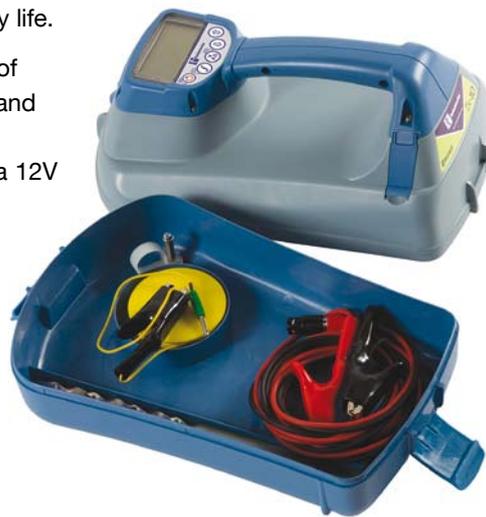
All models feature a patented three-stage phase sensitive amplifier that delivers a ground-impedance compensated, constant current across its entire bandwidth in either direct connect, clamp or inductive mode. The transmitters use less power and are ergonomically designed to deliver superior performance in a new light-weight, well-balanced case.

The transmitters are 10% lighter than the industry standard T10 yet each is IP54 rated to cope with demanding environmental conditions. Each model has a removable accessory tray and a weatherproof battery compartment. A large, high contrast, backlit LCD screen provides the user with clear information. The interface is intuitive and responsive, allowing the operator to access any feature with ease.

SideStepauto™: allows the transmitter to calculate the optimum frequency based on ground impedance. The transmitter uses this information to optimize the active frequency. SideStepauto™ helps to improve locate accuracy and extends battery life.

All models are compatible with the complete range of RD7000 and RD8000 frequencies in both inductive and direct connect modes. The transmitters use 8 D-cell batteries and can be powered from a vehicle using a 12V cable plug (it is recommended that an approved Radiodetection isolation transformer is used).

As an additional feature, each model has a multimeter function providing measurement of output voltage, line voltage, current, impedance and power.



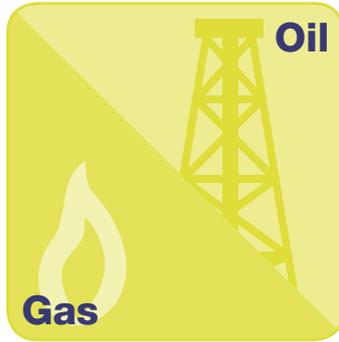
Transmitter features

- Three power versions: 1 Watt, 3 Watt and 10 Watt
- 8KFF – locates faults from short circuit up to 2M Ω
- CDFF – for long distance fault finding
- 5 CD paired low frequencies
- Current delivered at 30V or high voltage mode (90V for high impedance operation)
- The transmitters have 200Hz to 200kHz active frequency range
- Selectable modes support RD7000 and RD8000 specific model locator frequency ranges
- 8 inductive frequencies
- SideStepauto™
- Transient overvoltage protection
- Multimeter function
- 8 D-cell battery cassette (rechargeable battery pack option available)
- Accessory tray (for ground stake, direct connect leads and earth reel)
- Plug and play accessories (compatible with RD4000 transmitter accessories)
- External 12V DC operation (using Radiodetection isolation transformer)
- Click-touch splash-proof sealed keypad
- High contrast LCD

Standard features:

Sales Part No.	Power (Watt)	CD	8KFF	Induction frequencies	Induction field strength	Direct connect frequencies	Accessory storage base	NiMH & Alkaline standard batteries	External 12V supply	Multimeter	Transient overvoltage protection	LCD display
10/RDXT1	1			8	0.7	15	✓	✓	✓	✓	✓	✓
10/RDXT3	3		✓	8	0.8	15	✓	✓	✓	✓	✓	✓
10/RDXT10	10	✓	✓	8	1	15	✓	✓	✓	✓	✓	✓

**An RD7000
to address
any utility...**



TECHNICAL SPECIFICATIONS FOR RECEIVER AND TRANSMITTER	
Sensitivity	6E ⁻¹⁵ Tesla, 5µA at 1 meter (33kHz)
Dynamic range	140dB rms/√Hz
Selectivity	120dB/Hz
Depth accuracy	Line: ± 2.5% tolerance 0.1m (4") to 3m (10ft) Sonde: ± 2.5% tolerance 0.1m (4") to 7m (23ft)
Maximum Depth*	Line 6m (20ft), Sonde 15m (50ft)
Fault-Finding (FF)	Diagnose cable sheath faults from Short Circuit to 2MΩ using the A-frame
Batteries	Rx: 2 x D-cells (LR20) Tx: 8 x D-cells (LR20)
Battery life	Rx: 30 hours intermittent Tx: use dependent on signal conditions typically 15 hours
Warranty	36 Months upon registration
Dynamic overload protection	30dB (automatic)
Compliance	FCC, RSS 310 RoHS, WEEE
Approvals	CE
Weight	Tx: = 2.84kg (6lbs) (including batteries) 4.2kg (9lbs) (including accessories) Rx: =1.87kg (4lbs) (including batteries)
Environment	IP54

*RD7000 will locate to greater depths but with reduced accuracy.

Patents, Trademarks and Notices.

The following patents are owned by Radiodetection;

Patents:

US 4,896,117 US 5,260,659 US 5,210,497 US 6,642,796
 US 5,576,973 US 6,268,731 US 7,184,951 US 6,777,923
 US 6,977,508 US 6,968,296 US 7,235,980 US 6,717,392
 GB 2,363,010 GB 2,382,735 US 6,836,231 EP 1,474,734
 GB0803871.3 GB0803992.7 GB0803990.1 GB0803873.9
 GB0803874.7 GB0803875.4 GB0803991.9

The following trademarks are owned by Radiodetection;
 iLOC™, TruDepth™, SideStep™, SideStep_{auto}™, SurveyCERT™, RD7000™,
 RD8000™, Centros™.

The Design of the RD7000, RD8000 and transmitters has been registered.

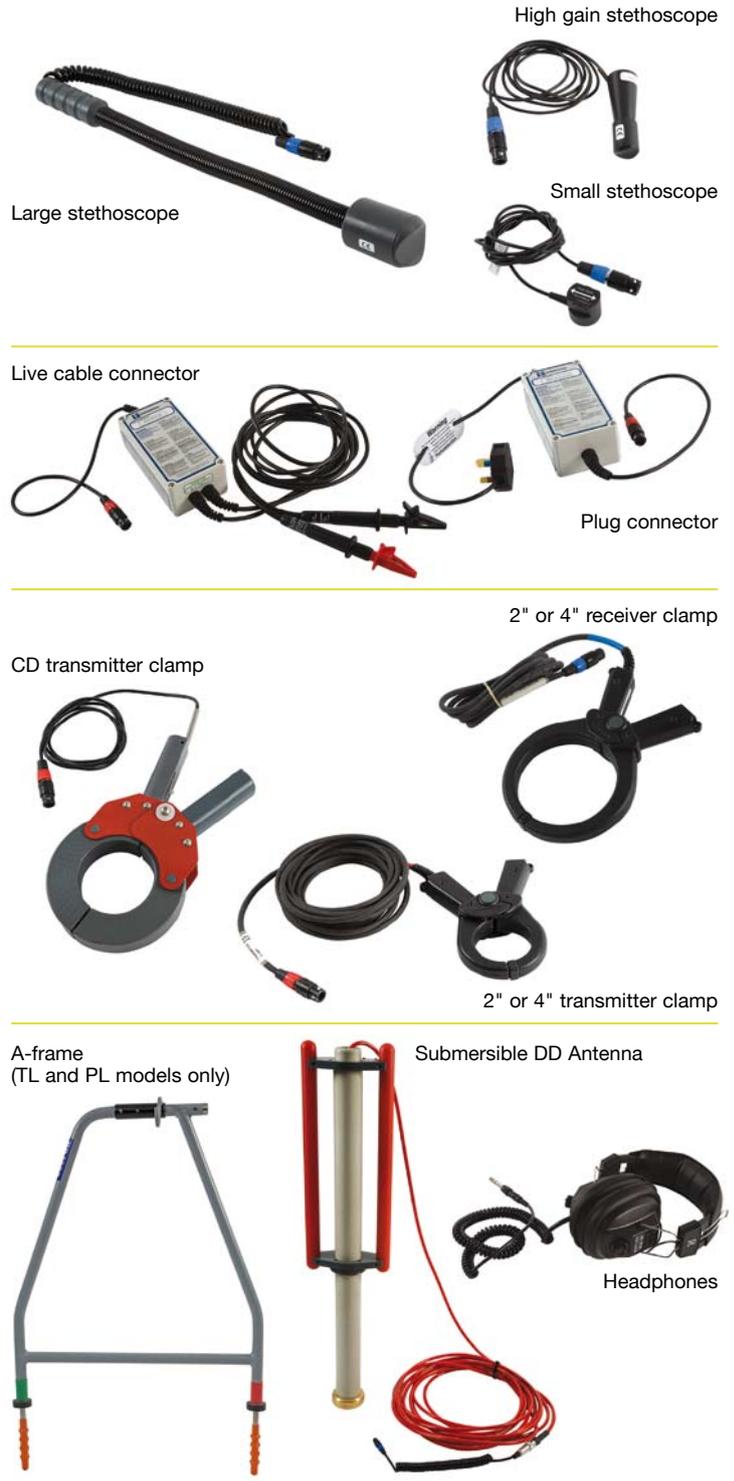
The Design of the 4 chevrons has been registered and trademarked.

Radiodetection products are under continuous development and are subject to change. Radiodetection reserves the right to alter or amend any published specification without notice.

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Accessories:





Thank you for reading this data sheet.

For pricing or for further information, please contact us at our UK Office, using the details below.



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