

# RD7000<sup>+</sup>

Utility cable and  
pipe locator



**Radiodetection**<sup>®</sup>  
AN SPX COMPANY

# RD7000<sup>TM</sup>+

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 these needs 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 and RD7000 families. RD7000+ delivers exceptional performance in areas of interference.

## Usability

The RD7000+ is ergonomically designed to deliver a light weight, energy efficient and exceptionally well balanced locator. At only 1.9 kg, the RD7000+ is comfortable for extended periods of use, and with an IP54 ingress protection rating it can operate in almost any environment. The locator and transmitter both feature large, high contrast, backlit LCD screens that provide the user with clear information in any light conditions. The intuitive and responsive user interface has easily identifiable icons that are consistent across the locator and transmitter range, ensuring straightforward operation.

## Centros<sup>TM</sup>

For 30 years Radiodetection has revolutionized locator design with over 50 software and hardware patents. This research has developed into a single entity called Centros. Centros combines new and innovative algorithms with established software on high-performance hardware, improving the accuracy and repeatability of measurements and delivering unprecedented responsiveness in the field. The powerful signal filtering and analysis allows continued operation even in electrically noisy environments.



## Compass

Visually follow the target cable or pipe with the dynamic line indicator.

## Dynamic Overload Protection

Automatically filters out large unwanted signals allowing use in electrically noisy areas.

## eCAL<sup>TM</sup>

Validates your RD7000+ against its original factory calibration and allows printing of validation certificates.

## Extended Warranty

Register your RD7000+ online to upgrade to an extended 3 year warranty and receive software upgrades for free.



## Centros™

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

## Sonde Detection

Locate non-conductive pipes 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.

## eCAL™

Unique to Radiodetection precision locators, eCAL allows users to validate the original factory calibration of the RD7000+ locator through a PC\*. By checking the responses of all relevant internal components, eCAL provides the user with confidence that the locator performs as it did when it first left the factory, and allows the owner to print a validation certificate without the need to return the RD7000+ to a service center.

## Compass

Allows the operator to quickly and easily follow the target line by visually indicating the relative orientation of the target cable and the locator. By indicating the alignment of the target cable with the locator, Compass helps to improve accuracy when measuring depth.

## Dynamic Overload Protection

Extends the RD7000+'s locate capability into areas where other products fail by automatically filtering out large and unwanted signals – aiding accurate location of the target pipe or cable even in electrically noisy conditions, for example near High Voltage overhead cables.

## Peak/Null mode

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

The range of three 'Tx' transmitters, in 1, 3 or 10 Watt outputs, utilize a patented system architecture housed in a robust case suitable for use in almost any environment (IP54 rated). With programmable direct connect and induction frequencies up to 200kHz, each transmitter delivers a constant current across the entire spectrum and has a high voltage mode for high impedance environments.

## Extended Warranty

Radiodetection offers a free upgrade to a 3 year extended warranty on RD7000+ locators and the Tx range of transmitters through registration on [www.radiodetection.com](http://www.radiodetection.com) within 3 months of purchase. Registered products also receive free product software and feature upgrades through Centros Manager as they are released.

\*See [www.radiodetection.com](http://www.radiodetection.com) for compatibility details.

## Additional features

- Power and Radio passive location modes
- 50Hz to 200kHz frequency range
- Peak mode
- Null mode (PL and TL models)
- Real sound
- TruDepth™
- Current measurement
- StrikeAlert™
- Depth measurement in power locate mode (PL model)
- Fault Find (PL and TL models)
- 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 software and feature updates through Centros® Manager
- Compatible with RD4000, RD7000 and RD8000 accessories
- High visibility reflective labels

High contrast LCD with auto-backlight



Compass orientation display

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

High visibility reflective safety arrows

High contrast LCD with auto-backlight



Ergonomic robust ABS case

Splash-proof keypad



Splash-proof keypad

Powered by 2 x NiMH or alkaline LR20 (D-Cell) batteries, or optional rechargeable battery pack

Accessory/USB connections



Headphone connection

Ergonomic robust ABS case

IP54 environmental protection

Base tray for accessories



Model No. RD7000SL+	
Passive Frequencies:	
Power	✓
Radio	✓
Active Frequencies:	
8kHz	✓
33kHz	✓
65kHz	✓
83kHz	✓
Features:	
Compass	✓
TruDepth™	✓
Dynamic Overload Protection	✓
Peak mode	✓
Peak/Null mode	✓
StrikeAlert™	✓
Centros™	✓
eCAL™	✓



# 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 operators who want an accurate locator that is simple to operate.

The RD7000SL+ has Compass as standard, and 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 Peak mode, combined Peak and Null mode displays both peak response 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 light weight locator, low power consumption and a durable case with high contrast display, the operator can use the RD7000SL+ all day in all weather and light conditions, while the new Dynamic Overload Protection feature aids reliable location in electrically noisy areas.

# RD7000DL+

## Water and Pipeline Industry

Specifically designed for the water industry, and supported by the wide range of Radiodetection pipe location accessories.

The RD7000DL+ locator is designed to detect not only active and passive frequencies but also four different sonde signals. This makes the RD7000DL+ the ideal product not only for standard cable and pipe location but also for locating deep, underground dirty water pipes and drains where the pipe material does not allow the use of standard locating technology but where sondes can be deployed. The RD7000DL+ is also capable of locating Cathodic Protection System (CPS) signals applied to pipelines, further extending its versatility.

Four 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. This makes the RD7000+ the ideal partner for the Radiodetection and Pearpoint ranges of inspection equipment.

For details of available sondes and accessories see [www.radiodetection.com](http://www.radiodetection.com)



Featuring Compass and Dynamic Overload Protection as standard, the RD7000DL+ aids pipe and cable location even in electrically noisy environments.

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

# RD7000PL+

## Power Industry

**The RD7000+PL identifies the target cable reliably, even in areas of large-scale, trunked cable deployment of complex electrical networks.**

One of the biggest challenges to operators 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. The Compass feature aids correct alignment with the target cable, maximising depth measurement accuracy.

The 8kHz Fault Find function is a patented technique that locates a cable sheath 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 10cm (4").

# 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+ features additional high locate frequencies capable of pinpointing high impedance cables 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 10cm (4") meter using 8kHz Fault Find 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.

Featuring Compass and Dynamic Overload Protection as standard, the RD7000TL+ aids cable and pipe location even in electrically noisy environments, while the addition of three sonde frequencies adds more capability and flexibility.

Model No. RD7000PL+	
Passive Frequencies:	
Power	✓
Radio	✓
Active Frequencies:	
512Hz	✓
640Hz	✓
8kHz	✓
33kHz	✓
65kHz	✓
Sonde Frequencies:	
33kHz	✓
Features:	
Compass	✓
Dynamic Overload Protection	✓
TruDepth™	✓
Peak mode	✓
Depth in Power mode	✓
8kHz Fault Find	✓
Null mode	✓
Peak/Null mode	✓
StrikeAler™	✓
Centros™	✓
eCAL™	✓



Model No. RD7000TL+	
Passive Frequencies:	
Power	✓
Radio	✓
Active Frequencies:	
512Hz	✓
640Hz	✓
8kHz	✓
33kHz	✓
65kHz	✓
131kHz	✓
200kHz	✓
Sonde Frequencies:	
512Hz	✓
640Hz	✓
33kHz	✓
Features:	
Compass	✓
Dynamic Overload Protection	✓
TruDepth™	✓
Peak mode	✓
Null mode	✓
Peak/Null mode	✓
8kHz Fault Find	✓
StrikeAler™	✓
Centros™	✓
eCAL™	✓

## Peak/Null Mode

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

## Depth in Power Mode

Allows depth measurements without using a transmitter.

## 8K Fault Finding

Locate cable sheath faults to within 10cm (4") using Radiodetection's A-Frame accessory.

## Centros™ Manager

Update the software, customize the settings and verify the calibration of your RD7000+ using eCAL™.

# RD Transmitters

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



The Tx-1 is an easy to use, entry-level, transmitter. The Tx-3 offers higher current and induction capabilities, and features 8kHz Fault Find (8KFF) functionality. The Tx-10 has the highest current capability with 8 kHz Fault Find (8KFF) and Current Direction (CD) functions as standard.

All models feature a patented three-stage phase sensitive amplifier that delivers a ground impedance compensated and constant current across its entire bandwidth in direct connect, clamp or inductive modes. The Tx range is designed to deliver superior performance using minimal power consumption in a light weight and well-balanced, format.

The entire range is IP54 rated to cope with demanding environmental conditions and features a removable accessory tray and a weatherproof battery compartment.

A large, high contrast, backlit LCD screen provides the user with clear information in any light conditions. The intuitive and responsive user interface has easily identifiable icons that are consistent across the locators and transmitters in the range, ensuring straightforward operation. All models also feature a multimeter function providing measurement of output voltage, line voltage, current, impedance and power.



**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 Tx models are compatible with the complete range of RD7000, RD7000+ and RD8000 frequencies in both inductive and direct connect modes. The transmitters are powered either by 8 standard D-cell batteries (alkaline or rechargeable NiMH) or by the Lithium-Ion rechargeable battery pack (available separately). Alternatively, the Tx range can be powered from a 12V vehicle source using a Radiodetection approved isolation transformer.



## 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.

## High Voltage Output

90V output option to increase signal definition on high resistance lines.

## High Power Output

For locating deep and long distance cables and pipes.

### Transmitter features

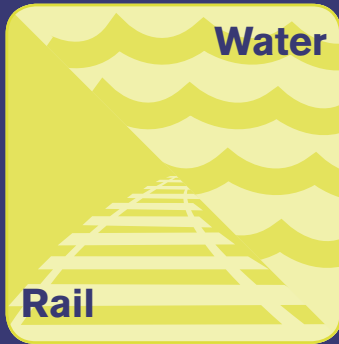
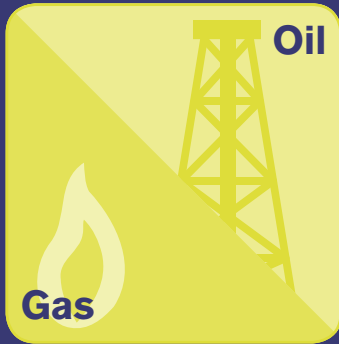
- Three power versions: 1 Watt, 3 Watt and 10 Watt
- 8kHz Fault Find – locates faults from short circuit up to 2M $\Omega$
- Current Direction Fault Find– for long distance fault finding
- 5 Current Direction (CD) paired low frequencies
- Current delivered at 30V, or 90V high voltage mode for high impedance operation
- 256Hz to 200kHz active frequency range
- Selectable modes support specific RD7000, RD7000+ and RD8000 locator model frequency ranges
- 8 inductive frequencies
- SideStepauto™
- Transient overvoltage protection
- Multimeter function
- 8 D-cell battery cassette/rechargeable Lithium-ion battery pack option
- Plug and play accessories (compatible with RD4000 transmitter range accessories)
- External 12V DC operation (using Radiodetection isolation transformer)
- Click-touch splash-proof sealed keypad
- High contrast LCD
- Ground stake, direct connect leads and earth reel supplied
- Accessory tray

### 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	Multi-meter	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...



**Accessories:**



Small stethoscope

A-frame  
(TL and PL models only)

High gain stethoscope

Large stethoscope

Live cable connector

Plug connector

Submersible DD Antenna

CD transmitter clamp

2" or 4" receiver clamp

2" or 4" transmitter clamp

Transmitter Rechargeable battery pack

Headphones

Soft case

Hard case

## Technical Specifications for locator and transmitter

Sensitivity	6E <sup>-15</sup> Tesla, 5µA at 1 meter (33kHz)
Dynamic range	140dB rms /√ <sup>1</sup> Hz
Selectivity	120dB/Hz
Depth accuracy	Line: ± 5% tolerance from 0.1m (4") to 3m (10ft) Sonde: ± 5% tolerance from 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	Locator: 2 x D-cells (LR20) or rechargeable battery pack <sup>†</sup> Transmitter: 8 x D-cells (LR20) or rechargeable battery pack <sup>†</sup>
Warranty	36 Months upon registration
Dynamic Overload Protection	30dB (automatic)
Compliance	FCC, RSS 310 RoHS, WEEE, CE
Weight	Transmitter: 2.84kg (6lbs) (including batteries) 4.2kg (9lbs) (including supplied accessories)
	Locator: 1.87kg (4lbs) (including batteries)
Environmental protection:	IP54
Operating temperature range:	-20°C to +50°C (4°F to 122°F)

\*\*RD7000+ will locate to a depth of over 15m (50ft) but accuracy may be reduced. <sup>†</sup>Available separately.

### Patents, Trademarks and Notices.

The following patents are owned by Radiodetection;

Patents:

US6,642,796 US6,268,731 US7,184,951 US6,777,923 US6,977,508 US6,968,296 US7,235,980 US7,403,012 US7,339,379  
US7,304,480 EP2096466 EP2096464 EP2098890

USP D610,621 CN Des. Pat. No.200830141207.6 CN Des. Pat. No.200830141208.0.

The following trademarks are owned by Radiodetection; iLOC™, TruDepth™, SideStep™, SideStep<sup>auto</sup>™, SurveyCERT™, RD4000™, RD7000™, RD7000+, RD8000™, Centros™.

The Design of the RD7000, RD7000+, RD8000 and transmitters has been registered. The Design of the 4 chevrons has been registered and trademarked.

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**World  
leaders**

Radiodetection is a proud member of the SPX group of companies, which provide technical products and service solutions worldwide.

Radiodetection and its associated companies specialize in the design and manufacture of products for the location and maintenance of underground pipes and cables. Our aim is to be viewed as the supplier of choice of 'high performance' quality equipment using advanced product technologies. We are also committed to both design innovation and customer support.



**Technical  
support**

Radiodetection equipment users have easy access to technical support. A call to your regional representative, or the Radiodetection head office, will put you in contact with our team of field-experienced technical experts.



**Servicing  
and repair**

Radiodetection has a team of factory-trained service technicians and dedicated service facilities. Turnaround is fast, and costs are very competitive.



**Training**

Product training for your operators and training personnel is available on your site, or at Radiodetection's headquarters. Training is with qualified instructors and each trainee receives a certificate to confirm they have received the training.

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