RD7000™+ Utility Precision Locator Range

Launch pack

Contents

New supporting literature

- Product sales brochure

- Half-page and full-page adverts

- Press release & press photo

- User guide

- Website product pages

- Centros™ Manager 6 operation manual

- Marketing bulletin

1. Product Summary

In May 2008, Radiodetection launched the RD7000 range of utility specific locators, offering high performance in an ergonomic and exceptionally user-friendly platform. The RD7000+ products that replace them focus on core user requirements by incorporating new features across the range:

- **Dynamic Overload Protection** which automatically filters out large and unwanted signals to improve locate performance in electrically noisy areas, and

- **Compass**, which determines and displays the relative orientation of the target cable or pipe, simplifying route determination and helping to improve depth measurement accuracy.

The task of locating specific pipes and cables in large underground networks is becoming increasingly complex, making the operator's job more difficult and more time-consuming. Radiodetection research into this area has identified improved locator ease of use, accuracy and reliability as key to user requirements. The RD7000+ range addresses these needs with new features that deliver accurate, reliable and repeatable measurements:

In keeping with the RD7000 range, the RD7000 range comprises four variants, each specified for use within a specific utility industry:
- **RD7000SL+:** 'Site Locator,' aimed at the generalist construction industry
- **RD7000DL+:** 'Drain Locator,' aimed at water industry professionals, and designed to complement our inspection portfolios
- **RD7000TL+:** 'Telecoms Locator' designed to locate and fault-find high impedance cables such as bundled communications networks
- **RD7000PL+:** 'Power Locator' aimed at the power transmission and maintenance industry

Based on a common platform, the specific features, functions and locate frequencies of each unit differentiates the products within the range, matching each utility industry with a specific product which is competitively priced by comparison to multifunction products such as the RD8000 range.

In addition to the new Compass and Dynamic Overload Protection functions, the RD7000+ range retains the key selling features of the RD7000 including eCAL™, TruDepth™ and proportional Peak/Distance arrows, which are further detailed in section 3.

The RD7000+ features several user-configurable options – which can be set on-screen or via the Option Editor screen in the Centros™ Manager 6 PC support application - such as mains frequency (50/60Hz), units of measurement (metric or imperial) and language. In addition, the user may enable or disable a frequency via the on-screen menu for personal preference or training purposes. This configurability helps to reduce the number of variant models and allows the operator to set up the system according to their own preferences.

The RD7000+ is fully compatible with the Tx-1/3/10 range of transmitters, as well as the appropriate accessories as previously supplied for the RD8000/RD7000/RD4000 ranges of locator

The RD7000+ range will be positioned at the same price as the RD7000 products that they directly replace. Please refer to section 7 for part numbers and pricing details.

2. Target Utility Industries

Products within the RD7000+ range are designed for use within particular utility industries. Each unit is specified to provide a person working within a specific industry with the set of features, locate frequencies and functions that enable accurate and reliable pipe and/or cable location in their particular workplace.

Construction Industry – RD7000SL+

Construction sites are characterized by a wide range of electric fields and conductive materials, making accurate pipe and cable locating a challenge. A broad range of active locate frequencies are provided within RD7000SL+, along with Power and Radio locate modes and Strike*Alert™* to reduce risks from shallow cables strikes. The light unit weight, water sealing and ergonomic design ensure comfortable, continued use over extended periods of time in any weather condition. The addition of Compass and Dynamic Overload Protection ensures pipe and cable tracing is simplified in the complex environment of a construction site.

Water Industry – RD7000DL+

The RD7000DL+ is designed to detect conductive pipes and cables using active and passive frequencies, and is also capable of locating the Cathodic Protection Systems (CPS) signals applied to pipelines, further extending its versatility. 4 different sonde frequencies allow the RD7000DL+ to be used to locate pipes in varying environments and made from a wide variety of materials including cast iron, plastic (PE), clay, fiber, concrete and brick. This combination of features makes the RD7000DL+ the ideal partner for the Radiodetection and Pearpoint ranges of inspection equipment.

Power Industry – RD7000PL+

One of the biggest challenges to operators working in the power industry is locating pipes and cables when operating in and around high voltage environments, such as substations and cables. This is where Dynamic Overload Protection comes into its own by automatically eliminating large stray signals if present. With a combined peak/null display mode, the effects of signal distortion can be readily recognized and accurate locate responses identified. When combined with an accessory A-Frame, the 8kHz Fault Find function can be used to locate a cable fault to within 10cm / 4" accuracy. The RD7000PL+ is also capable of displaying the depth of a cable when locating in passive 'Power Mode', while Strike*Alert™* reduces the risks posed by shallow cables.

Telecommunications Industry – RD7000TL+

Telecommunication utilities are characterized by the use of highly insulated cables, which make for difficult locates. RD7000TL+ features 7 active locate frequencies, including 131kHz and 200kHz, which enable location of these cables. With 8kHz Fault Find capability, Compass and Dynamic Overload Protection, cables can be located, traced, and faults located even in electrically noisy situations. Three sonde frequencies also enable location of non-metallic conduits with an appropriate sonde, see section 6.

3. RD7000+ Range Key Selling Points

Aside from the unit- specific features outlined above, the RD7000+ range benefits from a number of key selling features designed to ensure accurate location and user-friendliness:

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 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 locator and transmitter ranges, ensuring straightforward operation.

Centros™

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.

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 returning their RD7000+ to a service center.

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 within 3 months of purchase. Registered products also receive free product software and feature upgrades through Centros™ Manager as they are released.

Proportional Peak Distance Arrows

Is an intuitive tool that guides an operator to the central axis of the pipe or cable by presenting dynamic left and right arrows. The longer the arrow, the further the distance from the target pipe or cable.

Peak mode

Peak mode provides the most sensitive and accurate mode for location and depth measurement. It provides a sharp peak response corresponding to a signal strength & bargraph readout on the screen.

Null Mode(PL and TL models)

Null mode gives a null response when it is directly over the line. The sharp null response is simpler to use than the peak response but is more vulnerable to interference. Null mode uses left/right arrows and differentiated audio tones to indicate the relative position of the null point.

Combined Peak/Null mode (all models)

Combines the advantages of Peak and Null modes, and provides a further 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, the differential between each response indicating the presence of a distorted field.

TruDepth™

Gives the operator the confidence that the depth reading is accurate by only indicating a locate depth when the locator is correctly oriented directly above the pipe/cable. Compass visually indicates the relative orientation of the pipe/cable to aid the operator to correct their positioning.

Strike*Alert*™

Although work practices and guidelines insist that utilities are buried below a certain depth, a common cause of cable strike is shallow cables. The Strike*Alert*™ feature alerts the user to shallow power cables by alerting the operator with an audio warning.

Fault Find (PL & TL models)

A patented technique that enables an operator to locate a cable sheath fault using a Radiodetection A-frame attached to the locator. On-screen arrows show the direction to the fault and help the operator locate the fault accurately to within 10 centimeters / 4".

Passive location modes

The RD7000+ can locate metallic conductors by detecting signals radiating from them. These signals can be derived from low-frequency radio signals ('Radio Mode') or from energy radiated from power cables ('Power Mode'). Additionally, the RD7000DL+ can detect and trace Cathodic Protection System signals which are applied to pipelines to reduce corrosion. The RD7000PL+ is capable of determining depth when locating passive power signals. However passive signals on lines are less suited for measuring depth because accuracy is questionable due to the passive signal being present on more than one line.

Real sound

The audio signals heard by the operator are derived from the actual signal being radiated from the cable or pipe, as opposed to being artificially generated by the locator. With very little experience this very important feature helps the user distinguish the signal from random background noise.

Transmitters

The range of three compatible 'Tx' transmitters, in 1, 3 or 10 Watt outputs, utilize a patented system architecture housed in a robust case suitable for use in 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.

4. Precision Locator Feature Set Comparison

Model	Utility Locators				Multifunction Locators	
	RD7000SL+	RD7000DL+	RD7000PL+	RD7000TL+	RD8KPXL	RD8KPDL
Passive Frequencies						
Power	•	•	•	•	•	•
Radio	•	•	•	•	•	•
CATV (31250/31468Hz)						•
CPS (100/120Hz)		•				•
Passive Avoidance Mode						•
Active Frequencies						
ELF (98/128Hz)						•
512Hz		•	•	•	•	•
570Hz						•
577Hz					•	•
640Hz		•	•	•	•	•
760Hz						•
870Hz					•	•
920Hz						•
940Hz					•	•
8kHz (8192Hz)	•	•	•	•	•	•
9.8kHz (9820Hz)						•
33kHz (32768Hz)	•	•	•	•	•	•
65kHz (65536Hz)	•	•	•	•	•	•
83kHz (83077Hz)	•				•	•
131kHz (131072Hz)				•	•	•
200kHz (200000Hz)				•		
CD Frequency Pairs x5						•
Sonde Frequencies						
512Hz		•		•	•	•
640Hz		•		•	•	•
8kHz (8192Hz)		•			•	•
33kHz (32768Hz)		•	•	•	•	•
Antenna Modes						
Peak mode	•	•	•	•	•	•
Null mode			•	•	•	•
Peak & Null mode	•	•	•	•	•	•
Single Mode					•	•
Fault Find						
8kHz Fault Find			•	•		•
CD Fault Find						•
Features						
Current Direction (CD)						•
Centros	•	•	•	•	•	•
Compass	•	•	•	•	•	•
SurveyCERT					•	•
TruDepth	•	•	•	•	•	•
Dynamic Overload Protection	•	•	•	•	•	•
StrikeAlert	•	•	•	•	•	•
Depth in Power Mode			•			•
eCAL Validation	•	•	•	•	•	•
iLOC					[RD8000PXLB]	[RD8000PDLB]
3-Year Warranty on Registration	•	•	•	•	•	•

5. Centros™ Manager 6 & eCAL™

The launch of the RD7000+ range is supported by the release of Centros™ Manager 6, which brings new and user-friendly functionality to users working with Radiodetection Precision Locators.

Centros™ Manager is the Precision Locator and Tx Transmitter support application for Microsoft® Windows that is offered for free download via the Radiodetection website. Once installed on a PC or laptop, Centros™ Manager can be used to:

- Update the locators and transmitters with the latest product software.

- Remotely validate the locator's calibrations against the original factory settings and print a validation certificate using eCAL™.

- Customise locator settings from the PC and upload / download user configurations to units using Option Editor

A product registration key is required to use eCAL and Software Update functions.

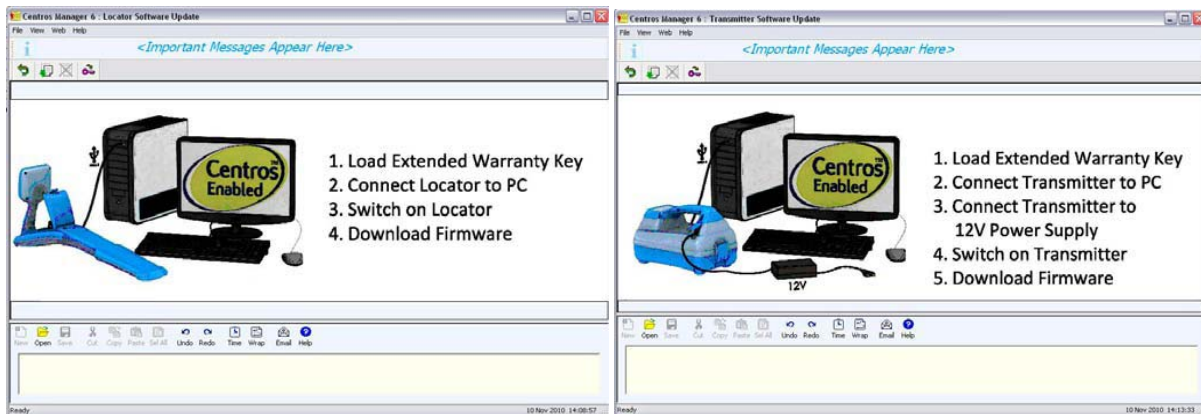Centros™ Manager 6 is compatible with the following Radiodetection products:

Locators	Transmitters
RD7000	TX-1
RD7000+	TX-3
RD8000	TX-10

Improvements over Centros™ Manager 5

- Simplified, more intuitive user interface with fewer popups and action-specific toolbar options

- Improved visibility of calibration / validation certificates

- Listing of downloaded eCAL keys via 'Load / Download eCAL Key' dialog

- View installed product firmware versions in the 'About Centros Manager' Dialog

- Choice of 'incremental' or 'full' locator / transmitter software updates allows faster upgrading or complete re-installation of product software

Software Update

This utility allows the user to update the software of locators and transmitters. Software updates are available to users who have registered for Radiodetection's extended warranty program.

Users will automatically be notified of product software updates through Centros™ Manager.
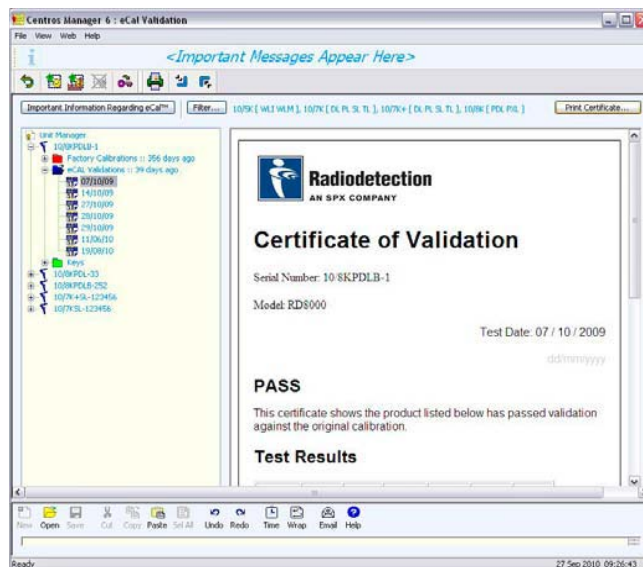
eCAL™

eCAL™ is a unique and powerful feature that allows users to validate the original factory calibration of their 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 their locator to a service center. Users can also retrieve and print certificates from previous eCAL™s and the original unit calibration certificate free of charge if required.

To carry out eCAL™ the user must first register their unit for extended warranty and purchase an eCAL™ validation key.

eCAL™ validation keys can be purchased online or from your local Radiodetection representative (part number: 10/RD7K8KECAL) and are valid for up to 12 months from the date of purchase. Each eCAL™ key is unique to the serial number of the unit concerned, and can be used as many times as required during its 12-month validity period. Certificates produced by an eCAL™ are stored and can be viewed or printed as many times as required.
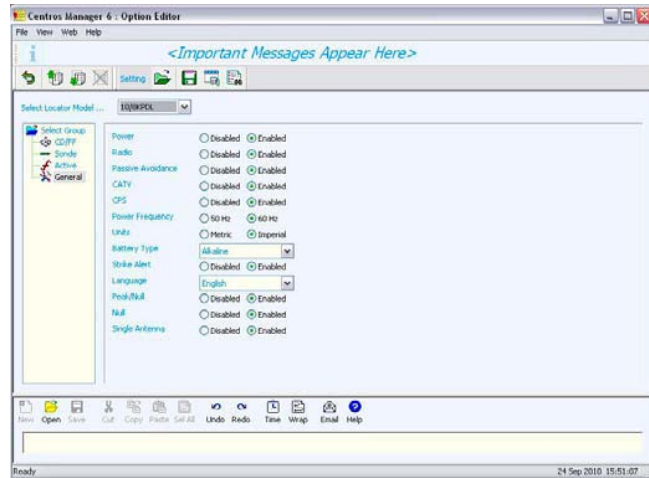
NOTE: eCAL™ is not applicable to transmitters.

Option Editor

The Option Editor function mimics the settings menus of the locators, and also allows specific functions to be enabled or disabled. This allows users to quickly set their up unit to their preference.

Once a settings set is created it can be saved as a configuration for download to the locator or saving for future use.

System Requirements for Centros™ Manager 6

- Microsoft® Windows® XP Professional (32 bit) with Service Pack 3.

- Microsoft® Windows Vista® (32 bit) with Service Pack 1.

- Microsoft® Windows® 7 (32 bit) with Service Pack 1.

Note that Centros Manager does not currently support 64 bit operating systems at this time.

An active Internet connection will be required to download Centros Manager 6 and receive software update notifications from Radiodetection.

Windows, Windows 7, Windows XP and Windows Vista are registered trademarks of Microsoft Corporation, all rights reserved.

6. Accessories

The RD7000+ is compatible with all the existing RD7000/RD8000/RD4000 accessories:

Receiver Accessories	Part Number	2010 Intl List Price
High Gain Stethoscope	10/AC2645-4KRX	£190
Small Stethoscope	10/AC2643-4KRX	£158
Large Stethoscope	10/AC2644-4KRX	£197
640/512Hz Submersible DD Antenna (10m Cable)	10/SM1099-640-4KRX	£2,220
8kHz Submersible DD Antenna (10m Cable)	10/SM1099-8-4KRX	£2,220
Additional Submersible Cable Length (Per Metre)	10/RD0246SUBCABL	£23
Headphones	04/LP01	£30
A Frame	10/AFRAME-4K7K8K	£315
A-Frame Lead	10/AC2608E2	£78
A Frame Bag	10/RD4FFRXBAG	£80
2" (50mm) Receiver Clamp	10/TC2136-4KRX	£180
4" (100mm) Receiver Clamp	10/TC1769-4KRX	£180
CD Receiver Clamp	10/CM2054-4KRX	£460
CD Stethoscope	10/AC2666-4KRX	£329
Soft Carry Bag	10/RD7K8KBAG	£67
Soft Carry Bag with Wheels	10/RD7K8KRSBAG	£98
Hard Case	10/RD7K8KCASE	£155
Receiver Accessories	**Part Number**	**2010 Intl List Price**
Standard Sonde 33kHz Depth 5m	10/SC0412-33R	£221
Sewer Sonde 33kHz Depth 8m	10/SA0337-33R	£294
Super Sonde 33kHz Depth 15m	10/SB0338-33R	£390
Slim Sonde 33kHz Depth 3.5m	10/SD0322-33R	£281
Slim Sonde Plain End Cap	10/SD0223	£23
Slim Sonde Blank End Cap	10/SD0268	£23
S18A Sonde 33kHz	10/S18/82-33-000	£295
S18B Sonde 33kHz	10/S18/173-33-000	£267
8kHz Sonde	10/SCO412-8	£266
512Hz Sonde	10/SCO412-512	£266
Spring Coupling M10 Male	10/SU0335	£52
Flexrod Coupler (Joins two Flexrods together)	02/FR0818N1	£25
Flexrod Blank for Machinery	02/FR0336	£19
4.5" (115mm) Diameter Floats/Pair	10/SU0344	£19
M10 Thread Protecting Nipple	02/P105O	£7
External Shell for heavy-duty Applications(Diameter as Sewer Sonde)	10/SC0963	£89
Plastic or Cane Rod Connector, Male	02/SU0339	£19
GD Rod Connector. 3/4" (19mm) x 12 BSF, Female	02/SU0340	£19
Wards Rod Connector, 3/4" (19mm) x 10 BSW, Female	02/SU0341	£19
Wards Rod Connector, 1/2" (13mm) x 12 BSW, Female	02/SU0342	£19
Lockfast" Connector, 3/4" (19mm) x 10 BSW	02/SU0676	£19
FlexiTrace 50m	10/TRACE50*	£780
9mm 120m Flexrod	10/FLEXRODF120	£838
9mm 60m Flexrod	10/FLEXRODF60	£556

Receiver Accessories	Part Number	2010 Intl List Price
Alkaline Battery for RD7000, RD8000, Tx-1, Tx-3, Tx-10 (LR20, MN1300)	04/MN1300	£4
Transmitter Li-Ion rechargeable battery pack (Incl mains and 12V chargers and leads)	10/TXRBATPACKKIT*	£284
Transmitter Li-Ion rechargeable battery pack	10/TXRBATPACK*	£201
Receiver Accessories	**Part Number**	**2010 Intl List Price**
UK Plug Connector	10/AC1231-4KTX-LPC-UK	£160
Euro Plug Connector	10/AC1231-4KTX-LPC-EUR	£155
Live Cable Connector (with Crocodile clips)	10/AC1231-4KTX-LCC	£232
2" (50mm) Transmitter Clamp	10/TC2136-4KTX	£180
4" (100mm) Transmitter Clamp	10/TC1769-4KTX	£180
CD Transmitter Clamp	10/TC2651-4KTX	£467
Earth Reel	09/310-4KTX	£23
Mains power AC transformer to 12V DC	10/RD7K8KUMPSU	£163
Tx Direct Connection Lead	17/TX2609E1	£70
New Short Earth Stake	04/ET2980P8	£11
8.5" (215mm) Transmitter Clamp	10/S18/82-33-000	£254
Signal Clamp Extension Rod	10/EXT	£20
Receiver Accessories	**Part Number**	**2010 Intl List Price**
eCAL validation key, valid for 12 months	10/RD7K8KECAL	£75

* add -GB, -D, -F, -GN, -US, -NL to denote country variant

Note: International list prices in GBP. Contact your local Radiodetection sales office for local pricing and variations.

7. Sales Parts, Availability & Pricing

The RD7000+ is available now on standard lead times

Each unit ships as standard as:

- Locator

- Quick-start user guide

2010 Range Pricing (International)

The range of units within the RD7000+ range is offered for sale at the same price as the outgoing RD7000 units that they replace.

Locators

Product	Sales Part	2010 List Price (£)
RD7000SL+	10/7KSL+	£955
RD7000DL+	10/7KDL+	£1,056
RD7000TL+	10/7KTL+	£1,223
RD7000PL+	10/7KPL+	£1,223

Transmitters

Product	Sales Part	2010 List Price (£)
TX-1	10/RDTX1	£696
TX-3	10/RDTX3	£1,015
TX-10	10/RDTX10	£1,236

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