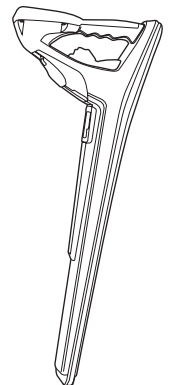


RD4000RX

Technical Specification

Description: RD4000 Precision Locator
Part No: 10/4KRx —* (*= version)
 10/4KMRx —* (*= EMS version)



Physical:
 Construction High impact thermoplastic, weatherproof to NEMA 3R and IP54
 Ruggedness Withstands one metre drop onto concrete (BS EN 60068-2)
 Dimensions Approximately 690mm/27" x 280mm/11" x 123 mm/4.8"
 Weight Standard version: 2.8 kg/6lb
 EMS version: 3.2 kg/7lb

**Mode	Frequency	Bandwidth / Hz	Sensitivity* @ 1 m	Locating Depth Guide (metres/yards)	
				Good Conditions	Poor Conditions
Power	40 Hz – 700 Hz	500	7.5 mA	3	2
Radio	14 kHz – 26 kHz	10,000	20 µA	2	1
Active frequencies	8 kHz–100 kHz	10 ,20 or 40	25 µA	5	2
Active frequencies	100 kHz –200 kHz	10, 20, or 40	50 µA	3	2
CD	up to 1024 Hz	10, 20 or 40	250 µA	5	2
Lf	up to 2048 Hz	10, 20 or 40	250 µA	5	2
CPS	100 Hz or 120 Hz	10, 20 or 40	10mA	3	2
Fault-Find (via optional external A-frame accessory)	8 Hz and 8.192 kHz	10 or 20	2 µV @ 1MΩ	3	2
		10	100 µA	--	--

*Sensitivity specified for Peak mode

**Installed modes depend on the configuration chosen at time of purchase

Operating Modes:

Locate Accuracy: 5% of depth (depending on depth – see below)
 Current Accuracy: 5% of actual current (depending on depth – see below)
 Depth Accuracy 5% of depth on undistorted signal with no adjacent signals
 Depth Range Line — up to 3m @ 5% depth accuracy, 5% current accuracy
 up to 5m @ 10% depth accuracy, 10% current accuracy
 Sonde — up to 8m (with SuperSonde)

Visual Indication: Liquid crystal display indicating the following:

Signal Strength %	Line Depth	Sonde Depth
Line signal current	Gain Level	Operating Mode
Line/sonde mode	Peak/Null/Single mode	Left/Right direction arrows
Battery Status	Speaker Volume	CD direction arrows
Accessory connected		

Audio Indication: Audio signal output through water-resistant speaker or optional headphones.

Search Antennas: 2 x dual wound horizontal and 1 vertical.

Antenna Configurations: Single horizontal for Wide response operation
 Dual horizontal for Peak operation
 Horizontal and vertical for Null operation

Gain Control: Rotary touch gain paddle

Batteries: 4 x Alkaline size D (IEC: LR20)
Optional rechargeable battery pack with four NiMH rechargeable batteries

Battery life RX: greater than 16 hours @20°C (non-EMS modes)
MRx: greater than 8 hours @20°C (EMS mode)

Temperature Range: Operating temperature: -20°C to +50°C
Storage temperature: -40°C to +70°C

External Connectors: RS232 connector (web-enabling/data logging)
Accessory socket
Headphone socket

Standard accessories: RS232 lead

Optional accessories:

Carry bag	Sondes
2" and 4" clamps	Stethoscopes (CD and standard)
CD clamps	Headphones (summer and winter)
Submersible antenna	Rechargeable battery pack (complete with external 12 volt charging lead)
A-frame	Data logger

Automatic Accessory Detection:

The following accessories are automatically identified by the RD4000 receiver when connected to the accessory socket. The receiver automatically selects operating mode(s) as appropriate to the accessory.

Clamps (CD and standard)	Submersible Antenna
Sondes	Stethoscopes (CD and standard)
A-frame	

Receiver Options:

Electronic Marker-Ball Detection:

(RD4000MRx) Operation : Detection of any 1 of 6 marker types buried to a depth of 1.4m,
Detection of large deep markers to a depth of 3m,
Bar-graph and variable pitch tone to indicate signal strength
Manual EMS Gain Control – High / Low
Dedicated Marker Detection


Dual Mode Operation: Narrow Band Cable Location (Null Mode only) combined with Marker Ball Detection

Marker Types:

Application	Colour	Frequency
Power	Red	169.8 kHz
Water	Blue	145.7k Hz
Sanitary	Green	122.5 kHz
Telephone	Orange	101.4 kHz
Gas	Yellow	83.0 kHz
Cable TV	Orange/Black	77.0 kHz

Compatibility: Recommended for use with Radiodetection T3, T3F, T10, and PTX-3 transmitters, and LMS. **Also backward compatible with obsolete Radiodetection transmitters.**

Quality Control: BS5750/ISO 9001/EN29001.

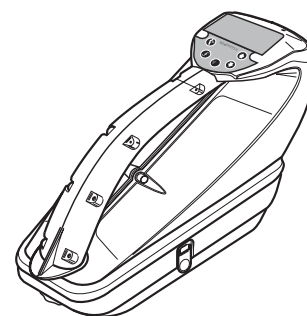
Approvals:  Complies with European R&TTE Directive 1999/5/EC
Complies with FCC Rules Part 15

Warranty: 12 months

RD4000 T10 Transmitter

Technical Specification

Description	RD4000 T10 Transmitter
Part No:	10/4KT10 –* (*=version)
Physical Construction	High Impact thermoplastic injection moulded case sealed to IP55 (excludes all battery tray variants)
Ruggedness	Withstands one metre drop onto concrete (BS EN 60068-2)
Dimensions	Approximately 180mm/7.1”(D) x 350mm/13.78”(W) x 230mm/9”(H)
Weight	4.3kg/9.5lb



Operating Modes:

Locate mode by Induction	FaultFind Mode by Direct Connection
Locate Mode by Direct Connection	(Optional) ACID-M Mode by Direct Connection
Measure Mode (DVM/AVO operation)	(Optional) Pipeline Mode by Direct Connection

Connected accessory is identified automatically and available modes/frequencies are set. Power restrictions for connected accessory are also set automatically. If no accessory is plugged in the unit defaults to induction mode.

Available Frequencies ($\pm 3\text{Hz}$)	Up to 2 Induction Frequencies from 8.192kHz, 32.768kHz, and 65.536kHz, or two from 65.536kHz, 83.000kHz and 200.000kHz – factory configurable
	Other Modes*
	Up to 16 direct connect frequencies
	CD: up to 14 CD pairs may be used per accessory

Frequency configuration is factory/dealer configured but can be user modified by use of the RD Web-based configuration tool. Induction frequencies must be specified at time of order as they are factory configured

**Note: Not all frequencies are available for all modes and accessories; some accessories will place restrictions upon the band of frequency available for use (e.g. signal clamps)*

FaultFind Output

FaultFind Frequency 8.192kHz/8Hz composite signal compatible with existing Radiodetection fault finding equipment – other FaultFind locate frequencies may be available at a later date.
 FaultFind Voltage—120VRMS at 8mA maximum

Audio Indication

Volume Adjustable in four levels: Mute, low, med, high via user interface menu
Indication Tones
Connection Quality Sliding Tone from 40-400Hz. A lower tone equals more current on line (i.e. better connection)
Low Battery
Connection Quality Tone pulses off 1 second in 5 and alert tone sounded of 6 rapid beeps
Error Condition Warning tone
Invalid Selection 1 short 200Hz beep
Live-Cable Warning Alternating Warning Tone sounded whilst cable energised

Visual Indication

- Custom transfective LCD with automatic backlight. LCD displays the following information:
- Line current/voltage/resistance
- Operating mode and frequency
- Demand Level
- Battery/External Power status
- Audio volume setting
- Connection graphic to show how signal applied to target line
- Warnings for SELV limited output and live cable

Output Protection

Output protected from inadvertent connection to 240V AC RMS via user resettable trip. LCD display gives user feedback that trip has operated. In FF mode the trip will not operate but the unit is still protected against inadvertent connection to 240 V AC



Radiodetection

Riser Bond Dielectric Technologies
 Bicotest Pearpoint Telespec

Signal Output

Continuous sinusoidal output waveform of selected frequency or composite waveform if selected.
Output pulses off 1 second in 5 (synchronised to connection tone) to indicate low battery conditions

Connection Performance

Output Level	Open Circuit Voltage*	Limiting Current	Maximum Power**
1	30V/50V RMS	10mA	0.50W
2	30V/50V RMS	30mA	1.50W
3	30V/50V RMS	60mA	3.00W
4	30V/50V RMS	100mA	5.00W
5	30V/50V RMS	200mA	10.00W
6	30V/50V RMS	400mA	10.00W
7	30V/50V RMS	700mA	10.00W
8	30V/50V RMS	1A	10.00W

*Voltage can be increased from default 30V to 50V by menu selection. Voltage defaults to back to 30V each time unit is turned on.

**Output power maximum 10W, display shows HI POWER when output power greater than 5W. This allows user to maximise battery life if 10W maximum output power is not required

At 45kHz and above the output power is limited to 1W to comply with current legislation

Induction Performance

Output adjustable in four steps: 25%, 50% 75% and 100%

At 45kHz and above the output power is limited to 1W to comply with current legislation

Batteries 12 off LR20 (D)

Alkaline 1.5V cells

Optional High Capacity Rechargeable battery pack

Battery Life

Power output	Battery life (alkaline cells at 20°C and continuous use)
10W	> 4 hours
5W	>15 hours
1W	> 24 hours

- Battery trays have 12V input socket for external power supply
- Rechargeable battery pack has 12V input socket to recharge battery pack and simultaneously operate transmitter (if required)

External Connectors

RS232

Accessory outlet

Accessories

Accessories are automatically identified by the RD4000T10 when connected. The transmitter automatically selects mode and power/frequency limits based upon accessory fitted, and updates connection graphic on LCD display

Standard accessories

- Direct connection lead
- External 12 volt supply lead
- Earth (ground) stake

Optional accessories

Carry bag Earth extension lead
2" and 4" clamps Live plug connector
CD clamps Live cable connector

Temperature Range

Operating temperature: -20°C to +50°C

Storage temperature: -40°C to +70°C

Quality Control

BS5750/ISO 9001/EN29001.

Approvals

CE Complies with European R&TTE Directive 1999/5/EC
Complies with FCC Rules Part 15

Warranty

12 months.

