

Tx transmitter specification

Precision locator range



Tx Precision Locate Transmitters Specification

1. Product Summary

| | |
|---------------------------|--|
| 1.1 Product Overview: | The Tx family of signal transmitters has been designed to complement Radiodetection's advanced high-precision cable and pipe locators including the RD8100, RD7100, marker locator and PCM ranges |
| 1.2 Product Descriptions: | Signal transmitter Multi-function transmitter Cable and pipe transmitter |
| 1.3 Intended Use: | Use with a locator or marker locator from Radiodetection's precision locator range to find and trace cables and pipes. Use with a PCM locator to boost the locate signal for a pipeline survey. |
| 1.4 Standard Equipment: | <ul style="list-style-type: none"> • Transmitter • Integrated tool tray • Earth spool • Earth spike • Direct connection leads • Magnet |

2. Performance

| | Tx-1 | Tx-5 | Tx-5 iLOC | Tx-10 | Tx-10 iLOC |
|-------------------------------|------|------|-----------|-------|------------|
| 2.1 Max power output: | 1W | 5W | 5W | 10W | 10W |
| 2.2 Max voltage output: | 90V | 90V | 90V | 90V | 90V |
| 2.3 Max current output: | 0.5A | 0.5A | 0.5A | 0.5A | 0.5A |
| 2.4 Induction field strength: | 0.7 | 0.9 | 0.9 | 1 | 1 |

3. Power Output

| | | | | | |
|------------------------|-----------------------------------|------|-------|-------|-------|
| 3.1 Induction settings | 10%, 20%, 50% and 100% of maximum | | | | |
| 3.2 Direct Connection | CD Frequencies* | | | | |
| | 256Hz/512Hz | 35mA | 70mA | 140mA | 245mA |
| | 285Hz/570Hz | 35mA | 70mA | 140mA | 275mA |
| | 320Hz/640Hz | 35mA | 70mA | 140mA | 305mA |
| | 380Hz/760Hz | 35mA | 70mA | 140mA | 350mA |
| | 460Hz/920Hz | 35mA | 70mA | 140mA | 350mA |
| | Single Frequencies* | | | | |
| 163Hz – 4 KHz | 10mA | 50mA | 200mA | 500mA | |
| 8kHz -33KHz | 5mA | 20mA | 100mA | 500mA | |
| 65kHz - 200Hz | 2mA | 10mA | 50mA | 200mA | |

4. Transmit Functions

| 4.1 Active Frequencies* | Tx-1 | Tx-5 | Tx-5 iLOC | Tx-10 | Tx-10 iLOC |
|-------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 163Hz | | | | | DC |
| 208Hz | | | | | DC |
| 273Hz | | | | | DC |
| 340Hz | | | | | DC |
| 400Hz | | | | | DC |
| 440Hz | | | | | DC |
| 460Hz | | | | | DC |
| 480Hz | | | | | DC |
| 484Hz | | | | | DC |
| 491Hz | | | | | DC |
| 512Hz | DC | DC | DC | DC | DC |
| 560Hz | | | | | DC |
| 570Hz | DC | DC | DC | DC | DC |
| 577Hz | DC | DC | DC | DC | DC |
| 584Hz | | | | | DC |
| 624Hz | | | | | DC |
| 640Hz | DC | DC | DC | DC | DC |
| 760Hz | DC | DC | DC | DC | DC |
| 815Hz | | | | | DC |
| 870Hz | DC | DC | DC | DC | DC |
| 920Hz | DC | DC | DC | DC | DC |
| 940Hz | DC Induction | DC Induction | DC Induction | DC Induction | DC Induction |
| 982Hz | | | | | DC Induction |
| 1090Hz | | | | | DC Induction |
| 1450Hz | | | | | DC Induction |
| 4kHz (4096Hz) | DC Induction Clamp | DC Induction Clamp | DC Induction Clamp | DC Induction Clamp | DC Induction Clamp |
| 8kHz (8192Hz) | DC Induction Clamp | DC Induction Clamp | DC Induction Clamp | DC Induction Clamp | DC Induction Clamp |
| 8440Hz | | | | | DC Induction Clamp |
| 9.8kHz (9820Hz) | DC Induction Clamp | DC Induction Clamp | DC Induction Clamp | DC Induction Clamp | DC Induction Clamp |
| 33kHz (32,768Hz) | DC Induction Clamp | DC Induction Clamp | DC Induction Clamp | DC Induction Clamp | DC Induction Clamp |
| 65kHz (65,536Hz) | DC Induction Clamp | DC Induction Clamp | DC Induction Clamp | DC Induction Clamp | DC Induction Clamp |
| 82kHz | | | | | DC Induction Clamp |
| 83kHz (83,077Hz) | DC Induction Clamp | DC Induction Clamp | DC Induction Clamp | DC Induction Clamp | DC Induction Clamp |
| 131kHz (131,072Hz) | DC Induction Clamp | DC Induction Clamp | DC Induction Clamp | DC Induction Clamp | DC Induction Clamp |
| 200kHz | DC Induction Clamp | DC Induction Clamp | DC Induction Clamp | DC Induction Clamp | DC Induction Clamp |

(*) DC = Direct Connection

| 4.2 Fault Find | Tx-1 | Tx-5 | Tx-5 iLOC | Tx-10 | Tx-10 iLOC |
|----------------|------|------|-----------|-------|------------|
| 8kHz (8192Hz) | | • | • | • | • |
| CDFF | | | | • | • |

| 4.3 Current Direction | Tx-1 | Tx-5 | Tx-5 iLOC | Tx-10 | Tx-10 iLOC |
|-----------------------|------|------|-----------|-------|------------|
| 219.9Hz / 439.8Hz | | | | • | • |
| 256Hz / 512Hz | | | | • | • |
| 280Hz / 560Hz | | | | • | • |
| 285Hz / 570Hz | | | | • | • |
| 320Hz / 640Hz | | | | • | • |
| 380Hz / 760Hz | | | | • | • |
| 460Hz / 920Hz | | | | • | • |
| 680Hz / 920Hz | | | | • | • |
| 680Hz / 340Hz (INV) | | | | • | • |
| 800Hz / 400Hz (INV) | | | | • | • |
| 920Hz / 460Hz (INV) | | | | • | • |
| 968Hz / 484Hz (INV) | | | | • | • |
| 1168Hz / 584Hz (INV) | | | | • | • |
| 1248Hz / 624Hz (INV) | | | | • | • |
| 4096 / 8192Hz 'MFCD' | | | | • | • |

| | |
|---------------------------|---|
| 4.4 Information displayed | <ul style="list-style-type: none"> • Battery level indicator • Operation mode readout • Standby icon • Output level indicator • Mode of operation indication <ul style="list-style-type: none"> - Induction - Direct connection - Clamp mode • DC power connected indicator • A-frame: Indicates when the transmitter is in Fault-Find Mode • CD Mode: Indicates when the transmitter is in Current Direction Mode • Voltage warning indicator: Indicates that the transmitter is outputting potentially hazardous voltage levels or high voltage across DC output leads • Volume level indicator • Pairing icon: Appears when the transmitter and locator are connected via iLOC • Bluetooth icon: Indicates status of Bluetooth connection. Flashing icon means pairing is in progress • Measurements: Voltage, current, power and impedance |
|---------------------------|---|

5. Transmitter Enhancements*

| | | |
|------|---|---|
| 5.1 | Current Direction™ (CD) | Provides current direction (CD) signals to enable the locator to differentiate individual utilities |
| 5.2 | iLOC™ | Allows remote control of the transmitter from a compatible locator, up to 450m (1400 feet) away ¹ (Tx-5B and Tx-10B) |
| 5.3 | SideStep™ | Shifts the locate and transmitter frequency by several Hz, out of the bandwidth of other locate signals that may be interfering with the locate (Tx-5B and Tx-10B) |
| 5.4 | SideStep Auto | Automatically selects the best frequency to use based on the load impedance (works only a direct connect mode) |
| 5.5 | Fault Find | Enables the use of an accessory A-Frame with a compatible locator to detect and pinpoint pipe's coating and insulation faults and cable's sheath fault |
| 5.6 | Boost | Sets the transmitters to output its maximum output power indefinitely or for a predefined period of time |
| 5.7 | Maximum Voltage Selection | Allow the user to increase the voltage, and the current, output to a maximum of 90 Vrms |
| 5.8 | Eco Mode | Automatically reduces the output power to allow full depletion of the alkaline batteries. An audio and visual warning provides user feedback (only available with alkaline batteries) |
| 5.9 | Power Selector | Restricts the power output of the transmitter to a predefined level |
| 5.10 | Automatic overvoltage protection system | In the event of an erroneous direct connection to a high voltage line (up to 250V), a warning symbol is displayed advising the operator to take action |

(* Model dependent)

6. Configurability*

| | | |
|------|----------------------------|--|
| 6.1 | Languages | Fourteen: English, French, German, Dutch, Polish, Czech, Slovakian, Spanish, Portuguese, Swedish, Italian, Turkish, Russian, Hungarian |
| 6.2 | Active frequency selection | All active frequencies available can be individually enabled or disabled |
| 6.3 | Locator mode | Selects available Active frequencies and CD pairs depending on the locator used |
| 6.4 | Volume Control | Mute, 1,2 and 3 |
| 6.5 | Battery Type | Li-Ion, Ni-MH or Alk |
| 6.6 | Power Selector | 1,2,3,5 and 10W |
| 6.7 | Max Voltage | Low or High |
| 6.8 | SideStep Auto (OPT F) | Start |
| 6.9 | Boost | ON, 5, 10 and 20 Min |
| 6.10 | Bluetooth: | On, Off, Reset and Pair |

(* Model dependent)

7. Connectivity*

| | | |
|-----|-------------------------------|---|
| 7.1 | Wireless connections | Bluetooth class 1 |
| 7.2 | Wireless range ³ : | Up to 450m /1400' |
| 7.3 | Wired connections | Mini-USB 2.0: Connect to a PC to update transmitter Accessory port: Connect Radiodetection accessories Power In: Connects to an external power supply |

(* Model dependent)

8. Power options

| | | |
|-----|--|---|
| 8.1 | Alkaline or NI-MH | 8x D cells |
| 8.2 | Rechargeable battery | Custom Lithium-Ion (Li-Ion) battery pack |
| 8.3 | Battery run-time (continuous) ² | Alk: 4 hours NI-Mh: 7 hours Li-Ion: 8 hours |
| 8.4 | DC IN | 12V, 3A |

9. Physical Characteristics

| | | |
|-----|------------------------------------|--|
| 9.1 | Construction | Injection Molded ABS Plastic |
| 9.2 | Weight | With Alkaline: 3.9 kg /8.6 lb Li-Ion: 3.8 kg / 8.3 lb |
| 9.3 | Dimensions | 350x220x220 mm / 30.8x8.7x8.7 in |
| 9.4 | Ingress Protection rating | IP65: Protected against dust ingress and jets of water ³ applied from any direction |
| 9.5 | Display type | High contrast custom made monochrome LCD |
| 9.6 | Audio options | Built-in water-resistant speaker |
| 9.7 | Operating temperature ⁴ | -20°C to 50°C / -4°F to 122°F |
| 9.8 | Storage temperature | -40°C to 70°C / -40°F to 158°F |

10. Centros™ Manager PC Software

| | | |
|------|---------------------------------|---|
| 10.1 | Operating System Compatibility: | Microsoft® Windows® 7, 8, 8.1, 10, 32 and 64-bit versions |
| 10.2 | Function | Software update |

11. Warranty and Maintenance

| | | |
|------|---|--|
| 11.1 | Manufacturer's warranty duration: | 3 years standard, on registration |
| 11.2 | Recommended calibration and maintenance schedule: | Annual, or at the beginning / end of a lease period if earlier |
| 11.3 | Storage recommendation: | Store in a clean and dry environment. Ensure all terminals and connection sockets are clean, free of debris and corrosion and are undamaged |
| 11.4 | Cleaning: | Clean with a soft, moistened cloth. Do not use: <ul style="list-style-type: none">• Abrasive materials or chemicals• High pressure jets of water If using this equipment in foul water systems or other areas where biological hazards may be present, use an appropriate disinfectant. |

12. Certification and Compliance

| | | |
|------|----------------------------|--|
| 12.1 | Standard Safety EMC | EN 60950-1:2006+A2:2013 EN 60950-22:2006 EN 61326-1:2013 EN 300 330-2 (V1.5.1) EN 301 489-3 (V1.6.1) EN 301 489-17 (V2.2.1) |
| 12.2 | European directives: | Radio Equipment 2014/53/Eu ROHS Directive: 2011/65/EU Declaration of conformity is available from www.radiodetection.com |
| 12.3 | Radio | FCC, IC |
| 12.4 | Environmental | WEEE compliant ROHS compliant |
| 12.5 | Manufacturing | ISO 9001:2008 |

13. Compatible Accessories

| Accessory | Part description | Part number |
|---|---|--|
| Lithium-Ion battery packs | Li-Ion rechargeable battery mains kit (Includes mains charger) Li-Ion rechargeable battery pack (no charger) | 10/TX-MBATPACK-LION-K 10/TX-BATPACK-LION |
| LPC <i>For connecting the transmitter to domestic mains socket</i> | Live plug connector with US, UK or EU mains plug | 10/TX-LPC-xx <i>(xx = US, UK or EU)</i> |
| Cable connector | Live Cable Connector with Crocodile clips | 10/TX-LCC |
| Lithium-Ion battery chargers | Li-Ion automotive charger Li-Ion mains charger | 10/TX-ACHARGER-LION 10/TX-MCHARGER-LION |
| Spare battery tray | 8 x D Cell battery tray (MN1300 / LR20) | 10/TX-8DCELL-TRAY |
| Transportation and storage accessories <i>For combined locator and transmitter</i> | Soft Carry Bag Wheeled Flight Case Hard Case | 10/LOCATORBAG 10/RD7K8KCASE 10/RD7K8KCASE-USA |
| Transmitter signal clamps <i>For identification and location of utilities</i> | <i>Metric:</i> 50mm Locator Clamp <i>Imperial:</i> 2" Locator Clamp <i>Metric:</i> 100mm Locator Clamp <i>Imperial:</i> 2" Locator Clamp <i>Metric:</i> 130mm Locator Clamp <i>Imperial:</i> 5" Locator Clamp <i>Metric:</i> 215mm Locator Clamp <i>Imperial:</i> 8.5" Locator Clamp Signal clamp extension rod | 10/TX-CLAMP-50 10/TX-CLAMP-2 10/TX-CLAMP-100 10/TX-CLAMP-4 10/TX-CLAMP-130 10/TX-CLAMP-5 10/TX-CLAMP-8.5 10/TX-CLAMP-215 10/TX-CLAMP-EXROD |
| Flexitrace™ <i>Use with a transmitter to trace small diameter pipes</i> | FlexiTrace 50m / 165' FlexiTrace 80m / 260' | 10/TRACE50-xx 10/TRACE80-xx <i>(xx = GB, D, F or NL)</i> |

All specifications are measured in test conditions, at 21°C / 70°F

¹ Tested with clear line-of-sight. Range is dependent on electrical environment and weather conditions. For optimum range, face the locator toward the transmitter and raise the transmitter 2' / 60cm from the ground.

² To provide repeatable measurements, run-time is measured at 7W and 20C.

³ Water projected by a nozzle at a pressure of 30kPa / 0.3 bar / 4.4 psi in accordance with BS EN 60529 1992 A2 2013

⁴ At very low temperatures, battery life will be degraded, LCD screen performance may slow and measurement precision may be reduced

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