RADIODETECTION

Tx transmitter specification

Precison locator range

SPX

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:	• 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	

	• Battery level indicator
	• Operation mode readout
	• Standby icon
	• Output level indicator
	• Mode of operation indication
	  - 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) away1 (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 water3 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: • 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	EN 60950-1:2006+A2:2013 EN 60950-22:2006
	EMC	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 *For connecting the transmitter to domestic mains socket*	Live plug connector with US, UK or EU mains plug	10/TX-LPC-xx (*xx = US, UK or EU)*
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 × D Cell battery tray (MN1300 / LR20)	10/TX-8DCELL-TRAY
Transportation and storage accessories *For combined locator and transmitter*	Soft Carry Bag Wheeled Flight Case Hard Case	10/LOCATORBAG 10/RD7K8KCASE 10/RD7K8KCASE-USA
Transmitter signal clamps *For identification and location of utilities*	*Metric:* 50mm Locator Clamp *Imperial:* 2” Locator Clamp *Metric:* 100mm Locator Clamp *Imperial:* 2” Locator Clamp *Metric:* 130mm Locator Clamp *Imperial:* 5” Locator Clamp *Metric:* 215mm Locator Clamp *Imperial:* 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™ *Use with a transmitter to trace small diameter pipes*	FlexiTrace 50m / 165’ FlexiTrace 80m / 260’	10/TRACE50-xx 10/TRACE80-xx (*xx = GB,D,F or NL)*

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

RADIODETECTION®

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