

# DRX 600

## Digital Spectrum Processing Receiver



### Establishing a new standard for radio telemetry in fisheries and wildlife research

In 1992, Lotek Wireless introduced the DSP 500, the first Digital Spectrum Processor designed specifically for use in fisheries research. In conjunction with our SRX receivers, the DSP/SRX systems permitted near-simultaneous detection of thousands of animals instrumented with radio transmitters on multiple frequencies and antennas. Knowledge related to the fine-scale movement of fishes in their natural environment and the anthropogenic impacts on fishery resources have been advanced accordingly.

We are very pleased to announce the release of our newest digital wideband radio receiver, the DRX 600. It combines the capabilities of the DSP 500 and SRX and operates as an independent receiver. DRX 600 takes advantage of the latest advances in high speed, low power digital signal processing technology to achieve a significant increase in sensitivity and functional performance over any wideband receiver currently available for use in fisheries and wildlife research.

Key features include:

- Simultaneous detection, decoding and datalogging of Lotek coded transmitters
- User-selectable bands from 148 to 174 MHz
- Sequentially scanning of up to 5 user-specified 1 MHz sub-bands
- Simultaneous monitoring of up to 50 user-selectable frequencies within each sub-band
- Individually specifiable codeset for each sub-band
- User-programmable activation/de-activation for each sub-band frequency
- Two (user programmable) frequency steps available: 12.5 kHz or 20 kHz
- Support sequential switching for up to 8 antennas
- Individual Gain for each antenna
- Individual detection threshold for each designated frequency within the sub-band
- Minimum sensitivity of -126 dBm
- DRX Host for receiver set up/configuration
- Configuration files consisting of all receiver settings can be saved for uploading to multiple receivers
- Onboard GPS clock for precise synchronization amongst multiple units
- USB interface for high speed data download to PC and PDA
- 16 Mbytes of memory enabling storage of over 1 million records
- Remote access/control via telephone, cellular or RF modem via RS232
- Designed for remote deployment operation from an external 12-V power source.



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## Applications

The DRX 600 becomes the receiver of choice for any application that requires simultaneous detection of transmitters operating on different frequencies. Its superior signal processing and sensitivity will optimize data collection opportunities for research that involves monitoring the movement of animals through high-velocity environments. Typical application scenarios

include research related to fish passage efficiency, survival, presence/absence, site fidelity, and habitat utilization. It is also the ideal receiver for monitoring transmitters from multiple projects that involve the use of more than one codeset. Use of the DRX 600 will also facilitate transition by users to alternate frequency bands.

## Advantages and Benefits

Feature	Advantage	Benefits
Simultaneous monitoring of up to 50 channels within a 1 MHz sub-band	Simultaneous detection, decoding and datalogging of multiple frequencies	Increased detection probability in high traffic, and high velocity environments Improved data processing efficiency
Up to 5 user-definable 1 MHz sub-bands within a 26 MHz bandwidth (148 to 174 MHz)	Virtually unlimited flexibility to monitor transmitters within a wide operational band	Ability to use receiver concurrently in multiple projects, that use different frequencies, bands and codesets Avoids duplicate equipment and reduces associated costs Selective data display - only frequencies/ transmitters of interest are recorded and displayed within each sub-band. Transmitters with different codesets can be logged.
Minimum -126 dB sensitivity with individual gain control by antenna	Greater sensitivity improves detection range (6 dB translates to a theoretical doubling of reception range in air)	Improved detection range and detection probability Gain control by antenna provides user with flexibility to tune receiver to optimum performance based on local and application specific conditions.
USB interface	High speed data transfer	Time saving (data transferring at 1 Mbyte/10 seconds) and reduction of project overhead costs
DRX Host receiver software for setup & configuration	All receiver settings and data can be viewed, modified, uploaded or downloaded via PC	Ability to view data and to make changes to settings for multiple receivers
16 MBytes Memory	Storage of over 1 million records	Improved efficiency in data collection and data retrieval Enables greater flexibility in data recovery protocol with corresponding reduction in associated resources

## Specifications

Operating Voltage Range	10 -18 V DC
Operating Current	450 mA @ 12V DC
Memory Retention Battery	5 years shelf life
Operating Temperature Range	-20°C to 50°C
Weight	2.43 kg
Size	10.5 cm x 15.5 cm x 25.0 cm
Data memory	16 MByte
Operating Frequency Range	148-174 MHz
Channel Spacing	12.5 kHz, 20.0 kHz
Sensitivity	-126 dBm (@±600Hz)
User Selectable Gain Control	22.5 dB
Adjacent Channel Selectivity	Uncoded: 40 dB (Code-aided discriminator eliminates residual spectral leakage)
Spurious Response (Image)	>95 dB
Dynamic Range	>120 dB
Input Impedance	50 ohms
Maximum Input Signal Level	0 dBm

