LRDL - Long Range Data Link

Software Defined Radio—PN AE101838



Aeronix's 1.8-2.4 GHz LRDL Digital Data Link is a high power conduction cooled small, lightweight, modular, and scalable data link that enhances communication security and range. Aeronix can customize the packaging and functionality to meet customer requirements. The LRDL provides control, high quality video transmission, data security, and adaptive data rates with flexible bandwidths for extended range.

The LRDL Digital Data Link currently provides the capability of ion the move communications (telemetry, control, data, video, etc.) Point-to-Point or multipoint networked operations. Its software programmable architecture provides greater flexibility in waveform choice and allows users to easily upgrade to future waveforms without changing hardware.

The LRDL rugged construction and multipath resilient waveform along with diversity receive make it an excellent choice for applications such as mining, oil and gas, and harbor operations.

- 5.75"W x 9.0L" x 3.0H"
- 4 lbs
- Scalable ARM, FPGA, and High Speed DSP
- Graphics Accelerator
- Software Defined Radio
- Adjustable 8 Watt RF Output OFDM, 24 Watt GMSK
- Conduction Cooled /Industrial Temperature
- Modular RF 1.80-2.4GHz

Waveform

- · AES Encryption with 128 or 256 bit key (no latency).
- Software Reprogrammable as needed for application specific requirements.
- Doppler correction for ground-to-air and air-to-air operation
- Performs ACM at BPSK, QPSK, QAM16, QAM64, PSK8, and PSK16
- · Additional PSK modulation modes for rotorcraft
- Implements the Point to Multi-point portion of the IEEE 802.16-2004 Specification. (Mesh 2nd Qtr 2017)
- · QoS built into 802.16 waveform.
- Waveform supports distances to 250 miles.



General Applications

Sensor, VoIP, Control, Data, Video, including:

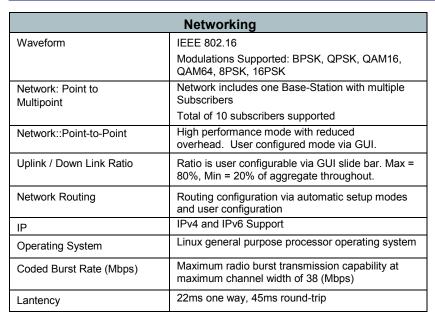
- Data Link High speed secure communications
- Sensor USB for transferring sensor data, 2 UART ports, and Video Input
- **Relay** "Over-the-hill "communications link for VoIP voice, data, video, and imagery.



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Management Features		
Remote Management	Radios can be configured remotely over the network via USER login via GUI	
User Interface	Web Based GUI Serial Command IF, Serial Data Ethernet 10/100/1000 SNMPv3	
Software Selectable BS /SS	Radios can be configured via GUI selection as either a base-station or subscriber-station.	

Environmental		
Temp	-40 to 70C, cold plate	
Chassis	Sealed	
Cooling	Conduction	



Radio Specifications		
RF Freq.	1800 - 2400 MHz	
Channels Supported	User Configured in 1 MHz steps via GUI or SNMP	
Channel BW	3.5. 7.0 or 14.0 MHz	
Channel Tun- ing Steps	Configured in 1 MHz steps via GUI	
RF Output	8 W Average @ BPSK for OFDM	
Power	24 W Average for GMSK	
Noise Figure	<4 dB	

Connector Interfaces		
High Speed I/O Network I/O	Ethernet	
DC Power	9v to 36v	
Low Speed I/O	RS232 x 2	
Tx/Rx I/O	Supports external switching amplifiers if more power is desired.	
Video I/O	Ethernet	
RF I/O	1 TR/Rx and 1 Rx	
Physical Characteristics		
Size	5.75"W x 9L" x 3H"	
Weight	~ 4 lbs	
Power	~61 watts @ 90% Tx Duty Cycle, ~12W when RxOnly	

User Data Rates		
BPSK 1/2@ 3.5MHz	1.0 Mbps	
BPSK 1/2 @ 7MHz	2.0 Mbps	
QPSK 1/2 @ 3.5 MHz	2.1 Mbps	
QPSK 1/2 @ 7 MHz	3.9 Mbps	
QPSK 3/4 @ 7 MHz	5.8 Mbps	
QAM16 3/4 @3.5 MHz	6.5 Mbps	
QAM16 3/4 @7MHz	11.8 Mbps	
QAM64 2/3 @7MHz	17.6 Mbps	
QAM64 3/4 @14 MHz	37.9 Mbps	

Situational Range Performance (BPSK 3.5 MHz)		
3 dB ground omni to 0 dB air omni	12.4 miles, 20 km	
10 dB ground patch to 0 dB air omni	24.9 miles, 40 km	
15 dB ground omni to 0dB air omni	46.6 miles, 75 km	
27 dB ground directional to 0 dB air omni	161 miles, 260 km	

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