

XL8000

High Performance Short Haul Radio

The DXL8000 6 to 23 GHz Short Haul Radio is a compact, high performance, split mount digital duplex microwave radio designed for Studio to Transmitter, Transmitter to Studio and “last mile” point to point applications. The DXL8000 delivers aggregate data rates up to 170 Mbps at 64QAM modulation.

The DXL8000 supports from 1 – 4 independent, user selectable transport streams, and includes Web Browser Management Interface to optimize transmission parameters for maximum spectral efficiency. Transport stream options include ASI, SMPTE 310M, in support of ATSC, DVB-T, ISDB-T BTS and DS3 / E3, 100BaseTX Ethernet, and T1/E1. The advanced digital modulator includes Viterbi error correction for ultra-robust performance under adverse path conditions, while the adaptive equalizer at the receiver automatically compensates for multipath errors.

The DXL8000 is built for easy installation, setup, and management. The split-mount design enables the use of economical coaxial interconnects between the Indoor Unit and the rooftop or tower mounted Outdoor Unit. The radio’s advanced control processor with embedded web server provides a rich set of control and configuration options both locally, and remotely, over a secure IP connection.

The control processor monitors all operating parameters, which immediately reports alarm conditions via the GUI and relay contacts. You may customize alarms to suit your preferences, a wayside serial port is included for service channel support.

The DXL8000 Short Haul Radio delivers industry leading throughput performance, an extensive range of interface options and advanced configuration and control to meet broadcasters’ present requirements and future growth plans.

Key Features

- Send up to 3 ASI Signals Simultaneously
- Part 74 FCC Compliant
- Easy to Use Web Browser Monitor & Control
- Fully Enabled Out of the Box (no additional licenses to purchase)
- Duplex Mode Enables High-Speed Ethernet



Features

- High Performance
 - Up to 170 Mbps throughput
 - Integrated Multiplexer & Modulator
 - Duplex and Simplex configurations
- Multiple Transport Streams
 - ATSC, DVB-T, ISDB-T BTS
 - SMPTE 310M, ASI
 - 10/100 Ethernet
 - Telco DS3/E3 and T1/E1
- Advanced Management functionality
 - Browser based local and remote configuration/monitoring
 - Firmware upgrades in the field
 - Embedded Wayside data channel
- Designed for Reliability
 - Transmitter provides ultrarobust performance under adverse path conditions
 - Receiver automatically compensates for multi-path errors
 - Versatile 1 RU split mount design configurations
- IF Only option for use with external 70 MHz modems
- ANSI and ETSI Versions

Typical Applications

- “Last Mile” Point-to-Point Microwave
- Studio to Transmitter Link
- Short to Medium Range Transmission

General

Frequency Range:

- 5.9 to 6.4 GHz
- 6.4 to 7.1 GHz
- 7.1 to 7.9 GHz
- 7.9 to 8.5 GHz
- 10.7 to 11.7 GHz
- 12.7 to 13.25 GHz
- 17.7 to 19.7 GHz
- 21.2 to 23.6 GHz

Channel Bandwidths:

- 10, 20, 30, & 40 MHz

Modulation:

- QPSK, 16QAM, 32QAM, 64 QAM

Data Rates:

- Up to 45 Mbps in 10 MHz (Std.)
- Up to 90 Mbps in 20 MHz (Std.)
- Up to 135 Mbps in 30 MHz (optional)
- Up to 170 Mbps in 40 MHz (optional)

Symbol rate range:

- 1 to 20 Mbps (standard)
- 1 to 33 Mbps (optional)

User Definable Signal Interface Options

ASI, ATSC, ATSC-H, ISDB-T:

- Impedance:
 - 75 Ω Unbalanced, \pm 5%
- Data Rate:
 - Any transport stream rate up to 90 Mbps
- MPEG Support:
 - 188 byte Auto Detection or 204 byte packets
- Standards Compliance:
 - DVB-ASI per EN 50083-9

SMPTE 310M, ATSC, ATSC-H:

- Impedance:
 - 75 Ω Unbalanced, \pm 5%
- Data Format:
 - Biphasic Mark Coding
- Clock Rate:
 - 19.39265 Mbps, \pm 2.8 ppm
- Data Rate:
 - 19.39265 Mbps (same as clock rate)
- Standards Compliance:
 - SMPTE 310M

TI/EI:

- Impedance:
 - 100 Ω Balanced, \pm 5%
- Line Rate TI:
 - 1.544 Mbps \pm 32 ppm
- Line Rate EI:
 - 2.048 Mb/s \pm 32 ppm
- Line Coding:
 - TIAMI or B8ZS (user selectable, each channel)
- Line Coding EI:
 - AMI or HDB3 (user selectable, each channel)

DS3:

- Impedance:
 - 75 Ω unbalanced, \pm 5%
- Line Rate:
 - 44.736 Mbps, \pm 20 ppm
- Line Coding:
 - B3ZS

10/100BaseT:

- Protocol:
 - User Programmable HDLC and LAPS mapping

Interface Rate:

- 10/100Base T limited to ASI rate setting

E3:

- Impedance:
 - 75 Ω unbalanced, \pm 5%
- Line Rate:
 - 34.368 Mb/s \pm 20 ppm
- Line Coding:
 - HDB3

IDU/ODU Interface:

- Interconnecting Cable:
 - 850 ft. Max
- Connector Type:
 - Type N (both ends)
- Cable Type:
 - LDF4-50A, LMR-400 or equiv.

IF Only Option (via external modem):

- Input/Output Frequency:
 - 70 MHz
- IF Levels:
 - -10 dBm nom.l

Standards Compliance:

- IEEE 802.3-2002, RFC1662, RFC2615, X.86, RMII

Manager Interface:

- 10BaseT (Web browser)
- Summary Alarm/Alert:
 - Two independent Form C relay closures via DB-9 connector on rear panel.

Physical and Environmental

IDU:

- Weight:
 - 7.6 lbs [3.45 kg]
- Dimensions:
 - 1RU 19" EIA Rack Mount
 - 15.5" Deep (from mounting brackets)

ODU:

- Weight:
 - 10.1 lbs [4.6 kg]
- Dimensions:
 - 10.5" Dia. x 3.5" Depth [26.7 cm x 8.9 cm]

Temperature:

- ODU Operational:
 - -22° to +131° F [-30° to +55° C]
 - (Cold start at -45° C [-49° F])
- IDU Operational:
 - 0° to +50° C [32° to +122° F]

Power & Consumption

- Power:
 - 90-132V and 180-264V at 47-63 Hz
- Consumption:
 - 120W Max.
- Line & load regulation:
 - \pm 2% over AC input range and 0 to 100% load change.

RF Performance

RF Band (GHz)	Regulatory Standard	Frequency Tolerance	Channel B/W MHz	Duplex T/R Spacing MHz	Typ. RF O/P QPSK dBm	Typ. RF O/P 16QAM dBm	Typ. RF O/P 32QAM dBm	Typ. RF O/P 64QAM dBm	Rx Threshold 16QAM	Typ.Noise Figure
5.9 to 6.4	FCC Part 101	0.001	30	252.04	30	28		24	-76	<2.5
6.4 to 7.1**	ETSI Plan	0.001	7,14, 28, 40	340	30	30		24	-76	<2.5
7.1 to 7.9	ETSI	0.001	7,14, 28, 40	154, 160, 161, 168, 196, 245	30	28	28	24	-77	<3.0
7.9 to 8.5	ETSI	0.001	7,14, 28, 40	154, 160, 161, 168, 196, 245	30	28	28	24	-77	<3.0
10.7 to 11.7	FCC Part 101	0.001	30, 40	490/500	28	26		21	-77	<3.0
12.7 to 13.25	FCC Parts 74 and 101	.001	10, 20, 30, 40	266	26	23	23	18	-77	<3.0
17.7 to 19.70	FCC Parts 74 & 101	0.001	10, 20, 30, 40	1560	25	22		17	-77	<6.0
21.2 to 23.6	FCC Part 101	0.001	10, 20, 30, 40	1200	25	22		17	-76	<6.0

* Part 101 only; 30 MHz channels not available in Part 74 FCC at 18 GHz

** ETSI -Export applications only, not available in US