longreach

The Backhaul Specialists

IR Series Digital Radios 1800 & 2100

PRODUCT DATA SHEET

(Typical values at 25°C unless otherwise stated)

SYSTEM

Operating frequency ranges	1713.5 - 1909.5 MHz 1900.0 - 2300.0 MHz	(1800 Series) (2100 Series)
RF channel spacings	3.5/7.0 MHz	
Tx/Rx separation (nominal)	119 MHz (90 MHz min)	
TDM channel capacity (standard PCM)	2.048Mbit/s (1 x E1) to 16.384Mbit/s (8 x E1)	
Type of modulation	QPSK, 16 QAM	
Roll off factor	alpha = 0.15	
Pulse shape	Raised cosine	
Ethernet channel capacity	Up to 18Mbit/s	
Spurious emissions at antenna port	≤ -60 dBc	
Co-channel performance	-23 dB (QPSK for a 1dB degradation in BER at 1×10^{-6})	
Adjacent channel performance 3.5 MHz channel spacing	+15 dB (QPSK for a 1dB degradation in BER at 1×10^{-6})	
7 MHz channel spacing	+18 dB	
Supply voltage	-24 V or -48 Vdc positive earth (Voltage ranges -20 to -32 V and -40 to -60 V respectively)	
Overvoltage protection	-36 V or -68 V respectively	
Reverse polarity protection	Fuse blows at +3.2 V	
Power consumption	Unduplicated: Duplicated (hot standby): (warm standby):	60 W 135 W 105 W
Alarm indicators	Front panel LEDs – IDU, ODU, Rx Sync, FEC Sync, E1/T1, Unsaved Configuration, Far End Status, Power and High BER	

TRAFFIC CHANNEL

Traffic channel modulation	QPSK, 16 QAM
Symbol Rate	5.5 or 11 Mbaud
Data input connector	RJ 45
Data input - TDM E1	HDB3, 120 Ω balanced (conforms with ITU Rec. G.703) 75 Ω unbalanced with optional Balun panel
Data input - TDM T1	AMI, B8ZS, 110 Ω balanced (conforms with ITU Rec. G.703) 75 Ω unbalanced with optional Balun panel

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SERVICE CHANNEL

Requires optional Services Interface Unit

Analog	VoIP-based EOW
Digital	1x RS 232, 1x RS485 4x general purpose I/O

TRANSCEIVER MODULE

Transmitter

Output power over band			
QPSK		+35 dBm	
16 QAM		+32 dBm	
Adjustable output power range		10 dB	
Synthesiser frequency step		100 and 125kHz	
Frequency stability		± 10 ppm	

Receiver

Threshold at converter input		BW = 3.5MHz	BW = 7MHz
QPSK	(1 x 10-3 BER)	-97 dBm	-94 dBm
16 QAM	(1 x 10-3 BER)	-89 dBm	-86 dBm
Noise figure at converter input		1.8 dB	
Maximum input power		-15 dBm	
Synthesiser frequency step		100 and 125kHz	
Frequency stability		± 10 ppm	
Intermediate frequency		70 MHz	
	3 dB bandwidth	3.1/6.2 MHz	
	40 dB bandwidth	4.6/8.1 MHz	
AGC dynamic range		85 dB (input power from -100 to -15 dBm)	
AGC Voltage range		0 to 4.5Vdc (0 V @ -15dBm)	
Demodulation		Coherent incorporating FORNEY convolutional deinterleaver and a Reed-Solomon Forward Error Correction	
Spurious response		< -60 dBc	
Image rejection (diplexer + converter)		< -70 dBc	
Power consumption		55W	

NETWORK MANAGEMENT SYSTEM (NMS)

Remote	SNMP
Local management and configuration	Local Craft Terminal using Telnet or Web-based GUI

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PSX PROTECTION SWITCH

Data in/out	HDB3, 120 Ω balanced (conforms with CCITT Rec G.703)
Data rates	Up to 8 x E1
System configurations	Hot Standby, Warm Standby, Space Diversity, Frequency Diversity
Tx switching modes	Automatic (Tx alarms) remote and manual switching
Rx switching modes	Automatic (Rx alarms) remote and manual switching
Rx selection	Hitless (while Receivers are operating normally)
Response time to Rx Threshold alarm	12 µs
Response time to other Rx alarms	12 µs
Failsafe Mode	Rx A and Tx A selected
Power consumption	20 W

DIPLEXER MODULE

Power rating	10 W
Rejection of Tx frequency at Rx	70 dB

Insertion Loss (antenna to Tx or Rx)	**Maximum**	**Typical**
Unduplicated Tx port	2.0 dB	1.8 dB
Unduplicated Rx port	2.0 dB	1.8 dB
Duplicated Tx	2.6 dB	2.4 dB
Duplicated Rx	6.2 dB	5.9 dB
Space Diversity Tx	2.6 dB	2.4 dB
Space Diversity Rx	2.0 dB	1.8 dB
Frequency Diversity Tx	2.0 dB	1.8 dB
Frequency Diversity Rx	2.0 dB	1.8 dB

SERVICES INTERFACE UNIT

Engineering Order Wire

Network Protocols	VoIP . SIP
Vocoder	ITU G.711 (PCM), one low bit rate (G.723.1 or G.729A/B)
Call Quality	Acoustic Echo cancellation supporting high-quality speakerphone Supporting G.165/G.168, AEC, AGC, LEC
Configuration method	Keypad entry or Re web browser
Handset operation	10 Feature keys: Flash, Redial, Hold, Speaker, Mute, Conference call. 10 Speed Dial keys

Digital Supervisory Interface 1

Modulation type	Digital (multiplexed with Ethernet traffic)
Data rates	Asynchronous up to 115.2 kbit/s (baud)
Interface	RS-485/V11 (4-wire)

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SERVICES INTERFACE UNIT (continued)

Digital Supervisory Interface 2

Modulation type	Digital (multiplexed with Ethernet traffic)
Data rates	Asynchronous up to 115.2 kbit/s (baud)
Interface	RS-232
Format	7/8 Data Bits, 1/2 Stop bits Odd/Even/None Parity XON/XOFF Flow control

Low Speed Signalling

Number of bidirectional channels	4x input, 4x output
Data rate	5 bit/s (maximum) asynchronously sampled, multiplexed into Ethernet
Interface Input	Optoccoupler (+5 Vmax)
Interface Output	N.O. and N.C Relay closure (60Vdc Max @ 1A)
Power consumption	20 W

MECHANICAL DATA

TRU Module

Dimensions (height x width x depth)	44.5 x 483 x 340 mm
Weight	6.0 kg

IDU Module

Dimensions (height x width x depth)	44.5 x 483 x 250 mm
Weight	3.5 kg

Diplexer with Splitter and Relay

Dimensions (height x width x depth)	89 x 483 x 305 mm
Weight	3.8 kg

Service Interface Unit

Dimensions (height x width x depth)	44.5 x 483 x 290 mm
Weight	3 kg

PSX Protection Switch

Dimensions (height x width x depth)	44.5 x 483 x 290 mm
Weight	4 kg

Unduplicated Terminal

Dimensions (height x width x depth)	198 x 483 x 340 mm
Weight	13.3 kg

Duplicated Terminal (Std)

Dimensions (height x width x depth)	312 x 483 x 340 mm
Weight	24.8 kg

Duplicated Terminal (ETSI)

Dimensions (height x width x depth)	312 x 600 x 340 mm
Weight	25.8 kg

ENVIRONMENTAL DATA

Specification temperature range	0 to +50°C
Operational temperature range	-10 to +60°C
Humidity tolerance	95% RH at 40°C

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Longreach

Longreach is one of the world's most experienced suppliers of microwave radio equipment for a diverse range of frequencies and applications.

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