

Microwave: Sierra Digital Series

MODEL 23DS3

21.2-23.6 GHz
Millimeter
Wave Radio

Link for DS3 DATA Transmission



FEATURES & BENEFITS

- ▲ Frequency synthesized tunable at Interface unit or remotely
- ▲ Output Power level control manual or automatic from interface unit or remotely
- ▲ One year factory warranty – High MTBF (>70,000 hours)
- ▲ Easy Installation – Single coax cable between RF head and inside unit for all signals and power (Not included)
- ▲ Forward Error Correction providing maximum data integrity and reliability
- ▲ Performance monitoring of all critical operational RF and data parameters
- ▲ Performance monitor logging for QOS reporting and diagnostic aid
- ▲ Configurable performance alarm limits and alarm relay activation
- ▲ Remote access to performance monitoring through dial up, direct PC connection or network connection. (Internal modem included)

APPLICATIONS

- ▲ Point to Point private and Telco voice and digital data applications
- ▲ Can be operated as a "Repeater" with antennas in "back to back" configuration

DESCRIPTION

The Model 23DS3 synthesized digital millimeter wave radio is a simple, low cost alternative to leased land-line DS3 circuits and more expensive microwave radio systems.

The carrier class performance ensures reliability and integrity of the data connection. High MTBF provides long-term operation in diverse climates with minimal service requirements.

Because of cost, response time, or right of way constraints with landlines; implementation of the 23DS3 will be quicker, easier and more affordable

Primary Benefits

- ▲ Quick deployment of system
- ▲ System is re-deployable if requirements change
- ▲ Fast ROI, less than 1 year
- ▲ High reliability, carrier class equipment
- ▲ Licensed for protection against interference
- ▲ Meets ANSI Standard T1.102-1993
- ▲ Meets CCITT Rec.G.703

The radio comes in both an integrated antenna configuration (12") or with a Waveguide flange to attach to external antennas of choice.

TECHNICAL SPECIFICATIONS FOR 23DS3**

TECHNICAL SUMMARY

Frequency Range	21.2 to 23.6 GHz
Standard TX/RX spacing	1200 MHz
Allocated RF Channel Bandwidth	50 MHz
Occupied Bandwidth	34 MHz
Modulation Type	4-level FSK (FM)

STATUS AND DIAGNOSTICS

Front panel menu driven status display
Standard Direct PC monitor and configuration utilities
Dial up access to all monitor & configuration utilities
Alignment Aids for quick path alignment

TRANSMITTER CHARACTERISTICS

RF Source	Digital Frequency Synthesized
Guaranteed Power Output	+17dBm (Minimum)
Power Control Option	7 steps down from Max power out
Frequency Stability (-30° to +70°C)	±0.001%
Tuning Range	Covers full band with Two (2) sets of units

(One set covers upper half & one set covers lower half)

In response to interference, radios may be tuned in 5 MHz increments at the control unit

RECEIVER CHARACTERISTICS

Dual Conversion Superhetrodyne	2500 & 70 MHz
Noise Figure (System)	5.5 dB (typical)
Sensitivity – Receiver Threshold (for 10-6 BER)	-72 dBm
Maximum receiver input (Damage will occur at +5 dBm)	-15 dBm

12" ANTENNA CHARACTERISTICS (23DS3i only)

Type	Parabolic
Diameter	12.5 inches (31.8 cm)
Polarization	Linear
Gain (22.4 GHz)	35 dB
Front to back ratio	42 dB
Beam width (3 dB)	3.2°

TRANSMISSION DATA

System Gain (nominal)	90 dB
Unfaded BER	<10 ⁻¹¹
Line Code	B3ZS

ENVIRONMENTAL CHARACTERISTICS

	OUTDOOR UNIT	INDOOR UNIT
Ambient temperature range	-30° to +70°C	0° to +50°C
Storage & Transportation	-40° to +80°C	-40° to +60°C
Humidity (non-condensing)	up to 100%	to 95% at +50°C

INPUT VOLTAGE REQUIREMENTS

Voltage Input	93 – 265 VAC
Brown-out Voltage	90 VAC
Line Frequency	50-60 Hz
(Six ft. power cord with 3-prong plug provided with indoor unit)	

POWER CONSUMPTION

Total power required per terminal (100 Watts for both terminal ends)	50 Watts Maximum
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FCC INFORMATION

FCC rules part	101
Frequency Range	21.2 – 23.6 GHz **
Emission Designator	42M0F7D
Frequency tolerance	±0.001%
FCC Maximum power output	100 mW (+20 dBm)

SIZE AND WEIGHT

	High	Deep	Wide	Wt.
Outdoor RF Unit (w/12" ant.)	15"	12"	15"	15lb.
Outdoor RF Unit (w/Ext ant.)	11"	8"	6"	15lb.
Indoor Interface Unit	19" Rack Mount wide			2U High (3.5")

INTERCONNECT CABLES & CONNECTORS

Cabling Between RF Head and Interface Unit	
0' to 1000'	Single 50W coaxial (Belden 9913 or Equivalent)
RF Head coaxial connector	Type N
Waveguide Flange (For connection to external antennas)	UG 595/U
DS3 In & Out connectors	BNC (75Ω) (CCITT Rec. G.703)
Phone Line (Modem)	RJ-11 (RS232C)
SNMP (future option)	RJ-45 (Ethernet 802.3)
PC Monitor	DB9 Male (RS232C)
Network Management	DB9 Male (RS232C)
Alarm Relay Output	3 terminal Phoenix type

FREQUENCIES

The lower half of the band is covered by one pair of units and the upper half of the band is covered by a second pair of units. Therefore to spare all possible frequencies would require four (4) different RF heads.

OPTIONS

Option 6	+ or – 24 VDC
Option 7	+ or – 48 VDC
Option 10	24" External antennas
Option 11	Flex Waveguide to connect antennas to RF Head
Option 12	Output Power Control
Option 17	Arctic Mode to operate down to -45°C (Increase power consumption)
Option XX	SNMP Management

* Specifications are subject to change without notice

** In the US, operation with 12" antennas is restricted to the following pair frequencies:

D	(21.825 / 23.025)
T	(21.875 / 23.075)
G	(21.925 / 23.125)
E	(21.975 / 23.175)

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