

Microwave: Sierra Digital Series

Applications

- ▲ Point to Point short haul, light density applications.
- ▲ Extending communications service, including voice\data distribution, local/wide area networks and PBX intra-city trunk line connections.

MODEL 2420S
 24.0-24.25 GHz MILLIMETER WAVE RADIO LINK
AUDIO TRAFFIC CONTROL
PART 15/ISM - NO LICENSE REQUIRED



Features & Benefits

- ▲ Ease of installation and maintenance.
- ▲ No licensing required - The 24.0-24.25 GHz band is a Part 15/ISM Band and operation there does not require any licensing by the FCC.
- ▲ Low cost - No recurring monthly charges, fast payback.
- ▲ One year warranty - Low parts count, highly derated solid state devices make for extremely high MTBF.
- ▲ Low maintenance - simple, compact design ensures a lifetime of troublefree service.

Description

The 2420S series digital millimeter wave radio is a simple, low cost, wireless, alternative to fiber or copper.

The primary application for the 2420S is to facilitate the rapid and cost effective interconnection of traffic signals in a vehicular traffic control network. This provides the ability to synchronize the signals to optimize the flow of traffic. This reduces air pollution and delays the need for additional traffic lanes.

Two units make up the 2420S system:

- A weatherproof outdoor transmitter/receiver/antenna unit.
- An indoor audio interface unit which provides a 2/4 wire compatible transceiver and the required power supply.

TECHNICAL SUMMARY

RF Source	Crystal-Controlled Synthesized Source	Audio Interface Response	0 to -55 dBm
Frequency Range	24.0 to 24.25 GHz	Audio Interface Input Impedance	600 Ohms Balanced
Standard TX/RX spacing	125 MHz	Tuning Range	Covers full band with Two (2) sets of units
R.F. Channel Bandwidth (recommended)	15 MHz		(One set covers upper half, one set covers lower half)
Modulation type.	FM		
Audio Interface Bandwidth	300 Hz to 11 kHz		

Technical Specifications for the 2420S*

ORDERING INFORMATION

Full Duplex Millimeter wave Radio Link Model 2420S for Audio Traffic Control Applications

OPTIONS

(Consult the Factory)

Note that standard models will accept input voltages from 93 to 265 VAC, 50/60 Hz.

6. ± 48 VDC

7. ± 24 VDC

17. Arctic Mod to Operate Down to -45 C. (Increases Power Consumption)

TRANSMITTER CHARACTERISTICS

RF Source	Crystal Controlled Synthesized Source
Frequency Stability (-30°C to +60°C)	± 0.001%
Maximum Allowable Power Output	250mv/m ² measured 3 meters from the radiator/antenna. (field strength)

In response to interference, radios may be tuned in 5 MHz increments in the RF Head.

RECEIVER CHARACTERISTICS

Type	Superhetrodyne
Noise Figure (system)	6.0 dB Max
Maximum receiver input	-15 dBm (Damage will occur at -5 dBm)
I.F. Frequencies (dual down-conversion)	2,600 MHz and 70 MHz
Sensitivity	
For 10 ⁻⁶ BER Operating Point	-88 dBm
For 10 ⁻³ BER Operating Point	-91 dBm

ANTENNA CHARACTERISTICS

Type	Parabolic
Diameter	12.5 inches (31.8 cm)
Polarization	Linear
Gain (24.125 GHz)	35 dB
Front to back ratio	42 dB
Beamwidth (3 dB)	3°

ENVIRONMENTAL CHARACTERISTICS

	OUTDOOR UNIT	INDOOR UNIT
Ambient temperature range	-30° to +70° C (wider range available with Arctic modification)	0° to +50° C
Storage & transportation	-40° to +80° C	-40° to +80° C
Humidity (non-condensing)	up to 100%	up to 95%

INPUT VOLTAGE REQUIREMENTS

Power input	93 to 265 VAC ± 10%
Brown-out voltage	90 VAC
Line frequency	50/60 Hz

Six foot 3-prong power cord provided with indoor unit.

TRANSMISSION DATA

At a path length of 1 mile, 10-6 BER is achieved with a fade margin of 20 dB.

POWER CONSUMPTION

Total power required per Terminal	50 Watts Maximum (100 Watts Maximum for both ends of the link)
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STATUS AND DIAGNOSTICS

LED status indicators	Primary power
LED alarm indicators	AGC alarm
Diagnostic aids	Signal level meter, IF test points

FCC INFORMATION

FCC identifier	I08SDC-2420
FCC rules part number	15
Frequency range	24.0 - 24.25 GHz
Frequency tolerance	± 0.001%

SIZE AND WEIGHT

	High	Deep	Wide	Wt
Outdoor RF Unit (excluding mount)	15"	12"	15"	15 lb.
	38cm	30cm	38cm	7.0 kg
Indoor audio interface unit	One mounting space (1.75") in 19" rack panel			

INTERCONNECT CABLES & CONNECTORS

Up to 250' between the RF Unit and the Audio Interface Unit, 18 Gauge, stranded, 3 twisted pairs, polyethylene insulated, individually shielded with separate 20 Gauge drain conductors and PVC overall jacket. Acceptable manufacturers are Belden 9773, Standard Wire 405-3G, and Guardian E5803. If the cable run is longer than 250', use 16 Gauge up to 500', or 14 gauge up to 1000'. Maximum cable run is 1000'.

CONNECTORS

Outdoor Connectors	AMP 7 pin CMC
Indoor Connectors	6 Wire, Phoenix
Audio Cable	4 Wire, Phoenix Header to Spade Lug

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.

* Specifications are subject to change without notice

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