

Microwave: Sierra Digital Series

Applications

- ▲ Remote surveillance
- ▲ Remote arraignment
- ▲ Teleconferencing
- ▲ Last-mile connection
- ▲ Back-haul
- ▲ General single channel private network video transmission.

**MODEL
2320S/21S
(SYNTHESIZED)
21.2-23.6 GHz MILLIMETER
WAVE VIDEO LINK
VIDEO SIMPLEX OR DUPLEX
MEDIUM HAUL
APPLICATIONS**



Features & Benefits

- ▲ Low cost - No recurring monthly charges, fast payback.
- ▲ Flexible - Simplex or Duplex video with One (1), or as an option, Two (2), duplex RS422 channels.
- ▲ One-hour installation - Bolt in place, plug-in and aim.
- ▲ Available with integral 12" parabolic antennas or in a separate box for use with larger external antennas.
- ▲ One year warranty - Low parts count, and highly derated solid state devices make for extremely high MTBF.
- ▲ Operating frequency tunable at the Interface Unit with thumbwheel switches.
- ▲ Optional Output Power control at the Interface Unit with thumbwheel switch. (Auto Back Up)

Description

The 2320S/21S series millimeter wave video radios are simple, low cost alternatives to leased land line circuits.

Because of cost, response time, or right of way constraints with land lines, implementation of the 2320S or 2321S millimeter wave radio link will be quicker, easier, and more affordable.

The 2320S and 2321S radio links consist of four modules:

- For 2320S (duplex), two RF Heads, each containing a video transceiver and a single or dual RS422 transceiver.
- For 2321S (simplex), one RF Head containing the video transceiver and a single or dual RS422 transceiver, and one RF Head containing the video receiver and a single or dual RS422 transceiver.
- Two (2) Indoor Control Units.

Technical Specifications

TECHNICAL SUMMARY

Frequency Range	21.2 to 23.6 GHz
Standard TX/RX spacing	1200 MHz
Allocated Channel Bandwidth	50 MHz
Actual Occupied Bandwidth	approximately 25 MHz
Modulation type	2-level FSK (FM)

STATUS AND DIAGNOSTICS

LED Status Indicators	Primary power, Link continuity
LED Alarm indicators	AGC Alarm, Tx Alarm, RX Alarm, Frequency command error
Alignment Aids	Outdoor Unit: AGC Test Points Indoor Unit: AGC Level Meter



ORDERING INFORMATION

Simplex Video, One (1)
Duplex RS422 Model 2321S
Duplex Video, One (1)
Duplex RS422 Model 2320S

OPTIONS

(Consult the Factory)

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

6. + or - 24 VDC
7. + or - 48 VDC
10. 24" External Antennas
11. Flexguide sections to connect external antennas to RF Heads.
12. Output Power control
13. Add second RS422 channel
14. One or two RS232 channels (instead of RS422)

** In the US, operation with 12 Inch antennas is restricted to Pair numbers D (21.825/23.025), T (21.875/23.075), G (21.925/23.125), and E (21.975/23.175).

Technical Specifications for the 2320/21S*

TRANSMITTER CHARACTERISTICS

RF Source	Oscillator/ Multiplier/ Amplifier Type
Guaranteed Power Output	+17 dBm (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

Type	Dual Conversion Superhetrodyne 2500 & 70 MHz
Noise Figure	5.5 dB (typical)
Video Threshold for 46 dB S/N Ratio	-80 dBm
Sub Carrier Threshold (camera to monitor)	-80 dBm
Sub Carrier Threshold (monitor to camera)	-83 dBm
Maximum receiver input (Damage will occur at +5 dBm)	-15 dBm

12" ANTENNA CHARACTERISTICS

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

ENVIRONMENTAL CHARACTERISTICS

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

INPUT VOLTAGE REQUIREMENTS

Power input	93 - 265 VAC
Brown-out voltage	90 VAC
Line frequency	50 - 60 Hz

POWER CONSUMPTION

Total power required per Terminal	50 Watts Maximum (100 Watts Maximum for both ends of the link)
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FCC INFORMATION

FCC rules part number	101
Frequency range	21.2 - 23.6 GHz**
Emission Designator	25M0F8W
Frequency tolerance	± 0.001%
FCC Maximum power output	0.10 watts

SIZE AND WEIGHT

	High	Deep	Wide	Wt
Outdoor RF Unit with Integrated 12" antennas (excluding mount)	15"	12"	15"	15 lb.
Outdoor RF Unit for use with external antennas (excluding mount)	11"	8"	6"	15 lb.
RF unit mounts to 2.5" to 4.5" pipe, for integral 12" antenna configuration, mount for vertical polarization is supplied with unit.				
Indoor Interface Unit	19" Rack,	2RU mounting	space (3.5" high)	

CUSTOMER INTERFACE CONNECTIONS

Cabling for RS422	2 Shielded, Twisted Pair, #22AWG
Control Cabling Connectors	DB9
Video Cabling (Radio/Camera/Monitor)	RG-59/U (75 Ohm)
Video Cable Connectors, in and out	BNC

RF HEAD TO CONTROL UNIT

Coax Cable/Head to Cont. Unit	50 Ohm, Belden 9913 or equivalent
50 Ohm Coax Cable Connectors	Type N
DC Power cable (0 to 1,000' separation)	5 strands of #16 wire
Power Connector at RF Head	AMP 7 pin CMC (mating connector furnished)
Power Connection at Control Unit	Spade Lugs

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.

For more information on Telenetics' 2320 Series and other wireless products and services, contact us at:

949-455-4000 or visit
www.telenetics.com

* Specifications are subject to change without notice.