

MR-23CX

23 GHz Broadcast Quality Video Microwave System



Applications

- Studio-to-Transmitter Links and Transmitter-to-Studio Links
- CCTV Head Ends
- Medical Imaging
- Teleconferencing
- Distance Learning

Features

- Broadcast-quality 525/625 line video with up to 3 plug-in audio subcarriers
- Range to 10 miles
- 2', 4', or 6' antennas, single or dual polarization
- RF multiplexing of up to 4 duplex channels on a single antenna
- Optional 12 MHz bandwidth for high-resolution video

Overview

The MR-23CX is a solid-state analog microwave radio system operating in the 21.2 to 23.6 GHz frequency band. With proven reliability and outstanding performance, the MR-23CX is the economical short-haul choice to deliver professional broadcast-quality or high-resolution video.

The system employs an automatic frequency control (AFC) module in the receiver RF subsystem which tracks the transmitter frequency, thereby improving reliability in the field.

With its wide variety of configurations, it's easy to design the ideal system to meet your needs. Three antenna sizes are available in simplex, duplex or multiplex configurations, which allows transmission ranges of up to 10 miles. Repeaters allow even greater distances without significant degradation.

The optional 12 MHz bandwidth allows transmission of high-resolution images such as CAD/CAM and medical imaging at 1024 x 1024 lines of video.

Easy access is provided to all RF and electronics assemblies. Transmitter and receiver consist of weather-resistant integrated antenna/RF assemblies designed for outdoor use. Rack-mountable indoor Baseband Processing Units contain power supply and baseband circuits. Interconnection between indoor and outdoor units is by coax cable and power cable—no waveguide is necessary.

The compact, lightweight MR-23CX contains microwave technology that has been proven in thousands of installations worldwide. The combination of proven electronics design and sound innovative techniques assure outstanding performance and reliability.

SPECIFICATIONS

GENERAL

Operating Frequency Range: 21.2 to 23.6 GHz
 (Entire Parts 21 and 94 bands)
 Video Input/Output: 75Ω coax, BNC connector
 Audio Input/Output: 600Ω plug-in connector
 Video Capacity, Standard: 525/625 line
 Optional: 1024 x 1024 line
 Audio Capacity: Up to 3 audio subcarriers
 Each subcarrier can carry up to 56 kbps data. Optional configurations can carry T1 (1.544 Mbps).
 Baseband Bandwidth, Standard: 10 MHz
 Optional: Up to 12 MHz (+3 dB) with roll-off to 20 MHz
 Modulation: FM
 Video Signal-to-Noise: 67 dB min. (CCIR weighted with 40 dBm RCL)
 FM Deviation: ±4 MHz
 Primary Power: 115/220 Vac (50 to 60 Hz);
 24 or 48 Vdc optional
 Power Consumption (TX or RX): 70 Watt

VIDEO PERFORMANCE (-40 DBM RCL, 2 50' CABLE)

Chrominance to Luminance, Gain Inequality: +1 IRE
 Delay Inequality: +20 ns
 Waveform Distortion
 Field Time: 3 IRE maximum, Peak-to-Peak
 Line Time: 0.5 IRE maximum, Peak-to-Peak
 Short Time: 4 IRE maximum, Peak-to-Peak
 Differential (10 to 90 % APL)
 Gain: 2% maximum
 Phase: 0.5° maximum
 Signal to Noise Ratio (10 kHz to 5.0 MHz): 67 dB min.
 Signal to Hum (0 to 10 kHz): 62 dB min.
 Signal to Periodic Noise Ratio (300 Hz to 4.2 MHz): 67 dB min.
 Audio Performance
 Harmonic Distortion @ 1 kHz: 1.0% maximum
 signal to Noise Ratio: 66 dB minimum

ANTENNA, (SIMPLEX, DUPLEX OR MULTIPLEX)

FCC Licensed Use: Entire Part 21 and 94 bands
 Type: FCC Category A
 Mount: 3" or 4" pole or wall
 RF Interface: WR-42 choke or "O" ring
 Size: 2' dia, 4' dia, 6' dia.
 Gain (including radome loss): 40 dBi, 46.2 dBi, 49.9 dBi
 Beamwidth (3 dB): 1.8°, 0.8°, 0.5°
 Weight (net): 24 lbs, 145 lbs, 225 lbs
 (10.9 kg), (65.8 kg), (102 kg)

ALARMS AND STATUS INDICATORS

TX/RX Summary Alarms: Form C
 System Indicators, TX Meter: Receiver RF Monitor
 TX LED: Primary Power
 RX Meter: RX Carrier Level
 RX LED: Carrier, Primary Power, Phase Lock
 AGC Voltage: Back panel connection



TRANSMITTER

Power Output (at output of source)
 Minimum: 50 mW (+17 dBm)
 Typical: 66 mW (+18 dBm)
 Maximum: 100 mW (+20 dBm)
 Frequency Stability: ±0.03% (-30° to +50°C)
 Spurious Response: per FCC Part 94 and Part 21
 Video Input, Input Signal Level: 1 Vp-p
 Impedance: 75Ω
 Return Loss (0 to 4.2 MHz): 30 dB (without low pass filter)
 Audio Input (up to 3), Level: +8 dBm (adjustable 0 to +18 dBm)
 Impedance: 600Ω
 Return Loss (50 Hz to 15 kHz): 30 dB
 Subcarrier Frequencies: 6.2, 6.8, 7.5 MHz standard
 (other frequencies available)
 Auxiliary Baseband Unit, Impedance: 75Ω
 Return Loss (0 to 8 MHz): 26 dB
 Input Level: 1 Vp-p

RECEIVER

Type: Superheterodyne
 Receiver Threshold (37 dB weighted S/N): -74 dBm
 Noise Figure: 12 dB
 Video Output, Impedance: 75Ω
 Return Loss: 30 dB (without lowpass filter)
 Video Level: 1 Vp-p
 Audio Output (up to 3), Impedance (selectable): 600Ω balanced
 (less than 50Ω via jumper)
 Return Loss (10 Hz to 15 kHz): 30 dB
 Signal Level: +8 dBm (adjustable 0 to +18 dBm)
 Auxiliary Baseband Output: 1 Vp-p, 75Ω

OPERATING ENVIRONMENT

Temperature Range, RF Unit: -30° to +50°C
 Baseband Processing Unit: +10° to +40°C
 Relative Humidity, RF Unit: up to 100%
 Baseband Processing Unit: up to 95%

PHYSICAL

RF Unit: 6.5'h x 12'd x 9.875'w (16.5 x 30.5 x 25.1 cm)
 Baseband Unit: 1.75'h x 13'd x 19'w (4.5 x 33.0 x 48.3 cm)
 Weight:
 RF Unit, Simplex TX: 7 lbs (3.2 kg)
 RF Unit, Simplex RX: 8 lbs (3.6 kg)
 RF Unit, Duplex: 9 lbs (4.1 kg)
 TX Baseband Unit: 9 lbs (4.1 kg)
 RX Baseband Unit: 10 lbs (4.5 kg)
 Interconnection Cables: 50, 100, 250 foot standard kits.
 Up to 1000 feet upon request.

FCC DATA

Type Accepted: Parts 21 and 94
 FCC Identifier: BV88U4MA23CC
 Emission Designator: 25M0F8W

