

MR-23CX

23 GHz BROADCAST QUALITY VIDEO MICROWAVE SYSTEM

MAIN 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



Multiple MR-23CX RF Units with 4' Antenna.



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.

MR-23CX 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



**MICROWAVE
RADIO
COMMUNICATIONS**



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