



**MICROWAVE  
RADIO** corporation

The Microwave Connection

## MicroLink III 18/23 GHz Broadcast Quality Video Microwave System

### Features

- High-performance, high-quality design
- Broadcast quality 525/625 line video with up to 4 plug-in audio subcarriers
- Extensive diagnostic features for simple maintenance and serviceability
- Modular design employs slide-in modules with easy access via hinged front panel
- Field tunable across RF sub-bands
- 2', 4', or 6' antennas, single or dual polarization
- Simplex, full duplex, multiplex, and hot-standby configurations
- AC or DC power
- Stable digital synthesizer: standard at 18 GHz; optional at 23 GHz



The MicroLink III 18/23 GHz Video Microwave System is a high-performance short-haul system designed to deliver professional broadcast-quality video. The MicroLink III offers users an excellent solution to the heavy congestion, interference, and minimum path requirements encountered in the lower microwave frequency bands.

With its wide variety of configurations, it's easy to design the ideal system to meet your needs. The MicroLink III is available in simplex, duplex, multiplex, and hot-standby configurations. Up to 4 internal, high-quality audio channels can be carried above the video for transmission of program audio channels, low-speed data, or supervisory order wire in any combination. A full range of antennas (including radomes) is provided with single or dual polarized feeds which meet FCC Category A requirements.

The MicroLink III is an advanced design, solid-state FM microwave radio system operating in the 17.7 to 19.7 and 21.2 to 23.6 GHz frequency bands. Designed with extensive diagnostic features, the MicroLink III is simple to maintain and service. The modular design of the rack-mountable indoor Baseband Interface Unit employs plug-in modules with easy access via a hinged front panel. Diagnostic information is provided at the module level in addition to the system level for systematic troubleshooting. The MicroLink III utilizes the same high performance baseband modules found in the FLR series of long-haul microwave radios. The highly maintainable RF Unit also employs the use of plug-in modules with a removable cover for easy access to all the modules.

The MicroLink III offers high power output and high frequency stability. At 18 GHz, the transmitter features a high-stability RF source phase-locked to a stable crystal reference with frequency stability of  $\pm 0.003\%$ , along with a built-in RF monitor test point. At 23 GHz, frequency stability is  $\pm 0.03\%$ , and  $\pm 0.003\%$  with the optional AFC module which enables the system to meet international CCIR stability and channeling requirements. The receiver features

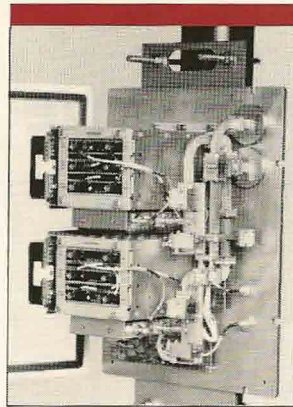
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an advanced dual-conversion superheterodyne design that incorporates a high first IF which provides superior image rejection.

The modular, MicroLink III system is engineered for reliable operation, easy access, and maintenance. The basic system is field-tunable over the full 600 MHz sub-band segments of the 23 GHz band, and over the 440 MHz sub-band assignments of the 18 GHz band. This field-tunability feature reduces system sparing requirements, and enables rapid servicing and maintenance.

The combination of field-proven electronics, innovative design techniques, and Microwave Radio Corporation's commitment to stringent quality standards ensures high system performance and reliability.

## MicroLink III SPECIFICATIONS

### GENERAL

Video:	525 or 625 line
Frequency Bands:	
18 GHz Band:	17.7 to 19.7 GHz
23 GHz Band:	21.2 to 23.6 GHz
	(Entire Parts 21 and 94 bands)
Audio Capacity:	Up to 4 audio subcarriers
Input/Output:	
Video:	75 ohm coax, BNC connector
Audio:	600 ohm plug-in connector
Modulation:	FM
Video Signal-to-Noise:	70 dB Min.
FM Deviation:	± 4 MHz
Configurations:	Simplex, Duplex, Multiplex, and Hot Standby
Primary Power:	115/220 Vac (50 to 60 Hz)
Optional:	24 or 48 Vdc optional
Power Consumption (Typical):	
Transmitter:	80 W
Receiver:	80 W

### SYSTEM PERFORMANCE

All measurements at -40 dBm RCL. Measurements are made in accordance with EIA RS250B or CCIR specifications, unless otherwise noted.

<b>VIDEO:</b>	
Signal-to-Noise Ratio (weighted):	70 dB min.
Signal-to-Hum (P-P/RMS):	62 dB min.
Frequency Response:	per RS-250B
Differential Phase:	0.5 Degrees max.
Differential Gain:	1% max.
Video Input/Output:	1V P-P, 75 ohms unbalanced
<b>AUDIO:</b>	
Signal-to-Noise Ratio:	70 dB Typical
Audio Response:	40 Hz to 12 KHz, ± 1.0 dB 12 KHz to 15 KHz, ± 1.5 dB
Harmonic Distortion @1 KHz:	0.5% max.
Audio Input/Output:	0 to +9 dBm, 600 ohms balanced Factory set to +8 dBm in/out

### TRANSMITTER

Power Output (without branching):	
Typical:	100 mW (+20 dBm)
Minimum:	66 mW (+18 dBm)
Frequency Stability:	
18 GHz Band:	± 0.003%
23 GHz Band:	± 0.03%, Standard ± 0.003%, Optional

### RECEIVER

Type:	dual conversion, superheterodyne
Threshold:	-75 dBm min. -77 dBm typ. (37 dB weighted S/N)
Noise Figure:	11 dB typical
Intermediate Frequency:	70 MHz

### ANTENNA OPTIONS

<b>(Category A)</b>				
General:				
Polarization:	Single or Dual Available			
Interface:	WR-42			
	<u>2' Dia</u>	<u>4' Dia</u>	<u>6' Dia</u>	
18 GHz:				
Gain:	39 dBi	45 dBi	49 dBi	
Beamwidth:	1.8°	0.9°	0.7°	
23 GHz:				
Gain:	40 dBi	46 dBi	50 dBi	
Beamwidth:	1.5°	0.7°	0.5°	





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### ALARMS AND STATUS INDICATORS

#### Alarms:

Transmitter Summary: Form C  
Receiver Summary: Form C

#### System Indicators:

Transmitter:  
Meter: TX RF Monitor  
Meter: +15 V, -15 V  
Meter: RF Assembly  
LED: Primary Power  
LED: Summary  
LED: Carrier Alarm

Receiver:  
Meter: RX Carrier Level  
Meter: +15 V, -15 V  
Meter: RF Assembly  
LED: Primary Power  
LED: Summary  
LED: RCL

Test Points/Internal Indicators: AGC Voltage, Subcarrier Alarms

### OPERATING ENVIRONMENT

#### RF Unit:

Operating Temperature: -30 to +55°C  
Relative Humidity: up to 100%

#### Baseband Unit:

Operating Temperature: +10 to 40° C  
Relative Humidity: up to 95%

### PHYSICAL

#### Size:

RF Unit: 13.75" (h) x 12" (w) x 8.5" (d)  
(35.0 x 30.5 x 21.6 cm)

Baseband Unit: Three vertical rack units 5.25"  
(13.33 cm) ; Contains up to 2 TX's,  
2 RX's, or 1 TX/RX

Mounting (RF Unit): Mounts to 3.5" (8.5 cm) to 4.5"  
(11.0 cm) diameter pole

#### Cabling:

Power Cable: AWG #18  
IF or Baseband: RG6/U  
Lengths: 50, 100, 250 feet standard kits.  
Up to 1000 feet upon request.  
A cable equalizer/clamper is  
available for longer runs.

### FCC DATA

#### 18 GHz:

Rule Parts: 21, 74, 78, 94  
FCC ID Number: FC35DZMRCL2

#### Emission Designator:

Video Only: 25MOF8F  
Video + Audio: 25MOF8W

#### 23 GHz:

Rule Parts: 21, 94  
FCC ID Number: FC35DZMRCL23

#### Emission Designator:

Video Only: 25MOF8F  
Video + Audio: 25MOF8W  
Digital + Analog: 25MOF9W