



**MICROWAVE
RADIO** corporation

The Microwave Connection

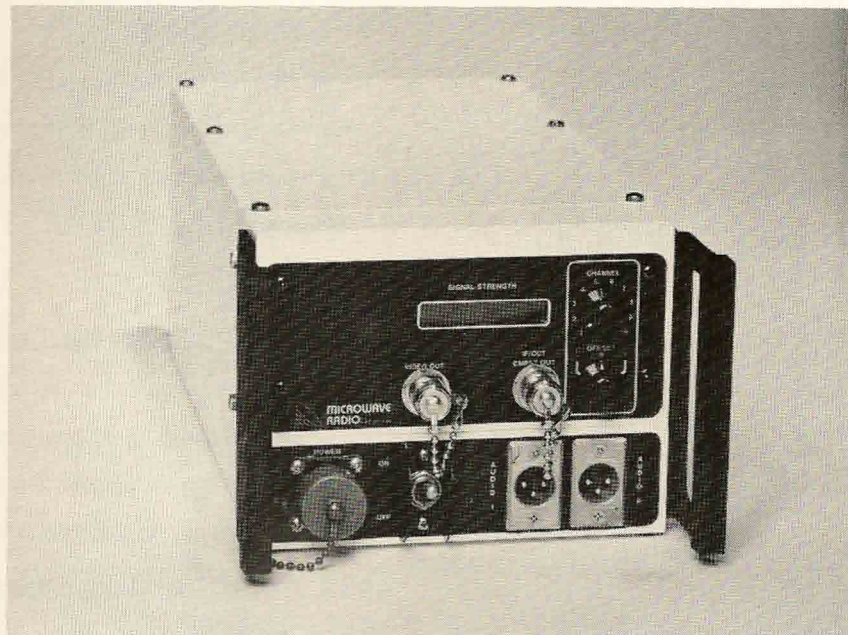
ProStar MR 2 GHz Portable Receiver

Features

- Dual conversion, frequency synthesized
- Superior rejection of adjacent channel signals
- Frequency bands:
 - 1990 - 2110 MHz — 21 channels
 - 1710 - 1850 MHz — 10 channels
 - 2200 - 2450 MHz — 10 channels
 - 2300 - 2700 MHz — 10 channels
- Dual synthesized audio demodulators, independently programmable standard subcarrier frequencies
- Low noise preamplifier standard
- Built-in power supply — 115/230 Vac (50/60 Hz) or 11.5 to 32 Vdc
- Ruggedized, weather-resistant
- Optional Twist-Loc adaptor for quick disconnect disc-rod antennas

Ordering Information

900340 ProStar MR Receiver
842221-1 Transit Case



The ProStar MR Portable Receiver is a self-contained, frequency agile receiver that offers superior performance, functionality and reliability. This dual conversion receiver provides full frequency agility across the domestic, government and international 2 GHz bands.

Its compact, lightweight design is ideal for broadcast applications such as portable tripod-mounted sidewalk, roof top or window link applications, and mobile news car or van repeater applications. Due to its superior performance, it can also be employed for network programming, emergency restoration, airborne repeater and intercity link applications where broadcast quality performance is essential.

The ProStar MR is designed to operate in crowded RF environments. A low noise preamplifier is standard and provides a typical overall receiver figure of 2.5 dB. Adjacent channel rejection is extremely high, and superior dynamic range permits high quality performance over a wide range of RF input levels.

The ProStar MR Receiver provides a composite baseband output, a filtered video output, and two 600 Ohm balanced audio outputs. These connectors, plus the AC/DC power connector, are provided on the front panel. The RF input connector is located on the rear of the unit.

MICROWAVE RADIO
corporation

847 Rogers Street,
Lowell, MA 01852, U.S.A.
(508) 459-7655
FAX: (508) 937-0010
TELEX: (910) 240-5078

PREMIUM RECEIVER DESIGN

The ProStar MR Receiver incorporates many Microwave Radio Corporation (MRC) exclusive design features that are not available in conventional receivers. The result is superior performance that includes: unparalleled selectivity, rapid and precise channel selection, and excellent audio performance.

SUPERIOR RF DESIGN

The ProStar MR features a superior RF front-end design that includes a high dynamic range LNA, an RF band filter and a high dynamic range mixer. This provides users with the ability to receive desired weak signals, even in the presence of strong interfering signals.

FREQUENCY AGILITY

The ProStar MR features a digital synthesizer that supports 21 channels (7 basic with offsets) for full multichannel flexibility across the 2 GHz broadcast band. MRC's unique channel selection scheme provides the unit with a rapid and precise channel selection capability. For government and international use, the ProStar MR can be programmed for any 10 channels in the 1.7 to 2.7 GHz range.

DUAL SYNTHESIZED AUDIO DEMODULATORS

ProStar MR Receivers are equipped with dual, frequency agile synthesized audio demodulators. These new synthesized demodulators not only provide the flexibility of field programmability to any subcarrier frequency, but also exceptional audio performance.

INTERNAL AC/DC POWER SUPPLY

A unique advantage of the ProStar MR Receiver is the ability to operate from AC or DC power sources with no modifications or external converters. The built-in AC/DC power supply allows quick and easy operation from 11.5 to 32 Vdc or 115/230 Vac, 50/60 Hz power sources.

RUGGED, WEATHER-RESISTANT ENCLOSURE

The ProStar MR Receiver electronics are enclosed in a ruggedized, weather-resistant case designed to function reliably under the most adverse field conditions. All connectors, switches and indicators are weatherproof and designed to withstand rugged usage.

PRO-STAR MR RECEIVER SPECIFICATIONS

GENERAL

Type: Superheterodyne, frequency agile, dual conversion
 Radio capacity: 525/625 line video, two audio channels
 Frequency range:
 Domestic, broadcast 1990 - 2110 MHz — 21 channels
 Government & 1710 - 1850 MHz — 10 channels
 International 2200 - 2450 MHz — 10 channels
 2300 - 2700 MHz — 10 channels

Local oscillator: Digital frequency synthesizer

Frequency stability: $\pm 0.005\%$

Receiver noise figure: 2 dB typical, 2.5 dB max.

Receiver threshold (37 dB video S/N): -87 dBm max.

IF bandwidth (70 MHz IF):

Standard 15 MHz
 Optional 10 or 20 MHz

Video outputs: Two; one video and one composite baseband

Level 1 V P-P

Impedance 75 ohms

IF output (70 MHz):

Level +5 dBm

Impedance 75 ohms

Audio outputs: Two

Level 0 to +18 dBm

Impedance 600 ohms balanced

VIDEO PERFORMANCE (See Table 1)

Signal-to-noise: 65 dB minimum

Signal-to-hum (P-P/RMS): 56 dB

AUDIO PERFORMANCE (NOTE 1)

Subcarrier frequencies: Synthesizer controlled, independently field programmable

Frequency response:

40 Hz to 15 kHz ± 1.5 dB maximum

40 Hz to 10 kHz ± 0.5 dB maximum

Harmonic distortion:

@ 75 kHz peak deviation 0.5% maximum

@ 200 kHz peak deviation 1.5% maximum

De-emphasis:

525 line 75 μ s

625 line 50 μ s

Optional Flat

Audio output level:

TT @ 75 kHz peak deviation 0 to +9 dBm

Maximum +18 dBm

Audio impedance: 600 ohms balanced

Audio signal-to-noise ratio: 65 dB Minimum

Ref: 75 kHz peak deviation with pulse and bar video test signal @ -40 dBm RCL (NOTE 2)

POWER REQUIREMENTS

115/230 Vac (50/60 Hz) or 11.5 or 32 Vdc at 38W inclusive

Size: 5.0" (H) x 6.5" (W) x 12.0" (D)
 (12.7 x 16.5 x 30.4 cm)

Weight: 14.5 lbs. (6.6 kg)

ENVIRONMENTAL

Temperature:

Operating -30 to +55°C

Full specifications -20 to +50°C

Relative humidity: 95% (0 to +40°C)

Altitude:

Operating 15,000 ft (4,500 m)

Storage 50,000 ft (15,000 m)

NOTE 1: Based on 15 MHz IF BW, RCL of -40 dBm and 525 line CCIR weighting. Receiver contribution only.

NOTE 2: Requires 60 dB minimum at 4.83 MHz SC frequency.

Specifications subject to change without notice.

Table 1. Video Performance**

(Note: Composite and filtered video outputs except as noted.)

Video Performance	15 MHz IF Filter (Standard)	20 MHz IF Filter (Optional)
Frequency Response (Composite Output) 10 kHz to 5.5 MHz*	± 0.25 dB maximum	± 0.25 dB maximum
Differential Phase (10-90% APL)	2°	1°
Differential Gain (10-90% APL)	5%	2%
Field Tilt	1 IRE unit	1 IRE unit
Chroma Delay Inequality (RCD)		
Composite Output	± 20 ns	± 20 ns
Filtered Output	± 40 ns	± 40 ns
Chroma Gain Inequality (RCL)	± 2 IRE units	± 2 IRE units
Luminance Non-Linearity	2% maximum	2% maximum
Long-Time Distortion (Bounce)	35 IRE units	35 IRE units

* Filtered output frequency response is dependent upon selected video filter.