



FEATURES

- 18-40 GHz Frequency Range
- Optional YIG Preselection
- Fundamental Mixing
- Synthesized Operation Capability
- Full RFI Shielding
- Remote Operation up to 200 Feet

DESCRIPTION

The FE 904 is an accessory unit designed to extend the frequency coverage of the MSR-904A Receiver to 40 GHz. Coverage of 18-26.5, 26.5-40 GHz or both bands is provided depending upon the model selected. There are no operating controls on the FE-904. Its operation is automatically controlled by the MSR-904A Receiver. A major feature is that frequency synthesis can be provided by the addition of an FS-1000 Synthesizer or FCS-904 Frequency Counter/Synthesizer to the receiver/frequency extender combination. The FE-904 can be located next to the MSR-904A, or it may be remote, together with the RF tuner assembly from the receiver, up to 200 feet from the receiver mainframe. Available options for the FE-904 include YIG preselection, a choice of coaxial or waveguide input for the 18-26.5 GHz band and RF sample output for frequency synthesis or counter operation. The FE-904

features self-contained power supply, ruggedized light-weight construction and full RFI shielding.

The FE-904 is supplied in three models:

- FE-904K — 18.0-26.5 GHz
- FE-904Ka — 26.5-40.0 GHz
- FE-904K/Ka — 18.0-40.0 GHz

Fundamental mixing is utilized over the full 18-40 GHz range providing excellent noise figure. The FE-904 utilizes a YIG tuned oscillator operating in the range of 8.9-13.4 GHz. Its output is doubled for the 18-26.5 GHz band and is tripled for the 26.5-40 GHz band. An IF output of 250 MHz from the FE-904 is supplied to the MSR-904A Receiver.

OPTIONS

Option 1—Preselection

This option provides tracked YIG preselection over the full frequency range of the FE-904.

Option 2—LO Sample

A sample of the YIG oscillator frequency is provided at $(FO + 250 \text{ MHz})/2$ in the 18-26.5 GHz band and $(FO + 250 \text{ MHz})/3$ in the 26.5-40 GHz band. This option is required for operation with the Frequency Synthesizer Models FS-1000 or FCS-904.

Option 3—Waveguide Input 18-26.5 GHz

This option provides WR-42 waveguide input with UG-595/U flange for the 18-26.5 GHz band in lieu of an SSMA coaxial connector.

WARRANTY

All Micro-Tel products are unconditionally warranted for a period of one year except for physical damage, provided the equipment is returned to the plant in Hunt Valley, Maryland.

SPECIFICATIONS

Frequency Range	FE-904K — 18.0 to 26.5 GHz FE-904Ka — 26.5 to 40.0 GHz FE-904K/Ka — 18.0 to 40.0 GHz
Antenna Inputs	18.0-26.5 GHz — SSMA Sub-Miniature coaxial or WR-42 Waveguide with UG-595/U flange (Option 3). 26.5-40.0 GHz — WR-28 Waveguide with UG-599/U flange.
Frequency Indicator	Provided by MSR-904A Receiver, FS-1000 or FCS-904
IF Output	250 MHz.
Image Rejections	With Option 1 — Preselection: 18.0-26.5 GHz, 60 dB minimum. 26.5-40.0 GHz, 55 dB minimum.
Noise Figure	Without Option 1 — Preselection: 18.0-26.5 GHz, 14 dB typical (1). 26.5-40.0 GHz, 14 dB typical (1). With Option 1 — Preselection: 18.0-26.5 GHz, 20 dB typical (1). 26.5-40.0 GHz, 23 dB typical (1).
Preselection (Option 1)	3 ball YIG-filter with 18 dB/octave selectivity, automatically tracked in all tuning modes.
Residual FM	18.0-26.5 GHz, 60 kHz maximum, 200 Hz when synthesized. 26.5-40.0 GHz, 100 kHz maximum, 300 Hz when synthesized.
Frequency Stability	3 MHz/°C unsynthesized, 3×10^{-4} /day synthesized.
Local Oscillator Sample Output (Option 2)	-7 dBm min. (8.9 to 13.4 GHz).
Size	8.5" wide x 5.25" high x 13.85" deep.
Weight	13 pounds.
Power Input	115/230 volts, 50-400 Hz, 50 watts maximum.
Notes:	(1) Noise figure is typical over 90% of the band. Maximum value is 3 dB higher.

ORDERING INFORMATION (Please see latest price list.)

FE-904K

Frequency Extender
18.0-26.5 GHz

Standard, Without Preselection

Option 1.....Preselection

Option 2.....LO Sample

Option 3.....Waveguide Input

18.0-26.5 GHz Only

FE-904Ka

Frequency Extender
26.5-40.0 GHz

FE-904/Ka

Frequency Extender
18.0-40.0 GHz