

RF-590A
HIGH PERFORMANCE
LF/MF/HF-SSB
RECEIVER

a versatile receiver
with world-proven
performance



The RF-590A is a high performance LF/MF/HF receiver ideally suited for a wide range of fixed site, transportable and shipboard communications or surveillance applications.

The low noise synthesizer and high-intercept front end provide high instantaneous dynamic range and result in excellent performance in the face of severe spectral congestion in the LF/MF/HF bands. Addition of the optional internal digitally-tuned preselector further enhances this performance for severe collocation environments.

The receiver covers 10 kHz to 30 MHz in 1-Hz increments and provides memory storage for up to 100 channels of frequency, mode, bandwidth, and AGC time constant settings. Modes of operation include USB, LSB, ISB (optional), CW, AM, and FM and are supported by a range of six IF bandwidths and four AGC speeds, including a LINK 11-compliant DATA selection. Optional filters are available which are fully compliant with LINK 11 and suitable for other high speed HF modems to 9600 bits per second.

The RF-590A is fully remote controllable for applications such as large multi-channel systems and split-site configurations. Essentially all parameters may be controlled and signal strength and BIT results monitored via the MIL-STD-188, RS-232, and RS-422 interfaces provided.

Built-in test features diagnose and isolate malfunctions to the module level allowing for rapid troubleshooting and module replacement, minimizing time to repair.



Specifications for the RF-590A

General

Frequency Range	10 kHz to 29.999999 MHz in 1 Hz steps
Frequency Stability	± 1 part in 10^6 – Standard ± 1 part in 10^8 – Optional
External Frequency Standard	1/5/10 MHz, 0.5 VRMS
Channel Memory	100-channel capacity
Modes of Operation	USB (J3E, A3J), LSB (J3E, A3J), 2-ISB (B8E, A3B) (optional), CW (A1A, A1), AM (A3E, A3), FM (F3E, F3)
Sensitivity	For 10 dB (S+N)/N, above 50 kHz SSB: 0.35 μ v CW: 0.15 μ v (300 Hz) AM: 1.5 μ v (6 kHz)
IF Bandwidths	Mode 3 dB BW (kHz) USB 2.8 LSB 2.8 CW 0.3 CW 1.0 AM 3.2 AM 6.0 AM/FM 16
Intermodulation	In Band: –50 dB or better for (2) –7 dBm signals within the IF passband Out of Band: –50 dB or better for (2) 0 dBm signals separated 30 kHz or more
Reciprocal Mixing	≤ -107 dBc in 3 kHz @ ≥ 100 kHz separation
Image and IF Rejection	–100 dB

Spurious Rejection	Internal ≤ -123 dBm, external –80 dB
Maximum Signal Input	Receiver protected to 100 watts available power input
AGC	Range: ≤ 3 dB audio output variation for 1 μ v to 1v input Attack Time: <20 msec Hang/Decay Times: Short, <30 msec.; Medium, 200 ± 50 msec.; Long, $2.5 \pm .5$ sec. Data
BFO	± 9.99 kHz in 10Hz steps
Hum and Noise	< –50 dB
Ultimate (S+N)/N	50 dB
Audio Outputs	Line Output: –16 to +10 dBm/600 ohms Phone: +10 dBm/600 ohms Internal Speaker: 2.0 W/8 ohms External Speaker: 2.5 W/8 ohms

Environmental

Temperature	Operating: –10°C to +55°C Non-Operating: –62°C to +71°C
Humidity	0 to 95%
Installation	
Power Supply	115/230 VAC $\pm 20\%$, 47 to 420 Hz,
Power Consumption	75 watts
Size	5.25" H x 19" W x 19.5" D max (13.3H x 48.3W x 49.5D cm)
Weight	40 lb (18.2 kg)

Internal Options for the RF-590A

High stability frequency standard – RF-593	Digitally-tuned preselector – RF-596A-02
2-Channel ISB – RF-595A-01	Noise blanker – RF-597A
2-Channel ISB (Delay compensated filters) – RF-595A-02	AFSK converter – RF-599A
Syllabic squelch – RF-597A-02	

Specifications are subject to change without notice.



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