

BELAR AM RF AMPLIFIER

RFA-2

DESCRIPTION

The state-of-the-art design of the BELAR RFA-2 AM RF Amplifier — a selective, high gain, all solid state unit with automatic gain control (AGC) and companion to the BELAR AM Frequency and Modulation Monitors makes it possible to monitor off-the-air AM signals accurately and conveniently without the problems associated with changes in transmitter power level, antenna patterns, and signal fading. The RFA-2 allows monitoring of both carrier frequency deviation and modulation characteristics from a point remote from the transmitters in the 530-1710 kHz band.

The RFA-2 uses both crystal controlled superheterodyne and heterodyne repeater principles to provide a virtually distortionless, spurious free output for modulation monitoring and a frequency restored output for frequency monitoring.

The intermediate frequency (IF) of the RFA-2 is 260 kHz whereby a precision 30 kHz wide band-pass filter is used to remove the unwanted adjacent channels and still retain the full frequency response and linearity for accurate monitoring of 10 kHz modulating frequencies. The IF is amplified by a linear, feedback amplifier whose output then drives the modulation measuring portion of the AM monitor. There is a 6 dB margin in the output capability to permit the high positive peaks of supermodulated carriers to be accurately monitored.

A portion of the 260 kHz is fed to a limiter to remove modulation and is mixed with the local oscillator frequency to restore the original station frequency. The

output is filtered to remove unwanted signals and is amplified to provide a frequency measuring output.

The outstanding feature of the RFA-2 is the AGC range — the total range is more than 30 dB. Sufficient feedback is employed to hold the output level constant to better than 2% for an input level change of 12 dB. This eliminates the problems encountered by station's having to change power levels or antenna patterns. The AGC also holds the level constant in remote locations where signal fading is a problem.

SPECIFICATIONS

RF Sensitivity	100 uv. across 50 ohms
Antenna Required	Whip or Loop
Bandwidth	0.2 dB $\pm$ 10 kHz -3 dB $\pm$ 16 kHz Greater than -40 dB $\pm$ 40 kHz
I.F.	260 kHz
IMAGE REJ	Greater than 50 dB
IF REJ	Greater than 50 dB
RF OUTPUTS	260 kHz for MODULATION measurements, 5 volts RMS min.
STATION FREQ for FREQ measurements	
AGC Range	Less than 2% change in carrier level for 12 dB change in input level
Size	3½"H x 19"W x 11½"D
Net Weight	8 lbs.
Shipping Weight	11 lbs.

BELAR SHIELDED LOOP ANTENNAS

LP-1, LP-1A

BELAR Shielded Loop Antennas are recommended when excessive electrical interference exists, or in the presence of an interfering station.

The basic design of a loop receiving antenna reduces electrostatic noise, and by using the natural directional receiving pattern, off-axis interference from other stations can be minimized by rotating the antenna.

SPECIFICATIONS

Model LP-1 Shielded Loop Antenna

Frequency Range . . . 530 kHz to 1710 kHz in 3 bands
Diameter 36" (914 mm)

Mounting	½" NPT
Connector	BNC
Attenuation	30 dB
Permissible Wind Load	150 mph 100 mph with ¾" ice

Model LP-1A Shielded Loop Antenna (Amplified)

Specifications as above, except that internal amplifier provides 30 dB gain for unity output. +12 to +15 vdc required. (Belar RFA-2 RF Amplifiers can be simply modified to provide the voltage source)

OPTION 01: External 12 vdc Power Supply



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Where Accuracy Counts. . . Count on Belar

Manufactured in the U.S.A.