

Rear-panel BNC jacks provide inputs for the antenna and external reference oscillator, plus access to mixer and I.F. monitoring points. A standard DB-25 jack accepts a Multi-drop RS-232 line for remote receiver operation. The RX-340's built-in power supply is designed for international use, accepting a wide range of voltages and line frequencies. Conservative engineering, all-SMD circuitry, and rugged mechanical construction ensure reliable long-term performance.

1-2 SPECIFICATIONS:

Applicable from 50 kHz to 30 MHz, unless otherwise stated.

Power Supply: Internal, accepts 48-440 Hz line power, 90-264 VAC. 30 watts nominal.

Frequency Tuning System:

Tuning Range: 50 kHz to 30 MHz at typical sensitivity. Tunable to 0 MHz with degraded performance.

Tuning Increment: 1 Hz minimum.

Synthesizer lock time: 10 mS nominal.

BFO: Tunable in CW mode only, ± 8 kHz, 10 Hz steps. Fixed frequency in SSB and ISB modes, disabled in AM and FM modes.

Accuracy: All internal oscillators may be locked to either internal or external frequency standards.

The internal reference is adjustable by a continuously variable trimmer, allowing calibration to any desired accuracy.

Stability (internal standard): ± 1 ppm within the 0-50 degrees C operating range.

External Frequency Standard: 1, 2, 5, or 10 MHz ± 1 ppm, 500 mV-2V p-p, high impedance load.

The receiver automatically detects and uses the external standard upon application, at power-up, or after serial link activity. If the external standard slews far outside the ± 1 ppm specified, internal circuitry will lose lock until the input returns to within specification, or will re-lock at the next power-up or serial activity provided the input is within spec. at a valid reference frequency (1, 2, 5, or 10 MHz). A frequency-out-of-lock condition is always reported over the serial link. Removal of the external

frequency standard input immediately returns the receiver to the internal standard.

Tuning Method: Local tuning via direct keypad entry, step-arrow keys, or main tuning knob.

Remote tuning via multi-drop RS232.

Frequency Indication: Local indication via main alphanumeric display, 1-Hz resolution.

Remote frequency status reported via the RS-232 serial link.

Interface Connections:

RF Input:

Impedance: 50 ohms nominal

VSWR: 2.5:1 maximum in preselector passband.

Connector: Rear-panel BNC

Protection: Internal Surge Protector

Balanced Line-level Audio Output:

Two 600-ohm Lines

Level: 0 dBm nominal, center-tapped, ungrounded.

Connector: DA-15, 3 pins.

Function: Upper and Lower sideband audio on separate lines in ISB mode. Same signal on both lines in other modes.

Single-ended Line-level Audio Outputs:

Level: 10 mW into 600 ohms, one AC-coupled and one DC coupled.

Connector: DA-15, two pins each line.

Function: Upper, lower, or both sidebands in ISB mode, software configured.

Mono/Stereo Headphones:

Level: 10 mW into 600 ohms per channel, front-panel volume control.

Connector: Front-panel 1/4" stereo phone jack.

Function: Monaural except in ISB, where USB and LSB are split in stereo phones.

Monaural Speaker-Level Output:

Level: 1.5 W into 4 ohms at 10% THD, 4" internal or external speaker. Front-panel volume control.

Connector: External, 1/4" rear-panel mono jack.

Function: Monaural monitoring, all modes.

Signal Monitor Delayed AGC:

Frequency: 455 kHz center (inverted, 1 kHz tuning step)

Bandwidth: 16 kHz (-6 dB).

Level: -10 dBm nominal (+/- 3 dBm).

AGC delayed 40 dB.

Impedance: 50 ohms nominal.

Connector: Rear panel BNC.

IF Output, Post DSP:

Frequency: 455 kHz center (inverted).

Bandwidth: Determined by IF filter selection.

Level: -10 dBm nominal (AGC leveled).

Impedance: 50 ohms nominal.

Connector: Rear panel BNC.

1st Mixer Out, Wideband:

Frequency: 45.455 MHz Center frequency
(inverted, 1 kHz tuning step, no AGC).

Bandwidth: Determined by preselector filter.

Level: -16 dB relative to RX input
(Preamp and Attenuator OFF).

Impedance: 50 ohms nominal.

Connector: Rear panel BNC.

2nd Mixer Out, no AGC:

Frequency: 455 kHz center frequency (inverted,
1 kHz tuning steps).

Bandwidth: 16 kHz (-6 dB).

Level: 0 dB rel to RX input (PRESEL/
ATTN OFF).

Impedance: 50 ohms nominal.

Connector: Rear panel BNC.

Receiver Sensitivity:

Dynamic Range:

Mode	Noise Figure (dB)		3rd Order Intercept (dBm)	
	Typ	Max	Typ	Min
10 dB PREAMP ON	10	14	20	15
PREAMP OFF	17	19	30	25
15 dB ATTN	32	34	45	40

VLF Sens., Typ, .3 kHz bandwidth preamp OFF.

16 dB SINAD

>500 kHz	-116 dBm (.35uV)
100 kHz	-115 dBm (.4uV)
50 kHz	-114 dBm (.45uV)
20 kHz	-107 dBm (1 uV)
15 kHz	-104 dBm (1.4uV)
10 kHz	-94 dBm (4.5 uV)
5 kHz	-82 dBm (18uV)

Spurious Responses: All spurious less than
-119 dBm equivalent input- preamp ON.

Control Interface:

Standard: Multi-drop RS-232.

Config: Dipswitch programmable, 300 to
19200 baud, 7 or 8 data bits, even,
odd, or no parity.

Connector: DB-25 female.

Sensitivity By Mode

Mode	BW	SINAD	Preamp OFF		Preamp ON	
			Typical	Max	Typical	Max
AM: (50% Mod @ 400 Hz)	6 kHz	10 dB	-103 dBm/ 1.6 uV	-101 dBm/ 2.0 uV	-112dBm/ 0.56 uV	-108dBm/ 0.9 uV
FM: (6 kHz dev @ 1 kHz)	16 kHz	16 dB	-102 dBm/ 1.8 uV	-100 dBm/ 2.2 uV	-108dBm/ 0.9 uV	-104dBm/ 1.4 uV
USB/LSB/ISB:	3.2 kHz	10 dB	-112 dBm/ 0.6 uV	-110 dBm/ 0.7 uV	-119dBm/ 0.25 uV	-115dBm/ 0.4 uV
CW:	300 Hz	16 dB	-116 dBm/ 0.35 uV	-114 dBm/ 0.45 uV	-124dBm/ 0.14 uV	-120dBm/ 0.22 uV

Gain Characteristics:

Gain control:

Receiver operates with automatic (AGC) or manual gain control. Manual gain control reduces receiver gain and increases AGC threshold by up to 120 dB.

AGC:

Range: 90 dB minimum
Threshold: 3 uV typical
Attack Time: 15 mS typical, to within ± 3 dB of 20 dB step.

Release Time:

MODE	ATTACK (dB/ms)	HANG (sec)	DECAY (dB/sec.)
FAST	0.8	0	1200
MEDIUM	0.8	0	100
SLOW	0.8	0	25
PROGRAMMABLE	0.01-1.0	0.01-99.9	0.01-99.9

Manual AGC:

Range: 120 dB. Controlled through the Front Panel or RS-232 interface.
Attack/Release Times: Limited only by RS-232 serial transfer rate.

Programmable AGC:

Setting Ranges:

Attack: 0.01-1.0 dB/ms
Hang: 0.01-99.9 seconds
Decay: 0.01-99.9 dB/s

Signal Handling Characteristics (Preamp Off):

Image Rejection: 90 dB typical, 80 dB minimum (all mixers).

IF Rejection: 90 dB typical, 80 dB minimum (all IFs).

Third order intercept point: 30 dBm typical, 25 dBm minimum (See chart P1-5).

Second order intercept point: +75 dBm, typ, 60 dBm minimum.

Selectivity: 57 bandwidths selectable from 0.1 to 16 kHz. Shape factor better than 1.5:1 (6 to 60 dB).

Bandwidth Selection via Menu:

100 Hz, 120 Hz, 150 Hz, 170 Hz, 200 Hz, 220 Hz, 250 Hz, 300 Hz, 350 Hz, 400 Hz, 450 Hz, 500 Hz, 600 Hz, 700 Hz, 800 Hz, 900 Hz, 1 kHz, 1.1 kHz, 1.2 kHz, 1.3 kHz, 1.4 kHz, 1.5 kHz, 1.6 kHz, 1.7 kHz, 1.8 kHz,

1.9 kHz, 2.0 kHz, 2.2 kHz, 2.4 kHz, 2.6 kHz, 2.8 kHz, 3.0 kHz, 3.2 kHz, 3.4 kHz, 3.6 kHz, 3.8 kHz, 4.0 kHz, 4.4 kHz, 4.8 kHz, 5.2 kHz, 5.6 kHz, 6.0 kHz, 6.4 kHz, 6.8 kHz, 7.2 kHz, 7.6 kHz, 8.0 kHz, 8.8 kHz, 9.6 kHz, 10.4 kHz, 11.2 kHz, 12.0 kHz, 12.8 kHz, 13.6 kHz, 14.4 kHz, 15.2 kHz, 16.0 kHz.

Bandwidth Selection via Keypad Entry:

Upon entry, receiver automatically selects the closest filter in the menu of equal or greater bandwidth.

Fast-Filters:

Fast Filters offer reduced signal latency and degraded shape factors to facilitate reception of delay-critical digital modes.

Fast-Filter Selection:

All standard menu bandwidths up to 4 kHz are available as Fast Filters.

Fixed Bandwidths:

Bandwidth is fixed at 3.2 kHz in ISB mode. Minimum available bandwidth is 600 Hz in FM mode, and 4 kHz in SAM mode.

Blocking on tune: <5% THD: -6 dBm input 30% AM 1 kHz.

Blocking off tune: 200 kHz offset. 15 dBm typ. 10 dBm min for 3 dB desense.

Ultimate Rejection: Greater than 70 dB regardless of filter selected.

Group Delay: No more than .1 ms variation overpassband of 300 Hz to 3050 Hz (Notch OFF).

Lo Phase noise: -120 dBc/Hz @ 20 kHz offset typical, -110 dBc/Hz max.

1-3 ENVIRONMENTAL CONDITIONS

Normal Operating:

Temperature: 0 to 50 degree C (32-122F)

Humidity: Up to 95% Rel, non-cond.

Altitude: Up to 10,000 feet MSL

Shock: Not applicable

Vibration: Not applicable

Storage/Transport:

Temperature: -46 to 71 degree C (-50-160F)

Humidity: Up to 95% Rel, non-cond.

Altitude: Up to 15,000 feet MSL

Shock: 10 G, 11 mS duration

Vibration: 1-1/2 G, 5 to 200 Hz