

RX-400 HF DSP Receiver

In 2006, TEN-TEC is expanding its line of DSP based receivers with the new model **RX-400** HF/VHF/UHF receiver.

Tuning from 2 MHz to 3 GHz (cellular frequencies excepted for USA version), the 1 ms synthesizer lock time provides realistic scan rates of 100 channels/sec or faster.

One outstanding benefit of the **RX-400** DSP architecture is more than 50 built-in filter bandwidths from 100 Hz to 300 kHz, most useable in any detection mode.

Strong signal handling is assured with a typical 3rd order intercept of 0 dBm through 3 GHz.

In addition to conventional AGC presets, **RX-400** includes a programmable mode. This allows the customer to build their own unique AGC characteristics specifically for a mission.

A 21.4 MHz wideband IF output is provided with 6 MHz of bandwidth. The **RX-400** includes both an RS-232 interface and TCP/IP. Receiver is modestly sized for 1 rack installation. **RX-400** is a PC and remote control applications-only receiver; no front panel operation is possible.

Options will include: a digital data output, a narrowband IF output and a POTS interface to allow customer to remote unit anywhere with access to nothing but a phone line (no PC required).

90 - 264 VAC 48-440 Hz operation, 11-28 VDC power unit available as an option.

Flash-ROM updateable.

Cellular-unblocked version will be available to authorized government users or export only.

Price: Under \$ 6000.

Availability: TBA, 2006.

Inquires: sales@tentec.com or via commercial sales toll free line (800) 231-8842.



RX-400 front view + cabinet shown. Photos showing installation of 19" rack hardware will be available in the near future.



RX-400 rear view + cabinet shown. Photos showing installation of 19" rack hardware will be available in the near future.



RX-400 front view detail.



RX-400 rear view detail.

RX-400 PRELIMINARY SPECIFICATIONS

FREQUENCY COVERAGE: 2 - 3000 MHz. Cellular blocked within USA - unblocked version available to authorized users only.

MODE: USB, LSB, ISB, CW, AM, NFM, WFM

TUNING RESOLUTION: 1 Hz steps. (10 kHz steps at WB-IF output)

OPERATING TEMPERATURE RANGE :

0 - 50 degrees C @ full specification. -10 to 60 degrees C with degraded performance.

FREQUENCY STABILITY: standard TCXO: below 30 MHz +/-20Hz,above30 MHz +/- 3 ppm
Optional TCXO: above 30 MHz +/- 0.6 ppm

ACCURACY: All internal oscillators are locked to either internal or external frequency standard.

EXTERNAL FREQUENCY REFERENCE: 1, 2, 5 or 10 MHz. Receiver automatically switches to this reference upon application, at power up or after any serial link activity.

SPURIOUS RESPONSES: (design target) all spurious to be less than -105 dBm equivalent input max. with approx. 6 less than ? 80 dBm

IMAGE REJECTION: 80 dB typical 2 - 3000 MHz.

IF REJECTION: 80 dB typical 2-3000 MHz

BFO: Tunable in CW mode only, +/- 8 kHz. Tuning in 10 Hz steps. Fixed frequency in SSB, disabled in AM and FM.

MEMORIES: 1000

SCAN RATE: 100 channels/sec or faster

SYNTHESIZER LOCK TIME: approx. 1 ms

SQUELCH: c/n ratio 0-99 dB

SELECTIVITY: selection is mode independent. Approx. 50 filter bandwidths with 8-10 chosen appropriately for each of the 5 modes. Shape factor 1.5:1 or better. (6 to 60 dB). Examples, useful for: CW ? 100, 150, 200, 250, 300, 400, 500, 600, 700, 800, 1000 Hz. SSB ? 1.5, 1.6, 1.7, 1.8, 1.9, 2.0, 2.2, 2.4, 2.6, 3.0, 3.4 kHz . AM? 4.0, 5.0, 6.0, 7.0, 8.0, 9.6, 10.4, 12.0, 13.6, 15.2, 16 kHz.. WFM? 100, 120, 140, 150, 160, 180, 200, 250, 300 kHz.

INBAND RIPPLE: 2-3 dB, referenced to IF output

SENSITIVITY:

Mode BW dBm

(for 12 dB NF)

SSB 10 db S/N 3 kHz -11

AM (50% mod) ? 6.0 kHz -10

FM-N @ 6 kHz dev 16 dB SINAD 15 kHz -107

FM-W @ 10-20 kHz dev ? 30? 50 kHz -102

FM-W @ 75kHz dev ? 200 kHz -9

DYNAMIC RANGE: 3rd Order Intercept (dBm) typical 0, minimum -5. Noise figure (dB) typical 10, minimum 12.

2nd ORDER INTERCEPT: 50 dBm minimum

AGC: Fast, Medium, Slow, Programmable. Manual gain setting is provided in all four modes, adjustable over 120 dB range. DUMP feature provided in all modes.

Mode Attack(dB/ms) Hang(sec) Decay(dB/sec)

Fast 0.8 0 1200

Medium 0.8 0 100

Slow 0.8 0 25

Prog. 0.01-1.0 0.01-99.9 0.01-99.9

WIDEBAND IF OUTPUT, ANALOG: 21.4 MHz center frequency, fixed gain, 6 MHz bandwidth capable, 10 kHz tuning steps. 2 MHz bandwidth if receiver tuned below 20 MHz.

S-METER: reports signal level in dBm to host upon request

OPTIONS: (only one may be installed) *NARROWBAND IF OUTPUT*: 21.4 MHz center frequency, bandwidth determined by filter selection, delayed AGC. *DIGITAL DATA OUTPUT*: 16 bit, I&Q, serial. Baseband representation of NB-IF output.

CONTROL INTERFACE: built-in MULTI-DROP RS-232 (DB9 connector) and TCP/IP
Optional: POTS ? allows customer to remote unit anywhere with access to nothing but a phone line. No PC required.

FIRMWARE: can be updated remotely in Flash ROM

ANTENNA INPUT: 50 ohm, unbalanced, SMA connector. 2.5:1 VSWR max @ receiver's tuned frequency.

RF INPUT PROTECTION: accepts +20 dBm w/o damage

AUDIO LINE OUTPUT: 0 dBm (+/- 3 dBm) 600 ohm outputs. Terminals may be grounded or shorted together without damage. One AC coupled, one DC coupled

HEADPHONE OUTPUT: both 1/4" and 1/8" stereo phone jacks. 10 mw maximum into 600 ohms. Front panel volume control.

POWER REQUIREMENTS: 90-264 VAC, 48-440 Hz @ approx. 40 watts. Removable six foot line cord included. *Optional*: substitute 11-28 VDC supply at additional cost.

DIMENSIONS: 7.5" W x 15.5" D x 3.5" H. Rack mountable with optional bracket kits for either half rack or full rack widths.

MTTR: less than 30 minutes for replacement of any of 8 major subassemblies.

ADDITIONAL FEATURES: MUTE, for use in transmit/receive applications, mutes audio and IF outputs.

all specifications subject to change without notice.