

**Raytheon**

**JPS Communications**

# PPS-100 Preselector/Postselector



## The **PPS-100**

**Pre/Postselector** permits operation of co-located receivers and transmitters on frequencies separated by as little as 10%. When used with receivers, the unit functions as a preselector, providing an additional front end selectivity stage. This reduces the receiver desensitization and overload that would normally occur in the presence of strong adjacent RF transmissions.

### **BENEFITS**

- 1.6 to 30 MHz Coverage.
- Fast Tuning (10 mS maximum).
- Serial or Parallel Remote Control.
- High Unwanted Signal Attenuation (40 dB typ).
- Comprehensive Built-In-Test (BIT).
- Selectable Gain.
- Automatic Protection Mode During RF Overload.
- Automatic Bypass During Operation Outside of Coverage Range.
- Automatic Switching between Preselector and Postselector Modes for use with Transceivers.
- 1.75" x 19" Rack Mount Package.

The unit is used as a postselector with transmitters. It rejects spurious outputs and broadband noise in the transmit signal before it reaches the power amplifier, thereby limiting interference to neighboring receivers. The PPS-100 performs both functions with a transceiver; it follows the radio's keyline and switches between the preselector and postselector modes.

# PPS-100 Preselector/Postselector

## SYSTEM OVERVIEW

The PPS-100 operates from 1.60 to 29.99 MHz. The unit offers a selectivity of 40dB typical at 10% from the nominal tuned frequency, with an ultimate rejection of 70dB typical. The input and output both have a nominal in-band impedance of 50 ohms.

The unit accepts frequency input in 10 kHz increments, automatically tracking the radio's operating frequency via either serial (RS-232/422) or parallel BCD frequency information from its companion radio. Tuning time is 10 milliseconds maximum, making the PPS-100 suitable for

Automatic Link Establishment (ALE) or Adaptive Applications. No octave or sub-octave filters are used.

The Pre/Postselector offers two levels of gain; the level may be selected remotely or via the unit's front panel. The unit enters a Protection Mode

whenever there is an extreme RF overload. In this mode, the antenna port is open circuited, while the unit's internal input is grounded. A Bypass Mode can also be selected either via the front panel or remotely; the unit automatically switches to this mode while the internal self-test is in progress and when it is controlling radio switches to a frequency outside of the 1.6 to 30 MHz coverage range. Front panel LEDs signal the unit's present operating mode.

The PPS-100 is housed in a 1.75" x 19" rack mount package. Standard operation is from 115/230 VAC or from 12/24 VDC.

## SPECIFICATIONS

Electrical	
Tuned Frequency Range	1.60 to 29.99 MHz.
Bandwidth	± 2% @ -3 dB.
Unwanted Signal Rejection	40 dB typ., 35 dB min. at ± 10%.
Ultimate Rejection	70 dB typical.
High Gain	0 dB, +2/-4.
Low Gain	-8 dB, +2/-4.
RF Overload Protection (Preselector Mode)	Enters protection mode above 10 Vrms input.
Maximum RF Input (T/R Switch)	200 Vrms.
Noise Figure	High Gain: 20 dB nominal. Low Gain: 13 dB nominal.
Intermodulation Distortion (Output Third Order Intercept Point)	+35 dBm, +40 dBm typical.
Tuning Time	10 mSec maximum.
Remote Control	Parallel (BCD). Serial (RS-232/RS-422).
Bit Synthesizer Range	1.60 to 30.00 MHz.
Built-In-Test (BIT) System	The response of the network is tested at each tuned frequency using a built-in synthesizer and detector. Other tests complete alignment of the unit with minimal external test equipment.
General	
Size	1.75" H x 19" W x 19" D (4.45 x 48.3 x 48.3 cm).
Weight	12 lbs. (5.4 kg).
AC Input Power	115 or 230 VAC ± 15%, 47-63 Hz, 20 VA maximum.
DC Power Supply	+12 VDC or +24 VDC, internally selectable. Automatic switchover between AC and DC supplies.
Front Panel Controls	Power On/Off Switch, High/Low Gain Switch, Bypass Switch, BIT Test Switch.
Front Panel Indicators	Power, Bypass, Low Gain, BIT, Overload, Fault.
Environmental	
Operating Temperature	-20 degrees C to +55 degrees C.
Storage Temperature	-40 degrees C to +85 degrees C.
Humidity	Up to 95% @ 55 degrees C (non-condensing).
Shock	MIL-STD-810D, method 516.3 procedure VI.
Vibration	MIL-STD-810D, method 514.3, category I.
Altitude	Up to 10,000 feet.

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