

# PTS 160 FREQUENCY SYNTHESIZER



- 0.1 MHz to 160 MHz
- +3 to +13 dBm output
- choice of resolution
- very low phase noise
- fast switching, 5-20  $\mu$ s
- fully programmable, BCD or GPIB
- modular flexibility, remote-only versions
- low power consumption, high reliability
- 7 decades of DDS resolution available (with phase-continuous switching)

NOTE: PTS 160 shown for illustration in "B" cabinet. Consult catalog for full cabinet style listing and mechanical specifications.

## SPECIFICATIONS

<b>Frequency</b>	Range:	0.100 000 0 MHz to 159.999 999 9 MHz	
	Resolution:	0.1 Hz to 100 KHz, optional in decades	
	Accuracy:	same as frequency standard	
	Control:	manual by 10-position dial; remote by TTL-level parallel entry BCD or GPIB (optional)	
<b>Switching Time</b>		(to within 0.1 radian at new frequency)	
	100 MHz - 10 MHz digit:	20 $\mu$ seconds	
	1 MHz - 0.1 Hz digit:	5 $\mu$ seconds	
<b>Output</b>	Level:	+3 to +13 dbm (1V max, 50 $\Omega$ ), metered in dBm and volts (rms)	
	Flatness:	$\pm 0.5$ dB	
	Impedance:	50 $\Omega$	
	Control:	manual by front panel control; remote by analog voltage	
<b>Spurious</b>		(at full power output, + 13 dBm)	
<b>Outputs</b>	Discrete:	-75 dBc	
	Harmonics:	-35 dBc at full output (-40 dBc at lower level)	
	Phase Noise:	-83 dBc (0.5 Hz to 15 KHz) including effects of internal standard	
	$\epsilon$ (1Hz):	100 Hz/ -105 dBc, 1 KHz/ -115 dBc, 10 KHz/-123 dBc, 100 KHz/ -127 dBc	
	Noise Floor:	-135 dBc/Hz	
<b>Frequency Standard</b>	Internal:	OCXO $3 \times 10^{-9}$ /day $\pm 1 \times 10^{-5}$ /0-50° C $1 \times 10^{-6}$ /year	or TCXO $1 \times 10^{-5}$ /day $\pm 1 \times 10^{-5}$ /0-50° C $2 \times 10^{-6}$ /year
	External Drive:	10 MHz, 0.4 Vrms into 300 $\Omega$ ; 5 MHz, 0.5 Vrms into 300 $\Omega$	
	Aux. Output:	10.000 MHz, 0.4 Vrms into 50 $\Omega$ (Note: internal or external standard required for operation)	
<b>General</b>	Operating Ambient:	0 - 55° C, 95% R.H.	
	Power:	105 - 125V, 50 - 400 Hz, 40W (100, 220, 240V optional)	
	Dimensions:	19 x 5.25 x 18 inches (relay rack or bench cabinet)	
	Weight:	35 lbs.	

For units equipped with a DDS-TLU option, specifications are modified as follows:

<b>DDS Option:</b>	<b>H</b>	<b>K</b>
<b>Phase-Continuous</b>	100 KHz thru 0.1 Hz digits	10 KHz thru 0.1 Hz digits
<b>Switching Range</b>	(~1 MHz bandwidth)	(~100 KHz bandwidth)
<b>Frequency Resolution:</b>	0.1 Hz	0.1 Hz
<b>Optional Phase Rotation:</b>	0 - 360° in .36° steps	N/A
<b>Switching Time</b>	(within phase-continuous range) < 1 $\mu$ s transient, 2 $\mu$ s delay	
<b>Spurious Discrete:</b>	-85 dBc	-75 dBc
<b>Outputs Phase Noise:</b>	-83 dBc	-83 dBc
<b>Pricing (USA domestic)</b>	\$5,000 (100 KHz resolution) to \$8,850 (0.1 Hz resolution) plus any other options.	

