

## FEATURES



- 4 delay and width outputs
- 1 ps resolution
- Up to 1000s delay
- 25 ns insertion delay
- <10 ps RMS typical jitter
- 10 MHz rep rate
- Programmable trigger threshold
- Adjustable output levels
- Optional Ethernet
- Onboard help

The P400 is a benchtop digital delay and pulse generator that generates four separately programmable delay-and-width outputs. The P400 can generate delays up to 1000 seconds in 1ps increments, and is capable of a high repetition rate of 10MHz. Applications for the P400 include laser timing, CCD camera systems, and precision pulse requirements.

**Triggering** - P400 triggers include internal, external, remote, or line. The internal DDS rate generator may be programmed from 0.01Hz to 10MHz in 0.01Hz steps. The external trigger features selectable trigger level, slope, and termination impedance. Line trigger is enabled via an external AC line adaptor. The P400 may also be triggered manually or from the remote RS-232 or Ethernet interfaces. Trigger gating and burst facilities are standard.

**Timebase** - The standard P400 timebase is a precision TCXO temperature-compensated crystal oscillator. An optional ovenized oscillator is available for applications requiring extreme accuracy and lowest jitter. Multiple P400s may be synchronized to each other, or locked to an external 10 MHz source.

**Onboard Help** - An extensive help system explains each pushbutton, input, output, and setting on the 4-line front-panel display.

**Menus** - Each function of the P400 has a dedicated single-level control menu invoked by an associated pushbutton. Data entry may be via numeric keys or by the spinner knob.

**Remote Control** - All P400 parameters may be programmed remotely using standard RS-232 or optional Ethernet interfaces.

## Model P400 Digital Delay and Pulse Generator Specifications

<b>General</b>	Size	8" x 4.5" x 12" (WHD)
	Weight	8 pounds
	Display	20-character x 4-line dimmable vacuum fluorescent
	Power	24 VDC, 2.5 A max
		100-240 VAC 0.6 A max using included AC adaptor
Remote Interface	Standard RS-232	
	Optional Ethernet	
<b>Trigger</b>	Sources	Internal, external, AC line, remote, manual pushbutton
	Level	-2.40 V to +4.6 V, DC-coupled, selectable slope
	Impedance	Selectable 50Ω or 1MΩ
	Internal Rate	0.01Hz to 10MHz in 0.01Hz steps
<b>Delays</b>	Range	0 to 1000 seconds
	Resolution	1ps
	Insertion Delay	25 ns ±500 ps
	Accuracy	±400 ps ± timebase error
	Jitter	25 ps RMS + timebase jitter
	Monotonicity	50 ps
<b>Timebase</b>	Standard TCXO	Drift <2 PPM/year
		Temp Coefficient <25 ppb/°C
		Jitter < 2 ns per sec of delay
	Optional OCXO	Drift <1 PPM/year
		Temp Coefficient <3.6 ppb/°C
		Jitter < 400 ps per sec of delay
<b>Inputs</b>	External Trigger	-2.40v to +4.6v
	Line Trigger	3-24VRMS (Back Panel)
	10MHz clock	Input or output. TTL level (Back Panel)
	Gate	Input or output. TTL level
<b>Outputs</b>	T0	50Ω impedance, -2.5 to +5.9 V into 50Ω,
	Channel A-D	slew rate 4v/ns, min pulse width 2ns
	DDS	Internal trigger generator sine wave on rear panel
	Options	High-voltage isolated outputs programmable to 50 V

