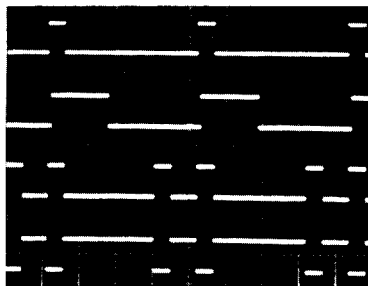


50 MHz Pulse Generator



- 5 Hz to 50 MHz Repetition Range
- Variable Width and Delay
- Full 10 Volt Output
- Four Simultaneous Outputs
- Five Nanoseconds Rise/Fall Times

Adjustable Upper and Lower Levels

You can adjust the pulse upper and lower levels independently and directly. Amplitude and dc offset do not interact. This feature frees you from tedious readjustment and tuning when you are setting up a given pulse.

Selectable Source Impedance

For optimum loading, an internal 50 ohm termination is selectable at the 802 output. Placement of the 50 ohm termination at the source, at

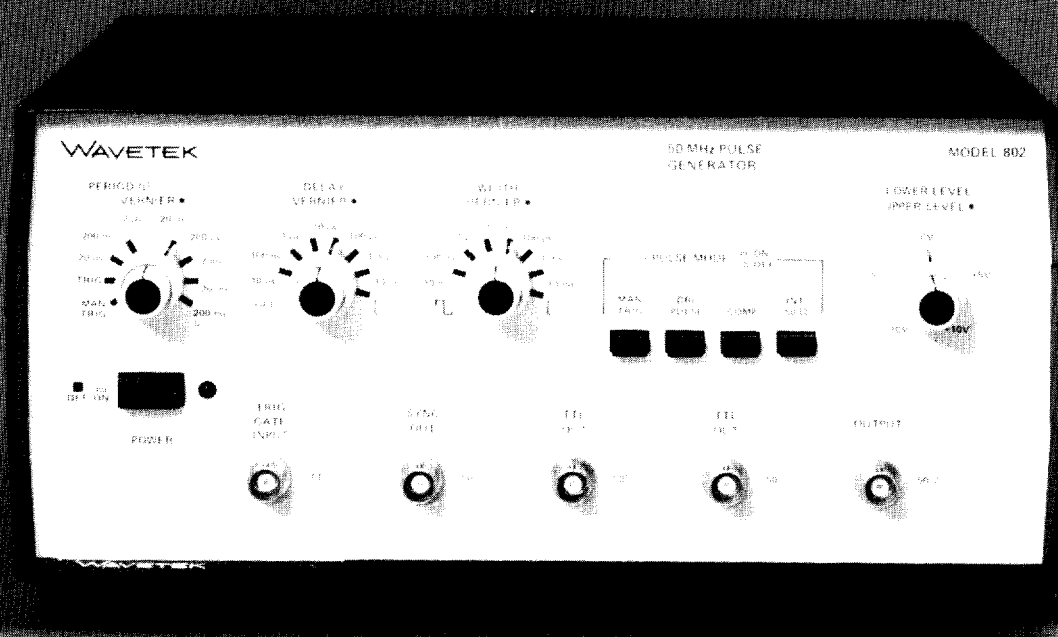
the load, or both gives you additional versatility in minimizing aberrations due to reflections.

Multiple Outputs

In addition to the variable $\pm 10V$ output, the Model 802 gives you fixed TTL and TTL outputs. You can use these convenient fixed outputs with your most commonly used logic, TTL, and never adjust amplitude, or you can have simultaneous outputs at fixed and variable levels for further versatility and performance

Independent Rate, Width and Delay Control

Repetition rate, width and delay can all be independently adjustable. Delay and width controls each have a blank detent for your custom range. This allows you to select your most often required pulse values quickly and repeatably. You can use the Model 802 in the continuous, trigger, gate and external width modes with normal delayed or double pulse outputs, for further operating versatility and performance.



MODEL 802

PULSE GENERATORS

VERSATILITY

Four Simultaneous Pulse Outputs

Fixed TTL level sync, TTL and $\overline{\text{TTL}}$ outputs and variable amplitude output pulses are available over a 5 Hz (200 ms) to 50 MHz (20 ns) frequency range.

For optimum pulse characteristics from the variable amplitude pulse output, an internal 50 Ω load can be selected via a front panel control.

Operational Modes

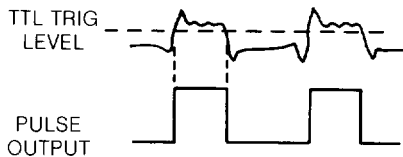
Continuous: Generator oscillates continuously at selected frequency.

Triggered: Generator quiescent until triggered by external TTL pulse or front panel control, then generates one pulse.

Gated: Generator oscillates at the period rate selected by the front panel control when gate input is high. Generator quiescent when input is low. First cycle is synchronous with rising edge of gating signal.

Double Pulse: Continuous, triggered and gated, as above, except two pulses for each period. Time to second pulse is controlled by delay control. Double pulse at all outputs except sync.

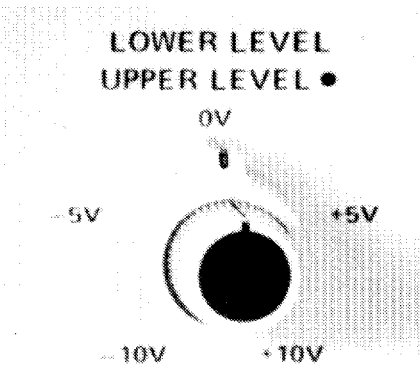
External Width: External signal at trigger input determines output pulse width and period as shown.



PULSE OUTPUTS

Variable Amplitude Pulse

Upper and lower pulse levels are independently adjustable. Pulse dynamic range is $\pm 10\text{V}$ when load is 50 Ω terminated and source is not (internal 50 Ω off) or vice versa. Maximum pulse amplitude is 10V; minimum is 1V.



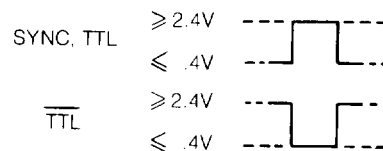
Level Controls

Dynamic range and pulse amplitude are decreased by a factor of 2 when source and load are 50 Ω terminated. Overshoot and ringing are less than ($\pm 5\%$ of amplitude setting + 100 mV) when terminated into 50 Ω at both load and source. Transition times are less than 5 ns.

SOURCE	LOAD	DYNAMIC RANGE	AMPLITUDE	
			MAXIMUM	MINIMUM
50 Ω	50 Ω	+5V	5V	.5V
		-5V	5V	.5V
1 k Ω OR 50 Ω	50 Ω OR $\geq 1\text{k}\Omega$	+10V	10V	1V
		-10V	10V	1V

Sync TTL and $\overline{\text{TTL}}$ Pulses

TTL, $\overline{\text{TTL}}$ pulse levels into 50 Ω termination; sync pulse level from 50 Ω source.



Transition times less than 7 ns into 50 Ω termination.

Normal/Complement Control

Normal pulse or its complement is selected. The normally quiescent and active levels are reversed in complement format. This control affects all outputs except sync pulse.

TIME DOMAIN

Period

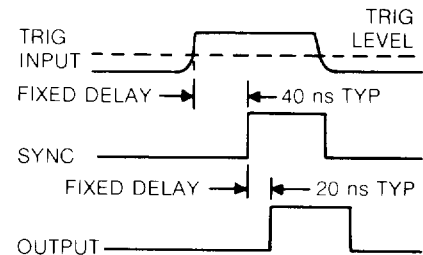
Period range is from less than 20 ns to greater than 200 ms in seven overlapping ranges. Period jitter is less than $\pm 0.1\%$ plus 50 picoseconds.

Width

Width range is from less than 10 ns to 10 ms in six overlapping ranges. Maximum duty cycle is 70% for periods to 200 ns, decreasing to 50% for 20 ns periods. Width selector switch also has a square detent and a customer-specified detent.* $\square$ duty cycle is $50 \pm 4\%$ to 2 μs period, changing to $50 \pm 15\%$ at 20 ns period. Width jitter is less than $\pm 0.1\%$ plus 50 picoseconds. Sync pulse duty cycle is $50 \pm 4\%$ of pulse period to 2 μs period, changing to $50 \pm 15\%$ at 20 ns period, except in trigger and external width modes, in which case it is determined by the trigger signal.

Delay

Pulse occurrence can be delayed from less than 10 ns to 10 ms with respect to the sync pulse (not including fixed delay). Delay selector switch also has a customer specified detent.* Maximum delay duty cycle is 70% for periods to 200 ns, decreasing to 30% for 20 ns periods. Delay jitter is less than $\pm 0.1\%$ plus 50 picoseconds. Fixed delay is as shown.



INPUT CHARACTERISTICS

External Trigger

The circuit receiving the external trigger is TTL compatible. Triggering level is fixed at approximately 1.4V. Input impedance is greater than 500 Ω shunted by approximately 33 pF. Triggering and gating occur on the rising edge of the input signal.

GENERAL

Environmental

Specifications apply at $23^\circ \pm 5^\circ\text{C}$ after 30 minutes warm-up. Instrument will operate from 0° to 50°C .

Dimensions

28.6 cm (11 $\frac{1}{4}$ in.) wide; 13.3 cm (5 $\frac{1}{4}$ in.) high; 28.6 cm (11 $\frac{1}{4}$ in.) deep.

Weight

4.0 kg (8.9 lb) net; 5.4 kg (12 lb) shipping.

Power

108 to 132V or 216 to 250V; 50 to 400 Hz; 40 VA nominal.

*Customer-installed capacitor determines detent range.

FACTORY/FOB

San Diego, CA