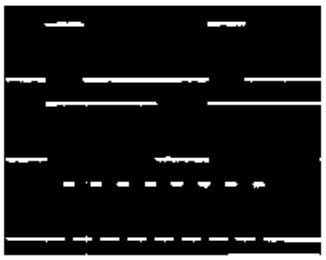
50 MHz Pulse/Burst Generator



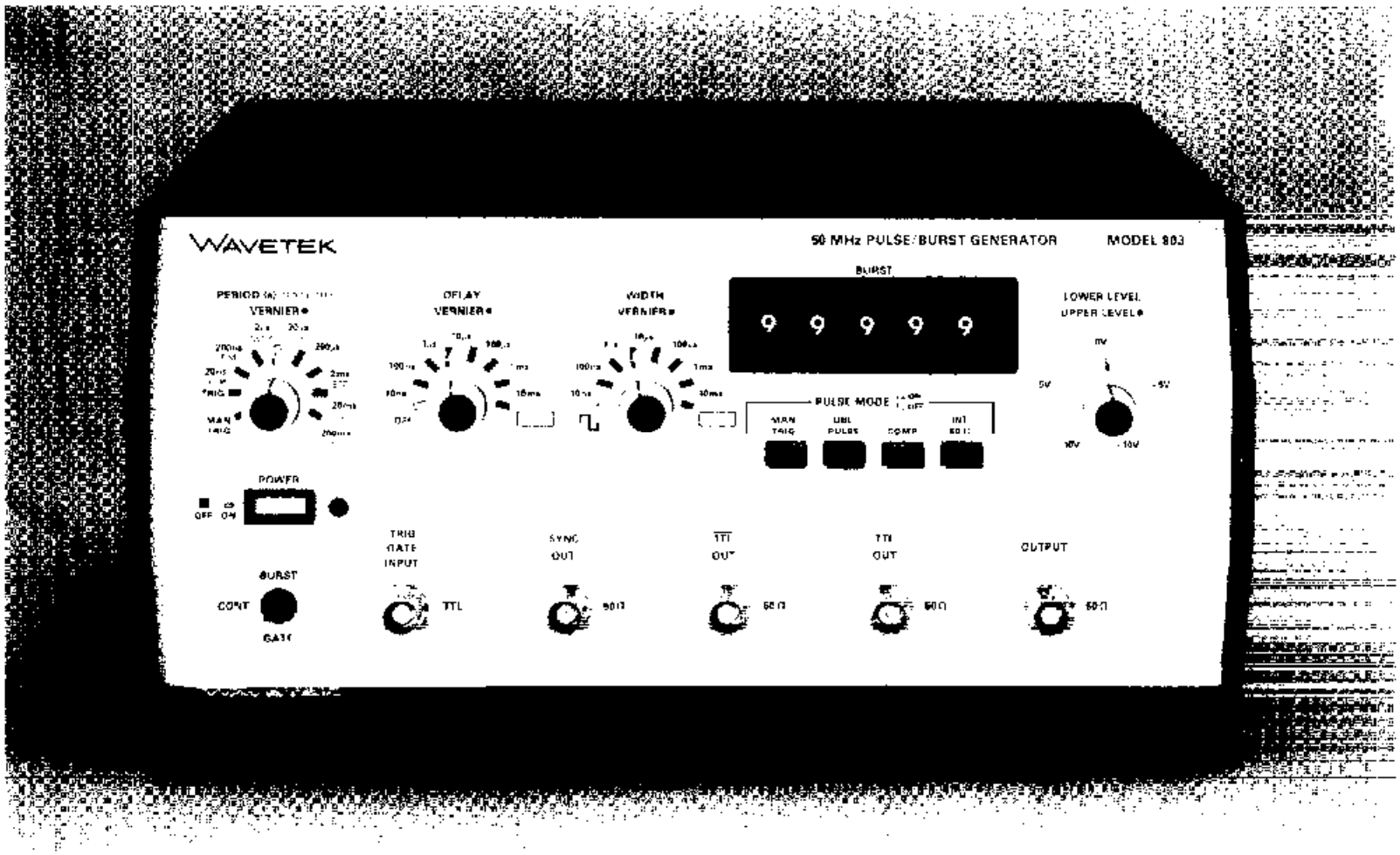
- **5 Hz to 50 MHz Repetition Range**
- **Variable Delay and Width**
- **Full 10 Volt Output**
- **Five Nanoseconds Rise/Fall Times**
- **Pulse Burst to 99,999 Counts**

5 Hz to 50 MHz Repetition Range
Model 803 is a 50 MHz Pulse and Pulse Burst Generator with versatile pulse control. You may select continuous, triggered, gated, burst and external width modes with normal, delayed or double pulse outputs.

Variable Delay and Width
Pulse delay and width are easily and independently adjustable. Pulse occurence can be delayed from less than 10 ns to 10 ms with respect to the sync pulse. Width range is from less than 10 ns to 10 ms in six overlapping ranges.

Full 10 Volt Output
For optimum loading, an internal 50Ω termination is selectable on the output. Pulse dynamic range is ±10V when load is 50Ω terminated and the 803 selectable source is not (internal 50Ω off) or vice versa. Pulse amplitudes range from a minimum of 0.5V when fully loaded to a maximum of 10V. Rise/Fall times are a fast 5 ns at full 10V amplitude. In addition to the variable ±10V output, there are fixed TTL and TTL outputs. All outputs may be used simultaneously.

Pulse Burst to 99,999 Counts
Burst count of 1 to 99,999 is selectable at the front panel; then the burst may be triggered manually or by external signal.



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 50Ω 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

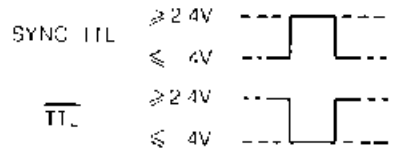
Upper and lower pulse levels are independently adjustable. Pulse dynamic range is ±10V when load is 50Ω terminated and source is not (internal 50Ω off) or vice versa. Maximum pulse amplitude is 10V, minimum is 1V. Dynamic range and pulse amplitude are decreased by a factor of 2 when source and load are 50Ω terminated. Overshoot and ringing are less than (±5% of amplitude setting + 100 mV) when terminated into 50Ω at both load and source.

Transition Times: Less than 5 ns.

SOURCE	LOAD	DYNAMIC RANGE	AMPLITUDE MAXIMUM	AMPLITUDE MINIMUM
50Ω	50Ω	+5V	5V	.5V
		−5V		
1kΩ OR ≥1kΩ	50Ω	+10V	10V	1V
50Ω	≥1kΩ	−10V		

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

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



Transition times less than 7 ns into 50Ω 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

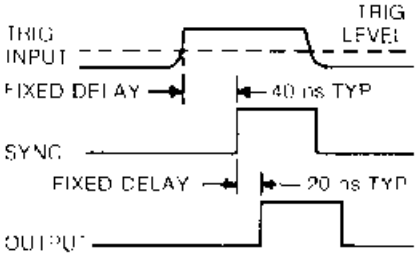
Period range is from less than 20 ns to greater than 200 ms in seven overlapping ranges. Period jitter is less than ±0.1% plus 50 picoseconds.

Width

Width range is from less than 10 ns to 10 ms in six overlapping ranges. Maximum duty cycle is 70% for periods down to 200 ns, decreasing to 50% for 20 ns periods. Width selector switch also has a square wave detent and a customer-specified detent.* Duty cycle is 50 ±4% down to 2 μs period, changing to 50 ±15% at 20 ns period. Width jitter is less than ±0.1% plus 50 picoseconds. Sync pulse duty cycle is 50 ±4% of pulse period down to 2 μs period, changing to 50 ±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 down to 200 ns, decreasing to 30% for 20 ns periods. Delay jitter is less than ±0.1% plus 50 picoseconds. Fixed delay is as shown.



Burst

Burst count of 1 to 99,999 is front panel selectable. Maximum pulse frequency in burst mode is 20 MHz. Burst trigger source is manual or external. Minimum external burst trigger is 25 ns.

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 500Ω shunted by approximately 33 pF. Triggering and gating occur on the rising edge of the input signal.

GENERAL

Environmental

Specifications apply at 25°C ±5°C after 30 minutes warm-up. Instrument will operate from 0°C to 50°C.

Dimensions

28.8 cm (11.4 in.) wide; 13.3 cm (5¼ in.) high; 29 cm (11.4 in.) deep.

Weight

4.7kg (10.5 lb) net; 5.9 kg (13 lb) shipping.

Power

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

*Customer-installed capacitor determines detent range.

FACTORY/FOB

San Diego, CA

PRICE

Model 803 **$1195**