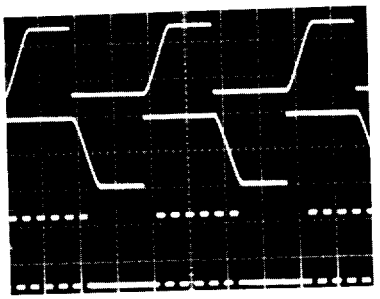
50 MHz Pulse Generator



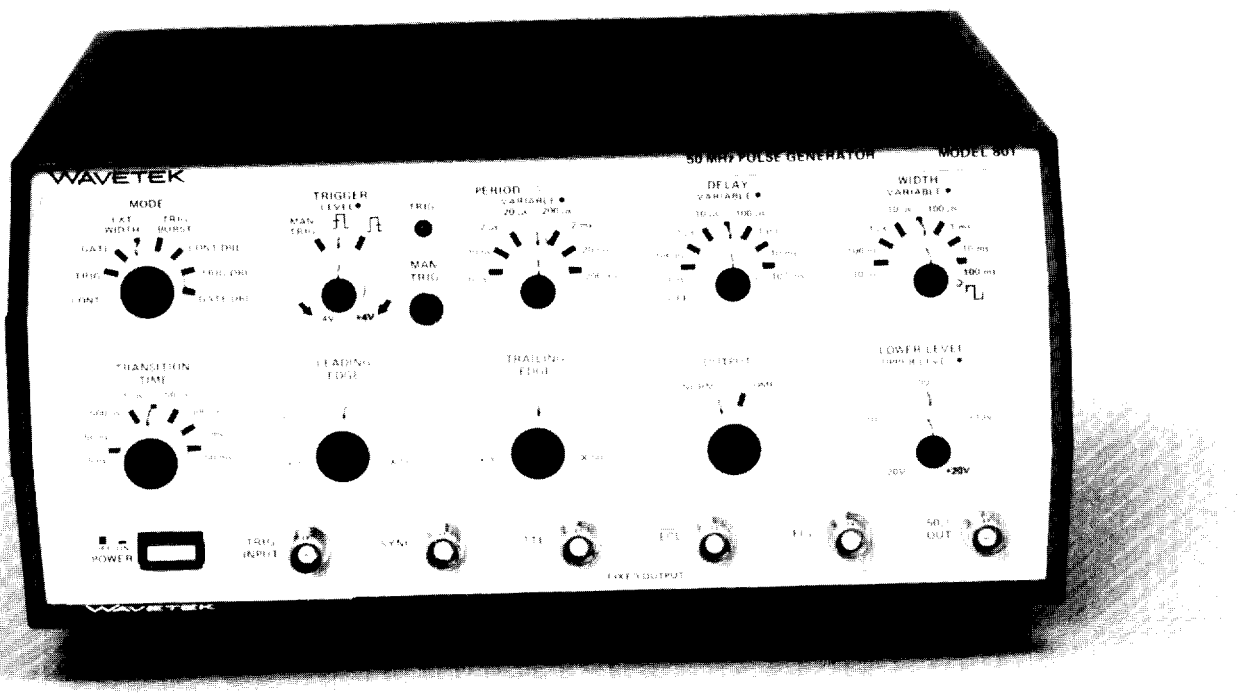
- 5 Hz to 50 MHz Frequency Range
- Variable Rise and Fall Times
- Full 20 Volt Output
- Single and Double Pulses
- Pulse Burst Output

Multiple Outputs
The output circuits give you a variable amplitude pulse and, simultaneously, ECL, $\overline{\text{ECL}}$, TTL and sync pulses. The upper and lower levels of the variable pulse are independently adjustable from −20 to +20 volts. The maximum output is a full 20 volts peak-to-peak. All outputs, the four fixed and one variable can be used simultaneously.

Triggering
Operating modes include continuous, triggered, gated, burst and external width. The external width mode allows you to reconstruct a noisy external pulse. Triggering is by front panel switch or an external signal. A front panel LED indicates trigger acceptance so you will know when the generator is receiving a valid trigger input. You can trigger and gate on the rising or falling edge of the trigger signal and adjust the acceptable trigger signal level.

Variable Rise and Fall
The rise and fall transition times of the pulse can be independently adjusted. The range of control is from 7 ns to 250 ms. Independent width and rate controls ensure that the 801 can generate the pulse that you need for your testing requirements.

Pulse Burst Output
The pulse burst capability of the 801 lets you generate variable length pulses. In this mode, an external trigger signal will start the output of the 801. The delay control lets you easily and accurately adjust the number of pulses that the generator will produce.



VERSATILITY

Five Simultaneous Pulse Outputs: Fixed level ECL, $\overline{\text{ECL}}$, TTL and sync pulses and a pulse with variable amplitude and variable rise/fall times. 5 Hz to 50 MHz frequency range (200 ms to 20 ns periods).

Operational Modes

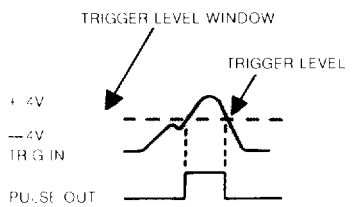
Continuous: Generator oscillates continuously at selected frequency.

Triggered: Generator quiescent until triggered by external signal or manually, then generates one pulse.

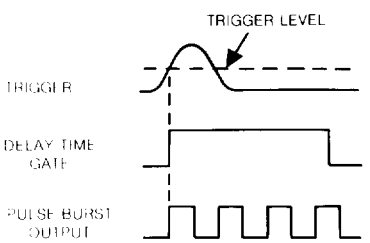
Gated: As triggered mode, except generator oscillates for the duration of the external signal.

Double Pulse: Continuous, trigger and gate as above, except two pulses for each period. Space between pulses of double pulse controlled by delay control. Double pulse at all outputs except sync.

External Width: External signal at trigger input and trigger level control determine output pulse width and period as shown.



Trigger Burst: External trigger starts internal gate (delay time) for pulse burst as shown.



PULSE OUTPUTS

Pulse Controls

Variable Amplitude Pulse

Upper and lower pulse levels are independently adjustable.

Source Impedance: 50Ω.

Into Open Circuit:

Pulse Dynamic Range: ±20V.
Max Pulse: 20 Vp-p.
Min Pulse: 1 Vp-p.

Into 50Ω Termination:

Pulse Dynamic Range: ±10V
Max Pulse: 10 Vp-p.
Min Pulse: 0.5 Vp-p.

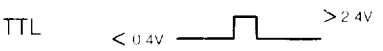
Overshoot and Ringing:

<±(5% of amplitude setting +100 mV) into 50Ω load.

Preshoot: <±(5% of amplitude setting +100 mV) into 50Ω load.

Fixed TTL Pulses

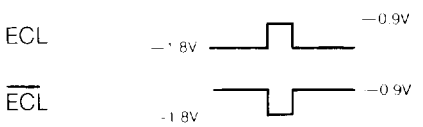
Pulse Levels for 50Ω Loading:



TTL Transition Time: <10 ns.

Fixed ECL, ECL Pulses

Pulse Levels with 50Ω Termination into −2V:



ECL, $\overline{\text{ECL}}$ Transition Time: <6 ns.

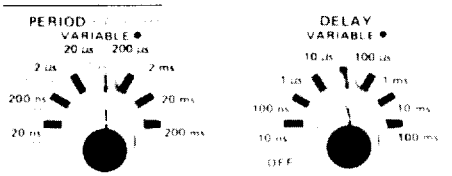
Sync Pulse

Sync pulse is 0 to at least +1V from a 50Ω source.

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 and Delay Controls

Period Range: <20 ns to >200 ms in 7 overlapping ranges.

Period Jitter: <0.1% plus 50 ps.

Width

Width Range: <10 ns to 100 ms in 7 overlapping ranges.

Max Duty Cycle: 70% for periods down to 200 ns, decreasing to 50% for 20 ns periods. Range switch also has a square wave detent (⊓⊔).

Duty Cycle: 50 ±4% to 2µs period changing to 50 ±15% at 20 ns period.

Width Jitter: <0.1% plus 50 ps.

Sync Pulse Duty Cycle: 50 ±4% of pulse period to 2µs period. Changes to 50% ±15% at 20 ns, except in trigger and external width modes, where it is determined by the trigger signal.

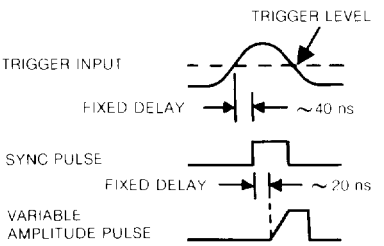
Delay

Pulse occurrence can be delayed from approximately 20 ns to 100 ms with respect to the sync pulse (not including fixed delay).

Max Duty Cycle: 70% for periods down to 200 ns, decreasing to 30% for 20 ns periods.

Delay Jitter: <0.1% plus 50 ps.

Fixed Delay:



Transition Time

For variable amplitude pulse only. Independently adustable leading and trailing edges from <7 ns (5 ns typical) to 250 ms in 7 overlapping decade ranges (measured from 10 to 90% points). Verniers give 50:1 adjustment on all ranges except 5 ns, which gives 25:1.

Linearity: ±5% for transition >10 ns, measured between 10 and 90% points on pulse.

INPUT CHARACTERISTICS

External Trigger

Min Amplitude: 200 mVp-p to 5 MHz increasing to 600 mVp-p to 50 MHz (from 50Ω source).

Max Amplitude: ±10V.

Min Width: 10 ns.

Input Impedance: 1 kΩ in parallel with 22 pF.

Triggering is selected to occur at either rising or falling edge of trigger signal; triggering level is adjustable to be between ±4V. An LED lights for approximately 100 ms for each external and manual trigger occurrence accepted.

GENERAL

Environment

Specifications apply at 23° ±5°C after 1 hour warm-up. Instrument will operate from 0° to 50°C.

Dimensions

28.6 cm (11¼ in.) wide; 13.3 cm (5¼ in.) high; 29 cm (11¼ in.) deep.

Weight

5.4 kg (12 lb) net; 6.8 kg (15 lb) shipping.

Power

90 to 130V or 180 to 250V; 50 to 400 Hz; 60 watts nominal.

FACTORY/FOB

San Diego, CA