

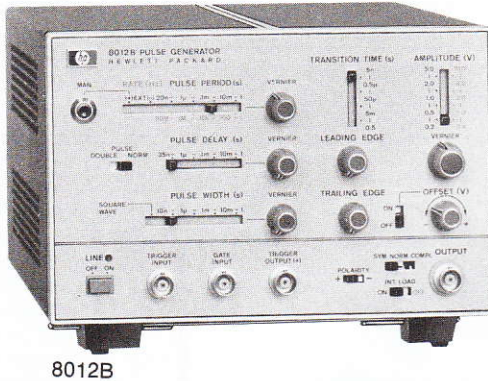
PULSE GENERATORS

Extremely flexible 50 MHz sources

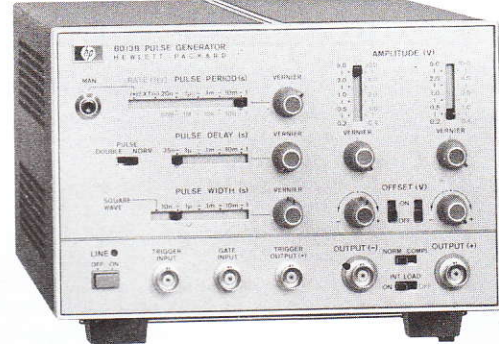
Models 8012B & 8013B

- Variable transition times down to 5 ns
- ± 10 V amplitude; selectable source impedance
- Ideal for testing TTL

- Fixed 3.5 ns transition times
- 10 V amplitude; selectable source impedance
- 2 outputs



8012B



8013B

The 8012B and 8013B are at the top of their class for versatility, ease of operation and wide range of application. They provide the ideal solution to almost all digital logic testing problems with fixed 3.5 ns transition times on the 8013B and variable transition times down to 5 ns on the 8012B. The well-composed layout of the front panel controls (horizontal controls for horizontal parameters, vertical controls for vertical parameters) enables output pulses to be set up quickly and accurately with minimum risk of incompatible settings. Both models feature normal and complement outputs and a switchable internal 50 ohm source.

Specifications

Pulse characteristics

Parameter	8012B		8013B	
	Int. load IN	Int. load OUT	Int. load IN	Int. load OUT
Transition times	5 ns—0.5 μ s 4 ranges, Verniers provide separate control of both edges within ranges up to max. ratios of 100:1 or 1:100.	6 ns—0.5 μ s	3.5 ns fixed	5 ns fixed
Source impedance	50 ohms $\pm 10\%$ shunted by typically 20 pF	>50 ohms	50 ohms $\pm 3\%$ shunted by typically 20 pF	>50 ohms

Parameter	8012B/8013B	
	Internal load IN	Internal load OUT
Overshoot, ringing	$\leq \pm 5\%$ of pulse amplitude	May increase to $\pm 10\%$ when amplitude is between 0.4 V—4 V
Maximum output	5 V across 50 ohms, 10 V across open circuit. Short cct. protection.	10 V across 50 ohms, Short cct. protection.
Attenuator	4-step, reduces output to 0.2 V ± 2.5 V across 50 ohms. Independent of amplitude settings.	4-step, reduces output to 0.4 V. DC offset switched off.

Linearity (8012B): for transition times >30 ns, maximum straight line deviation is 5% of pulse amplitude.

Preshoot: $\leq \pm 5\%$ of pulse amplitude.

Pulse width: <10 ns to 1 s in four ranges. Vernier provides continuous adjustment within ranges.

Width jitter: <0.1% + 50 ps on any width setting.

Maximum duty cycle: >75% from 1 Hz to 10 MHz, decreasing to >40% at 50 MHz. Up to 100% in COMPL mode.

Polarity: 8012B; positive or negative selectable, NORM/COMPL/SYM selectable; 8013B, one positive + one negative channel, NORM/COMPL selectable.

Pulse delay: <35 ns to 1 s (with respect to trigger output) in four ranges; vernier provides continuous adjustment within ranges.

Delay jitter: <0.1% + 50 ps on any delay setting.

Repetition rate and trigger

1 Hz to 50 MHz in four ranges, continuous adjustment within ranges.

Period jitter: <0.1% + 50 ps on any rate setting.

Square wave: 0.5 Hz to 25 MHz in four ranges. Duty cycle 50% $\pm 5\%$ up to 1 MHz, tolerance increases to $\pm 15\%$ at 25 MHz.

Trigger output: >+1 V across 50 Ω , 16 ns ± 10 ns wide.

External triggering

0 to 50 MHz; for square wave output, frequency divided by factor 2.

Trigger input: sine waves 1.5 V p-p (about zero) or pulses >0.8 V either polarity, >7 ns wide. Maximum input ± 7 V.

Impedance: 50 Ω $\pm 10\%$, dc coupled.

Delay: 25 ns ± 8 ns leading edge trig. input to trig. output.

Manual: pushbutton for single pulse.

Gating

Synchronous gating: gating signal turns generator "on". Last pulse is completed even if the gate ends during pulse.

Gate input: dc-coupled; voltage at open connector approx. +1.8 V. Shorting current ≤ 12 mA. Input impedance approx. 160 Ω

Gate input signal: voltage >+1.5 V or resistor >1 k Ω to ground enables rep. rate generator. Voltage <+0.8 V or resistor <160 Ω disables rep. rate generator. Input TTL compatible, max. ± 5 V.

External width and RZ

External width: output pulse width determined by width of drive input signal. Amplitude, transition times selectable. Trigger output independent of external width input signal.

RZ mode: external drive input switched to delay generator. Period determined by period of drive input signal. Delay, amplitude and width selectable.

Input signal: >+1 V, >7 ns wide. Max. ± 5 V. 50 Ω dc coupled.

General

Operating temperature range: 0°C to 55°C.

Power: 100/120/220/240 V $\pm 5\%$, -10% , 48 to 400 Hz, 100 V A max.

Weight: net, 4 kg (8.8 lb). Shipping, 6.5 kg (14.6 lb).

Size: 126 H $\times$ 200 W $\times$ 280 mm D (5 $\times$ 7.9 $\times$ 11 in.)

Options and accessories

15179A Adapter frame. Rack mounting for two units

Opt 910: extra operating and service manual

Ordering information

8012B Pulse Generator

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