

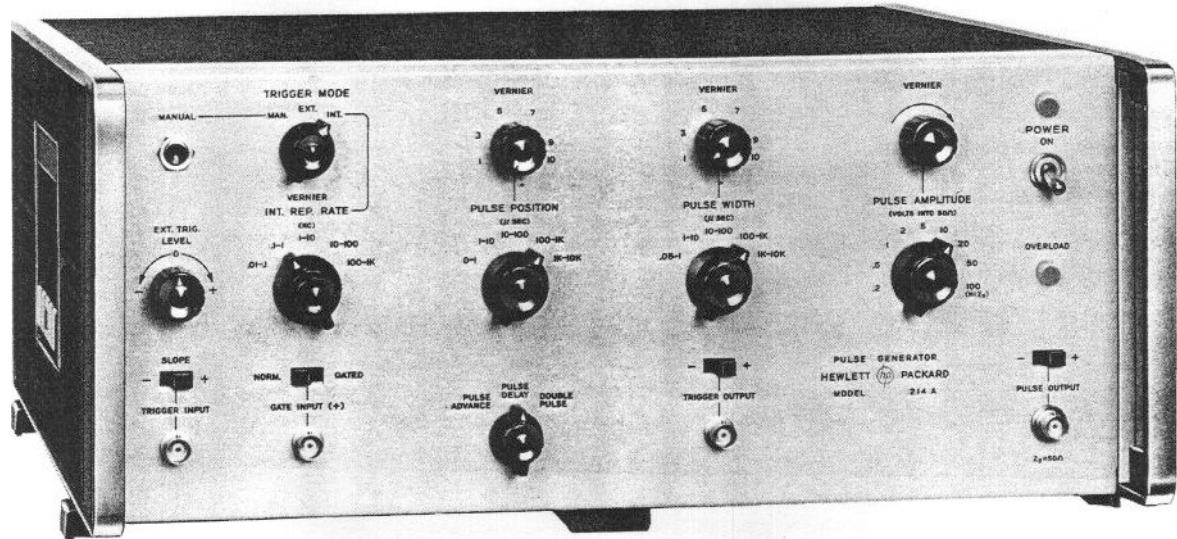
PULSE GENERATORS

High pulse power: 100 V, 200 W output

Model 214A

- Wide amplitude range; 0.08 V to 100 V
- 15 ns transition times

- 1 MHz repetition rate
- Double pulse mode



The 214A is a well-proven pulse generator with a very wide range of applications. The high 200 watts of pulse power (2 amp peak, ± 100 volts into 50 ohms) and fast rise time of 15 ns are particularly suited for testing current-driven devices such as magnetic cores, as well as high-power modulators. The fast rise and fall times combined with high power output pulses facilitate checking switching time of high power semiconductors. The positive or negative pulse output, with identical characteristics, provides a simple means of checking either npn or pnp type transistors. By gating the Model 214A output, a burst of pulses may be obtained for making computer logic measurements. The double pulse feature may also be used for pulse resolution tests of amplifiers and memory cores. Because of its ability to provide a 100 V amplitude output pulse, the 214A is ideally suited as a trigger source in high power applications where a poor signal-to-noise ratio is present.

Source impedance is 50 ohms on all but the highest (100-volt) range, to minimize errors caused by re-reflections when operating into unmatched loads. At lower output levels (down to 80 mV), the rise time is less than 13 ns (typically less than 10 ns). Carefully controlled pulse shape, pulse rate and width, and minimum pulse jitter ensure accurate and dependable test results. All characteristics of the pulse waveform, including overshoot, preshoot, pulse droop, and pulse top variations, are completely specified, and pulse irregularities are kept to a minimum.

An external trigger source of dc to 1 MHz can be used instead of the internal rate generator to produce the output pulses. Positive or negative trigger signals of 0.5 volts peak may be used and trigger slope and level may be selected to determine the triggering point on the waveform. A single pulse may be obtained from an internal circuit each time a manual button is pushed. Gating of pulses is easily achieved by applying an external signal and an output occurs only when the gating signal reaches a positive 8 volt level. Three modes of pulse operation allow: (1) setting of the output pulse to occur from 0 to 10 ms before (advance) the trigger output, (2) setting of the output pulse to occur from 0 to 10 ms after (delay) the trigger output, or (3) a double pulse output with variable spacing between the two pulses.

Specifications

Pulse characteristics

Source impedance: 50 ohms on 50 V and lower ranges; approx. 1500 ohms on the 100 V range.

Transition times: <13 ns on 20 V and lower ranges and the -50 V range, <15 ns on the +50 V range; typically <10 ns with the vernier set for maximum attenuation and typically 15 ns on the 100 V range.

Pulse amplitude: 100 V into 50 ohms. Attenuator provides 0.2 to

100 V in 1, 2, 5, 10 sequence (9 ranges); vernier reduces output of 0.2 V setting to 80 mV and provides continuous adjustment within ranges.

Polarity: positive or negative.

Overshoot: <5%, both edges (measured on a 50 MHz oscilloscope).

Pulse top variation: <5%.

Droop: <6%.

Preshoot: <2%.

Pulse widths: 50 ns to 10 ms in 5 decade ranges; continuously adjustable vernier.

Width jitter: <0.05% of pulse width + 1 ns.

Maximum duty cycle: 10% on 100 V and 50 V ranges; 25% on 20 V range; 50% on 10 V and lower ranges.

Repetition rate and trigger

Internal

Repetition rate: 10 Hz to 1 MHz (5 ranges), continuously adjustable vernier. Rate jitter: <0.5% of the period.

Manual: pushbutton single pulse, 2 Hz maximum rate.

External

Repetition rate: dc to 1 MHz.

Sensitivity: <0.5 V peak.

Slope: positive or negative.

Level: adjustable from -40 V to +40 V.

Delay: delay between input trigger and leading edge of pulse is approximately 250 ns in Pulse Advance mode (approx. 420 ns minimum in Pulse Delay mode).

External gating: +8 V input threshold. Maximum input 40 V peak.

Double pulse

Minimum spacing: 1 μ s on the 0.05 to 1 μ s pulse width range and 25% of upper limit of width range for all other ranges.

Trigger output

Amplitude: >10 volts open circuit.

Source impedance: approximately 50 ohms.

Width: 0.05 μ s nominal.

Polarity: positive or negative.

General

Power: 115 or 230 V $\pm 10\%$, 48 to 66 Hz, approx. 325 VA.

Size: 172 mmH \times 426 mmW \times 416 mmD (6.8" \times 16.8" \times 16.4").

Weight: net, 15.8 kg (35 lb). Shipping, 18.5 kg (41 lb).

Options

OPT 908: Rack Flange Kit

OPT 910: Additional Operating and Service Manual

214A Pulse Generator

With compliments

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