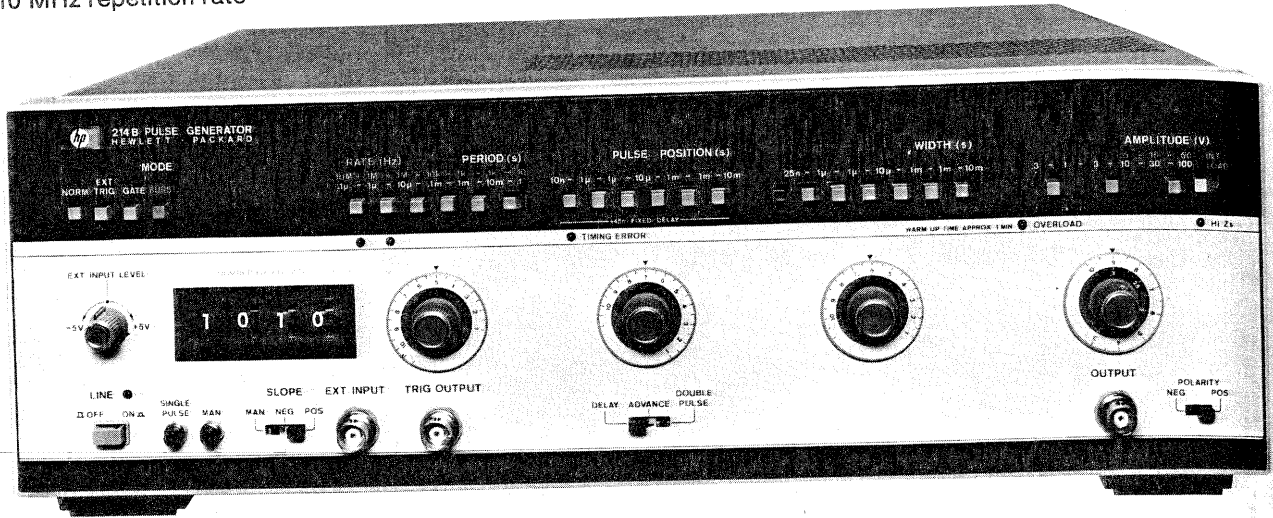


# PULSE GENERATORS & DATA GENERATORS

## Fast, High Power Pulse Generator HP 214B

- High power 100 V, 2 A output into 50  $\Omega$
- 10 MHz repetition rate
- Constant duty cycle
- Counted pulse burst option



Picture shows 214B with Option 001, Counted Burst.

The HP 214B pulse generator employs semiconductor technology for high power pulse generation at up to 10 MHz repetition rate. Delivering 100 V pulses with 15 ns risetimes, the HP 214B meets the speed demands of today's applications.

State-of-the-art VMOS FETS used as current sources for the output amplifier tubes enable pulse width to be specified down to 25 ns. The HP 214B is thus well-equipped for low duty cycle applications such as laser diode pulsing or transient simulation.

Where changing duty cycle threatens destruction to the device under test, the HP 214B Constant Duty Cycle (CDC) mode provides device protection. In CDC operation the duty cycle, hence power, remains constant as frequency is varied. The HP 214B is itself protected against excessive duty cycles via an overload protect circuit.

Easy operation is assured by the timing error indication. Calibrated dials enable fast accurate adjustments. Operating into unmatched loads, clean pulse shape is guaranteed by the low reactance 50  $\Omega$  source impedance. Pulse distortions such as preshoot and overshoot are specified as 5% at all amplitudes.

### Specifications

#### Timing

**Repetition rate:** 10 Hz to 10 MHz in 6 ranges. In 30 V - 100 V amplitude range, maximum rep. rate is 4 MHz. Calibrated vernier provides continuous adjustment within ranges. **Vernier accuracy:**  $\pm(10\%$  of setting + 1% full scale). **Period Jitter:**  $\leq 0.1\% + 300$  ps.

**Pulse delay/advance:** pulse can be delayed/advanced with respect to the trigger output from 10 ns to 10 ms ( $\pm$  fixed delay of 45 ns) in 5 ranges. Calibrated vernier provides continuous adjustment within ranges. **Vernier accuracy:**  $\pm(10\%$  of setting + 1% full scale) + fixed delay. **Position Jitter:**  $\leq 0.1\% + 500$  ps

**Maximum pulse position duty cycle:**  $\geq 50\%$

**Double pulse:** 5 MHz maximum in all ranges except 30 V - 100 V range which is max. 2 MHz. Minimum separation is 100 ns.

**Pulse width:** 25 ns to 10 ms in 6 decade ranges. Calibrated vernier provides continuous adjustment within ranges. **Accuracy:**  $\pm(10\%$  of setting + 1% full scale) + 5 ns. **Width Jitter:**  $\leq 0.1\% + 500$  ps.

**Max. duty cycle:**  $\geq 10\%$  for 30 - 100 V range.  $\geq 50\%$  all other ranges. **Constant duty cycle mode (disabled in ext. trigger mode):** duty cycle of output pulse remains constant as the period is varied. The duty cycle limits in this mode are typically 8% fixed for the 10 M - 1 MHz range (max. 4 MHz); 2.5% to 10% for 1 MHz - .1 MHz range; .25% to 10% for .1 MHz - 10 kHz range; 0.1% for all other ranges. Calibrated vernier provides continuous adjustment within ranges.

**Accuracy:**  $\pm(15\%$  of setting + 1% of full scale).

#### Trigger Output

**Amplitude:**  $\geq +5$  V (50 ohm into open circuit).

**Pulse width:** 10 ns typical.

#### External Operating Modes

##### External Input (impedance 10 k ohm, dc coupled)

**Repetition rate:** dc to 10 MHz. **Sensitivity:** 500 mVpp, dc coupled.

**Slope:** pos. or neg. **Trigger level:** +5 V to -5 V adjustable.

**Maximum input level:**  $\pm 100$  V. **Trigger pulse width:**  $\geq 10$  ns.

**EXT TRIG mode:** an output pulse is generated for each input pulse.

**GATE mode:** gate signal turns on rep. rate generator synchronously.

Last pulse always completed.

**BURST mode (optional):** preselected number of pulses generated on receipt of trigger signal. **Number of pulses:** 1 to 9999. Minimum spacing between bursts: 200 ns.

**Manual:** pushbutton can be used for triggering single pulses (EXT TRIG mode), generating gate signals (GATE mode) or triggering pulse bursts (BURST mode).

#### Output

**Amplitude:** 0.3 V to 100 V in 5 ranges. Calibrated vernier provides adjustment within ranges. **Vernier accuracy:**  $\pm 10\%$  of setting.

**Source impedance:** fixed 50  $\Omega$  nominal on ranges up to 10 V. Selectable 50  $\Omega$  nominal or HI-Z on 10 - 30 - 100 V ranges (with 50  $\Omega$  / 50  $\Omega$  impedance, amplitude decreases to 5 - 15 - 50 V).

**Polarity:** pos. or neg. selectable.

**Transition times:**  $\leq 15$  ns for leading and trailing edges.

**Pulse top perturbations:**  $\leq \pm 5\%$  of amplitude.

#### General

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

**Power:** 100/120/220/240 Vrms; +5%, -10%, 48 to 66 Hz, 360 VA max.

**Size:** 133H x 426W x 422 mm D (5.2" x 16.8" x 16.6").

**Weight:** net 13.6 kg (30 lb). Shipping 15.6 kg (34.3 lb).

#### Ordering Information

HP 214B Generator

Opt 001 Counted Burst

Opt H04 48-440 Hz Line

Opt 907 Front Handle Kit (part number HP 5061-9689).

Opt 908 Rackmount Kit (part number HP 5061-9677).

Opt 909 Opt 907, 908 Combined (part number HP 5061-9683).

Opt 910 Set of Operating/Progr. and Service Manuals

Opt W30 Extended repair service. See page 723.

For same-day shipment, call HP DIRECT at 800-538-8787.