



## NEW PG 5110

The PG 5110 is a fully programmable pulse generator with pulse outputs from 0.1 Hz to 50 MHz in single or dual channel versions. The easily mastered menu-driven front panel, with storage for 99 settings, provides real benefits to either a test technician or design engineer.

The majority of the parameters can be varied independently for each output channel. Pulse widths can vary from 10 ns to 10 s and delays from 0 ns to 10 s, both with up to 6 digits of resolution. For worst case testing and characterization, transitions can be varied from 6 ns to 10 ms.

Predefined levels for TTL, CMOS or ECL are provided as well as adjustable levels from -10 V to +10 V with a 10 V amplitude pulse. Extremely good timing accuracies are achieved through internal calibration which is performed every time the parameter setting is changed. Operating modes include continuous, triggered, gated, and burst from 2 to 999,999 cycles.

The blank panel version (option 01) makes it ideal for systems applications. A TM 5000 mainframe is required.

## CHARACTERISTICS

### PERIOD (Common to both channels)

**Single Pulse Range** - 20 ns-10 s (50 MHz-0.1 Hz repetition rate).

**Double Pulse Range** - 40 ns-10 s in Paired Pulse per period mode (25 MHz-0.1 Hz repetition rate).

**Resolution** - 6 digits limited to 0.1 ns.

**Accuracy** -  $\pm 1\%$  of setting  $\pm 1$  ns.

**Jitter** -  $\leq (0.1\%$  of setting + 50 ps) on fastest range.

### WIDTH (Independent for each channel)

**Range** - 10 ns-9.99999 s

**Resolution** - 6 digits limited to 0.1 ns.

**Accuracy** -  $\pm 2\%$  of setting  $\pm 2$  ns.

**Jitter** -  $\leq (0.1\%$  of setting + 50 pS) decreasing to 0.005% on slowest range.

### DELAY (Independent for each channel)

**Range** - 0 ns-9.99999 s.

**Resolution** - 6 digits limited to 0.1 ns.

**Accuracy** -  $\pm 2\%$  of setting  $\pm 2$  ns.

**Jitter** -  $\leq (0.1\%$  of setting + 50 pS), decreasing to 0.005% on slowest range.

### DUTY CYCLE PERFORMANCE (Independent for each channel)

**Range** - 1-99%.

**Resolution** - 0.1% (3 digits). Square Wave is not selectable directly as a mode; use DUTY = 50%.

**Accuracy** - Limited by width and pulse accuracy.

### TRANSITION TIMES (Independent for each channel)

**Transition Time** - 6 ns-10 ms (variable), measured at +5 V to +2 V and -5 V to -2 V. Leading edge and trailing edge settable separately.

**Resolution** - 3 digits, limited to 0.1 ns.

**Accuracy** -  $\pm 5\%$  of setting  $\pm 2$  ns.

**Linearity** - Less than 5% deviation from a straight line.

### AMPLITUDE (Independent for each channel)

**High Level Range** - -9.49 V - +10 V, into 50  $\Omega$  load (typically -18.98 V - +20 V into open circuit).

**Low Level Range** - -10 V - +9.49 V, into 50  $\Omega$  load (typically -20 V - +18.98 V, into open circuit).

**Pulse Amplitude Range** - 0.5 V minimum to 10 V p-p maximum into 50  $\Omega$  load (1 V minimum to 20 V p-p maximum into open circuit).

**Resolution** - 3 digits limited to 10 mV.

**Accuracy** -  $\pm 1\%$  of level setting  $\pm 2\%$  of p-p amplitude  $\pm 50$  mV into 50  $\Omega$  load.

**Aberrations** -  $\leq 5\%$  + 50 mV into 50  $\Omega$  load for pulse levels between  $\pm 5$  V.

**Setting Time** - 50 ns + transition time.

**Output Source Resistance** - 50  $\Omega$   $\pm 2.5 \Omega$ .

### TRIGGERING/ GATING INPUT

**Sensitivity** - 150 mV p-p minimum, dc - 50 MHz.

**Minimum Input Pulse Width** - 10 ns; 250 mV amplitude required for triggering.

**Maximum Repetition Rate** - 50 MHz.

**Input Impedance** - 1 M $\Omega$   $\pm 5\%$ ;  $\approx 30$  pf.

**Maximum Input Voltage** -  $\pm 10$  V dc plus peak ac.

### THRESHOLD

**Range** -  $\pm 9.99$  V.

**Resolution** - 3 digits (10 mV).

**Accuracy** -  $\pm 5\%$  of setting  $\pm 25$  mV.

**Slope Selection** - Positive (+) slope for triggering and positive-true for gating; Negative (-) slope for triggering, negative-true for gating.

**Counted Burst** - 2-999,999 cycles per burst.

### INTERNAL TRIGGER

**Repetition Rate Range** - 100 ns-999.99 s.

**Resolution** - Up to 4 digits, limited to 100 ns.

**Repetition Rate Accuracy** -  $\pm 0.01\% \pm 1$  ns.

**Jitter** -  $\leq (0.1\%$  of setting + 50 ps).

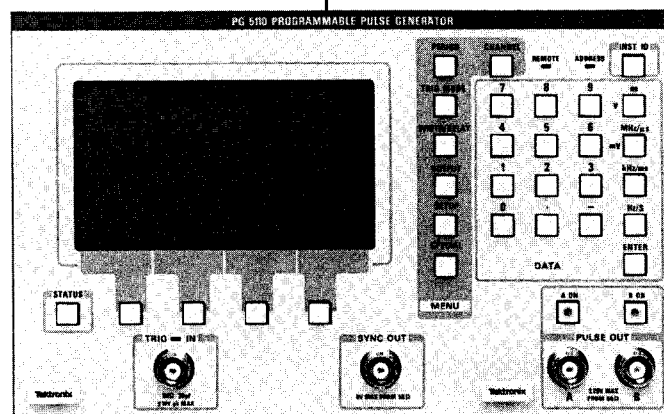
### GENERAL

**Environmental** - Operating: 0 - 50°C. Non-operating: -20 to +60°C.

**Power Consumption** - 130 W total.

## NEW PG 5110 Programmable Pulse Generator

- Two Independent 50 MHz Output Channels
- Repetition Rates from 0.1 Hz to 50 MHz (periods from 20 ns to 10 s)
- Variable Transitions from 6 ns to 10 ms
- Clear Large Graphic Display for Convenient Operation
- 99 Stored Front-panel Settings Capability with Non-volatile Memory



**GPIB**  
IEEE-488

## ORDERING INFORMATION

**PG 5110 50 MHz Programmable Pulse Generator** **\$5,200**  
Includes: Instruction Manual (070-7740-00), Reference Guide (070-7743-00), Instrument Interface Guide (070-7742-00).

**OPTIONAL ACCESSORIES**  
Service Manual (070-7741-00), Rear Interface Cable Set (118-8569-00).

**INSTRUMENT OPTIONS**  
**Opt. 01** - Blank Front Panel **-\$450**  
**Opt. 02** - Adds Channel B, converting the PG 5110 to a dual-channel instrument. **+\$3,050**

\*The PG 5110 complies with IEEE Standard 488.1-1987, and with Tektronix Standard Codes and Formats.