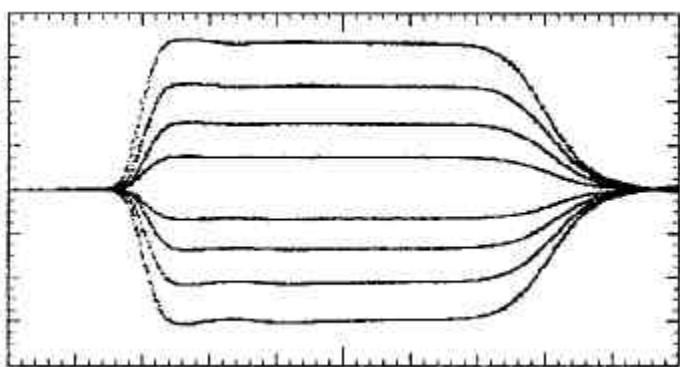




Model 10,300B

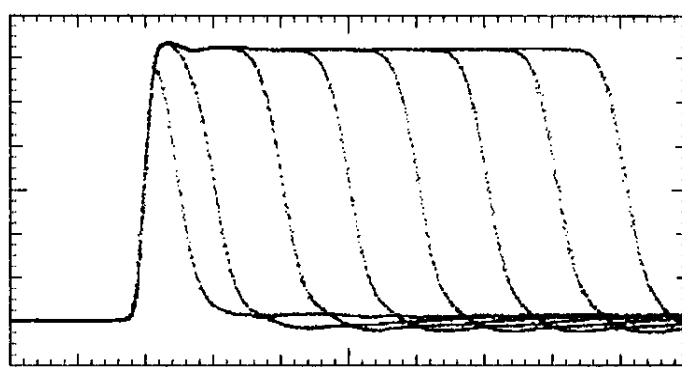
Programmable Pulse Generator

- Programmable IEEE- 488
- < 300 ps Risetime
- 50 V Amplitude
- < 1 ns - 100 ns Duration



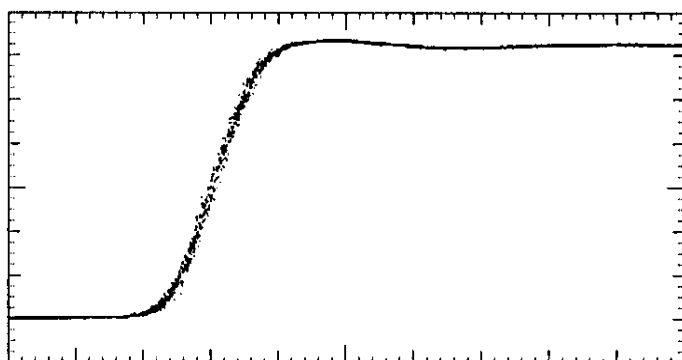
15 V/div and 500 ps/div

Adjustable Amplitude from -45 V to +50 V in 1 dB steps.
Also adjustable baseline offset from -5 V to + 5 V.



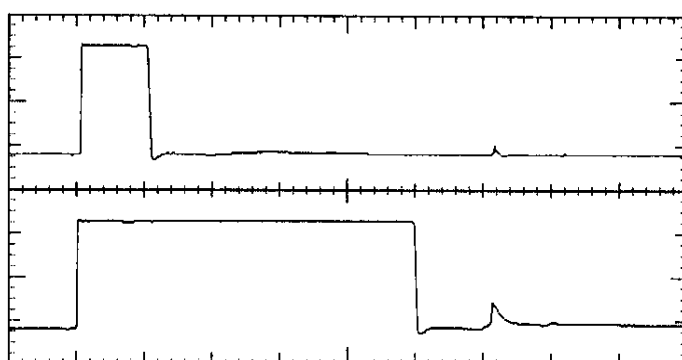
8 V/div and 1 ns/div

Adjustable Duration from < 1 ns to 100 ns in 25 ps steps.



8 V/div and 200 ps/div

Leading edge 250 ps Risetime.



20 V/div and 20 ns/div

20 ns and 100 ns pulses.

Ordering Information

Model Number	Description
10,300B	Pulse Generator: 50 V, 250 ps risetime, 1 ns – 100 ns duration
10,300B-300NS	Pulse Generator: 50 V, 250 ps risetime, 2 ns – 300 ns adj. duration



Model 10,300B Programmable Pulse Generator

Output Pulse Parameters [1]	
Amplitude into 50 Ω [2]	+50 V, (± 2 V) to 4.5 mV -45 V (± 3 V) to -4 mV adjustable in 1 dB steps
Polarity	Positive or negative
Baseline	Adjustable from -5 V to +5 V
Risetime leading edge (10% - 90%)	< 300 ps typical, 325 ps max.
Falltime trailing edge (90% - 10%)	750 ps typical, 1 ns max.
Duration [2] (50% fwhm)	< 1 ns to 100 ns adjustable in 25 ps steps
[4]	2 ns to 300 ns, optional
Baseline Precursor	< ± 1 % typical
Topline Overshoot	2 % typical
Topline Perturbations	± 1 % typical, $t < 3$ ns ± 2 % for negative pulse
Topline Flatness [3]	± 0.5 % typical, $t > 3$ ns ± 2 % for negative pulse
Spurious Pulse at 120 ns	+6% duration < 20 ns +30% duration = 100 ns
Source Impedance	50 Ω , nominal
Reflection Coefficient	-30% during pulse +50% after pulse, improves with increasing attenuation

Trigger and Timing	
Trigger Output Pulse	1 V into 50 Ω , 1 μ s
Delay [2]	0 to 100 ns, 25 ps steps
Delay Jitter	< 10 ps rms
Period	10 μ s to 1 sec, 0.1 μ s steps
Repetition Rate	1 Hz to 100 kHz
Trigger Mode	Int., ext., manual or GPIB
Ext. Trigger Input Level	-2 V to +2 V, 1 mV steps positive or negative slope
Max. Ext. Trigger Input	± 5 V
Ext. Trigger Impedance	50 Ω
Trigger In/Out Delay	185 ns
Ext. Gate Input	TTL, > 2 V on, < 0.5 V off
Ext. Gate Impedance	50 Ω

GPIB Capabilities	
Standard	IEEE 488.1 – 1987
Interface Functions	SH1, AH1, T6, L4, SR1, RL1, PP0, DC1, DT1, C0 and E2
Programmable Parameters	
Voltage	Amplitude, polarity, baseline, max/min limits – on/off
Time	Duration, delay, period and frequency
Trigger Source	Int, ext, manual and GPIB
Trigger	Level, slope, hysteresis and gate
Set Up	Save/recall in 10 memories with battery back up
Other	Enable, disable, header and reset

General Specifications	
Controls	Power, menu, data entry, disable/enable, local and manual trigger
Connectors	SMA for 50 V pulse output, BNCs for trig in, gate in and trig out, BNCs on rear panel for baseline offset d/a output and bias tee input, GPIB on rear panel
Power Supply (mains)	100, 115 or 230 V AC, ± 10 % switch selectable, 50 or 60 Hz
Power Consumption	48 VA (60 Hz) 65 VA (50 Hz)
Operating Environment	Indoors, 0 C to 50 C, < 80%rh, [2]
Safety Certifications	Conforms to EN-061010-1 (CE mark) UL-1244 and IEC-348. Safety class I. For lab use only by qualified personnel.
EMI Certifications	Conforms to EU Directive 89/336/EEC EN55011 and EN50082-1, CE mark
Calibration	Calibration report with waveforms furnished, NPL/NIST-traceable, valid at $+23\text{ C} \pm 3\text{ C}$ and 10 kHz rep. rate
Warranty	One year. See Terms and Conditions of Sale for details.
Accessories Included	Power cord, BNC cable, rack mount kit, instruction manual and video
Dimensions	19" x 15.2" x 5.5" (48.3 x 38.6 x 14 cm)
Weight	21 lbs (9.5 kg), 28 lbs (13 kg) shipping

Notes

[1] The performance parameters listed here are typical values as measured using an Agilent >12 GHz, digital sampling oscilloscope and 43 dB, DC-18 GHz PSPL Model 5510, SMA precision attenuators. Parameters are guaranteed only when max. and/or min. limits are given.

[2] The duration and delay values displayed on the front panel LCD and programmed over the GPIB are only to be considered "nominal" values and not absolute values. The duration and delay parameters do exhibit some thermal drift, rep. rate dependency and interaction. There will be some loss in amplitude at minimum pulse durations. The amplitude tolerance of ± 2 V holds only for >10 ns durations. The amplitude has a minor rep. rate dependency. Always use an oscilloscope as an independent check of these pulse parameters. The instrument is adjusted and calibrated at the factory in an ambient temperature of 23 C (± 3 C) at a rep. rate of 10 kHz. The instrument will operate over a temperature range of 0 C to +50 C but will not meet all specifications over this range.

[3] The topline flatness is measured by comparing the transient responses of the oscilloscope when measuring an attenuated (43 dB) 10,300B pulse and a NIST-calibrated PSPL Model 6110D, NBS type, Reference Flat Pulse Generator. The difference is the corrected 10,300B flatness.

[4] 300 ns Option: The 10,300B can be built with a longer pulse duration option. The following specs. will change for this 300 ns option. Duration = 2 ns to 300 ns in 100 ps steps, falltime = 2.5 ns typical, max. rep. rate = 20 kHz, and jitter = 17 ps rms. The typical positive polarity pulse topline flatness is ± 0.5 % for 3 ns < t < 100 ns and ± 1 % for t > 100 ns. The spurious pulse occurs at 420 ns and is 2 % for <100 ns durations and 20 % for 300 ns duration.