

Model 9027
Custom Programmable Pulse Generator



Output Pulse Parameters [1]	
Amplitude into 50 Ω [2]	+35 V max (± 2V) to 2.8mV -31.5 V min (± 3V) to 2.5mV adjustable in 1/8 dB steps
Polarity	Positive or negative
Baseline	-5 V to +5 V, 1.25 mV steps
Risetime (10% - 90%)	400 ps typical, 500 ps max. pos. pulse leading edge 450 ps typical, 550 ps max. neg. pulse leading edge
Falltime (90% - 10%)	900 ps typical, 1.5 ns max.
Duration (50%) [2]	1 ns (nominal) to 100 ns adjustable in 25 ps steps.
Baseline Precursor	< ±2%
Topline Overshoot	< ±4% typical
Topline Perturbations	< ±2% typical
Spurious Pulse	+6%, duration < 20 ns +30%, duration = 100 ns
Source Impedance	50 Ω, nominal
Reflection Coefficient	-30% during pulse +50% after pulse Improves with increasing atten.

GPIO 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 offset 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

Trigger and Timing	
Trigger Output Pulse	1 V into 50 Ω, 1 μs
Delay [2]	0 to 100 ns, 25 ps steps
Delay Jitter	<10 ps rms
Period	10 μs to 1 sec, 0.1 μs 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

General Specifications	
Controls	Power, menu, data entry, disable/enable, local and manual trigger
Connectors	SMA for 35 V pulse output, BNC for trig in, gate in and trig out
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, [3]
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, NIST-traceable, valid at +23 C ± 3 C and 10 kHz rep. rate
Warranty	One year. See Terms and Conditions of Sale for details
Accessories Included	Power cord, 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 (9.5kg), 28 lbs (13kg) shipping

[1] The performance parameters listed here are typical values as measured using Agilent > 12GHz, digital sampling oscilloscope and 40 dB, DC-18 GHz PSPL Model 5510, SMA 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 leading edge risetime and overshoot changes somewhat for various settings of the programmable 1/8 dB step attenuator. Always use an oscilloscope as an independent check of these pulse parameters.

[3] The instrument is adjusted and calibrated at the factory in an ambient temperature of 23 C (±3C) at a rep. rate of 10 kHz, 35 V amplitude, 0 V baseline and 100 ns duration. The instrument will operate over a temperature range of C to +50C but will not meet all specifications over this range.