

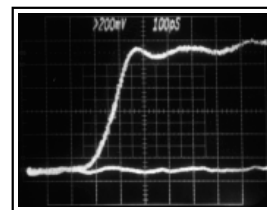
Kentech Instruments Ltd.

PBG5 and PBG7 High Voltage Solid State Pulser

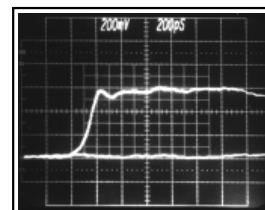
Our PBG5 and PBG7 pulsers offer very high peak power output coupled with a fast risetime. The normal format of these pulsers is a single or balanced output suitable for driving an antenna, although they are available in multi-channel lower voltage versions. The high output is achieved by careful coupling of many smaller modules in a manner which avoids large voltages appearing anywhere except at the output from the unit.

Specifications	PBG5	PBG7
Amplitude	≥ 24kV into 50Ω load	≥ 45kV into 50Ω,
Amplitude with two differential 100Ω outputs	> 48kV into 200Ω load	> 90kV into 200Ω load
PRF	1kHz	500Hz
Amplitude jitter, shot to shot	<5%, 1% typical , shot to shot	<5%, 1% typical , shot to shot
Trigger to Pulse output Delay	<35ns	<35ns
Timing jitter	< 20ps rms	< 20ps rms
Trigger input	5 to 20 volts, t_r in < 5ns, 50Ω	5 to 20 volts, t_r in < 5ns, 50Ω
Load tolerance	open or short circuit or arc at output for 1 second or indefinitely at the end of a 2ns cable	
Rise time	< 150ps (10 to 90%), 130ps typical	< 150ps (10 to 90%), 130ps typical
Pulse width	~3ns full width half maximum	~2ns full width half maximum
Power requirements	120/240 volts ac, 50/60 Hz	120/240 volts ac, 50/60 Hz
Lifetime	> 10 ⁹ shots	> 10 ⁹ shots
Pulse Shape	Fast rise followed by exponential decay.	
Operating temperature	10° to 35°C	10° to 35°C

PBG5 output wave forms were displayed on a Tektronix® oscilloscope with an S4 sampling head. The output was first transformed with a high bandwidth cable transformer to reduce the voltage by a factor of 4. The output of this was then put into an attenuator string containing a pair of Barth® type 142B attenuators and a pair of Radial® SMA attenuators.



Output at 100ps per division showing 130ps rise time.



Output at 200ps and 8kV per division.

HIGH VOLTAGE PULSER SUMMARY

Pulsar	Amplitude	T _{rise} /PW	PRF	RMS Jitter	Features	Options
APG1	>100V	150ps/150ps	10kHz	10ps	S/D	
ASG1	>200V	100ps/8ns step	1kHz	10ps	St/D	
SPSV	>1kV	0.7ns/1,2,4,8,10 & 12ns	100Hz	10ps	S/D	
CPS1	>2kV	150ps/2ns decay	1kHz	20ps		/S
CPS2	>4kV	150ps/2ns decay	100Hz	20ps		/S
CPS3	>6kV	150ps/2ns decay	10Hz	20ps		/S
HMP1	>4kV	120ps/5ns	100Hz	10ps		S/D/Q/V/F
HMP2	>2 x 4kV	120ps/5ns	100Hz	10ps		S/D/Q/V/F
PBG1	>6.5kV	100ps/5ns	100Hz	10ps		S/D/V/F
PBG2	>8.5kV	100ps/5ns	100Hz	10ps		S/D/V/F
PBG3	>12.5kV	100ps/5ns	100Hz	10ps		S/D/V/F
PBG5	>24kV	150ps/3ns	1kHz	20ps		S/D/V/F/B
PBG7	>45kV	150ps/3ns	500Hz	20ps		/B

Features and Options

- S Shaped pulse
 - St Step pulse
 - D Internal switchable delay, rate generator, trigger indicator, auxiliary low level outputs
 - Q Fast rise time (quick)
 - V Variable output (approximately 60% to 100%)
 - F 1kHz repetition rate (some pulsers can achieve this without this option, consult factory)
 - B Balanced outputs
- Units are available with multiple synchronous outputs,
e.g. a PBG5 will drive sixteen 50Ω outputs to 6.4kV

Voltages are into 50Ω, both positive and negative outputs are available.

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From small to very large; custom built pulsers are available for a wide range of applications.

Kentech Instruments Ltd. manufactures a large range of pulse generators and builds systems to customer specification. If you do not see a suitable instrument listed here please consult the factory to discuss your requirements.

Kentech Instruments Ltd. also make a range of time resolving and imaging devices for both X-ray and Optical wavelengths. In particular we manufacture gated optical image intensifier systems with gate widths down to 50ps and high repetition rate systems with bandwidths to GHz.

For X-rays we can offer gated imager and streak cameras.



The Kentech HRI (High Rate Imager)
 Optical image modulation to 1GHz,
 gate widths to 300ps at 110MHz
 repetition rate

Kentech Instruments Ltd. reserves the right to modify the price or specification of products without notice.