

Kentech Instruments Ltd.

PC5NS Photocathode Gate Module

The PC5NS gate module is intended to gate a gen 2, wafer MCP tube in response to a TTL command signal. It has a minimum pulse width of 5ns and when used with an 18mm intensifier can produce an optical gate of less than 5ns. It is DC coupled so the intensifier gate pulse is slaved to the TTL input. TTL high = off, TTL low = on.

The module has an internal HV power supply and requires only a 12V input plus a trigger signal. (The module does not provide the MCP and phosphor voltages although we are able to provide a separate unit for this purpose.) The photocathode reverse bias voltage is provided.

The gate pulse output is provided via a 50Ω connector (SMB). For minimum gate width the length of 50Ω cable will be kept to a minimum however a length of up to 1 metre of 50Ω cable may be used. (In this case a small terminating network will be required at the tube to minimise signal reflections - details provided.)

Specification

Minimum gate width	5ns
Maximum gate width	DC
Maximum PRF	5kHz (10kHz at slightly reduced amplitude)
Trigger	TTL, 2k2, active low
Typical trigger delay	25ns
Jitter	<200ps
Gate pulse	-200V typical
Reverse bias	+30V typical
Power supply	12V at 200mA typical
Connection to tube	50Ω, 5cm to 100cm in length (100cm requires small passive terminating network)
	MCP input is grounded
Physical	30 x 64 x 114 (30 x 64 x 127 with flanges) mm ³

The optical gate will track the TTL input within the following constraints:

Minimum on time 5ns (18mm)

Minimum off time 10μs

Maximum average PRF 5kHz

If the duty cycle is <25% the PRF may be 10kHz for up to 10mins.

(At a PRF above 5kHz the bias and pulse amplitude will change slightly.)

IIHVS Intensifier High Voltage Bias Module

The Kentech Instruments IIHVS intensifier high voltage bias module is a stand alone gen 2 wafer intensifier supply. It provides phosphor, MCP and photocathode bias voltages and may be used together with our PC5NS gate module to provide a complete gated intensifier electronics package. It features a slow photocathode gate circuit (~1ms response) with a TTL input so if fast gating is not required the IIHVS is all that is required to power the intensifier tube. It has an internal high voltage power supply and requires only a 12V supply to operate. The MCP (gain) voltage is controlled by a 0 - 3V control input or a potentiometer may be used to control the gain without the addition of any other components. It features ultra low ripple for use with high resolution readout systems. It has a TTL disable input.

Specification

Phosphor	5.8kV (nominal) regulated
MCP	0 - 950V in response to 0 - 3V control input
PC	+50 (off), -180 (on) in response to TTL
PC risetime	1ms typical
Power supply	12V at <100mA
Connection to tube	Flying leads
Physical	30 x 64 x 114 (30 x 64 x 127 with flanges)

HIGH VOLTAGE PULSER SUMMARY

Pulser	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.