

Kentech Instruments Ltd.

Trigger Resynchroniser

It is often necessary to produce a trigger signal that is synchronised to an RF waveform but occurs at a random time. The Trigger Resynchroniser will produce a low jitter output synchronised to the RF at a time after a trigger signal is received.

SPECIFICATIONS

Maximum repetition rate for high voltage output 25kHz.

Maximum repetition rate for 5 volt output > 4MHz.

Trigger input sensitivity: requires > 1.5 volts into 50Ω to trigger

Trigger input duration: the unit will trigger from a 5ns, 2.5 volt (into 50Ω pulse)

Trigger sense: the low voltage output state will be the same as the trigger input at the time of an RF edge. The unit may be used for positive or negative edge use except for the high voltage output which is AC coupled and will only operate from a positive going edge. The jitter specifications only apply to positive edge triggering.

RF bandwidth: 1MHz to 1GHz (jitter spec is only good for up to 500MHz).

RF sensitivity: 300mV (peak to peak) at 110MHz
750mV (peak to peak) at 500MHz

Outputs: 5 volt output will deliver approximately 5 volts into 50 ohms
30 volt output will deliver 30 volts into an open circuit or 15 volts into 50 ohms. However, this output is reverse terminated to 50 ohms so that cables do not have to be terminated. Reverse termination reduces the chance of failure if the output is into a short circuit. With the reverse termination removed the unit would deliver 30 volts into 50 ohms but might fail into a short circuit.

Trigger edge direction: The unit is only specified for use with a positive edge although in principle both edges will be synchronised to clock edges.
Note that the high voltage output is AC coupled and consequently only synchronises to a positive going edge. The output will then decay. The 5 volt output will stay high until an RF edge is detected and the trigger input is low.

Jitter: We have measured this to be approximately 50ps at 500MHz but some or most of this may be due to noise on our RF source.

Indicators: power ON (red)
RF detected (yellow)
Triggered (green)

Power input: Universal
85 to 264 volts A.C. at 47 to 440Hz.
2 amp fuse, type T (anti-surge)
This unit contains an auto-resetting thermal trip rated at 70°C
Maximum average power consumption 10 watts.

Connectors:
Power: IEC
Trigger input: BNC
RF input: BNC
5 volt output: BNC
30 volt output: BNC type



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

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