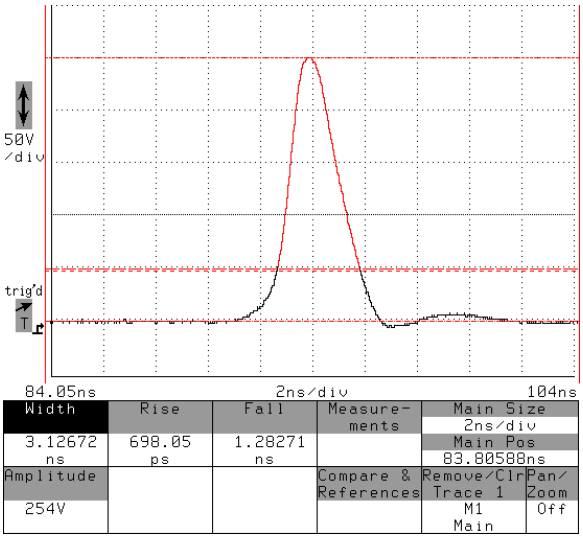
AVG SERIES

2 to 5 ns
120V to 920V, PRF to 30 kHz
IMPULSE GENERATORS



AVG-1 Output (10 kHz, 50 V/div, 2 ns/div)

- PW as low as 2 ns, amplitudes to 920 Volts
- PRF to 30 kHz
- Rise times as low as 0.9 ns
- IEEE-488.2 GPIB and RS-232 control
- Ethernet port for VXI-11.3 support

The AVG series of high-voltage impulse generators provides nanosecond-scale impulses with amplitudes of several hundred Volts, into 50Ω loads.

The pulse width measurements for most models (except the AVG-3-B model) are taken at the 20% maximum amplitude point. The full-width half-maximum (FWHM) pulse widths will be lower.

The AVG-1 family generates < 4 ns impulses at repetition rates up to 30 kHz. For repetition rates below 10 kHz, the maximum amplitude is 240V. The maximum amplitude at 10-30 kHz falls to 180V.

The AVG-2 family provides 120V, < 2 ns output.

The AVG-3 family provides up to 500V, with a half-power pulse width of < 5 ns.

Model AVG-3A-B is similar, but features a pulse width at the 20% rise point of < 4 ns and rise times of < 1 ns.

The AVG-3B family provides 420V, < 2.7 ns outputs.

For much higher power applications, the AVG-4A, -4B2 and -4C2 families provide peak outputs of 600, 800, or 920 Volts and 20% rise time pulse widths of < 5 ns.

Either output polarity can be provided. A dual-polarity option is also available. The polarity is controlled from the front panel menu or by computer command. A DC offset or bias insertion option is available with most units. Units with this option include a circuit similar to Model AVX-T at the output. The required DC offset or bias is applied directly to rear-panel solder terminals.

All models include a complete computer control interface. This provides GPIB and RS-232 computer-control, as well as front panel keypad and adjust knob control of the output pulse parameters. A large backlit LCD displays the output amplitude, polarity, frequency, and delay. (See http://www.avtechpulse.com/gpib for details). To allow easy integration into automated test systems, the programming command set is based on the SCPI standard.

A rear-panel Ethernet connector allows the instrument to be remotely controlled using the VXI-11.3, ssh, telnet, and web protocols. In particular, the VXI-11.3 features allows software like LabView to control an instrument using standard VISA communications drivers and network cabling, instead of using older-style GPIB cabling and GPIB controller cards. For additional details, please see http://www.avtechpulse.com/options/vxi.

All models require 100 – 240 V, 50 – 60 Hz prime power.

-B style instrument

SPECIFICATIONS

AVG SERIES

Model[1]:	AVG-1-B	AVG-2-B	AVG-3-B	AVG-3A-B	AVG-3B-B	AVG-4A-B	AVG-4B2-B	AVG-4C2-B
Amplitude[2,7,8]:	40 - 240 V[6]	15 - 120 V	75 - 500 V	70 - 420 V		90 - 600 V	120 - 800 V	150 - 920 V
Pulse width, measured at:	≤ 4 ns, at 20%	≤ 2 ns, at 20%	≤ 5 ns, at 70.7%[10]	≤ 4 ns, at 20%	≤ 2.7 ns, at 20%	≤ 5 ns, at 20%		
Rise time (20%-80%):	≤ 2 ns	≤ 1 ns	≤ 2 ns	≤ 1 ns	≤ 0.9 ns	≤ 1.5 ns		
Fall time (80%-20%):	≤ 2 ns	≤ 1 ns	≤ 10 ns	≤ 2.5 ns	≤ 0.9 ns	≤ 3 ns		
PRF:	0 to 30 kHz		0 to 20 kHz			0 to 10 kHz		
Required load:	50Ω[7]							
Polarity[3]:	Positive or negative or both (specify)							
GPIB & RS-232 control[1]:	Standard on -B units.							
Ethernet port, for emote control using VXI-11.3, ssh, telnet, & web:	Included. Recommended as a modern alternative to GPIB / RS-232. See http://www.avtechpulse.com/options/vxi for details.							
Settings accuracy:	Not specified / not calibrated. Verify the output parameters with a calibrated oscilloscope.							
LabView Drivers:	Check http://www.avtechpulse.com/labview for availability and downloads							
Propagation delay:	≤ 50 ns (Ext trig in to pulse out)							
Jitter:	± 100 ps (Ext trig in to pulse out)							
DC offset:	-OS option[4]: Apply required DC offset (± 50 Volts, 250 mA DC max) to rear-panel solder terminals							
Trigger modes:	Internal trigger, external trigger (TTL level pulse, > 10 ns, 1 kΩ input impedance), front-panel “Single Pulse” pushbutton, or single pulse trigger via computer command.							
Variable delay:	0 to 1.0 seconds, for all trigger modes (including external trigger)							
Sync out:	+ 3 Volts, 200 ns, will drive 50 Ohm loads.							
Gate input:	Active high or low, switchable. Suppresses triggering when active.							
Monitor output:	Optional[5]: Provides a 20 dB attenuated coincident replica of main output							
Connectors:	Out: SMA[9], Trig, Sync, Gate: BNC							
Dimensions (H x W x D):	100 mm x 430 mm x 375 mm (3.9” x 17” x 14.8”)							
Power:	100 - 240 Volts, 50 - 60 Hz							
Chassis material:	Cast aluminum frame & handles, blue vinyl on aluminum cover plates							
Temperature range:	+5°C to +40°C							

1) -B suffix indicates IEEE-488.2 GPIB and RS-232 control of amplitude, pulse width, PRF and delay (see http://www.avtechpulse.com/gpib).
2) For operation at amplitudes of less than 20% of full-scale, best results will be obtained by setting the amplitude near full-scale and using external attenuators on the output.
3) Indicate desired polarity by suffixing model number with -P or -N (i.e. positive or negative) or -PN for the dual polarity option. AVX-1 transformer may be used to invert polarity.
4) For DC offset option suffix model number with -OS.
5) For monitor option add suffix -M.
6) Falls to 180V for PRF above 10 kHz.
7) A 50 Ohm load is required. Other loads may damage the instrument. Consult Avtech (info@avtechpulse.com) if you need to drive other load impedances.
8) Maximum amplitudes are for positive outputs only. The maximum negative amplitude for -N and -PN units will be approximately 10% lower, due to the use of an internal inverting transformer.
9) Pulse width at 70.7% = FWHP (full-width at half-power).