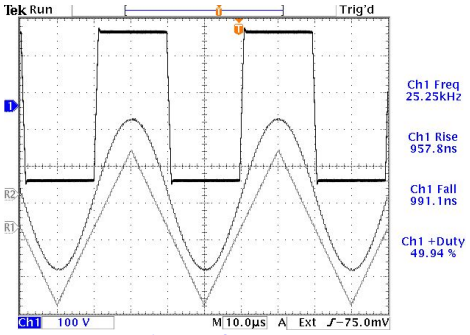
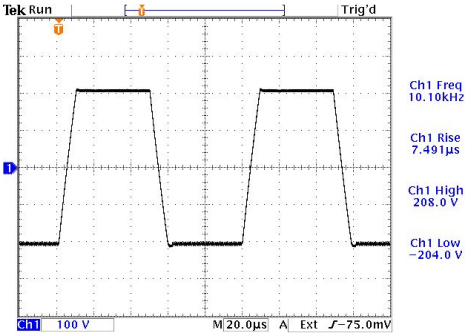
AV-153 SERIES

HIGH VOLTAGE, HIGH POWER LINEAR POWER AMPLIFIERS AND FUNCTION GENERATORS



±200V into 5 kΩ, AV-153A-B



±200V into 5 kΩ || 10000 pF

- Amplitudes up to ±200 Volts
- Sine, square, or triangle, with DC offset
- Amplifier mode, for arbitrary input waveforms
- Burst mode option
- Output power as high as 50 Watts
- Load impedances as low as 100 Ohms
- Capacitance drive ratings
- IEEE-488.2 GPIB control

The AV-153 series of function generators provides high voltage (up to ±200V), high power (as high as 90 Watts) waveforms at frequencies as high as 300 kHz.

The AV-153A-B model provides sine wave, square wave and triangular waveforms at frequencies as high as 300 kHz with peak amplitudes as high as ±200 Volts (i.e. 400 Volts peak-to-peak) to loads of 5 kΩ and higher, with average output powers as high as 15 Watts. The closely related AV-153AH-B can operate into loads of 1.2 kΩ and higher, with average output powers as high as 50 Watts.

The AV-153B-B is similar but operates to 50 kHz and provides amplitudes to ±135 Volts, and average output power to 40 Watts.

For still higher output power applications (up to 90 Watts), Avtech offers the AV-153C-B, which provides a peak output of ± 90 Volts (180 V peak-to-peak) to loads as low as 100 Ohms, for the frequency range of 1 Hz to 30 kHz.

The high average power ratings allow the AV-153A-B and AV-153AH-B models to drive capacitive loads of up to 10 nF (e.g., piezoelectric devices), as well as resistive loads. The maximum operating frequency decreases and the rise time increases for larger capacitive loads. This is summarized in the table below.

The units are protected from overload conditions (e.g., excessively low load impedance) by an automatic control feature that limits the output power for as long as the overload condition persists.

The sine, square, and triangle waveforms are bipolar. That is, they oscillate between a positive voltage and a negative voltage. All models also include a pulse mode of operation. The pulse mode allows the generation of a rectangular pulse waveform that swings from zero Volts to a positive voltage. The pulse width is adjustable. The maximum pulse duty cycle is 80%. A DC offset feature is also included, which allows the waveforms to be shifted by an adjustable DC voltage.

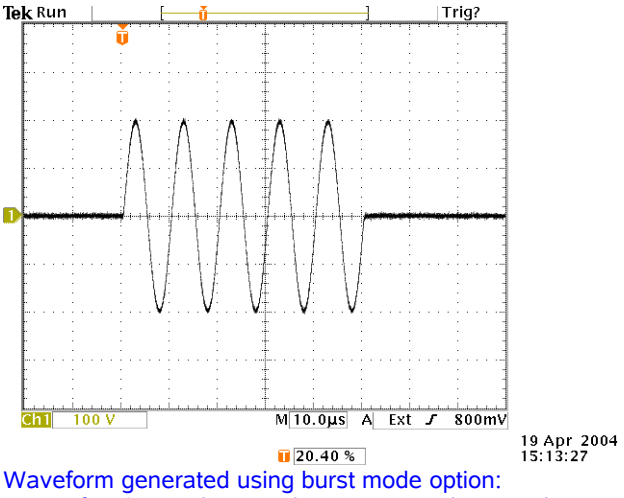
Instruments with the -B suffix also include a complete computer control interface. This provides GPIB and RS-232 computer-control, as well as front panel keypad and adjust knob control of the output parameters. (See http://www.avtechpulse.com/gpib for details.) A large backlit LCD displays the output amplitude and frequency. To allow easy integration into automated test systems, the programming command set is based on the SCPI standard. An Ethernet port for Telnet-based control is optional (-TNT option).

A burst mode option is available. This allows the generation of a burst of 1-500 cycles of sine, square, triangle, or pulse waveforms. This burst may be triggered by pressing a front-panel pushbutton, or by computer command.

All models require 100-240 V, 50-60 Hz power. All models may also be operated as variable-gain linear amplifiers by selecting the “EXT” mode and applying the low-level signal input to the TRIG connector. If this input is driven by an external arbitrary waveform generator, complex high-power output waveforms can be generated.

The AV-110 and AV-112 amplifiers may also be of interest for applications that do not require the internal sine / triangle / square wave / pulse oscillator feature. See http://www.avtechpulse.com/high-voltage. For lower power applications also consider the AV-151 series of function generators (http://www.avtechpulse.com/function).

The flexible technology used in this series can be adapted in many ways to meet your special needs. Contact Avtech (info@avtechpulse.com) with your requirement!



Waveform generated using burst mode option:
Burst of 5 sine cycles, 100 kHz, 200V peak, to 1.2 kΩ.
100 V/div, 10 us/div.

Model:	AV-153A-B[1]	AV-153AH-B[1]	AV-153B-B[1]	AV-153C-B[1]
Maximum amplitude & maximum peak output[2]:	0 to ± 200 Volts		0 to ± 135 Volts	0 to ± 90 Volts
DC offset[2]:	0 to ± 200 Volts		0 to ± 115 Volts	0 to ± 90 Volts
Load resistance:	≥ 5 kΩ	≥ 1.2 kΩ	≥ 500 Ohms	≥ 100 Ohms
Outout resistance[3]: (in series with output)	50 Ω, approx.	50 Ω, approx.	20 Ω, approx.	5 Ω, approx.
Average output power:	15 Watts maximum	50 Watts maximum	40 Watts maximum	90 Watts maximum
Minimum frequency:	1 Hz	1 Hz	1 Hz	1 Hz
Maximum frequency: (for a given load resistance and capacitance)[4]:	300 kHz (5 kΩ || 0 nF) 60 kHz (5 kΩ || 1 nF) 20 kHz (5 kΩ || 3 nF) 10 kHz (5 kΩ || 10 nF)	300 kHz (1.2 kΩ || 0 nF) 150 kHz (1.2 kΩ || 1 nF) 50 kHz (1.2 kΩ || 3 nF) 20 kHz (1.2 kΩ || 10 nF)	50 kHz (500 Ω || 0 nF)[5]	30 kHz (100 Ω || 0 nF)[5]
Square wave rise time: (for a given load resistance and capacitance)[4,6]:	1 us (5 kΩ || 0 nF) 1.2 us (5 kΩ || 1 nF) 2.7 us (5 kΩ || 3 nF) 9.5 us (5 kΩ || 10 nF)	1 us (1.2 kΩ || 0 nF) 1.2 us (1.2 kΩ || 1 nF) 2.7 us (1.2 kΩ || 3 nF) 9.5 us (1.2 kΩ || 10 nF)	1 us (500 Ω || 0 nF)[5]	3 us (100 Ω || 0 nF)[5]
Waveforms:	Sine, square, triangle, pulse, and amplifier mode.			
Amplifier mode:	Input amplitude for maximum output: ± 2 Volts (1 kΩ input impedance)			
Pulse width (FWHM):	1 us to 500 ms. 80% max. duty cycle.	1 us to 500 ms. 80% max. duty cycle.	5 us to 500 ms. 80% max. duty cycle.	5 us to 500 ms. 80% max. duty cycle.
Burst mode:	Optional[7]. This allows the generation of a burst of 1-500 cycles of sine, square, triangle, or pulse waveforms. This burst may be triggered by pressing a front-panel pushbutton, or by computer command.			
GPIB / RS-232 control[1]:	Standard on -B units.			
Telnet / Ethernet control[8]:	Optional. See http://www.avtechpulse.com/options/tnt for details.			
Connectors:	BNC			
Power requirement:	100 - 240 Volts, 50 - 60 Hz			
Dimensions:	100 mm x 430 mm x 375 mm 3.9" x 17" x 14.8" (H x W x D)			

1) -B suffix indicates IEEE-488.2 GPIB and RS-232 control of amplitude and frequency. See http://www.avtechpulse.com/gpib/ for details.
2) Peak output = amplitude + offset. The amplitude and offset can not be set to maximum at the same time, or the peak output rating will be exceeded.
3) The non-zero output impedance (R_{OUT}) will reduce the maximum output amplitude slightly when operating into low load impedances. That is, $V_{OUT} = V_{SET} \times R_{LOAD} / (R_{LOAD} + R_{OUT})$, where V_{SET} is the programmed amplitude and R_{LOAD} is the load resistance.
4) The || symbol means "in parallel with".
5) Contact the factory (info@avtechpulse.com) for characterization of frequency or rise time under other load conditions.
6) The non-zero rise time will also distort the sine and triangle waveforms when operating near the maximum rated frequency. All rise times are measured on a 20%-80% basis.
7) Add the suffix -PANB to the model number to specify the burst mode option.
8) Add the suffix -TNT to the model number to specify the Telnet / Ethernet control option.

AV-153A-B