



Typical AV-151J-C waveforms, into 10 kΩ



AV-151G-B

- ◆ Amplitudes up to ± 500 Volts
- ◆ Sine, square, or triangle, with DC offset
- ◆ Amplifier mode, for arbitrary input waveforms
- ◆ IEEE-488.2 GPIB control available

The AV-151 series is a family of high-voltage (or, for the AV-151F, high-current) function generators and variable-gain amplifiers. All models include both an internal oscillator that can generate sine, triangle, and square waves, and a variable-gain amplifier mode, which permits generation of more complex high-voltage waveforms.

The ultra-high-voltage AV-151A family operates at frequencies up to 3 kHz with peak amplitudes as high as ± 500 Volts (i.e. 1 kV peak-to-peak) to loads of 100 kilohms and higher.

The AV-151J family operates at slightly lower amplitudes (to ± 400 V), but operates at higher frequencies (to 50 kHz), and can drive lower-impedance loads (down to 10 kilohms).

The AV-151B family operates to 100 kHz and provides amplitudes to ± 200 Volts. The AV-151G family is similar, but offers a higher bandwidth of 350 kHz.

The AV-151C family provides a peak output of ± 100 Volts into high impedance loads (> 10 kΩ) at frequencies of up to 200 kHz. For higher speed applications, the AV-151H family operates to 1 MHz and at amplitudes to ± 50 Volts (into > 10 kΩ).

The AV-151D family can drive 50 Ohms loads, at frequencies to 1 MHz, and amplitudes to ± 30 Volts. For high output current / low load impedance applications, Avtech offers the AV-151E family, which provides a peak output of ± 25 Volts to loads as low as 20 Ohms, at frequencies up to 20 kHz.

The unique AV-151F family is a current waveform generator (rather than a voltage generator) providing up to ± 2 Amps into a compliance voltage of ± 5 Volts (i.e., the current is independent of the load voltage as long as the load voltage remains in the ± 5 V compliance range).

The sine, square, and triangle waveforms are bipolar. That is, they oscillate between a positive voltage and a negative voltage. Models with the -B suffix 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 up to 0.5 seconds. The maximum pulse duty cycle is 80%.

All models include a variable DC offset feature, which allows the waveforms to be shifted by an adjustable DC value.

Instruments with the -B suffix also include a complete computer control interface (see <http://www.avtechpulse.com/gpib> for details). This provides GPIB and RS-232 computer-control, as well as front panel keypad and adjust knob control of the output parameters. 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.

The -C versions provide output parameters similar to those of the -B models, but do not include the GPIB or RS-232 interfaces (i.e. no computer control or LCD display) or the pulse mode feature. The settings are controlled by front-panel switches and dials.

All models may also be operated as variable-gain linear amplifiers by selecting the "EXT" mode and applying the low-level input (± 2 V) to the TRIG connector. If this input is driven by an external arbitrary waveform generator, complex high-voltage output waveforms can be generated. (The AV-110 and AV-112 amplifiers (described at <http://www.avtechpulse.com/high-voltage/>) may also be of interest for applications that do not require the internal sine / triangle / square wave oscillator feature.)

For higher power applications also consider the AV-153 series of function generators (<http://www.avtechpulse.com/function>).

All models are protected from temporary overload conditions (such as low load impedance) by an automatic control feature that limits the output power.

Many models can be adapted for special applications. Call or email us today (info@avtechpulse.com) with your requirement!

Model:	AV-151A-B ²	AV-151J-B ²	AV-151B-C ¹	AV-151G-B ²	AV-151C-C ¹ AV-151C-B ²	AV-151H-B ²	AV-151D-C ¹ AV-151D-B ²	AV-151E-C ¹ AV-151E-B ²	AV-151F-B ²
Maximum amplitude & maximum peak output ³ :	± 500 V	± 400 V	± 200 V	± 200 V	± 100 V	± 50 V	± 30 V	± 25 V	± 2.0 Amps
Load:	≥ 100 kΩ	≥ 10 kΩ	≥ 50 kΩ	≥ 50 kΩ	≥ 10 kΩ	≥ 10 kΩ	≥ 50 Ω	≥ 20 Ω	± 5 Volts
Min. frequency: -B units: (internal mode) -C units:	1 Hz								
Max. frequency (int mode), -3dB bandwidth (ext mode)	3 kHz	50 kHz	100 kHz	350 kHz	200 kHz	1 MHz	1 MHz	20 kHz	20 kHz
Waveforms:	Sine, square, or triangle. Models with the -B suffix also have a pulse mode of operation.								
Pulse width ⁴ : (-B units)	100us - 0.5s	10us - 0.5s	5us - 0.5s	5us - 0.5s	2us - 0.5s	1us - 0.5s	0.2us - 0.5s	5us - 0.5s	20us - 0.5s
DC offset:	0 to ± 50 V ⁶	0 to ± 50 V ⁶	0 to ± 50 V ⁶	0 to ± 50 V ⁶	0 to ± 25 V ⁶	0 to ± 25 V ⁶	0 to ± 10 V	0 to ± 10 V	0 to ± 0.5 A
Square wave rise time ⁵ :	35 us	3.5 us	1.5 us	1.5 us	0.8 us	0.3 us	0.08 us	1.5 us	10 us
Ext trig mode:	Input for maximum output: ± 2 Volts. (1 kΩ input impedance)								
Connectors:	BNC								
GPIB / RS-232 control ² :	Standard on -B units. Not available on -C units.								
Power requirement:	100 - 240 Volts, 50 - 60 Hz								
Operating temperature:	$+5^{\circ}$ C to $+40^{\circ}$ C								
Dimensions:	100 x 430 x 375 mm (3.9" x 17" x 14.8")								

1) -C suffix indicates stand-alone lab instrument with internal clock and line powering. (See <http://www.avtechpulse.com/formats/> for details of the instrument formats).
 2) -B suffix indicates IEEE-488.2 GPIB and RS-232 control of amplitude and frequency. See <http://www.avtechpulse.com/gpib/> for details.
 3) 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.

4) Pulse feature is present on -B units only. Full-width half-maximum ratings (FWHM). 80% maximum duty cycle.
 5) The non-zero rise time will also distort the sine and triangle waveforms when operating near the maximum rated frequency.
 6) The maximum offset may be increased to equal the "maximum peak output" rating by adding the suffix "-XOS" to the model number.