AVTECH

GPIB
IEEE-488

AVI SERIES
40, 50 AND 100 VOLT
PULSE GENERATORS
WITH RISE TIMES TO 200 ps

40 VOLTS / DIV
2 NS / DIV

AVI-V   AVI-MP

AVI-V-HV1-C

- 200 ps rise times, amplitudes to 100V
- IEEE-488.2 GPIB Control (-B units)

- PW variable from 1.0 to 100 ns
- Stand-alone lab instruments or miniature modules

The AVI series provides high amplitude (as high as 100 Volts) flat-topped pulses with rise times as low as 200 ps and fall times of 2 ns.

The AVI-V family offers rise times of 350 ps, pulse widths variable from 2 to 100 ns, variable amplitudes to 50V, and pulse repetition frequencies up to 20 kHz. The AVI-V-HV1 family is similar, but offers 250 ps rise times. Models with the -TR suffix have non-adjustable amplitudes of 50V, with faster 200 ps rise times.

The 40V AVI-V-2L family offers operation at pulse repetition frequencies as high as 100 kHz, with 500 ps rise and fall times. The pulse width is adjustable from 1 to 10 ns, using front-panel controls.

The higher-voltage AVI-V-HV2 family provides rise times of 500 ps, pulse widths variable from 4 to 100 ns, variable amplitudes of up to 100V, and pulse repetition frequencies of up to 5 kHz. The AVI-V-HV3 family is similar, but offers faster 200 ps rise time operation.

The AVI-MP module offers high performance in an ultra-compact size. The AVI-MP has a fixed amplitude of 40V, with 350 ps rise time. The pulse width may be varied from 2 to 100 ns by varying the length of an external delay line. Maximum PRF is 1 MHz when operating at minimum pulse width, and 50 kHz at maximum pulse width.

Models with -C or -B suffixes include an internal oscillator, whose PRF is variable up to 100 kHz (40V models), 20 kHz (50V models), or 5 kHz (100V models) using the front-panel controls. (The minimum PRF is 4 decades below the maximum PRF). A delay control and a sync output are provided for oscilloscope triggering. All models can also be triggered externally with a TTL-level pulse, at any PRF between 0 Hz and the maximum rated value.

Either output polarity can be provided. A dual-polarity option is available on most models. Polarity inversion in dual polarity units is accomplished by means of an inverting transformer module which mates to the pulse generator output port. A DC offset or bias insertion option is available. 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. Some models are available with a monitor option that provides an attenuated (20 dB or X10) coincident replica of the main output pulse. Additional options include electronic control (0 to +10V) of output amplitude and pulse width.

Instruments with the -B suffix 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 pulse parameters. A large back-lit LCD displays the output amplitude, polarity, frequency, pulse width, and delay. To allow easy integration into automated test systems, the programming command set is based on the SCPI standard, and LabView drivers are available for download at the Avtech web site (http://www.avtechpulse.com/labview). The -C versions provide output pulse 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). The output parameters are controlled by front-panel switches and one-turn controls. Please note that the output amplitude is not adjustable on the AVI-MP model, or models with the -TR suffix. -C and -B models require 100-240V, 50-60 Hz prime power.

Some models are also available in a DC-powered (+15V) miniature module form. These modules require a TTL input trigger signal and the output PRF equals the input trigger PRF.

Model: -C format:	AVI-V-C[1]	AVI-V-HV1-C[1]	AVI-V-HV1-TR-B[2]	AVI-V-HV2-B[2]	AVI-V-HV3-C[1]	AVI-V-2L-B[2]	
-B format (with GPIB):	AVI-V-B[2]						
Module format:	AVI-V	AVI-V-HV1					AVI-MP
Amplitude[3,4]: (50 Ohm load required)	0 to 50 Volts, variable		50 Volts, fixed	0 to 100 Volts, variable		0 to 40 V, variable	≥ 40 Volts, fixed
Rise time (20%-80%):	≤ 350 ps	≤ 250ps	≤ 200ps	≤ 500 ps	≤ 200 ps	≤ 500 ps	≤ 350 ps
Fall time (80%-20%):	≤ 2 ns			≤ 4 ns		≤ 500 ps	≤ 2 ns
Pulse width (FWHM)[4]:	2 to 100 ns			4 to 100 ns		1 to 10 ns	2 to 100 ns
Maximum pulse repetition frequency (PRF):	20 kHz			5 kHz		100 kHz	1 MHz (2ns PW) 20 kHz (100ns PW)
Propagation delay:	≤ 250 ns						≤ 70 ns
Polarity[5]:	Positive or negative or both (specify -P, -N, -P-PN or -N-PN)						Pos or Neg (-P or -N)
GPIB and RS-232 control[2]:	Standard on -B units. Not available on -C units or modules.						
LabView Drivers:	-B units only: check http://www.avtechpulse.com/labview for availability and downloads						
Telnet / Ethernet control:	Optional[8]. See http://www.avtechpulse.com/options/tnt for details.						
Jitter:	-C and Modules: ±15 ps, -B units: ± 35 ps ± 0.015% of sync delay						
DC offset or bias insertion[6]:	Optional. Apply DC offset in the range of ±50V (250 mA max) to back panel solder terminal. See note 7.						
Trigger required:	Modules, and -C & -B ext trig mode: +5 Volts, 50 to 500 ns (TTL)						
Sync delay:	(-C and -B only) Sync out to pulse out: Variable 0 to 500 ns						
Sync output:	(-C and -B only) +2 Volts, 200 ns, will drive 50 Ohm loads						
Monitor output option[7]:	Provides a 20 dB attenuated coincident replica of main output						
Connectors: -C, -B:	Out: SMA, Trig: BNC, Sync: BNC, Monitor: SMA						
Modules:	Out: SMA, In: SMA, Power: Solder terminal						
Power required:	-C, -B: 100-240 Volts, 50-60 Hz, Modules: +15 Volts, 200 mA						+15 Volts, 200 mA
Dimensions: -C:	100 x 215 x 375 mm (3.9 x 8.5 x 14.8")						Modules: 58 x 36 x 28 mm (2.3" x 1.4" x 1.1")
-B:	100 x 430 x 375 mm (3.9 x 17 x 14.8")						
Modules:	43 x 66 x 107 mm (1.7 x 2.6 x 4.2")			102 x 152 x 203 mm (4 x 6 x 8")		N/A	
Temperature range:	+5°C to +40°C						

1) -C suffix indicates stand-alone lab instrument with internal clock and line powering. No suffix indicates miniature module requiring DC power and external trigger. (See http://www.avtechpulse.com/formats for additional details of the basic instrument formats).
2) -B suffix indicates IEEE-488.2 GPIB and RS-232 control of amplitude, pulse width, PRF and delay. (See http://www.avtechpulse.com/gpib).
3) 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.
4) For electronic control (0 to +10V) of amplitude or pulse width, suffix the model number

with -EA or -EW. Electronic control units also include standard front-panel controls. -EA is available -on C and -B units. -EW is available on -C units only.
5) Indicate desired polarity by suffixing model number with -P or -N (i.e. positive or negative) or -P-PN or -N-PN for dual polarity option where the suffix preceding -PN indicates the polarity at the mainframe output port. (Not available on modules.)
6) For DC offset option suffix model number with -OS. Avtech Model AVX-T bias tee can also be used to obtain DC offset (http://www.avtechpulse.com/bias/avx-t).
7) For monitor option add suffix -M. (Not available on modules.)
8) Add the suffix -TNT to the model number to specify the Telnet / Ethernet control option.