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SINCE 1975

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INSTRUCTIONS

MODEL AVK-V PULSE GENERATOR

S.N.:

WARRANTY

Avtech Electrosystems Ltd. warrants products of its manufacture to be free from defects in material and workmanship under conditions of normal use. If, within one year after delivery to the original owner, and after prepaid return by the original owner, this Avtech product is found to be defective, Avtech shall at its option repair or replace said defective item. This warranty does not apply to units which have been dissembled, modified or subjected to conditions exceeding the applicable specifications or ratings. This warranty is the extent of the obligation assumed by Avtech with respect to this product and no other warranty or guarantee is either expressed or implied.

TECHNICAL SUPPORT

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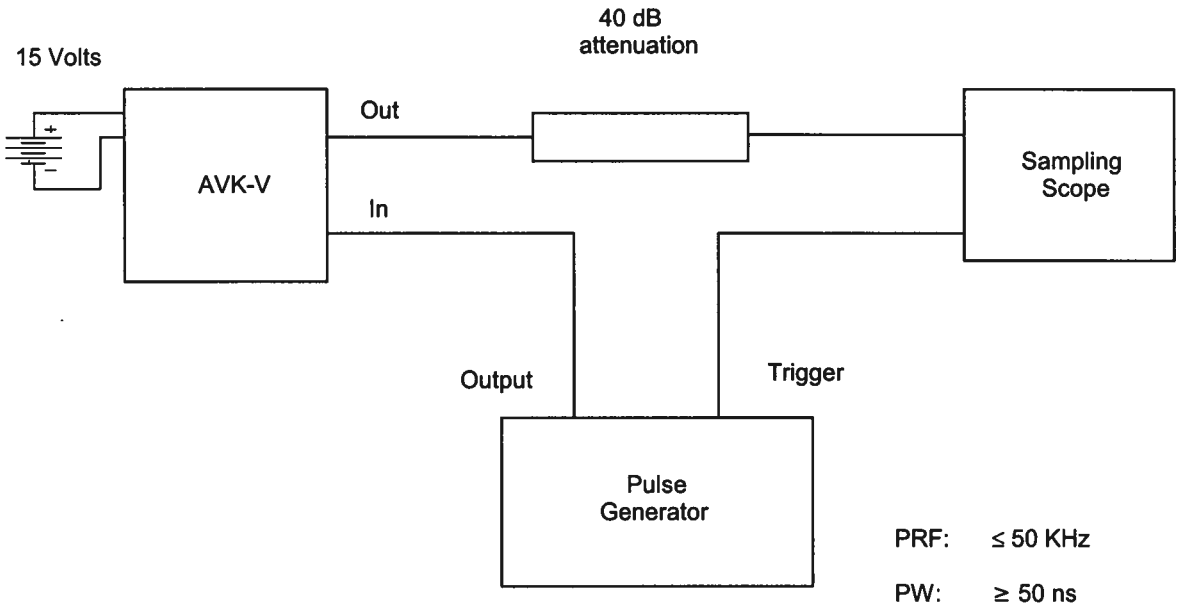
Manual Reference: T:\instructword\avk\AVK-V-edB.doc, created November 19, 2003

MODEL AVK-V PULSE GENERATOR TEST ARRANGEMENT



PRF: ≤ 50 KHz

PW: ≥ 50 ns

AMP: +3 to +5 Volts (TTL)

GENERAL OPERATING INSTRUCTIONS

Note:

1. The bandwidth capability of components and instruments used to display the pulse generator output signal (attenuators, cables, connectors, etc.) should exceed ten gigahertz.

2. The use of a 40 db attenuator will insure a peak input signal to the sampling scope of less than one volt.

3. In general, the source pulse generator trigger delay control should be set in the 0.1 to 1.0 us range. Other settings should be as shown in the above diagram.

4. The model AVK-V pulse generator can withstand an infinite VSWR on the output port.

5. WARNING: Model AVK-V may fail if triggered at a PRF greater than 50 KHz.

6. The output pulse width is controlled by means of the one-turn potentiometer (PW). The pot should initially be set mid-range and the pulse width adjusted using an oscilloscope. The output will degenerate to an impulse and eventually vanish as the pot is turned fully counter-clockwise.

7. For models equipped with the DC offset option, the required DC output offset voltage is applied to the OS terminals. (max voltage ±50 volts).

8. For additional information

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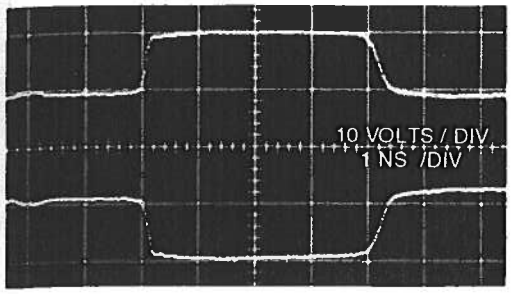
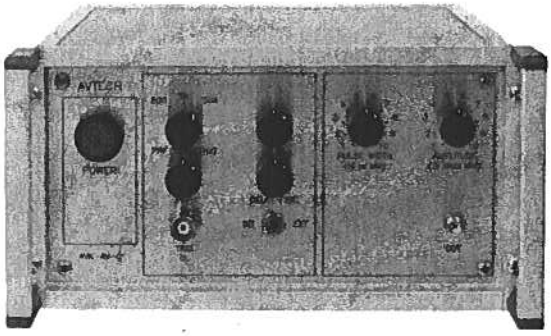
AVTECH

AVK SERIES

100 PS RISE TIME PULSE GENERATOR, PRF TO 1.0 MHz





- 100 ps rise times, amplitudes to 15 Volts
- PRF to 1.0 MHz
- PW 1.0 to 100 ns
- Stand alone lab instruments or miniature modules

Models AVK-C, AVK-A-C, AVK-V-C and AVK-AV-C provide up to 15 Volts output with rise times less than 100 ps and fall times of 2 ns or less. Model AVK-C provides a fixed 5 Volt peak output with a rise time of less than 100 ps and a fall time of less than 1 ns. The output pulse width of 4 ns may be increased up to 100 ns by the connection of an external length of coaxial cable. Model AVK-A-C is similar to Model AVK-C but provides an output which is variable from 0 to 15 Volts via a one turn pot control. Model AVK-V-C is similar to Model AVK-C but provides a pulse width variable from 1 to 50 ns via a one turn control. Model AVK-AV-C combines the features of both Model AVK-A-C and AVK-V-C to give both pulse amplitude and width controlled by one turn pots.

The pulse repetition frequency is variable from 50 Hz to 1.0 MHz (to 50 kHz for -V-C and -AV-C units) using the internal clock oscillator which is controlled by a front panel one turn control. A delay control and sync output is provided for sampling scope triggering purposes. The units can also be triggered externally using a TTL level pulse. The propagation delay in the externally triggered mode is typically 70 ns (250 ns for -V-C and -AV-C units). Either output polarity or an optional dual output polarity can be provided. 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 (see page 106) at the output. The required DC offset or bias is applied directly to rear panel solder terminals. An additional option provides an internally generated DC offset (0 to ± 5 Volts) which is controlled by a one turn front panel control. Some AVK units are also available with a monitor output option which provides an attenuated (20 dB or X10) coincident replica of the main output pulse. Models with the -C suffix require 120/240V (switchable) 50-60 Hz prime power.

All AVK units are also available in a line powered chassis without the internal clock (-PS suffix) and in DC powered (+ 15V) miniature module form. The modules and -PS units require a TTL input trigger signal and the output PRF equals the input trigger PRF.

The AVK series is ideally suited for systems or laboratory applications such as logic family propagation testing, TDR, radar, optical and cable communications, SAW, nuclear, switching and propagation time studies and educational fields. In some cases, the specifications can be adapted to satisfy a particular requirement. Contact the factory for your special requirement.

Model:	AVK-C[1] AVK-PS AVK	AVK-A-C[1] AVK-A-PS AVK-A	AVK-V-C[1] AVK-V-PS AVK-V	AVK-AV-C[1] AVK-AV-PS AVK-AV
Amplitude: (50 Ohm load)	5 Volts	0 to 15 Volts	5 Volts	0 to 15 Volts
Rise time:	≤ 100 ps			
Fall time:	≤ 1 ns (PW < 10 ns), ≤ 2 ns (PW > 10 ns)			
Pulse width:	4 to 100 ns		1 to 50 ns	
PRF:	1.0 MHz (PW = 4 ns), 20 kHz (PW = 100 ns)		50 kHz	
Polarity[2]:	Positive or negative or both (specify)			
Propagation delay:	≤ 70 ns (Ext trig in to pulse out)		≤ 250 ns (Ext trig in to pulse out)	
Jitter:	± 15 ps (Ext trig in to pulse out)			
DC offset or bias insertion[3]:	Option available. Apply required DC offset or bias in the range of ± 50 Volts (250 mA max) to back panel solder terminal. See note 3.			
Trigger required:	Modules, -PS units, and -C ext trig mode: + 5 Volt, 50 to 500 ns (TTL)			
Sync delay :	Sync out to pulse out, - C units only: Variable 0 to 200 ns			
Sync output: (-C only)	+ 5 Volts, 200 ns, will drive 50 Ohm loads			
Monitor output option[4]:	Provides a 20 dB attenuated coincident replica of main output			
Connectors: -C & -PS: Modules:	Out: SMA, Trig: BNC, Sync (-C only): BNC, Monitor: SMA Out: SMA, In: SMA, Power: Solder terminals			
Other:	For power requirements, dimensions, chassis material, mounting, and temperature range, see the AVM Data sheet, page 11.			

1) -C suffix indicates stand alone lab instrument with internal clock and line powering. -PS suffix indicates line powered instrument requiring external trigger. No suffix indicates miniature module requiring DC power and external trigger. (See page 112 for additional details of three basic instrument formats).
2) Indicate desired polarity by suffixing model No. by -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. (-PN available only for -C and -PS units).
3) For externally applied DC offset option suffix model No. by -OS. Avtech Model AVX-T bias tee can also be used to obtain DC offset. For internally generated DC offset option (0 to ± 5 V, one turn control) add suffix -OT to model No. -OT option not available on modules.
4) For monitor option add suffix -M (available only on -C and -PS units).

Nov 19/03