

AVTECH ELECTROSYSTEMS LTD.

**NANOSECOND WAVEFORM ELECTRONICS
ENGINEERING . MANUFACTURING**

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INSTRUCTIONS

Model AVP-AV-1-ST-OS 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 disassembled, modified or subjected to conditions exceeding the applicable specifications or ratings. This warranty is the extent of the obligation or liability assumed by Avtech with respect to this product and no other warranty or guarantee is either expressed or implied.

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MODEL AVP-AV-1 PULSE GENERATOR TEST ARRANGEMENT

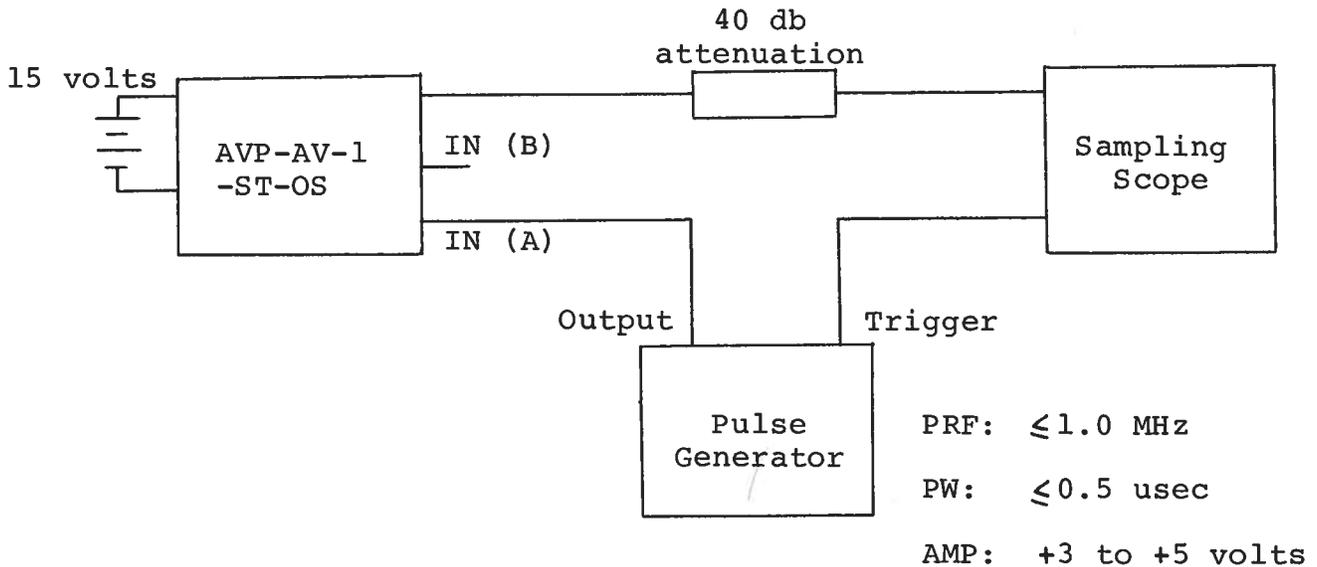


Fig. A

Notes:

- 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 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 usec range. Other settings should be as shown in the above diagram.
- 4) The front panel toggle switch should be set in the EXT position.
- 5) The output pulse width is controlled by means of the one-turn potentiometer (PW). The pot should initially be set maximum clockwise and the pulse width adjusted using an oscilloscope.
- 6) The output pulse amplitude is controlled by means of the one-turn potentiometer (AMP). The pulse width may change by several nanoseconds as the output amplitude is reduced from maximum to minimum. Therefore it is convenient to first set the desired amplitude and then set the desired pulse width. Rotation of the PW pot causes the position of the falling edge of the pulse to change.
- 7) Some properties of the output pulse may change as a function of the amplitude pot setting. For some demanding applications, it may be desirable to use a combination of external attenuators and the amplitude pot to achieve the desired output amplitude.
- 8) To DC offset the output pulse connect a DC power supply set to required DC offset value to the terminals marked O.S. The maximum attainable DC offset voltage is 50 volts.
- 9) For operation in a closed loop oscillating system as shown in Fig. B, the signal from the detector amplifier (+2 to +5 volts, 1.0 to 3.0 nsec) should be fed to input IN(B). The delay in the external propagation path must exceed 1.0 usec to insure that the system PRF does not exceed 1.0 MHz. The oscillations can be initiated either by application of a trigger signal from an external pulse source to input (IN(A) or by setting the front panel toggle switch to position INT. With the switch in position INT, the AVP unit is triggered by an internal oscillator with a PRF of approximately 100 KHz. The basic form of the AVP trigger circuitry is as shown in Fig. C. It should be noted that an incoherent pulse modulated output waveform will result if the switch is in position INT and trigger signals are also applied to either IN(A) or IN(B). Similarly distorted outputs will result if trigger signals are applied simultaneously to IN(A) and IN(B) with the switch in the EXT position.

FIG B TRIGGERING VIA FEEDBACK

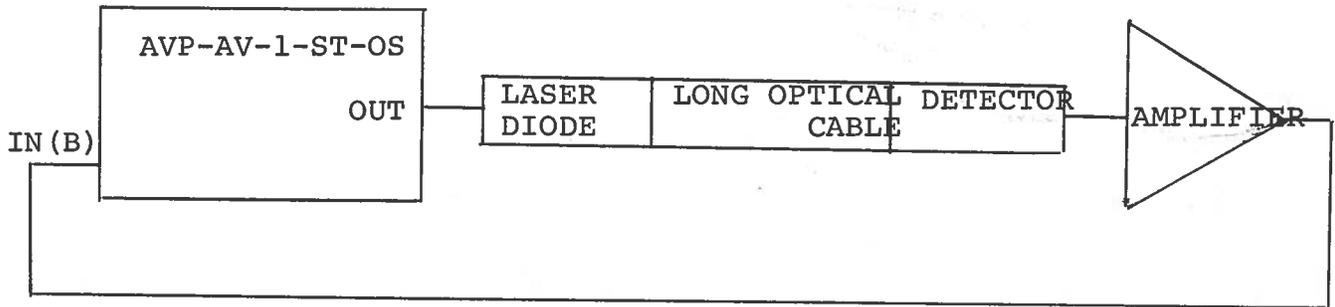


FIG C AVP TRIGGER CIRCUITRY

