



AVTECH ELECTROSYSTEMS LTD.

NANOSECOND WAVEFORM ELECTRONICS
SINCE 1975

□ P.O. BOX 265
OGDENSBURG, NY
U.S.A. 13669-0265
TEL: (315) 472-5270
FAX: (613) 226-2802

TEL: 1-800-265-6681
FAX: 1-800-561-1970

e-mail: info@avtechpulse.com
<http://www.avtechpulse.com>

□ P.O. BOX 5120 STN. F
OTTAWA, ONTARIO
CANADA K2C 3H4
TEL: (613) 226-5772
FAX: (613) 226-2802

INSTRUCTIONS

MODEL AVM-3-PS-ECL-ED-EO-EA-EW-M-N-PN 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 assumed by Avtech with respect to this product and no other warranty or guarantee is either expressed or implied.

TECHNICAL SUPPORT

Phone: 613-226-5772 or 1-800-265-6681

Fax: 613-226-2802 or 1-800-561-1970

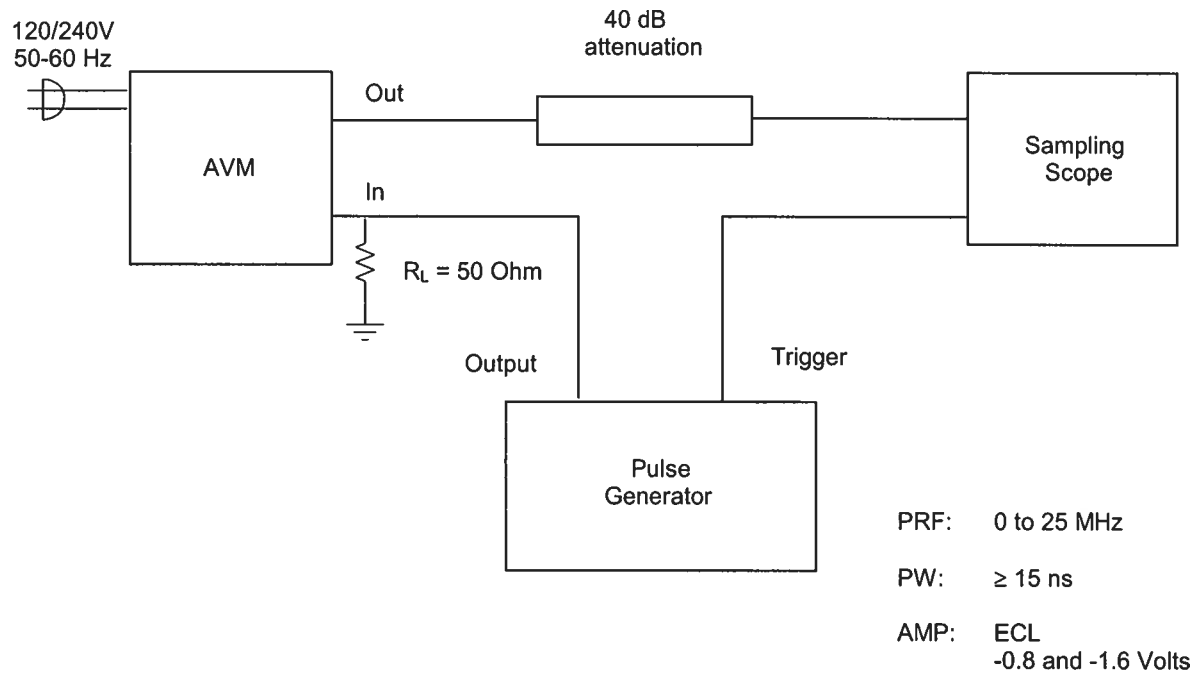
E-mail: info@avtechpulse.com

World Wide Web: <http://www.avtechpulse.com>

TABLE OF CONTENTS

WARRANTY	2
FIG. 1: PULSE GENERATOR TEST ARRANGEMENT.....	4
GENERAL OPERATING INSTRUCTIONS.....	5
POWER SUPPLY AND FUSE REPLACEMENT	7
PERFORMANCE CHECK LIST	9

Manual Reference: Q:\office\instructword\Avm\AVM-3-PS-ECL-ED-EO-EA-EW-M-N-PN, edition1.doc,
created January 11, 2002

FIG. 1: PULSE GENERATOR TEST ARRANGEMENT

GENERAL OPERATING INSTRUCTIONS

- 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 us range. The stability of the display on some sampling scopes is very sensitive to this delay, particularly at high PRF (e.g. 10 to 25 MHz). If necessary, consult your sample scope instructions manual for the proper triggering method.
- 4) When testing using a general-purpose 50-Ohm laboratory pulse generator as the input trigger signal source, the input signal should be applied via a 50 ohm feed-through load or alternatively, the input to the AVM unit should be shunted with a 50 ohm resistor. This will prevent reflection (and degradation of the input pulse waveform) caused by the high impedance at the IN port. However, when triggering from a TTL source, no 50-ohm feed-through load or resistor is necessary but lead length should be as short as possible. High-speed TTL Schottky logic is recommended for the driving circuitry.
- 5) The input trigger pulse width should be greater than 15 ns and less than one half of the pulse repetition frequency period. The unit triggers on the leading edge of the input trigger signal.
- 6) 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.
- 7) 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.
- 8) To voltage control the output pulse width, set the rear panel switch in the EXT position and apply 0 to +10V to Connector A ($R_{IN} \geq 10K$). (EW option).
- 9) To voltage control the output amplitude set the rear panel switch in the EXT position and apply 0 to +10V to Connector A ($R_{IN} \geq 10K$). (EA option).
- 10) 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.

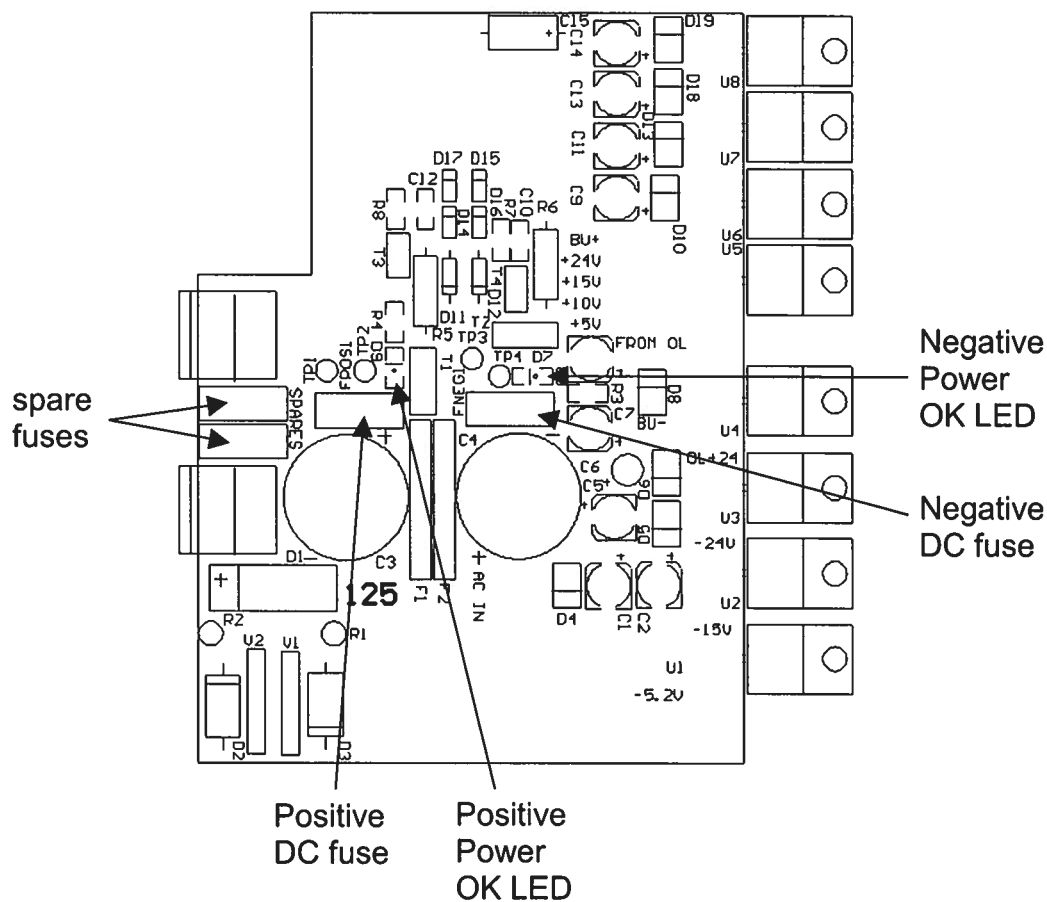
- 11) The AVM output pulse position or delay can be varied for up to 5 ns by means of the delay (DELAY) control. Rotating the delay control clockwise increases the delay. If the full 5 ns delay cannot be achieved then the input pulse width should be increased by a few nanoseconds. (option)
- 12) To voltage control the output delay set the rear panel switch in the EXT position and apply 0 to +10V to Connector A ($R_{IN} \geq 10K$). (EA option)
- 13) For units of the OT offset option, the output DC offset level is varied from -5 to +5V (to 50ohm) by the front panel OFFSET one turn control. The DC offset may be turned off using the rear panel OS ON-OFF toggle switch. (OT option).
- 14) For units with the EO option, the output offset may be voltage controlled by setting the rear panel switch in the EXT position and applying 0 to +10 volts to Connector A ($R_{IN} \geq 10K$).
- 15) To invert the output of the AVM unit, connect the AVX-3-T unit to the OUT port. An inverted pulse is then obtained at the OUT port of the AVX-3-T unit. To offset the inverted pulse, apply the required DC level to the DC terminal of the AVX-3-T unit.
- 16) MONITOR Output: Provides an attenuated (x10) coincident replica (to 50 ohm) of the main output. (option).
- 17) WARNING: Model AVM-PS may fail if triggered at a PRF greater than 25.0 MHz. Also note that the duty cycle must not exceed 10% (eg. 4 ns at 25 MHz)
- 18) The Model AVM-PS pulse generator can withstand an infinite VSWR on the output port.
- 19) The unit can be converted from 120 V to 240 V / 50-60 Hz operation by adjusting the voltage selector card in the rear panel fused voltage selector cable connector assembly.
- 20) For additional assistance:

Tel: 613-226-5772 Fax: 613-226-2802 Email: info@avtechpulse.com

POWER SUPPLY AND FUSE REPLACEMENT

This instrument has three main fuses, plus two spares. One, which protects the AC input, is located in the rear-panel power entry module, as described in the “Rear Panel Controls” section of this manual. If the power appears to have failed, check the AC fuse first.

The other two fuses (plus two spares) are located on the internal DC power supply, as shown below:



The positive fuse and one of the spare fuses on this circuit board are 1A slow-blow fuses, Littlefuse part number R452001. (This fuse can be ordered from Digikey, www.digikey.com. The Digikey part number is F1343CT-ND). The negative fuse and the second spare fuse are 0.5A slow-blow fuses (Littlefuse R452.500, Digikey part number F1341CT-ND).

If you suspect that the DC fuses are blown, follow this procedure:

1. Remove the top cover, by removing the four Phillips screws on the top cover and then sliding the cover back and off.
2. Locate the two "Power OK" LEDs on the power supply circuit board, as illustrated above.
3. Turn on the instrument.
4. Observe the "Power OK" LEDs. If the fuses are not blown, the two LEDs will be lit (bright red). If one of the LEDs is not lit, the fuse next to it has blown.
5. Turn off the instrument.
6. If a fuse is blown, use needle-nose pliers to remove the blown fuse from its surface-mount holder.
7. Replace the fuse. (Spare 1 Amp and 0.5 Amp fuses are provided on the circuit board. They may be transferred to the active fuse locations using needle-nose pliers.)

January 11/2002
(edition 1)