



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
U.S.A. & CANADA

e-mail: info@avtechpulse.com

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

INSTRUCTIONS

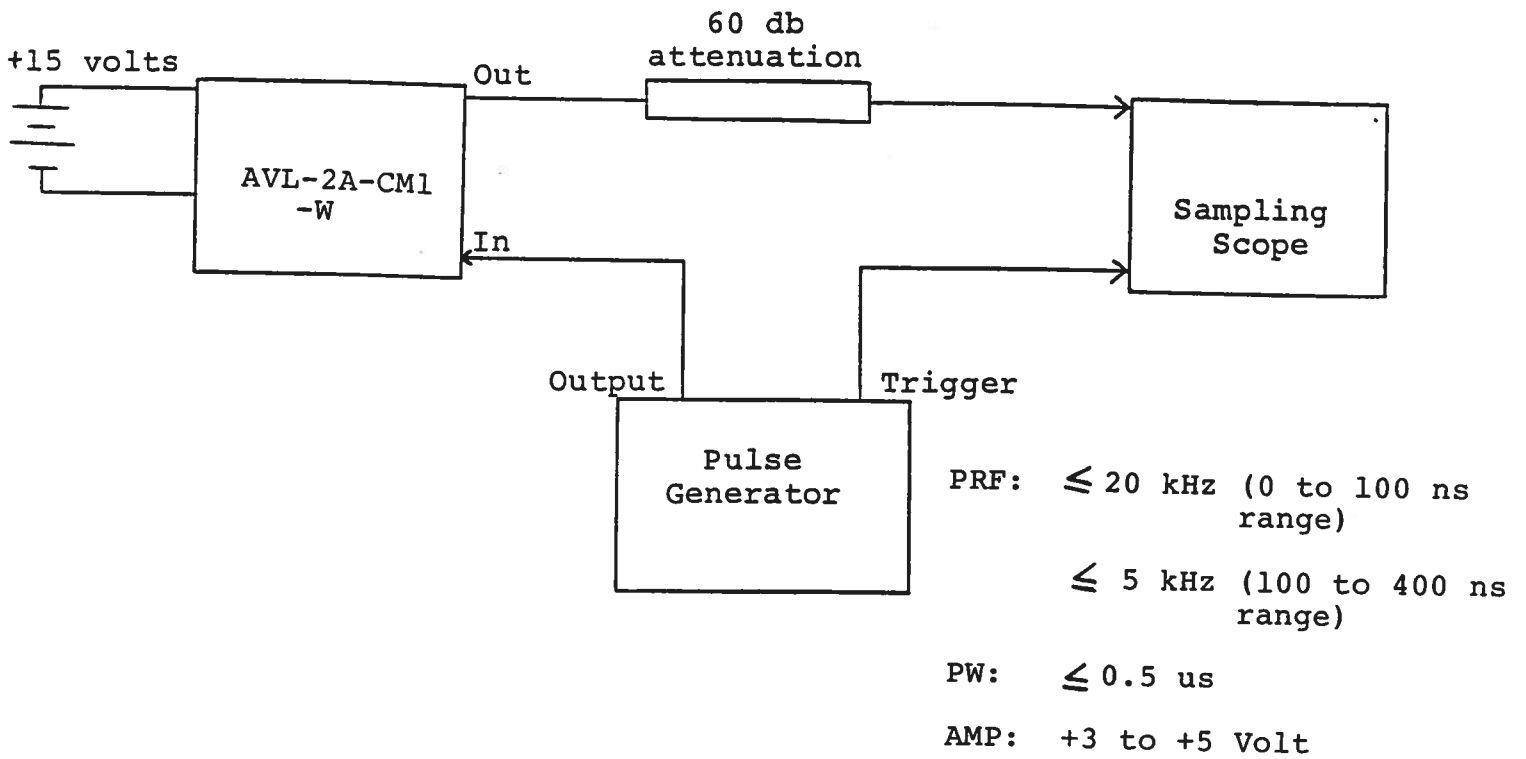
MODEL AVL-2A-CM1-P-W PULSE GENERATOR

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.

MODEL AVL-2A-CM1 PULSE GENERATOR TEST ARRANGEMENT



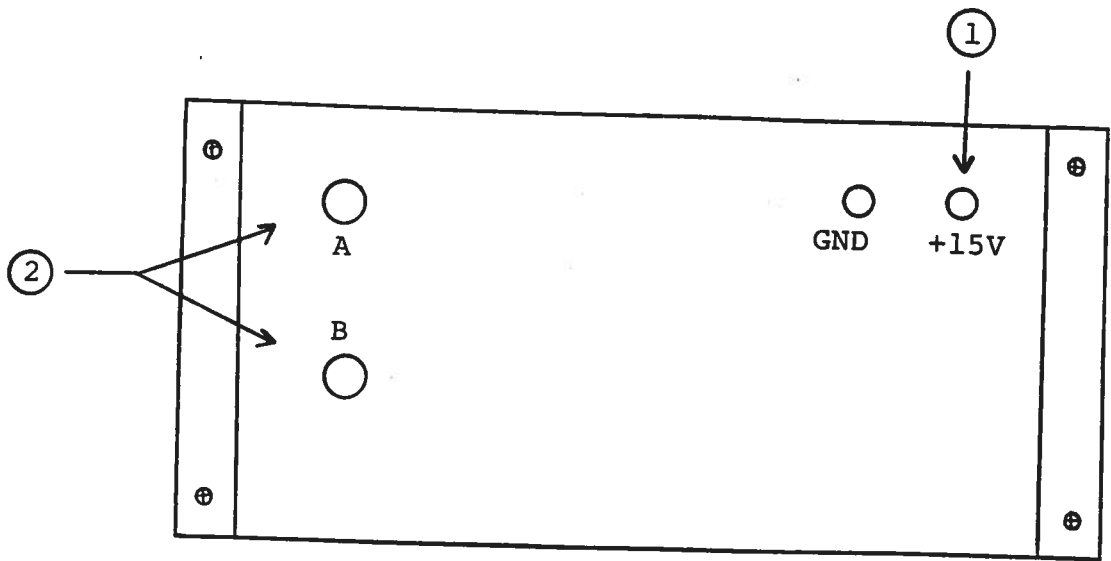
GENERAL OPERATING INSTRUCTIONS

- 1) The bandwidth capability of components and instruments used to display the pulse generator output signal (attenuators, cables, connectors, etc.) should exceed 1000 MHz.
- 2) The use of a 60 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 AVL-2A pulse generator can withstand an infinite VSWR on the output port.
- 5) **WARNING:** Model AVL-2A may fail if triggered at a PRF greater than 20 kHz when in the 0 to 100 ns range and it may fail if triggered at a PRF greater than 5 kHz when in the 100 to 400 ns range.
- 6) To operate in the 0 to 100 ns range, the pulse width is controlled by the front panel 100 ns max pulse width control. The 400 ns max control should be set fully CCW for this mode. Note that for operation in the 0 to 100 ns range, a six inch length of RG58A cable must be connected between the rear panel A and B connectors and in this mode, the PRF may be as high as 20 kHz.
- 7) To operate in the 100 to 400 ns range, the pulse width is controlled by the front panel 400 ns max pulse width control. The 100 ns max control should be set fully CCW for this mode. Note that for operation in the 100 to 400 ns range, a 100 foot length of RG58A cable must be connected between the rear panel A and B connectors and in this mode, the PRF must not exceed 5 kHz or the unit may be damaged.
- 8) The output pulse amplitude is controlled by means of the one turn potentiometer (AMP) and the HIGH-LOW switch adjacent to the AMP control. With the switch in the HIGH position, the output amplitude is variable over the range of 75 to 180 Volts while in the LOW position the output amplitude is variable over the range of about 0 to 150 Volts. Note that the maximum output will fall to about 150 Volts at PRF of 20 kHz.

- 9) 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.
- 10) Note: The lifetime of the switching elements in the pulse generator module is proportional to the running time of the instrument. For this reason the prime power to the instrument should be turned off when the instrument is not in use. In the case of failure, the switching elements are easily replaced following the procedure described in the following section.

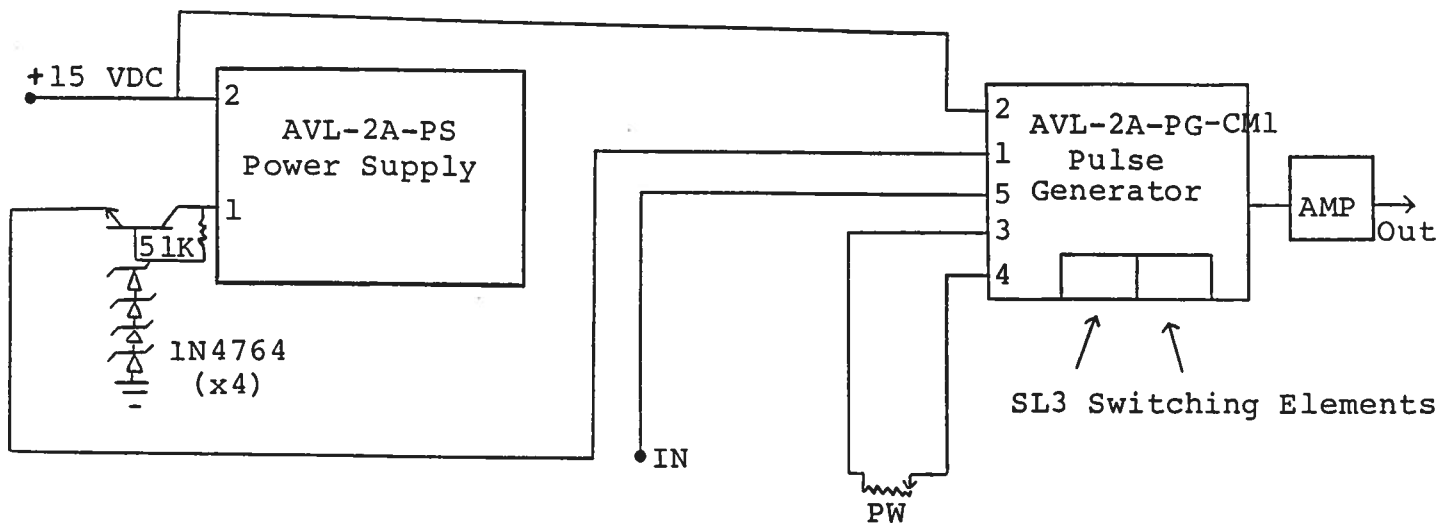
Fig. 2

BACK PANEL CONTROLS



- (1) PRIME POWER Input. Apply +15V DC to solder terminals.
- (2) Frequency Control Connectors. The RG58 cable must be connected between connectors A and B. For the 0 to 100 ns range, the cable should be 6" long (supplied at the time of shipping). For the 100 to 400 ns range, the cable should be 100 feet long (not supplied).

Fig. 1



Notes:

- 1) All module chassis are grounded to main chassis and to each other via separate ground lines.
- 2) WARNING: The line connecting pin 1 of AVL-2A-PS to pin 1 of AVL-2A-PG is a potential of 375 to 400 volts.

REPAIR PROCEDURE

- 1) **WARNING:** Before attempting any repairs, note that potentials as high as 400 Volts are employed in the chassis structure.
- 2) The pulse generator is constructed from the following basic subsystems or modules:
 - a) Metal chassis
 - b) Pulse generator module (AVL-2A-PG)
 - c) Power supply module (AVL-2A-PS)

The two modules are interconnected as shown in Fig. 1.

- 3) If no output pulse is provided by the AVL-2A unit, turn off the prime power supply and remove the top cover panel by removing the four Phillips screws on the back panel. The top cover can then be slid off. Apply a scope probe or voltmeter to pin 1 of the AVL-2A-PS unit. Turn on the prime power supply. A voltage of about 360 to 380 Volts should be read at pin 1. If the voltage is zero or much less than 380 Volts, then one of the switching transistors (Part No. SL3) in the AVL-2A-PG module has probably failed. **WARNING:** The cases of the transistors are at potentials as high as 380 Volts. With the prime power supply off remove one of the transistors by removing the two 2-56 screws which secure the transistor in its socket. Pull the transistor out of the socket. With the unit un-triggered turn on the prime power supply and measure the voltage from the case of the remaining transistor to ground. If the voltage is about 360 to 380 Volts then the transistor which was removed is defective and should be replaced. If the voltage which is measured is less than 360 Volts then the transistor still in position is defective and should be replaced. Note that the two transistors are completely interchangeable (Order Avtech Part No. SL3). Note that with both transistors removed, the voltage at pin 1 on the AVL-2A-PS module should be in the range of 360 to 380 Volts. If the voltage is less then the AVL-2A-PS module must be replaced.

May 26/95

Disk: AVL-2A

Name: ZACM1PW.INS