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SINCE 1975

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INSTRUCTIONS

MODEL AVRL-3-PS-OS-ED3 PULSE GENERATOR

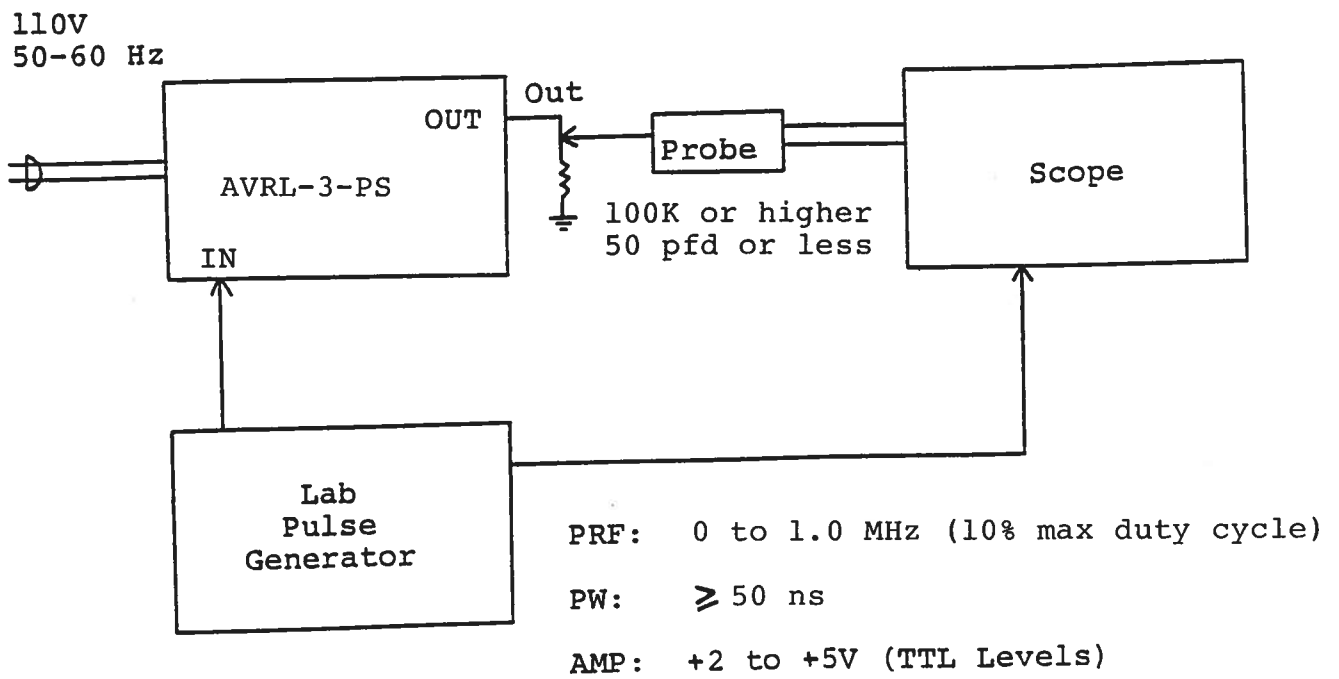
S.N.:

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.

Fig. 1

TEST ARRANGEMENT



Notes:

- 1) The equipment should be connected in the general fashion shown above. A scope with a bandwidth of at least 50 MHz should be used to view the output.
- 2) The output amplitude is fixed at -200 Volts. Care should be taken to insure that the scope and the load resistor can withstand this high voltage. The output voltage can be adjusted between -200 Volts and 0 Volts using an internally accessible one turn AMP pot which can be accessed by removing the four Phillips screws on the back cover and then sliding the cover back and off.
- 3) The output pulse width for the output is variable from 10 ns to 200 ns using the ten turn PW control.
- 4) The output PRF is equal to the input PRF applied to the TRIG port.
- 5) The propagation delay for both A and B outputs is variable using the ten turn DELAY control and two-position range switch as follows:

100 ns to 1.0 us
1.0 us to 10 us

To vary the delay electronically (within each range), set the rear panel INT-EXT switch in the EXT position and apply 0 to +10 VDC to the "A" connector.

- 6) CAUTION: The instrument will be damaged if the load capacitance exceeds 50 pfd or if the duty cycle exceeds 10%. For example, the PW at 1 MHz must not exceed 100 ns or the load capacitance must not exceed 50 pfd. Note that coaxial cables connected to the pulse generator output ports typically contribute 15 pfd per foot of length and so this capacitance must be included in the total.
- 7) The output switching elements may fail if the output of the unit is accidentally short-circuited or if the unit is operated at high output pulse width - high PRF combinations. The switching elements are easily replaced following the instructions given in the REPAIR Section.

8) AVRL units with a serial number higher than 5600 are protected by an automatic overload protective circuit which controls the front panel overload light. If the unit is overloaded (by operating at an exceedingly high duty cycle or by operating into a short circuit), the protective circuit will turn the output of the instrument OFF and turn the indicator light ON. The light will stay ON (i.e. output OFF) for about 5 seconds after which the instrument will attempt to turn ON (i.e. light OFF) for about 1 second. If the overload condition persists, the instrument will turn OFF again (i.e. light ON) for another 5 seconds. If the overload condition has been removed, the instrument will turn on and resume normal operation. Overload conditions may be removed by:

- 1) Reducing PRF
- 2) Reducing pulse width
- 3) Removing output load short circuit (if any)

Note that the overload light may illuminate when the prime power is first applied. The light will extinguish after a few seconds and the instrument will then function normally.

9) For additional assistance:

Tel: (613) 226-5772

Fax: (613) 226-2802

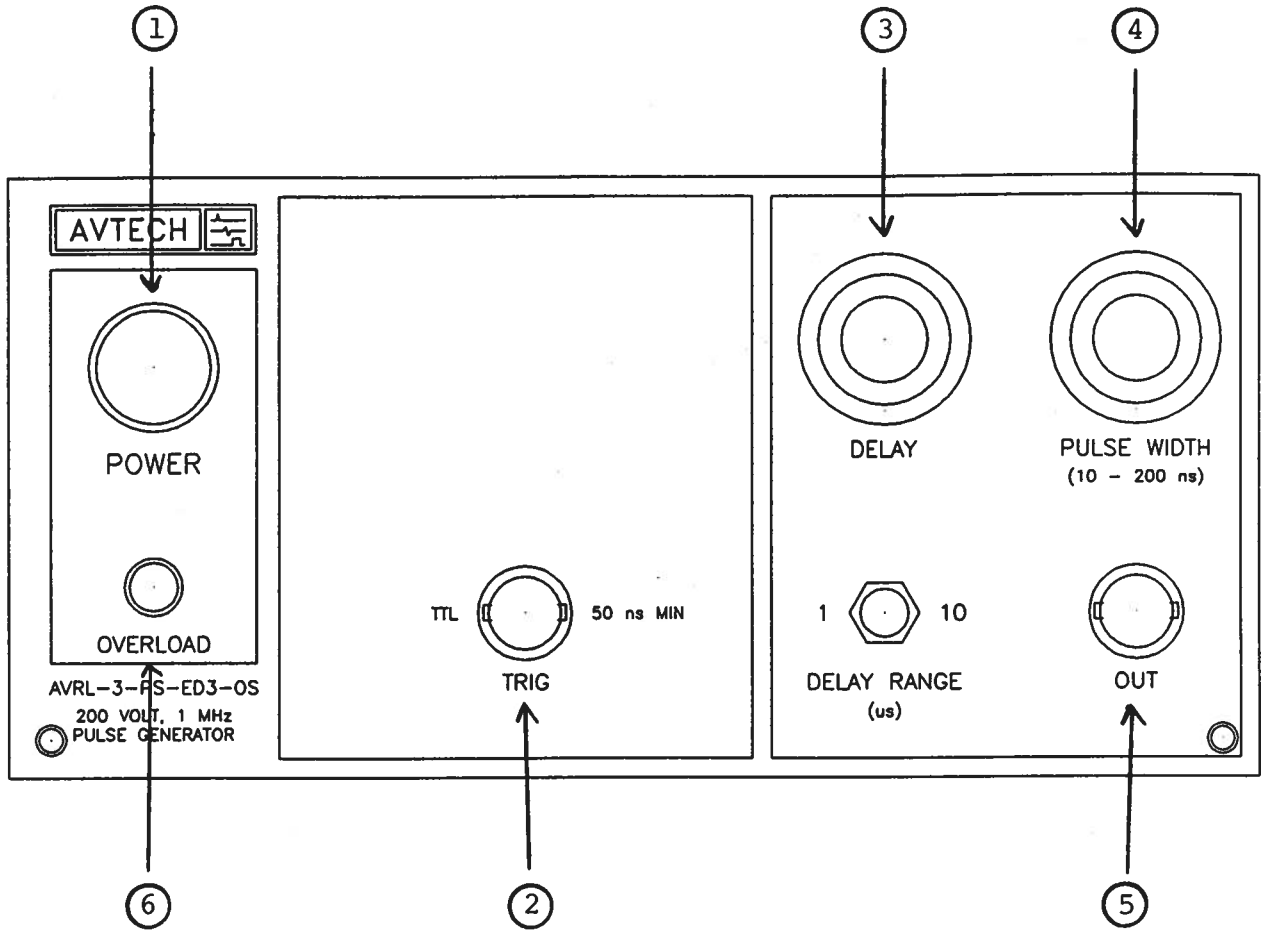


Fig. 2

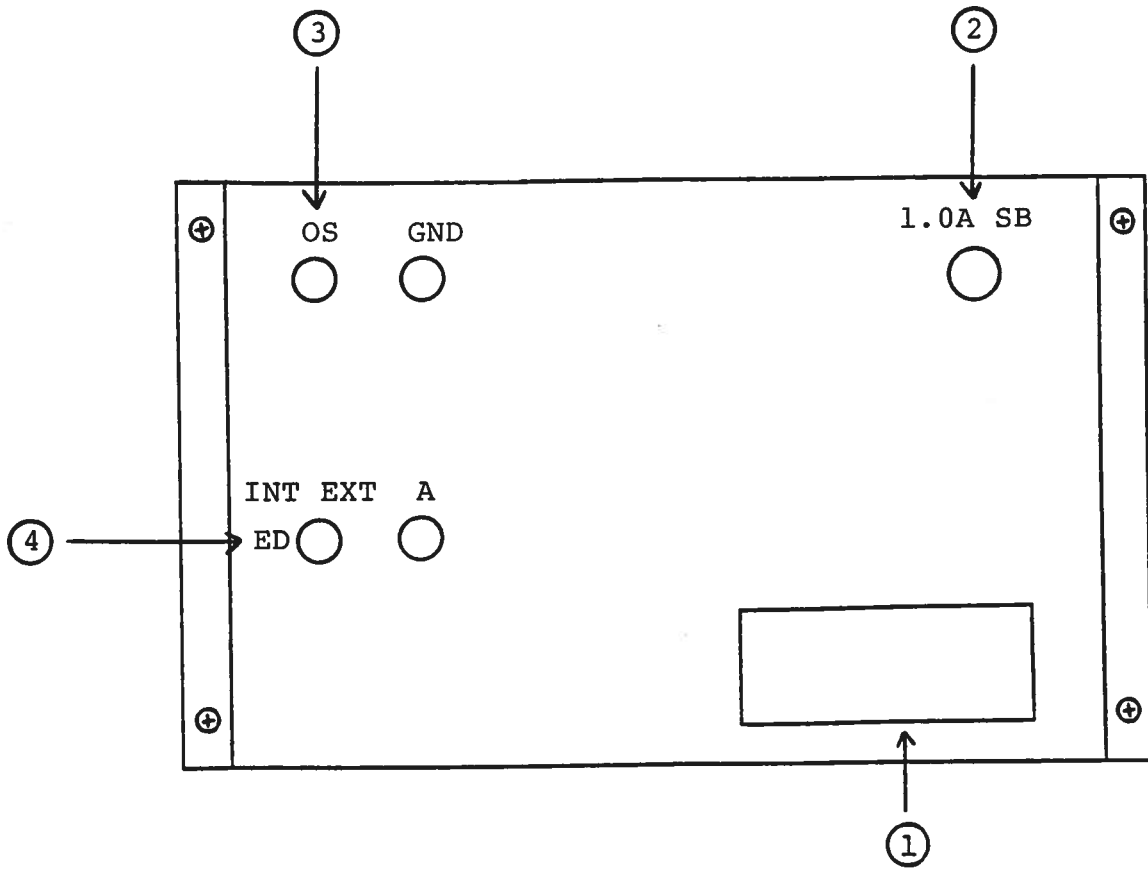
FRONT PANEL CONTROLS

- (1) ON-OFF Switch. Applies prime power to all stages.
- (2) IN. Input trigger applied here (+5 Volts, 50 ns or wider).
- (3) DELAY. Two position range switch and ten turn pot vary propagation delay as follows:
 - 100 ns to 1 us
 - 1 us to 10 us
- (4) PW. Ten turn control varies the output pulse width from 10 ns to 200 ns.
- (5) OUT Connector. BNC connector used to connect output to a high impedance load.
- (6) OVERLOAD INDICATOR. AVRL units with a serial number higher than 5600 are protected by an automatic overload protective circuit which controls the front panel overload light. If the unit is overloaded (by operating at an exceedingly high duty cycle or by operating into a short circuit), the protective circuit will turn the output of the instrument OFF and turn the indicator light ON. The light will stay ON (i.e. output OFF) for about 5 seconds after which the instrument will attempt to turn ON (i.e. light OFF) for about 1 second. If the overload condition persists, the instrument will turn OFF again (i.e. light ON) for another 5 seconds. If the overload condition has been removed, the instrument will turn on and resume normal operation. Overload conditions may be removed by:
 - 1) Reducing PRF
 - 2) Reducing pulse width
 - 3) Removing output load short circuit (if any)

Note that the overload light may illuminate when the prime power is first applied. The light will extinguish after a few seconds and the instrument will then function normally.

Fig. 3

BACK PANEL CONTROLS



- (1) FUSED CONNECTOR, VOLTAGE SELECTOR. The detachable power cord is connected at this point. In addition, the removable cord is adjusted to select the desired input operating voltage. The unit also contains the main power fuse (0.5 A SB).
- (2) 1.0A SB. Fuse which protects the output stage if the output duty cycle rating is exceeded.
- (3) OS. To offset the output pulse (0 to ± 50 , 1.0 mA max), apply the required DC potential to this solder terminal.
- (4) ED. To electronically control the propagation delay (within each range) set the switch in the EXT position and apply 0 to +10 VDC to the "A" connector ($R_{IN} \geq 10K$).

SYSTEM DESCRIPTION AND REPAIR PROCEDURE

The AVRL-3-PS unit consists of the following basic modules:

- 1) -PG pulse generator module
- 2) +24V power supply board
- 3) -ED pulse width control module
- 4) -OL overload module

The modules are interconnected as shown in Fig. 4.

In the event of an instrument malfunction, it is most likely that the 1.0 A slow blow fuse or the main power fuse on the rear panel has blown. Replace if necessary. If the unit still does not function, it is most likely that some of the output switching elements (SL9T) may have failed due to an output short circuit condition or to a high duty cycle condition. The switching elements may be accessed by removing the aluminum cover plate on the bottom side of the instrument. The cover plate is removed by removing the two 2-56 screws. NOTE: First turn off the prime power.

CAUTION: Briefly ground the SL9T tabs to discharge the 200 Volts power supply potential. The elements may be removed from their sockets by means of a needle nosed pliers after removing the four counter sunk 2-56 Phillips screws which attach the small copper heat sink to the body of the instrument. The SL9T is a selected VMOS power transistor in a TO 220 package and may be checked on a curve tracer. If defective, replacement units should be ordered directly from Avtech. When replacing the SL9T switching elements, take care to insure that the short lead (of the three leads) is adjacent to the back of the chassis. (See following Fig.). The SL9T elements are electrically isolated from the small aluminum heat sinks but are bonded to the heat sinks using WAKEFIELD TYPE 155 HEAT SINK ADHESIVE.

June 12/96

Disk: AVRL

Name: 3PSOSED3.INS