

# AVTECH ELECTROSYSTEMS LTD.

NANOSECOND WAVEFORM ELECTRONICS  
ENGINEERING - MANUFACTURING

□ P.O. BOX 265  
OGDENSBURG  
NEW YORK  
13669  
(315) 472-5270

☒ BOX 5120, STN. "F"  
OTTAWA, ONTARIO  
CANADA K2C 3H4  
TEL: (613) 226-5772  
FAX: (613) 226-2802  
TELEX: 053-4591

## INSTRUCTIONS

MODEL AVR-1-PW-PS-EGGA PULSE GENERATOR

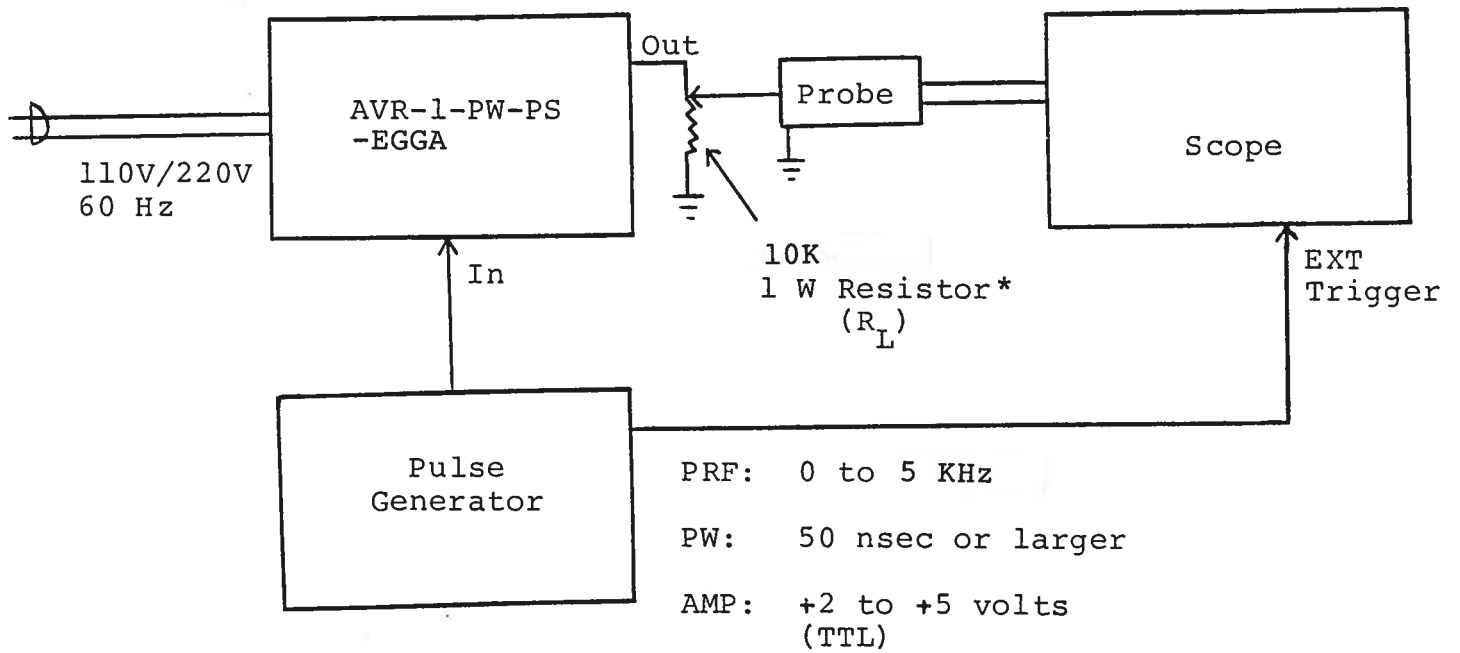
S.N.:

## 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.

A.

TEST ARRANGEMENT



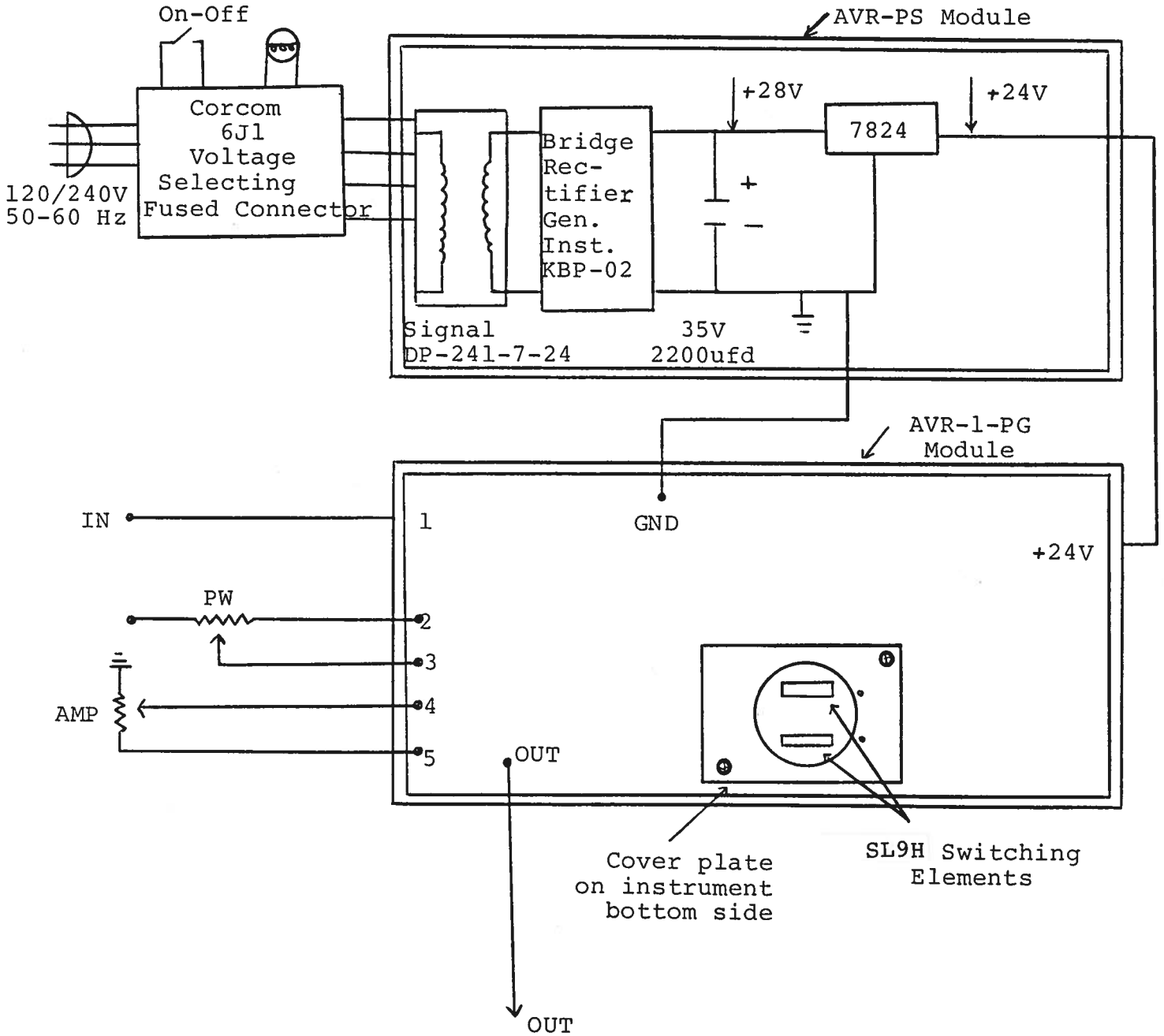
\* Will operate with  $R_L$  as low as 50 ohm but reduce PRF max to 1.0 KHz

## GENERAL OPERATING INSTRUCTIONS

- 1) The equipment should be connected in the general fashion shown above. Since the AVR unit provides an output pulse rise time as low as 10 nsec a fast oscilloscope (at least 50 MHz and preferably 200 MHz) should be used to display the waveform. Also, if a load of other than 50 ohm is employed, the length of coaxial cable between the AVR unit and the load should not exceed about 5 feet or the output waveform may be degraded by the resulting reflections.
- 2) The output PRF is equal to the input trigger pulse PRF.
- 3) The output pulse width is controlled by the one turn PW control. For units with the EW option, the pulse width may be controlled electronically as follows: Remove the jumper wire between terminals A and B on the back panel and apply 0 to +10V to terminal B ( $R_{IN} > 10K$ ).
- 4) The output amplitude is controlled by the one turn AMP control. For units with the EA option, the amplitude may be controlled electronically as follows: Remove the jumper wire between terminals A and B on the back panel and apply 0 to +10V to terminal B ( $R_{IN} > 10K$ ).
- 5) Care should be taken to not operate with an output pulse width greater than 5 usec as prolonged operation in this mode may very well result in equipment failure. Also, the maximum PRF or duty cycle must not be exceeded for the same reason. Under simultaneous conditions of wide pulse width, high PRF and high load current, the bias voltage applied to the output power stage decreases and as a result the attainable output peak voltage decreases to less than 200 volts. Under conditions of severe loading the output stage may be damaged.

C.

SYSTEM BLOCK DIAGRAM AND REPAIR PROCEDURE



## SYSTEM DESCRIPTION AND REPAIR PROCEDURE

The AVR-1-PW-PS consists of the following basic modules:

- 1) AVR-A-1-PG pulse generator module
- 2) +24V power supply board

The modules are interconnected as shown in Fig. 4. In the event of an instrument malfunction, it is most likely that the rear panel 0.5A SB fuse or some of the output switching elements (SL9H) 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 cover plate on the bottom side of the instrument. NOTE: First turn off the prime power. The elements may be removed from their sockets by means of a needle nosed pliers. The SL9H is a selected VMOS power transistor in a TO 220 packages and may be checked on a curve tracer. If defective, replacement units should be ordered directly from Avtech. When replacing the SL9H switching elements, take care to insure that the short lead (of the three leads) is adjacent to the black dot on the chassis. If the switching elements are not defective, then the four Phillips screws on the back panel should be removed. The top cover may then be slid off and the 24V power supply checked. The power supply board generates +24V DC to power the other modules. If the voltage is less than +24V, turn off the prime power and unsolder the lead from the 7824 regulator chip on the power supply board. Solder a 100 ohm 5 watt resistor to the 7824 output to ground and turn on the prime power. A voltage of +24 volts should be read. If the voltage is less then the power supply board is defective and should be repaired or replaced.

Schroff

07.31.89

SYSTEM DESCRIPTION AND TEST PROCEDURES

-EW

-EA

The following consists of the following test procedures:

- 1) AVT-1-100 power supply module
- 2) 42V power supply board

The modules are interconnected as shown in Fig. 1. In the event of an abnormal condition, it is most likely that the test panel (TPA) has a fault or some of the output switching elements (SW) may have failed due to an output short circuit condition or to a high duty cycle condition. The switching elements are protected by fuses on the cover plate on the bottom side of the instrument. MDT1 first disconnects the prime power. The elements may be removed from their sockets by means of a needle-nosed pliers. The SW is a selected VMO power transistor in a TO-18 package and may be checked by a curve tracer. It has a typical forward current rating of 1.0A. When replacing units should be ordered directly from Schroff. When replacing the SW, the switching element, take care to insure that the about lead of the three leads is adjacent to the black dot on the chassis. If the switching element was not defective, then the new chip will be on the back panel should be removed. The top cover may then be slid off and the 42V power supply checked. The power supply board consists of 42V, 10A power and other modules. If the voltage is less than 42V, turn off the prime power and disconnect the test from the 42V regulated output on the power supply board. Then a 100 ohm 2 watt resistor on the 42V output is ground and turn on the prime power. A voltage of 42V volts should be read. If the voltage is less than the power supply board is defective and should be repaired or replaced.