

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-3-PS-PN-RU3 PULSE GENERATOR

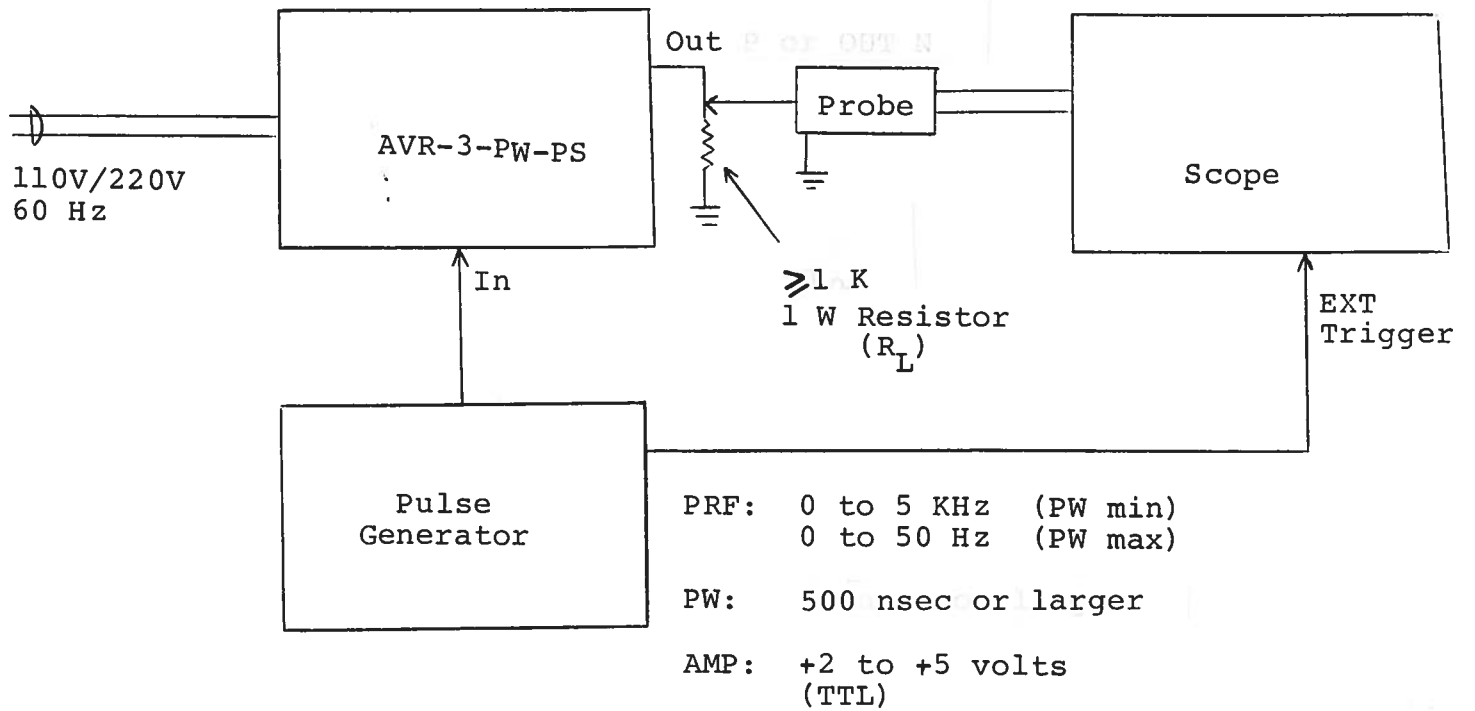
S.N.:

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

PULSE GENERATOR TEST ARRANGEMENT



Notes:

- 1) The bandwidth capability of components and instruments used to display the pulse generator output signal (attenuators, cables, connectors, etc.) should exceed 100 MHz.
- 2) This unit was specifically designed to drive high impedance loads ($R_L > 1K$). The unit may fail if operated into low impedance loads (eg. 50Ω).
- 3) The output pulse train from the unit resembles that shown in Fig. 2. CAUTION: The pulse train repetition interval (i.e. time between trigger pulses) should always exceed $20 (PW_P \text{ and } PW_N)$. The output stage may fail if this duty cycle is exceeded.
- 4) The output pulse widths for the positive and negative outputs are controlled by means of the front panel one turn PW P and PW N controls and by the PW RANGE controls. The minimum and maximum PW for each range and the corresponding maximum PRF are as follows. Note that the unit may fail if operated at duty cycles exceeding the above.

	FW min	FW max
Range 1	0.1 usec	1.0 usec
Range 2	1.0 usec	10 usec
Range 3	10 usec	100 usec
Range 4	100 usec	1 msec

- 5) The output pulse amplitudes for the positive and negative outputs are controlled by means of the front panel one turn AMP P and AMP N controls.
- 6) The T1 controls determine the time interval between the double pulses as follows:

	MIN	MAX
Range 1	0.1 usec	1.0 usec
Range 2	1.0 usec	10 usec
Range 3	10 usec	100 usec
Range 4	0.1 msec	1.0 msec

- 7) The T2 controls determine the time interval between the positive and negative voltage swings as follows:

	MIN	MAX
Range 1	0.1 usec	1.0 usec
Range 2	1.0 usec	10 usec
Range 3	10 usec	100 usec
Range 4	0.1 msec	1.0 msec

- 8) The output PRF is equal to the input trigger pulse PRF.

- 9) AVR-3 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 (i.e. switch to a lower range)
- 2) Reducing pulse width (i.e. switch to a lower range)
- 3) Removing output load short circuit (if any)

SYSTEM DESCRIPTION AND REPAIR PROCEDURE

The AVR-3-PW-PS-PN-RU3 consists of the following basic modules:

- 1) AVR-3-RU3-PG pulse generator module
- 2) AVR-OL overload module
- 3) +24V power supply board
- 4) AVR-3-PS-RU3 power supply module
- 5) AVR-3-RU3-T pulse width module

In the event of an instrument malfunction, it is most likely that the rear panel 1.0A SB fuse or some of the output switching elements (SL22T) 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 SL22T 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 SL22T switching elements, take care to insure that the short lead (of the three leads) is adjacent to the black dot on the chassis.

Schroff

01.21.91