

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

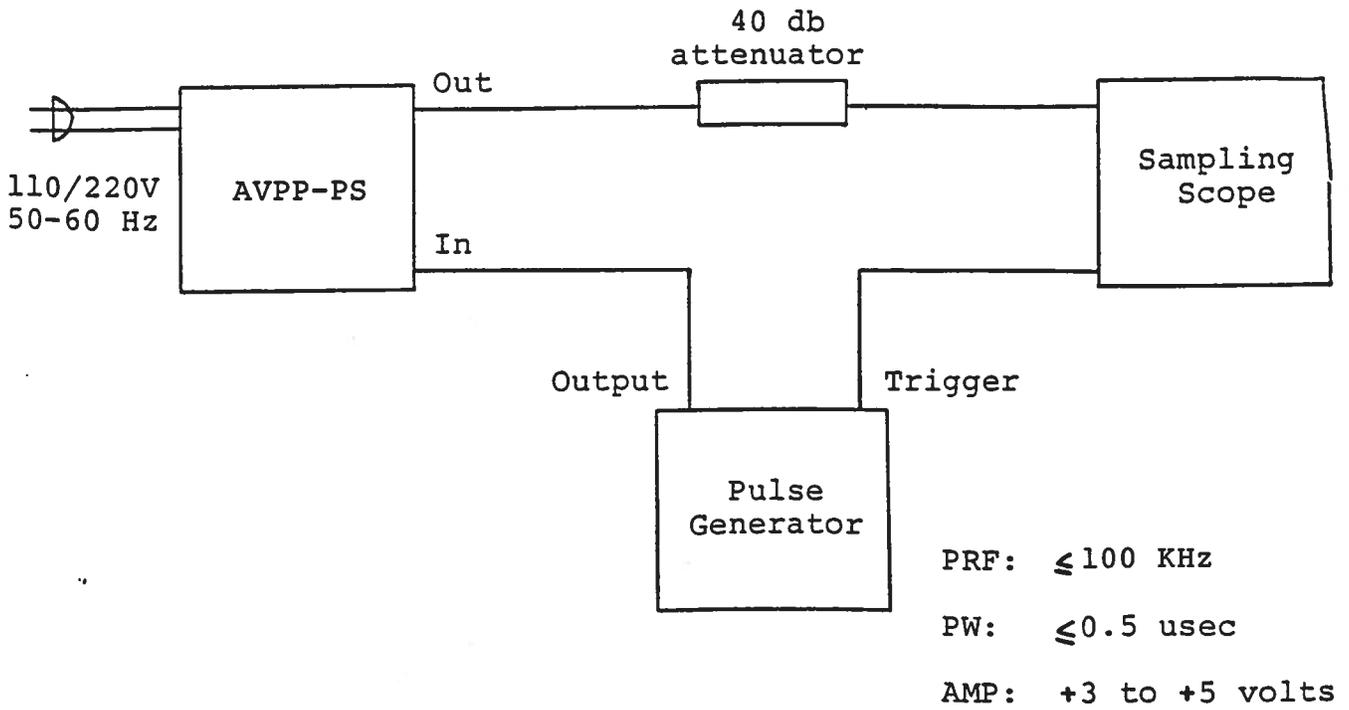
MODEL AVPP-2-PS PULSE GENERATOR

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 AVPP-PS 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 ten gigahertz.
- 2) The AVPP-PS contains two independent pulse generators which cover the output PW range of 0.4 to 6.0 nsec (A) and 6.0 nsec to 100 nsec (B). A and B share common PW and AMP controls.
- 3) In general, the source pulse generator trigger delay control should be set in the 0.1 to 1.0 usec range. Other settings should be as shown in the above diagram.
- 4) The output pulse width is controlled by means of the front panel one turn PW control. The control should initially be set maximum clockwise and the pulse width adjusted using an oscilloscope.
- 5) The output pulse amplitude is controlled by means of the front panel one turn AMP control. 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.
- 6) 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.
- 7) To DC offset the output pulse connect a DC power supply set to required DC offset value to the back panel terminals marked O.S. The maximum attainable DC offset voltage is ± 50 volts (for non OT or EO option units only).
- 8) For units with the OT offset option, the output DC offset level is varied from -5 to +5V (to 50 ohm) 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).
- 9) For units with the EO option, the output offset may be voltage controlled by removing the jumper wire between banana plugs A and B on the back panel and applying 0 to +10 volts to connector B ($R_{IN} \geq 10K$).

- 10) The monitor output (-M) provides a 20 db attenuated coincident replica of the main output. (option).
- 11) To voltage control the output pulse width, remove the jumper wire between banana plugs A and B on the back panel and apply 0 to +10V to connector B ($R_{IN} \geq 10K$). (EW option).
- 12) To voltage control the output amplitude, remove the jumper wire between banana plugs A and B on the back panel and apply 0 to +10V to connector B ($R_{IN} \geq 10K$). (EA option).
- 13) Dual Polarity Option (for units without the OT or EO options).

To invert the output of the AVPP unit, connect the AVX-2-T unit to the OUT port for PW in the A range (and the AVX-T-3 unit for PW in the B range). An inverted pulse with a rise time < 100 psec is then obtained at the OUT port of the AVX-2-T unit (or AVX-T-3). To offset the inverted pulse, apply the required DC level to the DC terminal of the AVX-2-T (or AVX-T-3) unit.

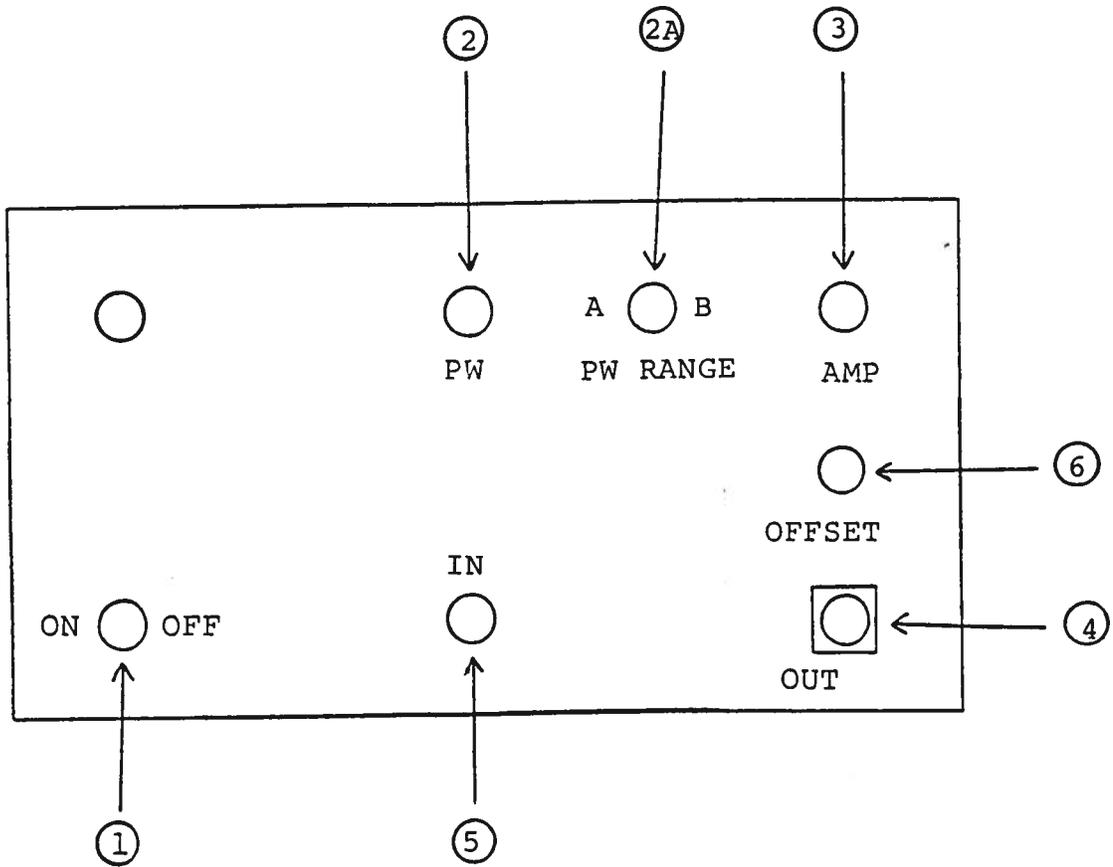
- 14) Dual Polarity Option (for units with the OT or EO options).

To invert the output of the AVPP unit, connect the AVX-2-T unit to the OUT port for PW in the A range (and the AVX-T-3 unit for PW in the B range). An inverted pulse with a rise time < 100 psec is then obtained at the OUT port of the AVX-2-T unit (or AVX-T-3). To offset the inverted pulse, connect a lead from the rear panel OS OUT banana plug to the DC terminal of the AVX-2-T unit (or AVX-T-3). The DC offset at the output of the AVX-2-T (or AVX-T-3) unit is then controlled by the front panel OFFSET control.

- 15) The AVPP-PS unit can be converted from 110 to 220V 50-60 Hz operation by adjusting the voltage selector card in the rear panel fused voltage selector-cable connector assembly.

Fig. 2

FRONT PANEL CONTROLS

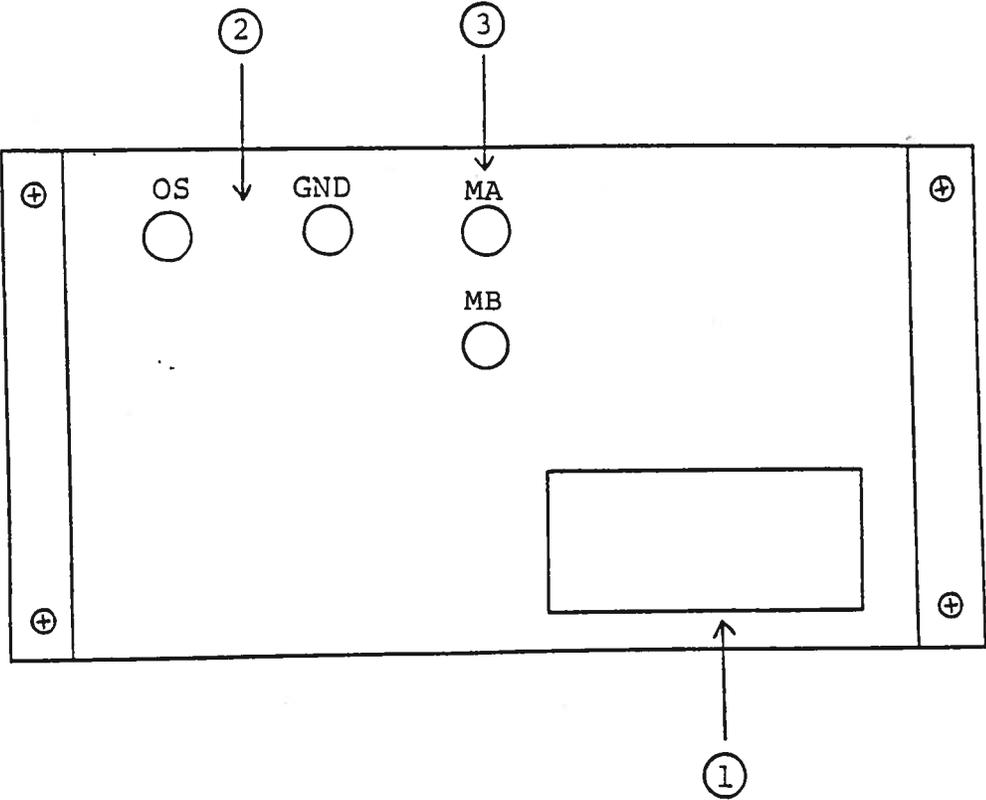


- (1) ON-OFF Switch. Applies basic prime power to all stages.
- (2) PW Control. A one turn control which varies the output pulse width.
- (2A) PW RANGE. Two position switch selects PW range (A: 0.4 to 6.0 nsec, B: 6.0 to 100 nsec).
- (3) AMP Control. A one turn control which varies the output pulse amplitude.
- (4) OUT. SMA connector provides output to 50 ohm load.
- (5) TRIG Input. The external trigger signal is applied at this input (TTL, 50 nsec or wider).
- (6) For units with the OT or EO offset option, the output DC offset level is varied from -5 to +5V (to 50 ohm) by the front panel OFFSET one turn control. The DC offset may be turned off using the rear panel OS ON-OFF toggle switch.

Fig. 3

BACK PANEL CONTROLS

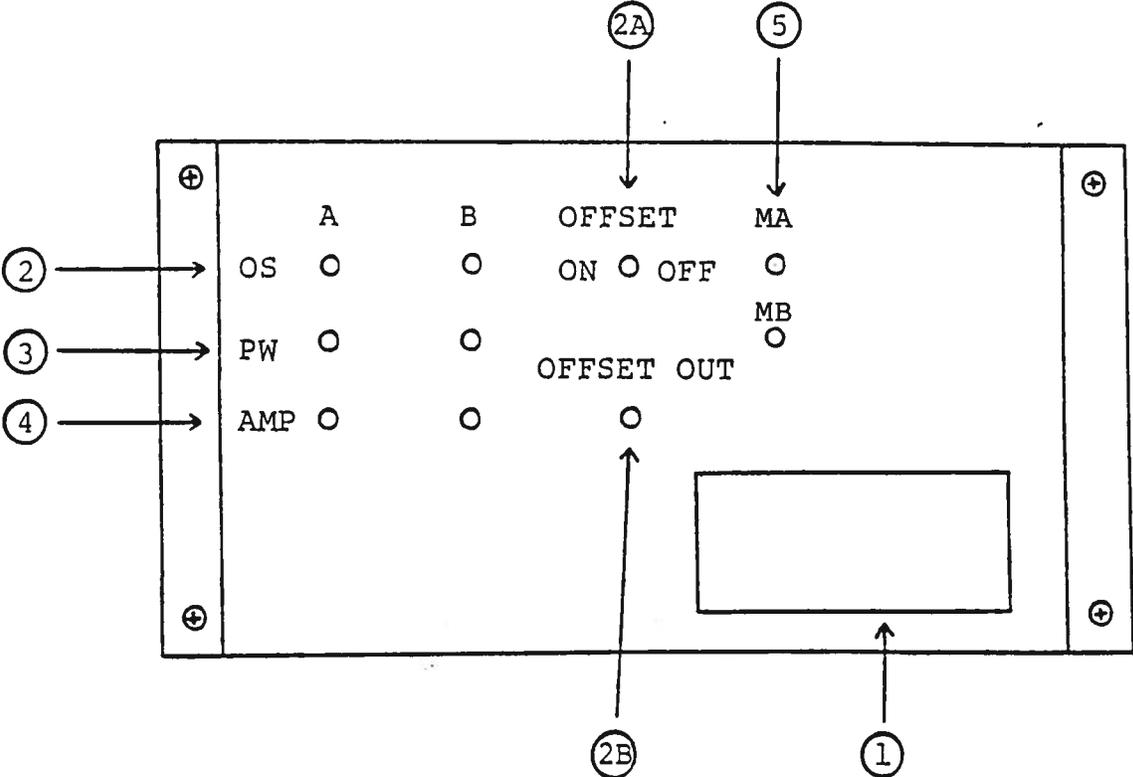
(for units without the OT or EO options)



- (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.
- (2) DC OFFSET Input. To DC offset the output pulse, connect a DC power supply set to the desired offset value to these terminals. The maximum allowable DC offset voltage is ± 50 volts.
- (3) MONITOR OUT M. Provides an attenuated (x10) coincident replica of the main positive output pulse to fifty ohms. (option).

Fig. 4

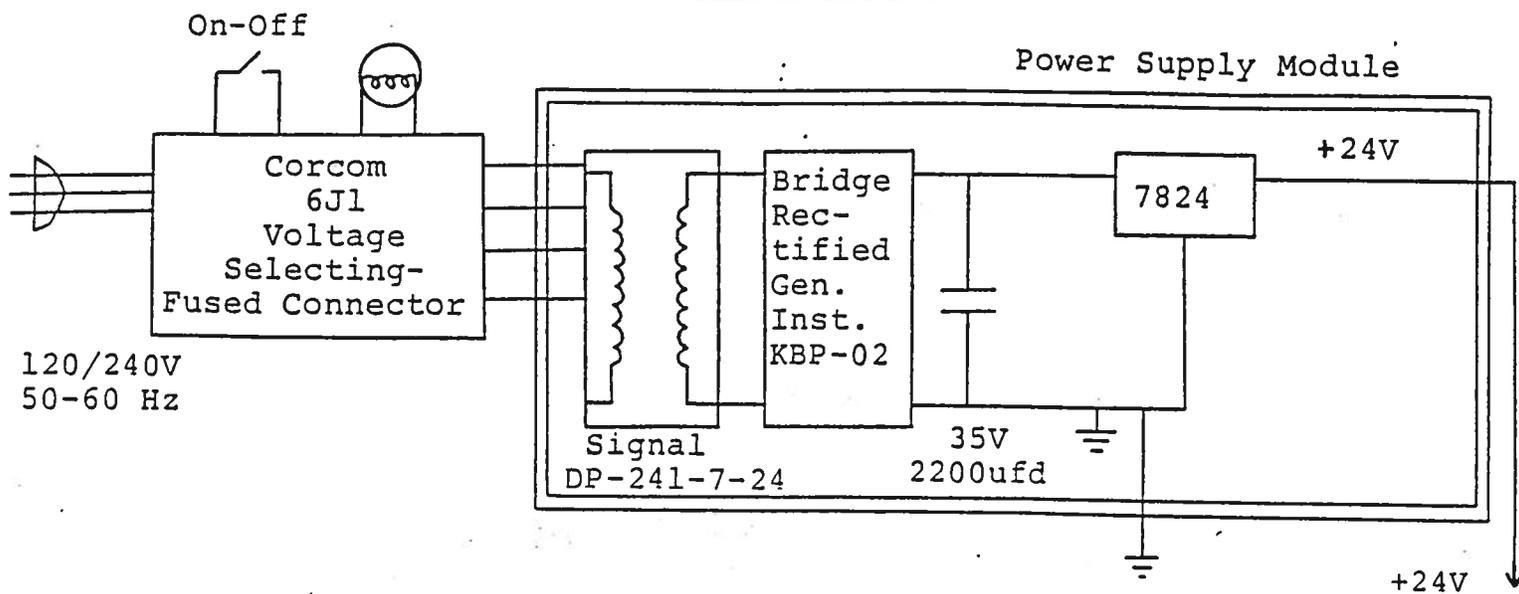
BACK PANEL CONTROLS (for units with the OT or EO options)

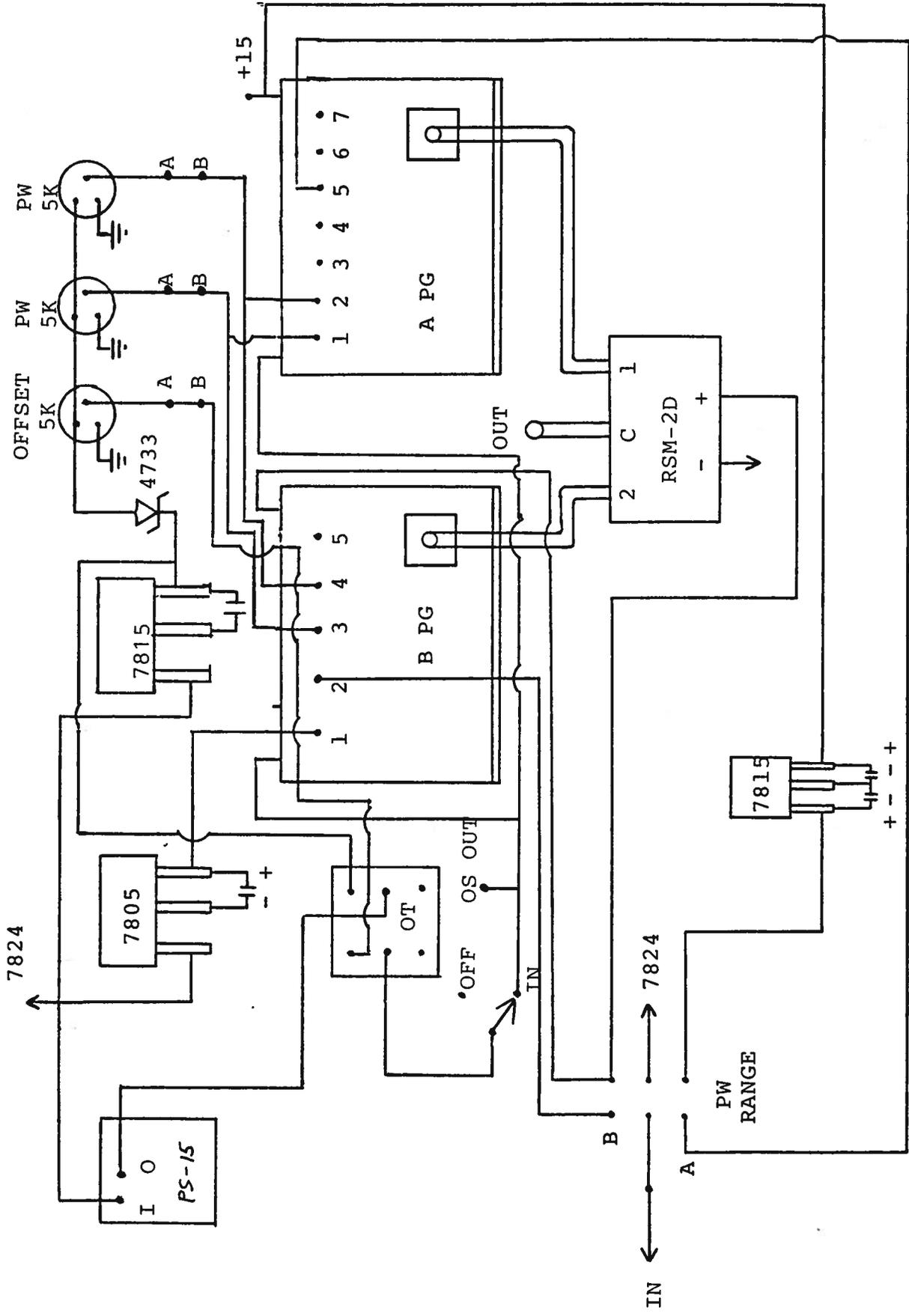


- (1) FUSED CONNECTOR, VOLTAGE SELECTOR. The detachable power cord is connected at this point. In addition, the removable cord is adjusted to select the desired input operating voltage. The unit also contains the main power fuse.
- (2) To voltage control the output DC offset, remove the jumper wire between banana plugs A and B and apply 0 to +10V to connector B ($R_{IN} \geq 10K$). (EO option).
- (2A) Two position switch which turns output DC offset ON or OFF. (EO or OT options).
- (2B) With OFFSET ON-OFF switch in ON position, DC output offset potential appears at this terminal. To offset inverted pulse on AVFP units with dual polarity option (-FN) connect this terminal to the DC terminal of the AVX-2-T-OT module. (EO or OT options).
- (3) To voltage control the output pulse width, remove the jumper wire between banana plugs A and B and apply 0 to +10V to connector B ($R_{IN} \geq 10K$). (EW option).
- (4) To voltage control the output amplitude, remove the jumper wire between banana plugs A and B and apply 0 to +10V to connector B ($R_{IN} \geq 10K$). (EA option).
- (5) MONITOR Output. Provides an attenuated (x10) coincident replica (to 50 ohms) of the main output. (option).

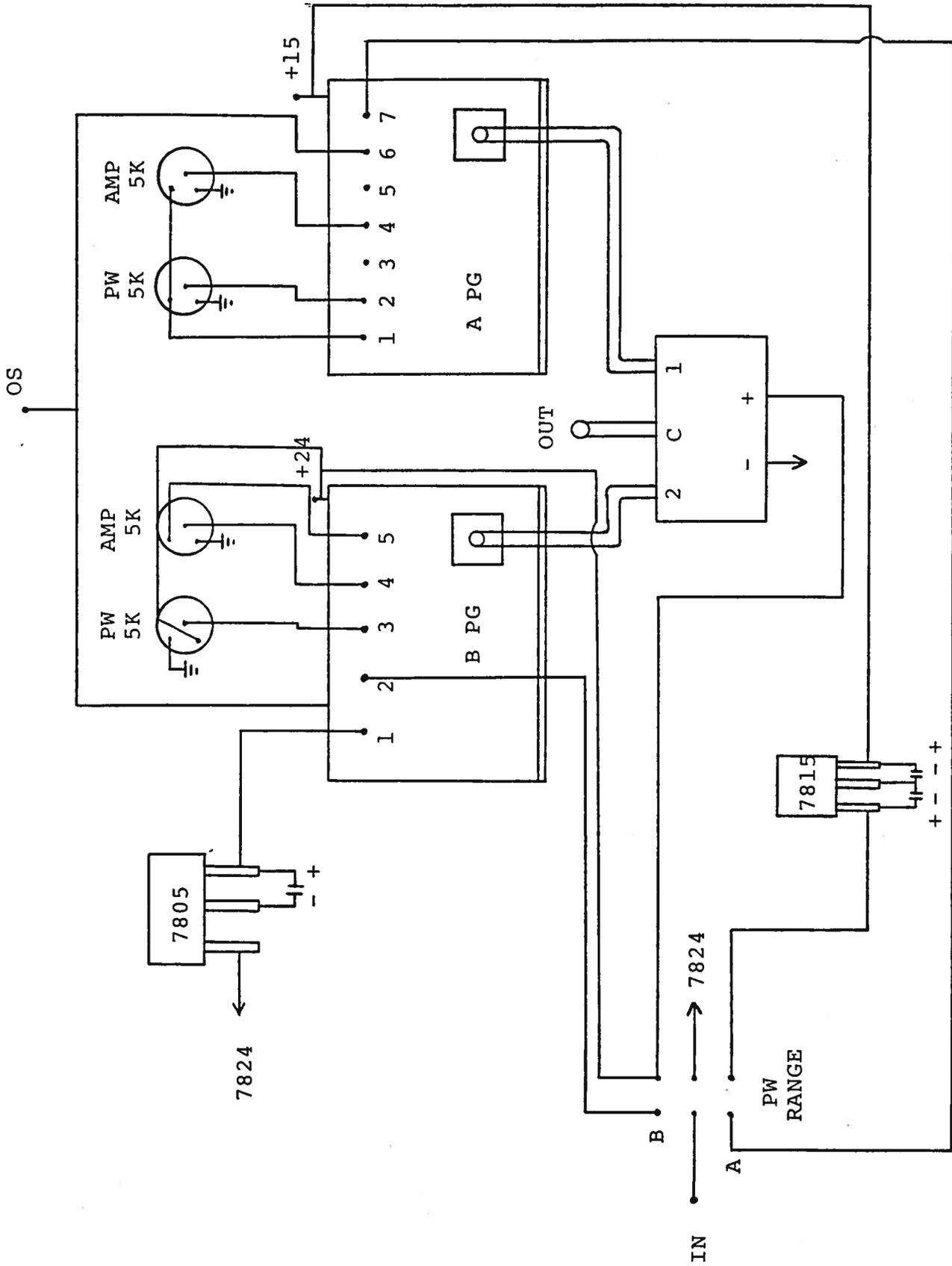
Fig. 4

SYSTEM BLOCK DIAGRAM





AVPP-1-PS-P-PN-M-EA-EO-EW



AVPP-1-PS (UNITS WITHOUT THE OT OPTION)

SYSTEM DESCRIPTION AND REPAIR PROCEDURE

The AVPP-PS consists of two pulse generator modules (FGA and FGB), and a power supply board which supplies +24 volts (600 mA max) to the pulse generator module. In the event that the unit malfunctions, remove the instrument cover by removing the four Phillips screws on the back panel of the unit. The top cover may then be slid off. Measure the voltage at the +24 V pin of the PG module. If this voltage is substantially less than +24 volts, unsolder the line connecting the power supply and PG modules and connect 100 ohm 10 W load to the PS output. The voltage across this load should be about +24 V DC. If this voltage is substantially less than 24 volts the PS module is defective and should be repaired or replaced. If the voltage across the resistor is near 24 volts, then the PG module should be replaced or repaired. The sealed PG module must be returned to Avtech for repair (or replacement).

Schroff

04.10.89

Edition A

File: AVPP2PSA.INS

Dist: AVPP

-OS

-OT

-EO

-M

-EW

-EA

-PN