



AVTECH ELECTROSYSTEMS LTD.

NANOSECOND WAVEFORM ELECTRONICS
SINCE 1975

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INSTRUCTIONS

MODEL AVMN-PS-UT1 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 assumed by Avtech with respect to this product and no other warranty or guarantee is either expressed or implied.

TECHNICAL SUPPORT

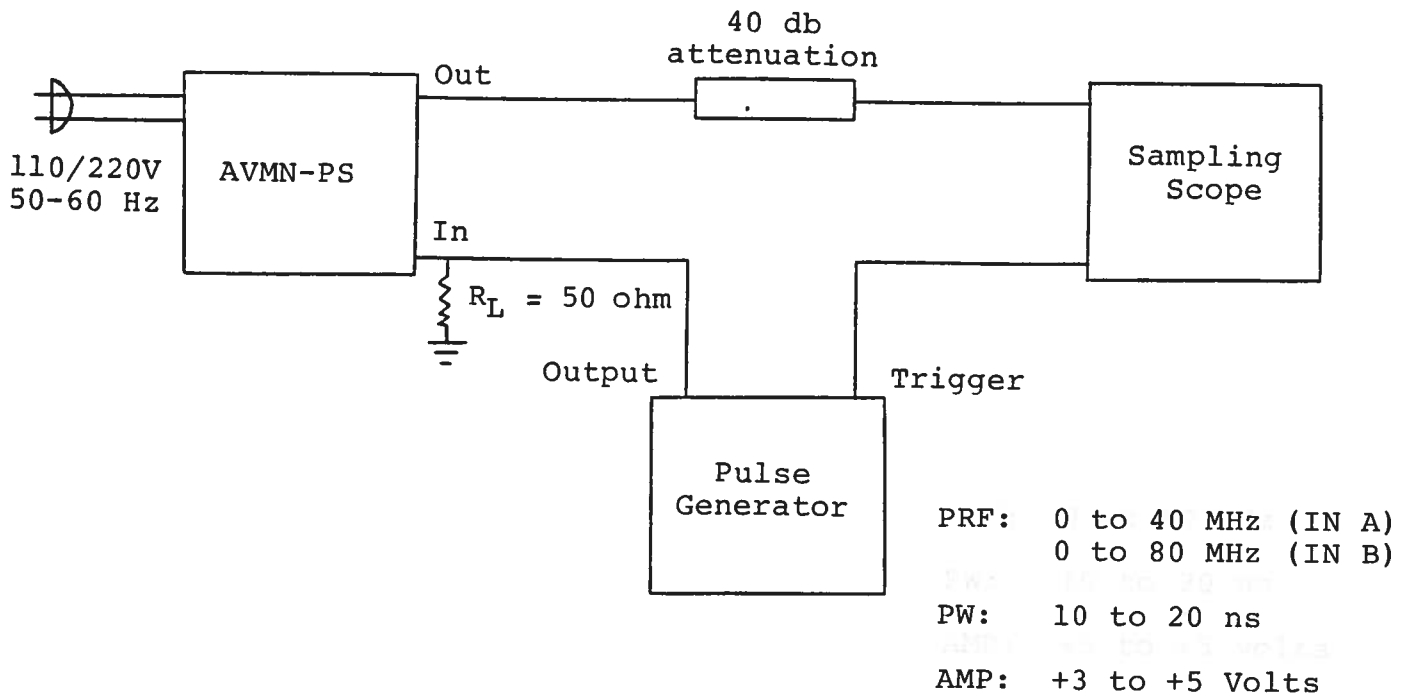
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MODEL AVMN-PS PULSE GENERATOR TEST ARRANGEMENT



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 use of 40 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.*
 - 4) When testing using a general purpose 50 Ohm laboratory pulse generator as the input trigger signal source, the input signal should be applied via a 50 Ohm feed-through load or alternatively, the input to the AVMN unit should be shunted with a 50 Ohm resistor. This will prevent reflection (and degradation of the input pulse waveform) caused by the high impedance at the IN port. However, when triggering from a TTL source, no 50 Ohm feed-through load or resistor is necessary but lead length should be as short as possible. High-speed TTL Schottky logic is recommended for the driving circuitry.
 - 5) The input trigger pulse width should be in the range of 10 to 20 ns.
 - 6) The output pulse width is controlled by means of the one-turn potentiometer (PW). The pot should initially be set maximum clockwise and the pulse width adjusted using an oscilloscope.
 - 7) The output pulse amplitude is controlled by means of the one-turn potentiometer (AMP). 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.
 - 8) 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.
- * The stability of the display on some sampling scopes is very sensitive to this delay, particularly at high PRF (eg. 10 to 50 MHz). If necessary, consult your sample scope instructions manual for the proper triggering method.

- 9) WARNING: Model AVMN-PS may fail if triggered at a PRF greater than 50.0 MHz (in A) or greater than 80 MHz (in B).
- 10) The Model AVMN-PS pulse generator can withstand an infinite VSWR on the output port.
- 11) To DC offset the output pulse connect a DC power supply set to the required DC offset value to the terminals marked O.S. The maximum attainable DC offset voltage is 50 Volts (250 mA max).
- 12) The 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.
- 13) For additional assistance:

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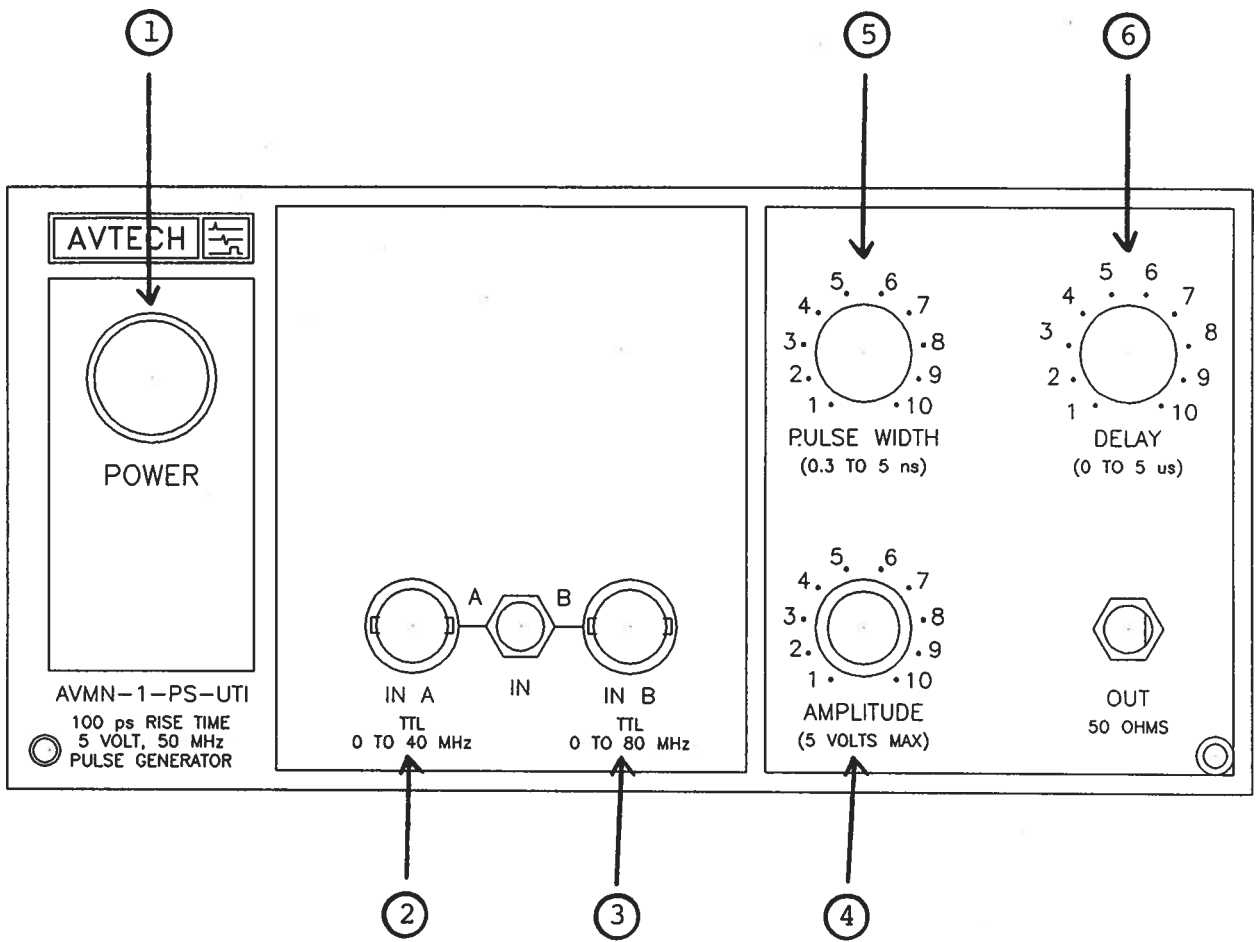


Fig. 2

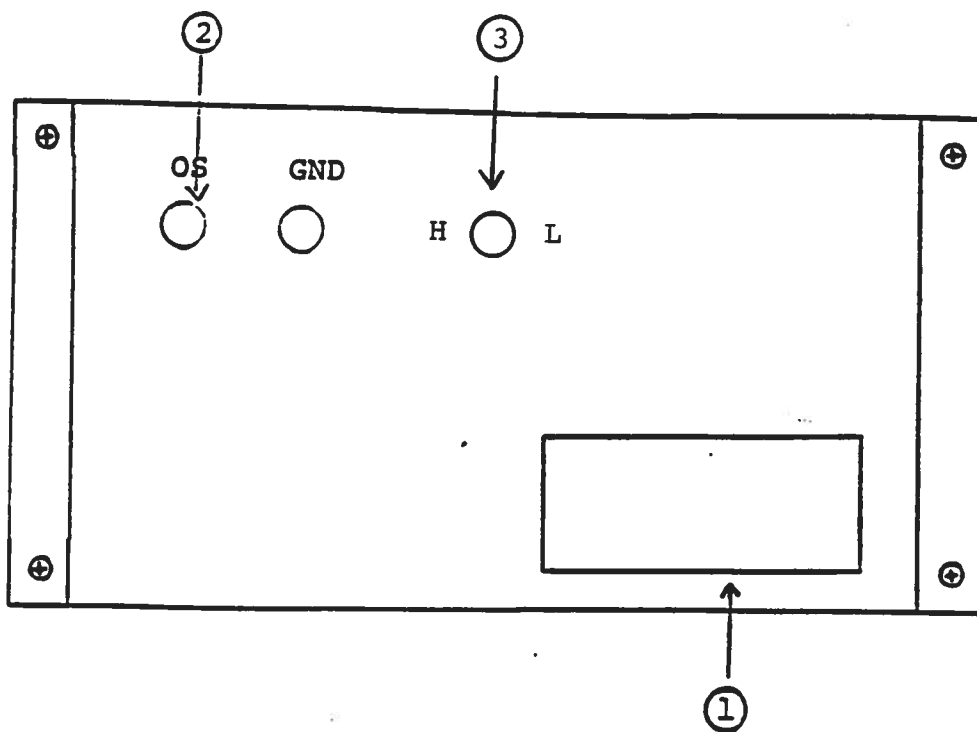
FRONT PANEL CONTROLS

FRONT PANEL CONTROLS

- (1) POWER. Applies power to all stages.
- (2) IN A. For PRF below 40 MHz, apply the input trigger pulse (+3 to +5V, 10 to 20 ns) to the IN A BNC connector and set the "IN" selector switch to the "A" position.
- (3) IN B. For PRF below 80 MHz, apply the input trigger pulse (+3 to +5V, 10 to 20 ns) to the IN B BNC connector and set the A-B selector switch to the B position. The output PRF will be one half of the input trigger PRF.
- (4) AMP. One turn control varies the output amplitude.
- (5) PW. One turn control varies the output pulse width.
- (6) DELAY. Not functional on SN 8426.

Fig. 3

BACK PANEL CONTROLS



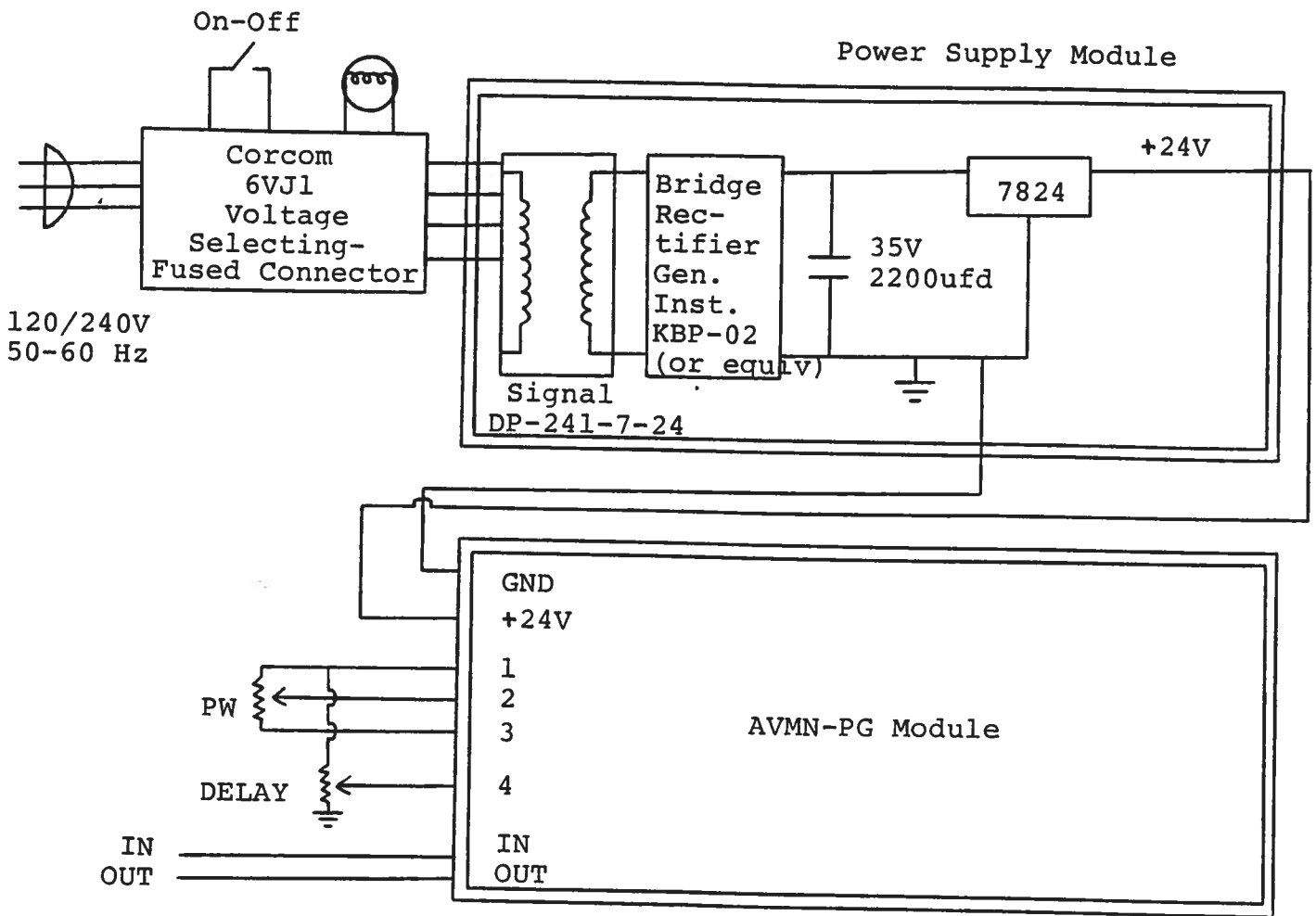
- (1) FUSED CONNECTOR, VOLTAGE SELECTOR. The detachable power cord is connected at this point. In addition, the removable cord is adjusted to select the desired input operating voltage. The unit also contains the main power fuse (0.5 A SB).
- (2) DC OFFSET Input. To DC offset the output pulse, connect a DC power supply set to the desired offset value to these terminals. The maximum allowable DC offset voltage is ± 50 Volts. (± 250 mA max).
- (3) HL BIAS POT. Normally this one turn pot should be set mid range. For operation above 30 MHz (and at 50 MHz) it may be necessary to rotate the pot clockwise in order to obtain a maximum pulse width of 5 ns. At some PRF it may be necessary to tweak this control to obtain the minimum output pulse width of 200 ps.

SYSTEM DESCRIPTION AND REPAIR PROCEDURE

The AVMN-PS consists of a pulse generator module (AVMN-PG) and a power supply board which supplies +24 Volts (600 mA max) to the pulse generator module. In the event that the AVMN-PS unit malfunctions, remove the instrument cover by removing the four Phillips screws on the back of the unit. The top lid may then be slid off. Measure the voltage at the +24V 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 50 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).

C

SYSTEM BLOCK DIAGRAM AND REPAIR PROCEDURE





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Fax Ref. No:	<u>3277</u>	From:	<u>Avtech Electrosystems Ltd.</u>
To:	<u>University of Toronto</u>	Our Fax No:	<u>(613) 226-2802</u>
Attn:	<u>David Cooper</u>	Date:	<u>February 4, 1998</u>
Phone:	<u>416-978-0602</u>	Receivers Fax No:	<u>416-971-3020</u>
Subject:	<u>Quotation</u>	No. of pages:	<u>2</u>
		C.C.	<u></u>

Following our telephone conversation of February 2nd, I am pleased to offer the following price and delivery quotation:

Quote No:	8513.
Model designation:	AVMN-1-P-PS-D-UT1.
Output pulse parameters:	See standard AVMN-1-PS.
-D suffix:	One turn front panel control allows the relative propagation delay to be varied from 0 to 5 ns.
-UT1 suffix:	Provides two input trigger ports as follows:
	IN A: Accepts input PRF from 0 to 40 MHz and output PRF equals input PRF.
	IN B: Accepts input PRF from 0 to 80 MHz and divides PRF by a factor of 2.
	IN A or IN B activated by a two position front panel switch.

* NOT INSTALLED IN FINAL UNIT AS FOR PHONE CONV OF JUNE 18.

Price:

\$4,399.00 US each. This price is FOB destination and includes our standard 5% academic discount.

Delivery:

60 days ARO.

Thank you for your continuing interest in our products. Please call me again if you require any additional information.

Regards,

A handwritten signature in black ink, appearing to read 'W. Chudobiak', written in a cursive style.

Dr. Walter Chudobiak
Chief Engineer

WC:my

June 18/98

in WP

-05

F:\WP\INSTR\AVMN\PSUT1.INS