



AVTECH ELECTROSYSTEMS LTD.

NANOSECOND WAVEFORM ELECTRONICS
SINCE 1975

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INSTRUCTIONS

MODEL AVR-7B-PS-P-IMDA PULSE GENERATOR

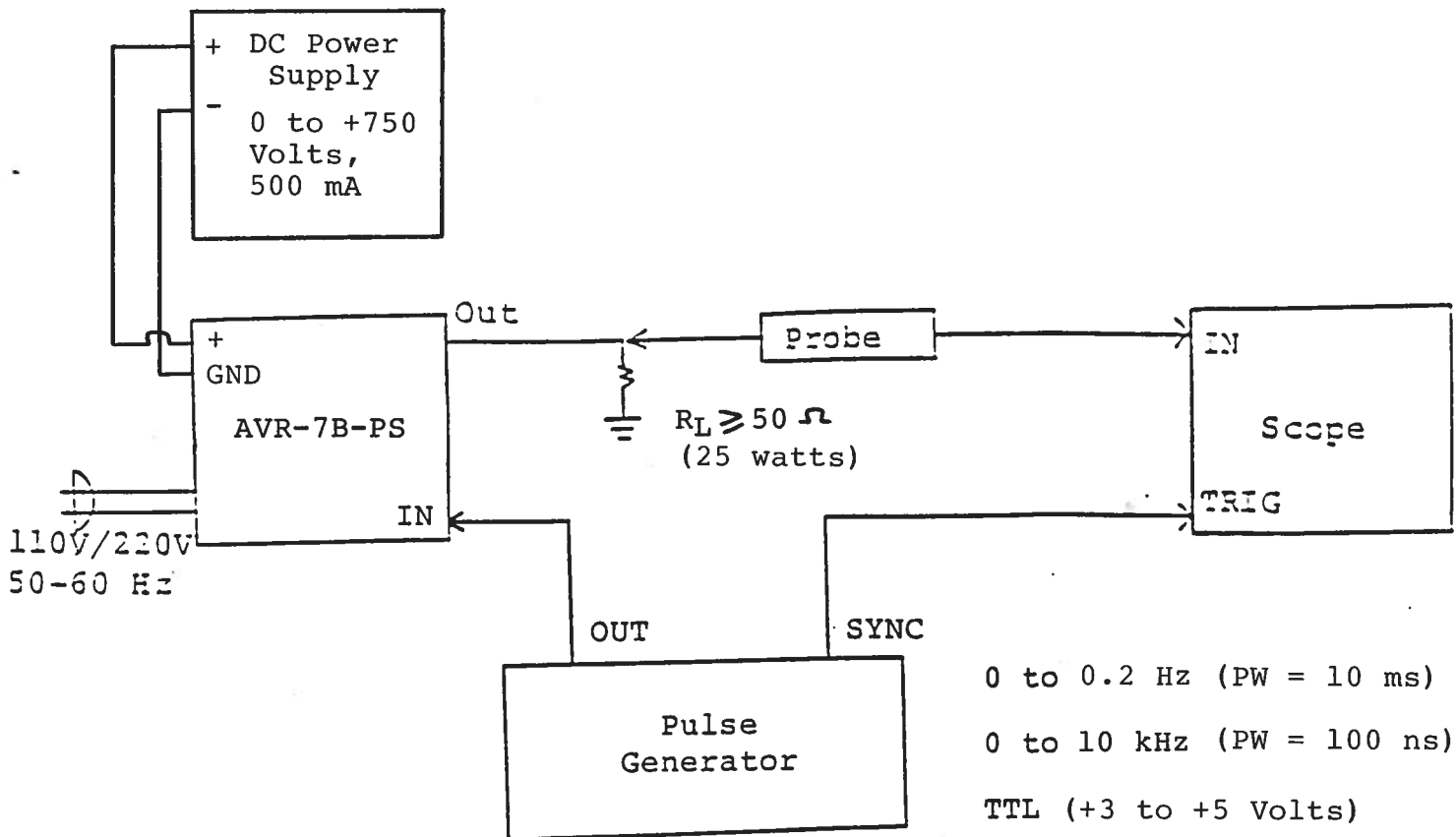
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WARRANTY

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 50 MHz.
- 2) The output pulse width is equal to the input trigger pulse width. The input pulse width should not exceed 10 ms. The unit requires a TTL level trigger pulse (+3 to +5 Volts).
- 3) The output pulse amplitude is controlled by means of the user-supplied DC power supply which is connected to the rear panel BANANA terminals. The output pulse amplitude and the DC supply voltage are related as follows:

$$V_{OUT} = V_{DC} - 2 I_{PEAK}$$

For example, for a 700 Volt pulse to a 50 Ohm load, the I_{PEAK} is 14 Amperes so the V_{DC} must then be +728 Volts.

- 4) The DC power supply should have a current rating of at least 500 mA. In addition the DC input voltage should be increased slowly so as to limit the magnitude of the current required to charge the large energy storing capacitors in the pulser (3400 ufd). Note also that when attempting to decrease the output pulse amplitude by decreasing the DC voltage, the amplitude will decrease very slowly. For a 50 Ohm load, the time constant may be of the order of tens' of seconds, (and very much higher if the load impedance is higher than 50 Ohms).
- 5) The pulser will be damaged if the applied DC voltage exceeds 750 Volts (such failures are not covered by our warranty). Note that if the applied voltage exceeds +750 Volts, the unit will sound a loud audible alarm and the triggering of the unit is inhibited. The alarm will cease (and triggering resume) when the applied voltage is reduced below +750 Volts.
- 6) 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.
- 7) For additional assistance:

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Fax: 613-226-2802

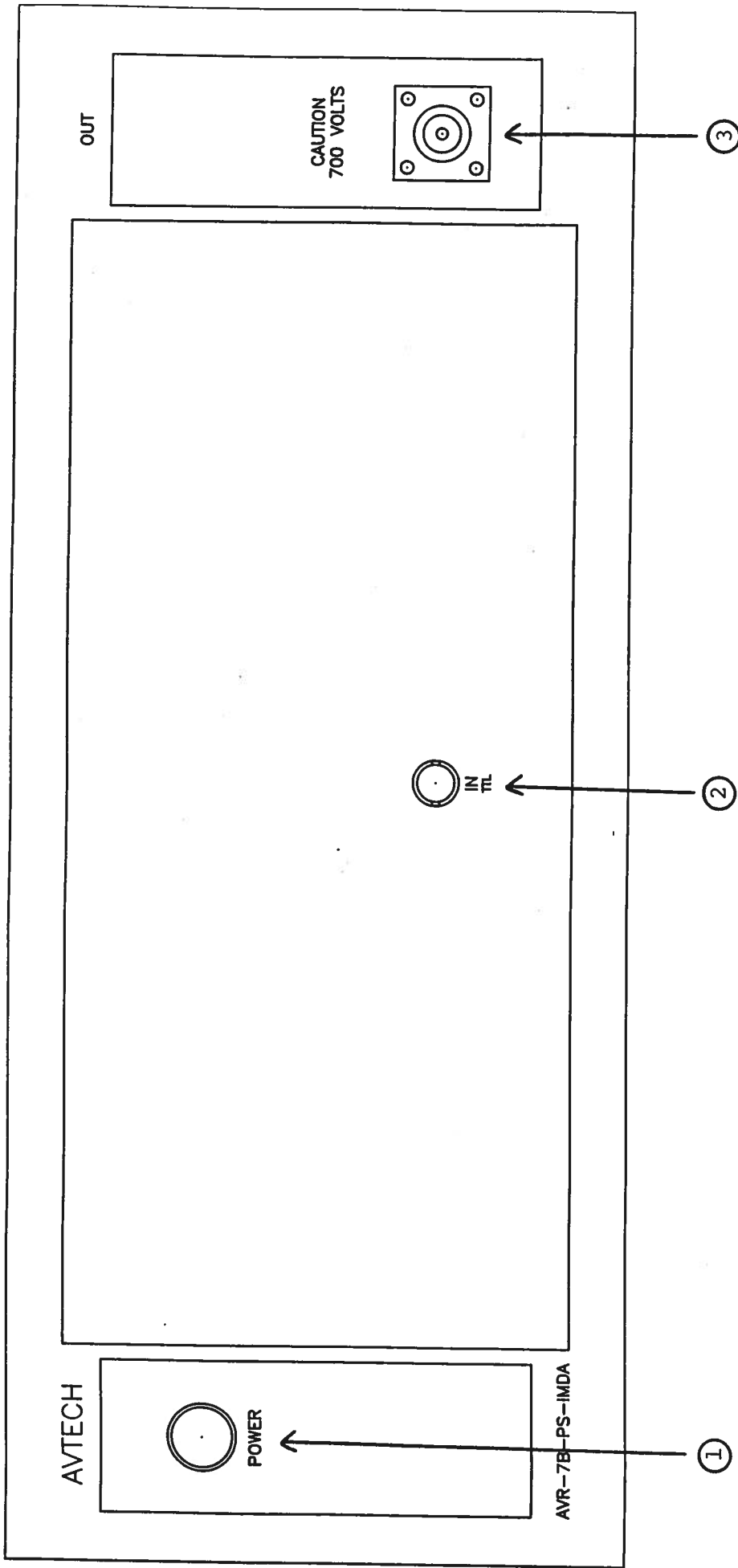
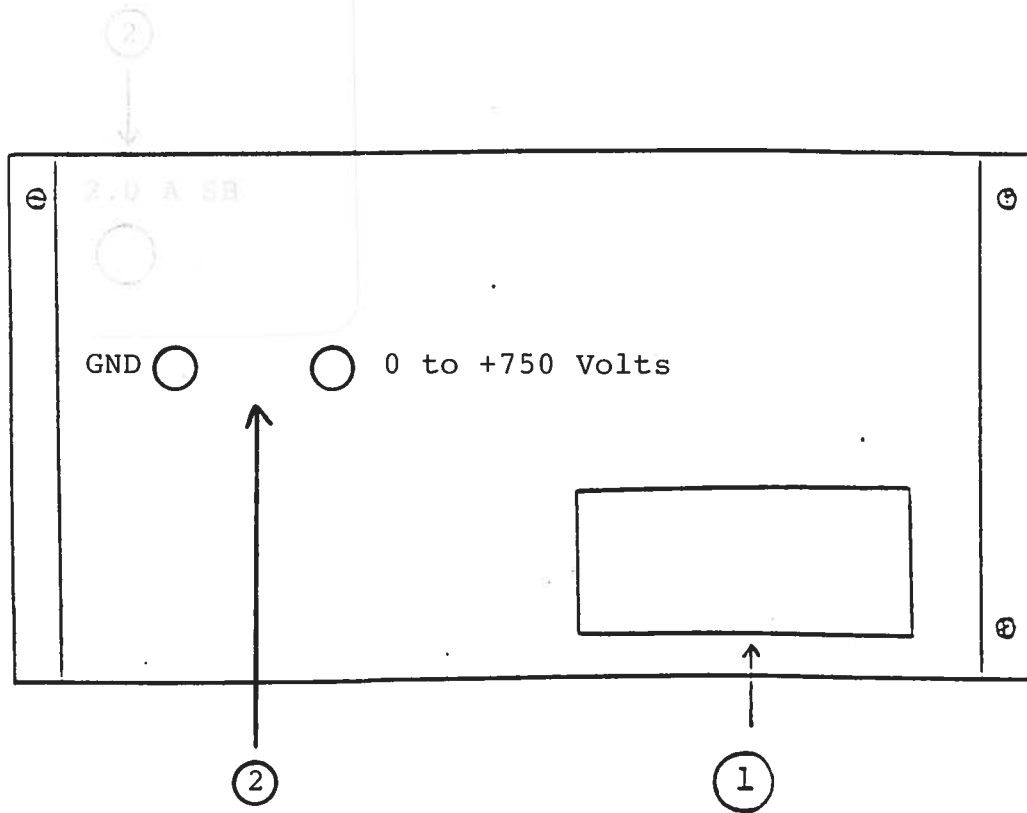


Fig. 2 FRONT PANEL CONTROLS

- (1) ON-OFF Switch. Applies basic prime power to the timing stages.
- (2) TRIG Input. The external trigger signal is applied at this input (TTL). The output pulse width equals the input trigger pulse width.
- (3) OUT Connector. N connector provides output to a 50 ohm (or higher) load.

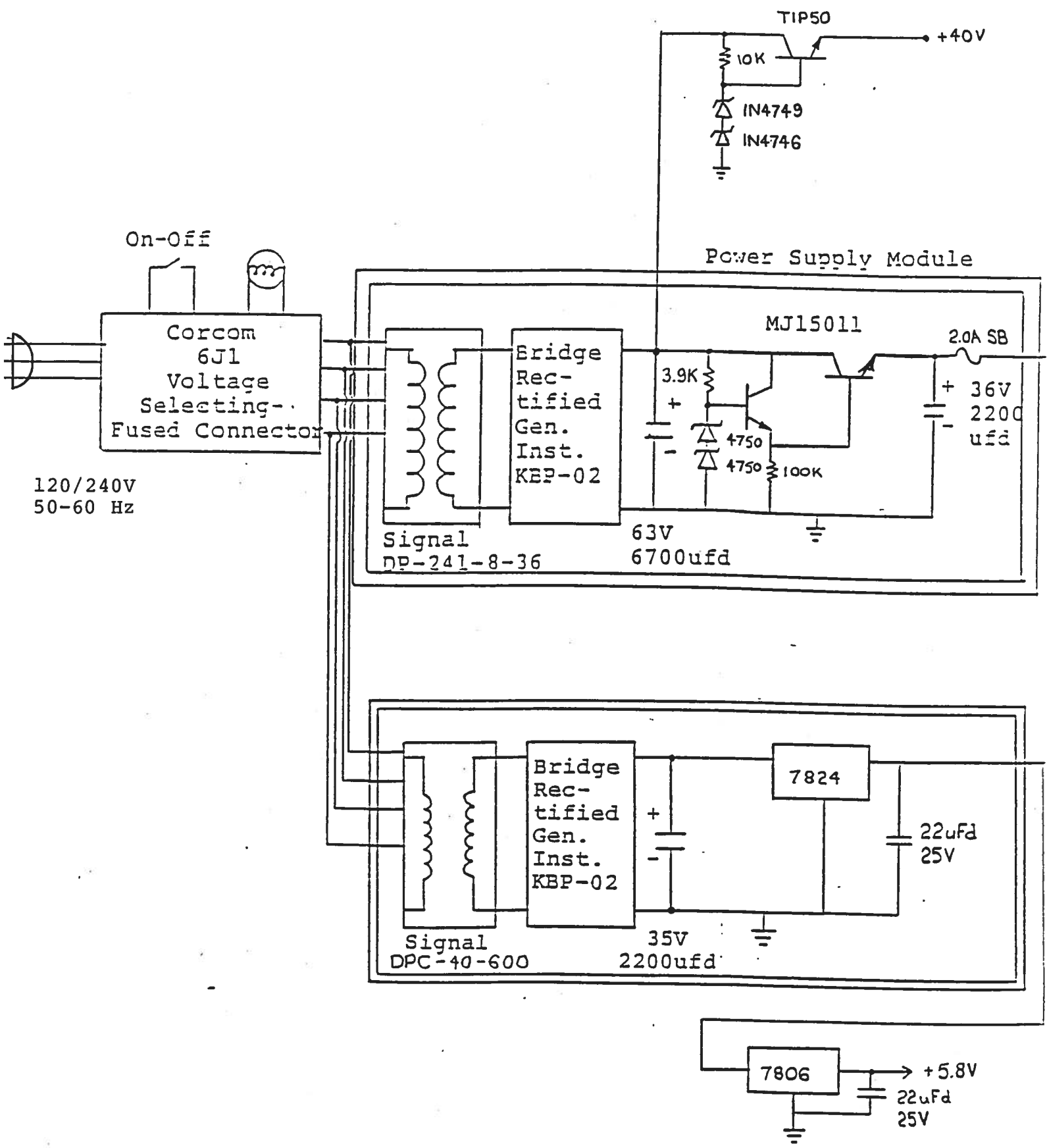
Fig. 3

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 (0.75 A SB).
- (2) 0 to +750 VOLT INPUT. A user-supplied DC power supply is connected to the BANANA terminals to control the output amplitude (and to power the output stage).

POWER SUPPLY



SYSTEM DESCRIPTION AND REPAIR PROCEDURE

CAUTION: Potentials as high as 750 volts DC are employed in the interior of this instrument so extreme caution must be exercised when attempting repairs. The following parts may be at high potential:

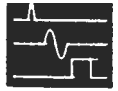
- a) The RED DC input line to the capacitors on module AVR-7B-PG (including associated leads and capacitors and Part No. SLR7-A).
- b) The RED BANANA terminal (and associated leads and capacitors).

The AVR-7B-PS consists of the following basic modules:

- 1) AVR-7B-PW-PG pulse generator module
- 2) 3400 ufd 400 Volt energy storage capacitor (x4)
- 3) +24 volt power supply

The modules are interconnected as shown in Fig. 4.

In the event of an instrument malfunction, it is most likely that some of the output switching elements (IRFAG50) 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 top cover plate. The cover plate is removed by removing the 4 Phillips screws on the top cover. NOTE: First turn off the prime power. CAUTION: Thoroughly ground the IRFAG50 cases to discharge the 750 volts power supply potential. The IRFAG50 may be removed from the mounting bracket and checked on a curve tracer and replaced if necessary. AVTECH Part No. SLR7-A consists of the two transistors mounted on the bracket with insulating washers, 1 K resistors and output cable.



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June 29, 1993.

Tim Cox, MS B41717
Intermedics
4000 Technology Drive
Angleton, TX 77515

Fax: 409-848-0350

Dear Tim:

Following our telephone conversation of July 23, I am pleased to offer a price and delivery quotation for a modified AVR-7B-PS pulser meeting the following specifications:

| | |
|----------------------------|---|
| Model designation: | AVR-7B-P-PS-IMDA. |
| Output amplitude: | 0 to +700 Volts to $R_L > 50$ Ohm. Output amplitude controlled by a user-supplied DC lab power supply which must be connected to rear panel banana connectors (0 to +750 Volts, 1 Amp). CAUTION: DC voltage must not exceed 750 Volts or pulser will be damaged. An audible alarm sounds if applied voltage exceeds 750 Volts (and triggering is inhibited). Failures due to overvoltage application not covered by our warranty. |
| Output pulse width: | 100 ns to 10 ms. Output pulse width equals input trigger pulse width. |
| Input trigger: | TTL (+5 Volts). $PW_{IN} = PW_{OUT}$. |
| Rise, fall time: | ≤ 50 ns. |
| Max. average output power: | 25 Watts. |

Max. pulse droop: 10%.
(PW = 10 ms)

PRF: Equals input trigger PRF (0 to 5 kHz).

Chassis size: 6" x 17" x 14.8".

Prime power: a) 120/240 Volts, 50-60 Hz.
b) 0 to +750 Volts, 1 Amp lab power supply.

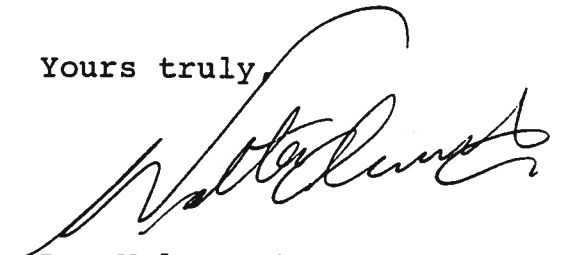
Price: \$5,450.00 US each, FOB destination (i.e. delivered on your doorstep).

Delivery: 45-60 days.

Please note that we have quoted with the external lab power supply format because we found that we could not produce the internal power supply necessary for the very, very wide pulses (i.e. 10 ms) occurring in bursts. We could probably provide an internal power supply for units limited to maximum pulse widths of 1.0 ms.

Thank you for your interest in our products. Please call me (1-800-265-6681) if you require any additional information.

Yours truly,



Dr. Walter Chudobiak
Chief Engineer

WC:pr

Feb. 17/94