

INSTRUCTIONS

MODEL AVOZ-A3-PS-P-UTB 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

Phone: 613-226-5772 or 1-800-265-6681

Fax: 613-226-2802 or 1-800-561-1970

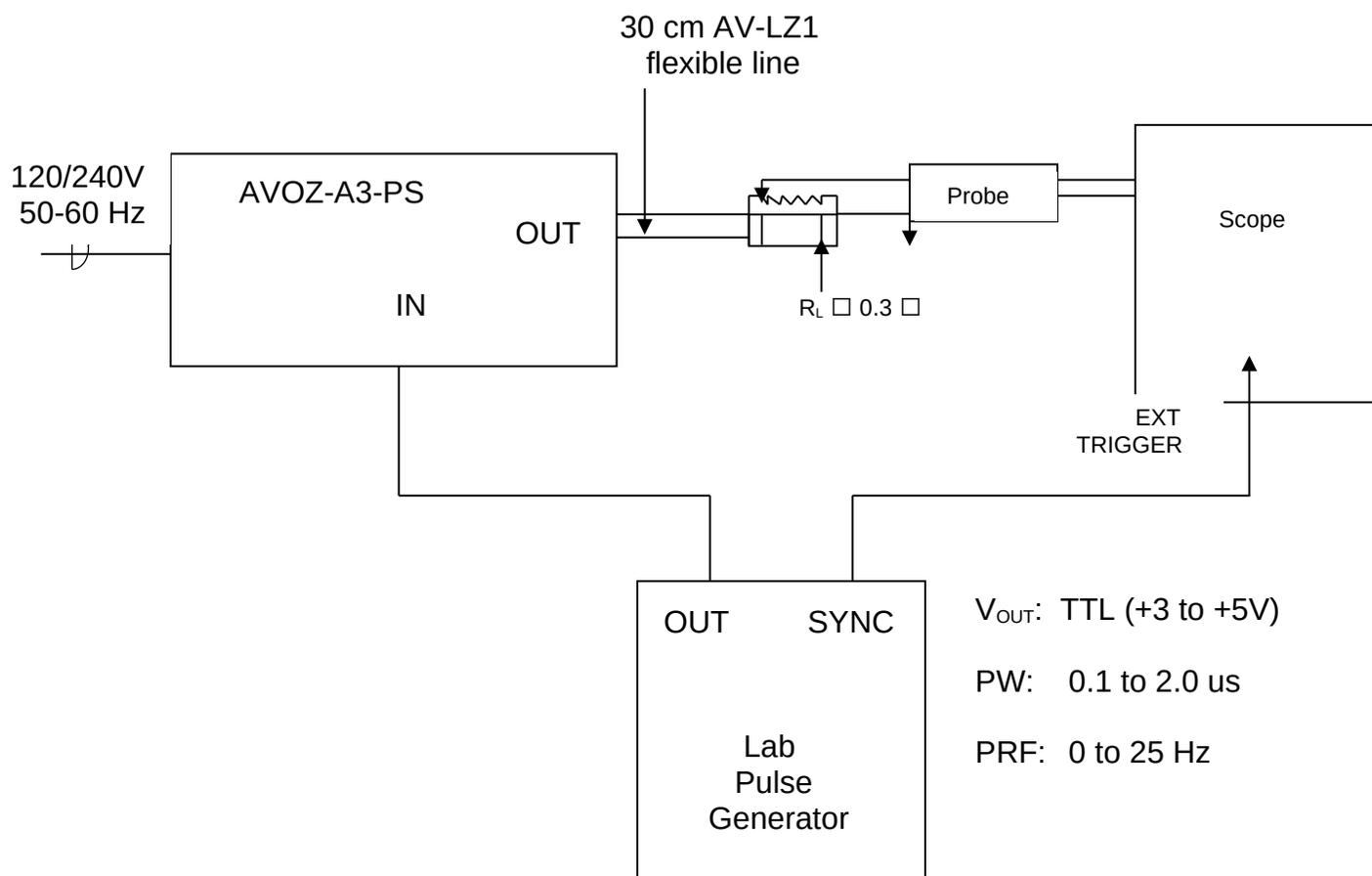
E-mail: info@avtechpulse.com

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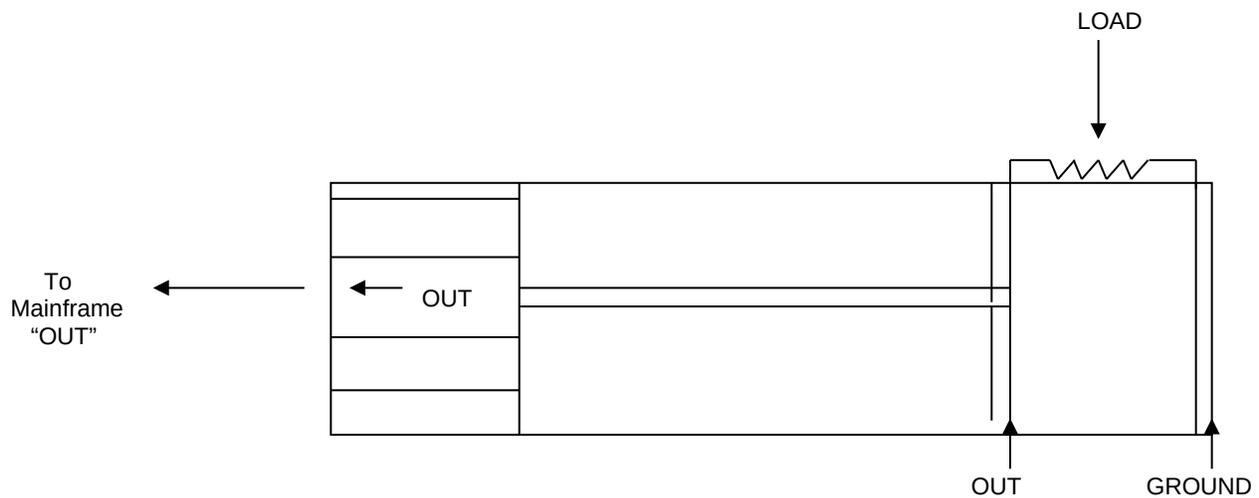
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FIG. 1: PULSE GENERATOR TEST ARRANGEMENT



GENERAL OPERATING INSTRUCTIONS

- 1) The equipment should be connected in the general fashion shown above. Since the unit provides an output pulse rise time as low as 100 ns a fast oscilloscope (at least 50 MHz and preferably 200 MHz) should be used to display the waveform. The load current may be deduced if the resistance and load voltage are known. Alternatively, the output current may be monitored using a current probe.
- 2) The output terminals of the pulse generator consists of a 30 cm length of 1 Ohm microstrip transmission line protruding from the front panel. The flexible line is terminated in a 0.5" x 0.5" x 1/16" PCB board to which the load may be soldered. The AV-LZ1 line plugs into the front panel "OUT" PCB edge connector.



Note that the load should be greater than 0.3 Ohms.

The load should be connected between the OUT and GND terminals using very short leads (≤ 0.5 cm). Longer leads introduce inductance which will result in spikes and overshoot on the leading and falling edge of the load voltage waveform.

- 3) CAUTION: The AVOZ unit is designed to provide 0 to +60 Volt pulses to a load resistance of 0.3 Ohms (or higher). The maximum load current is 200 Amps. Insure that the load can dissipate up to 12.0 KW peak power.
- 4) The output pulse width is controlled by the input TTL pulse width.
CAUTION: Do not exceed 2 us or the unit may be damaged.
- 5) The output amplitude is controlled by the one turn amplitude control.
- 6) The unit will accept an input pulse burst of up to three pulses.
- 7) AVOZ 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) Increase the load resistance.
- 8) The unit can be converted from 120 to 240V 50-60 Hz operation by adjusting the voltage selector card in the rear panel fused voltage selector cable connector assembly.
- 9) For additional assistance:

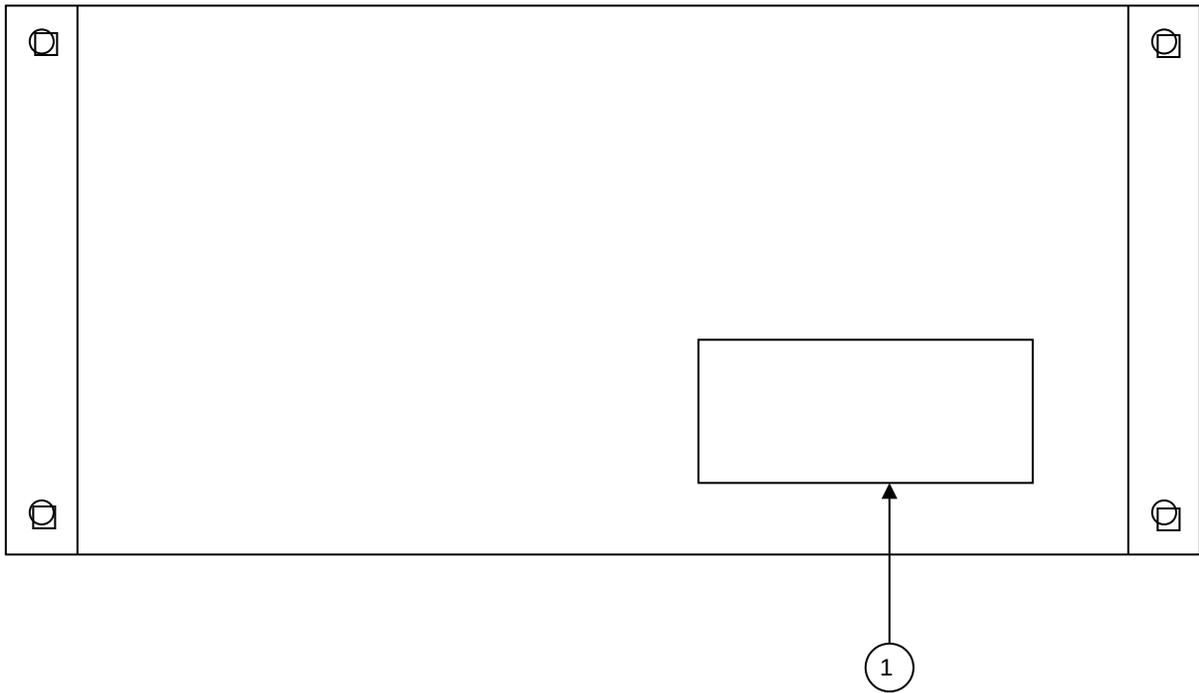
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FIG. 2: FRONT PANEL CONTROLS

FRONT PANEL CONTROLS

- (1) ON-OFF Switch. Applies basic prime power to all stages.
- (2) IN. BNC connector to which TTL pulse (PW 0.1 to 2.0 us) is applied.
- (3) AMPLITUDE. A one turn control for varying the output amplitude from 0 to +60 Volts (to $R_L \square 0.3$ Ohms) (200 Amps max).
- (4) OUT. 1 Ohm flexible microstrip output line terminated in a 0.5" x 0.5" x 1/16" circuit board connects to this plug in connection. The load is solder connected to the PCB board. Ideally the load should be $\square 0.3$ Ohms with a very low inductance component.
- (5) OVERLOAD. AVOZ 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
 - 2) Reducing pulse width
 - 3) Increase load resistance

FIG. 3: BACK PANEL CONTROLS



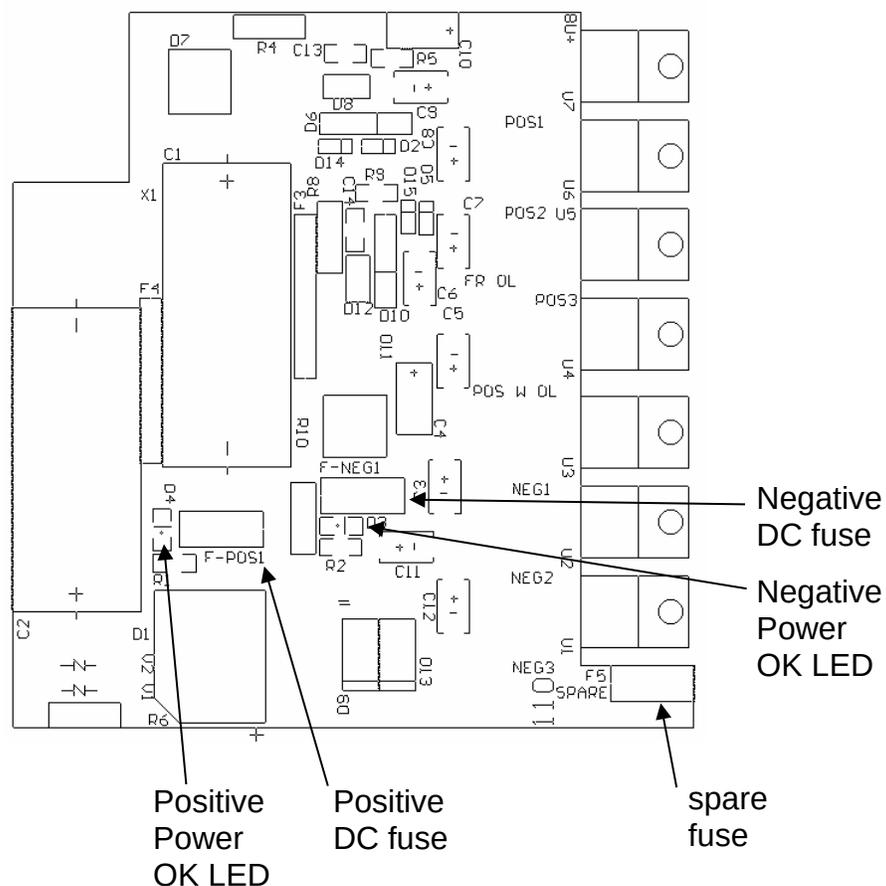
BACK PANEL CONTROLS

- (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 (0.50A SB).

POWER SUPPLY AND FUSE REPLACEMENT

This instrument has three fuses (plus one spare). One, which protects the AC input, is located in the rear-panel power entry module, as described in the “Rear Panel Controls” section of this manual. If the power appears to have failed, check the AC fuse first.

The other two fuses (plus one spare) are located on the internal DC power supply, as shown below:



The spare fuse may be used to replace one of the other fuses, if required.

The three fuses on this circuit board are 0.5A slow-blow fuses, Littlefuse part number R452.500. (This fuse can be ordered from Digikey, www.digikey.com. The Digikey part number is F1341CT-ND).

If you suspect that the DC fuses are blown, follow this procedure:

1. Remove the top cover, by removing the four Phillips screws on the top cover and then sliding the cover back and off.
2. Locate the two "Power OK" LEDs on the power supply circuit board, as illustrated above.
3. Turn on the instrument.
4. Observe the "Power OK" LEDs. If the fuses are not blown, the two LEDs will be lit (bright red). If one of the LEDs is not lit, the fuse next to it has blown.
5. Turn off the instrument.
6. If a fuse is blown, use needle-nose pliers to remove the blown fuse from its surface-mount holder.
7. Replace the fuse.

PERFORMANCE CHECK SHEET