

INSTRUCTIONS

MODEL AVB2-TB-PS MONOCYCLE 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](mailto:info@avtechpulse.com)

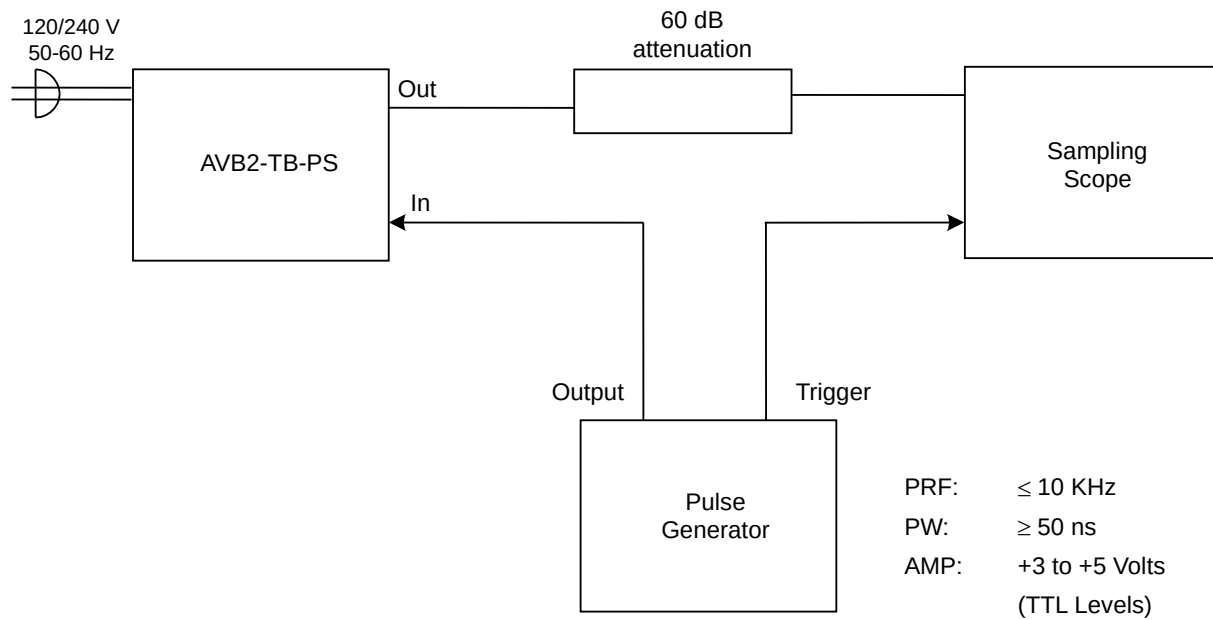
World Wide Web: <http://www.avtechpulse.com>



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FIG. 1: IMPULSE GENERATOR TEST ARRANGEMENT



**CAUTION:** Exercise due caution when employing this instrument as it provides output pulses as high as 400 Volts!!

## GENERAL OPERATING INSTRUCTIONS

- 1) The bandwidth capability of components and instruments used to display the pulse generator output signal (attenuators, cables, connectors, etc.) should exceed one gigahertz.
- 2) The use of 60 dB attenuator at the sampling scope vertical input channel will insure a peak input signal to the sampling scope of less than one Volt. CAUTION: Insure that the attenuator can withstand the exceptionally high input voltage level (400 Volts peak-to-peak).
- 3) The AVB2-TB-PS unit requires a TTL input trigger pulse (+5 Volts, PW > 50 ns,  $R_{IN} = 1K$ ). The propagation delay time is about 50 ns. CAUTION: The input trigger pulse must not exceed 10 KHz.
- 4) The output monocycle frequency is controlled by the one-turn frequency control.
- 5) The output amplitude is controlled by the front panel one-turn amplitude control. Note that the output spurious level may increase as the output amplitude is reduced. To avoid this, it may be necessary to employ 50 Ohm attenuator pads on the output, and then use the amp control as a "fine" control.
- 6) OVERLOAD. An automatic overload protective circuit controls the front panel overload light. If the unit is overloaded (by operating at an exceedingly high PRF), 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 reducing the input trigger PRF.

The overload light may illuminate when the prime power is first applied. The light will extinguish after a few seconds and the unit will then operate normally.

Note that the output stage will safely withstand a short-circuited load condition.

7) 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.

8) For additional assistance:

Tel: (613) 226-5772

Fax: (613) 226-2802

Email: [info@avtechpulse.com](mailto:info@avtechpulse.com)

FIG. 2: FRONT PANEL CONTROLS

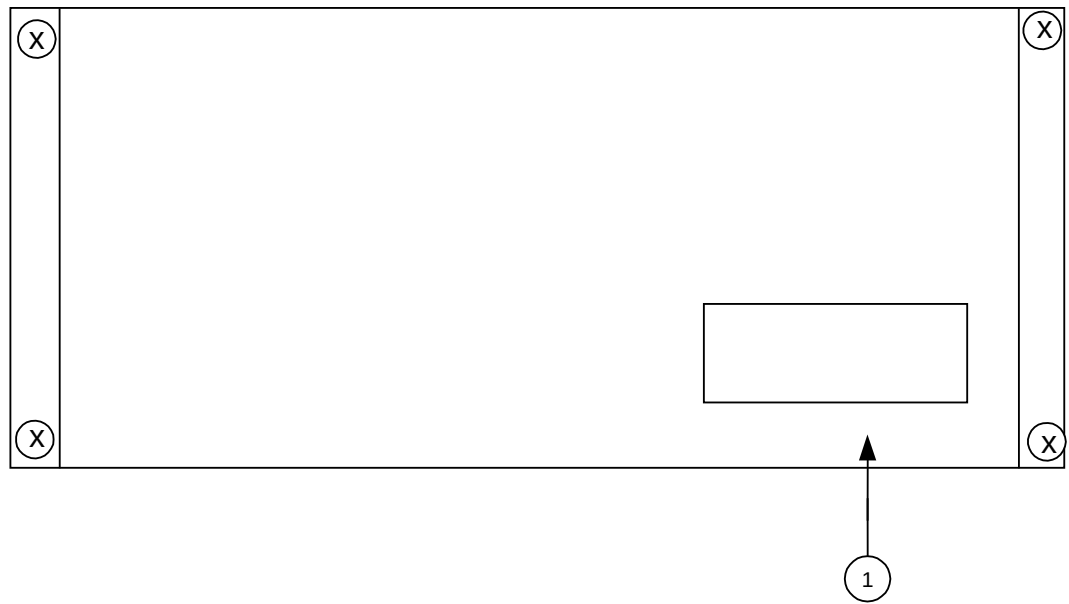


## FRONT PANEL CONTROLS

- (1) ON-OFF Switch. Applies basic prime power to all stages.
- (2) OUT Connector. BNC connector provides output to the load ( $R_L = 50 \text{ Ohm}$ ).
- (3) AMP Control. A one-turn control, which varies the output pulse amplitude.
- (4) FREQUENCY. The output frequency is varied from 50 to 100 MHz by the one-turn control.
- (5) TRIG Input. The external trigger signal is applied at this input (TTL,  $PW \geq 50 \text{ ns}$ ,  $PRF \leq 10 \text{ KHz}$ ).
- (6) OVERLOAD INDICATOR. AVB2-TB-PS 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) 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 turnoff 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 reducing the PRF.

Note that the overload light may illuminate when the prime power is first applied. The light will extinguish after a few seconds and the instrument will then function normally.

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. For AC line voltages of 110-120V, the power selector card should be installed so that the "120" marking is visible from the rear of the instrument.

For AC line voltages of 220-240V, the power selector card should be installed so that the "240" marking is visible from the rear of the instrument.

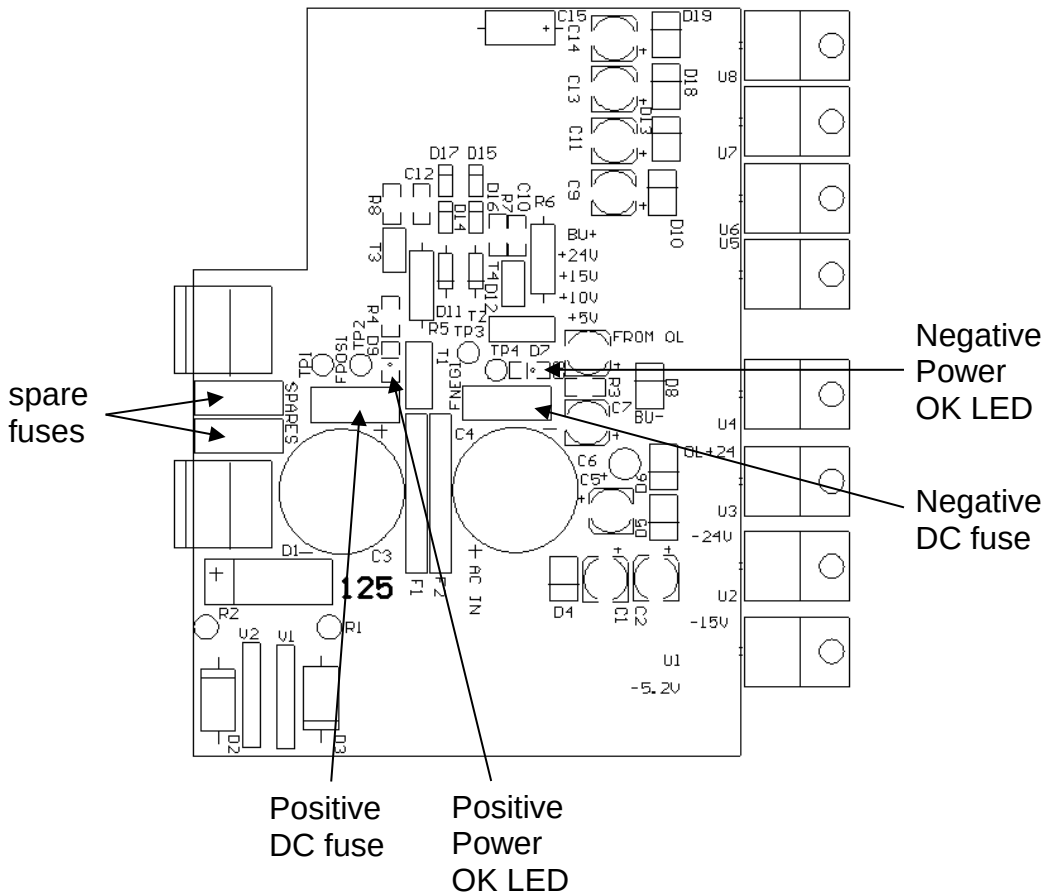
If it is not set for the proper voltage, remove the fuse and then grasp the card with a pair of pliers and remove it. Rotate horizontally through 180 degrees. Reinstall the card and the correct fuse.

In the 120V setting, a 0.5A slow blow fuse is required. In the 240V setting, a 0.25A slow blow fuse is required.

## POWER SUPPLY AND FUSE REPLACEMENT

This instrument has three main fuses, plus two spares. 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 two spares) are located on the internal DC power supply, as shown below:



The positive fuse and one of the spare fuses on this circuit board are 1A slow-blow fuses, Littlefuse part number R452001. (This fuse can be ordered from Digikey, [www.digikey.com](http://www.digikey.com). The Digikey part number is F1343CT-ND). The negative fuse and the second spare fuse are 0.5A slow-blow fuses (Littlefuse R452.500, Digikey part number 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. (Spare 1 Amp and 0.5 Amp fuses are provided on the circuit board. They may be transferred to the active fuse locations using needle-nose pliers.)

PERFORMANCE CHECK SHEET