

INSTRUCTIONS

MODEL AVG-4A-C-M-N 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](mailto:info@avtechpulse.com)

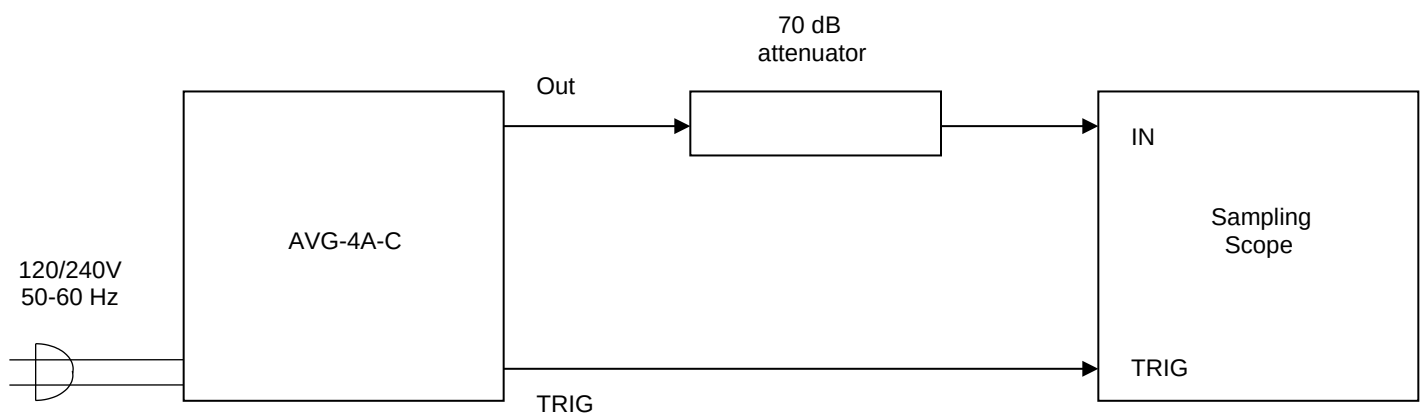
World Wide Web: <http://www.avtechpulse.com>



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FIG. 1: PULSE GENERATOR TEST ARRANGEMENT



## 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 70 dB attenuator at the sampling scope vertical input channel will insure a peak input signal to the sampling scope of less than one Volt. It is critically important that the peak voltage rating of the attenuator must exceed 650 Volts.
- 3) The TRIG output channel provides TTL level signals. To avoid overdriving the TRIG input channel of some sampling scopes, a 30 dB attenuator should be placed at the input to the sampling scope trigger channel.
- 4) To obtain a stable output display the PRF control on the front panel should be set mid-range while the PRF range switch may be in either range. The front panel TRIG toggle switch should be in the INT position. The front panel DELAY controls and the scope triggering controls are then adjusted to obtain a stable output.
- 5) The output pulse amplitude is controlled by means of the one turn potentiometer (AMP). For units with the -EA option, the output amplitude may be voltage controlled by setting the rear panel AMP switch in the EXT position and then applying 0 to +10 VDC to the "A" BNC connector ( $R_{IN} \geq 10K$ ).
- 6) The rear panel monitor output provides a coincident attenuated ( $\approx \times 10$ ) replica of the main output pulse. When used, the monitor output must see a 50 Ohm load.
- 7) The unit may be triggered externally by placing the INT-EXT switch in the EXT position and applying a TTL level pulse ( $PW > 50$  ns) to the TRIG connector.
- 8) For additional assistance:

Tel: (613) 226-5772  
Fax: (613) 226-2802  
E-mail: [info@avtechpulse.com](mailto:info@avtechpulse.com)

FIG. 2: FRONT PANEL CONTROLS

## FRONT PANEL CONTROLS

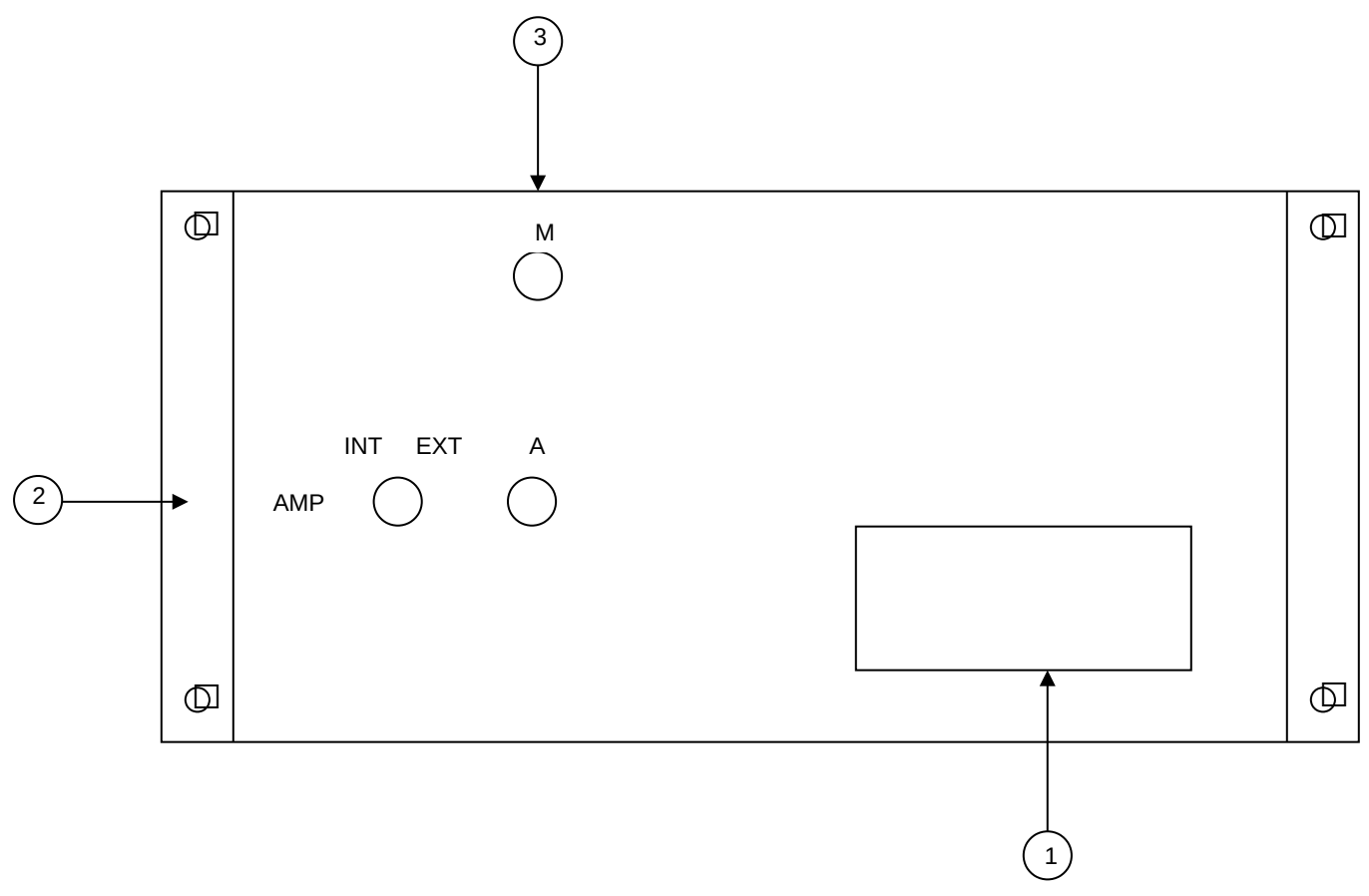
- 1) ON-OFF Switch. Applies basic prime power to all stages.
- 2) PRF Control. The PRF RANGE and PRF controls determine output PRF as follows:

| PRF MIN | PRF MAX |
|---------|---------|
| 1 Hz    | 10 Hz   |
| 10 Hz   | 100 Hz  |
| 100 Hz  | 1 kHz   |
| 1 kHz   | 10 kHz  |

- 3) DELAY Control. Controls the relative delay between the reference output pulse provided at the TRIG output (4) and the main output (6). This delay is variable over the range of 0 to about 500 ns. Delay LEADS and LAGS depending on the position of the ADVANCE-DELAY switch.
- 4) TRIG Output. The output is used to trigger the scope time base. The output TTL level of 100 ns (approx.) pulse capable of driving a fifty ohm load. This output precedes the output at (6) if the two position ADVANCE-DELAY switch is in the ADVANCE position. This output follows the output at (5) if the switch is in the DELAY position. The external trigger signal is applied at this input when the EXT-INT-MAN switch is in the EXT position.
- 5) AMP Control. The output pulse amplitude is controlled by means of the one turn potentiometer.
- 6) OUT. SMA connector connects output to 50 Ohm load.
- 7) MODE Control. With this switch in the INT position, the PRF of the AVG unit is controlled via an internal clock, which in turn is controlled by the PRF controls. With the toggle switch in the EXT position, the AVG unit requires a TTL level pulse (PW > 50 ns) applied at the TRIG input in order to trigger the output stages. In addition, in this mode, the scope time base must be triggered by the external trigger source. For single pulse operation, place the switch in the "MAN" position and push the single pulse button.
- 8) SINGLE Pulse. For single pulse operation, place the mode switch in the "MAN" position and push the single pulse button.



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 (0.5 A SB).
- (2) AMP. To voltage control the output amplitude, set the AMP switch in the EXT position and apply 0 to +10 VDC to the "A" BNC connector ( $R_{IN} \geq 10K$ ).
- (3) MONITOR (M). This SMA output (connect to 50 Ohms when in use) provides a coincident attenuated ( $\approx \times 10$ ) replica of the main output pulse.

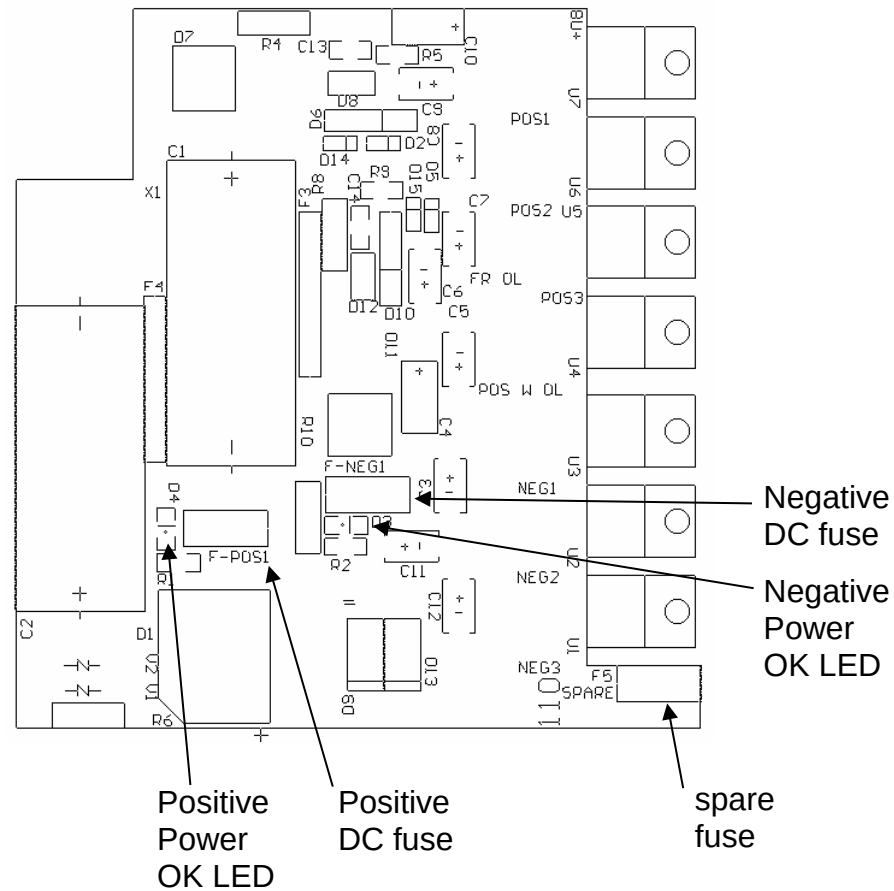
### TOP COVER REMOVAL

Remove the 4 Phillips screws on the top cover. The top cover may then be slid back (and off).

## 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 positive fuse and the spare fuse 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 is a 0.5A slow-blow fuse (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.

PERFORMANCE CHECK SHEET