



AVTECH ELECTROSYSTEMS LTD.

NANOSECOND WAVEFORM ELECTRONICS
SINCE 1975

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INSTRUCTIONS

MODEL AVP-AV-1-C-AEB-P 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

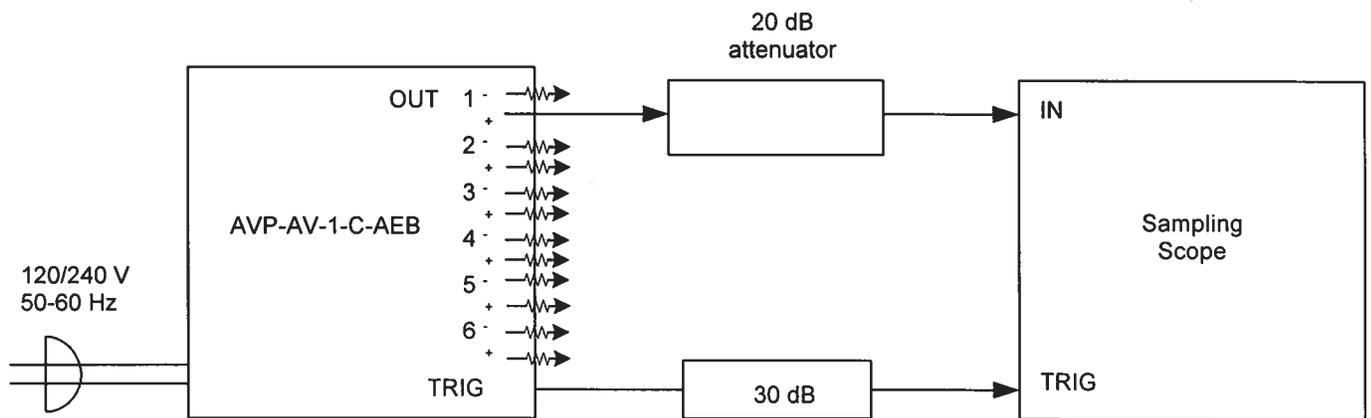
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TABLE OF CONTENTS

WARRANTY	2
TABLE OF CONTENTS	3
FIG. 1: PULSE GENERATOR TEST ARRANGEMENT.....	4
GENERAL OPERATING INSTRUCTIONS	5
FIG. 2 FRONT PANEL CONTROLS	7
FRONT PANEL CONTROLS	8
FIG. 3 BACK PANEL CONTROLS.....	9
BACK PANEL CONTROLS.....	10
POWER SUPPLY AND FUSE REPLACEMENT	11
ORIGINAL QUOTATION.....	13
PERFORMANCE CHECK SHEET	15

FIG. 1: PULSE GENERATOR TEST ARRANGEMENT

GENERAL OPERATING INSTRUCTIONS

- (1) All 12 outputs **MUST** be terminated in a 50-Ohm load. Failure to do so will result in multiple repetitions and distorted waveforms in all of the channels.
 - (2) The bandwidth capability of components and instruments used to display the pulse generator output signal (attenuators, cables, connectors, etc.) should exceed ten gigahertz.
 - (3) The use of 20 dB attenuator at the sampling scope vertical input channel will insure a peak input signal to the sampling scope of less than one Volt.
 - (4) 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.
 - (5) 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. The scope may then be used to set the desired PRF by rotating the PRF control.
 - (6) The output pulse width is controlled by means of the front panel one-turn PW control. The control should initially be set maximum clockwise and the pulse width adjusted using an oscilloscope.
 - (7) The output pulse risetime is controlled by the front panel fixed-position rise time switch as follows:
 - 1) 100 ps
 - 2) 200 ps
 - 3) 400 ps
 - 4) 700 ps
 - 5) 1 ns
- The fall time varies from 200 ps to 1 ns as the rise time switch position is varied.
- (8) An external clock may be used to control the output PRF of the AVP unit by setting the front panel PRF range switch in the EXT position and applying a 50 ns (or wider) TTL level pulse to the TRIG BNC connector input.
 - (9) 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.

(10) For additional assistance:

Tel: (613) 226-5772

Fax: (613) 226-2802

Email: info@avtechpulse.com

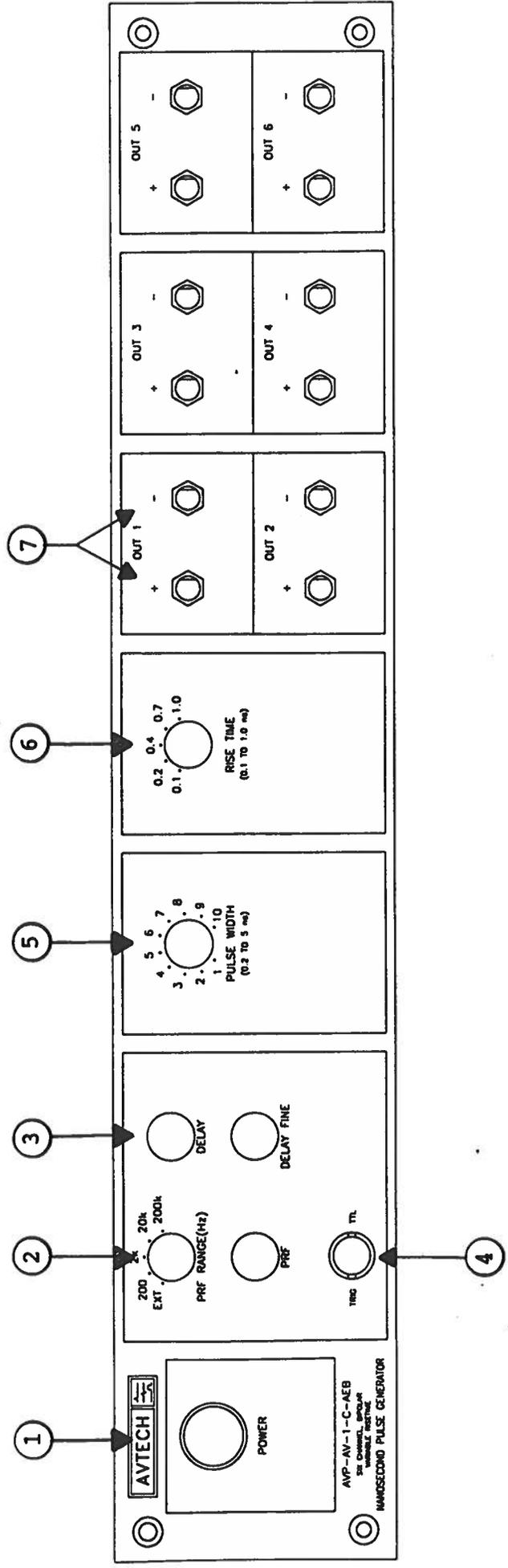


FIG. 2 FRONT PANEL CONTROLS

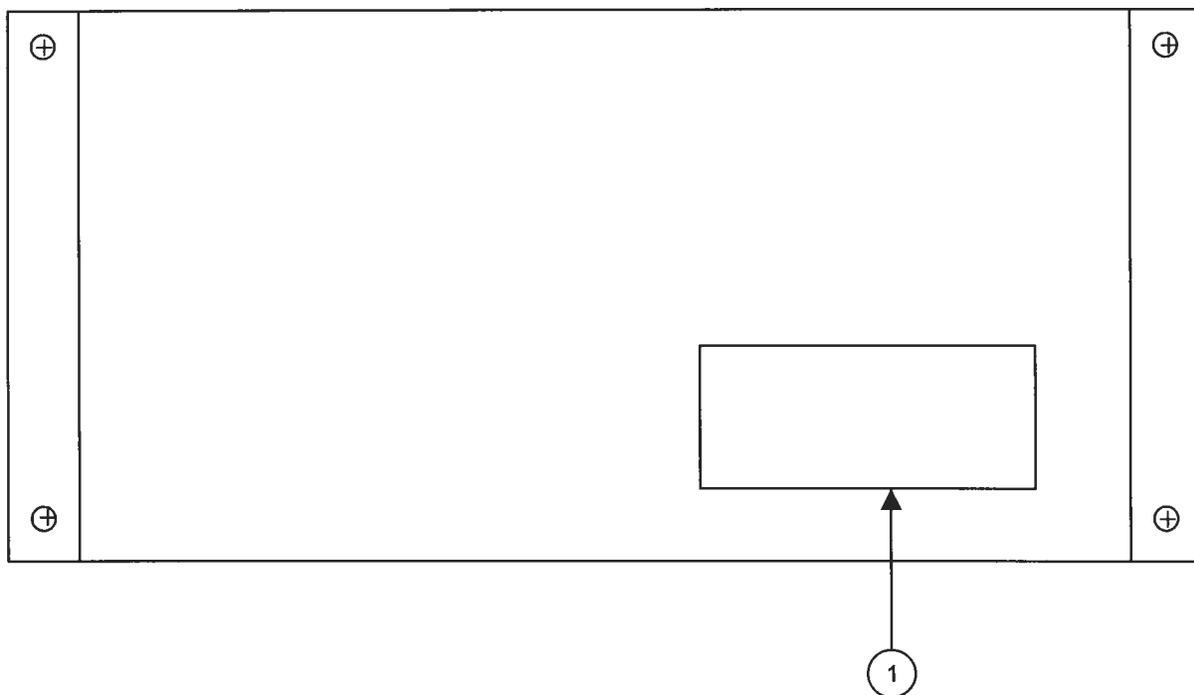
FRONT PANEL CONTROLS

- (1) ON-OFF Switch. Applies basic prime power to all stages.
- (2) PRF Control. With this range switch in the 200, 2K, 20K or 200 K positions, the PRF of the AVP unit is controlled via an internal clock which in turn is controlled by the PRF controls. With the range switch in the EXT position, the AVP unit requires a 50 ns (or wider) TTL level pulse applied at the TRIG input in order to trigger the output stages.
- (3) DELAY Controls. Controls the relative delay between the reference output pulse provided at the TRIG output (4) and the main output (5). This delay is variable over the range of 0 to at least 150 ns.
- (4) TRIG Output. When triggered internally, this output precedes the main output (5) and is used to trigger the scope time base. The output is a 500 mV 20 ns (approx) pulse capable of driving a fifty-Ohm load. Set scope to trigger on positive edge. The external trigger signal is applied at this point when the PRF INT toggle switch is in the EXT position.
- (5) PW Control. A one-turn control, which varies the output pulse width from 0.2 to 5 ns.
- (6) Rise Time Control. This five-position switch varies the output rise time as follows:
 - 1) 100 ps
 - 2) 200 ps
 - 3) 400 ps
 - 4) 700 ps
 - 5) 1 ns

The fall time varies from 200 ps to 1 ns as the rise time switch position is varied.

- (7) OUT. Six output channels. Each channel provides a positive output and a coincident negative output (two SMA connectors on each channel). **CAUTION!** Each channel must be terminated into 50 Ohms.

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.

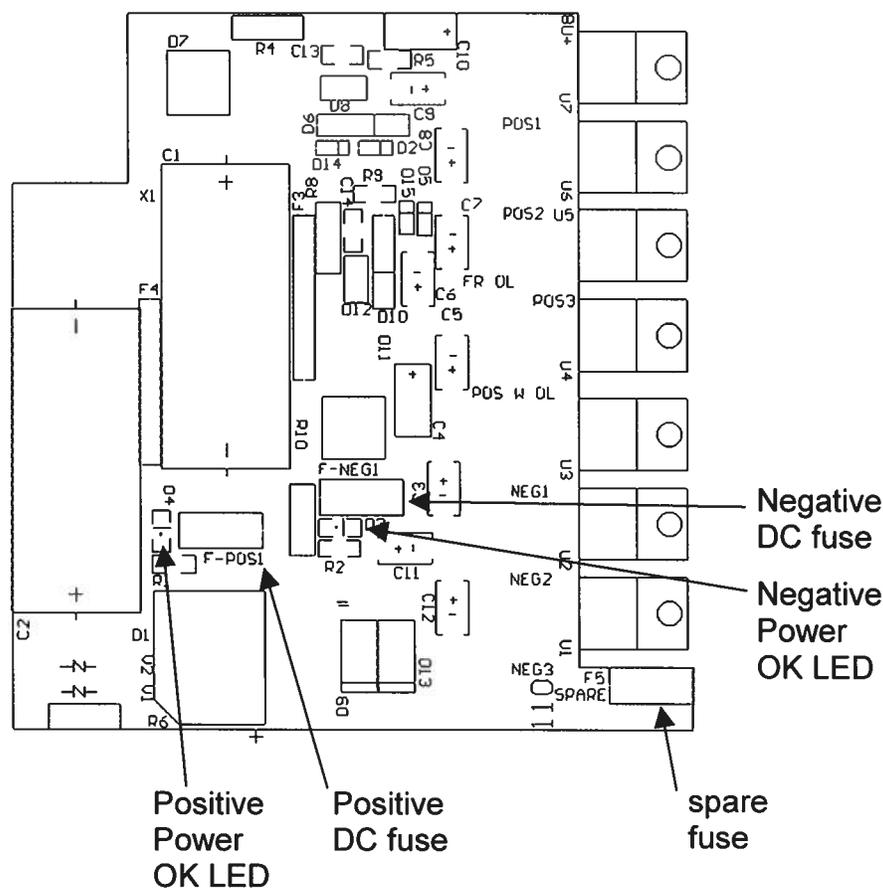
If it is not set for the proper voltage, remove the fuse and then grasp the card with a pair of pliers and remove it. Rotate horizontally through 180 degrees. Reinstall the card and the correct fuse.

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 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.



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Quote No: <u>10152</u>	Sender's Fax: <u>613-226-2802</u>
File: <u>Document3</u>	Receiver's Fax: <u>440-354-0687</u>
To: <u>Associate Enterprises</u>	Receiver's Phone: <u>440-354-3148 ext. 267</u>
<u>Ohio</u>	Date: <u>November 30, 2000</u>
Attn: <u>John Sawdy</u>	Number of pages: <u>2, including cover</u>
Subject: <u>Price and delivery quotation</u>	

1) Following our telephone conversation of November 30, 2000, I am pleased to re-quote as follows:

Quote Number:	10152
Model designation:	AVP-AV-1-C-AEB
No. Of Output Channels:	Six. Channels are coincident within ± 10 ps. Each channel provides a positive output and a coincident negative output (two SMA connectors).
Output Amplitude: (to 50 Ohms)	+ 0.5 Volt (fixed)
Output Pulse Width:	0.2 ns to 5.0 ns. One single-turn control.
Rise Time:	Variable from 100 ps to 1.0 ns via one front panel five-position switch.
Fall Time:	Varies from 200 ps to 1.0 ns as rise time switch setting is varied.
PRF:	0 to 200 KHz
Output Connectors:	SMA (twelve)
Other Connectors:	BNC
Chassis Size:	3.9" x 17" x 14.8"
Prime Power:	120/240 V, 50-60 Hz
Other:	See standard AVP-AV-1-C, pages 24 & 25, Cat. No. 10.

Price: \$7,342.00 US, FOB destination.

Delivery: 60 to 90 days, after receipt of order.

- 2) Thank you for your interest in our products. Please call or email me if you require any further information.

Regards,

Mary Budarick
Sales Manager

MB:mf

June 1/2001
(edition 1)