



AVTECH ELECTROSYSTEMS LTD.

NANOSECOND WAVEFORM ELECTRONICS
SINCE 1975

□ P.O. BOX 265
OGDENSBURG, NY
U.S.A. 13669-0265
TEL: (315) 472-5270
FAX: (613) 226-2802

TEL: 1-800-265-6681
FAX: 1-800-561-1970

e-mail: info@avtechpulse.com
<http://www.avtechpulse.com>

□ P.O. BOX 5120 STN. F
OTTAWA, ONTARIO
CANADA K2C 3H4
TEL: (613) 226-5772
FAX: (613) 226-2802

INSTRUCTIONS

MODEL AV-110B-PS-LTA AMPLIFIER

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

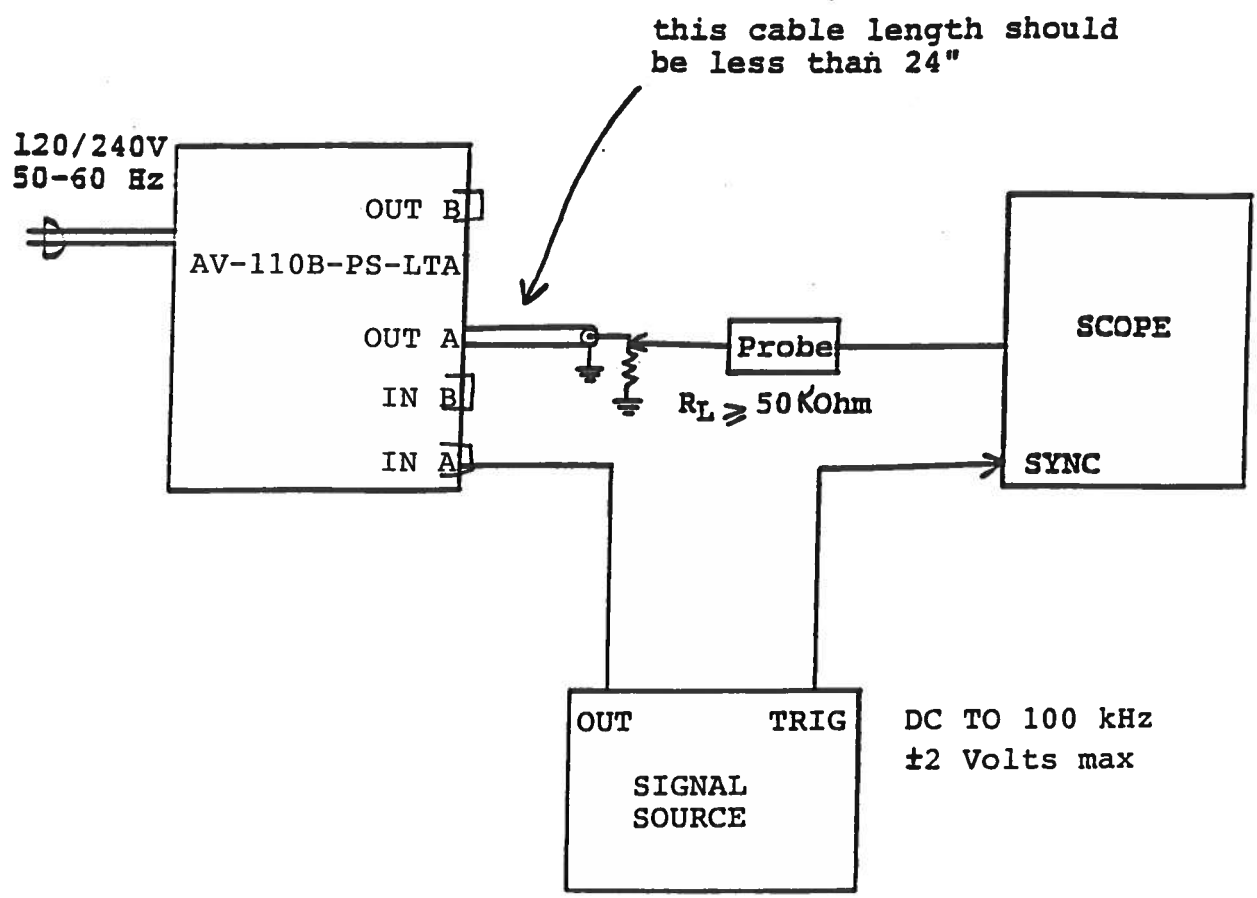
E-mail: info@avtechpulse.com

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

TABLE OF CONTENTS

WARRANTY	2
TECHNICAL SUPPORT	2
FIG.1 BASIC TEST SET-UP	4
GENERAL OPERATING INSTRUCTIONS	5
FIG. 2 FRONT PANEL CONTROLS.....	7
FRONT PANEL CONTROLS.....	8
FIG. 3: BACK PANEL CONTROLS	9
BACK PANEL CONTROLS	9
BACK PANEL CONTROLS	10
POWER SUPPLY AND FUSE REPLACEMENT	11
PERFORMANCE CHECK SHEET	13

FIG.1 BASIC TEST SET-UP



GENERAL OPERATING INSTRUCTIONS

- 1) Connect the instrument as shown above. Do not apply prime power.
- 2) The two channels may be operated separately or simultaneously.
- 3) Terminate OUT in a load impedance of 50K (or higher). Note that the length of 50 Ohm cable between the output connector and the load should be less than 24" in order to avoid distortion of the waveform.
- 4) Set the offset controls in mid-range (eg. 5.0).
- 5) Set the gain controls to maximum counter clockwise.
- 6) Set the two front panel "GAIN ON-OFF" switches in the "ON" position.
- 7) Set the two front panel "OFFSET ON-OFF" switches in the "OFF" position.
- 8) Set the input signal amplitude at 4 Volts (peak to peak) and the frequency at 10 kHz.
- 9) Set the scope time base on about 20 us/div and the vertical on about 50 Volts/div and set the scope time base to trigger on EXT (+).
- 10) Turn on the prime power and adjust scope trigger controls to obtain a trace.
- 11) Rotate the gain control clockwise to obtain the desired output amplitude (as high as 400 Volts peak to peak).
- 12) Set the DC Offset switches in the "ON" position and rotate the offset amplitude control to obtain the desired offset (0 to ± 150 Volts). Note that the combined AC plus DC offset voltage must not exceed +200 Volts (or -200 Volts).
- 13) **CAUTION:** Take great care not to operate into a low impedance (i.e. < 50K) or into a short circuit as this may result in damage to the output stage.
- 14) 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:

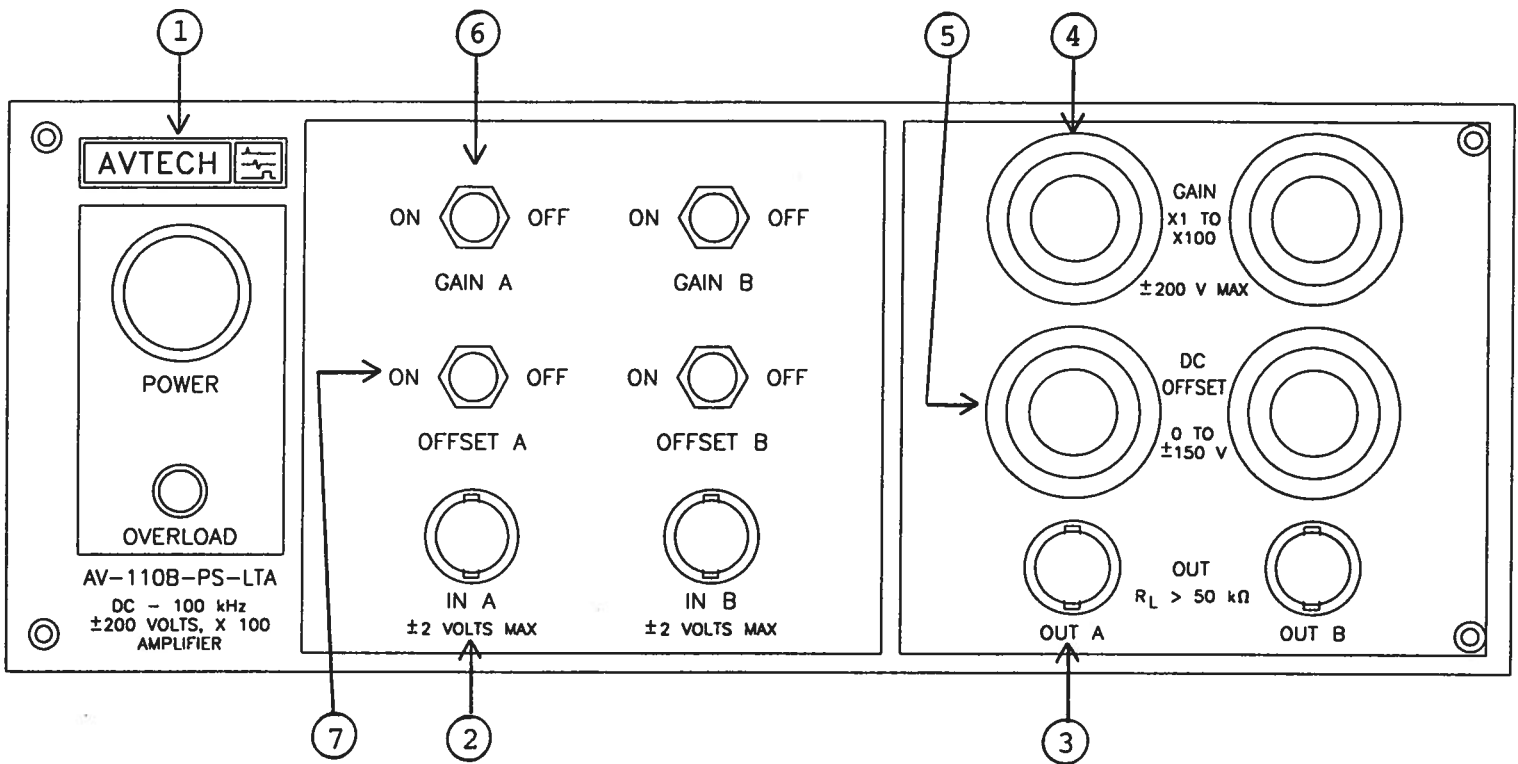
- 1) Removing output load short circuit (if any)
- 2) Reducing the output amplitude

Note the overload light may activate when the prime power is turned on. The light will extinguish after a few seconds.

- 15) 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.
- 16) For additional assistance:

Tel: (613) 226-5772
Fax: (613) 226-2802
Email: info@avtechpulse.com

FIG. 2 FRONT PANEL CONTROLS



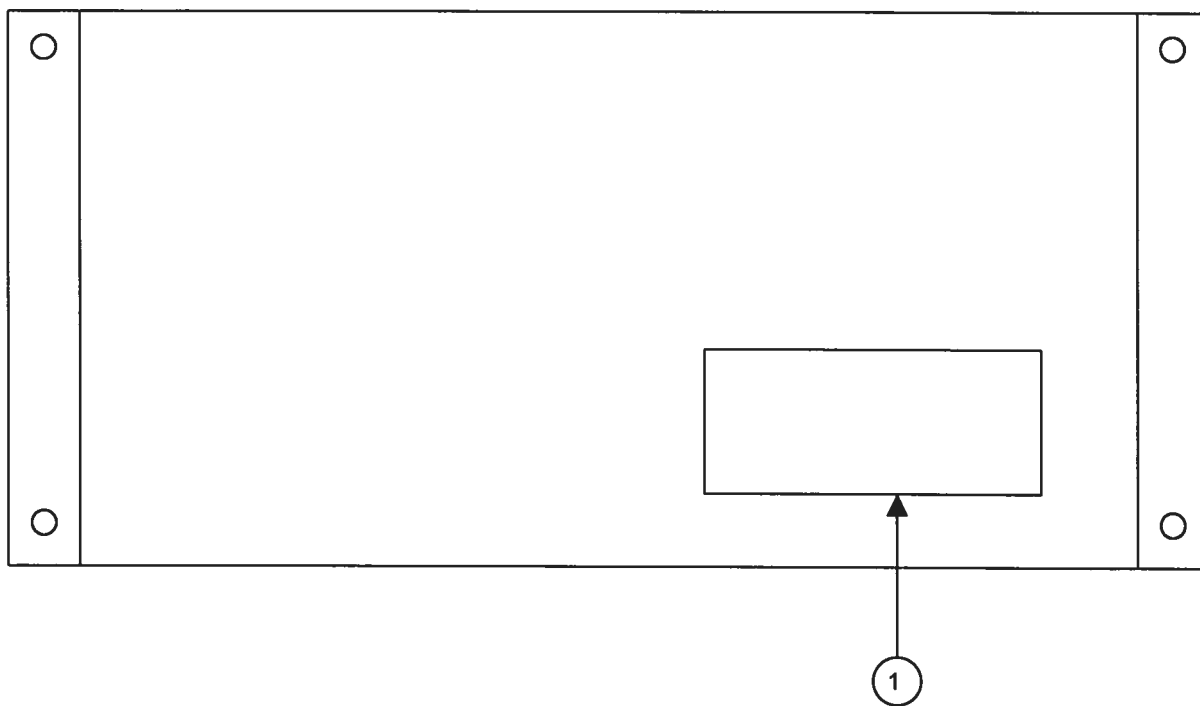
FRONT PANEL CONTROLS

Note that the A and B channels are identical and may be operated separately or simultaneously.

- (1) ON-OFF Switch. Applies prime power to all stages.
- (2) IN. The input signal is applied to this BNC connector (max 4 Volts peak to peak, DC to 100kHz).
- (3) OUT. BNC connector provides output to high impedance load ($\geq 50K$).
- (4) GAIN. Ten turn control determines gain of channel (x1 to x100).
- (5) DC OFFSET. Ten turn control varies output DC offset from -150 Volts to $+150$ Volts.
- (6) GAIN ON-OFF. Two position switch activates each channel (does not affect DC offset).
- (7) OFFSET ON-OFF. Two position switch turns DC offset function ON and OFF.
- (8) OVERLOAD. 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) Removing output load short circuit (if any)
 - 2) Reducing the output amplitude

Note that the overload light may come on when the prime power is applied. The light will extinguish after a few seconds.

FIG. 3: BACK PANEL CONTROLS



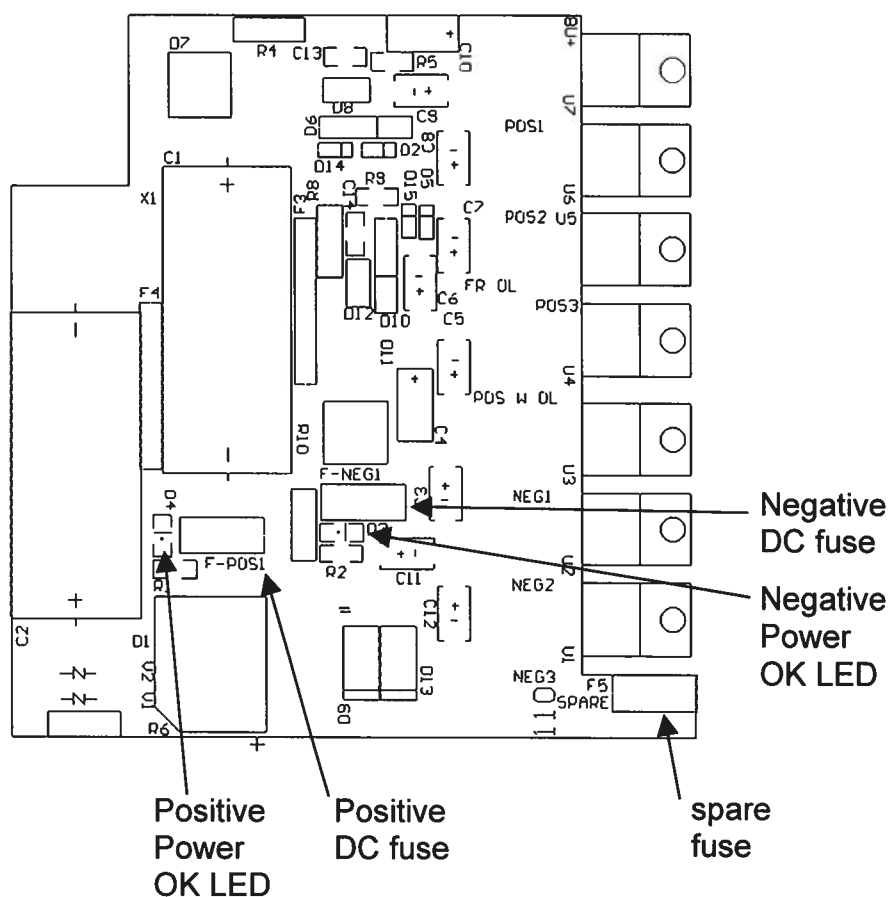
BACK PANEL CONTROLS

- (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 (1.0A 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 positive and spare fuse on this circuit board are 2.0A slow-blow fuses, Littlefuse part number R452002. (This fuse can be ordered from Digikey, www.digikey.com. The Digikey part number is F1345CT-ND). The negative fuse is a 0.5A slow blow unit (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.



AVTECH ELECTROSYSTEMS LTD.

NANOSECOND WAVEFORM ELECTRONICS
SINCE 1975

P.O. BOX 265
OGDENSBURG, NY
U.S.A. 13669-0265
TEL: (315) 472-5270
FAX: (613) 226-2802

TEL: 1-800-265-6681
FAX: 1-800-561-1970

e-mail: info@avtechpulse.com
<http://www.avtechpulse.com>

P.O. BOX 5120 STN. F
OTTAWA, ONTARIO
CANADA K2C 3H4
TEL: (613) 226-5772
FAX: (613) 226-2802

Fax No:	_____	Sender's Fax:	<u>613-226-2802</u>
File:	<u>Q:\office\QUOTES\Q9579.doc</u>	Receiver's Fax:	<u>908-582-3260</u>
To:	<u>Lucent Technology, Inc.</u>	Receiver's Phone:	<u>908-582-2254</u>
Attn:	<u>Arman Gasparyan</u>	Date:	<u>October 19, 1999</u>
Subject:	<u>Price and delivery quotation</u>	Number of pages:	<u>1</u>

Following our telephone conversation of October 19, 1999, I am pleased to quote as follows:

Quote Number: 9579

Model designation: AV-110B-PS-LTA

No. of channels: Two – each with own amplitude and DC offset controls (and separate inputs and outputs.)

Gain: Adjustable from x1 to x100 via two separate front panel ten turn controls.

Maximum output amplitude: ± 200 volts to $R_L \geq 50K$.

Bandwidth: DC to 100kHz.

Rise time: ≤ 1 us (for 200 volts out).

DC offset: 0 to ± 150 volts. Two separate ten turn controls.

Price: \$4,298.00 US, each, FOB destination. This discounted pricing assumes combined orders totaling 4 units.

Delivery: 15-30 days, after receipt of order.

Thank you for your continued interest in our products. Please contact me should you require any further information.

Regards,

Dr. Walter Chudobiak
Chief Engineer