

# AVTECH ELECTROSYSTEMS LTD.

NANOSECOND WAVEFORM ELECTRONICS  
ENGINEERING . MANUFACTURING

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## INSTRUCTIONS

Model AVX-D4-UT1 Delay Generator

S.N.:

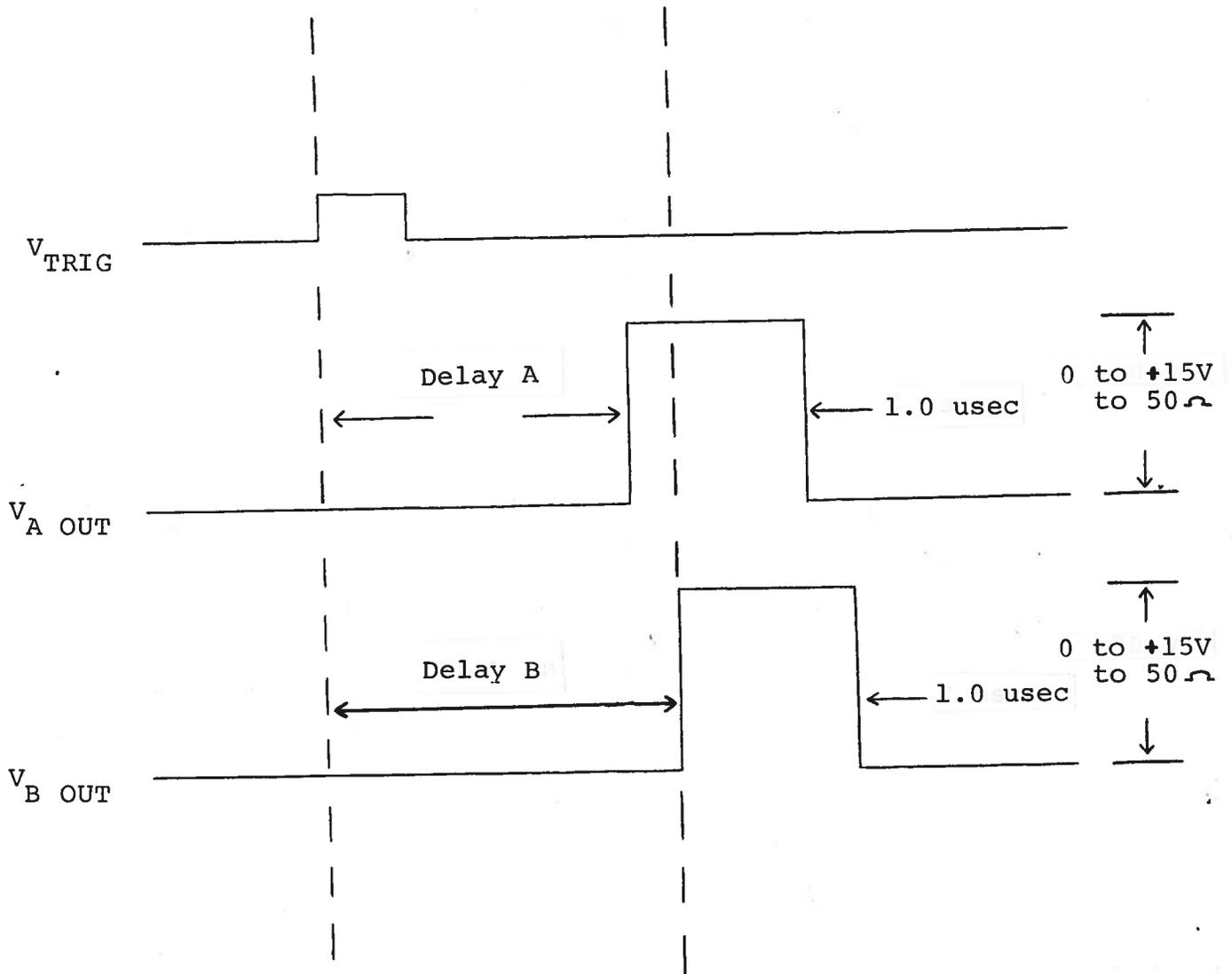
## WARRANTY

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 or liability assumed by Avtech with respect to this product and no other warranty or guarantee is either expressed or implied.

## SPECIFICATIONS

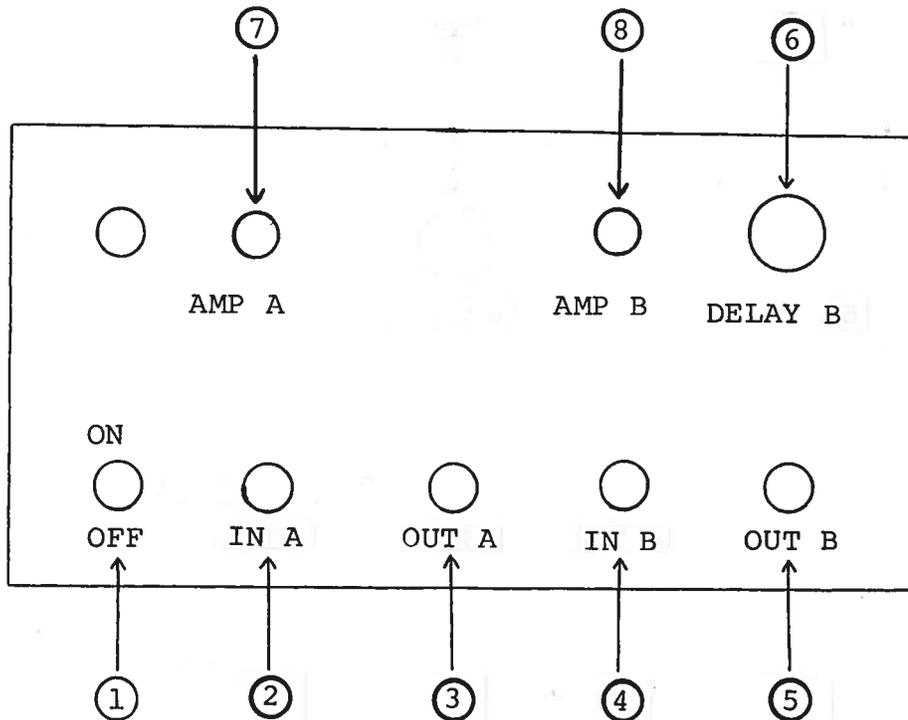
### Model AVX-D4-UT1 Delay Generator

Input trigger:	TTL 0.1 to 10 usec.
Delay A:	Fixed $\approx$ 100 nsec.
Delay B:	Continuously variable from 80 nsec to 1.1 usec via front panel 10 turn locking pot.
Input to output jitter:	$\leq$ 1 nsec.
Output pulse width (A and B):	1 usec.
Output amplitude (A and B):	0 to +15 volts to 50 ohms. Output impedance approx. 10 ohms. Outputs will withstand short circuit.
Output rise and fall time:	20 nsec.
PRF range:	0 to 1 KHz.
Input and output connectors:	BNC.
Prime power:	120/240V, 50-60 Hz switchable. Detachable cord with fuse.
Chassis size:	4 x 6 x 8 inches.



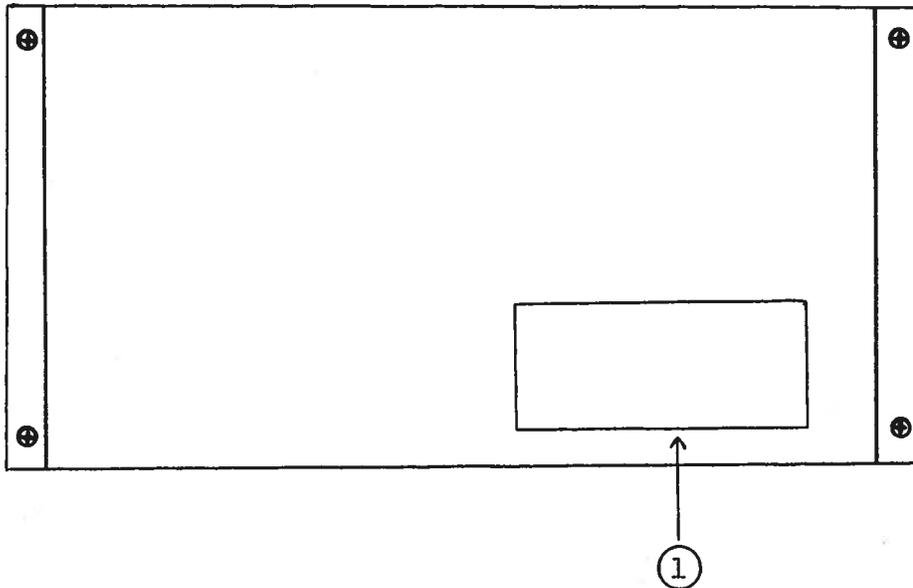
INPUT AND OUTPUT WAVEFORMS FOR AVTECH MODEL AVX-D4-UT1  
 DELAY GENERATOR

AVX-D4-UT1 FRONT PANEL



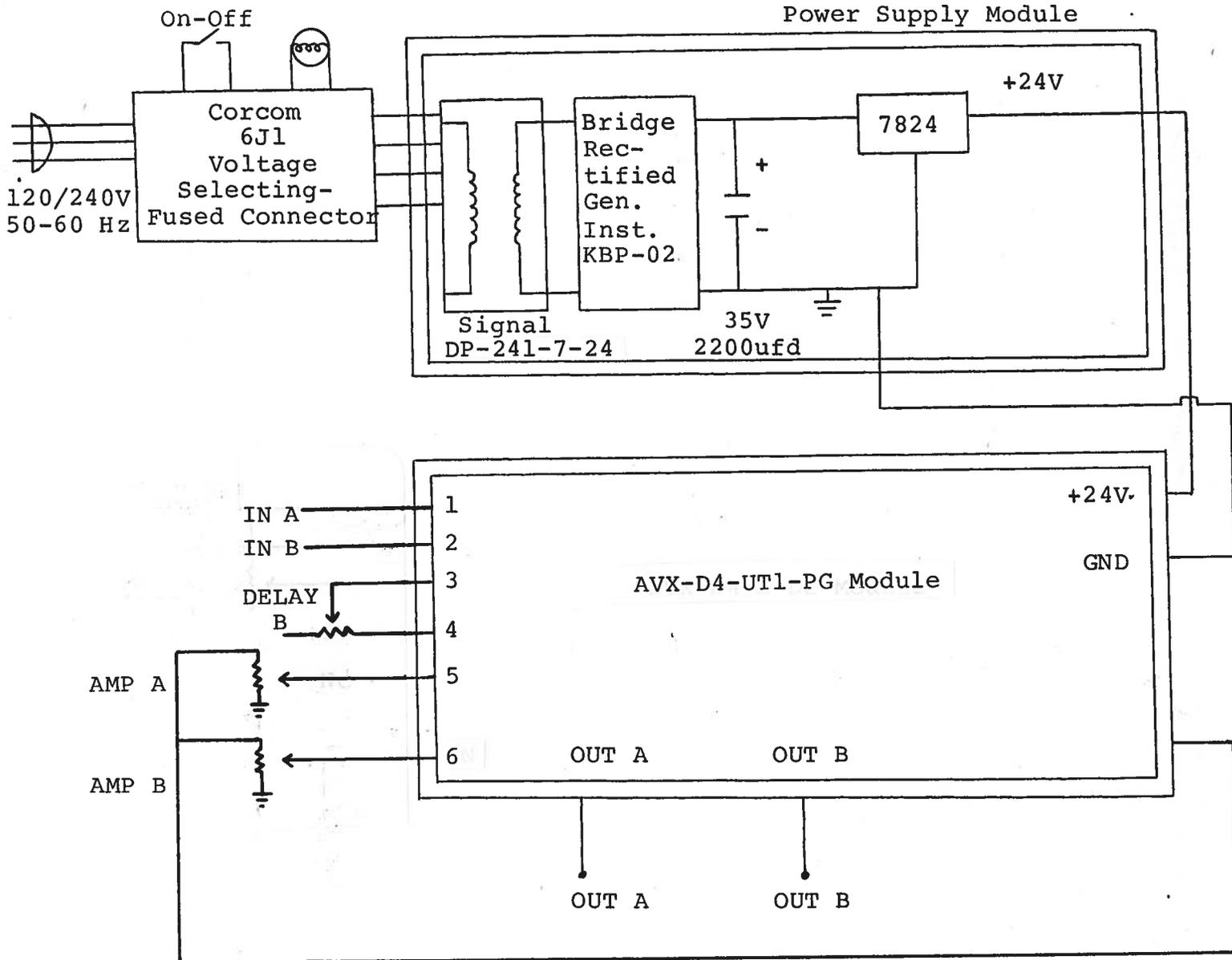
- ① ON-OFF Switch. Applies prime power to all stages.
- ② IN A. BNC input trigger connector TTL level 0.1 to 10 usec pulse.
- ③ OUT A. BNC connector provides 0 to +15V 1 usec pulse to 50 ohm load.
- ④ IN B. BNC input trigger connector TTL level 0.1 to 10 usec pulse.
- ⑤ OUT B. BNC connector provides 0 to +15V 1 usec pulse to 50 ohm load.
- ⑥ DELAY B. 10 turn locking pot varies relative delay between IN B and OUT B from 80 nsec to 1.0 usec.
- ⑦ AMP A. Varies output amplitude of A from 0 to +15V to 50 ohms.
- ⑧ AMP B. Varies output amplitude of B from 0 to +15V to 50 ohms.

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.

SYSTEM BLOCK DIAGRAM



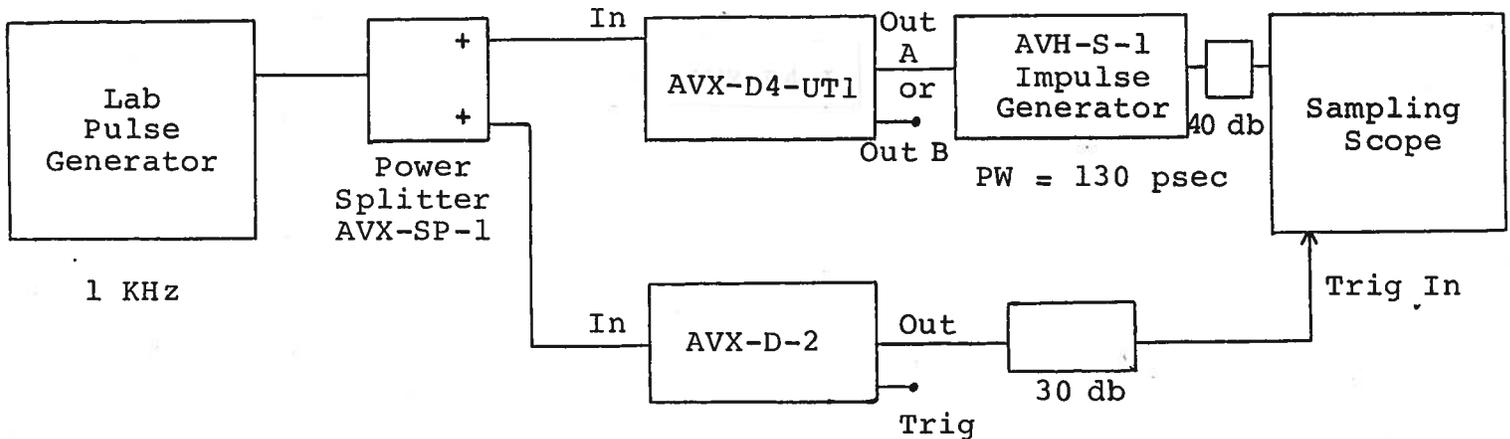
IN4736A, 6.8 volt  
 1 watt zener diode.  
 Attached to input BNC connector  
 pulse to +6.8 volts.

Notes: a) +5V available at  
 b) 5 x 1.5 x 1.5" w.  
 of accessories.

for powering accessories.  
 available for future additions

Model AVX-D4-UT1

Jitter and Drift Test Arrangement



- 1) A worse-case jitter test of the AVX-D4-UT1 unit was conducted using the above arrangement. The use of two delay generators serves to:
  - a) Aggravate the jitter since the resultant jitter is the consequence of two units.
  - b) Allow triggering of the sampling scope with long delays (eg. 1.0 usec) on the AVX-D4-UT1 unit.
- 2) The delays of the two units should be such that the time base of the sampling scope is triggered slightly ahead (eg. 20-100 nsec) of the application of the impulse to the vertical amplifier.
- 3) The pulse width of the impulse displayed on the sampling scope was about 300 psec, confirming therefore that the jitter for the AVX-D4-UT1 unit was less than 1 nsec.
- 4) The position of the impulse changed by less than 5 nsec over a 1 hour running period.

Schroff

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