

# AVTECH ELECTROSYSTEMS LTD.

NANOSECOND WAVEFORM ELECTRONICS  
ENGINEERING - MANUFACTURING

□ P.O. BOX 265  
OGDENSBURG  
NEW YORK  
13669  
(315) 472-5270

☒ BOX 5120, STN. "F"  
OTTAWA, ONTARIO  
CANADA K2C 3H4  
TEL: (613) 226-5772  
FAX: (613) 226-2802  
TELEX: 053-4591

## INSTRUCTIONS

MODEL AVL-ITT5-M PULSE GENERATOR

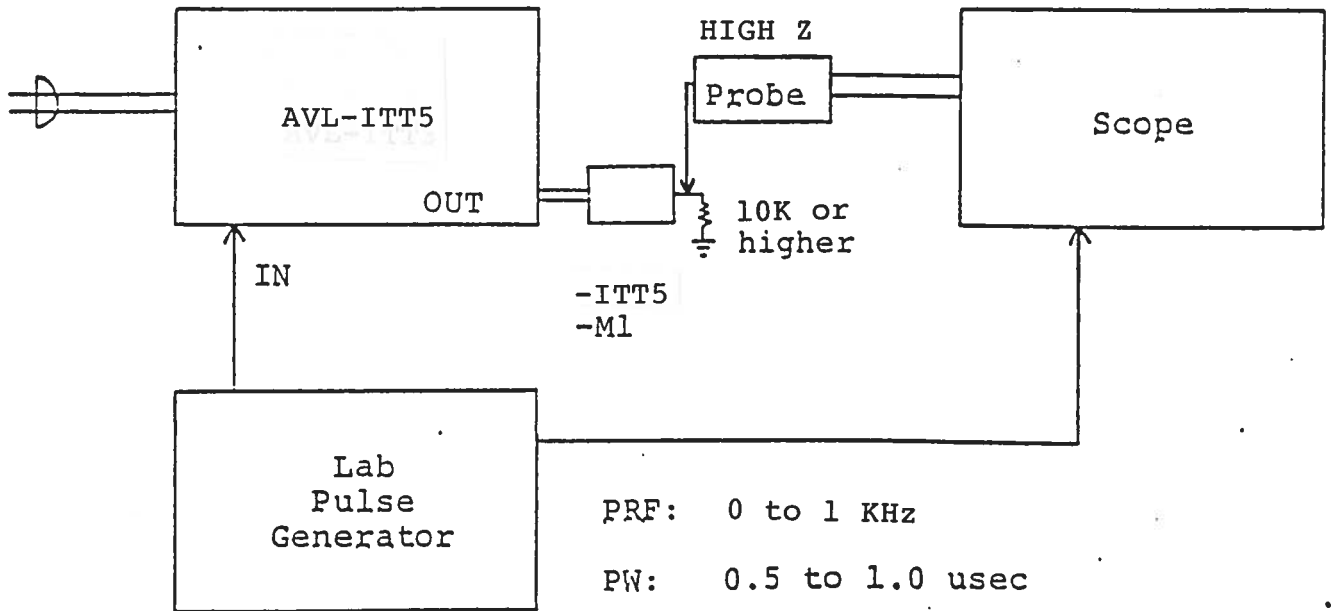
S.N. :

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

TEST ARRANGEMENT

110V  
50-60 Hz



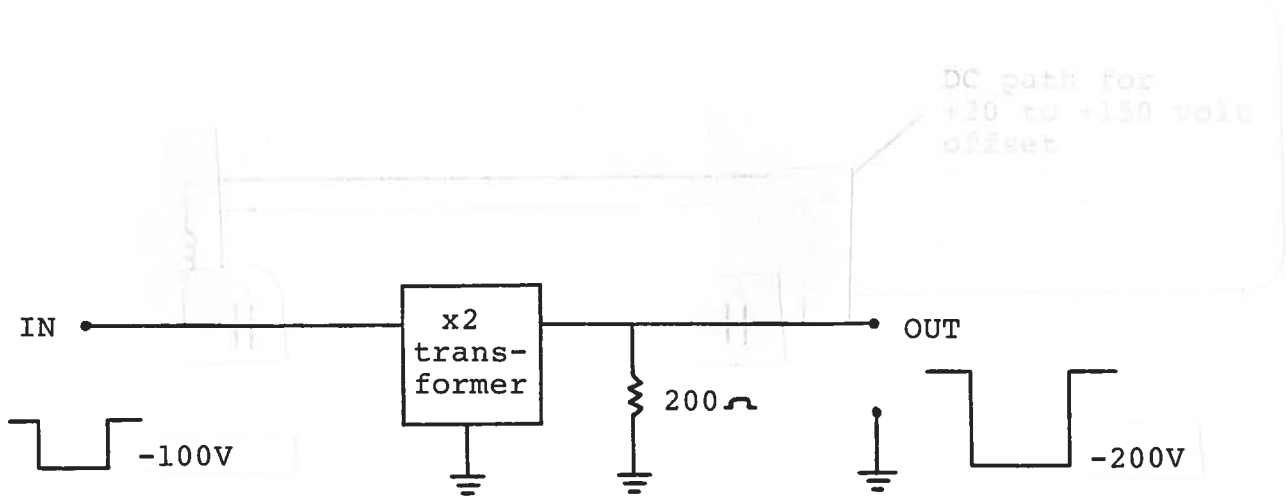
PRF: 0 to 1 KHz

PW: 0.5 to 1.0 usec

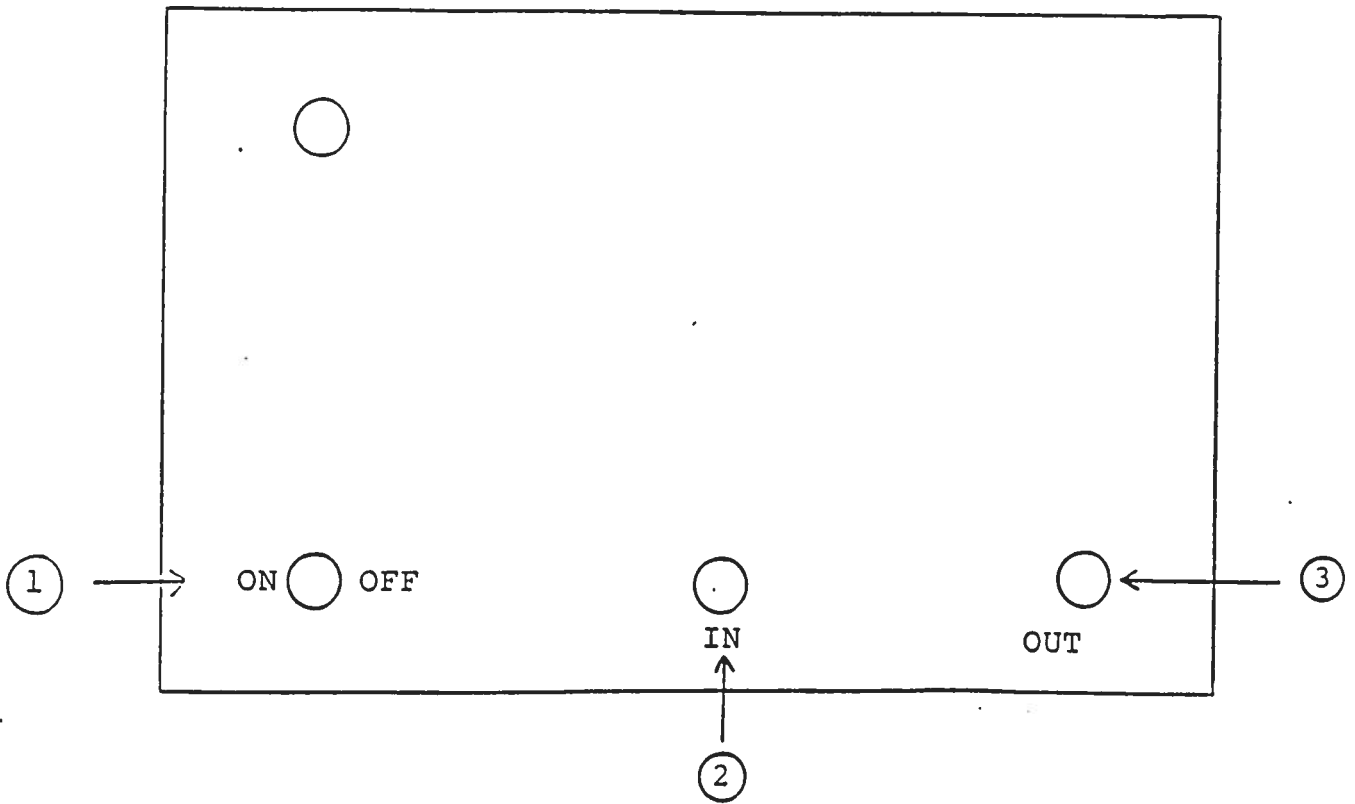
AMP: +2 to +5V (TTL Levels)

Notes:

- 1) The equipment should be connected in the general fashion shown above. A scope with a bandwidth of at least 500 MHz should be used to view the outputs.
- 2) The output amplitude is fixed at -200 V. Care should be taken to insure that the scope and the load resistor can withstand this high voltage (and high output power for wide output pulse widths).
- 3) The output pulse width is variable from 5 nsec to 200 nsec by adding 50 ohm coaxial to the rear panel PW connector. Cable such as RG 58 (or better) is recommended. The output pulse width increases by 3 nsec for every additional foot of cable added. CAUTION: The center conductor at the PW port is at a potential of about 400 volts so the prime power should be turned off when replacing or adjusting the PW cable.
- 4) The output PRF is equal to the input PRF applied to the IN port.
- 5) The pulse generator mainframe generates a -100 volt pulse to 50 ohms. The ITT5-M1 module transforms this to -200 volts to 200 ohms. The 200 ohm resistor is mounted internally in the ITT5-M1 module. The equivalent circuit of the ITT5-M1 module is shown on the following page. The ITT5-M1 module connects to the OUT A port via a 50 ohm cable. The length of this cable is not critical but does add to the propagation delay at the rate of 1.5 nsec per foot. The high impedance load is placed in parallel across the ITT5-M1 output terminals.
- 6) The rear panel monitor output provides an attenuated (x20) version of the output of the ITT5-M1 module.

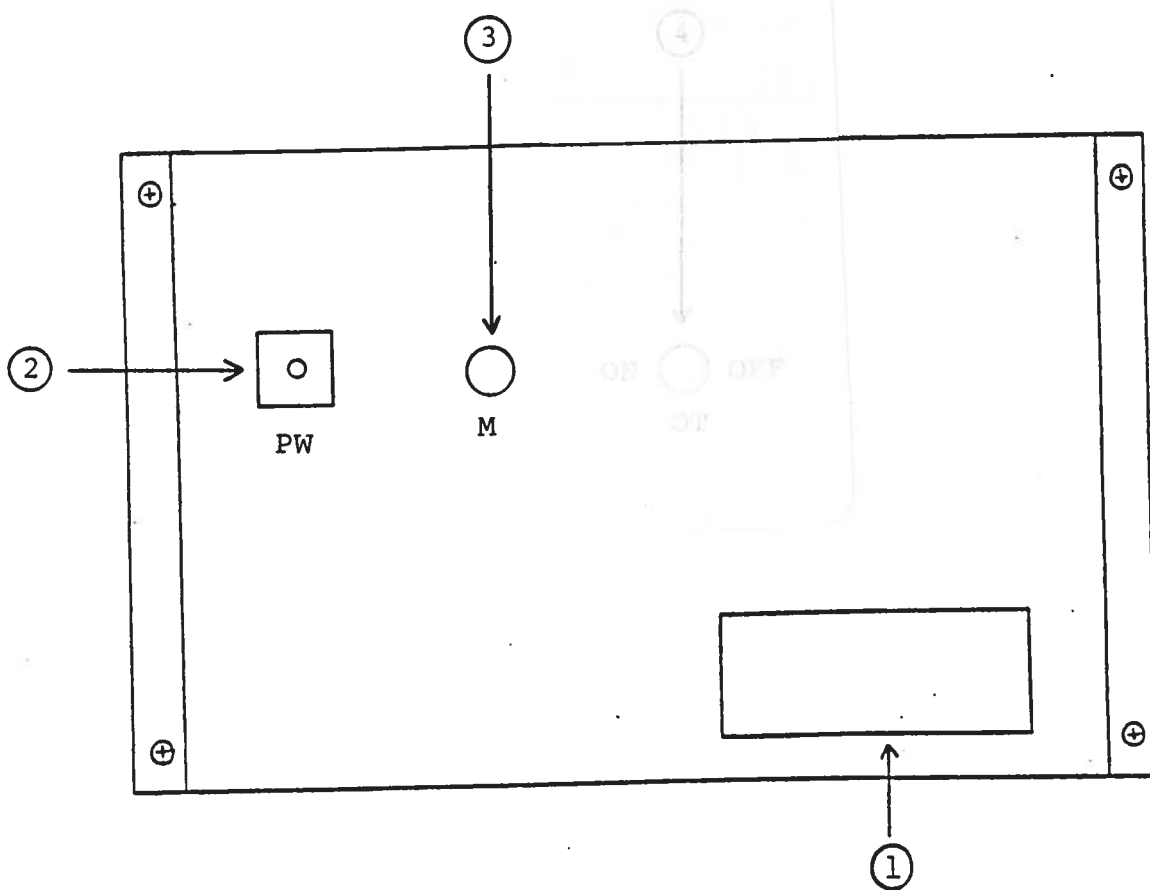


FRONT PANEL CONTROLS



- (1) ON-OFF Switch. Applies prime power to all stages.
- (2) IN. Input trigger applied here (TTL levels, 0.5 to 1.0 usec).
- (3) OUT Connector. SMA connector to which ITT5-M1 module is connected via fifty ohm cable. High impedance load connects to output terminals on ITT5-M1 module.

BACK PANEL CONTROLS

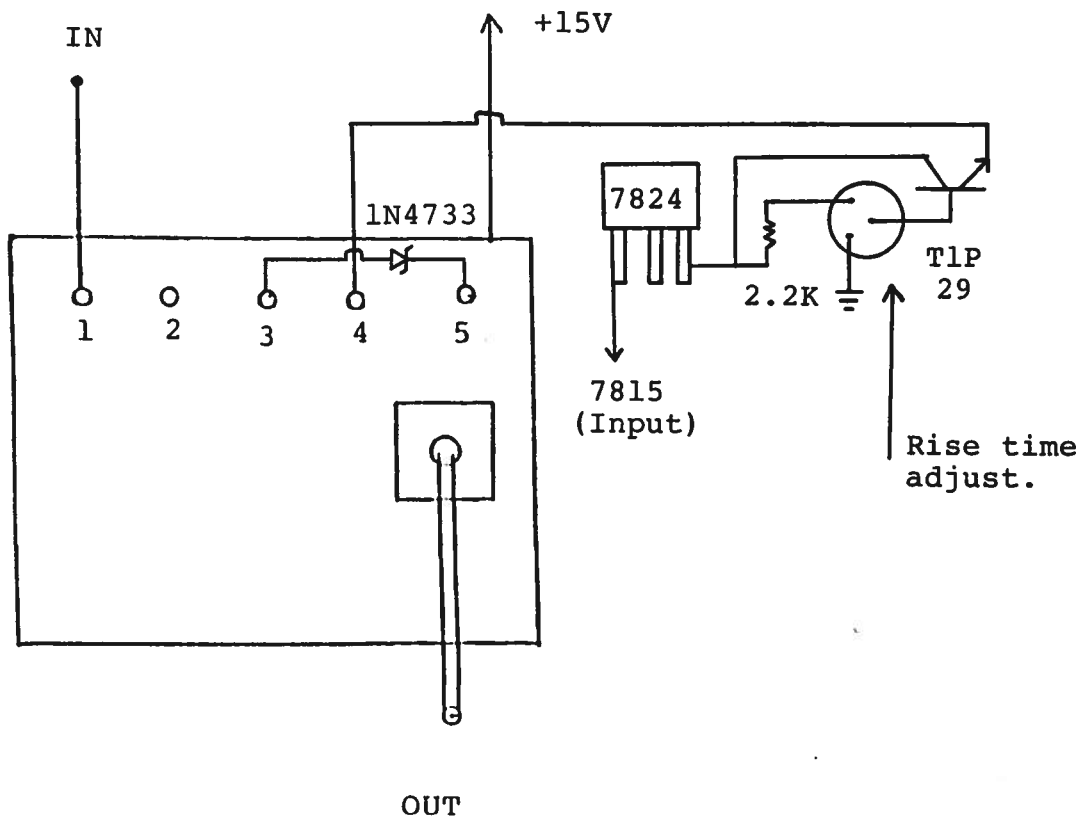




- (1) FUSED CONNECTOR, VOLTAGE SELECTOR. The detachable power cord is connected at this point. In addition, the removable cord is adjusted to select the desired input operating voltage. The unit also contains the main power fuse.
- (2) PW. BNC connector to which fifty ohm cable is attached to control output pulse width. Pulse width increases 3 nsec for each additional foot of cable added. Use RG 58 (or better) cable.
- (3) M. Monitor output provides attenuated (x20) replica of ITT5-M1 output (to 50 ohms).

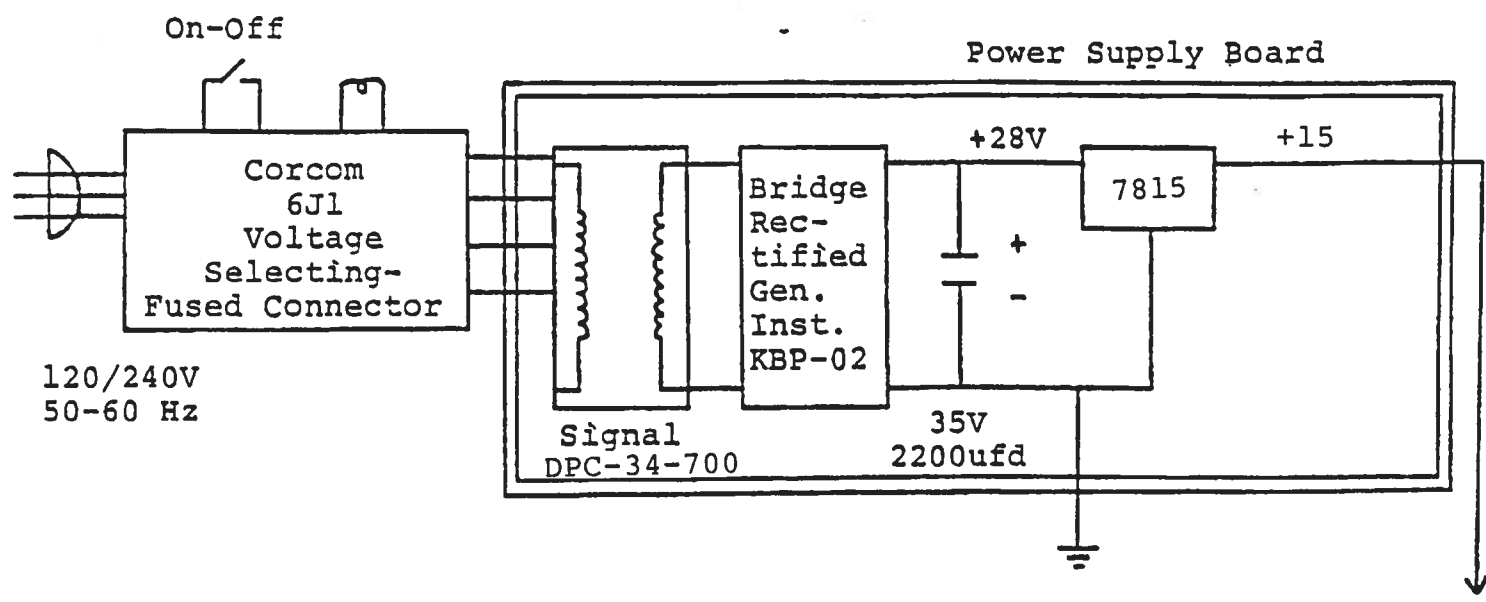
## SYSTEM DESCRIPTION

The AVL-ITTS consists of pulse generator module and a power supply board which supplies +15 volts (600 mA max) to the module. In the event that the unit malfunctions, remove the instrument top cover (by removing the four Phillips screws on the back panel) thereby exposing the modules. Measure the voltage at the +15 V pin of the PG module. If this voltage is substantially less than +15 volts, unsolder the line connecting the power supply board output and connect a 50 ohm 10 W load to the power supply output. The voltage across this load should be about +15 V DC. If this voltage is substantially less than 15 volts the power supply board is defective and should be repaired or replaced. If the voltage is near +15V then the pulse generator module is defective and the unit should be returned to Avtech for repair.



AVL-ITT5-OT-M BLOCK DIAGRAM

POWER SUPPLY BOARD



120/240V  
50-60 Hz

On-Off  
Corcom  
6J1  
Voltage  
Selecting-  
Fused Connector

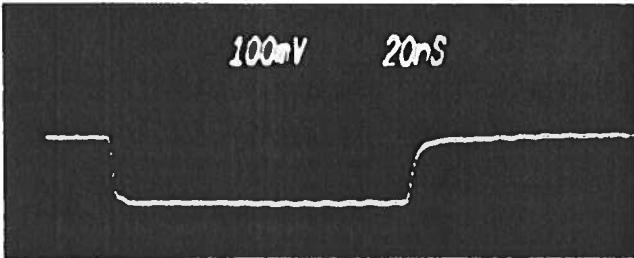
Power Supply Board  
+28V  
+15  
Bridge  
Rec-  
tified  
Gen.  
Inst.  
KBP-02  
Signal  
DPC-34-700  
35V  
2200ufd  
7815

PULSE GENERATOR  
PERFORMANCE CHECK

Model: *PVL-17T5-M*

S.N.: *5742*

Date: *DEC 7 1990*



a) Output signal amplitude:  
*-200 V TO  $R_L > 1 K$*

b) Pulse width:  
*5 TO 200 NS*

c) Rise time:  
 *$\leq 3$  NS*

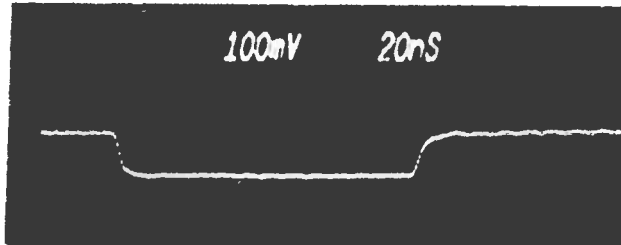
d) Fall time:  
 *$\leq 3$  NS*

e) PRF:  
*0 TO 1 KHz*

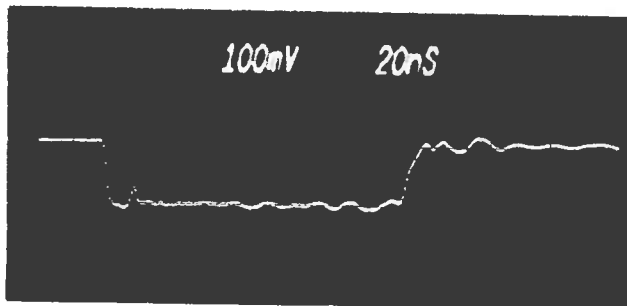
f) Jitter, stability:  
*OK*

g) Prime power:  
*120 / 240 V*  
*50 - 60 Hz*

① MAIN FRAME OUT TO 50  $\Omega$   
*60 db ATTEN*  
*100 VOLTS/DIV*



② 17T5-M1 OUT TO  
*1.5 K PROB (TO 40 db)*



③ MONITOR OUT FOR  
② (TO 40 db)