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SINCE 1975

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## INSTRUCTIONS

MODEL AV-155A LASER DIODE DRIVER

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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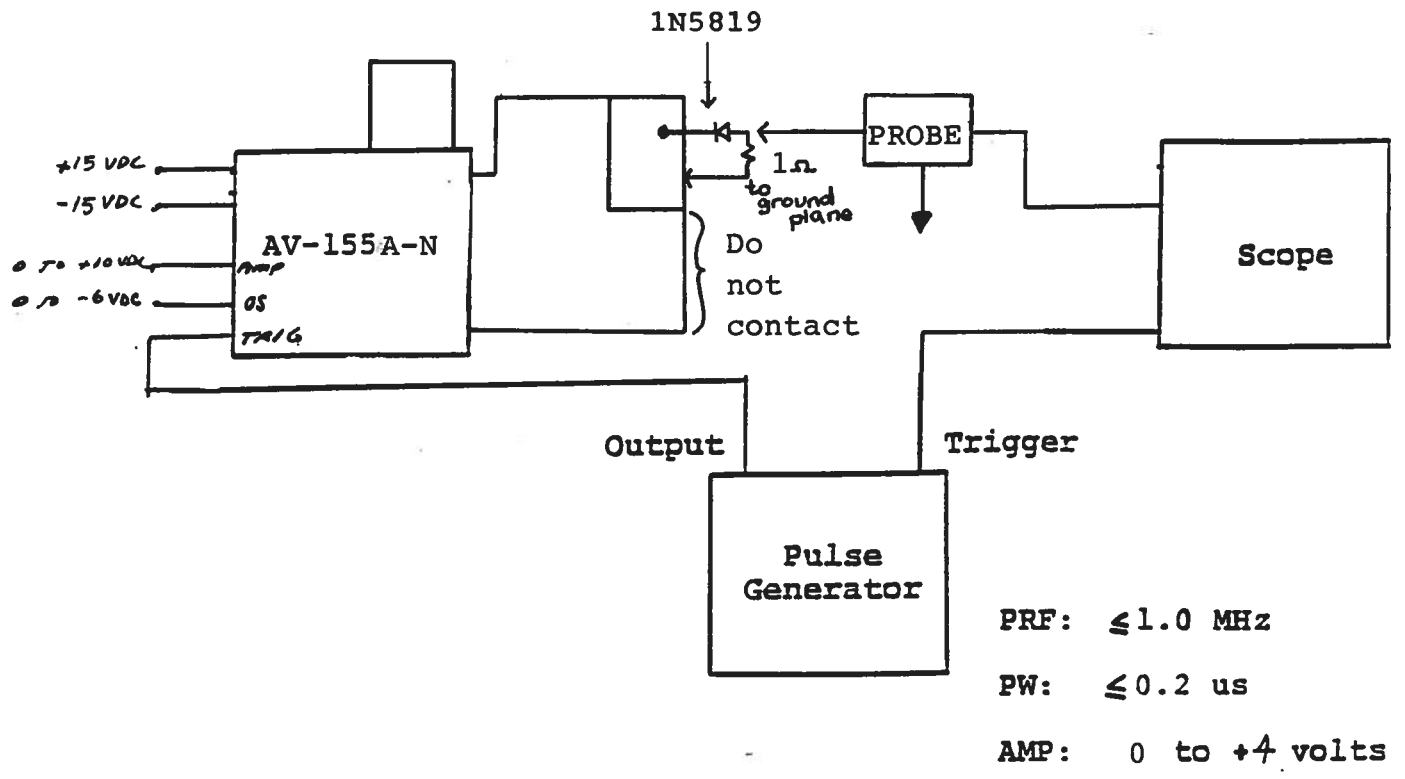
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FIG. 1: MODEL AV-155A LASER DIODE DRIVER TEST ARRANGEMENT

(1N5819 AND 1 OHM RESISTOR SIMULATING A LASER DIODE LOAD)



## GENERAL OPERATING INSTRUCTIONS

- 1) The bandwidth capability of components and instruments used to display the pulse generator output signal (probes, cables, connectors, etc.) should exceed 100 MHz. It is recommended that 2N5819 diode and a 1 Ohm non inductive resistor be used as the load as shown in the drawing.
- 2) **"A" MODE.** In this mode, the module can be used as linear, DC-coupled, voltage-to-current converter. In this mode,  $I_{OUT} = -0.05 V_{IN}$  ( $V_{IN} \leq 4.0$  Volts). Hence the output signal's shape, frequency, DC bias, and amplitude are all controlled by the input signal. The PW and AMP controls are inactive in this mode.
- 3) **"B" MODE.** In this mode, the instrument is triggered by a TTL input pulse, and the output is a series of pulses whose amplitude, DC offset, and pulse width are controlled by front-panel one-turn and range switches.
- 4) **"C" MODE.** In this mode, the units can also be externally triggered and provides an output pulse width equal to the input pulse width while the output amplitude is controlled by the front-panel controls.
- 5) **CAUTION:** The module may be damaged if triggered at a PRF exceeding 10 MHz.
- 6) To voltage control the output pulse amplitude, set the mode switch in the B or C position, and apply 0 to +10 V between the AMP terminal and ground ( $R_{IN} \geq 10K$ ). In this mode, the unit requires a TTL level trigger signal.
- 7) The output offset may be voltage controlled (from 0 to -200 mA) by applying 0 to -6.0 V between the OS terminal and ground ( $R_{IN} \geq 10K$ ).
- 8) When operating in Mode B, the output pulse width is controlled by the one turn PW control and the two position PW switch as follows:
 

20 ns to 200 ns  
0.2 us to 2.0 us
- 9) **MONITOR OUT.** The SMA "MON" output connector adjacent to the output terminal provides a voltage waveform replica of the output current waveform as follows (pulse and offset):

$$R_L \geq 1K$$

$$I_{OUT} = 100 V_{MON} \quad (\text{Volts, mA})$$

$$R_L = 50 \text{ Ohms}$$

$$I_{OUT} = 200 V_{MON}$$

- 10) A low-inductance resistor should be used as the test load. Note that an inductance of 10 nh will yield an inductance spike of about one Volt. With a low-inductance one Ohm load, the overshoot may be as high as 10%. The overshoot will significantly decrease as the load resistance is increased to 2 or 3 Ohms.
- 11) The module must be bolted to a heatsink capable of dissipating about 10 Watts. It is also recommended that a heat sink be attached to the copper tab protruding from the top surface of the module.
- 12) The TPI trimpot is used to zero the output DC offset when the amplitude control voltage is set to zero. The TPL trimpot may be used to control base line shift as the output pulse amplitude is increased. Both trimpots were adjusted at the time of shipping and so should not require further adjustments. Similarly, the other trimpots should not be adjusted.
- 13) When connecting a laser diode load, it is recommended that a 1N5819 diode be placed across the laser diode to protect against reverse potentials; i.e. the anode of the 1N5819 should contact the cathode of the laser diode (while the cathode should contact the anode).
- 14) For additional assistance:

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**PERFORMANCE CHECK SHEET**

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