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**NANOSECOND WAVEFORM ELECTRONICS
ENGINEERING . MANUFACTURING**

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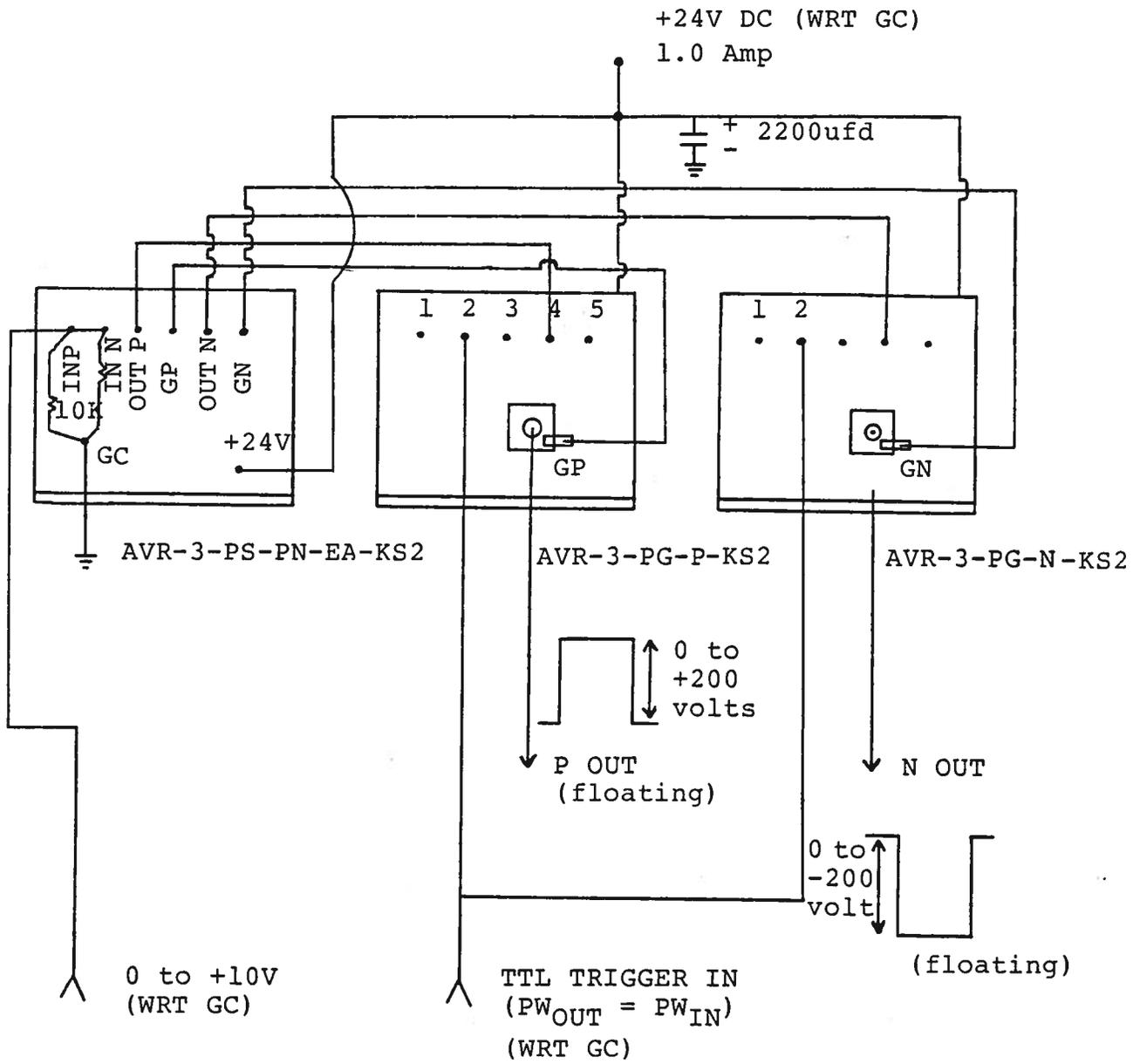
INSTRUCTIONS

MODEL AVR-3-PN-EA-KS2 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.



AVR-3-PN-EA-KS2 BLOCK DIAGRAM

Notes:

- 1) The bandwidth capability of components and instruments used to display the pulse generator output signal (attenuators, cables, connectors, etc.) should exceed 100 MHz.
- 2) The output pulse widths for the positive and negative outputs are equal to the input TTL trigger pulse width.
- 3) To voltage control the output amplitude, apply 0 to +5V volts to PINS IN P and IN N on the AVR-3-PS-PN-EA module ($R_{IN} \geq 10K$). The two pins may be operated in parallel or separately. The 10K resistor shunting IN P and IN N should not be removed.
- 4) The output PRF is equal to the input trigger pulse PRF.
- 5) The modules should be securely bolted to a heat sink capable of dissipating approximately 25 watts.
- 6) The 2200 ufd 36V capacitor must be installed across the +24 volt input to the -PG modules.
- 7) The droop on the output pulse may be reduced by connecting large capacitors (eg. 100 ufd) from PIN 4 to GP (or GN) on the PG modules. The capacitor should have a voltage ratio of at least 250V.
- 8) CAUTION: PIN 4 on the PG modules and PINS P OUT and N OUT on the PS module are at potentials as high as 220 volts DC.
- 9) The AVR-3 features an output impedance of the order of several ohms (rather than 50 ohms). The following consequences of this feature should be noted:
 - a) When used to switch some semiconductor devices (eg. bipolar and VMOS power transistors), the AVR unit will yield much faster switching times than those provided by 50 ohm pulse generators.
 - b) The AVR unit will safely operate in to load impedances in the range of 50 ohms to an open circuit. However, the fall time may degrade for load impedances higher than fifty ohms.
 - c) The AVR unit may be effectively converted to a fifty ohm output impedance generator by placing a fifty ohm 1/2 watt carbon composition resistor in series with the output of the unit and the load. The maximum available load voltage will then decrease to 100 volts (from 200 volts).

- d) The output switching elements may fail if the unit is inadvertently operated into a short circuit. The SL4 switching elements are easily replaced in the field. The elements may be removed from their sockets on the bottom of the PG modules by means of a needle nosed pliers. The SL4 is a selected VMOS power transistor in a TO 220 packages and may be checked on a curve tracer. If defective, replacement units should be ordered directly from Avtech. When replacing the SL4 switching elements, take care to insure that the short lead (of the three leads) is adjacent to the black dot on the chassis.

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