



**AVTECH ELECTROSYSTEMS LTD.**

NANOSECOND WAVEFORM ELECTRONICS  
SINCE 1975

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U.S.A. 13669-0265  
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BOX 5120 STN. F  
OTTAWA, ONTARIO  
CANADA K2C 3H4  
TEL: (613) 226-5772  
FAX: (613) 226-2802

INSTRUCTIONS

MODEL AVR-3-P-PW-MITD PULSE GENERATOR

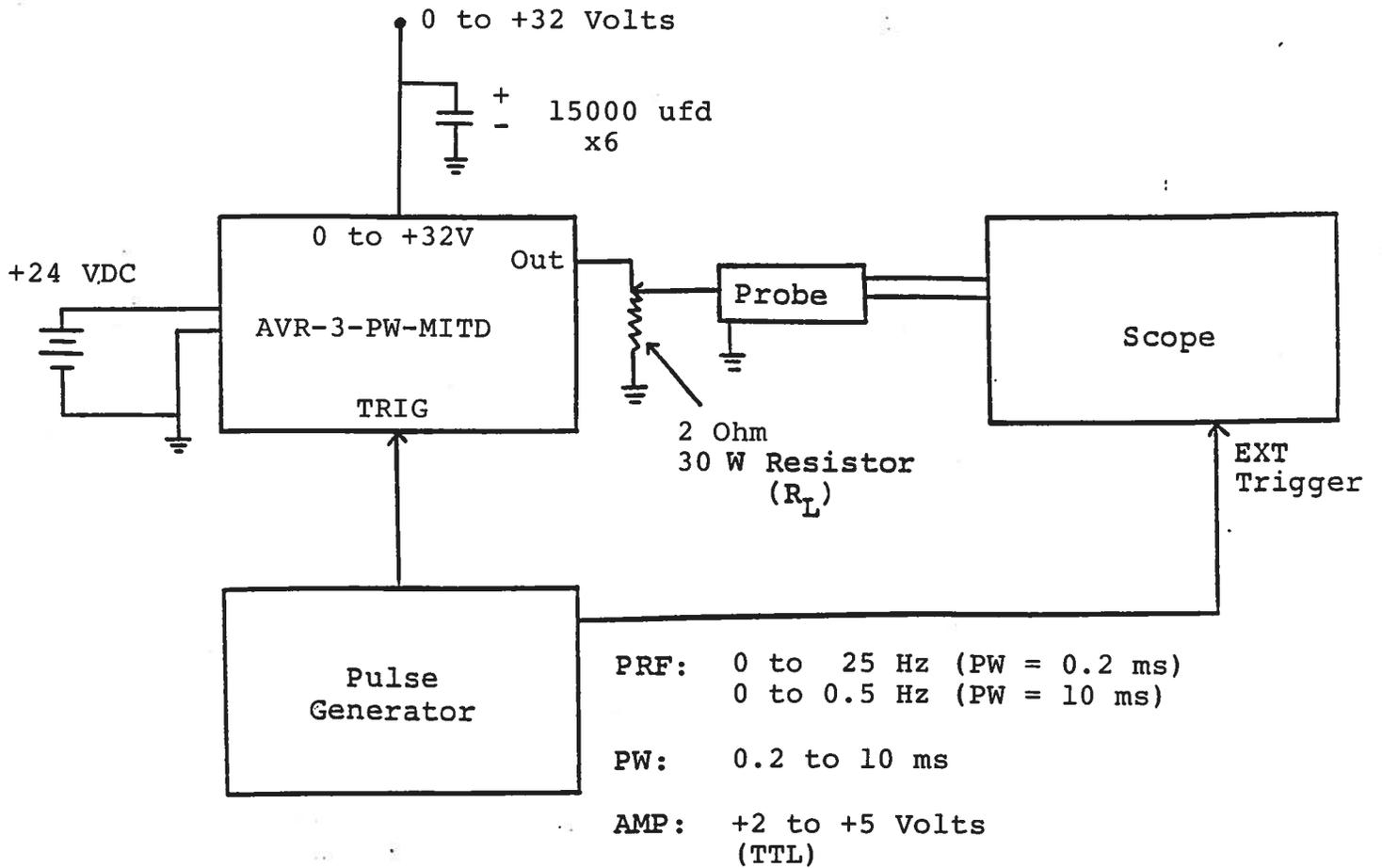
S.N.:

### 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.

A.

TEST ARRANGEMENT



## GENERAL OPERATING INSTRUCTIONS

- 1) The equipment should be connected in the general fashion shown above. Note that the load must be capable of dissipating 30 Watts.
- 2) The output pulse width equals the input trigger pulse width.
- 3) The output PRF is equal to the input trigger pulse PRF.
- 4) The output pulse amplitude is controlled by means of the 0 to +32 VDC applied by the end-user.
- 5) The maximum duty cycle is 0.5%:

eg. PRF = 25 Hz, PW<sub>MAX</sub> = 0.2 ms  
PRF = 2.5 Hz, PW<sub>MAX</sub> = 2 ms  
PRF = 0.5 Hz, PW<sub>MAX</sub> = 10 ms

- 6) CAUTION: The maximum PRF, PW or duty cycle conditions must not be exceeded. Under simultaneous conditions of wide pulse width, high PRF and high load current, the output stage may be damaged. The output switching elements can be replaced following the procedure given in the following section.
- 7) If the unit does not function, it is most likely that some of the output switching elements (SL10T) may have failed due to an output short circuit condition or to a high duty cycle condition. The switching elements may be accessed by removing the cover plate on the bottom side of the -PG module. The cover plate is removed by removing the four counter sunk 6-32 Phillips screws. NOTE: First turn off the prime power. CAUTION: Briefly ground the SL10T tabs to discharge the 32 Volts power supply potential. The elements may be removed from their sockets by means of a needle nosed pliers after removing the four counter sunk 2-56 Phillips screws which attach the small aluminum heat sinks to the body of the module. The SL10T is a selected VMOS power transistor in a TO 220 package and may be checked on a curve tracer. If defective, replacement units should be ordered directly from Avtech. When replacing the SL10T switching elements, take care to insure that the short lead (of the three leads) is adjacent to the back of the chassis. (See following Fig.). The SL10T elements are electrically isolated from the small aluminum heat sinks but are bonded to the heat sinks using WAKEFIELD TYPE 155 HEAT SINK ADHESIVE.

8) For additional assistance:

Tel: 613-226-5772

Fax: 613-226-2802



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January 19, 1994.

Jurgen Smet  
M.I.T.  
Room 13-3070  
77 Massachusetts Avenue  
Cambridge, MA 02139

Tel: 617-253-4620  
Fax: 617-258-6640

Dear Jurgen:

Following our telephone conversation of January 18, I am pleased to provide a revised price and delivery quotation for three special purpose pulse generators meeting the following specifications:

A)

Model designation:

AVR-3-PW-P-MITB.

Output amplitude:

0 to +15 Volts to  $R_L \geq 1.0$  Ohms (15 Amperes maximum source current). Amplitude control is by an externally applied 0 to +17 Volts DC (1 Amp max) lab power supply.  $V_{OUT}$  approx.  $V_{DC} - 2.0V$ .

Pulse width:

0.2 ms to 10 ms. Controlled by externally applied TTL level trigger pulse.  $PW_{OUT} = PW_{IN}$ .

Input trigger:

TTL (+3 to +5 Volts).  $PW_{OUT} = PW_{IN}$ .

PRF:

1 Hz to 100 Hz.  $PRF_{OUT} = PRF_{IN}$ .

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Max. duty cycle: 2%.  
 eg. PRF = 100 Hz,  $PW_{MAX} = 0.2$  ms.  
 PRF = 10 Hz,  $PW_{MAX} = 2$  ms.  
 PRF = 2 Hz,  $PW_{MAX} = 10$  ms.

Rise, fall time:  $\leq 0.2$  us.

Connectors: OUT: SMA connector.  
 POWER: Solder terminals (2).  
 TRIG: Solder terminal.

Chassis size: Approx. 2" x 4" x 5" (aluminum module mounted on an L-bracket with energy storage capacitors).

Prime power: a) +24 VDC, 200 mA.  
 b) 0 to +17 VDC, 1 Amp max.

Price: \$1,830.00 US each, FOB destination (i.e. delivered on your doorstep). Note that this price includes our standard 5% academic discount.

Delivery: 30-45 days.  
 B)

Model designation: AVR-3-PW-P-MITC.

Output amplitude: 0 to +20 Volts to  $R_L \geq 1.33$  Ohms (15 Amperes maximum source current). Amplitude control is by an externally applied 0 to +23 Volts DC (1 Amp max) lab power supply.  $V_{OUT}$  approx.  $V_{DC} - 3.0V$ .

Pulse width: 0.2 ms to 10 ms. Controlled by externally applied TTL level trigger pulse.  $PW_{OUT} = PW_{IN}$ .

Input trigger: TTL (+3 to +5 Volts).  $PW_{OUT} = PW_{IN}$ .

PRF: 1 Hz to 100 Hz.  $PRF_{OUT} = PRF_{IN}$ .

Max. duty cycle: 2%.  
 eg. PRF = 100 Hz,  $PW_{MAX} = 0.2$  ms.  
 PRF = 10 Hz,  $PW_{MAX} = 2$  ms.  
 PRF = 2 Hz,  $PW_{MAX} = 10$  ms.

Rise, fall time:  $\leq 0.2$  us.

Connectors: OUT: SMA connector.  
 POWER: Solder terminals (2).  
 TRIG: Solder terminal.

Chassis size: Approx. 2" x 4" x 5" (aluminum module mounted on an L-bracket with energy storage capacitors).

Prime power: a) +24 VDC, 200 mA.  
 b) 0 to +23 VDC, 1 Amp max.

Price: \$1,880.00 US each, FOB destination (i.e. delivered on your doorstep). Note that this price includes our standard 5% academic discount.

Delivery: 30-45 days.  
 C)

Model designation: AVR-3-PW-P-MITD.

Output amplitude: 0 to +30 Volts to  $R_L \geq 2.0$  Ohms (15 Amperes maximum source current). Amplitude control is by an externally applied 0 to +32 Volts DC (1 Amp max) lab power supply.  $V_{OUT}$  approx.  $V_{DC} - 2.0V$ .

Pulse width: 0.2 ms to 10 ms. Controlled by externally applied TTL level trigger pulse.  $PW_{OUT} = PW_{IN}$ .

Input trigger: TTL (+3 to +5 Volts).  $PW_{OUT} = PW_{IN}$ .

PRF: 1 Hz to 100 Hz.  $PRF_{OUT} = PRF_{IN}$ .

Max. duty cycle: 0.5%.  
eg. PRF = 25 Hz,  $PW_{MAX}$  = 0.2 ms.  
PRF = 2.5 Hz,  $PW_{MAX}$  = 2 ms.  
PRF = 0.5 Hz,  $PW_{MAX}$  = 10 ms.

Rise, fall time:  $\leq 0.2$  us.

Connectors: OUT: SMA connector.  
POWER: Solder terminals (2).  
TRIG: Solder terminal.

Chassis size: Approx. 2" x 4" x 5" (aluminum module mounted on an L-bracket with energy storage capacitors).

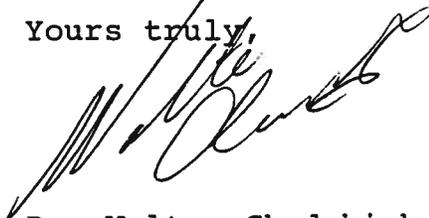
Prime power: a) +24 VDC, 200 mA.  
b) 0 to +32 VDC, 1 Amp max.

Price: \$1,980.00 US each, FOB destination (i.e. delivered on your doorstep). Note that this price includes our standard 5% academic discount.

Delivery: 30-45 days.

Thank you for your continuing interest in our products. Please call me again (1-800-265-6681) if you require any additional information or modifications to the above quotation.

Yours truly,



Dr. Walter Chudobiak  
Chief Engineer

WC:pr

March 1/94