



AVTECH ELECTROSYSTEMS LTD.

NANOSECOND WAVEFORM ELECTRONICS
SINCE 1975

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INSTRUCTIONS

MODEL AVR-G1-C-N-R5-RAYTHA PULSE GENERATOR

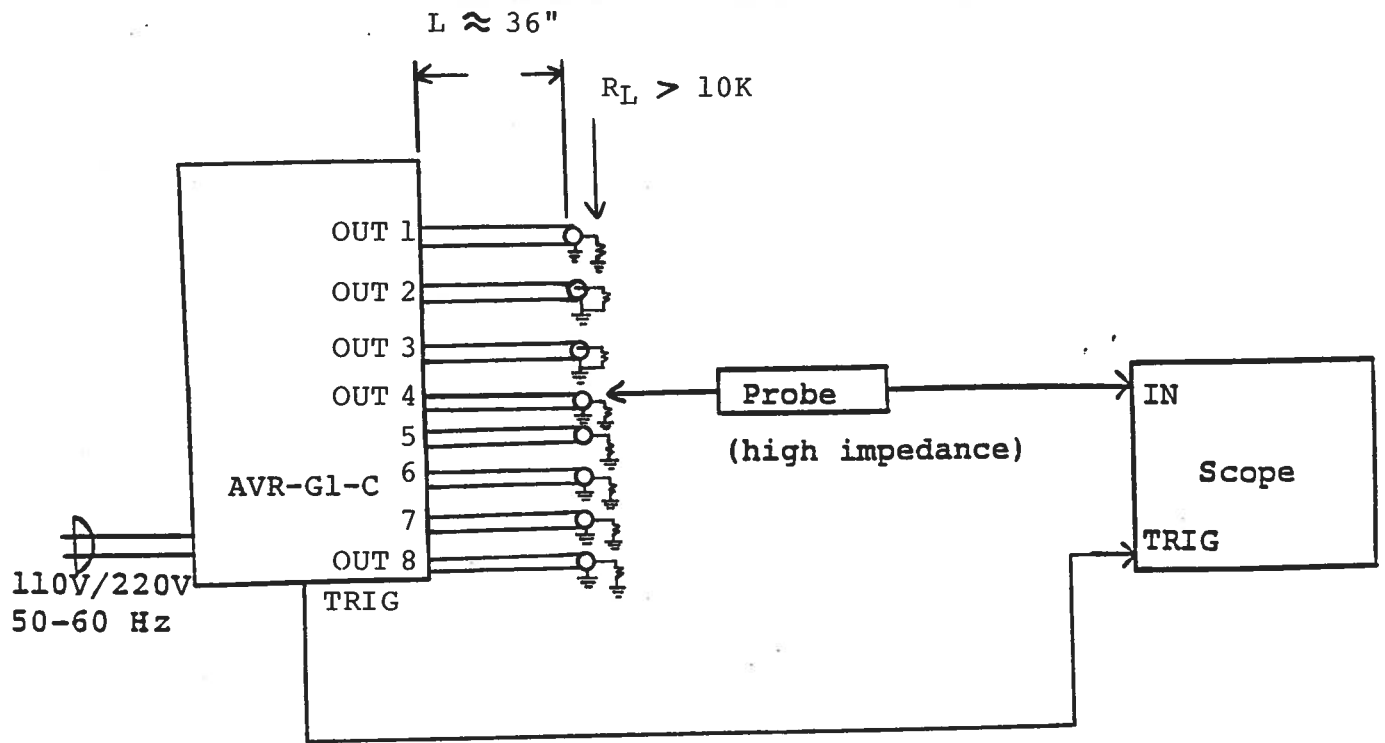
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WARRANTY

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.

Fig. 1

PULSE GENERATOR TEST ARRANGEMENT



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 TRIG output channel provides TTL level signals (to a high impedance) at a PRF of 1 kHz. The outputs from the eight output channels have a PRF which is 1/8 of the trigger PRF (i.e. a period of 1.25 ms as shown in Fig. 2).
- 3) The outputs are designed to drive a load impedance of greater than 10 K and the loads are to be connected to the output BNC using a 36" 50 Ohm cable. Note that this cable length is critical (see 4 below).
- 4) The overload LED on each output will illuminate when the load current exceeds 15 mA (150 Volts to 10 K), provided the load cable length is 36". If the cable length is more than 36", then the LED will illuminate at a lower load current while if the cable length is shorter, the LED will illuminate only at higher load currents.
- 5) The output pulse width is controlled by the ten turn pulse width control and the three-position range switch as follows:

Range 1	0.1 us	1.0 us
Range 2	1.0 us	10 us
Range 3	10 us	100 us
- 6) The output pulse amplitude is controlled by means of the front panel ten turn AMP control.

- 7) The period of the output pulses may be adjusted using the 10 turn trim pot on the top surface of the -CL module (see the top cover removal instructions). At the time of shipping, the separation between the leading edges of the output pulses was set at 1.25 ms.
- 8) The output pulse width (for each channel) may be adjusted using the ten turn trim pot on the top surface of each -PG module (see the top cover removal instructions).
- 9) OVERLOAD INDICATOR. AVR-G-C units with a serial number higher than 5600 are protected by an automatic overload protective circuit which controls the front panel overload light. If the unit is overloaded (by operating at an exceedingly high duty cycle or by operating into a short circuit), the protective circuit will turn the output of the instrument OFF and turn the indicator light ON. The light will stay ON (i.e. output OFF) for about 5 seconds after which the instrument will attempt to turn ON (i.e. light OFF) for about 1 second. If the overload condition persists, the instrument will turn OFF again (i.e. light ON) for another 5 seconds. If the overload condition has been removed, the instrument will turn on and resume normal operation. Overload conditions may be removed by:
 - 1) Reducing PRF (i.e. switch to a lower range)
 - 2) Reducing pulse width (i.e. switch to a lower range)
 - 3) Removing output load short circuit (if any)
- 10) The unit can be converted from 110 to 220V 50-60 Hz operation by adjusting the voltage selector card in the rear panel fused voltage selector cable connector assembly.
- 11) For further assistance:

Tel: 613-226-5772
Fax: 613-226-2802

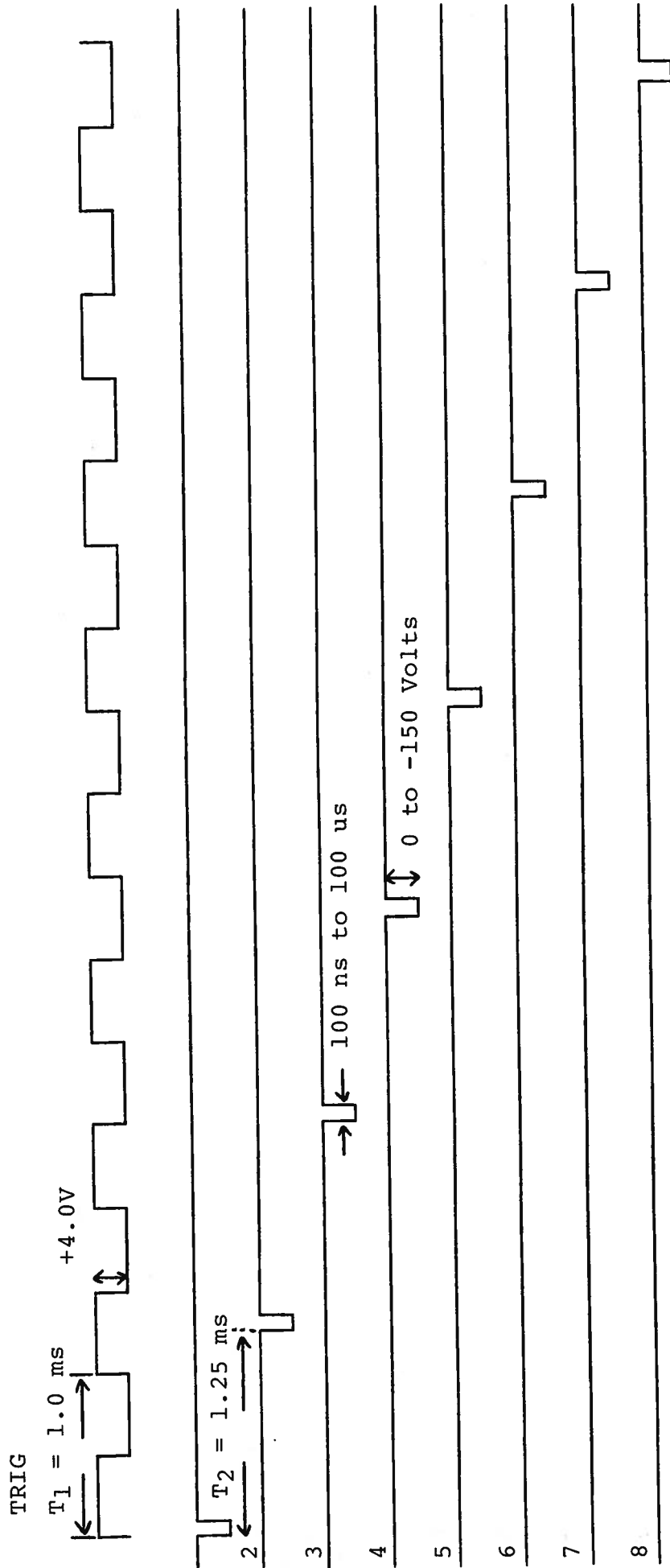


Fig. 2 OUTPUT WAVEFORMS

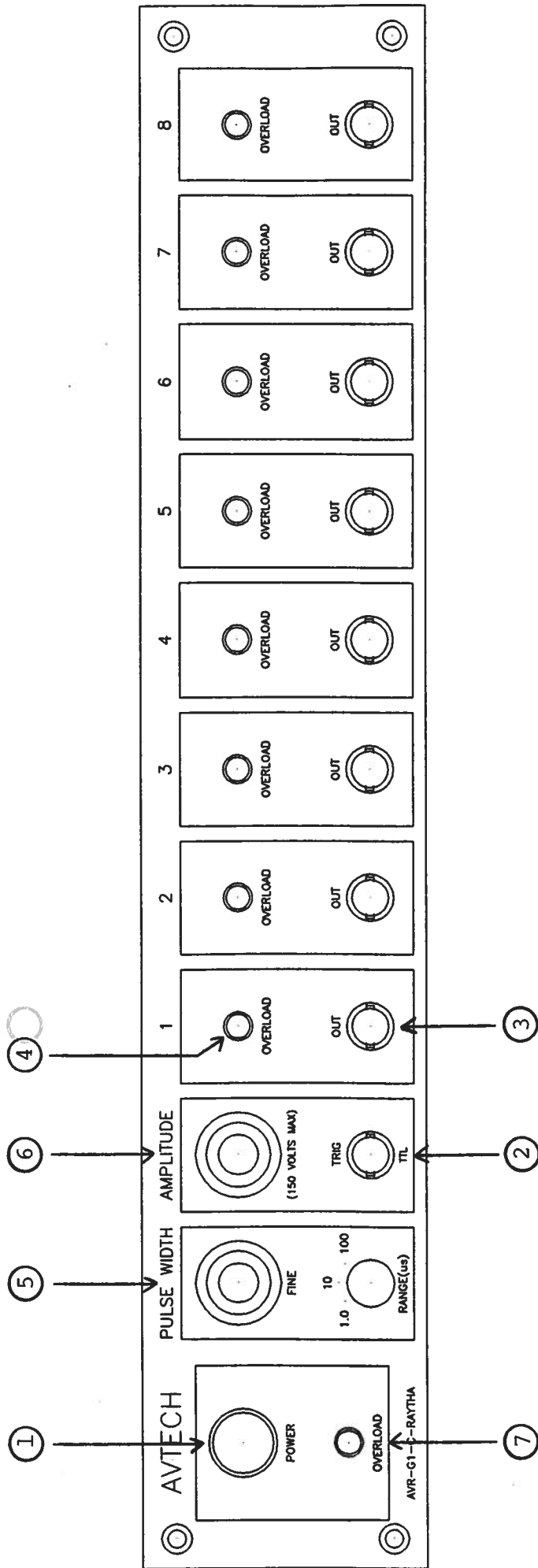


Fig. 3 FRONT PANEL CONTROLS

Fig. 3

- (1) ON-OFF Switch. Applies basic prime power to all stages.
- (2) TRIG Output. This output is used to trigger the scope time base. The output is a TTL level 1 kHz pulse.
- (3) OUT Connector. Eight BNC connectors provide output to a high impedance load connected to the connector via a 36" 50 Ohm cable.
- (4) OVERLOAD. The overload LED on each output will illuminate when the load current exceeds 15 mA (150 Volts to 10 K), provided the load cable length is 36". If the cable length is more than 36", then the LED will illuminate at a lower load current while if the cable length is shorter, the LED will illuminate only at higher load currents.
- (5) PW Control. A ten turn control and 3-position range switch which varies the positive output pulse width from 0.1 us to 100 us as follows:

	PW min	PW max
Range 1	0.1 us	1.0 us
Range 2	1.0 us	10 us
Range 3	10 us	100 us

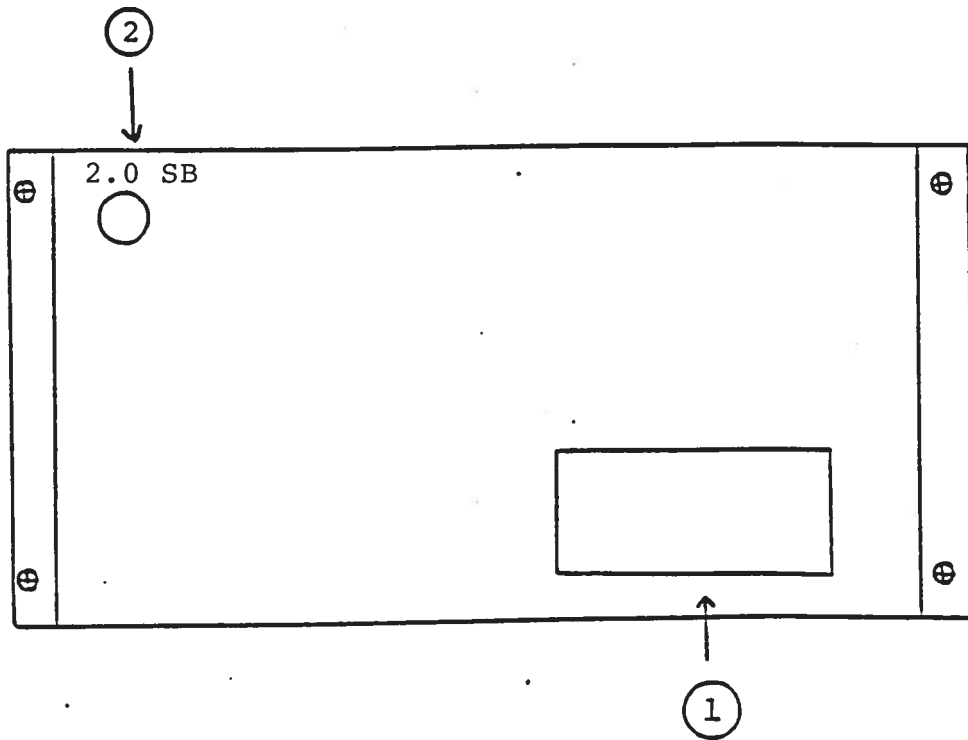
- (6) AMP Control. A ten turn control which varies the output pulse amplitude.
- (7) OVERLOAD INDICATOR. AVR units with a serial number higher than 5600 are protected by an automatic overload protective circuit which controls the front panel overload light. If the unit is overloaded (by operating at an exceedingly high duty cycle or by operating into a short circuit), the protective circuit will turn the output of the instrument OFF and turn the indicator light ON. The light will stay ON (i.e. output OFF) for about 5 seconds after which the instrument will attempt to turn ON (i.e. light OFF) for about 1 second. If the overload condition persists, the instrument will turn OFF again (i.e. light ON) for another 5 seconds. If the overload condition has been removed, the instrument will turn on and resume normal operation. Overload conditions may be removed by:
 - 1) Reducing PRF (i.e. switch to a lower range)
 - 2) Reducing pulse width (i.e. switch to a lower range)
 - 3) Removing output load short circuit (if any)

TOP COVER REMOVAL AND RACK MOUNTING

- 1) The interior of the instrument may be accessed by removing the four Phillips screws on the top panel. With the four screws removed, the top cover may be slid back (and off).
- 2) The -R rack mount kit may be installed after first removing the one Phillips screw on the side panel adjacent to the front handle.

Fig. 4

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 (1.0 A SB).
- (2) 2.0A SB. Fuse which protects the output stage if the output duty cycle rating is exceeded.



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August 25, 1995.

Alan Palevsky
Raytheon Company
Electronic Systems Division
Quincy Operation
Field Emission Display Group
465 Centre Street
Quincy, MA 02169

Tel: 617-984-8400
Fax: 617-984-4196

Dear Alan:

Following your fax of August 15th and our subsequent telephone conversations, I am pleased to offer the following price and delivery quotations:

A) Model designation: AVR-G1-C-N-R5-RAYTHA.
Basic description: 8 negative outputs.
PRF: Fixed at 100 Hz.
Outputs: Trigger plus 8 channels with 1.25 ms spacing.
Pulse amplitude: 0 to -150 Volts, controlled by one common ten turn amplitude control.
Pulse width: 100 ns to 100 us, controlled by one common three position range switch and a ten turn fine control.
Overload indicators: Each of the 8 outputs provided with its own overload LED which indicates when the peak output current exceeds 15 mA.

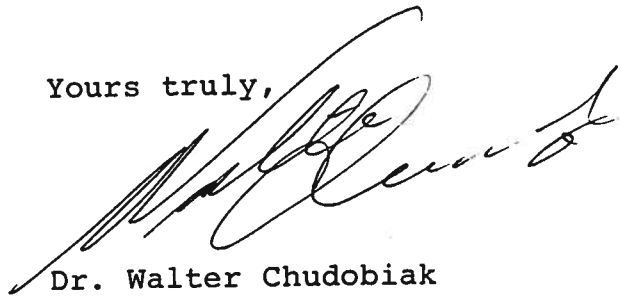
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Output impedance: 50 Ohms.
Connectors: BNC.
Chassis size: 3.9 x 17 x 17 inches. Includes a 19 inch rack mount kit.
Prime power: 120/240 Volts, 50-60 Hz.
Price: \$9,998.00 US each, FOB destination.
Delivery: 60 to 90 days.

B) Model designation: AVR-G1-C-P-R5-RAYTHB.
Basic description: 16 positive outputs mounted in two 8-output chassis.
PRF: Fixed at 100 Hz.
Outputs: 16 plus a trigger with 0.625 ms spacing.
Amplitude: 0 to +150 Volts controlled by a common ten turn control.
Chassis size: Two 3.9 x 17 x 17 inch chassis.
Other: See -RAYTHA unit above.
Price: \$16,900.00 US, FOB destination.
Delivery: 60 to 90 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 quotations.

Yours truly,



Dr. Walter Chudobiak
Chief Engineer

WC:pr

Dec. 4/95

Disk: AVR-G

Name: 1CRAYTHA.INS