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NANOSECOND WAVEFORM ELECTRONICS
SINCE 1975

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INSTRUCTIONS

MODEL AVMP-2-N-GPDA

-2V to -10V, 5 to 20 ns

PULSE GENERATOR MODULE

WITH 100 ps RISE TIME

SERIAL NUMBER: _____

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

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TABLE OF CONTENTS

WARRANTY.....2

TECHNICAL SUPPORT.....2

TABLE OF CONTENTS.....3

INTRODUCTION.....4

SPECIFICATIONS.....5

BASIC TEST ARRANGEMENT.....6

CONTROLS.....7

GENERAL OPERATING NOTES.....9

PERFORMANCE CHECK SHEET..... 10

Manual Reference: /fileserver1/officefiles/instructword/avmp/AVMP-2-N-GPDA,ed1.odt.
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INTRODUCTION

The AVMP-2-N-GPDA is a high performance DC-powered module capable of generating up to -10V into 50 Ω loads at repetition rates up to 1 MHz. The rise time is less than 100 ps, and the fall time is less than 150 ps. The pulse width is variable from 5 to 20 ns.

The AVMP-2-N-GPDA must be triggered by an external TTL pulse (> 50 ns) applied to the "IN" connector.

The output is designed to drive 50 Ω loads. (A 50 Ω load is required for proper operation.) The output is AC-coupled.

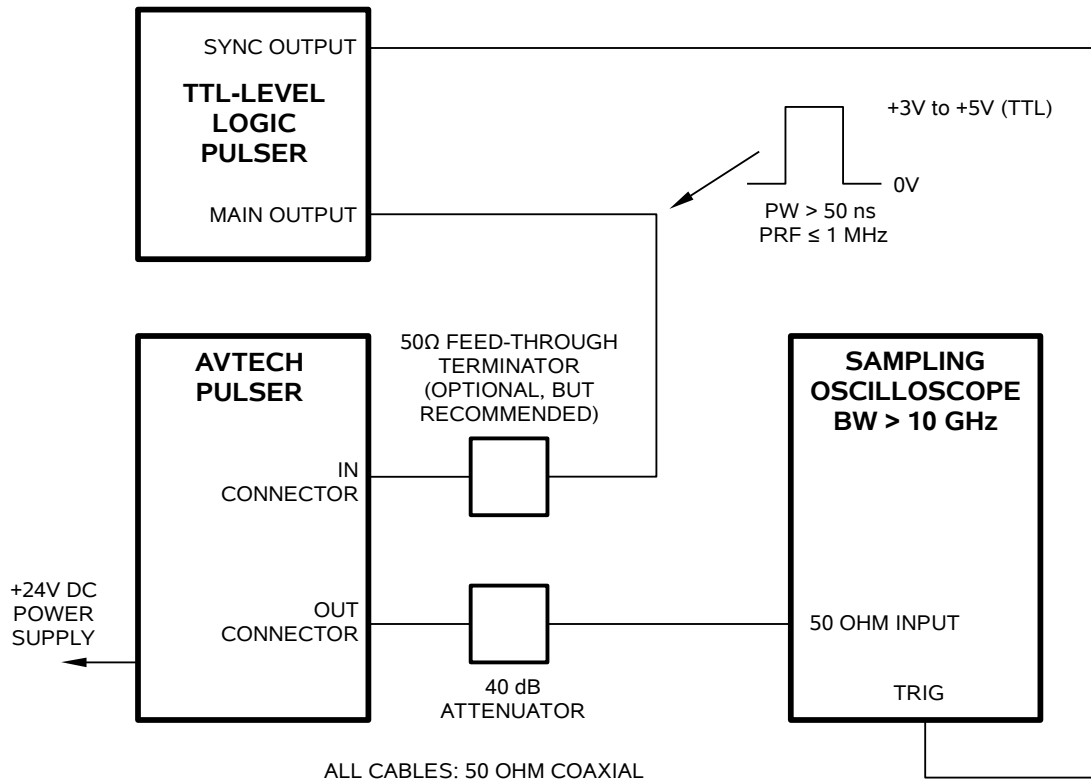
This instrument is intended for use in research and development laboratories.

SPECIFICATIONS

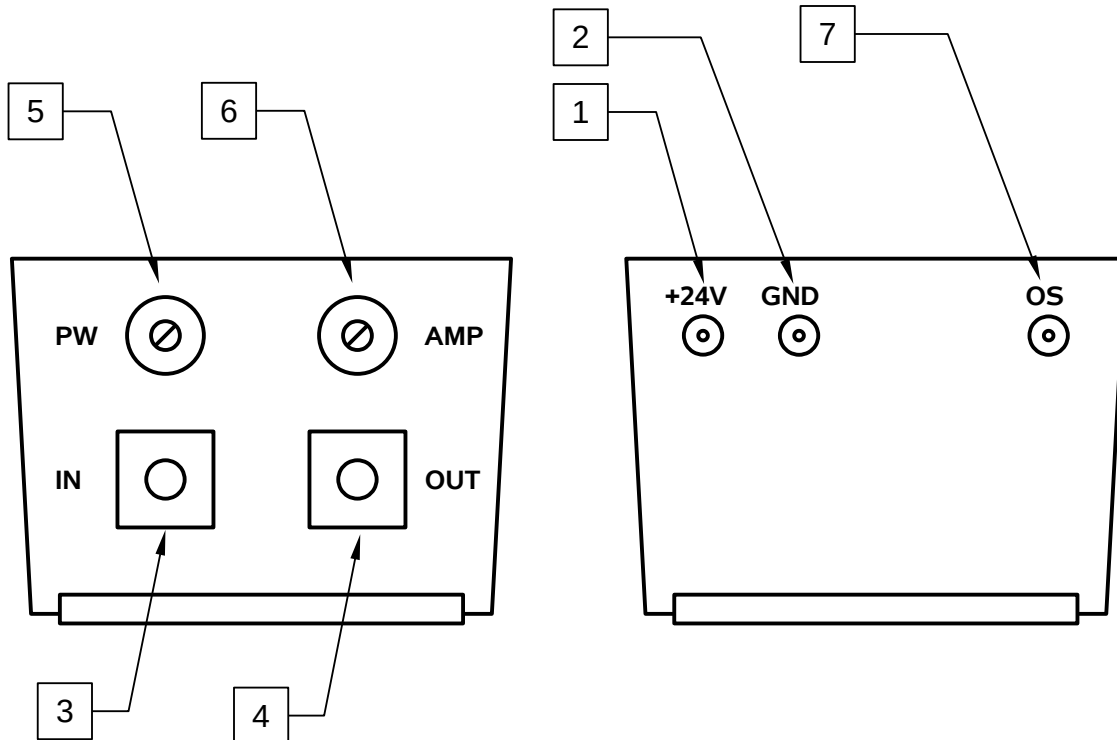
Model:	AVMP-2-N-GPDA
Amplitude ¹ : (50 Ohm load)	-2 to -10 Volts
Pulse width: (FWHM)	5 - 20 ns
PRF:	0 Hz to 1 MHz
Rise time (20%-80%):	≤ 100 ps
Fall time (80%-20%):	≤ 150 ps
Polarity:	Negative
Required load impedance:	50 Ohms ²
Jitter, Ext trig in to pulse out:	±35 ps
Trigger required:	+5 Volt, > 50 ns (TTL)
Connectors:	
OUT:	SMA
IN:	SMA
DC POWER:	solder terminals
Power requirement:	+24 Volts DC
Dimensions (H x W x D):	43 mm x 66 mm x 107 mm (1.7" x 2.6" x 4.2")
Chassis material:	Cast aluminum, blue enamel
Mounting, Temperature range:	Any, +5°C to +40°C

- 1) For operation at amplitudes of less than 20% of full-scale, best results will be obtained by setting the amplitude near full-scale and using external attenuators on the output.
- 2) A 50 Ohm load is required. Other loads may damage the instrument. Consult Avtech (info@avtechpulse.com) if you need to drive other load impedances.

BASIC TEST ARRANGEMENT



CONTROLS



1. +24V POWER Input. Apply +24V prime power to this solder terminal.

The +24V input terminal is protected with a 1N4750A Zener diode, which will fail as a short if an excessive positive voltage ($> 27V$), or a negative voltage, is applied to the terminal.

2. Ground. Connect this solder terminal to your power supply ground.
3. IN Connector. The module triggers from TTL logic levels applied to this SMA connector. The input impedance of this input is $> 1\text{ k}\Omega$. Depending on the length of cable attached to this input, and the source driving it, it may be desirable to add a coaxial 50Ω terminator to this input to provide a proper transmission line termination. The Pasternack (www.pasternack.com) PE6026 SMA feed-thru 50Ω terminator is suggested for this purpose.
4. OUT Connector. This is the main output. (This output *requires* a 50Ω load to function properly).
5. PW Control. To control the pulse width of the output, rotate this potentiometer using a small screwdriver. Fully counter-clockwise corresponds to minimum output pulse width, and fully clockwise corresponds to maximum output pulse width.

6. AMP Control. To control the amplitude of the output, rotate this potentiometer using a small screwdriver. Fully counter-clockwise corresponds to minimum output amplitude, and fully clockwise corresponds to maximum output amplitude.
7. OS Terminal. A DC offset may be added to this input terminal. It will appear on the output, combined with the pulse. The DC offset must not exceed ± 50 Volts or 250 mA.

GENERAL OPERATING NOTES

- 1) The bandwidth capability of components and instruments used to display the pulse generator output signal (attenuators, cables, connectors, etc.) should exceed 10 GHz.
- 2) The use of 40 dB attenuator on the output will ensure a peak input signal to the sampling scope of less than 1V.
- 3) In general, the source pulse generator trigger delay control should be set in the 0.1 to 1.0 us range, for proper positioning of the output pulse on the sampling oscilloscope display.
- 4) WARNING: The module may fail if triggered at a PRF greater than 1 MHz.
- 5) The output pulse width is controlled by means of the one turn potentiometer (PW). The pot should initially be set maximum clockwise and the pulse width adjusted using an oscilloscope.
- 6) The output pulse amplitude is controlled by means of the one turn potentiometer (AMP). The pulse width may change by several nanoseconds as the output amplitude is reduced from maximum to minimum. Therefore it is convenient to first set the desired amplitude and then set the desired pulse width. Rotation of the PW pot causes the position of the falling edge of the pulse to change.
- 7) Some properties of the output pulse may change as a function of the amplitude pot setting. For some demanding applications, it may be desirable to use a combination of external attenuators and the amplitude pot to achieve the desired output amplitude.

PERFORMANCE CHECK SHEET