AVTECH ELECTROSYSTEMS LTD.

NANOSECOND WAVEFORM ELECTRONICS
SINCE 1975

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INSTRUCTIONS

MODEL AVP-AV-1S-P-UCIA

0 to 5V, 0.2 to 4 ns

PULSE GENERATOR MODULE

WITH 65 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 dissembled, 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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Manual Reference: /fileserver1/officefiles/instructword/avp/AVP-AV-1S-P-UCIA,edition2.odt.
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INTRODUCTION

The AVP-AV-1S-P-UCIA is a high performance DC-powered module capable of generating up to +5V into 50Ω loads at repetition rates up to 1 MHz. The rise time is less than 65 ps, and the fall time is less than 200 ps. The pulse width is variable from 0.2 to 4 ns.

The AVP-AV-1S-P-UCIA must be triggered by an external TTL pulse (> 50 ns) applied to the “IN” connector.

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

The AVP-AV-1S-P-UCIA is identical to the standard AVP-AV-1S-P, except that the DC power supply voltage is +12V, instead of the standard +15V.

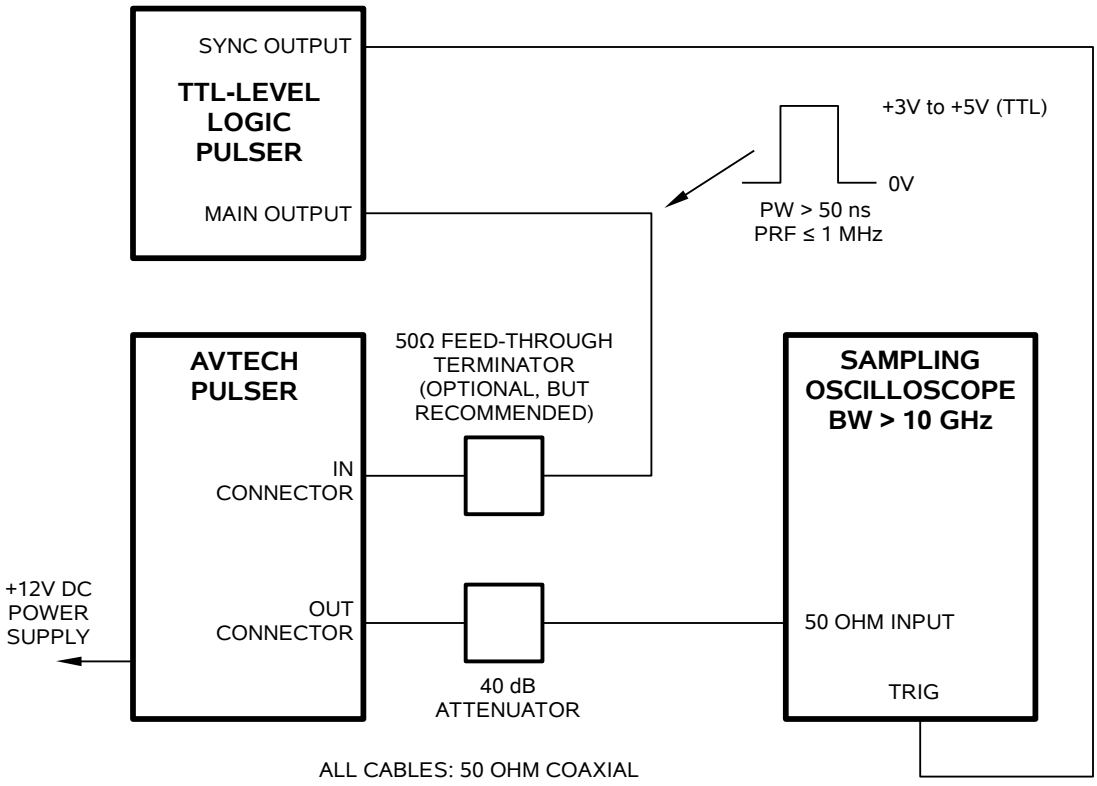
This instrument is intended for use in research and development laboratories.

SPECIFICATIONS

Model:	AVP-AV-1S-P-UCIA
Amplitude[1]: (50 Ohm load)	0 to 5 Volts
Pulse width: (FWHM)	0.2 - 4 ns
PRF:	0 Hz to 1 MHz
Rise time (20%-80%):	≤ 65 ps
Fall time (80%-20%):	≤ 200 ps
Polarity:	Positive
Required load impedance:	50 Ohms[2]
Propagation delay:	≤ 70 ns (Ext trig in to pulse out)
Jitter, Ext trig in to pulse out:	±15 ps
Trigger required:	+5 Volt, 50 ns to 500 ns (TTL).
Connectors: OUT: IN: DC POWER:	 SMA SMA solder terminals
Power requirement:	+12 Volt, 200 mA
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 – FRONT AND TOP

The location of the IN and OUT connectors, the optional “M” connector, and the amplitude and pulse width controls are shown in the photo below.

The “AMP” and “PW” controls may be adjusted using a screwdriver.

CONTROLS - REAR

The location of the power terminals are shown in the photo below.

The +12V input terminal is protected with a Zener diode, which will fail as a short if an excessive positive voltage (> 15V), or a negative voltage, is applied to the terminal.

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 one volt.

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