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NANOSECOND WAVEFORM ELECTRONICS
SINCE 1975

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BOX 5120, LCD MERIVALE
OTTAWA, ONTARIO
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INSTRUCTIONS

MODEL AVH-HV1

100V, 1 ns, 100 kHz

IMPULSE GENERATOR

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

Phone: 888-670-8729 (USA & Canada) or +1-613-686-6675 (International)

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Manual Reference: /fileserver1/officefiles/instructword/avh/AVH-HV1, ed2.odt.
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INTRODUCTION

The AVH-HV1 is a high performance DC-powered module capable of generating impulses of up to 100V into 50 Ω loads at repetition rates up to 100 kHz. The pulse width (at the 20% point) is fixed at < 1 ns.

Instruments with the "-P" model suffix can generate up to +100V, whereas instruments with the "-N" model suffix can generate up to -100V.

The AVH-HV1 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, development, test and calibration laboratories by qualified personnel.

SPECIFICATIONS

Model:	AVH-HV1
Amplitude ¹ : (50Ω load)	10 to 100 V
Pulse width, measured at 20% rise time ⁶ :	≤ 1.0 ns standard, ≤ 0.8 ns optional ²
PRF:	0 to 100 kHz
Polarity ³ :	Positive or negative (specify)
Propagation delay:	≤ 75 ns (Ext trig in to pulse out)
Required load impedance:	50 Ohms ⁵
Jitter:	± 15 ps (Ext trig in to pulse out)
DC offset option ⁴ :	Apply required DC offset to back-panel solder terminals (± 50 Volts, 250 mA max)
Trigger modes:	External trigger (TTL level pulse, > 50 ns, 1 kΩ input impedance).
Connectors:	In, Out: SMA, Power: Solder terminals
Calibration:	Not calibrated. For high-accuracy applications requiring traceable calibration, verify the output parameters with a calibrated oscilloscope.
Power requirements:	+ 15 Volts, 400 mA
Dimensions (H x W x D):	43 mm x 66 mm x 107 mm (1.7" x 2.6" x 4.2")
Operating temperature:	+5°C to +40°C

- 1) For operation of variable-amplitude units 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) For 800 ps pulse width option, add suffix -T1.
- 3) Indicate desired polarity by suffixing model number with -P or -N (i.e. positive or negative)
- 4) For DC offset option suffix the model number with -OS. Avtech Model AVX-T bias tee can also be used to obtain DC offset.
- 5) 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.
- 6) The FWHM pulse width, measured at 50% rise, will be lower.

REGULATORY NOTES

FCC PART 18

This device complies with part 18 of the FCC rules for non-consumer industrial, scientific and medical (ISM) equipment.

This instrument is enclosed in a rugged metal chassis and uses a filtered power entry module (where applicable). The main output signal is provided on a shielded connector that is intended to be used with shielded coaxial cabling and a shielded load. Under these conditions, the interference potential of this instrument is low.

If interference is observed, check that appropriate well-shielded cabling is used on the output connectors. Contact Avtech (info@avtechpulse.com) for advice if you are unsure of the most appropriate cabling. Also, check that your load is adequately shielded. It may be necessary to enclose the load in a metal enclosure.

If any of the connectors on the instrument are unused, they should be covered with shielded metal "dust caps" to reduce the interference potential.

This instrument does not normally require regular maintenance to minimize interference potential. However, if loose hardware or connectors are noted, they should be tightened. Contact Avtech (info@avtechpulse.com) if you require assistance.

EC DECLARATION OF CONFORMITY



We Avtech Electrosystems Ltd.
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 Ottawa, Ontario
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declare that this pulse generator meets the intent of Directive 2004/108/EG for Electromagnetic Compatibility. Compliance pertains to the following specifications as listed in the official Journal of the European Communities:

EN 50081-1 Emission

EN 50082-1 Immunity

and that this pulse generator meets the intent of the Low Voltage Directive 2006/95/EC. Compliance pertains to the following specifications as listed in the official Journal of the European Communities:

EN 61010-1:2001 Safety requirements for electrical equipment for measurement, control, and laboratory use

DIRECTIVE 2011/65/EU (RoHS)

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declare that, to the best of our knowledge, all electrical and electronic equipment (EEE) sold by the company are in compliance with Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (also known as “RoHS Recast”). In addition, this declaration of conformity is issued under the sole responsibility of Avtech Electrosystems Ltd. Specifically, products manufactured do not contain the substances listed in the table below in concentrations greater than the listed maximum value.

<i>Material/Substance</i>	<i>Threshold level</i>
Lead (Pb)	< 1000 ppm (0.1% by mass)
Mercury (Hg)	< 1000 ppm (0.1% by mass)
Hexavalent Chromium (Cr6+)	< 1000 ppm (0.1% by mass)
Polybrominated Biphenyls (PBB)	< 1000 ppm (0.1% by mass)
Polybrominated Diphenyl ethers (PBDE)	< 1000 ppm (0.1% by mass)
Cadmium (Cd)	< 100 ppm (0.01% by mass)

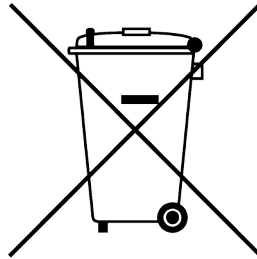
DIRECTIVE 2002/96/EC (WEEE)

European customers who have purchased this equipment directly from Avtech will have completed a “WEEE Responsibility Agreement” form, accepting responsibility for WEEE compliance (as mandated in Directive 2002/96/EC of the European Union and local laws) on behalf of the customer, as provided for under Article 9 of Directive 2002/96/EC.

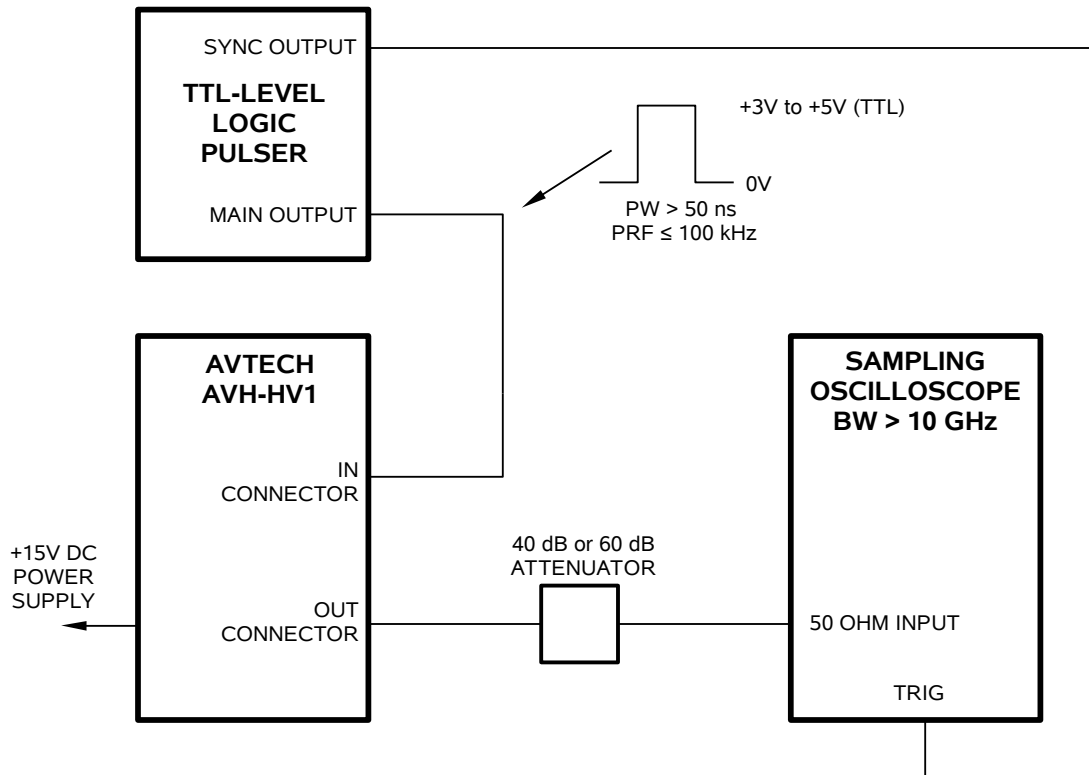
Customers who have purchased Avtech equipment through local representatives should consult with the representative to determine who has responsibility for WEEE

compliance. Normally, such responsibilities will lie with the representative, unless other arrangements (under Article 9) have been made.

Requirements for WEEE compliance may include registration of products with local governments, reporting of recycling activities to local governments, and financing of recycling activities.



BASIC TEST ARRANGEMENT



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 a 40 dB or 60 dB attenuator on the output will ensure a peak input signal to the sampling scope of less than 1V.
- 3) The output amplitude is controlled by the one-turn "AMP" control.
- 4) Minor adjustments to the output pulse width and pulse shape can be made by adjusting the ten-turn trimpot controls on the top of the module with a screwdriver. The trimpot furthest from the SMA connections tends to move the leading edge of the impulse. The trimpot closest to the SMA connections tends to move the trailing edge of the impulse.
- 5) WARNING: The module may fail if triggered at a PRF greater than 100 kHz.

PERFORMANCE CHECK SHEET