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NANOSECOND WAVEFORM ELECTRONICS
SINCE 1975

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INSTRUCTIONS

MODEL AVC

35 V_{PP} FIXED TUNED

MONOCYCLE GENERATOR MODULE

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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Manual Reference: /fileserver1/officefiles/instructword/avc/AVC module, ed1.odt.
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INTRODUCTION

The AVC series of monocyte generators allows the generation of high-speed monocyte waveforms, with peak-to-peak amplitudes of 35 V into 50 Ω loads. The amplitude of the output waveform is not adjustable. The amplitude decreases somewhat for repetition rates above 100 kHz. The maximum repetition rate is 1 MHz.

The monocyte center frequency is fixed. The width of each half of the monocyte is "X.X" nanoseconds, where AVC-X.X is the model number. For instance, for the AVC-6.7, the positive and negative portions each last 6.7 ns (approximately), for a total duration of 13.4 ns, equivalent to a center frequency of $1 / 13.4 \text{ ns} = 75 \text{ MHz}$.

See the online application note, "TB13 - How Is the Center Frequency of a Monocyte Waveform Measured?" at <http://www.avtechpulse.com/appnote/techbrief13/> for information about center frequency measurements.

The AVC 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:	AVC
Center frequency:	20-200 MHz, T_1 :2.5-25 ns ²
Amplitude: (V_{pp} , 50 Ω)	≥ 35
PRF _{max} (MHz):	1.0 for $T_1 = 2.5$ ns 0.1 for $T_1 = 25$ ns
Spurious signals:	-26 dB (WRT peak)
Propagation delay:	≤ 50 ns (Ext trig in to pulse out)
Jitter:	± 15 ps (Ext trig in to pulse out)
DC offset option ³ :	Apply required DC offset (± 50 V, 250 mA max) to back-panel terminals
Trigger required:	+5 Volt, 50 to 500 ns (TTL)
Connectors:	In, Out: SMA. Power: solder terminals.
Power requirement:	+15 Volt, 200 mA
Dimensions:	43 x 66 x 107 mm (1.7" x 2.6" x 4.2")
Chassis material:	Cast aluminum, blue enamel
Temperature range:	+5°C to +40°C

- 1) -C suffix indicates stand-alone lab instrument with internal clock and line powering. No suffix indicates miniature module requiring DC power and external trigger. (See <http://www.avtechpulse.com/formats> for details of the basic instrument formats).
- 2) Specify required frequency (or T1).
- 3) For DC offset option suffix model number with -OS. Avtech Model AVX-T bias tee can also be used to obtain DC offset.

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. 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



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declare that this pulse generator meets the intent of Directive 89/336/EEC 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 72/23/EEC as amended by 93/68/EEC. 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 2002/95/EC (RoHS)

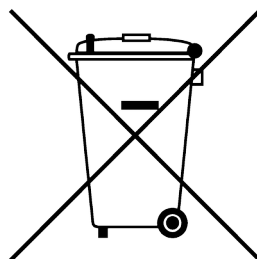
This instrument is exempt from Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the Restriction of the use of certain Hazardous Substances (RoHS) in electrical and electronic equipment. Specifically, Avtech instruments are considered "Monitoring and control instruments" (Category 9) as defined in Annex 1A of Directive 2002/96/EC. The Directive 2002/95/EC only applies to Directive 2002/96/EC categories 1-7 and 10, as stated in the "Article 2 - Scope" section of Directive 2002/95/EC.

DIRECTIVE 2002/96/EC (WEEE)

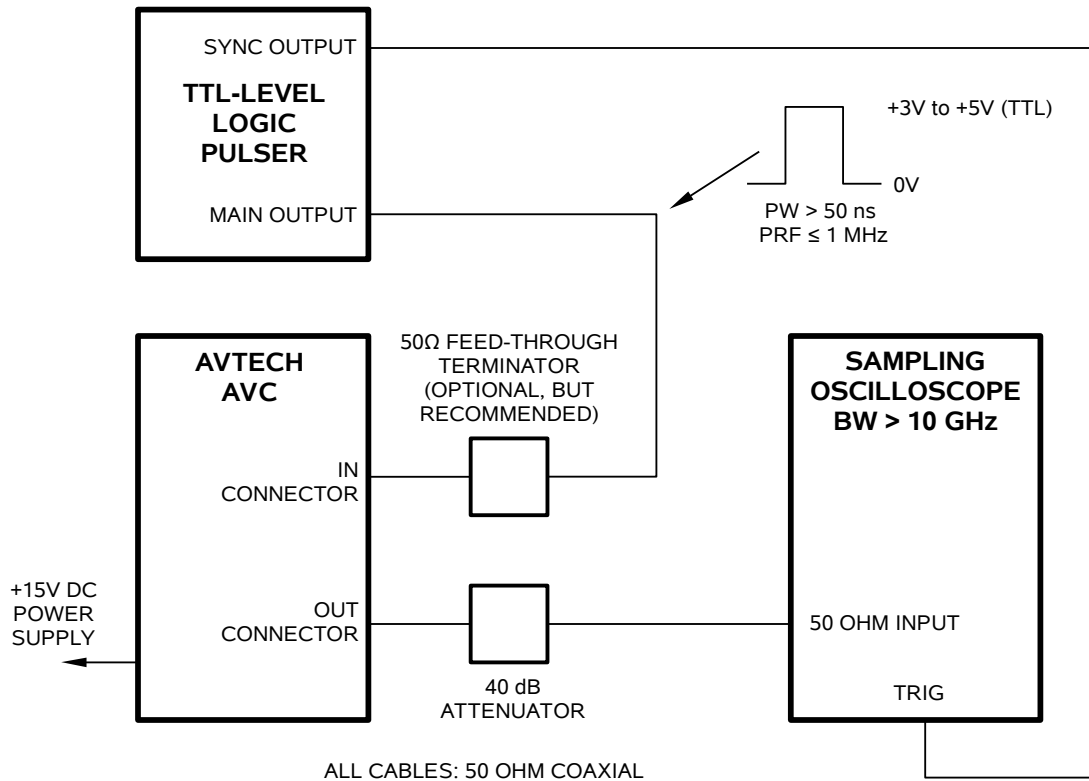
European customers who have purchased this equipment directly from Avtech will have completed a "WEEE Responsibility Agreement" form, accepting responsibility for WEEE compliance (as mandated in Directive 2002/96/EC of the European Union and local laws) on behalf of the customer, as provided for under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



DC POWER SUPPLY

The AVC must be connected to a stable +15V DC power supply (as well as a ground connection).

The power supply input is protected from excessive voltages and incorrect polarities by an externally-mounted (and replaceable) 1N4746A Zener diode. This diode may be damaged by reversed polarities, or voltages exceeding 18V.

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 much less than 1V.
- 3) To DC offset the output pulse connect a DC power supply set to required DC offset value to the terminals marked "OS". The maximum attainable DC offset voltage is

+50 Volts. (Option).

- 4) WARNING: The module may fail if triggered at a PRF greater than 1 MHz.

PERFORMANCE CHECK SHEET