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NANOSECOND WAVEFORM ELECTRONICS  
SINCE 1975

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### INSTRUCTIONS

MODEL AVB1-5-833-ADRB

80 VOLTS PEAK-TO-PEAK

666 TO 1000 MHz

MONOCYCLE 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.

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Manual Reference: /files/server1/officefiles/instructword/avb/AVB1-5-833-ADRB,ed1.odt.  
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## INTRODUCTION

The AVB1-5-833-ADRB monocyte generator allows the generation of high-speed monocyte waveforms, with peak-to-peak amplitudes of up to 80 V into 50 $\Omega$  loads.

The monocyte center frequency is nominally 833 MHz, adjustable over a  $\pm 20\%$  range (666 to 1000 MHz, approximately). 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 AVB1-5-833-ADRB can operate at repetition rates of up to 200 kHz. An externally-generated TTL-level signal is required to trigger the AVB1-5-833-ADRB.

The AVB1-5-833-ADRB is powered by +24V DC.

The output is designed to drive 50 $\Omega$  loads. (A 50 $\Omega$  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.

## ORIGINAL QUOTATION AND SPECIFICATIONS

**Model number:** AVB1-5-833-ADRB

**Description:** Customized DC-Powered Monocycle Generator Module

**Center Frequency:** 833 MHz. Can be varied  $\pm 10\%$  using a one-turn trimpot.

**Amplitude:** Controlled by a one turn control and a two position switch.

**High range:**  $\approx 20$  to 80 Volts (peak to peak)

**Low Range:**  $\approx 0$  to 70 Volts (peak to peak)

**PRF:** Up to 200 kHz, controlled by the input trigger signal PRF.

**Trigger signal:** A TTL-level pulse must be applied to the trigger input, to trigger the output. The trigger pulse width should be  $> 50$  ns in width. The input impedance is 50 Ohms.

Note: This specification was changed during production. The input impedance is now  $\geq 1$  k $\Omega$  at the TRIG connector. A 50 $\Omega$  feed-through terminator is included as an accessory. This may be installed on the TRIG connector to reduce the input impedance to 50 $\Omega$ , if desired.

**Monitor output:** An SMA connector provides an attenuated (-20 dB) coincident replica of the output voltage pulse.

**Prime power:** +24V DC, 500 mA (estimated).

**Chassis size:** 8.5 x 16 x 18 cm

**Temperature range:** +5°C to +40°C

**Connectors:** The output, input trigger, and monitor signals use SMA connectors. The DC solder connector is located on an 8.5 x 16 cm end face. The SMA connectors are located on the opposite 8.5 x 16 cm end face.

**Price (Qty 1):** \$XXXX USD each, DAP (Delivered At Place). Includes the cost of shipping and insurance, but excludes customs duties, taxes, and other import fees. Shipments are from Canada, via FedEx.

**Price (Qty 2):** \$ XXXX USD each, DAP (Delivered At Place). Includes the cost of shipping and insurance, but excludes customs duties, taxes, and other import fees. Shipments are from Canada, via FedEx.

**Quote valid for:** 8 weeks

**Note:** Orders with Avtech are non-cancelable, non-refundable. Avtech does not offer returns, due to the highly-specialized low-volume nature of our instruments.

**Estimated delivery:** 6-8 weeks after receipt of order (excluding export permit\* delays).

**\*Export Permit:** These instruments are very high performance pulse generators, which are considered to be "Nuclear-Related Dual-Use Goods" under government regulations (US ECCN 3A230, Canada ECL 4-5.B.6). As such, an "End Use Statement - High Speed Models" form must be completed when ordering. The necessary form is attached, and is also available at <http://www.avtechpulse.com/end-use/EndUseStatement,HighSpeed,v10.doc>. We will use the information in the completed form to apply for an export license from the Canadian government, which will take 1 to 6

weeks to obtain. We cannot ship your order without the license. Please return the completed form to us by fax or email.

**WEEE/ROHS notes:** The form available at [http://www.avtechpulse.com/green/weee\\_agreement.pdf](http://www.avtechpulse.com/green/weee_agreement.pdf) must be completed and faxed or emailed to Avtech prior to any direct sales by Avtech to European customers.

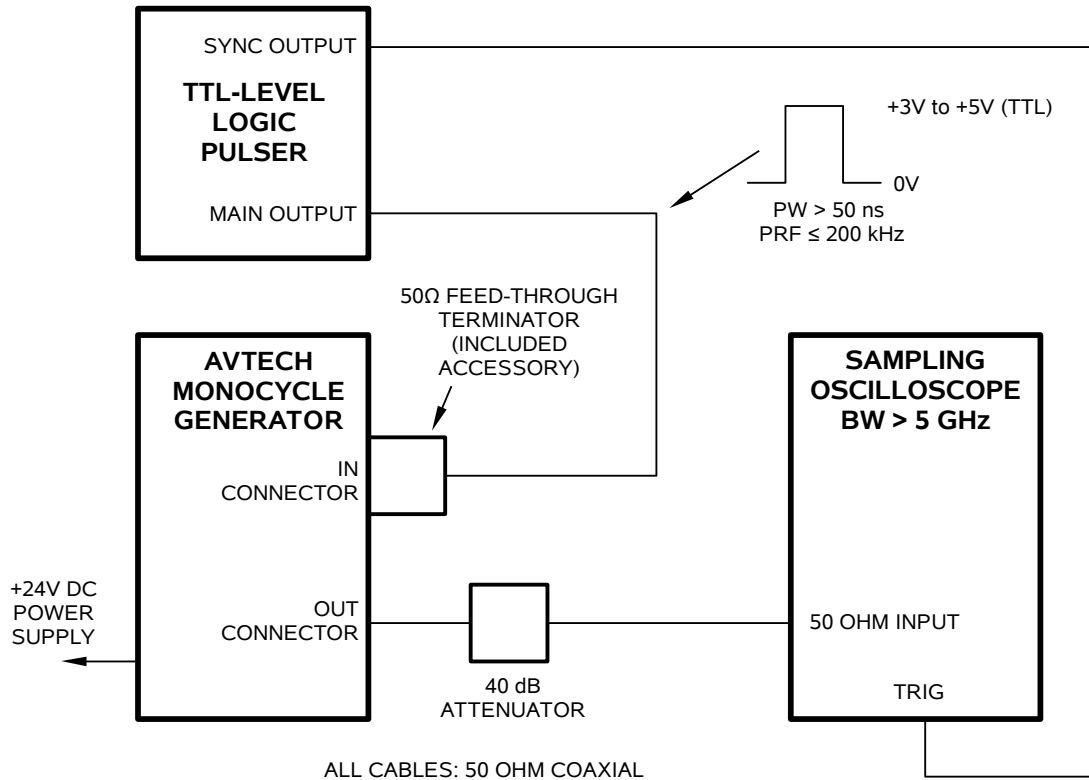
**Shipping Restrictions:** Because this item is subject to export controls (US ECCN 3A230, Canada ECL 4-5.B.6), this item must be shipped directly to the end user's company or institution (or a local authorized Avtech representative). This item can not be shipped to third-party resellers, purchasing agencies, freight forwarders, or logistics providers.

**Avtech corporate registrations:** DUNS: 208 910 836, Cage Code (USA): 0BWA5, Tax ID (USA EIN): 98-0117622

## GENERAL INFORMATION

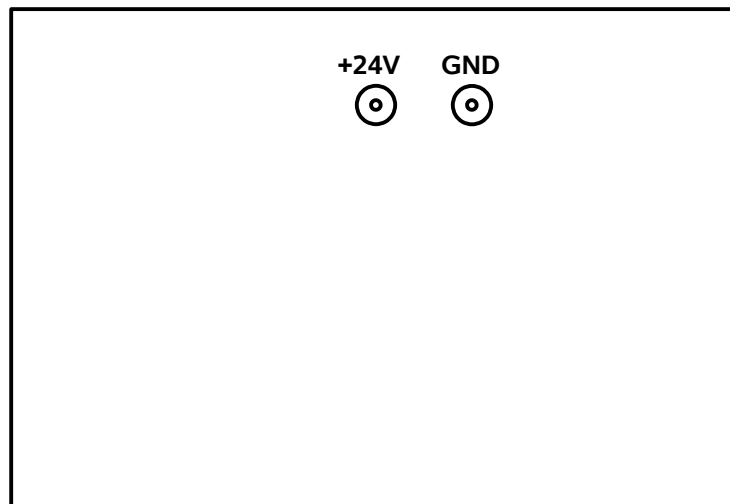
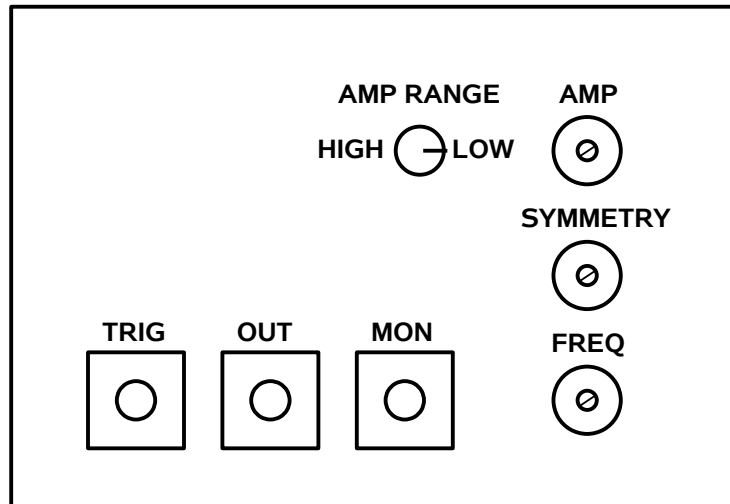
### BASIC TEST ARRANGEMENT

The AVB1-5-833-ADRB should be tested with a sampling oscilloscope with a bandwidth of at least 5 GHz to properly observe the high-speed waveform. A typical test arrangement is shown below:



The attenuators are required to prevent damage to the sampling oscilloscope. A 40 dB attenuator with sufficient voltage rating should be used on the main output.

## CONTROLS



The external trigger is applied to the TRIG input connector. The input impedance at the TRIG connector is  $\geq 1\text{k}\Omega$ . A feed-through 50 terminator is included with the AVB1-5-833-ADRB, and is recommended for maximum signal integrity. The terminator may be installed directly on to the TRIG connector.

The output signal is provided on the OUT connector. This should always be terminated with a 50 Ohm load.

The monitor output is provided on the MON connector. This is an attenuated version (-20 dB) of the main output, for non-invasive monitoring purposes. When used, it must be terminated with 50 Ohms.



The center frequency can be adjusted from 666 to 1000 MHz, approximately, using the FREQ trimpot. Clockwise rotation increases the center frequency.

The symmetry adjustment can be used to tweak the waveform slightly, particularly to improve the shape at higher PRFs. Clockwise rotation tends to increase the separation between the positive and negative peaks of the waveform.

When the AMP RANGE switch is in the "HIGH" position, the output amplitude is fixed at its maximum possible value. When it is in the "LOW" position, the amplitude is adjustable, but the maximum amplitude is reduced slightly due to losses in the amplitude control circuitry.

The +24V and GND power terminals are on the opposite face of the module.

PERFORMANCE CHECK SHEET