



AVTECH ELECTROSYSTEMS LTD.

NANOSECOND WAVEFORM ELECTRONICS  
SINCE 1975

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## INSTRUCTIONS

MODEL AVB1-3-USD

100V<sub>P-P</sub>, 800 MHz  $f_{CENT}$ , 1 MHz PRF

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

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

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E-mail: [info@avtechpulse.com](mailto:info@avtechpulse.com)

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Manual Reference: /filesserver1/officefiles/instructword/avb/AVB1-3-USD, edition1.odt.  
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## INTRODUCTION

The AVB1-3-USD is a monocycle generator, with an output center frequency of 800 MHz, and a non-adjustable peak-to-peak amplitude of 100 Volts approximately.

The AVB1-3-USD must be triggered by an external TTL pulse ( $> 50$  ns) applied to the "IN" connector.

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 and development laboratories.

## SPECIFICATIONS

Model:	AVB1-3-USD
Frequency: (MHz)	800 MHz, fixed
Amplitude: ( $V_{p-p}$ , to 50 Ohms)	100V approximately, peak-to-peak, fixed
PRFmax (MHz):	1 MHz
Spurious signals: (WRT peak)	26 dB
Propagation delay:	$\leq 50$ ns (Ext trig in to pulse out)
Jitter:	$\pm 15$ ps (Ext trig in to pulse out)
Trigger required:	+5 Volts, 50 to 500 ns (TTL)
Connectors:	Out: SMA, In: SMA, Power: Solder terminals
Power requirements:	+15 Volts, 500 mA
Dimensions (H x W x D):	43 x 76 x 152 mm (1.7" x 3" x 6")
Chassis material:	Cast aluminum, blue enamel
Temperature range:	+5°C to +40°C

ORIGINAL QUOTATION

Date: Tue, 14 Oct 2008 10:08:18 -0400  
From: Avtech Sales

XXXXX,

I am pleased to quote on two possible higher-amplitude configurations:

Quote number: 14511.01

Model number: AVB1-3-USC

Description: Customized Monocycle Generator

Amplitude: > 80V peak-to-peak, non-adjustable

Center frequency: 900 MHz, nominally fixed, but includes a ten-turn dial for tweaking the frequency (similar to the existing model AVB1-3-USB).

Pulse repetition frequency: 1 MHz maximum

Dimensions, main module: 2.6 x 4.3 x 1.7"

Dimensions, output combiner module: 1.5 x 1.3 x 3.3"

Note: This instrument consists of a main module and an output combiner module. The two modules are connected by two short lengths of coaxial cable (similar to the existing model AVB1-3-USB).

Other: similar to the standard AVB1-3 (see <http://www.avtechpulse.com/monocycle/avb1-3>)

Price: \$ XXXXX US each, DDU (Delivered Duty Unpaid). Includes the cost of shipping and insurance, but excludes customs duties, taxes, and other import fees. Shipments are from Canada, and are normally duty-free.

Delivery: 10-12 weeks after receipt of order.

Quote number: 14511.02

Model number: AVB1-3-USD

Description: Customized Monocycle Generator

Amplitude: > 100V peak-to-peak, non-adjustable

Center frequency: 800 MHz, nominally fixed, but includes a ten-turn dial for tweaking the frequency (similar to the existing model AVB1-3-USB).

Pulse repetition frequency: 1 MHz maximum

Dimensions, main module: 2.6 x 4.3 x 1.7"

Dimensions, output combiner module: 1.5 x 1.3 x 3.3"

Note: This instrument consists of a main module and an output combiner module. The two modules are connected by two short lengths of coaxial cable (similar to the existing model AVB1-3-USB).

Other: similar to the standard AVB1-3 (see <http://www.avtechpulse.com/monocycle/avb1-3>)

Price: \$XXXXX US each, DDU (Delivered Duty Unpaid). Includes the cost of shipping and insurance, but excludes customs duties, taxes, and other import fees. Shipments are from Canada, and are normally duty-free.

Delivery: 10-12 weeks after receipt of order.

Please call or email me if I can be of further assistance.

Thank you for your interest in our products!

Regards,

Dr. Michael J. Chudobiak  
Chief Engineer

--- Avtech Electrosystems Ltd. ----- since 1975 ---

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Function Generators - Frequency Dividers - Standard & Customized

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> Dear Sir,

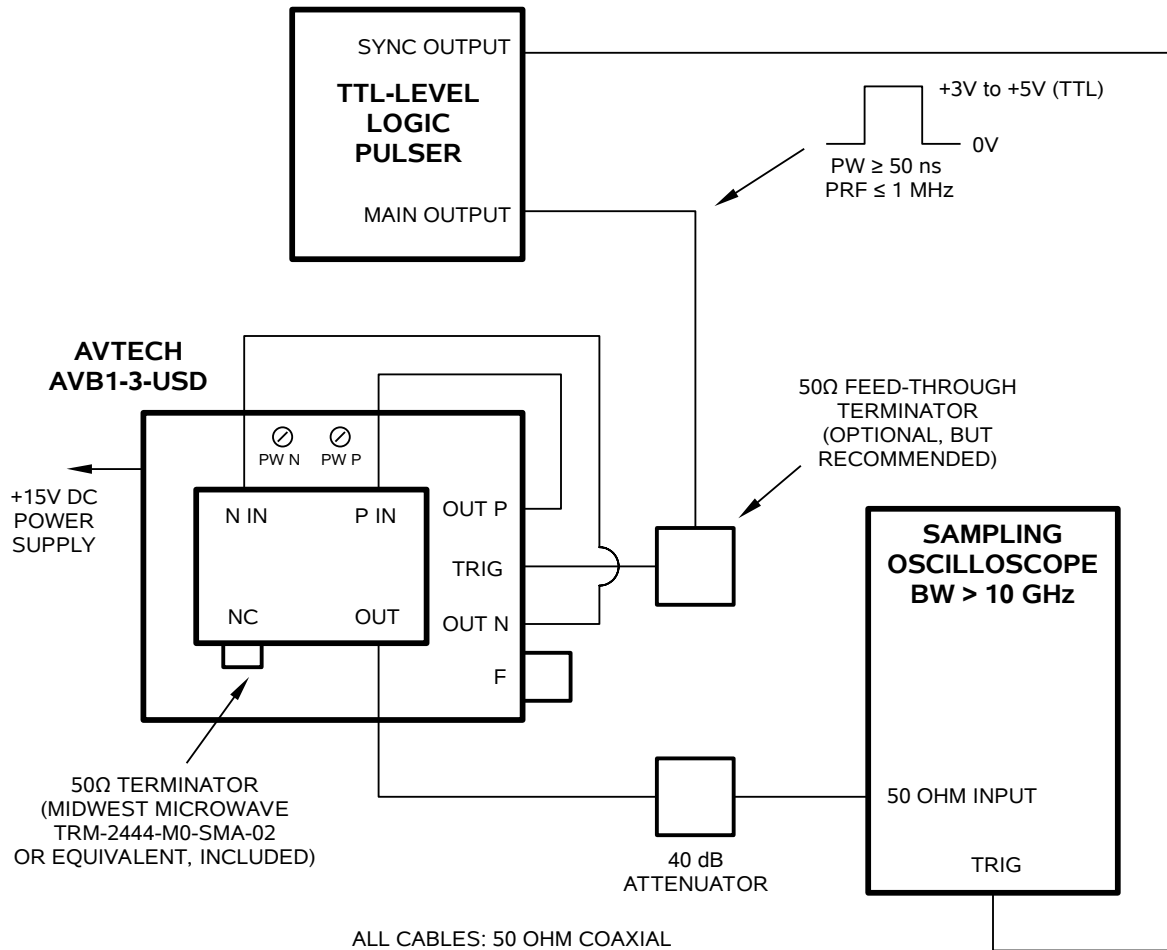
>

> I am interested in buying the pulser AVB1-3-USB which is not list in the  
> website. Could you please check to see if I can get a different model  
> that the same performance but has higher voltage output?

>

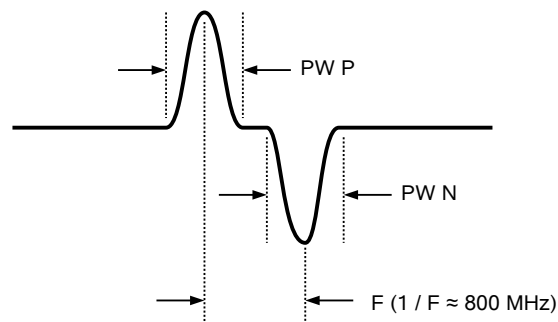
> Thanks

## BASIC TEST ARRANGEMENT



## WAVEFORM CONTROLS

Two trimpots (PW N and PW P) and one ten-turn dial (F) are located on the AVB1-3-USD in the general positions shown above. The PW P and PW N trimpots are accessed from the top cover, and the F dial is accessible from the front end of the chassis. The parameters controlled by these trimpots are shown below:





## GENERAL OPERATING NOTES

- 1) The bandwidth capability of components and instruments used to display the monocyte generator output signal (attenuators, cables, connectors, etc.) should exceed 10 GHz.
- 2) The use of a 40 dB attenuator will ensure a peak input signal to the sampling scope of less than one volt.
- 3) In general, the pulse generator delay control should be set in the 100 ns range. Other settings should be as shown in the above diagram. The monocyte generator output is delayed with respect to the trigger input signal by about 50 ns (typically).
- 4) The module shown should be bolted to a heat sink capable of dissipating at least 5 Watts.
- 5) PW P, PW N and F are sensitive to variations in the +15 VDC voltage supply and therefore a well-regulated DC supply is required.
- 6) The front panel one-turn "F" dial controls the relative time separation between the positive excursion and the negative excursion. This setting is independent of PRF for PRF in the range of 0 to 100 kHz but is a function of PRF for PRF in the range of 100 kHz to 1.0 MHz, At the time of shipping, the F dial was set to provide 800 MHz at a PRF of 100 kHz. The F setting requires a warm-up period of about 5 minutes to stabilize.
- 7) The ten-turn trim pots PW P and PW N respectively control the widths of the positive and negative excursions. At the time of shipping, these controls were set to provide a 800 MHz output at a PRF of 100 kHz. For operation at higher PRF it will be necessary to adjust these trimpots (counter-clockwise rotation).

PERFORMANCE CHECK SHEET