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SINCE 1975

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INSTRUCTIONS

MODEL AV-144B1-HUD
TTL INPUT, +100V OUTPUT
PULSE AMPLIFIER
WITH < 10 ns RISE AND FALL TIMES

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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TABLE OF CONTENTS

WARRANTY.....2

TECHNICAL SUPPORT.....2

TABLE OF CONTENTS.....3

INTRODUCTION.....4

BASIC SPECIFICATIONS.....5

CONTROLS - FRONT.....6

CONTROLS - REAR.....7

POWER SUPPLY SEQUENCING.....7

PROTECTING YOUR INSTRUMENT.....8

DO NOT EXCEED 5% DUTY CYCLE.....8

CONNECT THE POWER SUPPLIES PROPERLY.....8

PERFORMANCE CHECK SHEET.....9

Manual Reference: /filesserver1/officefiles/instructword/av-144/AV-144B1-HUD,ed1.odt.
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INTRODUCTION

The Model AV-144B1-HUD is a DC-powered amplifier module, designed to amplify TTL input pulses. The output pulses are up to +100V in amplitude, approximately, and can drive 50 Ohm loads. The rise and fall times are < 10 ns (20%-80%). Pulse widths to 1 ms and duty cycles to 5% are supported.

The AV-144B1-HUD requires +24V (fixed) and 0 to +102V (variable) DC power supplies. The AV-144B1-HUD contains no internal switching regulators, to provide a low-noise environment.

The +24V supply should be well regulated, and have a tolerance of ± 0.5 V.

The 0 to +102V nominal DC supply may be safely set in the range of 0V to +110V. When this supply is set to +102V approximately, the output is nominally +100V. For lower supply values, the output amplitude will be proportionally lower.

The AV-144B1-HUD output stage is a MOSFET totem-pole circuit. Short-circuit protection circuitry will disable the output temporarily if the output current exceeds +3.5A, approximately.

BASIC SPECIFICATIONS

Model number: AV-144B1-HUD

Description: Customized DC-Coupled Non-Linear Amplifier

Output amplitude: up to +100 Volts, into 50 Ω

Maximum duty cycle: 5%

Pulse width range: 30 ns to 1 ms, $PW_{IN} = PW_{OUT}$ (approximately)

Rise and fall times (20%-80%): < 10 ns (into a 50 Ω load)

Output circuit style: MOSFET totem-pole stage. Unlike the earlier and faster AV-144B1-HUC, no nonlinear rise/fall-time-sharpening circuits are present.

Input amplitude: TTL logic levels

Input impedance: 470 Ohms

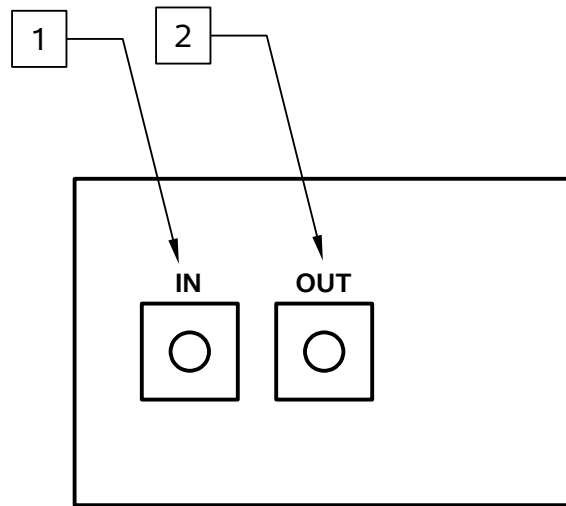
Output impedance: < 5 Ohms

Prime Power: a) +24 VDC (+/- 0.5V), 300 mA
b) 0 to +102 VDC, 100 mA


Connectors, Trig & Out: SMA

Connectors, DC Power: accessible on an MTA 0.156" type header. One mating connector will be supplied.

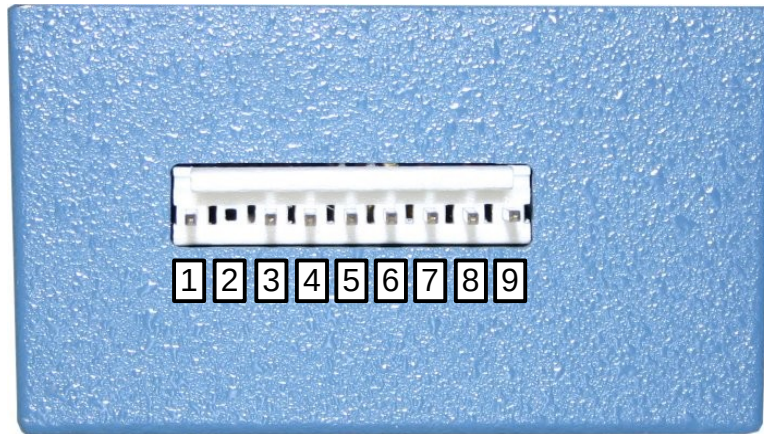
Chassis Size: 1.7" x 3.0" x 6.0"

CONTROLS - FRONT

1. IN CONNECTOR. This TTL-level (0 and +5V) logic input is used to trigger the instrument. The instrument triggers on the rising edge of this input. The input impedance of this input is 470 Ω . (Depending on the length of cable attached to this input, and the source driving it, it may be desirable to add a coaxial 50 Ohm terminator to this input to provide a proper transmission line termination. The Pasternack (www.pasternack.com) PE6008-50 BNC feed-thru 50 Ohm terminator is suggested for this purpose.)
2. OUT CONNECTOR. This SMA connector provides the main output signal, into load impedances of 50 Ω .

 Caution: Voltages as high as +100V may be present on the center conductor of this output connector. Avoid touching this conductor. Connect to this connector using standard coaxial cable, to ensure that the center conductor is not exposed.

CONTROLS - REAR



PIN 1. Connect the 0 to +102V DC power supply here.

PIN 2. Not used – pin removed.

PINS 3, 4, 5. Connect the power supply ground(s) here.

PIN 6. Connect the +24V DC power supply here.

PIN 7. Do not use. This is connected to the internal +5V regulator. No external connections should be made.

PIN 8. Not used – no internal connections.

PIN 9. +24V. This pin is connected internally to PIN 6.

POWER SUPPLY SEQUENCING

The relative sequencing of the two DC power supplies is not critical.

PROTECTING YOUR INSTRUMENT

DO NOT EXCEED 5% DUTY CYCLE

The output duty cycle should never exceed 5%. Operation at lower duty cycles results in less power dissipation, extending the lifetime of the circuitry.

CONNECT THE POWER SUPPLIES PROPERLY

The +24V and 0 to +102V power supplies are not protected against improper voltages. Make sure they are correctly applied.

PERFORMANCE CHECK SHEET