



AVTECH ELECTROSYSTEMS LTD.

NANOSECOND WAVEFORM ELECTRONICS
SINCE 1975

□ P.O. BOX 265
OGDENSBURG, NY
U.S.A. 13669-0265
TEL: (315) 472-5270
FAX: (613) 226-2802

TEL: 1-800-265-6681
FAX: 1-800-561-1970

e-mail: info@avtechpulse.com
<http://www.avtechpulse.com>

□ P.O. BOX 5120 STN. F
OTTAWA, ONTARIO
CANADA K2C 3H4
TEL: (613) 226-5772
FAX: (613) 226-2802

INSTRUCTIONS

MODEL AV-141F-145C2-PS-PNLA

+20dB FIXED-GAIN AMPLIFIER
AND
0 TO ± 40 dB VARIABLE-GAIN AMPLIFIER

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: 613-226-5772 or 1-800-265-6681

Fax: 613-226-2802 or 1-800-561-1970

E-mail: info@avtechpulse.com

World Wide Web: <http://www.avtechpulse.com>

TABLE OF CONTENTS

WARRANTY	2
TECHNICAL SUPPORT	2
TABLE OF CONTENTS	3
INTRODUCTION	4
SPECIFICATIONS	4
ORIGINAL QUOTATION	5
INSTALLATION	6
VISUAL CHECK	6
PLUGGING IN THE INSTRUMENT	6
FRONT PANEL CONTROLS	8
REAR PANEL CONTROLS	10
OTHER INFORMATION	11
TOP COVER REMOVAL	11
RACK MOUNTING	11
ELECTROMAGNETIC INTERFERENCE	11
PERFORMANCE CHECK SHEET	12

INTRODUCTION

The AV-141F-145C2-PS-PNLA is a special-purpose amplifier that combines the standard AV-141F-PS and AV-145C2-PS amplifiers in a single chassis. The two amplifiers are independent, with separate inputs and outputs.

SPECIFICATIONS

Fixed-gain section (based on AV-141F-PS):

Standard Model:	AV-141F-PS
Bandwidth:	DC - 75 MHz
Gain: in dB:	20 dB
voltage gain:	$\times 10$
Rise/fall time ¹ :	4 ns
Input impedance:	50 Ω
Peak output: (to 50 Ω)	± 5 V
Output impedance:	50 Ω
Min. input pulse width:	10 ns
Max. input pulse width:	No limit.
Equivalent input noise:	4 nV/ $\sqrt{\text{Hz}}$
Connectors:	SMA
Prime power:	120 / 240 Volts (switchable) 50 - 60 Hz

Variable-gain section (based on AV-145C2-PS):

Standard Model:	AV-145C2-PS
Bandwidth:	DC-35 MHz
Gain:	-40 to +40 dB (C2) ($\times 0.01$ to $\times 100$ voltage)
Peak output:	± 10 V
Maximum input:	± 400 mV
Gain control Bandwidth ¹ :	80 dB/ μs
Control voltage:	0 to +5 Volts
Output noise voltage:	< 5 mV _{RMS}
Rise, fall time:	5 ns
Input impedance:	Input: 50 Ohms
Connectors:	SMA
Prime power:	120/240 Volts (switchable), 50 - 60 Hz

1) Refers to the rate at which the gain may be varied. This is unrelated to the bandwidth of the output.

ORIGINAL QUOTATION

Quote No:	<u>10830</u>	Sender's Fax:	<u>613-226-2802</u>
File:	<u>R:\QUOTES\Q10830.doc</u>	Receiver's Fax:	<u>509-375-6726</u>
To:	<u>Pacific North West National Labs.</u>	Receiver's Phone:	<u>509-375-6824</u>
Attn:	<u>Shane Addleman</u>	Date:	<u>January 7, 2002</u>
Subject:	<u>Price and delivery quotation</u>	Number of pages:	<u>1, including cover</u>

1) Following our telephone conversation of earlier today, I am pleased to quote as follows:

Quote Number:	10830
Model Designation:	AV-141F-145C2-PS-PNLA
Basic Description:	Model AV-141F and a Model AV-145C2 combined in a – PS chassis (with separate SMA IN & OUT connectors) and with a ten-turn lock dial gain control for the AV-145C2 channel.
Price:	\$2,804.00 US, FOB Destination.
Delivery:	60-75 days, after receipt of order.

2) Thank you for your interest in our products. Please call or email me if you require any further information.

Regards,

Dr. Walter Chudobiak
Chief Engineer

WC:mf

INSTALLATION

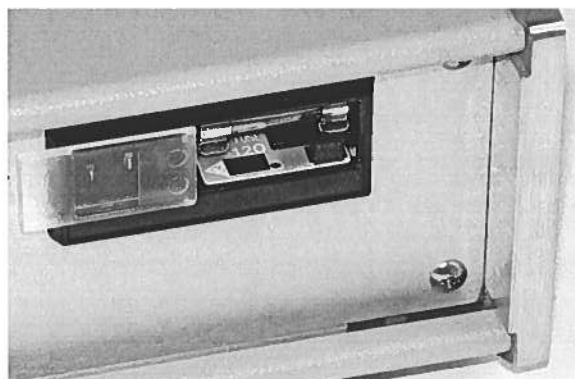
VISUAL CHECK

After unpacking the instrument, examine to ensure that it has not been damaged in shipment. Visually inspect all connectors, knobs, and handles. Confirm that a power cord is with the instrument. If the instrument has been damaged, file a claim immediately with the company that transported the instrument.

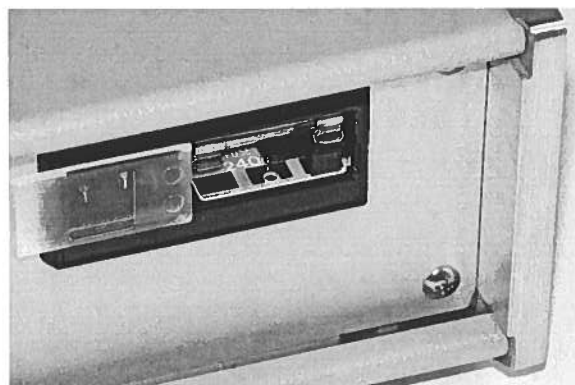
PLUGGING IN THE INSTRUMENT


Examine the rear of the instrument. There will be a male power receptacle, a fuse holder and the edge of the power selector card visible. Confirm that the power selector card is in the correct orientation.

For AC line voltages of 110-120V, the power selector card should be installed so that the "120" marking is visible from the rear of the instrument, as shown below:





For AC line voltages of 220-240V, the power selector card should be installed so that the "240" marking is visible from the rear of the instrument, as shown below:



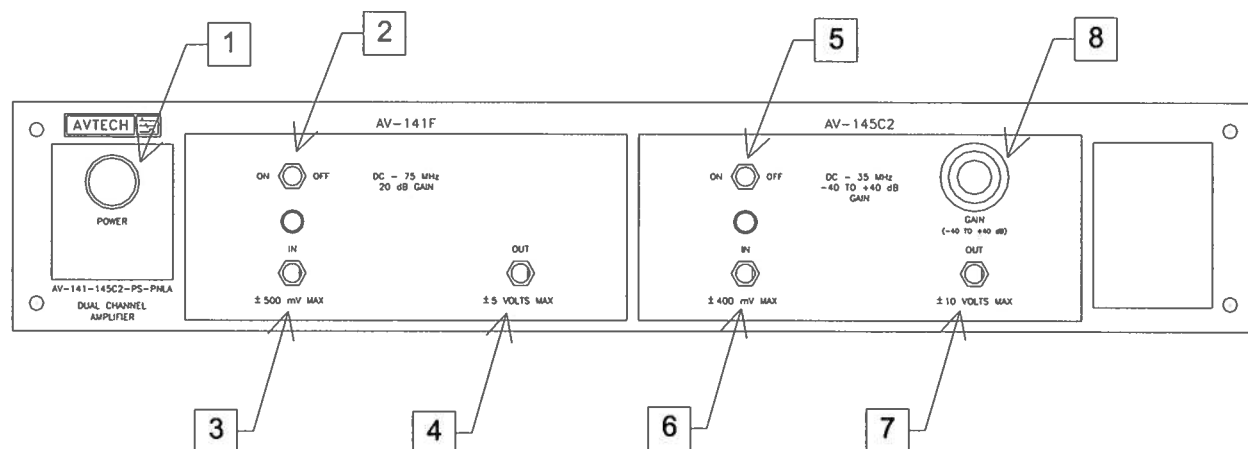


If it is not set for the proper voltage, remove the fuse and then grasp the card with a pair of pliers and remove it. Rotate horizontally through 180 degrees. Reinstall the card and the correct fuse.


In the 120V setting, a 1/2A slow blow fuse is required. In the 240V setting, a 1/4A slow blow fuse is required.



FRONT PANEL CONTROLS

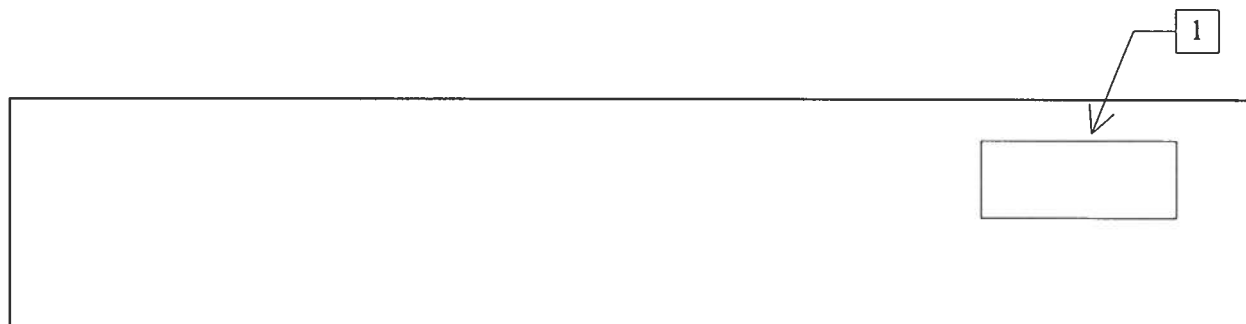


1. **POWER Switch.** The POWER push button switch applies AC prime power to the primaries of the transformer, turning the instrument on. The push button lamp (#382 type) is connected to the internal +15V DC supply.
2. **AV-141F ON/OFF Switch.** This switch enables or disables the AV-141F fixed-gain amplifier section.
3. **AV-141F IN CONNECTOR.** This is the input SMA connector for the AV-141F fixed-gain amplifier section. The input impedance is 50 Ohms. The input signal should not exceed $\pm 0.5V$.
4. **OUT CONNECTOR.** This SMA connector provides the output signal connector for the AV-141F fixed-gain amplifier section, into load impedances of 50Ω . The gain relative to the input is +20 dB (x 10). The maximum output is $\pm 5V$.
5. **AV-145C2 ON/OFF Switch.** This switch enables or disables the AV-145C2 variable-gain amplifier section.
6. **AV-145C2 IN CONNECTOR.** This is the input SMA connector for the AV-145C2 variable-gain amplifier section. The input impedance is 50 Ohms. The input signal should not exceed $\pm 0.4V$.
7. **OUT CONNECTOR.** This SMA connector provides the output signal connector for the AV-145C2 variable-gain amplifier section, into load impedances of 50Ω or higher. The gain relative to the input is adjustable from -40 dB to +40 dB. The maximum output is $\pm 10V$.



GAIN Control. This ten-turn locking dial adjusts the gain of the AV-145C2 variable-gain amplifier section. The gain is adjustable from -40 dB to +40 dB.

REAR PANEL CONTROLS



1. **AC POWER INPUT.** A three-pronged recessed male connector is provided on the back panel for AC power connection to the instrument. Also contained in this assembly is a slow-blow fuse and a removable card that can be removed and repositioned to switch between 120V AC in and 240V AC in.

For AC line voltages of 110-120V, the power selector card should be installed so that the "120" marking is visible from the rear of the instrument.

For AC line voltages of 220-240V, the power selector card should be installed so that the "240" marking is visible from the rear of the instrument.

If it is not set for the proper voltage, remove the fuse and then grasp the card with a pair of pliers and remove it. Rotate horizontally through 180 degrees. Reinstall the card and the correct fuse.

In the 120V setting, a 1/2A slow blow fuse is required. In the 240V setting, a 1/4A slow blow fuse is required. See the "Installation" section for more details.

OTHER INFORMATION

TOP COVER REMOVAL

The interior of the instrument may be accessed by removing the four Phillips screws on the top panel. With the four screws removed, the top cover may be slid back (and off).

RACK MOUNTING

A rack mounting kit is available. The -R5 rack mount kit may be installed after first removing the one Phillips screw on the side panel adjacent to the front handle.

ELECTROMAGNETIC INTERFERENCE

To prevent electromagnetic interference with other equipment, all used outputs should be connected to shielded 50 Ω loads using shielded 50 Ω coaxial cables. Unused outputs should be terminated with shielded 50 Ω BNC terminators or with shielded BNC dust caps, to prevent unintentional electromagnetic radiation. All cords and cables should be less than 3m in length.

Apr 29/02