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SINCE 1975

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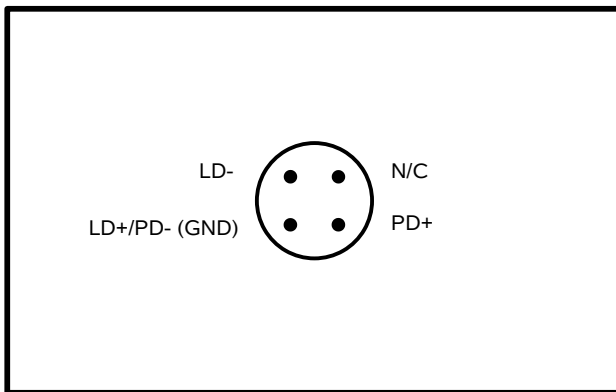
BOX 5120, LCD MERIVALE
OTTAWA, CANADA K2C3H5

INSTRUCTIONS

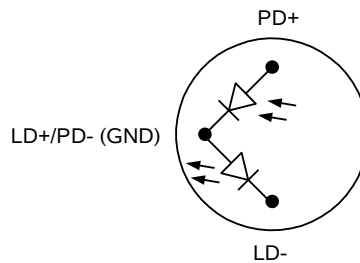
MODEL AVX-S1-P0-HIK1A-MD-INV

PLUG-IN SOCKET OUTPUT MODULE

SERIAL NUMBER: 13940



AVX-S1-P0-HIK1A-MD-INV OUTPUT MODULE,
SOCKET VIEW



**MATCHING USER-SUPPLIED
DIODE PACKAGE
(BOTTOM VIEW).
9 mm PACKAGE, WITH
2.54 mm PIN CIRCLE DIAMETER (PCD)**

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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TABLE OF CONTENTS

WARRANTY.....	2
TECHNICAL SUPPORT.....	2
TABLE OF CONTENTS.....	3
INTRODUCTION.....	4
SPECIFICATIONS.....	5
REGULATORY NOTES.....	6
FCC PART 18.....	6
EC DECLARATION OF CONFORMITY.....	6
DIRECTIVE 2011/65/EU (RoHS).....	7
DIRECTIVE 2002/96/EC (WEEE).....	7
GENERAL INFORMATION.....	9
BASIC TEST ARRANGEMENT.....	9
AMPLITUDE CONTROL.....	10

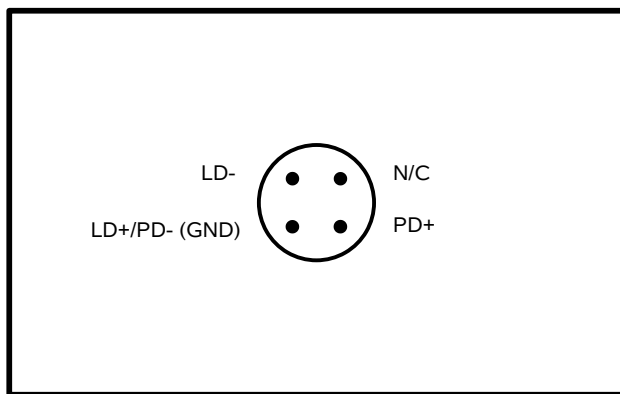
Manual Reference: /files/server1/officefiles/instructword/avx-s/AVX-S1-P0-HIK1A-MD-INV,ed1.odt.
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INTRODUCTION

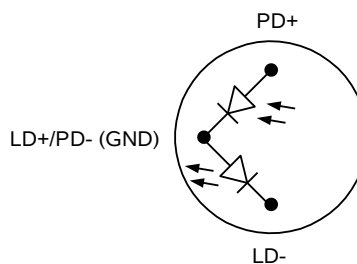
The AVX-S series of bias insertion units is designed to combine a pulse signal with a DC bias, and supply the resulting signal to a laser diode, which is inserted into a high quality socket included on the mount. The bias insertion module includes the necessary networks to match the laser diode to the pulse source, as well as networks for applying DC bias to the diode.

The AVX-S1-P0-HIK1A-MD-INV output module is designed to accommodate a 2, 3 or 4 pin 5.6mm or 9mm package with a 2.54mm pin circle diameter. Four pin sockets are provided, which accept pins of 0.38-0.56 mm diameter (15-22 mils).

An inverting transformer is present in the output module, to allow this module to be used with the AVO-9A3-B-P-P1B-T1B pulser mainframe (S/N 13939).



**AVX-S1-P0-HIK1A-MD-INV OUTPUT MODULE,
SOCKET VIEW**



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9 mm PACKAGE, WITH
2.54 mm PIN CIRCLE DIAMETER (PCD)**

SPECIFICATIONS

Model:	AVX-S1-P0-HIK1A-MD-INV
For use with:	AVO-9A3-B-P-P1B-T1B, S/N 13939
N (transformer ratio):	-1
R_s ¹ :	50 Ω , ½ W
Max. DC bias current:	100 mA
R_{DC} (in series with DC input) ² :	50 Ω , ½ W
Max. DC bias voltage:	50 Volts
IN connector:	1 SMA
Included cables ⁷ :	1
Other connectors:	MV, MI, MD: SMA (female), DC bias: solder terminal
Diode socket:	See manual text
Dimensions:	H x W x D: 42 mm x 67 mm x 76 mm (1.6" x 2.6" x 3.0")
Material:	Cast aluminum, blue enamel

- 1) Do not exceed the rated power dissipation. For pulse mode operation, the power dissipated in R_s is given by $(I_{PULSE}^2 \times R_s \times PW \times PRF) + (I_{DC}^2 \times R_s)$.
- 2) Do not exceed the rated power dissipation. The power dissipated in R_{DC} is given by $(I_{DC}^2 \times R_{DC})$.

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 (where applicable). 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



We Avtech Electrosystems Ltd.
 P.O. Box 5120, LCD Merivale
 Ottawa, Ontario
 Canada K2C 3H5

declare that this pulse generator meets the intent of Directive 2004/108/EG 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 2006/95/EC. 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 2011/65/EU (RoHS)

We Avtech Electrosystems Ltd.
P.O. Box 5120, LCD Merivale
Ottawa, Ontario
Canada K2C 3H5

declare that, to the best of our knowledge, all electrical and electronic equipment (EEE) sold by the company are in compliance with Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (also known as “RoHS Recast”). In addition, this declaration of conformity is issued under the sole responsibility of Avtech Electrosystems Ltd. Specifically, products manufactured do not contain the substances listed in the table below in concentrations greater than the listed maximum value.

<i>Material/Substance</i>	<i>Threshold level</i>
Lead (Pb)	< 1000 ppm (0.1% by mass)
Mercury (Hg)	< 1000 ppm (0.1% by mass)
Hexavalent Chromium (Cr6+)	< 1000 ppm (0.1% by mass)
Polybrominated Biphenyls (PBB)	< 1000 ppm (0.1% by mass)
Polybrominated Diphenyl ethers (PBDE)	< 1000 ppm (0.1% by mass)
Cadmium (Cd)	< 100 ppm (0.01% by mass)
Bis(2-ethylhexyl) phthalate (DEHP)	< 1000 ppm (0.1% by mass)
Butyl benzyl phthalate (BBP)	< 1000 ppm (0.1% by mass)
Dibutyl phthalate (DBP)	< 1000 ppm (0.1% by mass)
Diisobutyl phthalate (DIBP)	< 1000 ppm (0.1% by mass)

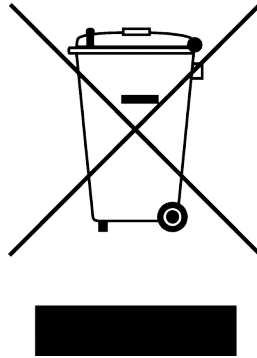
DIRECTIVE 2002/96/EC (WEEE)

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.

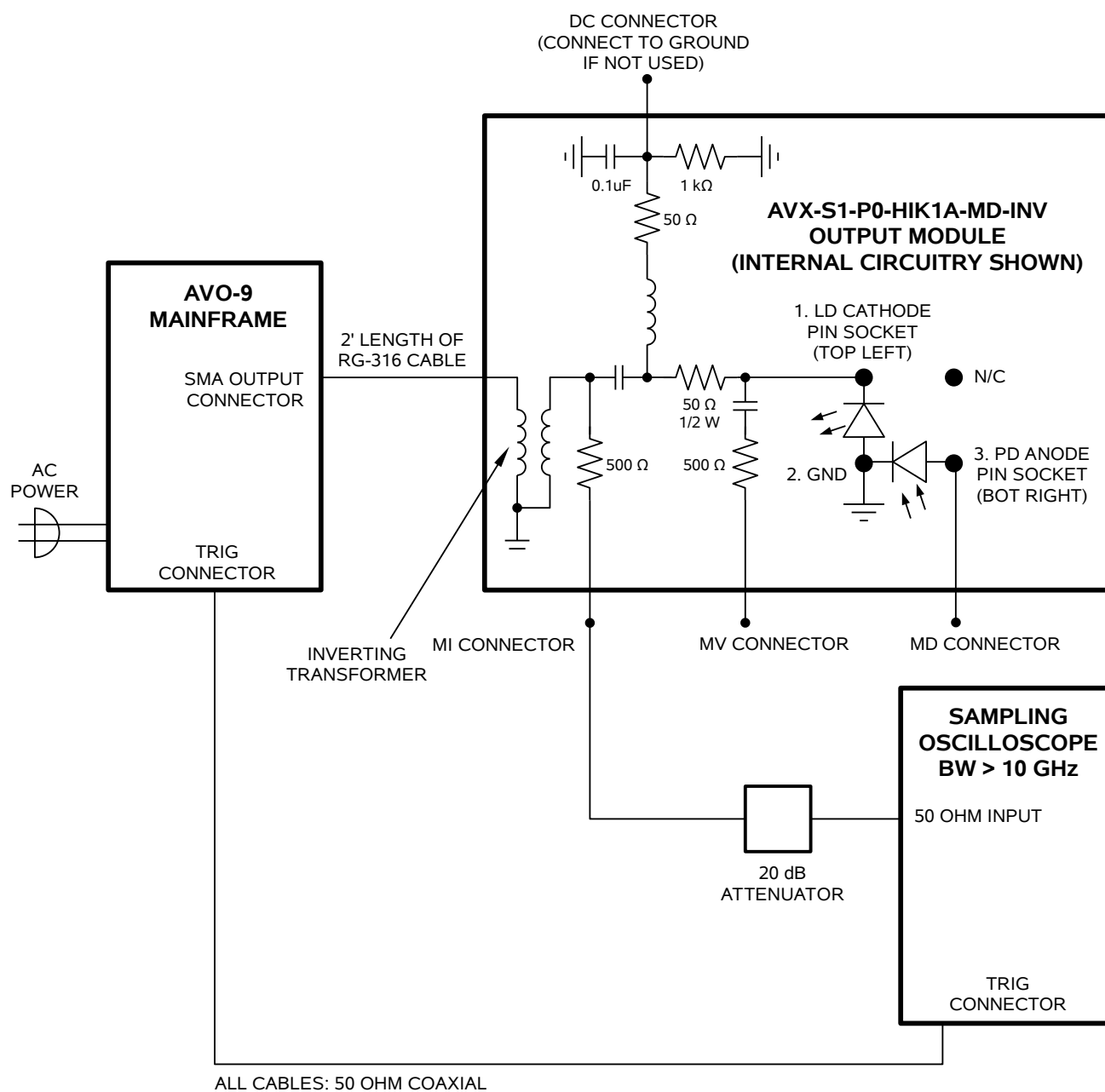
Requirements for WEEE compliance may include registration of products with local governments, reporting of recycling activities to local governments, and financing of recycling activities.



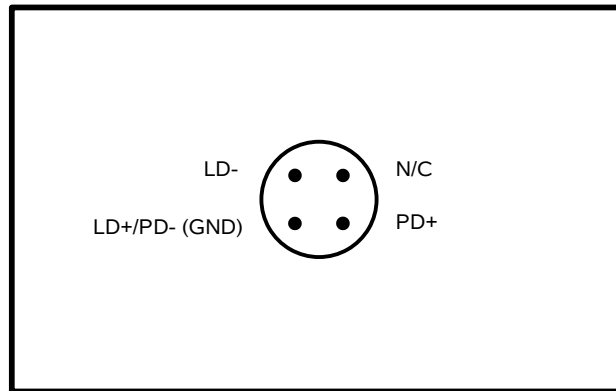
GENERAL INFORMATION

BASIC TEST ARRANGEMENT

To fully test the AVX-S1-P0-HIK1A-MD-INV, and for normal operation, the output module should be connected as shown below:

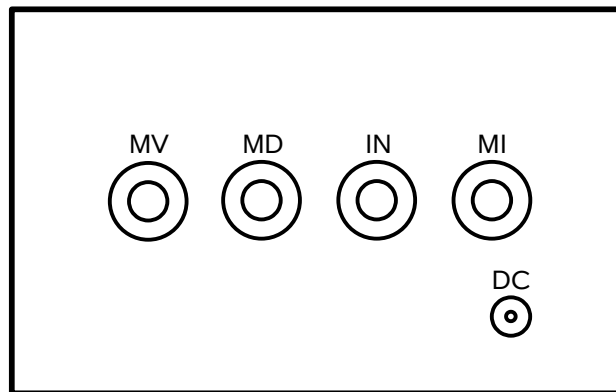


The diode load is inserted into the socket on the output module. The mechanical layout of the socket is shown below:



**AVX-S1-P0-HIK1A-MD-INV OUTPUT MODULE,
SOCKET VIEW**

NOTE: Trim the diode leads to **no longer than 1.0 cm in length**. If the leads are longer than that, they may cause an internal short circuit in the output module, which may cause damage to the diode and the output module.



AVX-S1 OUTPUT MODULE, CONNECTOR VIEW

An oscilloscope may be used to monitor the MI and MV outputs, the locations of which are shown in the figure above. A forward DC bias may be applied to the laser diode by connecting a DC potential of 0 to -10 Volts to the DC solder terminal. The application of a small forward bias often yields a more ideal diode current waveform (as observed on the MI port). Note that the DC port must be shorted to ground if a bias is not applied.

AMPLITUDE CONTROL

The pulse current through the diode load installed in the output module is given by:

$$I_{\text{DIODE}} = (-V_{\text{SET}} - V_{\text{DIODE}}) / 50\Omega$$

where V_{SET} is the amplitude setting on the mainframe (up to +43V) and V_{DIODE} is the forward voltage drop across the diode (typically -2 or -3V).