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SINCE 1975

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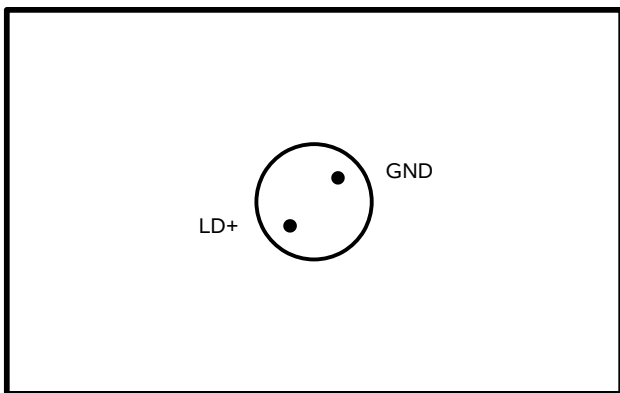
☒ BOX 5120, LCD MERIVALE
OTTAWA, ONTARIO
CANADA K2C 3H5

INSTRUCTIONS

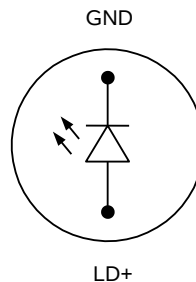
MODEL AVX-S1-HC-P5

PLUG-IN SOCKET OUTPUT MODULE

SERIAL NUMBER: _____



AVX-S1-HC-P5 OUTPUT MODULE, SOCKET VIEW



**MATCHING USER-SUPPLIED
DIODE PACKAGE
(BOTTOM VIEW).
PACKAGE, WITH
2.50 OR 2.54 mm PIN SPACING
AND 0.5 mm SQUARE PINS**

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

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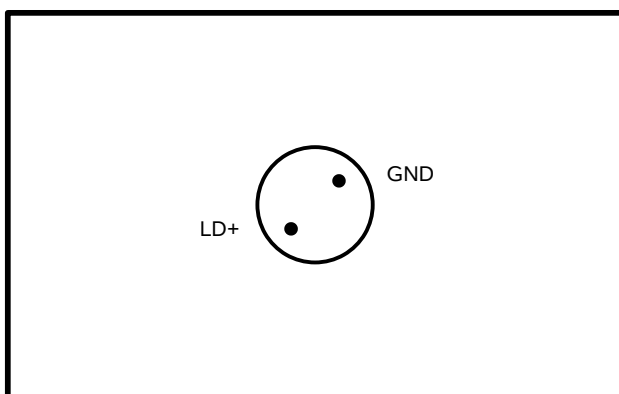
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Manual Reference: /files/officefiles/instructword/avx-s/AVX-S1-HC-P5,ed1.odt.
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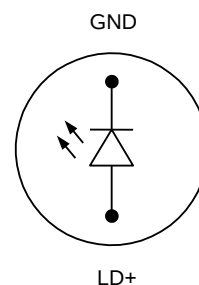
INTRODUCTION

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-HC-P5 device socket accepts the LED configurations shown below. The user will need to verify that this is suitable for their LEDs. This output module is intended for use with the AVO-9L-C-P2-P-SYRA pulser mainframe, replacing the supplied AVX-S1-HC-P2-SYRA output module. Please see the AVO-9L-C-P2-P-SYRA manual for additional details.



AVX-S1-HC-P5 OUTPUT MODULE, SOCKET VIEW



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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 3H4

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 72/23/EEC as amended by 93/68/EEC. 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 2002/95/EC (RoHS)

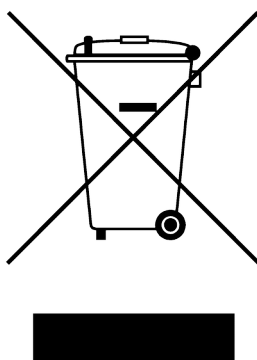
This instrument is exempt from Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the Restriction of the use of certain Hazardous Substances (RoHS) in electrical and electronic equipment. Specifically, Avtech instruments are considered "Monitoring and control instruments" (Category 9) as defined in Annex 1A of Directive 2002/96/EC. The Directive 2002/95/EC only applies to Directive 2002/96/EC categories 1-7 and 10, as stated in the "Article 2 - Scope" section of Directive 2002/95/EC.

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.

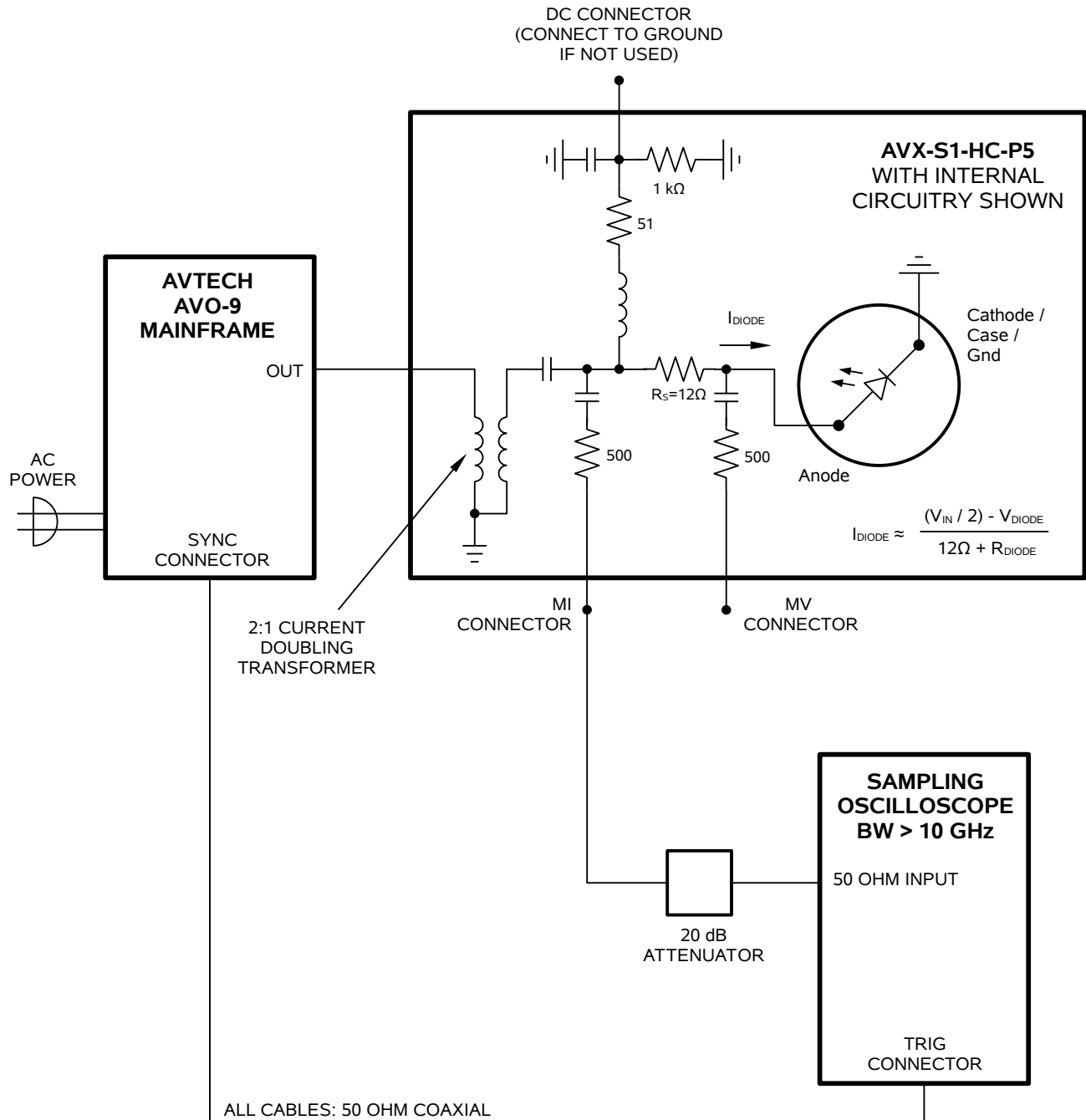
Requirements for WEEE compliance may include registration of products with local governments, reporting of recycling activities to local governments, and financing of recycling activities.



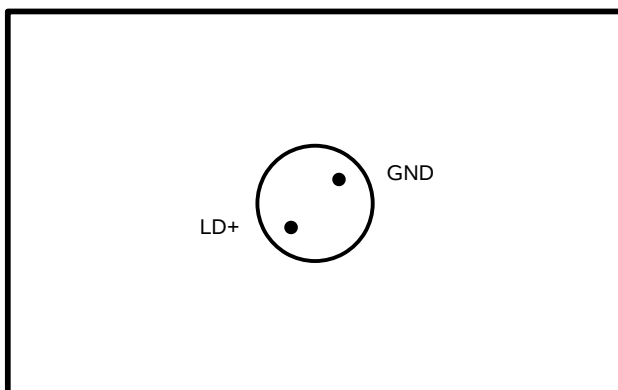
GENERAL INFORMATION

BASIC TEST ARRANGEMENT

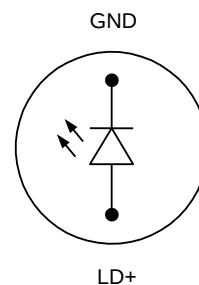
To fully test the AVX-S1-HC-P5, and for normal operation, the output module should be connected as shown below:



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

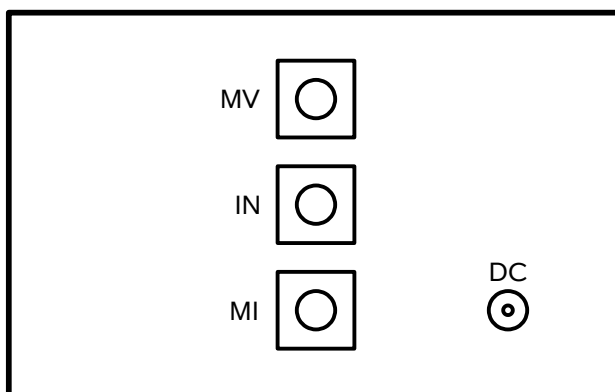


AVX-S1-HC-P5 OUTPUT MODULE, SOCKET VIEW



MATCHING USER-SUPPLIED
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(BOTTOM VIEW).
PACKAGE, WITH
2.50 OR 2.54 mm PIN SPACING
AND 0.5 mm SQUARE PINS

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 MD 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

When using the output module, the pulse current through the diode load is given by:

$$I_{\text{DIODE}} = ((V_{\text{SET}}/2) - V_{\text{DIODE}}) / (12\Omega + R_{\text{DIODE}})$$

where V_{SET} is the amplitude setting on the mainframe (typically between 0 and +50V), V_{DIODE} is the forward voltage drop across the diode (typically 2-3V), and R_{DIODE} is the resistor internal to the laser diode (usually $\ll 12\Omega$). The 12Ω resistance is built into the AVX-S1-HC-P5 output module.

COMPATIBLE PULSE GENERATORS

The AVX-S1-HC-P5 was provided for use with the AVO-9L-C-P2-P-SYRA pulser mainframe, replacing the supplied AVX-S1-HC-P2-SYRA output module. Please see the AVO-9L-C-P2-P-SYRA manual for additional details.

The AVX-S1-HC-P5 is suitable for use with other high-speed Avtech pulse generators, such as those the in the AVP, AVPP, AVM, AVMP, AVMM, AVMR, AVN, and other families. The AVX-S1-HC-P5 may also be suitable for use with other pulse generators. Contact Avtech (info@avtechpulse.com) if you need assistance selecting a pulse generator.

Models in the Avtech AVO-9 series include a pulse generator and an AVX-S series output module in a complete “bundle”. See <http://www.avtechpulse.com/laser/> for details.