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SINCE 1975

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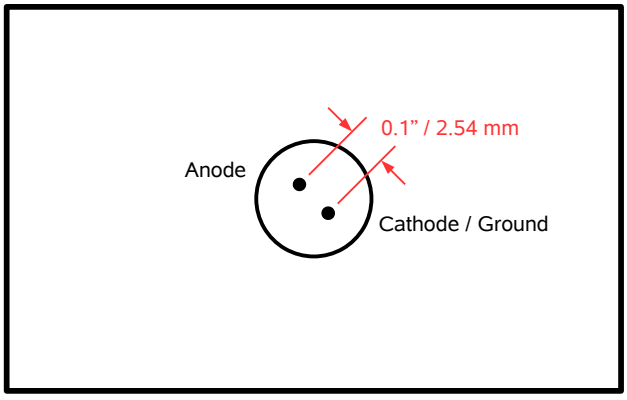
INSTRUCTIONS

MODEL AVX-S1-P2-STYLEC66

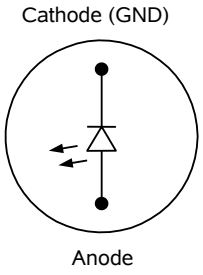
PLUG-IN SOCKET OUTPUT MODULE

SERIAL NUMBER: 13341



AVX-S1-P2-STYLEC66 OUTPUT MODULE, SOCKET VIEW

Note: The DUT orientation has been rotated 90° clockwise relative to earlier versions of this model.



MATCHING USER-SUPPLIED DIODE PACKAGE (BOTTOM VIEW). 9 mm PACKAGE.

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 dissembled, 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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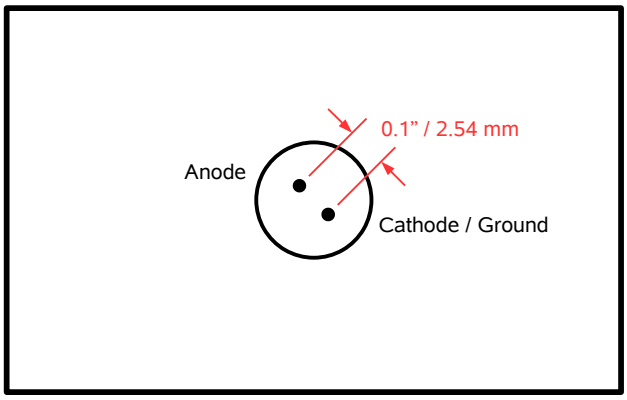
Manual Reference: /fileserver1/officefiles/instructword/avx-s/AVX-S1-P2-STYLEC66,sn13341.odt.
Last modified February 29, 2024.

INTRODUCTION

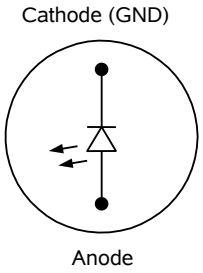
The AVX-S series of bias insertion units is designed to combine a pulse signal with a DC bias, and supply the resulting signal to a laser diode, which is inserted into a high quality socket included on the mount. The bias insertion module includes the necessary networks to match the laser diode to the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

This bias insertion unit is intended for use with an Avtech pulse generator (normally the AVO-9 series). The AVX-S1-P2-STYLEC66 is specifically designed to accommodate 2-pin 9mm diodes with the pinout illustrated below:



AVX-S1-P2-STYLEC66 OUTPUT MODULE, SOCKET VIEW

Note: The DUT orientation has been rotated 90° clockwise relative to earlier versions of this model.



MATCHING USER-SUPPLIED DIODE PACKAGE (BOTTOM VIEW). 9 mm PACKAGE.

SPECIFICATIONS

Model:	AVX-S1
Peak diode current:	400 mA
Max. input amplitude:	20 Volts
Pulse width:	0.4[1] - 200 ns
Rise time:	0.2 ns[1]
Pulse PRF range:	DC - 25 MHz
Max. bias current:	100 mA
Max. bias voltage:	50 Volts
Input impedance:	50 Ohms
$R_S + R_{DIODE}$:	50 Ohms
IN connector:	SMA female (one)
Other connectors:	MV, MI, MD: SMA (female), DC bias: solder terminal
Dimensions:	H x W x D: 41 mm x 66 mm x 76 mm (1.6" x 2.6" x 3.0")
Material:	Cast aluminum, blue enamel

1) Lower pulse widths (to 0.2 ns) and faster rise times (0.1 ns) may be possible for laser diode packages with very low parasitic inductance. The -P0 and -P2 packages generally have very low inductance. The -P1, -P3, and -TO3 packages normally have somewhat higher parasitic inductance.

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

CE

We Avtech Electrosystems Ltd.
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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 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)

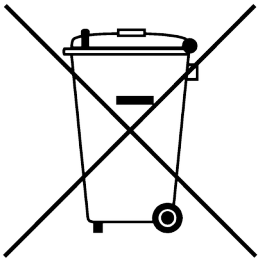
This instrument is exempt from Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the Restriction of the use of certain Hazardous Substances (RoHS) in electrical and electronic equipment. Specifically, Avtech instruments are considered "Monitoring and control instruments" (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 with lie with the representative, unless other arrangements (under Article 9) have been made.

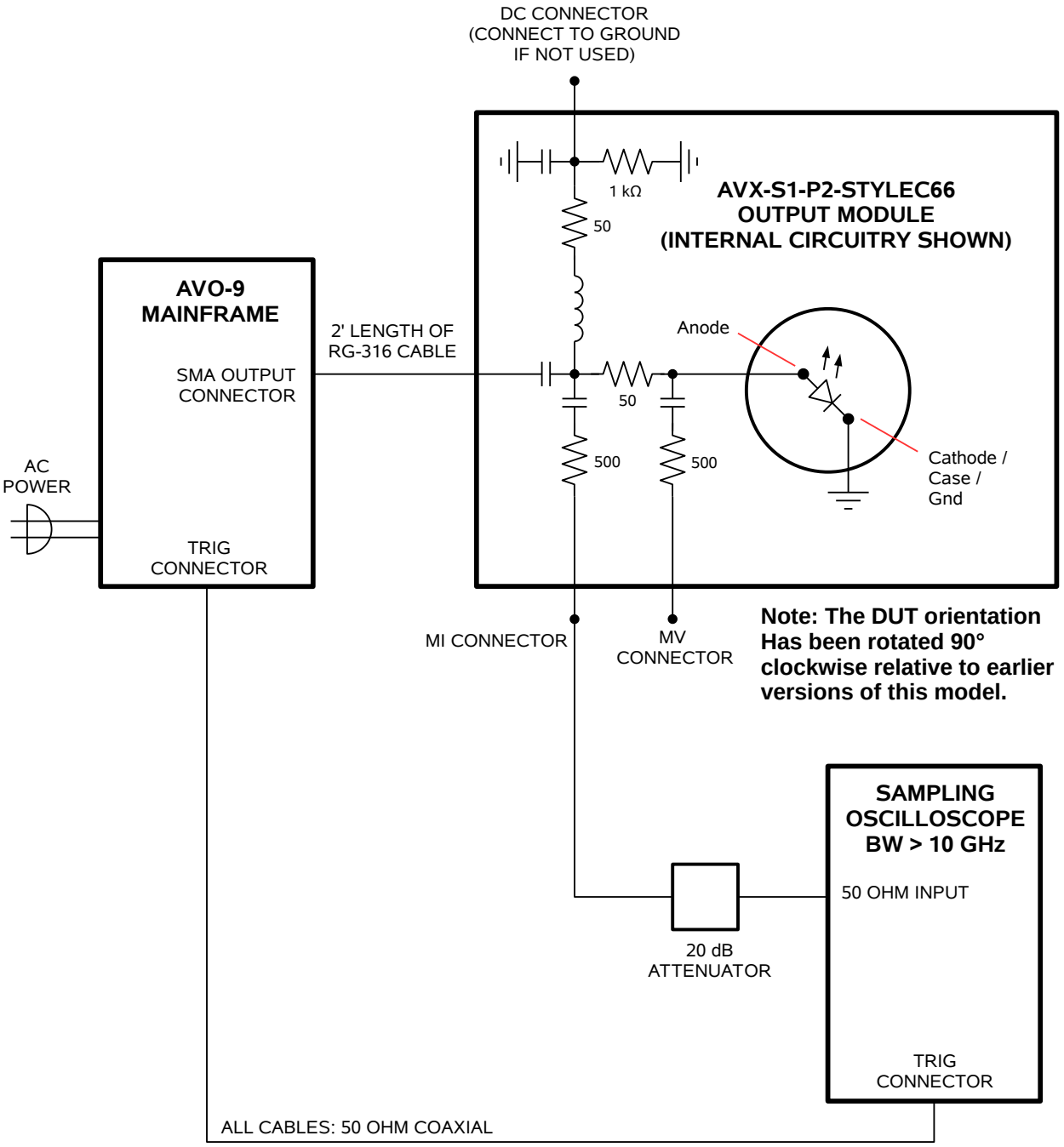
Requirements for WEEE compliance may include registration of products with local governments, reporting of recycling activities to local governments, and financing of recycling activities.



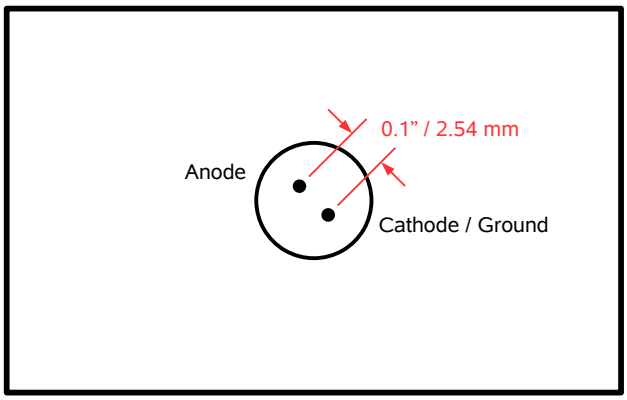
GENERAL INFORMATION

BASIC TEST ARRANGEMENT

To fully test the AVX-S1-P2-STYLEC66, and for normal operation, the output module should be connected as shown below:

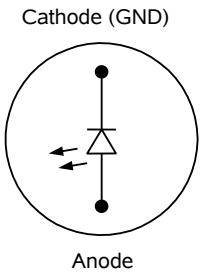


The diode load is inserted into the socket on the output module. The mechanical layout of the socket is shown below:



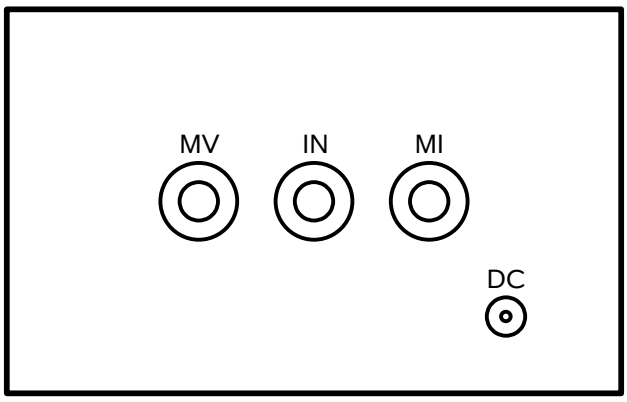
AVX-S1-P2-STYLEC66 OUTPUT MODULE, SOCKET VIEW

Note: The DUT orientation has been rotated 90° clockwise relative to earlier versions of this model.



MATCHING USER-SUPPLIED DIODE PACKAGE (BOTTOM VIEW). 9 mm PACKAGE.

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 MV and MI 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).

AMPLITUDE CONTROL

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

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

where V_{SET} is the amplitude setting on the mainframe, V_{DIODE} is the forward voltage drop across the diode (typically 2V), and R_{DIODE} is the resistor internal to the laser diode (approximately 0Ω). The 50Ω resistance is built into the AVX-S1-P2-STYLEC66 output module.