



Advanced Simulation Technology inc.
500A Huntmar Park Drive
Herndon, Virginia 20170 USA
Tel. (703) 471-2104 • Fax. (703) 471-2108
www.asti-usa.com

AI-S Technical User Guide

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Product Name: AI-S

AI-S Technical User Guide

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ASTi

500A Huntmar Park Drive

Herndon, Virginia 20170 USA

Revision history

Date	Revision	Version	Comments
3/6/2018	B	0	Converted existing documentation into XML. Update "Status indicator lights."

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1.0 AI-S

The ASTi Interface – Single (AI-S) is a compact audio and I/O distribution device that connects local or remote operator headsets, speakers, control panels, and other peripherals to the network via Ethernet.

The following figure shows an example of an AI-S network configuration:

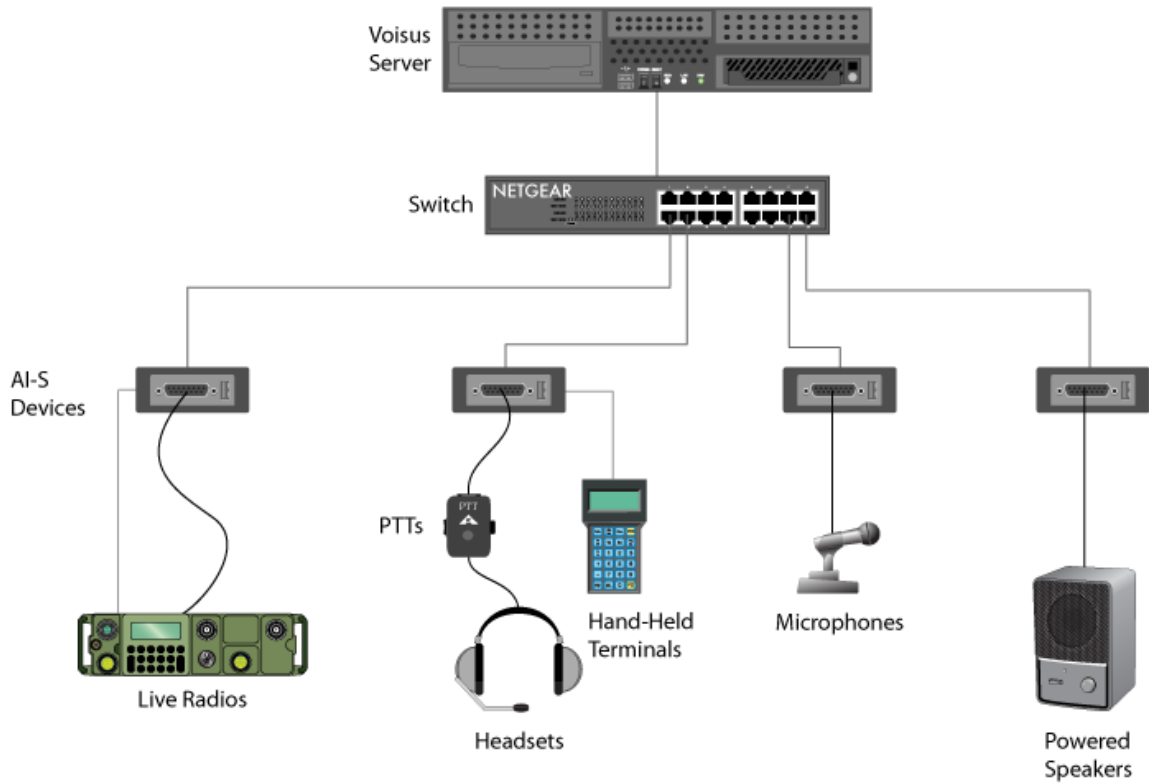


Figure 1: AI-S hardware diagram

The AI-S includes the following features:

- *Stereo support*: supports stereo operation (i.e., independent left and right output) on a single connector, reducing cabling complexity.
- *Reduced footprint*: takes up little space and fits easily on a desktop.
- *Software-configurable*: includes adjustable preamplifier gains and sidetone for easy, direct connection to a variety of audio or communications systems and peripherals.
- *Integrated I/O*: includes configurable digital and analog I/O for direct connection of PTT units, volume controls, switch detection, radio PTT activation, and other control applications.
- *Serial data port*: provides a convenient control interface for ASTi hand-held terminals (HHTs), simulated panels, and live radio control.

2.0 Specifications

The AI-S has the following specifications:

Weight	A packaged AI-S weighs 5 oz.
Power Source	Ethernet port via Power over Ethernet (PoE)
Power Consumption	<10 w @ 56 VDC
Mean Time Between Failure (MTBF)	1,970,288.06 hours

Figure 2: AI-S specifications

On the front panel, the AI-S has one DB-15 connector and a USB port:

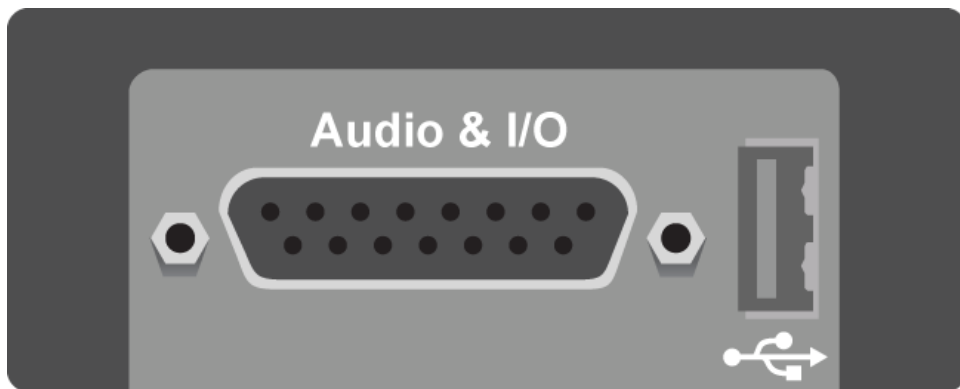


Figure 3: AI-S front panel

On the rear panel, the AI-S has a serial port and a Power over Ethernet (PoE) port:



Figure 4: AI-S rear panel

The AI-S's dimensions are 4.86" L × 2.965" W × 1.17" H, as shown below:

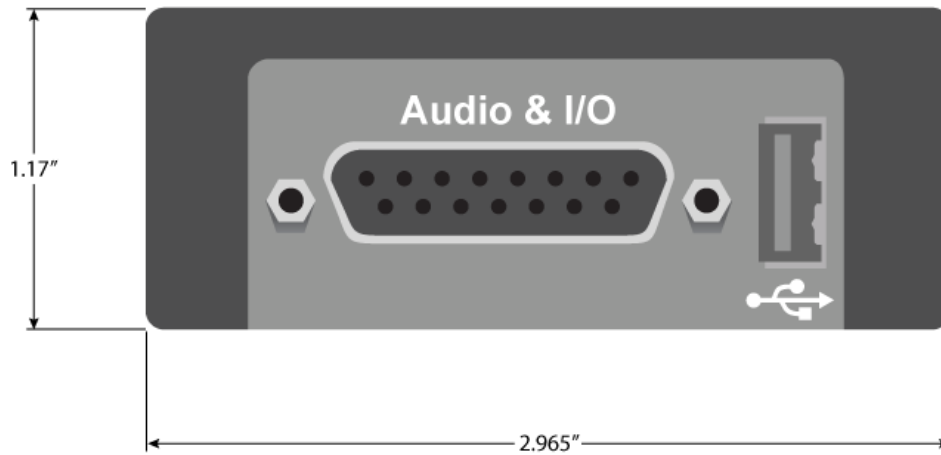
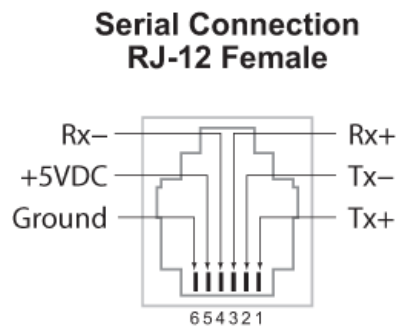


Figure 5: AI-S dimensions

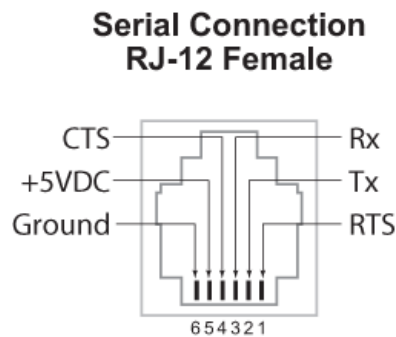
2.1 Serial connections

The AI-S includes the following serial connections:

- *RJ-12 pinout for RS-422 mode:*



- *RJ-12 pinout for RS-232 mode:*



2.3 Status indicator lights

The AI-S LED indicator light displays AI-S status:

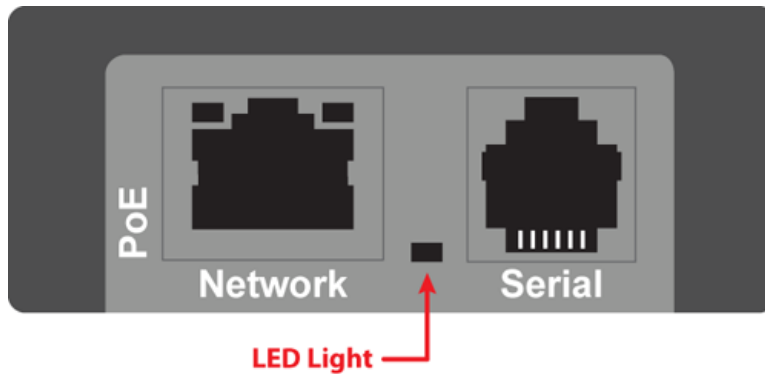


Figure 7: AI-S status indicator lights

The following table defines each status indicator light for the AI-S:

LED Light	Status
Solid blue	The AI-S is in boot mode.
Blinking blue	The AI-S is in boot mode and is not connected to the server.
Solid green	Normal operation.

Table 3: Status indicator light description

3.0 Control inputs and digital outputs

The following sections describe the AI-S's control inputs and digital outputs, explaining how to use the control input as a digital input or analog output.

3.1 Control inputs

The control inputs are contact-sensing; no voltage is required. Simply connect the control input and control input ground lines together using a switch or other suitable device, such as a press-to-talk (PTT) device. The control input can logically function as either a digital or an analog input.

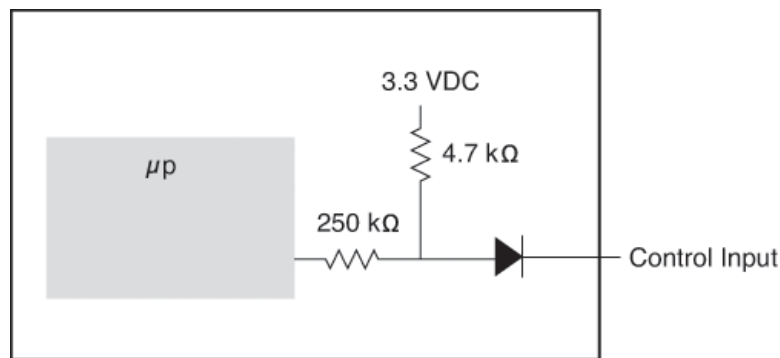


Figure 8: Control input circuitry

3.1.1 Control input as digital input

To use the control input as a digital input, simply short or open the required pins. For example, if you short Pins 9 and 10, Control Input 1 is True. If the pins are open, Control Input 1 is False. In this example, the control input acts like an on and off switch.

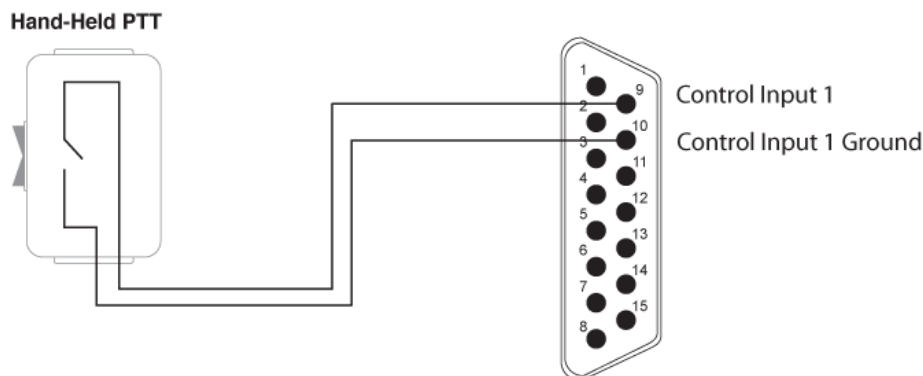


Figure 9: Digital In

3.1.2 Control input as analog input

To use the control input as an analog input, insert a resistance between the control input and control input ground pins. The four-channel selector knob, for example, contains a switch that changes the resistance between the control input and control input ground pins.

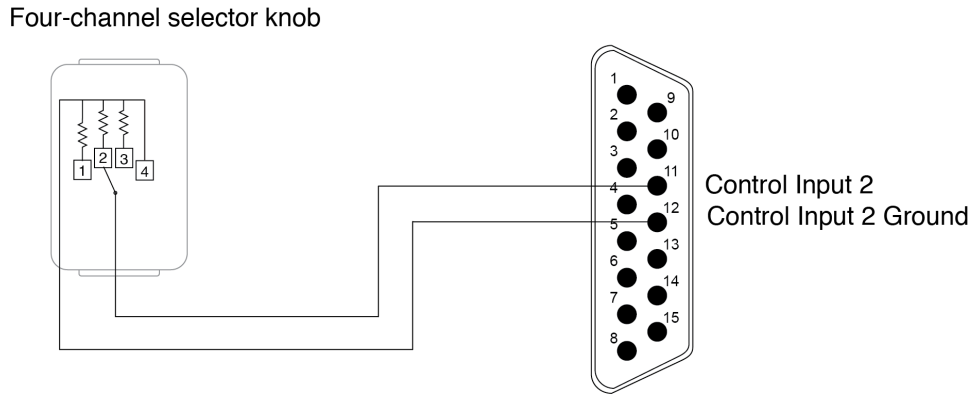


Figure 10: Analog In

3.2 Digital output

The digital output circuitry consists of an opto-isolated, solid-state relay for switching power to external loads. The following table summarizes the AI-S's digital output opto-isolated field effect transistor (FET) values:

Type	Opto-isolated FET
Maximum continuous current rating	120 mA
Maximum power dissipation	300 mW

Table 4: Digital output rating and dissipation

The following figure shows the AI-S's digital output circuitry:

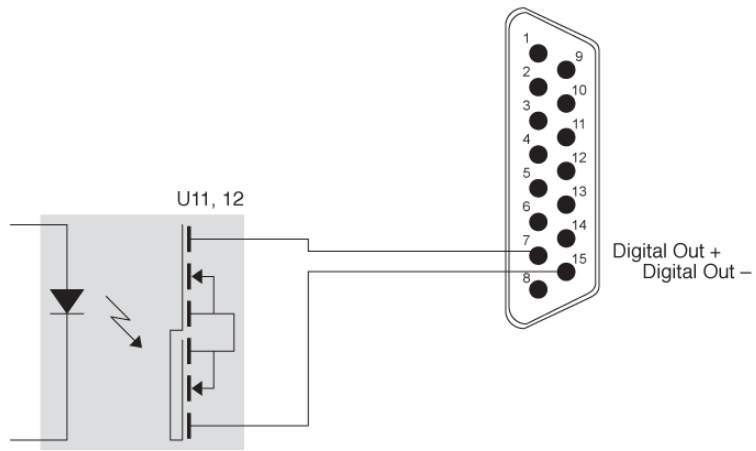


Figure 11: Digital output circuitry

4.0 Memory devices

The following table summarizes AI-S devices with volatile and non-volatile memory. Volatile memory is erased when you unplug the device, while non-volatile memory is retained.

Type	Size
Volatile	
MCU Internal SRAM	96 kB SRAM
SDRAM	8 MB
Non-Volatile	
MCU Internal	512 kB

Table 5: AI-S memory

5.0 Temperature and humidity ranges

The following table summarizes the AI-S's temperature and humidity ranges:

Range Type	Suggested Range
Operating temperature	+10°C to +32°C (50°F to 90°F)
Operating max. temperature gradient	20°C (68°F) per hour
Operating humidity	10–70 percent non-condensing
Storage temperature	0°C to 55°C (32°F to 135°F)
Storage max temperature gradient	30°C (86°F) per hour
Storage humidity	5–95 percent

Table 6: Temperature and humidity ranges

6.0 Typical headset settings

The AI-S supports a mono or stereo headset connection for the DB-15 connector. The following figure shows a typical mono headset connection for the AI-S:

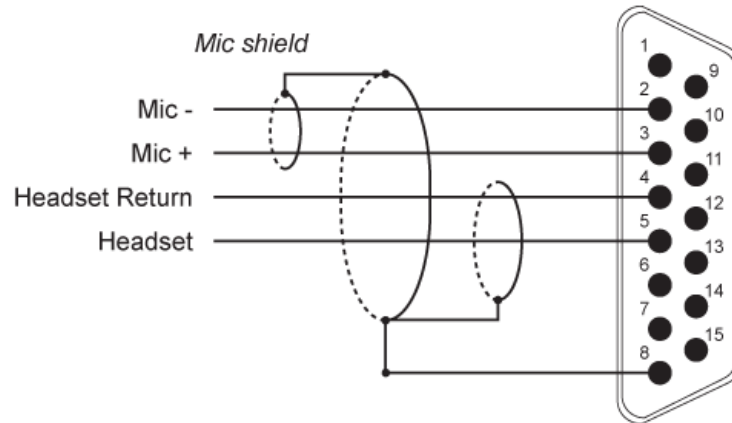


Figure 12: DB-15 mono headset connection

The following figure shows a typical stereo headset connection for the AI-S:

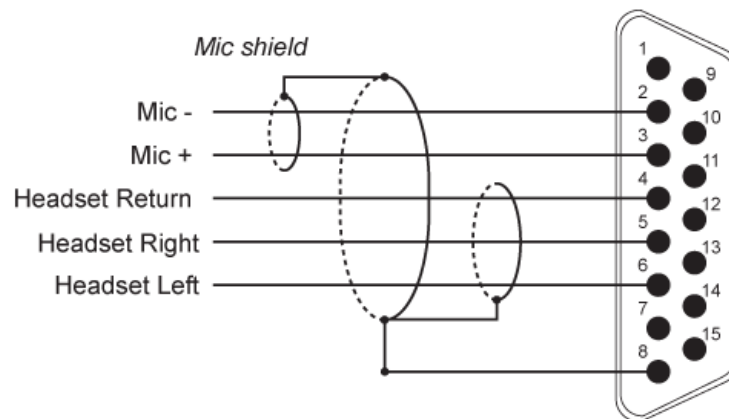


Figure 13: DB-15 stereo headset connection

7.0 Warranty information

ASTi covers the equipment by warranty for one year following purchase. For equipment upgrades, the warranty applies to the upgraded component's original shipment date. Unless otherwise stated, ASTi also covers other provided or purchased commercial equipment (e.g., monitors, amplifiers, speakers, and fiber optic links).

The warranty does not cover improper equipment handling or improperly packaged returns. Extended warranties are available. Contact ASTi for details at (703) 471-2104.

7.1 Repairs and returns

To return equipment to ASTi, observe the following:

1. Request a Return Material Authorization (RMA) number through the form on the RMA User Account at rma.astiusa.com/rma. ASTi's Production department cannot receive a repair without an RMA number. The shipping label must also include the RMA number. Any items received from customers without RMA numbers or appropriate contact information will not be tested. After 60 days, ASTi reserves the right to scrap all hardware received in this condition.
2. When packaging the equipment in question, make sure it is well-protected. Failure to properly package the equipment during shipping could void the warranty.
 - a. Always double-box the device.
 - b. The inner container should employ some semi-rigid, contour-fitting foam, while the exterior container should use a more pliant, shock-absorbing material, such as styro-foam peanuts.
 - c. To prevent possible Electrostatic Discharge (ESD) damage, properly enclose the device in an antistatic bag.
3. Do not send accessory pieces, such as rack mount kits, power supplies, or software. Only include items that do not work.
4. Include a description of the problem, including the serial number for the unit in question. Include point of contact information, including a name, telephone number, and equipment return address. Failure to include this information could extensively delay the return of equipment.
5. If you are an international customer, include the correct product value on all shipping documents. For proper harmonized tariff codes, contact ASTi. The customer is responsible for duties, taxes, and fees incurred during shipment.

ASTi evaluates equipment free of charge and does not begin work without prior customer approval.

The customer is responsible for shipping charges to ASTi for warranty and non-warranty repairs. If equipment is not under warranty, a purchase order is required to cover any repairs. ASTi will provide a quote for all non-warranty items, including return shipping. The customer is responsible for return shipping charges on non-warranty equipment. ASTi ships equipment still under warranty back to the customer via FedEx, unless otherwise directed. ASTi is responsible for return shipping charges on domestic items under warranty.

If ASTi does not receive the equipment 30 days after the RMA was issued, ASTi closes the RMA and designates it as unused.