

Document: AVW-USBISO Manual
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Introduction

The AVW-USBISO provides electrical isolation between a host computer and target device. It is compatible with 1.5Mbps (low speed) or 12Mbps (full speed) USB devices and is port powered requiring no external power. The USBISO provides a total galvanic isolation of all USB connections, data, power and ground.

Data isolation is provided by an Analog Devices ADUM3160 and power isolation is provided by a transformer based DC to DC converter. These two devices provide a total galvanic isolation between the USB Type A plug and USB Type A socket.

Galvanic isolation means that there is no physical path between any signal from input to output.

USB isolation provided by the USBISO can provide:

- Reduction of noise to target USB device by ground elimination.
- Reduction of noise to target USB device by re-generation of USB power.
- Elimination ground loops between audio devices.
- Protection of the host computer from external voltage spikes.
- Allows the host computer and target USB device to work at different voltage potentials.

The USB ISO utilizes a 4 layer circuit board design that enables a full ground plane under data lines to facilitate reliable high speed data. Input and output ground planes are not connected and exceed 0.1” separation.

User Notes

Speed Configuration. Speed selection is not automatic, the default configuration of the USBISO is 12Mbps (Full Speed) which will work with most devices. To force the USBISO to 1.5Mbps (Low Speed), Jumpers J3 and J5 must be installed. Low Speed connections are typically only found on mice or keyboard devices. J3 and J5 must both be loaded or not loaded.

Maximum power is limited by the capacity of the DC/DC converter which is 200mA. An active current limited load switch provides short circuit protection, over voltage protection and reverse voltage protection for the load side (socket side).

Specifications

Speed:	12Mbps (Full Speed) or 1.5Mbps (Low Speed)
Power Output:	200mA maximum
Power Input:	250mA maximum
Short Circuit Limit:	400mA
Voltage Output:	5V +/- 0.2V
Voltage Output Noise:	100mV Maximum
Over Voltage Protection:	5.6V trip point

Disclaimer

AVWidgets is not responsible for possible damage caused to the host computer or target USB device due to operation at different voltage potentials. Use of the USBISO disconnects the target device from the host computer ground.