USB 2.0 Isolator
Isolated USB 2.0 4-Port Hub

Quick Installation Guide

USB-ISO11HS

USB-ISO204

1. Introduction

USB 2.0 Isolator or Isolated USB 2.0 4-Port Hub protects PC or Laptop while connecting USB peripherals which is wired to high voltage. This small, industrial - grade isolator is very easy to use and provides a high-voltage barrier protection against surges, noise and ground loop errors. It is suitable for use in sensitive applications like automotive measurements.

USB 2.0 Isolator or Isolated USB 2.0 4-Port Hub provides a high - voltage isolation barrier between computer and it's connected USB device. The isolation protects equipment from electrical over-voltages and transient voltage spikes, by eliminating ground loop currents flowing between the PC and USB device which can cause damage and inaccurate measurements. Additionally, isolation minimizes conducted noise from static discharge, magnetic fields and radio frequency interference.

USB 2.0 Isolator is USB bus powered and can provide 5V 300mA to your USB device with built-in isolated DC-DC converter. This is possible only when the isolator is connected to a high power USB host port.

2. Features of USB 2.0 Isolator

- USB isolation 5000VDC between USB host and USB device.
- USB 2.0 compatible, 1.5Mbps low speed / 12Mbps full speed and 480Mbps high speed Bi-directional communication.
- Short circuit protected for x D+ and x D- lines.
- Isolated host power through a DC-to-DC converter.
- Class 3A contact ESD performance per ANSI / ESD STM5.1-2007; Supports ±15kV ESD protection.
- High common-mode transient immunity :>50 kV/μs.
- Auto-Negotiation of Link Speed.
- Supports Windows 98SE / ME / 2000 / XP / Vista / 7 / 8 / 8.1 / 10 / 11, Mac OS 8.6 or higher; no driver installation required.

Specifications of USB 2.0 Isolator

Model No.		USB-ISO11HS
Isolation	D+ & D-	5000VDC
	Bus Powered	3000VDC
Transfer Rate		1.5 / 12 / 480 Mbps
Connector	Host	USB Type-A Male
	Device	USB Type-A Female
Cable Length		0.15 m
Environmental	Operating Temperature	0 ~ 40℃
	Storage Temperature	0 ~ 60℃
	Humidity	0-80% RH, Non-condensing
LED		1
Downstream Power		Up to 300mA
Power Mode		Bus or Self powered
Housing		Plastic
Dimension (L x W x H)		66 x 39 x 20 mm

3. Features of Isolated USB 2.0 4-Port Hub

- Isolation 5000VDC between USB host and USB devices.
- USB 2.0 compatible, 1.5Mbps low speed / 12Mbps full speed and 480Mbps high speed Bi-directional communication.
- Short circuit protected for x D+ and x D- lines.
- Isolated host power through a DC-to-DC converter.
- Class 3A contact ESD performance per ANSI / ESD STM5.1-2007; Supports ±15kV ESD protection on each port.
- High common-mode transient immunity :>50 kV/μs.
- Auto-Negotiation of Link Speed.
- Supports Windows 98SE / ME / 2000 / XP / Vista / 7 / 8 / 8.1 / 10 / 11, Mac OS 8.6 or higher; no driver installation required

Specifications of Isolated USB 2.0 4-Port Hub

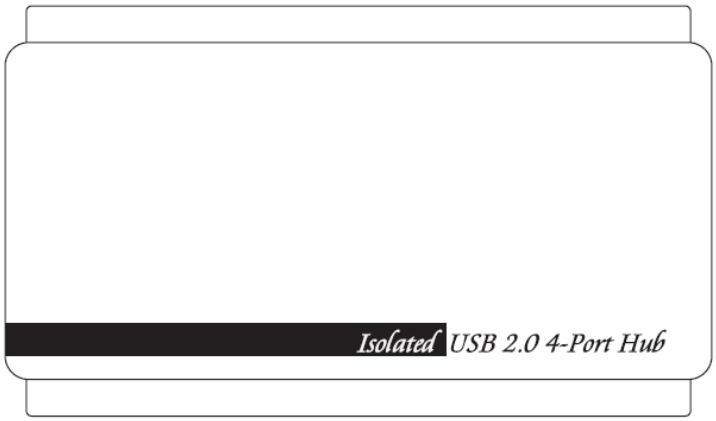
Model No.		USB-ISO204
Isolation	D+ & D-	5000VDC
	VCC	3000VDC
Transfer Rate		1.5 / 12 / 480 Mbps
Connector	Host	USB Type-B Female
	Device	USB Type-A Female x 4
Cable Length		0.6 m
Environmental	Operating Temperature	0 ~ 40℃
	Storage Temperature	0 ~ 60℃
	Humidity	0-80% RH, Non-condensing
LED		1
Power Mode	Bus Powered	Up to 300mA
	Self Powered	5VDC 2A / Up to 500mA on each port
Housing		Aluminum
Dimension (L x W x H)		90 x 73 x 31 mm

4. Physical Diagram

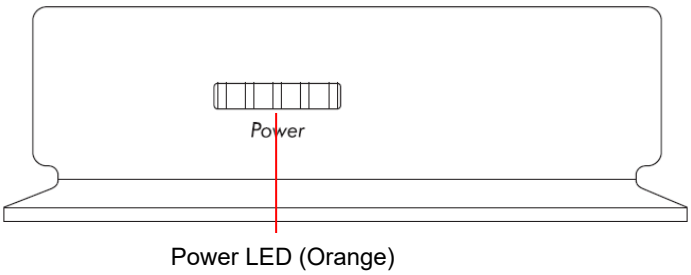
USB 2.0 Isolator

Isolated USB 2.0 4-Port Hub

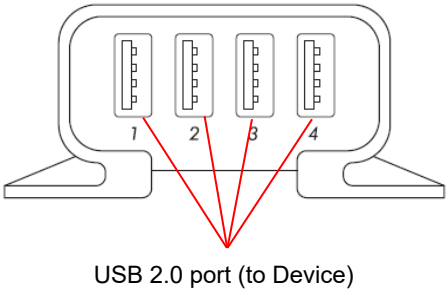
Upper



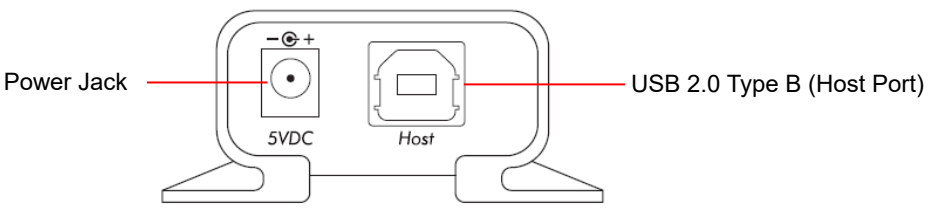
Side



Front



Rear



5. Connecting

Typical Application

- Industrial automation systems
- Measurement devices
- Environments requiring safety insulation
- Broadcast and Studio
- Audiophile-grade home systems
- All applications requiring clean and stable USB connections with separate grounds

5.1 USB 2.0 Isolator

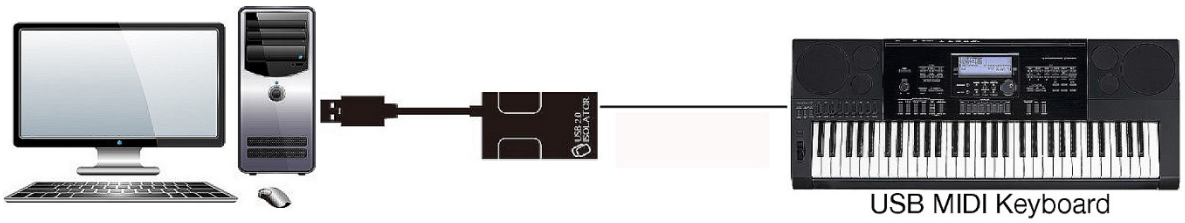


Fig 1. The USB Isolator unit is installed in-line between the PC and a connected USB device.

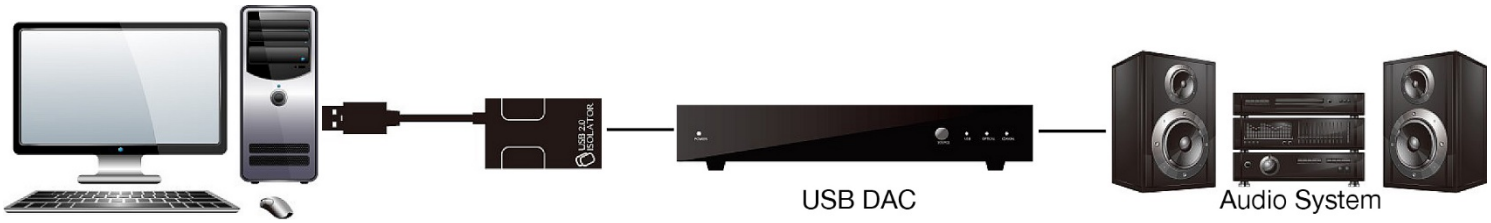


Fig 2. The USB Isolator unit is installed in-line between the PC and a connected USB device with an analogue signal equipment

5.2 Isolated USB 2.0 4-Port Hub

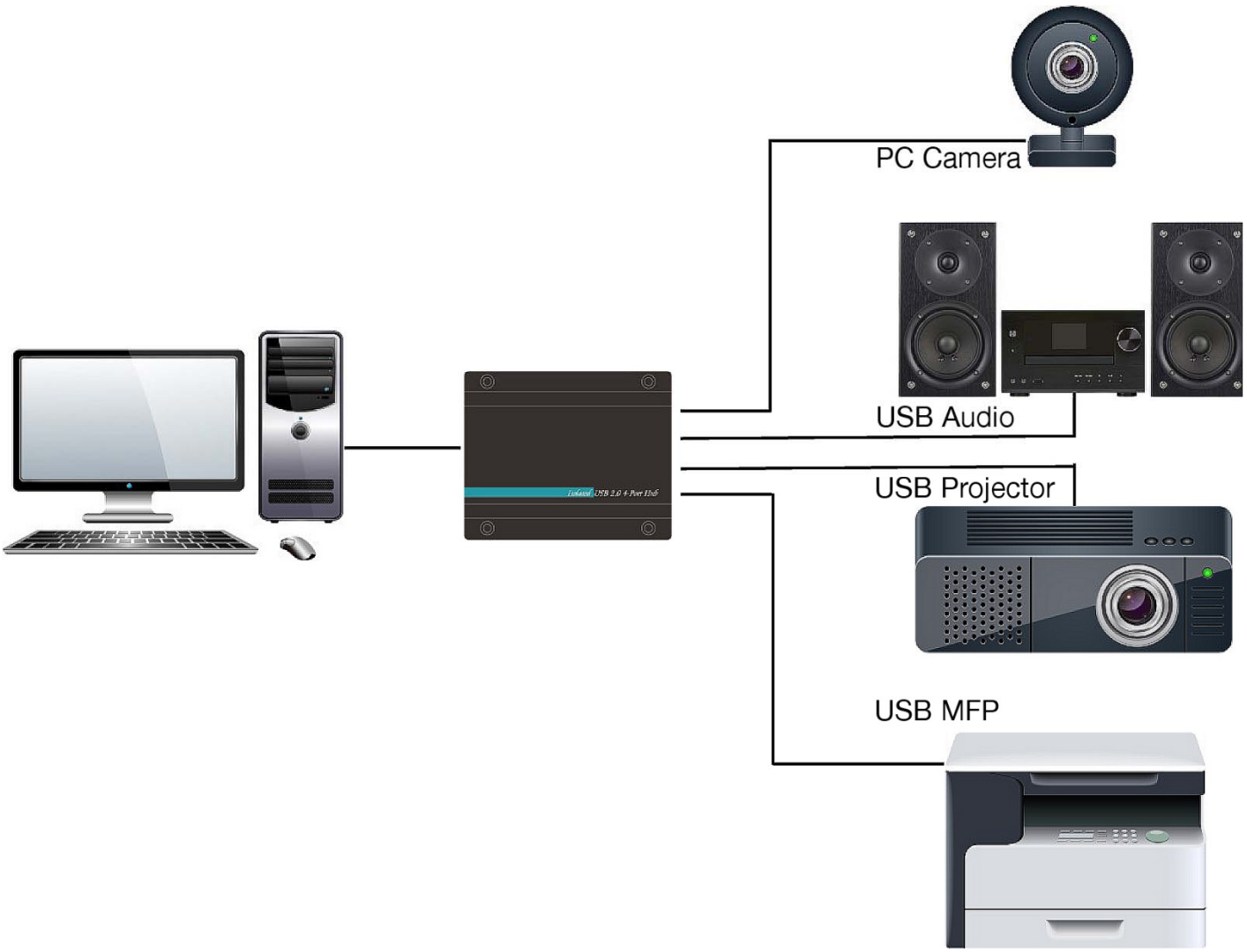


Fig 3. The Isolated USB 2.0 4-port Hub is installed in-line between the PC and 4 connected USB devices.

6. Installation

1. Plug the unit's molded USB A male cable into the host computer. For the Isolated 4-Port Hub, plug a USB cable to the Isolated 4-Port Hub unit and the host. **(If you are using isolated 4-Port hub, do plug 5VDC 2A power adapter)**
2. The Power LED (Orange) will light on, indicating power is being received from the host and the isolator is ready.
3. Plug the downstream device into the unit (Type A female connector). This USB cable is not included. Or connect devices to the Isolated 4-Port Hub.
4. The USB Isolator is transparent to the host operating system and does not require configuration or software installation.

Note: The isolators are USB bus powered. When the USB Isolator is connected to a high power USB host port, it can provide power current up to 300mA to the attached downstream device.

Caution: Apply a DC 5V power adaptor to the power port of the Isolated 4-Port Hub unit once you connect the USB devices need a lot of power current from their upstream such as USB hard drive enclosure, USB fan, handheld game console, USB CD player etc.

7. Troubleshooting

Table -1 provides troubleshooting tips. The solutions are arranged in the order in which they should be executed in most situations. If you are unable to resolve the problem after following these instructions, contact your distributor for further support.

Table -1 Troubleshooting tips

Problem	Cause	Solution
The USB device is attached but not functioning.	• The USB device requires drivers that were not installed. • The USB device does not support USB hubs. • The USB device might be failed.	1. Install the required USB device driver on the computer operating system before plug in the USB device to the receiver. Access your USB device's manufacturer's Web site for detail info. 2. In the Universal Serial Bus (USB) controllers section of Device Manager, check if the USB device is listed.
The USB device is attached but not functioning.	• An over current condition has occurred because the USB device is drew more current than it can be supplied per USB specification (500mA). Operating systems may pop up to indicate an issue.	1. Unplug the power adapter from the receiver, wait approximately 30 seconds; plug the power adapter into receiver again. 2. If over current keeps occurring, either the USB device may use more power than the USB specification, or the USB device may be damaged. 3. Consult your USB device documentation and plug into your USB device with the required power adapter.

Regulatory Compliance

Disclaimer

Information in this document is subject to change without notice. The manufacturer does not make any representations or warranties (implied or otherwise) regarding the accuracy and completeness of this document and shall in no event be liable for any loss of profit or any other commercial damage, including but not limited to special, incidental, consequential, or other damages.

CE Certification

This equipment complies with the requirements relating to electromagnetic compatibility.

It has been manufactured under the scope of RoHS compliance.

FCC Compliance Statement

This equipment generates and uses radio frequency and may cause interference to radio and television reception if not installed and used properly. This equipment has been tested and found to comply with the limits of a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

You are cautioned that changes or modification not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation

WEEE (Waste of Electrical and Electronic Equipment), Recycling of Electronic Products

In 2006 the European Union introduced regulations (WEEE) for the collection and recycling of all waste electrical and electronic equipment. It is no longer allowable to simply throw away electrical and electronic equipment. Instead, these products must enter the recycling process.

Each individual EU member state has implemented the WEEE regulations into national law in slightly different ways. Please follow your national law when you want to dispose or any electrical or electronic products. More details can be obtained from your national WEEE recycling agency.