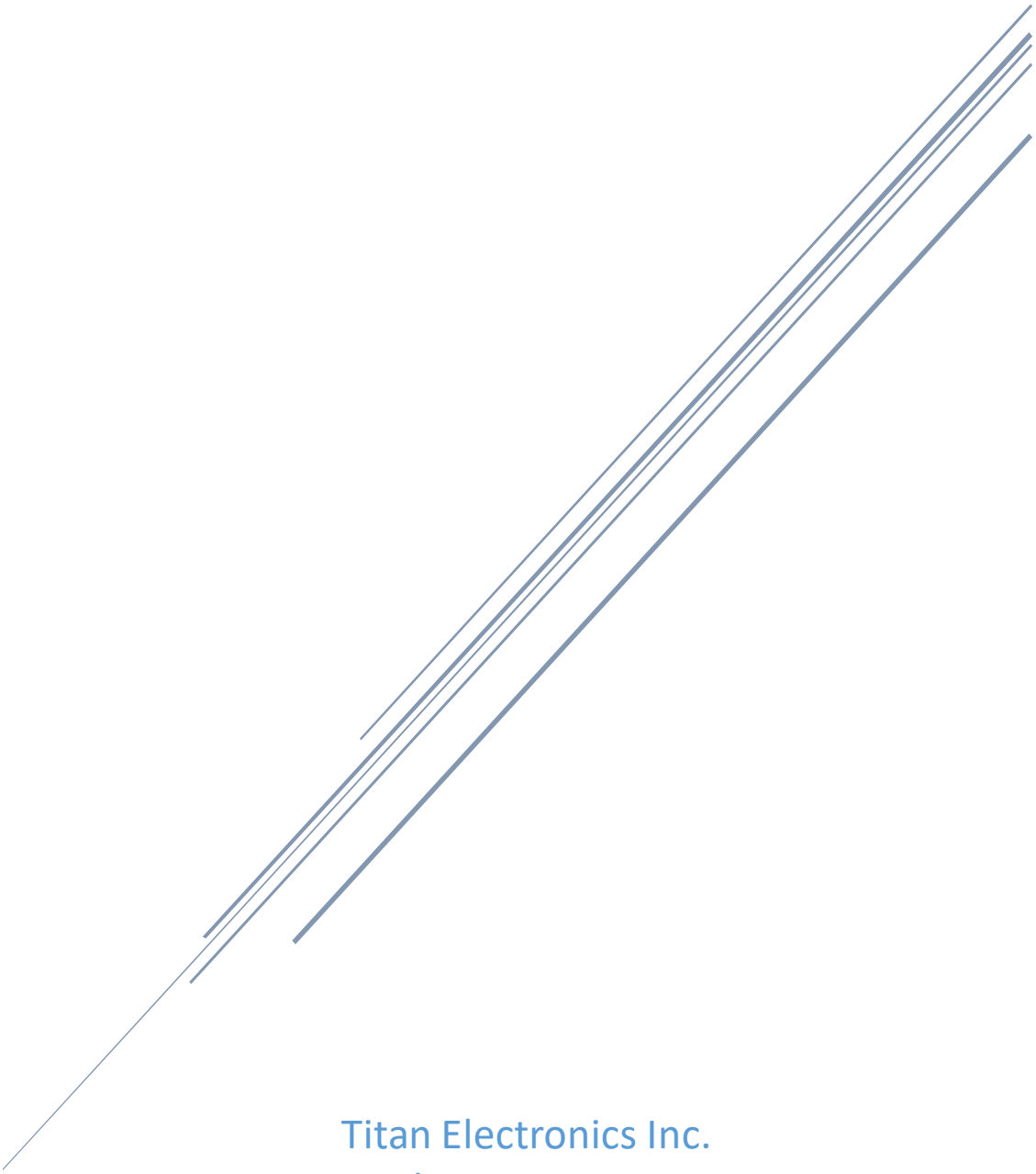
HUB-400I-ISO USER'S MANUAL

2017 July Edition



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INTRODUCTION

TITAN's HUB-400i-ISO is a robust, industrial-grade 4-port full speed isolated USB2.0 hub. HUB-400i-ISO expands one USB port into four optically isolated USB ports with high-voltage 3kV isolation both upstream and downstream to protect the host computer and expensive USB equipment that are connected to it. This industrial USB isolated hub is designed to build protective isolation barriers to the power and USB signals between a host computer and any connected USB devices. Both the computer and the connected USB device are protected from harmful voltage, power surges, transient voltage spikes, ESD shock, EMI/RFI interferences and noise that may cause damage and inaccurate measurements. The isolated hub is very efficient and secured to eliminate ground loop currents and protect against overvoltage.

The data transfer rate of HUB-400i-ISO can be configured to either USB2.0 full speed 12Mbps or USB1.1 low speed 1.5Mbps. The isolated hub is powered by an external power supply and provides up to 500mA current to downstream devices. There is no need for any driver or software installation. By plugging the cable from the USB isolated hub to the host USB port of the PC and connecting your USB devices to the downstream port of the isolated hub, the host PC and USB devices are immediately protected by isolation.

Each USB device connected to the isolated hub can operate independently. HUB-400i-ISO is designed with individual port power management. When any downstream port is overloaded or has overcurrent, the port will shut itself down without affecting or terminating the normal operation of the other three USB ports. The port will resume to normal function automatically once it recovers from overloading or overcurrent.

HUB-400i-ISO is designed for use in industrial applications. It is housed in a DIN rail mountable metal case with screw holes for securing USB and power cables. Next to each USB downstream port connector, there are two screw holes for securing USB cables to ensure reliability of connection. The terminal power input connector is securely locked with two screw holes, preventing the power wires from accidentally disconnecting. The wrong-polarity-free power circuit design prevents damage caused by connecting the DC power input with the wrong polarity. The design provides the convenience for not needing to care about the polarity when connecting the power cables of DC power to the terminal power input connector.

The USB isolated hub expands the number of USB ports, helps improve system stability and protect valuable industrial and medical equipment. When you need more ports and the USB host and USB devices are operating at different ground voltages, the HUB-400i-ISO is an ideal protector to prevent damage.

FEATURES

- Expands one USB port into four optically isolated USB ports
- Electrical isolation up to 3000V_{RMS} both upstream and downstream
- Common mode filtering on all data lines
- Each port provides 5V 500mA power to downstream device
- Supports USB2.0 full speed 12Mbps and USB1.1 low speed 1.5Mbps data rate with jumper-selection
- No software or drivers required
- Short circuit protection
- LEDs for power and USB status indication
- Wide ambient temperature operation from 0°C to 60°C (32°F to 140°F)
- 9 to 30VDC or AC power input (an external power adapter is included)
- Diode bridge circuit avoids wrong polarity input of DC power
- Individual port power management
- Overcurrent protection
- Robust metal case suitable for DIN rail mounting
- All USB connectors have screw holes to secure USB cables
- Input power connector has screw holes to lock the power cable
- CE, FCC approval

SPECIFICATIONS

Function		Specification
Ports	*Downstream*	Four isolated
	Upstream	One
LEDs	*Power*	One
	Port Status	Four
Power Mode		Self-power mode
Output Voltage (per port)		+5VDC
Output Current(per port)		500mA maximum
Operating Temperature		0°C to 60°C
Storage Temperature		-40°C to 85°C
Humidity		0 to 80% RH. noncondensing
Safety Approvals		CE, FCC
Housing		Robust metal case
Weight		300g
Dimensions		85mm × 137mm × 24mm (W × L × H) 85mm × 159mm × 24mm (W × L × H) with DIN rail ears
Input Power Range		+9V to 30V VDC or AC

System Requirements

Any PC or Macintosh computer with an available USB port and USB compliant operating system such as Windows 10, 8.1, 8, 7, Vista, XP, ME, 2000 or Mac OS 8.6 and above.

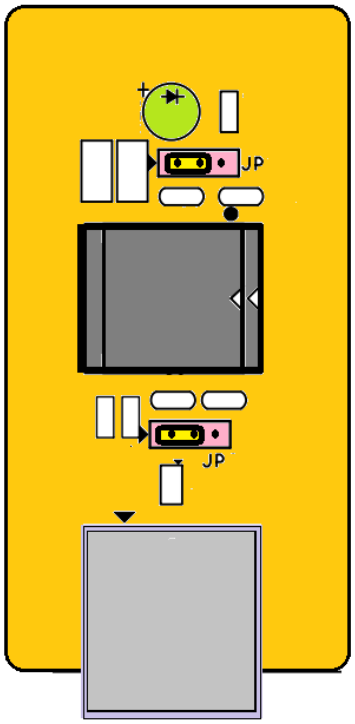
DIAGRAM OF HUB-400i-ISO

HARDWARE SETTINGS

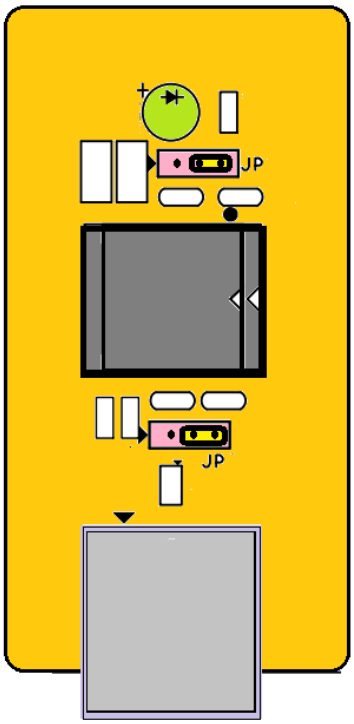
Setting USB Operation Speed

Inside the HUB-400i-ISO isolated hub, there are eight 1 × 3 jumper header blocks (JP2 to JP9), which are used to set the USB operation speed to USB2.0 full speed (12Mbps) or USB1.1 low speed (1.5Mbps). The data rate is set to full speed 12Mbps by default.

Jumper	USB Port	Function
JP2 **1-2** **JP3** **1-2**	Port 1	USB2.0 full speed 12Mbps data rate operation (default)
JP2 **2-3** **JP3** **2-3**	Port 1	USB1.1 low speed 1.5Mbps data rate operation
JP4 **1-2** **JP5** **1-2**	Port 2	USB2.0 full speed 12Mbps data rate operation (default)
JP4 **2-3** **JP5** **2-3**	Port 2	USB1.1 low speed 1.5Mbps data rate operation
JP6 **1-2** **JP7** **1-2**	Port 3	USB2.0 full speed 12Mbps data rate operation (default)
JP6 **2-3** **JP7** **2-3**	Port 3	USB1.1 low speed 1.5Mbps data rate operation
JP8 **1-2** **JP9** **1-2**	Port 4	USB2.0 full speed 12Mbps data rate operation (default)
JP8 **2-3** **JP9** **2-3**	Port 4	USB1.1 low speed 1.5Mbps data rate operation



Short pin1,2 of pinheader for USB2.0 full speed
(factory default setting)

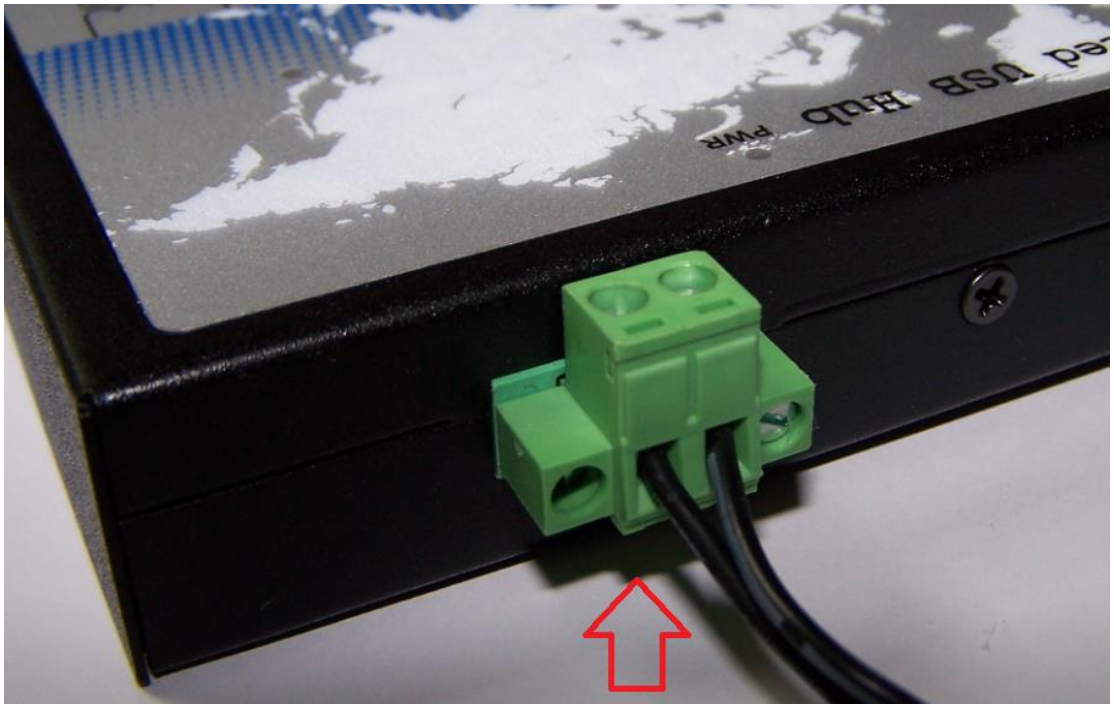


Short pin2.3 of pinheader for USB1.1
low speed

INSTALLATION

HUB-400i-ISO is a plug-and-play device. The software drivers are installed automatically.

1. Connect the AC power adapter to HUB-400i-ISO. The red power LED will light on when the hub is receiving power. Connect the upstream port cable to an unused USB port on your computer.



Connect power adapter to HUB-400i-ISO isolated hub

The HUB-400i-ISO power input is designed with a diode bridge circuit, so you don't need to care about the input DC power polarity when plugging the power connector. You can also use a DC or AC 9V to 30V power adapter for HUB-400i-ISO.

2. After the software drivers are loaded, you will find a new "Generic USB Hub" in Universal Serial Bus controllers under "Device Manager" of the "System Properties" screen. ("Device Manager" can be accessed from Start → Settings → Control Panel → System Properties → Hardware → Device → Device Manager).

3. Connect your USB devices to the downstream ports on the HUB-400i-ISO. The green USB status LED will illuminate when your USB devices have connected to the USB ports successfully.