USB-104-HUB●USB-3.5-HUB

USB to 4 USB 2.0 Ports

FEATURES

- High-speed USB 2.0 device, USB 3.0 and 1.1 compatible
- Rugged, industrial grade (-40 ºC to 85 ºC) operation
- One upstream host port and four downstream ports
- Advanced EFT, Lightning, and ESD protection at ±20kV on all signal pins (air and contact)
- Transaction translator translates data from one speed to another
- Downstream ports capable of low-speed (1.5 Mbps), full-speed (12 Mbps), and Hi-speed (480 Mbps) transfers aggregate
- Supports bus powered and self powered modes
- Self powered mode accessible via DC power input jack, and for OEM applications (board only), screw terminals, or 3.5" drive power connector (Berg)
- LED status indicators for power and overcurrent fault conditions for each downstream port
- Compact, low profile enclosure
- High retention USB connectors on up- and downstream ports
- Embedded miniature USB headers in parallel with each USB standard connector (both upstream and downstream)

FACTORY OPTIONS

- OEM (board only) option with PC/104 mounting holes and footprint for flexibility in embedded applications
- Locking DC jack (OEM version only) for external power
- Header connector option with jumper posts for panel mounted user status LED connection
- Option available to mount in 3.5" front panel drive bay

FUNCTIONAL DESCRIPTION

The USB-104-HUB is a high performance and low cost solution for USB expansion. It is compliant with the USB 2.0 specification as well as being fully backwards compatible with USB 1.1. Each of the four downstream ports are capable of low-speed, full-speed and high-speed transfers.

This product utilizes a high-performance, low-power USB 2.0 hub controller. It is USB-IF certified, Windows Hardware Quality Lab (WHQL) compliant, and its operating temperature is rated for industrial grade temperatures. Being able to operate at industrial grade temperatures, the USB-104-HUB offers its functionality to a wider range of user applications that many competitors' USB hubs can't provide.

The card has light emitting diodes (LEDs) for status indications. A green LED near the upstream USB type B connector indicates power to the board. Each downstream port has two respective surface mount LEDs that provides status information. Its green LED near the downstream port's Type A receptacle indicates that the port is enabled whereas the red LED indicates an overcurrent fault condition. The customer also has the option to use jumper posts to connect their own LEDs instead of the on-board surface mount indicators if desired.

The USB-104-HUB is fully protected from faulty peripherals connected to its downstream ports. Each port utilizes its own power distribution switch that provides overcurrent and short-circuit protection. If a fault occurs, the power distribution switch will disengage the respective port and turn on its fault LED. A fault occurring on one downstream port will not affect other devices attached to the USB-104-HUB's other downstream ports.

The USB-104-HUB supports bus powered and self-powered applications. In general, the upstream USB port typically provides 500 mA of current (5-unit load). In bus-powered mode, this is the limiting factor as the downstream ports take power from the upstream port's remaining available power. If the user's application requires more current for downstream peripherals, the USB-104-HUB can be configured in self-powered mode. External +5V can be supplied to the card through three different methods. It can be accessed through a DC power input jack (locking DC jack available for OEM versions), or for OEM applications via a traditional 4-pin berg connector receptacle. Coming soon the enclosure will have a cutout next to the DC jack allowing access to the always populated pair of screw terminals for connecting external power wiring.

All type A and type B USB connectors on board feature a high retention design that complies with the class 1, Div II minimum withdrawal requirement of over 3 pounds of force (15 Newtons). This connector has an orange color-coded insulator to quickly differentiate it from standard USB connectors. Using these USB connectors increases reliability and ensures a tight connection. For embedded OEM type applications, all connectors have an additional miniature latching USB header.

DESKTOP FRONT PANEL 3 ½" DRIVE BAY USAGE

This version is perfect for installation in a desktop / server / industrial PC, putting USB ports where they are most useful, on the front panel. This version ships with the drive bay adapter bracket installed.

OEM USB/104 FORM FACTOR

The OEM (board only) version is perfect for a variety of embedded applications. What makes the OEM option unique is that its PCB size and mounting holes match the PC/104 form factor (without the bus connections). This allows our industrial grade USB hub to be added to any PCI-104 or PC/104 stack by connecting it to a simple USB port usually included on-board with embedded CPU form factors such as EBX, EPIC, and PC/104. This is especially important since many newer CPU chipsets do not support ISA and have a healthy supply of USB ports. The USB-104-HUB OEM board can also be installed using standoffs inside other enclosures or systems.

ACCESSORIES

The USB-104-HUB is available with optional embedded cable assemblies and DIN-Rail mounting adapters.

SOFTWARE

No software is provided with this board. There is no need to install any drivers for the USB-104-HUB product. It will enumerate as a Generic Hub which uses the USB Hub Class Driver that is built in Windows OS or Linux. There's no driver needed from the user.

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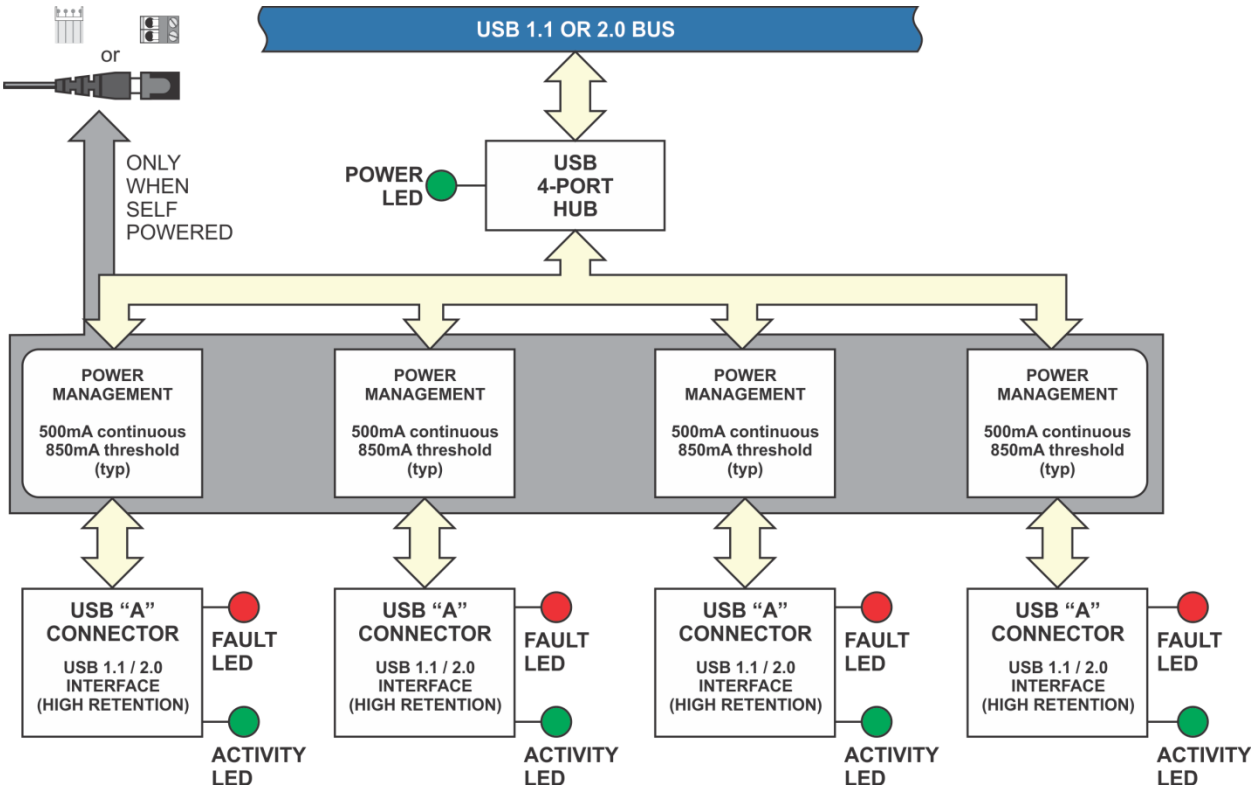

BLOCK DIAGRAM

SPECIFICATIONS

Bus Type(s):	USB 2.0 / 1.1 / 1.0 (USB3.0 compatible) High / Full / Low speed

Environmental

Op & Storage Temp.:	-40° to +85°C
Humidity:	5-95% non-condensing
Board Dimension:	3.550 x 3.775 inches
ESD Protection:	±20kV on all signal pins (IEC 61000-4-2 Level 4)

Power

+5VDC:	@ 120 mA typical, high speed host, no active ports (doesn't include downstream ports' USB device requirements)
Bus-powered	approximately 100 mA available for each downstream port (~400mA cumulative)
Self-powered	approximately 500 mA available for each downstream port

Ordering Guide

USB-104-HUB	USB 2.0 Hi-Speed Industrial HUB
USB-3.5-HUB	Hub with 3.5" drive bay bracket

Model Options

-OEM	Board only version (no encl.)
-HDR	Header posts for cabled LEDs instead of SMD LEDs (-OEM version only)
-PR	External power adapter 5VDC
-WI	Accepts 7 to 35VDC external power
-LJ	Locking DC jack for ext pwr (-OEM only)
-RoHS	RoHS Compliant version

Optional Accessories

MP104-DIN	DIN rail mounting provision
CUSB-EMB-PWR	Power splitter cable for use with standard PC power supply Molex connectors terminating in a 4-pin BERG (3 ½" floppy drive) connector
PWR-ACDC-5V	115VAC Regulated 5VDC Power Supply
CUSB-EMB-1	1 foot USB cable Type A to micro-fit OEM header (used for connection to the upstream USB host port)
CUSB-EMB-6	6 foot USB cable Type A to micro-fit OEM header (a longer cable to connect to the host port)
CUSB-EMB	6 inch embedded micro-fit to micro-fit USB cable (used to connect from the HUB micro-fit OEM connectors to ACCES' OEM USB I/O boards)

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