ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *Acces USB-104-IHUB* at our website: *Click HERE*

USB-104-IHUB

Four Rugged Isolated USB Ports

FEATURES

- Tru-Iso™ signal isolation up to 4kV upstream to downstream
- One upstream host port isolated from the four downstream ports
- Advanced EFT, Lightning, and ESD protection at ±20kV on all signal pins (air and contact)
- Full-speed USB 2.0 device, USB 3.0 and 1.1 compatible
- Rugged, industrial grade (-40 ºC to 85 ºC) operation
- Downstream ports capable of low-speed (1.5 Mbps) and full-speed (12 Mbps) transfers aggregate
- LED status indicators for power and overcurrent fault conditions for each downstream port
- Compact, low profile enclosure
- High retention USB connectors on all ports
- Embedded miniature USB headers in parallel with each USB standard connector (both upstream and downstream)
- Upstream and downstream short-circuit protection



FACTORY OPTIONS

- OEM (board only) option with PC/104 mounting holes and footprint for flexibility in embedded applications
- Header connector option with jumper posts for panel mounted user status LED connection
- Wide Input power from 7V to 35VDC
- External power connection via screw terminals (high retention)

FUNCTIONAL DESCRIPTION

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 environments. Being able to operate at industrial grade temperatures, the USB-104-IHUB offers its functionality to a wider range of user applications that many competitors' USB hubs can't provide.

Careful attention has been paid to isolation design, including extensive keep-out zones and hand-routed circuit paths, as well as component and material selection. Robust EFT, Lightning, and ESD protection at ±20kV on all signal pins (air and contact). See the Isolation specification in user manual for full details. TRU-ISO™ by ACCES I/O Products, Inc., for true signal isolation.

The card has LEDs that indicate its status. A green LED near the upstream port's high-retention type B connector (visible through a cutout in the enclosure) indicates power to the upstream side. Each downstream port has two respective LEDs that provide status. A green LED near the downstream port's high-retention Type A receptacle (visible through a cutout in the enclosure) indicates that the port is enabled whereas the red LED indicates an overcurrent fault condition. The customer also has the option to specify jumper posts or a header connector to connect their own LEDs for panel mounting instead of the on-board LEDs if desired.

The USB-104-IHUB 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 enable its fault LED as a latched visual indicator to the user. A fault occurring on one downstream port will not affect other devices attached to the USB-104-IHUB other downstream ports. Any detected fault that occurs will result in a Windows message popping up on the monitor notifying the operator. To re-enable a faulted port, the user must clear the fault then cycle power to the hub.

The USB-104-IHUB needs bus power (from the USB upstream host port) and a medical grade external supply for isolated power.

All Type A and the Type B USB connectors on the 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 ports (upstream and downstream) have an alternative miniature USB header in parallel with the standard port connector. This method facilitates the smallest possible footprint to be occupied by the hub and associated cables.

The board is designed to be used in rugged industrial environments but is small enough to fit nicely onto any desk or testing station. The module is PC/104 sized at 3.550” by 3.775”, while the enclosure is approximately 4” x 4” x 1”.

OEM USB/104 FORM FACTOR

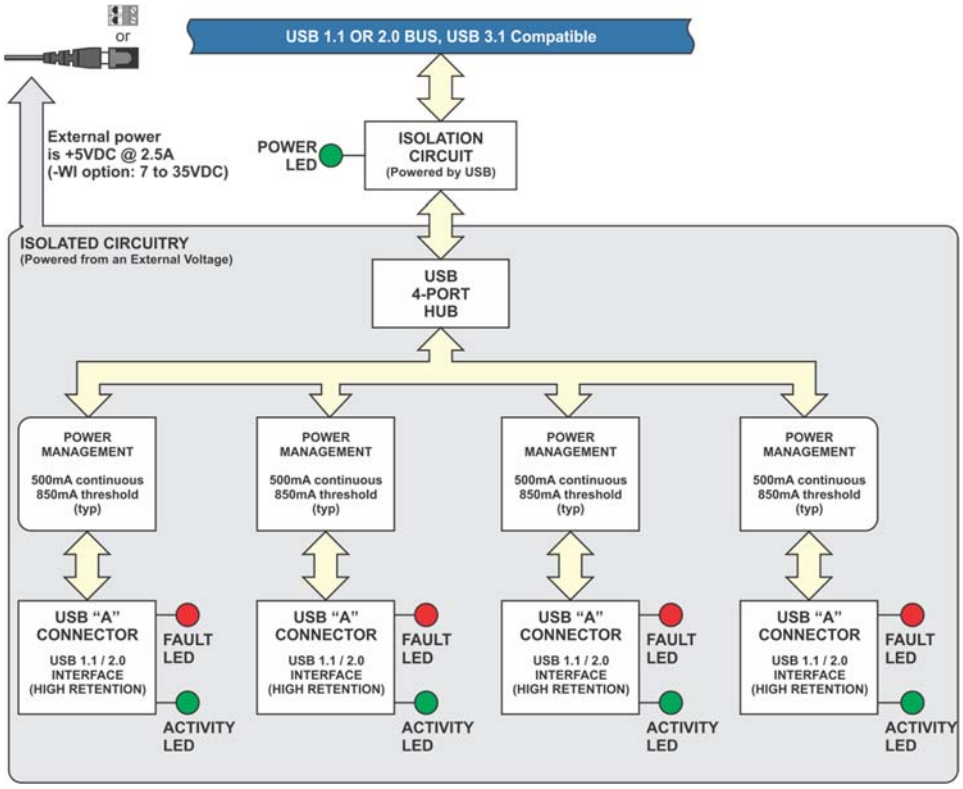
The OEM (board only) version is perfect for a variety of embedded applications. What makes the OEM option unique is that its PCB size and mounting holes match the PC/104 form factor (without the bus connections). This allows our industrial grade USB hub to be added to any PCI-104 or PC/104 stack by connecting 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-IHUB OEM board can also be installed using standoffs inside other enclosures or systems.

ACCESSORIES

The USB-104-IHUB 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-IHUB 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.



BLOCK DIAGRAM

SPECIFICATIONS

Bus Type(s): USB 2.0 / 1.1 (USB 3.1 compatible) Full / Low speed

Environmental

Operating Temp.:	-40° to +85°C
Storage Temp.:	-40° to +85°C
Humidity:	5-95% non-condensing
Board Dimension:	3.550 x 3.775 inches
Enclosure Dimension:	3.985 x 3.990 x 1.045 inches
Weight:	284.2 grams (in enclosure) 56.2 grams (-OEM version)
Ext. Power Supply:	0° to +40°C (4kV isolation)

Power

-WI Option:	7VDC to 35VDC at the DC power jack or screw terminals
External power	approximately 500 mA available for each downstream port with our medical grade power supply
Current-limiting	0.85A typical per downstream port

Isolation

ESD Protection	±20kV on all signal pins (IEC 61000-4-2 Level 4)
Tru-Iso™	IPC-2221B, UL60590-1, UL1577 4000 V isolation meets EN60601
Up- to Downstream	1500 V peak (AC or DC)
Max Transient Iso.	4000 V rms
Max Work Isolation	863 V peak

Ordering Guide

USB-104-IHUB	USB 2.0 Isolated Industrial HUB
PWR-ISO-5V	Isolated medical grade external power adaptor 5VDC @ 2.5A

Model Options

-WI	Wide input power from 7V to 35VDC
-OEM	Board only version (no encl.)
-HDR	Jumper header posts for LEDs instead of SMD LEDs (-OEM version)
-ST	High retention external power connection
-RoHS	RoHS compliant version

Optional Accessories

MP104-DIN	DIN rail mounting provision
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)
CUSB-EMB-HDR	30 inch USB cable with 1x5 standard (0.1 inch spacing) header connector to embedded micro-fit (-OEM only)
CUSB-EMB-HDRM	30 inch USB cable with 1x5 metric (2mm spacing) header connector to embedded micro-fit (-OEM only)

ACCES I/O PRODUCTS, INC.

10623 Roselle Street, San Diego, CA 92121 • (858) 550-9559 • Fax (858) 550-7322 • contactus@accesio.com • www.accesio.com

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP