# USB3C-104-HUB
## Rugged USB3 Gen2 5-Port A&C HUB



## FEATURES

- 5-port USB 3.1 Gen 2 hub with data transfers up to 10Gbps
- USB C with PD 3.0 upstream connection to host computer
- One downstream USB Type C with PD 3.0 at up to 20V @ 5A
- Two USB Type C and two Type A downstream ports with Battery Charging v1.2 and Apple Charging standards (up to 2.8A per port)
- IEC 61000-4 Level 4 ESD, EFT and Surge Protection on all USB data lines
- Rugged, industrial grade (-40˚C to 85˚C) operation
- Locking upstream, downstream, and power connectors prevent accidental disconnects
- SuperSpeed+ (10Gbps), SuperSpeed (5Gbps), Hi-Speed (480Mbps), Full-Speed (12Mbps), and Low-Speed (1.5Mbps) transfers supported on all ports
- Requires 24V power via DC power jack and a pair of screw terminals
- Compact, steel, low-profile enclosure
- RoHS compliant

## FACTORY OPTIONS

- OEM (board only) option with PC/104 mounting holes and footprint for convenience in embedded applications
- Economy version equipped with standard, instead of locking connectors
- Tantalum capacitors for flight and space based applications
- Conformal coating

## FUNCTIONAL DESCRIPTION

The USB3C-104-HUB is an industrial-grade 5-port USB hub optimized for harsh and rugged environments. This hub has latching / locking connectors on upstream and downstream ports as well as power, preventing accidental disconnects - making it perfect for applications that require vibration proofing. The rugged steel enclosure, positive retention connections, and -40˚C to +85˚C operation makes the USB3C-104-HUB stand out compared to commercially available hubs — and it's 100% Made in the USA.

Each connection has been designed for rugged use without loose or intermittent cables disrupting your application. The input power is secured via screw terminal or threaded DC Jack. Type C connections utilize USB-standard latching cables. The latching Type A ports' connectors provide high-retention (50N) downstream connections compatible with all industry-standard USB cables.

In addition to secure retention connectors signal integrity is further protected by IEC 61000-4-2 maximum-rated ESD protection diodes (15kV Contact & Air-gap).
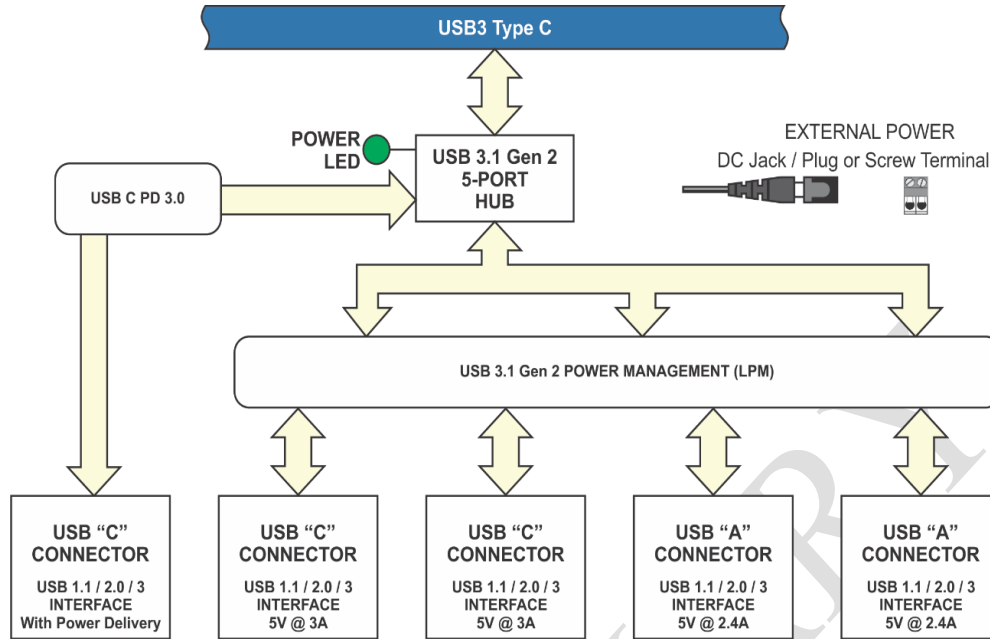
The board is designed to be used in rugged industrial environments, but is small enough to fit nicely onto any desk or testing station. The module is PC/104 sized at 3.550" by 3.775", while the enclosure is approximately 4" x 4" x 1".

## ACCESSORIES

Available accessories include the MP104-DIN for DIN rail mounting the USB3C-104-HUB and an external instrument grade power supply.

## SOFTWARE

No software is provided or needed with this board. There is no need to install any drivers to use the USB3C-104-HUB. It will enumerate as a Generic Hub which uses the USB Hub Class Driver that is built in Windows OS or Linux, et al.

**BLOCK DIAGRAM**

**SPECIFICATIONS**

Bus Type:          USB 3.1 Gen 2
                   SS+, SS, HS, FS, and LS supported on
                   all ports
                   One Type C upstream port with PD3.0
                   One downstream Type C with PD3.0
                   Two Type C downstream
                   Two Type A downstream ports

**Environmental**

Operating & Storage: -40° to +85°C
Humidity:          5-95% non-condensing
Board Size:        3.550" x 3.775"
Enclosure Size:    3.985" x 3.990" x 1.045"
Weight:            284 grams (with enclosure)
                   65.8 grams (-OEM version)

**Cable**           6' USB3 cable Type C with latch

**Power**           Connect via screw terminals, a locking
                   DC jack / plug or standard jack / plug

Power Delivery     One upstream and one downstream
                   type C port support the full PD3.0
                   standards of 20V, 15V, 9V, and 5V
                   power at up to 5A
                   Two downstream Type C support 3A
                   Two downstream Type A support
                   USB Battery Charging v1.2 and
                   Apple Charging standards (2.4A)

**Connectors**

USB Type A Latching  Retention up to 50 Newtons
                   Physical shock: Per EIA-364-27
                   Condition H (11ms 30G)
                   Vibration: Per EIA-364-28D
                   Condition V, Test A

USB Type A          8 Newtons disconnect non-locking
DC Jack (locking)   Vibration: Method 201A
(MIL-STD-202G)      Ins. Resistance: Method 302 ConditionB
                   Thermal Shock: Method 107G

                   Temperature: -40-105°C (-40-+221°F)
DC Jack (non-locking) 2.22 Newtons disconnect
USB Type C          8 Newtons disconnect non-latching
                   cable

**Ordering Guide**

USB3C-104-HUB      RoHS compliant industrial USB 3.1
                   Gen 2 hub with locking/latching
                   connectors in rugged enclosure
                   (includes 6' high-quality USB 3.1 Type
                   C latching cable)

USB3C-104-HUB-E    Economy version with standard non-
                   latching power and data connections
                   (includes 6' high-quality USB 3.1 Type
                   C cable)

**Model Options**

-OEM               Board only version (no enclosure)
-TAN               Tantalum Capacitors instead of
                   Electrolytic for high altitude usage
-CC                Conformal Coating for use in high
                   humidity and dusty environments

**Optional Accessories**

MP104-DIN          DIN rail mounting provision

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