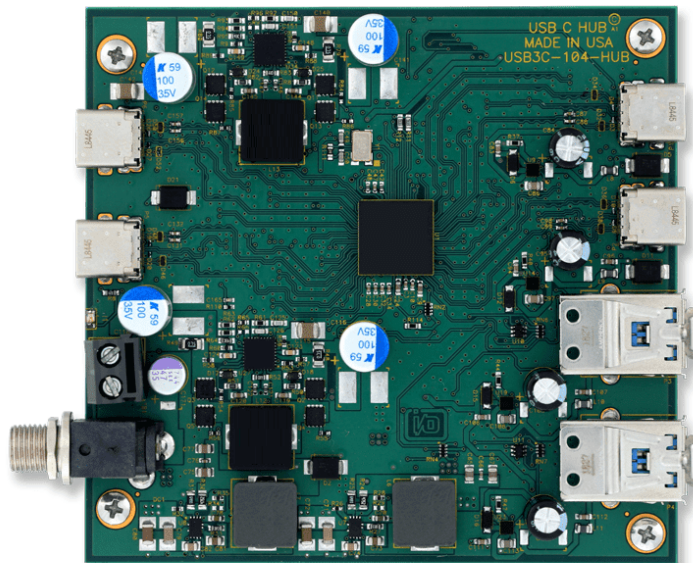


RUGGED USB3.1 GEN2 5-PORT C & A HUB WITH PD (POWER DELIVERY) HARDWARE MANUAL

MODELS
USB3C-104-HUB



CHAPTER 1: QUICK START

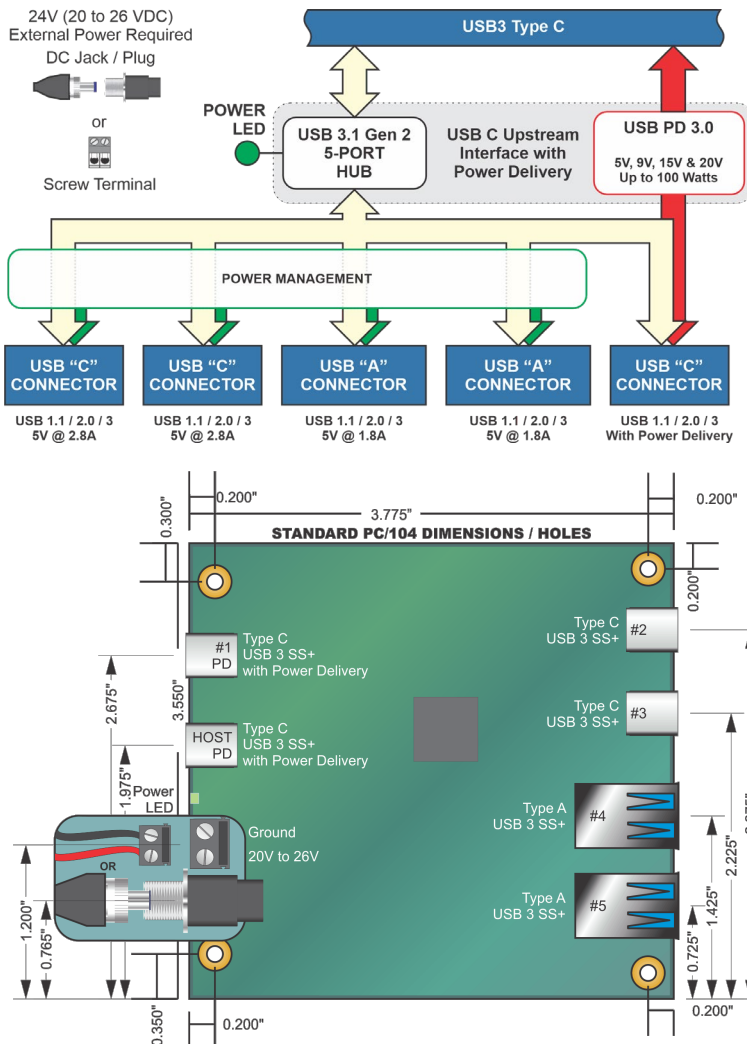
No software is provided with this board. There is no need to install any drivers for the USB3C-104-HUB product.

Using the USB Hub Class Driver (that is built into Windows OS or Linux etc) it will enumerate as three things:

- Generic Hub
- Super Speed Hub
- Dock Management Controller

CHAPTER 2: INTRODUCTION

- 5-port USB 3.1 Gen 2 hub with data transfers up to 10 Gbps
- One upstream USB C with 100 W Power Delivery 3.0 (PD)
- One downstream USB C with 100 W Power Delivery 3.0 (PD)
- Two USB Type C and two Type A downstream ports with Battery Charging v1.2 and Apple Charging standards
- ESD protection (+/-15kV IEC 61000-4-2 Level 4) on all data lines
- Rugged (0°C to 70°C) operation
- Locking connectors prevent accidental disconnects
- SuperSpeed+ (10Gbps), SuperSpeed (5Gbps), Hi-Speed (480Mbps), Full-Speed (12Mbps), and Low-Speed (1.5Mbps) transfers supported on all ports
- Compact, steel, low-profile enclosure
- RoHS compliant



CHAPTER 3: HARDWARE

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 a threaded locking power connection, preventing accidental disconnects - making it ideal for high vibration applications. The rugged steel enclosure, positive retention connections, and 0°C to +70°C operation makes the USB3C-104-HUB stand out compared to retail hubs, and it's 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 terminals or a threaded DC Jack. Type C connections utilize USB single screw locking standard cables retained by the enclosure. The latching Type A ports' connectors themselves provide high-retention (50N) downstream connections compatible with all industry-standard USB cables.

While USB has evolved, this card has enabled the maximum functionality of USB by providing flexibility of power options using USB PD 2.0 and USB 3.1 data transfer expansion in a single module design.

This product is fully protected from faulty peripherals. Each port (Non PD) utilizes a power distribution switch providing overcurrent and short circuit protection. If a fault occurs, the power distribution switch will disable that port and a warning will show in the operating system. The disabled port can be re-enabled by clearing the fault and cycling power to the port. PD ports utilize their own power management circuitry for peripheral protection.

The boards are designed as PC/104 sized, with PC/104 mounting holes, in a steel powder-coated enclosure with non-skid feet.

All units ship extended temperature and RoHS compliant.

INCLUDED IN YOUR PACKAGE

1x USB3C-104-HUB board
1x 3' USB 3.1 cable type C locking to type C locking (5A rating)

Available accessories include:

PWR-ACDC-24V10A-L	External Power Supply with locking connector
LF-JDC-PLUG	Locking DC Power Plug w/sturdy back shell and solder tabs
CAB-USBACL	6' USB 3.1 type A to C cable w/single screw lock
CAB-USB3CCLL	3' PD 5A USBC locking to USBC locking cable
MP104-DIN	DIN rail mounting provision

Contact the factory for information regarding additional accessories, options, and specials that may be available to best fit your specific application requirements, such as conformal coating.

To take advantage of the Power Delivery (PD) feature on both the upstream port to the host, and on the downstream PD port simultaneously, you'll need to order a CAB-USB3CCLL cable as a separate line item, as only one such cable is included with the USB3C-104-HUB full version.

CHAPTER 4: CONFIGURATION SETTINGS

All configuration of this device is performed through software; any jumpers or switches are for factory use only.

The latest information can always be found on the product page on the website.

Useful Links

<https://acesio.com>

acesio.com/USB3C-104-HUB

CHAPTER 5: SPECIFICATIONS

PC Interface

USB	USB 3.1 Gen 2
SuperSpeed+ (SS+/10Gbps), SuperSpeed (SS/5Gbps), Hi-Speed (HS/480Mbps), Full-speed (FS/12Mbps), and Low-Speed (LS/1.5Mbps)	

Environmental

Temperature	Operating	-0°C to +70°C
	Storage	-40°C to +85°C
Humidity		5% to 95% RH, non-condensing
ESD Protection	+/-15kV IEC 61000-4-2 contact	
	+/-15kV IEC 61000-4-2 air	
Dimensions	Board	PC/104 format and mounting holes 3.550 in by 3.775 in
	w/Enclosure	3.985 in x 3.990 in x 1.045 in
Weight	Board	80 grams
	w/Enclosure	302 grams

Power

Power required	External power from 20 to 26VDC is required. Screw terminals are rated for wire sizes of 14-26 AWG, and are rated for 15A.
-----------------------	--

Wattage of the power supply affects power delivery output. At 50W, PD is 3A maximum, with 100W, PD is the full 5A specification.

Connectors

USB Type A Latching	Retention up to 50 Newtons (retained by latch) Physical shock: Per EIA-364-27 Condition H (11ms 30G) Vibration: Per EIA-364-28D Condition V, Test A
USB Type C	8 Newtons min, 20 Newtons max (insertion and retention) without enclosure (-OEM version) (retained by single screw lock in enclosure)
DC Jack (locking) (MIL-STD-202G)	Vibration: Method 201A Insertion Resistance: Method 302 Condition B Thermal Shock: Method 107G

Model Options

-E	Non-locking version
-OEM	No enclosure (board only)

USB 3.1 vs USB 3.0

USB 3.0 was renamed to "USB 3.1 Gen 1" and operates at up to 5Gbps.

USB 3.1 Gen 2 supports 10Gbps

CHAPTER 9: CERTIFICATIONS

CE & FCC

These devices are designed to meet all applicable EM interference and emission standards. However, as they are intended for use installed on motherboards, and inside the chassis of industrial PCs, important care in the selection of PC and chassis is important to achieve compliance for the computer as a whole.

UL & TUV

Neither DC voltages above 12V, nor AC voltages of any kind, are consumed or produced during normal operation of this device. This product is therefore exempt from any related safety standards. Use it with confidence!

ROHS / LEAD-FREE STATEMENT

All models are produced in compliance with RoHS and various other lead-free initiatives.

WARNING

A SINGLE STATIC DISCHARGE CAN DAMAGE YOUR CARD AND CAUSE PREMATURE FAILURE! PLEASE FOLLOW ALL REASONABLE PRECAUTIONS TO PREVENT A STATIC DISCHARGE SUCH AS GROUNDING YOURSELF BY TOUCHING ANY GROUNDED SURFACE PRIOR TO TOUCHING THE CARD.

ALWAYS CONNECT AND DISCONNECT YOUR FIELD CABLING WITH THE COMPUTER POWER OFF. ALWAYS TURN COMPUTER POWER OFF BEFORE INSTALLING A CARD. CONNECTING AND DISCONNECTING CABLES, OR INSTALLING CARDS, INTO A SYSTEM WITH THE COMPUTER OR FIELD POWER ON MAY CAUSE DAMAGE TO THE I/O CARD AND WILL VOID ALL WARRANTIES, IMPLIED OR EXPRESSED.

WARRANTY

Prior to shipment, ACCES equipment is thoroughly inspected and tested to applicable specifications. However, should equipment failure occur, ACCES assures its customers that prompt service and support will be available. All equipment originally manufactured by ACCES which is found to be defective will be repaired or replaced subject to the following considerations:

GENERAL

Under this Warranty, liability of ACCES is limited to replacing, repairing or issuing credit (at ACCES discretion) for any products which are proved to be defective during the warranty period. In no case is ACCES liable for consequential or special damage arriving from use or misuse of our product. The customer is responsible for all charges caused by modifications or additions to ACCES equipment not approved in writing by ACCES or, if in ACCES opinion the equipment has been subjected to abnormal use. "Abnormal use" for purposes of this warranty is defined as any use to which the equipment is exposed other than that use specified or intended as evidenced by purchase or sales representation. Other than the above, no other warranty,

expressed or implied, shall apply to any and all such equipment furnished or sold by ACCES.

TERMS AND CONDITIONS

If a unit is suspected of failure, contact ACCES' Customer Service department. Be prepared to give the unit model number, serial number, and a description of the failure symptom(s). We may suggest some simple tests to confirm the failure. We will assign a Return Material Authorization (RMA) number which must appear on the outer label of the return package. All units/components should be properly packed for handling and returned with freight prepaid to the ACCES designated Service Center, and will be returned to the customer's/user's site freight prepaid and invoiced.

COVERAGE

FIRST THREE YEARS: Returned unit/part will be repaired and/or replaced at ACCES option with no charge for labor or parts not excluded by warranty. Warranty commences with equipment shipment.

FOLLOWING YEARS: Throughout your equipment's lifetime, ACCES stands ready to provide on-site or in-plant service at reasonable rates similar to those of other manufacturers in the industry.

EQUIPMENT NOT MANUFACTURED BY ACCES

Equipment provided but not manufactured by ACCES is warranted and will be repaired according to the terms and conditions of the respective equipment manufacturer's warranty.

DISCLAIMER

The information in this document is provided for reference only. ACCES does not assume any liability arising out of the application or use of the information or products described herein. This document may contain or reference information and products protected by copyrights or patents and does not convey any license under the patent rights of ACCES, nor the rights of others.