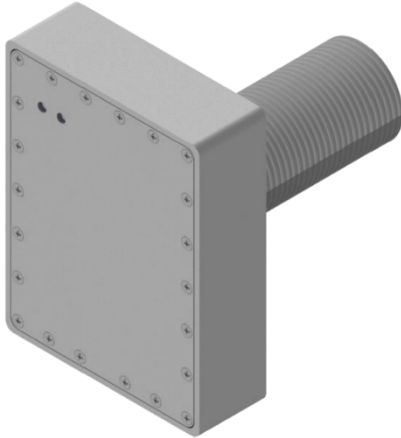


## **ACTIV USB3.1 Universal Serial Bus Electromagnetic Interference (EMI) Filter**



The ACTIV USB3.1 electromagnetic interference (EMI) Filter is the most advanced and effective EMI filter for Universal Serial Bus (USB) available on the market. The filter seamlessly communicates with all USB standards from USB 1.1 up to USB 3.1 Generation 2 and is designed to pass signals from Low Speed (aka “LS” or 1.5 Mb/s) up to SuperSpeed+ (“SS+” 10 Gb/s). The filter utilizes the USB Type C protocol and supports the Power Delivery 3.0 specification including programmable power supply capability. The power profile is automatically negotiated by the filter allowing up to 60 watts (3A at 20VDC) of filtered power to the Downstream Facing Port (DFP).

Utilizing proprietary Digital Signal Processing (DSP) techniques, the ACTIV USB3.1 faithfully reproduces the USB signals without unwanted or extraneous interference. The filter rejects unwanted signals from 1kHz to 40GHz at typical levels better than 90dB. Military grade passive filtering technology ensures that USB signals traverse the filter in complete and absolute isolation from each other and the outside world. Signal lines are balanced perfectly throughout the multilayered cards to avoid disturbing the fast rise times required by digital square wave signals. The result is a pristine digital output far surpassing the filtering capabilities of any other EMI filters.

Each ACTIV USB3.1 Filter is constructed with the highest quality electrical components, starting with a super accurate, ultra stable high speed crystal clock which drives the specially developed DSP circuitry and USB host controller chipset. To protect against unanticipated voltage and/or current surges, the filter incorporates ESD and transient voltage suppressors, inrush current limiters, and gas discharge tubes. ACTIV USB3.1 EMI Filters are mounted in a rugged protective housing machined from solid aluminum stock. The housing not only provides physical protection to the filter components, but is also an integral contributor to the filter’s effectiveness. The unique structure of the housing effectively disrupts undesirable emissions from propagating through the filter while simultaneously providing low impedance pathways for interference to be directed out of the filter. Between the housing and protection circuitry, the ACTIV USB3.1 EMI Filter is suitable for nearly any environment ranging from climate-controlled commercial use to harsh and unforgiving military applications.

### **Features:**

- Proprietary DSP technology provides unmatched EMI filtering
- Military grade passive filtering techniques maintain clean and sharp signals
- Highest quality electrical components deliver long service life
- Rugged protective housing ensures reliability in any environment

**The ACTIV USB3.1 EMI Filter  
The critical choice when blocking EMI is paramount.**

## Specifications

Filter Performance	Shielding Effectiveness	>100dB from 10kHz to 40GHz (typical) (Measured using a method based on IEEE 299-2006)
	Insertion Loss	>90dB from 1kHz to 40GHz (typical) (Measured using a method based on MIL-STD-220B)
	Radiated and Conducted Emissions	Exceeds MIL-STD-461 CE102    Exceeds MIL-STD-461 RE102 Exceeds FCC Part 15 A, B    Exceeds EN 55032 Class A, B
Electrical Performance	Data Line Impedance	90 $\Omega$ Typical
	USB 2.0 Supported Data Speeds	Low Speed (LS) 1.5 Mb/s Full Speed (FS) 12 Mb/s High Speed (HS) 480 Mb/s
	USB 3.1 Supported Data Speeds	SuperSpeed (SS) 5 Gb/s SuperSpeed+ (SS+) 10 Gb/s
	Supported USB PD Profiles	15W (Up to 3A @ 5VDC) 27W (Up to 3A @ 9VDC) 45W (Up to 3A @ 15VDC) 60W (Up to 3A @ 20VDC)
	Communication and Power Protocols	USB 2.0 (480 Mbps) USB 3.0 (5 Gbps), also called USB 3.2 Gen 1 USB 3.1 Gen 2 (10 Gbps), also called USB 3.2 Gen 2 USB Type-C Specification 1.0 USB Power Delivery 3.0 IEC 62680-1-3 Note: The filter supports single-lane USB at up to 10 Gbps. Dual-lane USB 3.2 Gen 2x2 (20 Gbps) is not supported.
Environmental	Operating Temperature	0°C - 40°C (32°F - 104°F) Continuous
	Humidity	5% - 90% (non condensing)
Construction	Filter Housing	Aluminum w/Electroless Plated Nickel
	Power Requirements	+24VDC / 3.75A Minimum Power Supply Pins 1/4 POS, 2/3 GND
	Dimensions	3.96" x 3.04" x 1.05"
	Mounting	1-20 UNEF-2A Mounting Stub for Threaded Penetration 1" NPS Threaded Penetration (1.32"Ø x 1", 3", 9", 12" or Custom Length)
	Connectors	USB C Jack (x2) 4 Pin Mini-DIN Jack
	Indicator LEDs	Power (Red) – Lit When Power is Present High Voltage (Yellow) – Lit When >5VDC Provided at Output

## Drawing

