

JRE USB 2-1

USB 2.0 High Speed Filtered Interface

Test USB 2.0 devices in a sealed RF environment — full 480 Mbps and proper enumeration, cellular and WiFi locked out.



Machined aluminum housing; data and power lines filtered

AT A GLANCE

- Passes all **USB 2.0** signals while rejecting cellular, LTE, WiFi and everything above 700 MHz
- **Fully USB compliant with proper enumeration** — test hiccups are exchanged end-to-end, with none of the silent hang-ups a fiber link can hide
- Flat passband to ~480 MHz; **>70 dB** rejection above 700 MHz, **>80 dB** from 1 GHz through 6 GHz
- Power lines filtered too — **>80 dB** from 400 MHz through 6 GHz
- **Fully passive** — no active components, no firmware, nothing that could be subverted in a data-side attack
- Balanced filtering for minimal ringing; Type A male-to-male jumper cable included
- Rugged machined-aluminum housing · 100% made in USA

DESCRIPTION

The JRE USB 2-1 is a USB 2.0 compliant low-pass filtered interface built into a machined-aluminum housing that gives exceptional RF shielding on all data and power lines. It passes data and power between a host computer on one side and a USB device on the other, while rejecting frequencies above the ~700 MHz cellular bands.

Being fully USB compliant matters more than it sounds. The correct enumeration process ensures any test hiccups are properly exchanged between devices — no hang-ups go undetected, which is a real problem with fiber optic and other converted interfaces. The interface consists of a

balanced pair of bi-directional data lines plus an unbalanced power and return pair, on standard USB Type A connectors.

Reliable shielding starts at the mounting. The USB 2-1 secures to the enclosure wall with a ring of 4-40 screws, drawing the flange flat and tight around its entire perimeter — unlike single-nut designs, which never seat reliably flat and work loose over time. Every specification here is measured with the filter installed in an enclosure. The compact footprint also leaves room for more filters on the same I/O plate.

TYPICAL INSERTION LOSS — DATA LINES

10 MHz	0.1 dB
150 MHz	1.2 dB
250 MHz	1.5 dB
350 MHz	2.0 dB
480 MHz	3.0 dB
700 MHz	> 70 dB
800 MHz – 6 GHz	> 80 dB

DC POWER LINES

DC resistance	0.1 Ω max
10 MHz	–3 dB
100 MHz	> –60 dB
400 MHz – 6 GHz	> –80 dB

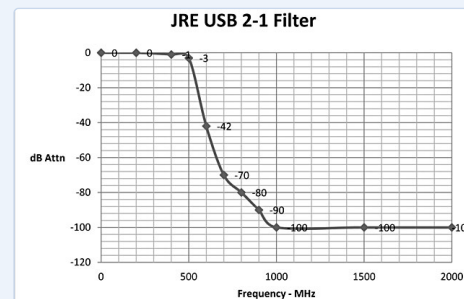
ELECTRICAL & CONNECTOR

Data line balanced impedance	90 Ω typ.
Power capability	USB std or 50 VDC @ 1 A
USB inside	Type A female
USB outside	Type A female
Cable	Type A M-M jumper incl.

DIMENSIONS & MOUNTING

Outside	2" H $\times$ 3.2" W $\times$ 0.8" D
	50 $\times$ 80 $\times$ 20 mm
Mounting screws	4-40, included
Clearance hole	0.1285" (#30 / 3.3 mm)
Drilling template included for standalone installation.	

MEASURED FREQUENCY RESPONSE



Insertion loss vs. frequency, filter installed in an enclosure.

COMPATIBILITY

Works with any JRE RF shielded test enclosure or screen room. JRE's enclosure line provides superior RF isolation from 10 MHz to over 6 GHz, covering the full range of commercial, private and government communications systems. Whether you are designing, integrating or conformance testing, JRE provides a solution ready for today's technology and the next generation.