

JRE LAN-10G-1

RJ-45 Filtered 10GBASE-T Ethernet Interface

Patented phasing design rejects wireless RF without throttling your 10G data — 10GBASE-T plus the 2.5G and 5GBASE-T rates.



Machined aluminum housing; fully passive signal path

AT A GLANCE

- **Not a low-pass filter** — a patented signal-phasing topology discriminates balanced differential data from common-mode RF instead of attenuating both
- Built for **10GBASE-T over copper RJ-45**, plus the NBASE-T rates (**2.5G and 5GBASE-T**) that share the same balanced twisted-pair signaling
- **~80 dB** conducted attenuation, 50 MHz to over 6 GHz; insertion loss under 5 dB on data lines
- **Direct copper RJ-45-to-RJ-45 path** — link negotiation and error hiccups are exchanged end-to-end, with none of the silent hang-ups a fiber media converter can hide
- **PoE pass-through compatible**; 1 metre Ethernet male-to-male jumper included
- **Fully passive** — no active components, no firmware, nothing that could be subverted in a data-side attack
- Rugged machined-aluminum housing · 100% made in USA

DESCRIPTION

The JRE LAN-10G-1 is a 10GBASE-T compliant filtered interface on standard RJ-45 connectors, built into a machined-aluminum housing that gives exceptional RF shielding on every data and power line. It works on an entirely different principle from older Ethernet filters. Earlier designs low-pass filtered the data lines to knock down interfering RF, but as data rates climbed the data itself moved up into the same frequency range as the interference — and a low-pass filter can no longer tell them apart. Our patented design instead exploits the fact that Ethernet data is a balanced differential signal while the interference appears as common mode.

Choosing the right filter matters. This one is purpose-built for 10GBASE-T — the copper twisted-pair PHY on RJ-45. It is not compatible with 10GBASE-R,

SFP+ or fibre-based 10G, which use a fundamentally different signaling scheme; for those links a fibre pass-through is the right choice. If you are only running 10/100/1000, the LAN-1 is purpose-built for those speeds and gives better isolation there.

Because the path through the filter is direct copper, your devices see a normal electrical link and negotiate any test hiccups between themselves. The filter appears to the link as roughly 3 to 5 metres of additional Ethernet cable, so budget for it in your overall cable length. Reliable shielding starts at the mounting: a ring of 4-40 screws draws the flange flat and tight around its entire perimeter.

RF PERFORMANCE

Conducted attenuation	~80 dB
Frequency range	50 MHz – 6 GHz+
Insertion loss, data lines	< 5 dB
Isolation, in test system	80 dB

DATA RATES SUPPORTED

10GBASE-T	Yes
5GBASE-T / 2.5GBASE-T	Yes
10GBASE-R / SFP+ / fibre	Not compatible

ELECTRICAL & CONNECTOR

Data line balanced impedance	90 Ω typ.
Power capability	Ethernet std or 60 VDC @ 1 A
DC resistance per leg	0.1 Ω max
PoE pass-through	Compatible
Interface	RJ-45 female, both sides
Cable	1 m Ethernet M-M incl.

DIMENSIONS & MOUNTING

Outside	2" H × 3.2" W × 0.8" D
Mounting screws	50 × 80 × 20 mm
Clearance hole	4-40, included
	0.1285" (#30 / 3.3 mm)
Drilling template included. The filter presents roughly 3–5 m of equivalent cable — budget for it in your overall cable length.	

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. Need two channels? See the JRE LAN10G-2. Unsure which filter suits your link? Tell us what is on each end.