

## Description

The Z-470P2J is a small, in-line, ETSI compliant customer premises equipment (CPE) filter designed to expedite the service delivery and improve the performance of digital subscriber line (DSL) and home phoneline network (HPN) services over plain old telephone service (POTS). The Z-470P2J filters all telephones, facsimile (fax) machines, answering machines, and other telephone equipment. Its filter design electronically isolates the high-speed DSL and HPN data streams from the voice-band POTS to provide premium voice quality and optimal DSL and HPN data rates.

## Features

- Meets ETSI TS 101 952-1-5 Option A European DSL filter standard
- **Data Protection** - Isolates telephone impedances changes from DSL equipment
- Excellent DSL band attenuation that protects voice band equipment and prevents intermodulation distortion from degrading data rates
- Compatible with all major DSL standards including ADSL, ADSL2+, VDSL, and VDSL2
- **Voice Protection** - Isolates DSL band frequencies from voice band equipment
- Excellent longitudinal balance
- Compatible with Caller ID, Facsimile and metallic loop testing
- ROHS Compliant
- CE Mark

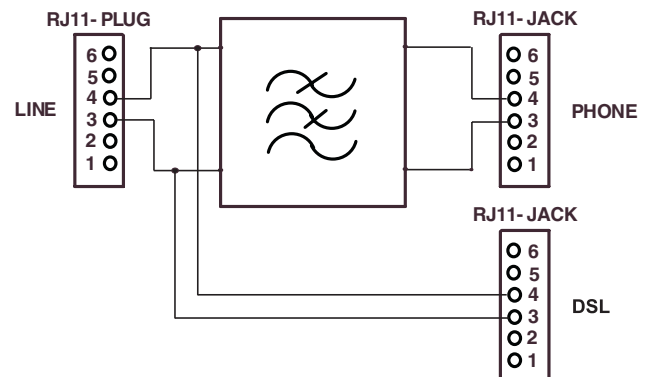


*The Z-470P2J provides a DSL convenience jack for connecting a DSL modem*

## Applications

The DSL user installs the Z-470P2J in-line filter into each telephone line jack in the subscribers' premises that contains voice-band equipment devices, including corded/cordless telephones, answering machines, fax machines, 56Kb/s and lower rate modems, automatic dialers, recorder connectors and satellite television set-top boxes.

The Z-470P2J in-line filter is one of many filters and splitters manufactured by PULSE for subscriber-installed digital services within homes, offices, and hotels. Excelsus is the number one selling brand of DSL filters worldwide.



*Z-470P2J Block Schematic*

**Z-BLOCKER Z-470P2J Filter Specifications**

Terminating Impedances	
DSL Termination ZDSL	(120 nF + 100 nF) + (100 Ohm // 0.47 mH)
Line Termination Zsl	(68 nF // 600 Ohm) + 82 Ohm
Line and Phone Termination Zrhf	(47 nF // 150 Ohm) + (150 nF // 750 Ohm) + 120 Ohm
Line and Phone Termination Zon	10 KOhm
Phone Termination Zr	(150 nF // 750 Ohm) + 270 Ohm
DC Feeding Current	
On-hook	0.4 mA – 2.5 mA
Off-hook	13 mA – 80 mA
DC Resistance to Earth @ 100VDC	≥ 100 MΩ
DC Insulation Resistance between A-wire and B-wire @ 100VDC	≥ 25 MΩ
DC Series Resistance at Line or ISDN port with other port shorted	≤ 50 Ω
Ringing Frequency	
Voltage drop at 25 Hz and 50 Hz	≤ 2 Vrms
Impedance at POTS and Line port at 25 Hz and 50 Hz	≥ 40 kΩ
Total Harmonic Distortion at 25 Hz and 50 Hz	< 10%
Passband Insertion Loss, on-hook and off-hook at 1 kHz	< 1 dB
Passband Insertion Loss Distortion	
On-hook from 200 Hz to 2800 Hz compared to 1 kHz	< 1 dB
Off-hook from 200 Hz to 4000 Hz compared to 1 kHz	< 1 dB
Passband Return Loss with Line Termination Zsl	
From 300 Hz to 3400 Hz	≥ 12 dB
From 3400 Hz to 4000 Hz	≥ 8 dB
Passband Return Loss with Phone Termination Zr	
From 300 Hz to 3400 Hz	≥ 12 dB
From 3400 Hz to 4000 Hz	≥ 8 dB
Stopband Insertion Loss (Isolation/Attenuation), on-hook, from 25 kHz to 2.2 MHz	From -36 dBV down to -51 dBV linearly
Stopband Insertion Loss (Isolation/Attenuation), off-hook, from 32 kHz to 2.2 MHz	≥ 55 dB
Noise from 26 kHz to 1104 kHz at DSL port and Line port with 10 kHz bandwidth	< -140 dBm/Hz
Passband Intermodulation Distortion, Second and Third Order Harmonics	≥ 57 dB and ≥ 60 dB, resp.
Delay Distortion, compared to 300 Hz to 4000 Hz	
From 200 Hz to 600 Hz, and from 3200 Hz to 4000 Hz	< 250 μs
From 600 Hz to 3200 Hz	< 200 μs
Connectors: RJ-11 Jack and RJ-11 Plug	
Dimensions: Length = 2.04in (51.9mm), Width = 1.21in (30.8mm), Height = 0.710in (18.0mm)	
Designed to meet IEC 60950 safety requirements for CE Mark	