

# EMI/PLC Adapter for Power Lines and Ground

## Measure Power Line Communication (PLC) and EMI With Your Oscilloscope or Spectrum Analyzer

MSN17 adapters completely block power line voltage and let through only high frequency signals allowing for safe observation and measurements of PLC (Power Line Communication) and high-frequency EMI (Electromagnetic Interference) signals in both differential and common modes.

Measurements of these signals without special adapters are perilous—high voltage on the AC mains can easily damage instrumentation. Plus, high mains' voltage makes it nearly impossible to trigger on weaker high-frequency signals. Measurements of noise on ground are often distorted by ground loops.

OnFILTER' unique EMI Adapter MSN17 provides complete galvanic separation between its input and output. It utilized true balanced input allowing measurements of high-frequency signals on live power lines without influence of grounding of your instrument, completely avoiding ground loops.



### Applications

- EMI management
- Power Line Communication (PLC)
- Data security
- Electronic manufacturing
- Semiconductor fabrication
- ESD/EOS control
- Test and measurements
- Data centers
- Industrial robotics
- Medical
- Military and aerospace
- Wherever EMI is an issue

### Features

- Measurements of high-frequency signals on live power lines and ground
- Galvanic isolation from power line
- True balanced input
- Differential and common modes
- Output overvoltage protection
- 50 Ohms output

### EMI/PLC Power Line "Probe"

Consider MSN17 as your probe for your oscilloscope, spectrum analyzer or signal strength meter for safe measurements of high frequency signals riding on live power lines

### Power Line Isolation

MSN17 provides complete galvanic isolation from high voltage on power lines - your instrument is not exposed to high voltage

### Balanced Input

MSN17 offers true balanced input reducing errors from ground coupling of your oscilloscope or spectrum analyzer

### Wide Frequency Response

MSN17 allows accurate measurements of most EMI signals on power lines and ground, as well as of signals in all bands of PLC (power line communication) — both narrow band and wide band

### Overvoltage Protection

Noise on power lines, especially transient spikes, can reach significant amplitude. MSN17 has special protective circuit limiting such spikes to no more than 15V of either polarity without sacrificing its performance at lower amplitudes

## MSN17 EMI/PLC Adapter For Power Lines



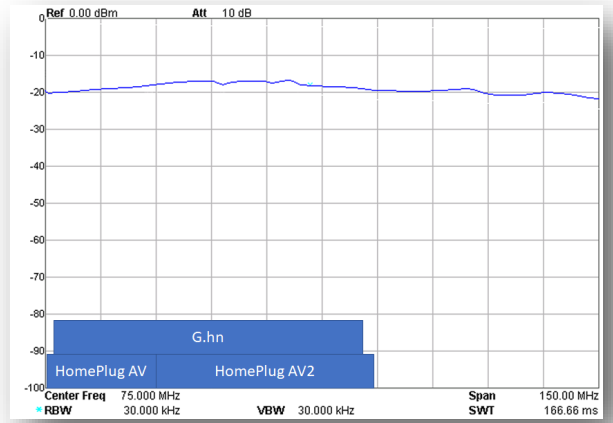
# Specification

MSN17 EMI adapter enables safe measurements of high frequency signals on live power lines without creating ground loops.

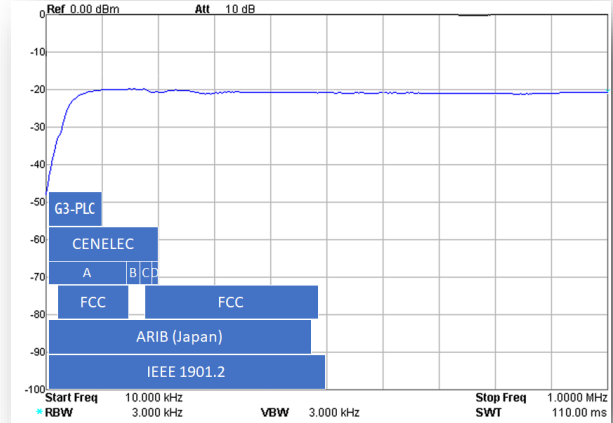
Parameter	Value
Max. Rated Voltage, RMS	250VAC Max., 50/60Hz
Frequency Response	30kHz...150MHz
Transfer Ratio (50 Ohms termination)	10:1 (-20 dB)
Input	Balanced, Galvanic Separation
Input connections (controlled by a switch)	
Differential mode	Live—Neutral
Common mode	Neutral—Ground
Output Impedance	50 Ohms
Output Connector	BNC
Output Signal Limiter	<15V Peak

## Instrument Overvoltage Protection

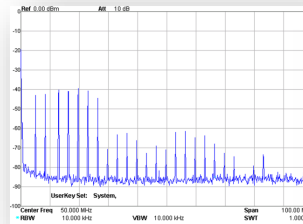
Power lines may have transient signals in excess of 1 kV. To protect your instruments MSN17 limits output signals to no more than 15V peak (typ.) We also include BNC T-adapter and 50 Ohms terminator so that you can use 1 MOhms input of your oscilloscope that can handle high signal levels. For high-bandwidth instruments, such as spectrum analyzers and some oscilloscopes, that have only 50 Ohms input and 3 to 5 V max. input level, we recommend to use commonly-available BNC 20 dB attenuator to provide full protection for your instrument.



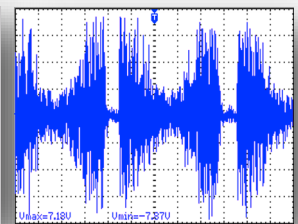
Broadband Transfer Function and Wide Band PLC



Low Frequency Transfer Function and Narrow Band PLC



HomePlug AV2 PLC Spectrum



EMI on Power Line

Common and Differential Modes Selection



## MSN17 comes with the following:



User's Guide



BNC coax cable, 6' (1.8m)  
50Ω BNC terminator  
BNC T-adapter



Power cable (US type shown)

## Ordering Information

Model	Included Cable Plug Type
MSN17-US	U.S. type NEMA5-15
MSN17-SK	Schuko
MSN17-UK	U.K. type
MSN15-CN	China/Australia type

If no suffix is indicated, U.S. version is shipped by default.  
Other configurations available—contact factory.  
If using plug adapter, use only grounded type.

**CE** MSN17 is certified for compliance with IEC/EN 61010-1:2010, Third Edition, AMD1:2016; 61010-2-030:2011.



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