AFJ INSTRUMENTS

LISN

Line Impedance Stabilization Network
V-network for interference measurements.

Data Sheet

Designed and manufactured in compliance with CISPR 16-1-2, for Measurements vs. commonly used Standards as EN, CISPR, FCC, ETS, VCCI and VDE, 9kHz to 30MHz frequency range, Up to 800Aamp capacity, Continuous rating, DC Measurements, DC to 63Hz supplies, manual and remote control,…

ARTIFICIAL MAINS NETWORK has to provide:

- Specified impedance over the working frequency range. Since the INPUT IMPEDANCE of the MEASURING RECEIVER is 50Ω, the SOURCE IMPEDANCE (output of the LISN), must also be 50Ω, over the specified frequency range.
- Sufficient isolation to spurious signals arising from the mains supply (such signals should be at least 10dB lower than the measurement level, at the measuring receiver), and also to prevent the mains voltage from being applied to the measuring receiver. The above must hold for each of the conductors of the mains.

The LISN also incorporate a switch to enable the connection of the measuring receiver to the conductor under test, providing the correct termination to the other mains conductors.

When a disturbance output terminal is not connected to the measuring receiver, it shall be terminated by 50Ω.

■ LS16C LISN and EMI Receiver

GENERAL

The **AFJ LISNs** have been developed for measurement of line-bound interference's according to CISPR 16-1-2. The construction uses **air coils** in the current path in order to avoid saturation effects with high current strengths.
The continuous high current load-bearing capacity is ensured by the use of large wire cross-sections for the coils. For a short period (10 minutes), twice as high currents are admissible.

The compact form of construction, despite the high current-bearing capacity, makes easy use of the AFJ LISNs for the measurement of high currents directly at the piece of use of the consumer possible. In this way, measurements of mains-borne interference's can be carried out under conditions corresponding to practice.

CISPR COMPLIANCE

All our LISNs are multi-line Impedance Stabilization V-Networks, (50µH+5Ohm)//50Ohm or 50µH//50Ohm, constructed in full compliance with CISPR 16-1-2.
These V-Networks are completed with an artificial hand as well as a PE simulating network.
LISN can also be used in DC conducted emission tests.

MODELS

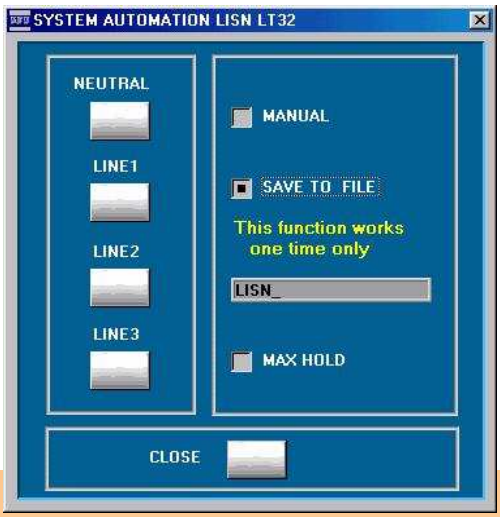
LISN including switching operation measurement (power meter) for EN55014-1

- **LS16C**: 16A single phase
- **LT32C**: 32A single/three phase

Selection of the conductor under test

The “CONDUCTOR UNDER TEST” (L1, L2, or L1, L2, L3, N), can be selected in manual operation of the LISN via the relevant button on the LISN front panel.
In automatic operation, such selection is performed via control S/W of:

- AFJ R3000 Receiver,
- AFJ CL55C Click Analyser.



Communication protocol data are also available to permit LISN remote control by any model of receiver/spectrum analyser.

THE ARTIFICIAL HAND

Artificial hand, simulating 510Ω + 220pF impedance, in accordance with CISPR 16-1-2 requirements, is provided via a specific outlet on the front panel of the LISN models LS16C and LT32C.

■ CISPR 16-1-2 artificial earth

THE ARTIFICIAL EARTH

During normal operation, the artificial earth condition must be “non floating” (such condition is attained by the relevant pushbutton on the LISN front panel, and the LED must be OFF).
Whenever the EUT dimensions are such that the protective earth conductor is long enough to show a significant impedance, or be close to ¼ of a possible wavelength, or the enclosure has poor conductivity, the test will be performed using the non-fused, built-in artificial protective earth.

■ LT32C and EMI Receiver

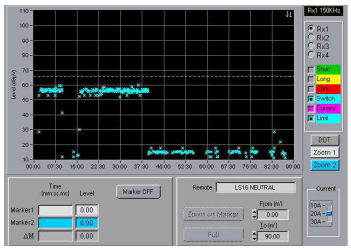
■ LS16C LISN

SWITCHING OPERATION (CISPR 14-1)

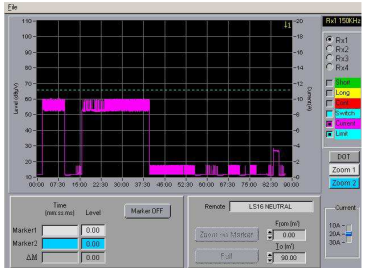
LISN mod **LS16C** and **LT32C** have been optioned with internal **current meter** to read and measure the EUT Switching Operations and EUT absorption current, when used in conjunction of **AFJ CL55C Click Analyzer**, as per CISPR 14-1 requirements.
No particular connections are required.

Example of appliances for which the click rate N is derived from the number of switching operations:

- Thermostats for room heating equipment;
- Refrigerators;
- Freezers;
- Cooking with automatics plates;
- Appliances with one or more boiling plates controlled by thermostats;
- Irons;
- Sewing machine speed controls;
- Electro mechanical officer machines;
- Slide projector picture change device.



■ Switching Operation display



■ Current Absorption display

Specs Overview

■ **LS16C**

Single Phase, 16A (32A)
V-Network

f = 9kHz÷30MHz

Z = (50µH+5Ω) // 50Ω

Artificial Hand and PE

Manual and Remote Control

DC Measurements

Switching Operations and EUT absorption current measurements (CISPR 14-1)

■ **LT32C**

Three Phases, 32A
V-Network

f = 9kHz÷30MHz

Z = (50µH+5Ω) // 50Ω

Artificial Hand and PE

Manual and Remote Control

DC Measurements

Switching Operations and EUT absorption current measurements (CISPR 14-1)

AFJ Instruments
Via Corno di Cavento 5
20148 Milan – Italy
Phone +39 02 91434850
sales@afj-instruments.com
www.afj-instruments.com

Version 12 January 2012. Subject to change without notice.