

EM5040 SERIES

Line Impedance Stabilization Network

Introduction

Conducted emission (CE) testing is a critical phase in the product development lifecycle. To ensure your devices meet international EMC standards, a reliable Line Impedance Stabilization Network (LISN) is essential for providing stable impedance and accurate signal coupling.

XGY introduces the EM5040 Series, a comprehensive range of V-type LISNs designed for conducted disturbance voltage measurements. Whether you are debugging an EMI filter in an R&D lab or performing standard compliance tests for industrial equipment, the EM5040 series provides the precision and protection required for modern measurement environments.



Features

- **Full Compliance:** Designed to meet CISPR16-1-2:2006 standard requirements for V-networks.,
- **Stable Impedance:** Provides a consistent reference impedance for the Equipment Under Test (DUT) while isolating unwanted signals from the mains power.
- **Built-in Protection:** Models equipped with a 10dB transient limiter to effectively protect sensitive receivers and spectrum analyzers from large signal damage.,
- **Advanced Debugging:** Supports Common Mode (CM) and Differential Mode (DM) measurement functionality, offering invaluable assistance for EMI filter debugging.,
- **Simulation Capability:** Integrated Artificial Hand function ($510\Omega + 220\text{pF}$) to simulate the influence of human contact on handheld tools.,
- **Universal Compatibility:** Standard 50Ω BNC output connectors ensure seamless integration with measurement equipment from any manufacturer.

Application

- **R&D Labs:** Conducted disturbance voltage measurement for single-phase electronic and electrical equipment.
- **EMI Debugging:** Analyzing and suppressing CM/DM interference in switching power supplies.,
- **Industrial & Automotive:** Compliance testing according to VDE, CISPR25, MIL-STD, and ISO7637 standards (EM5040C).
- **Quality Assurance:** Standardised testing in production environments to ensure consistent EMC performance.



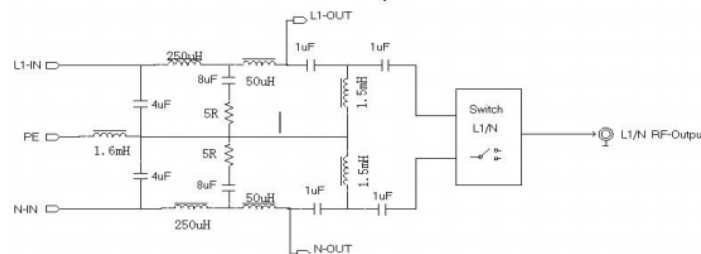
Model List

- EM5040E: Standard single-phase LISN (9kHz - 30MHz / 16A).,
- EM5040A: Features a built-in 10dB limiter and optional 150kHz high-pass filter.,
- EM5040B: Premium version with built-in CM/DM separator for advanced EMI debugging.,
- EM5040C: High-frequency, high-current single-line LISN (100kHz - 200MHz / 100A)

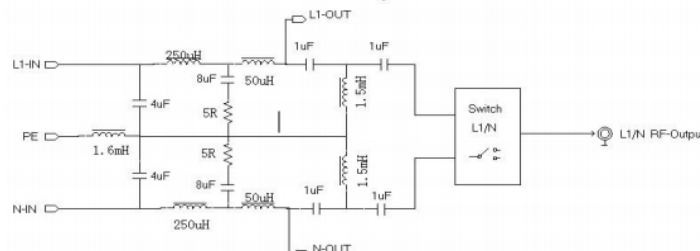
Basic Theory

EM5040E/5040A/5040B have a same V type LISN section. The difference is the subsequent signal processing section. EM5040E only contains the basic Type V LISN section. To protect the test receiver, users should add a limiter to it.

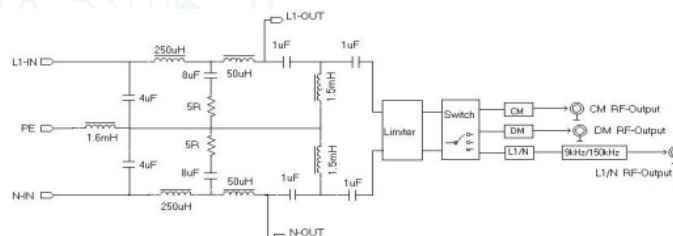
The theory of EM5040E is shown below:



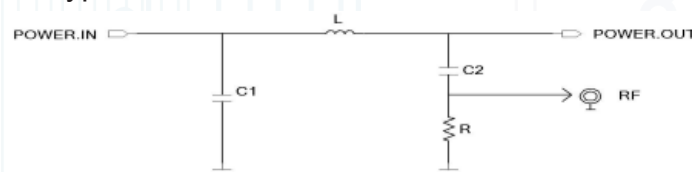
EM5040A is embedded with a limiter (10dB) and an optional 150kHz High Pass Filter based on original design as shown below:



EM5040B is embedded with Common Mode and Differential Mode Voltage separator based on original design as shown below:



EM5040C single line Type V LISN shown below:



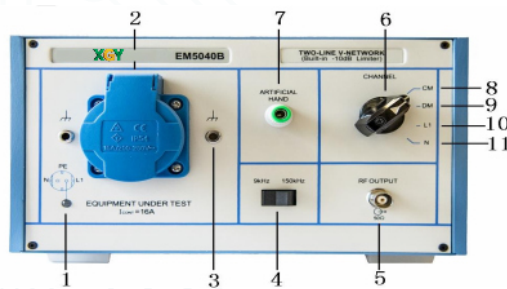
Front panel

EM5040E/5040A



- 1 L1 indicator
- 2 EUT power connector
- 3 Reference ground connector
- 4 N/L1
- 5 9kHz/150kHz switch
- 6 RF OUTPUT connector
- 7 Artificial Hand function

EM5040B



- 1 L1 indicator
- 2 EUT power connector
- 3 Reference ground connector
- 4 9kHz/150kHz switch
- 5 RF OUTPUT connector
- 6 Channel selection
- 7 Artificial Hand function
- 8 CM OUTPUT gear
- 9 DM OUTPUT gear
- 10 L1 phase RF OUTPUT gear
- 11 N phase RF OUTPUT gear

Packing List

Packing List	
LISN	1
RF cable	BNC (male) 2m
BNC female to N male	1
Instruction manual	1
Warranty card	1
Test report	1

Specifications

Parameter	EM5040E	EM5040A	EM5040B	EM5040C
Frequency range	9kHz—30MHz			100kHz—200MHz
Circuit type	(50uH+5Ω) 50Ω Type V			(5uH+1Ω) 50Ω
Measurement circuit phase number	Single phase two wire L/N1			Single wire
AC voltage/frequency range	0~264VAC / 50~60Hz ±5%			0~250VAC / 0~400Hz
DC voltage range	0~375V DC			0~600V
Power supply output connector	German standard power supply socket			M8 bolt
Output current	Rating 16A			Rating 100A; Short-time maximum current (<30s) 500A
Ground protection	Side metal panel grounding; Rear panel 4mm butterfly bolt grounding			2*M8 bolt; The bottom metal panel (connected to the ground plane with screws)
Output connector	Standard 50Ω BNC female			Standard 50Ω N female
Artificial hand	Yes			No
Output signal filter	No	High-pass filter 9kHz/150kHz optional	No	No
Output signal limiter	No	Attenuation coefficient -10dB; limit threshold 130dBuV	No	No
Output signal common mode and differential mode separator	No	No	Yes; Add 2 output connector CM/DM	No
Operating temperature range	0°C ~ 45°C			0°C ~ 45°C
Storing temperature	-20°C ~ 70°C			-20°C ~ 70°C
Safety standard	EN61010-1			EN61010-1
Size	338mm (Length) × 237mm (Width) × 133mm (Height)			322mm (Length) × 122mm (Width) × 128mm (Height)
Weight	5kg	5.25kg	5.25kg	1.8kg