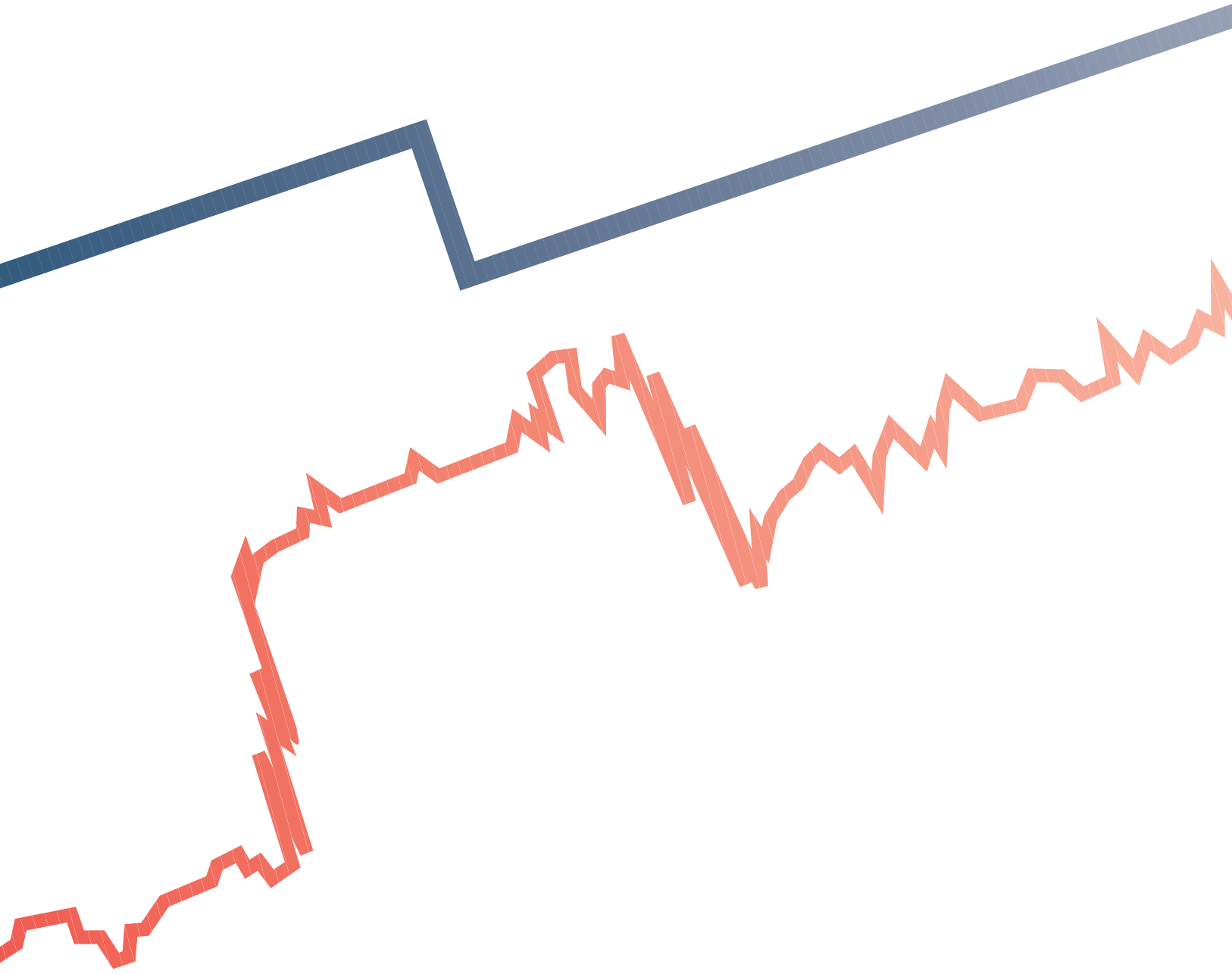
ENERDOOR

Engineered by Finmotor

Power Quality and EMC Solutions



ENERDOOR

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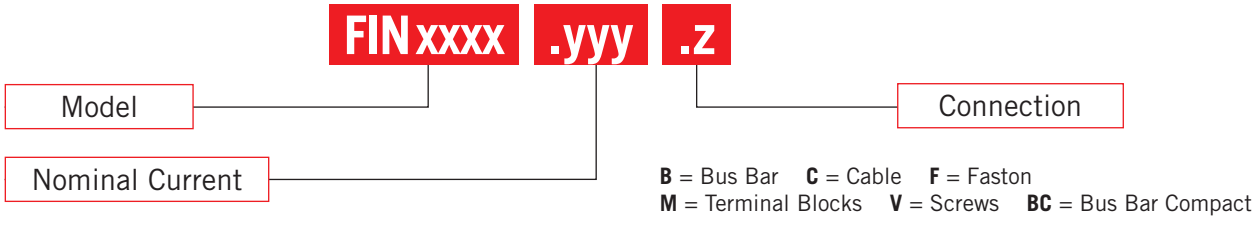
INDEX

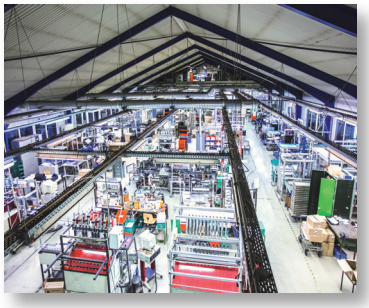
ORDERING CODE



COMPANY OVERVIEW

1992 Finmotor founded in Milan - Italy

Enerdoor / Finmotor headquarters Milan, Italy



Enerdoor / Eichhoff production facility Vac, Hungary

The Enerdoor Group is an international leader in the development and production of power quality and electromagnetic solutions for automated machinery and industrial plants. The Group's broad range of products includes EMI/RFI filters, motor protection devices, harmonic filters, power transformers, voltage stabilizers, and custom solutions.

In addition to EMC solutions, Enerdoor offers a global distribution and R&D network that provides flat-rate on-site CE Certification required by IEC and EN Standards. Founded in 1992, The Enerdoor Group consists of Enerdoor in North America and Switzerland; Finmotor and Finlab in Italy; and Eichhoff Elektro in Hungary.

Enerdoor's journey can be traced back to the 1970s, marked by seminal advancements in semiconductor technology that birthed the earliest variable frequency drives (VFDs) in Europe. Acknowledging the inherent "noise" attributed to VFDs, due to their high-frequency switching characteristics, Enerdoor's physicists embarked on developing a diverse array of EMI/RFI filter solutions to address the challenges associated with VFDs. Positioned as the quintessential power quality solution, Enerdoor filters swiftly gained traction within the industrial equipment landscape.

The industrial market's increasing reliance on high-frequency products necessitated CE compliance in the early 1990s. Leveraging its foresight and expertise, Enerdoor not only met this requirement but also ascended to become one of the promient CE and power quality testing agencies worldwide.

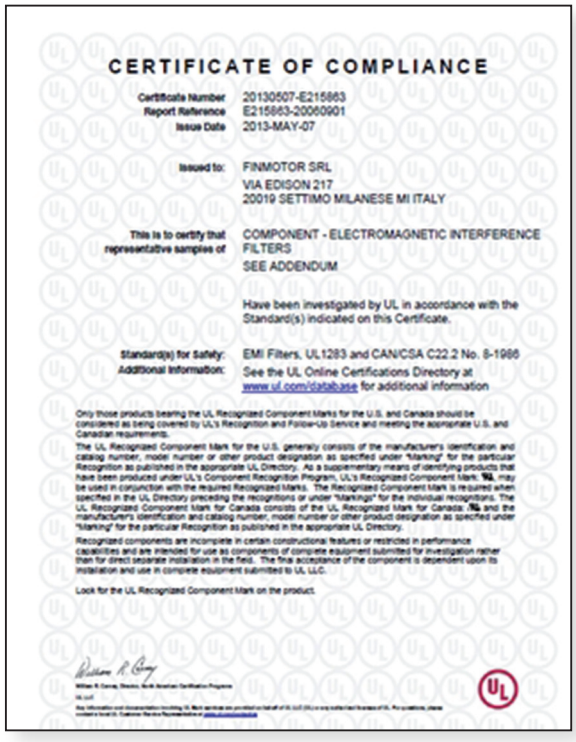
Enerdoor's strategic expansion unfolded in 2007 with operations branching out to the United States, followed by Switzerland in the same year, and Germany in 2010. The pivotal acquisition of Hungarian transformer manufacturer, Eichhoff Elektro, in 2011 propelled Enerdoor into the realm of global prominence, boasting manufacturing and R&D capabilities across five countries and a vast network of distributors and manufacturer representatives.

Grounded in a steadfast commitment to delivering unparalleled quality solutions and service, Enerdoor remains unwavering in its dedication to understanding and diagnosing the root cause of electrical disturbances. This steadfast approach ensures optimal solutions across diverse industries and applications, cementing Enerdoor as a trusted partner for power quality and electromagnetic solutions.

ENERDOOR COMPLIANCE

Enerdoor is committed to ensuring the production and delivery of high quality products. We strive to provide our customers with products and services that exceed expectations, while guaranteeing the best quality at all times.

Enerdoor products are CE approved with select series featuring UL approval for the US and Canadian markets. Enerdoor transformers and ignition systems are VDE approved.



CERTIFICATE OF COMPLIANCE

Certificate Number 20130507-E215863
Report Reference E215863-20060901
Issue Date 2013-MAY-07

Issued to: FINMOTOR SRL
VIA EDISON 217
20019 SETTIMO MILANESE MI ITALY

This is to certify that representative samples of: COMPONENT - ELECTROMAGNETIC INTERFERENCE FILTERS
SEE ADDENDUM

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: EMI Filters, UL1283 and CAN/CSA C22.2 No. 8-1986
Additional Information: See the UL Online Certifications Directory at www.ul.com/database for additional information

CERTIFICATE

issued by INTERCERT Ltd. a company specializing in the certification/registration of enterprises and organizations to

Eichhoff Elektro Kft.
H-2600 Vác, Deákvári fasor 12.

certifying that the above enterprise/organization has a Quality Management System functioning in conformity with

ISO 9001:2015

The certificate valid for the following scopes:

Development and production of electrical parts, transformers, ignitions, ignition units, EMI filters, EMI-RFI filters, passive and active harmonics filters, inductors, high-frequency impedances, chokes, dV/dt filters, sine wave filters, snubbers, MRI filters, military filters.

This certificate is valid until March 24, 2027, subject to annual confirmation by surveillance audits.

The registration number of the certificate:
INTERCERT 24983

Budapest, March 19, 2024

Certification Director

INTERCERT Minősítő és Tanúsító Kft. — H-1015 Budapest, Batthyány u. 14.

Eichhoff Elektro, a subsidiary of the Enerdoor Group, is an ISO-9001 Certified company. This Certification allows Enerdoor to maintain an excellent standard for internal quality and production control.

Enerdoor Offers On-Site CE Compliance and Safety Testing

As an international leader in the development and production of EMI/RFI filters and power quality solutions for automated and industrial machines, Enerdoor additionally offers on-site CE compliance and safety testing.

Since 1992, Enerdoor has specialized in the measurement and analyses of EMC testing and CE Certification, providing on-site service to customers around the world through an efficient, global organization. Our flat rate testing is unique in the industry, as is our pledge to not leave the facility until equipment is compliant.

Enerdoor offers several fully equipped EMC mobile laboratories in Europe and North America as well as a state-of-the-art anechoic chamber in Italy for testing small / medium equipment.

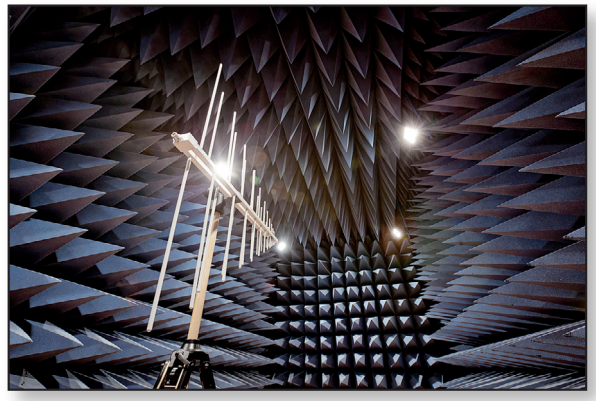
On-Site Compliance Testing

The CE mark is an international reference for industrial and residential electronic applications. Enerdoor's on-site CE Certification testing specializes in the measurement and analysis of electromagnetic compatibility of systems in accordance with the EMC, FCC Part 15 and Safety Directives. The CE Directive dictates that all electric and electronic components in machinery and manufacturing plants must meet the minimum requirements indicated by the Directive.

Enerdoor engineers work with customers through a portion or the entirety of the CE Certification process and provide filtering solutions to meet the conducted, radiated, and immunity test requirements. For a set flat rate, we work on-site to find real time solutions and offer recommendations to minimize radio-frequency interference that may be causing malfunctions inside the machine or for other nearby devices.

Testing, Support and Training Service

Enerdoor is committed to ongoing investments, new technology solutions and excelling in the understanding of real-world power issues.



- Features an anechoic chamber and R&D facility
- CE Certification including machinery, safety and low voltage Directives
- EMC mitigation for CE and FCC compliance
- Power quality testing
- Low and high frequency disturbance problem solving
- Technical CE reports and final certificates
- Technical training for the Directive
- Product safety consulting
- Risk assessment
- ATEX consulting
- Seminars and technical training
- Ability to prepare necessary documentation for Technical Construction File (TCF)

Mobile Laboratories

Enerdoor mobile laboratories are available for EMC measurements directly at manufacturing plants or at the end users facility.

- Comply equipment with the EMC Directive
- Consultation and support for EMC problem solving
- Provide final test reports for completed tests
- Radio frequency disturbance analysis for single machines or entire plants
- Problem solving for disturbances generated by machines used in the manufacturer's plant
- Harmonic distortion analysis and solutions
- Disturbance analysis and solutions for the manufacturing plant/end user

Power Quality Analysis

Enerdoor works with customers performing power quality analysis on a single machine or the entire facility. With several power quality analyzers, Enerdoor engineers can simultaneously monitor different drops in the same location. A full report and recommendations outlining the best solutions are offered at the end of the measurement period.

Motor Analysis

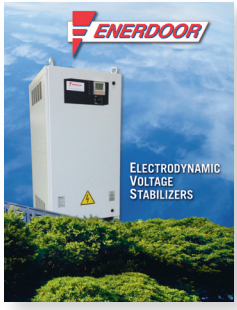
Enerdoor offers motor analysis to customers experiencing premature failure on windings and bearings due to potential dV/dt issues. Enerdoor engineers determine the level of dV/dt using a differential voltage probe up to 5000V and a current probe on the motor. This service is available in all of Europe and North America.

PRODUCT OVERVIEW

This catalog showcases a comprehensive range of Enerdoor products, including EMI/RFI filters, DC filters, harmonic solutions, motor protection devices, and power transformers. In addition to these offerings, Enerdoor specializes in surge arresters, and voltage stabilizers and provides CE Certification and consulting services.

Surge Arresters

Class I, I+II, II, II+III
Nominal voltage up to 690 Vac (1200 Vdc)
Surge capability up to 300 kA
Visual and remote indicators
DIN rail mounting

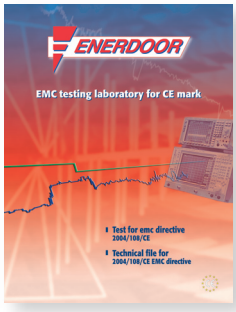


Voltage Stabilizers

Single-phase stabilizers:
Nominal voltage up to 277 Vac
Rated power up to 320 kVA
Three-phase stabilizers:
Nominal voltage up to 600 Vac
Rated power up to 4000 kVA
Asymmetrical and symmetrical adjustment
Electronic regulation control

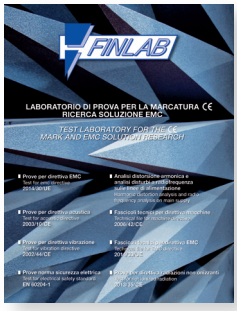
Transformers and Ignition Systems

Safety encapsulated transformers 0.35 to 100 VA
Primary voltage up to 600 Vac
Secondary voltage up to 48 V
Electronic ignition system
High frequency ignition system



CE Certification and Consulting

Mobile EMC testing and CE Certification
Machinery Directive and safety consulting
Problem solving in manufacturing plants
Power quality analysis
Motor analysis



CE Certification and Consulting: Finlab - European Division

Mobile EMC testing
Anechoic chamber and EMC laboratory
Machinery Directive and safety consulting
Problem solving in manufacturing plants
Power quality analysis
Motor analysis

EMI-RFI FILTER

Enerdoor is an international leader in the design and manufacturing of standard and custom EMI/RFI filters.

Introduction

Electromagnetic interference (EMI), also known as radio frequency interference (RFI), poses a significant challenge to electrical and electronic systems, capable of compromising their performance and functionality.

EMI filters serve as essential tools in mitigating such interference, whether it originates from the device itself or from external sources. These filters play a crucial role in safeguarding equipment from electromagnetic signals prevalent in the surrounding environment. Typically, EMI filters incorporate components designed to suppress both differential and common mode interference.

In line with the commitment to protect and optimize equipment performance, Enerdoor offers a comprehensive range of EMI/RFI filters across three distinct product categories: single-phase, three-phase, and three-phase plus neutral filters.

EMC Directive

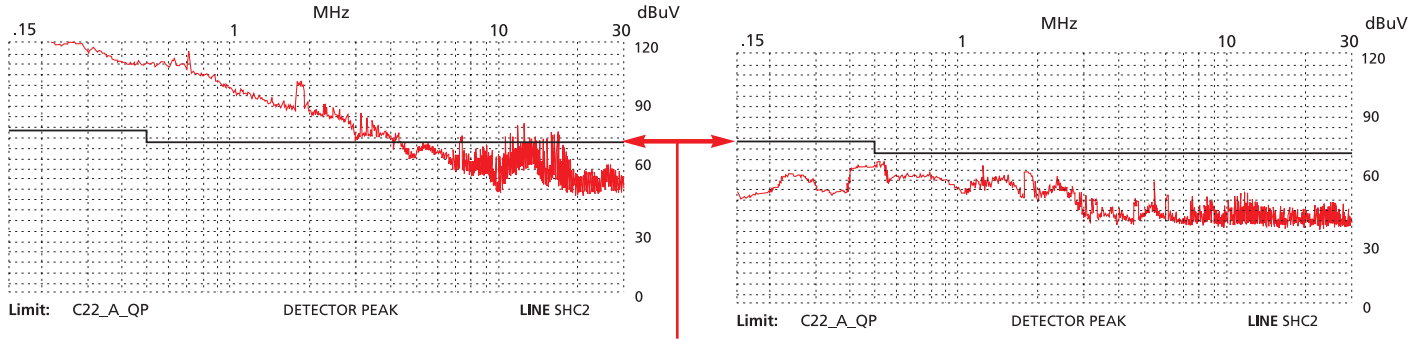
The Electromagnetic Compatibility (EMC) Directive sets the standard for equipment and systems to function within electromagnetic environments without causing unacceptable electromagnetic interference. EMC encompasses two critical facets: emission and immunity.

Emission: This refers to the release of electromagnetic energy from sources such as devices, machines, or systems. These emissions must not surpass the allowable levels outlined by the European EMC Directive 2014/30/EU (Refer to Figure 1) to prevent undesirable electromagnetic interference.

Immunity (to Interference): It denotes the ability of a machine, equipment, or system to maintain proper operation without compromising functional characteristics in the presence of electromagnetic interference.

Numerous countries have enacted regulations to curtail radio-frequency interference among electronic equipment. These include the CE mark in Europe, FCC in the United States, CCC in China, VCCI in Japan, RCM in Australia & New Zealand, and KCC in South Korea.

The paramount global standard for electromagnetic interference is the European Directive 2014/30/EU. This directive mandates that manufacturers of industrial machine tools, electric, and electronic equipment adhere to electromagnetic compatibility emission and immunity standards. Compliance ensures equipment operates reliably in varied electromagnetic environments, fostering a harmonious coexistence of electronic devices.



Typical conducted noise of an automated machine operating without Enerdoor filtering

Residual conducted noise of an automated machine operating with Enerdoor filtering

Figure 1:
Example of a typical high frequency disturbance generated by automated machinery operating without and with Enerdoor filtering; required to comply with the European EMC Directive Framework 2014/30/EU limits.

General Classification of Interference

1) Conducted and radiated interference

a) Conducted interference is caused by the physical contact of undesirable voltage or current signals that enter or exit from a specific device through its own signaling or energizing electric conductors.

b) Radiated interference is caused without physical contact of conductors. Every electric circuit acts as an aerial and when dipped in an electromagnetic field may induce voltage interference. Every variable current flowing in an electric conductor creates an electromagnetic field in its surrounding environment and similarly each electromagnetic field induces an electric signal in a close conductor.

2) Common mode and differential mode interference

Common mode interference is an undesirable signal measured between all conductors of an electric circuit connected together, and a common reference, usually the earth (See Figure A).

Differential mode interference is an undesirable signal measured between two independent conductors of the same electrical circuit (See Figure B).

Benefits of Enerdoor EMI-RFI Filters:

- Bring electrical and electronic products into compliance with national and international EMC Standards
- Reduce electromagnetic interference
- Prevent PLCs, sensors, encoders and PCs from failing
- Increase life of sensitive components
- Prevent production downtime
- Reduce disturbances in other machines and buildings
- Excellent differential and common mode attenuation

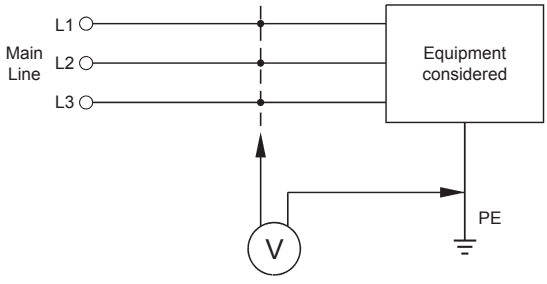


Fig. A: Common Mode Interference

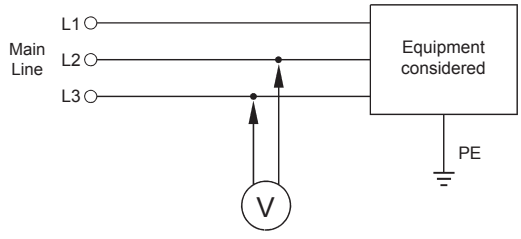


Fig. B: Differential Mode Interference

Figure 2:
Diagram outlining difference between common mode and differential mode interference

Interference Classification

a) Conducted interference due to low frequency phenomena

- Mains 50/60 Hz harmonics and sub-harmonics
- Signaling systems
- Voltage variations, interruptions and dips
- Voltage unbalances
- Mains 50/60 Hz frequency variations
- Low frequency induced voltage
- DC components in AC

b) Conducted interference due to high frequency phenomena

- Induced voltage or current (continuous or modulated waves)
- Voltage transients (bursts)
- Oscillatory transients (single or repetitive)

c) Radiated interference due to low frequency phenomena

- Magnetic fields (transients or continuous)
- Electric fields

d) Radiated interference due to high frequency phenomena

- Magnetic fields
- Electric fields
- Electromagnetic fields (transients, continuous or modulated wave)

High Frequency Solution

As a leading global manufacturer of EMC filters, Enerdoor delivers cutting-edge EMC filters and power quality devices tailored to diverse industries and applications. With one of the most comprehensive filter series available, Enerdoor ensures you find the perfect EMC filter for your needs.

Enerdoor's EMC solutions encompass single-phase, three-phase, and three-phase plus neutral filters, providing robust protection and optimization for your equipment. The Enerdoor EMI/RFI filters line offers a standard nominal voltage ranging from 0 to 750 Vac, with nominal currents as follows:

Single-phase EMI/RFI filters: 1 to 75A

Three-phase EMI/RFI filters: 3 to 75A

Three-phase plus neutral EMI/RFI filters: 3 to 3000A

Parallel Filters: Enerdoor introduces a unique parallel filter solution, eliminating the need for multiple models across various current ranges. Not constrained by current dependencies, this parallel filter accommodates any amperage requirement. Designed to effectively attenuate RF noise across lower frequencies compared to traditional EMI filters, it targets the critical frequency range of 10 kHz – 10 MHz, mitigating severe risks of interference and disturbance.

ENERDOOR
Engineered by Finmotor

Filter Selection Guide				CONNECTORS						FEATURES						APPLICATIONS				
Single-Phase	Description	Current Range (A)	Voltage	Faston	Terminal Blocks	Screws	Bus Bar	Cables	IEC Connector / Faston	Excellent Attenuation	DIN Rail Mount	Long Cable Applications	Low Frequency Attenuation	Compact Design	Medical Applications	Power Supply	Automation	Renewable Energy / LED Lights	Medical	Approval
FIN21	1-phase	3-20	0-250		•						•				•	•			•	c UL us
FIN26	1-phase	3-20	0-250		•						•	•			•	•			•	c UL us
FIN27	1-phase	3-20	0-250		•					•	•	•					•	•	•	c UL us
FIN27G	1-phase	3-20	0-250		•					•	•	•	•		•		•	•	•	c UL us
FIN33	1-phase	3-75	0-250	•		•								•	•	•				
FIN35	1-phase	5-24	0-250	•	•			•							•		•			
FIN40	1-phase	5-24	0-250	•	•			•							•		•			
FIN50	1-phase	5-24	0-250	•	•					•		•					•	•		
FIN57	1-phase	6-25	0-250	•		•				•		•	•	•			•	•	•	
FIN60	1-phase	1-6	0-250						•						•	•				
FIN70	1-phase	1-6	0-250						•						•	•				
FIN80	1-phase	1-10	0-250						•						•	•				

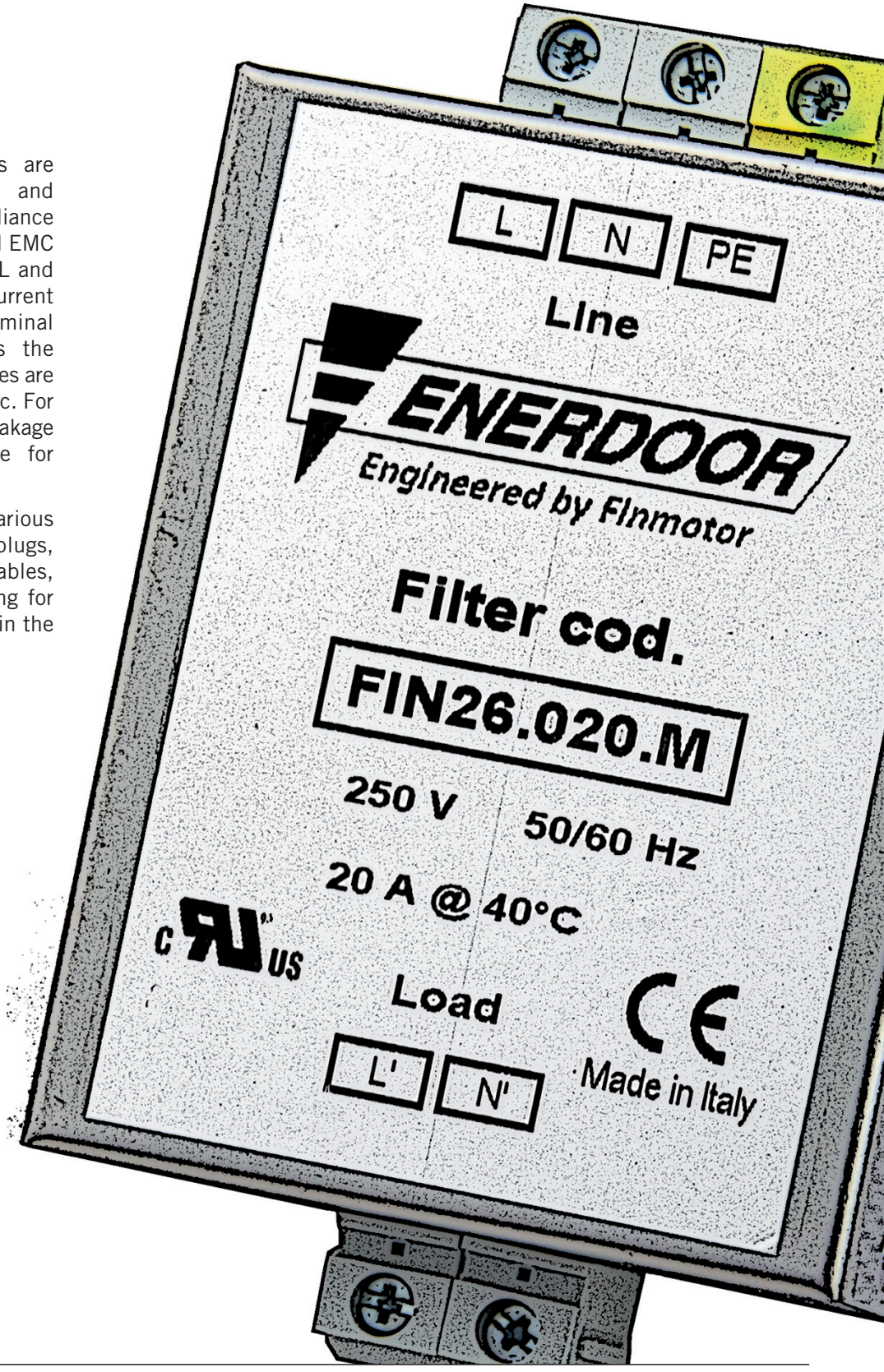
Single-Phase FILTERS

Single-phase EMI/RFI filters are used to bring electrical and electronic products into compliance with national and international EMC Standards. They carry CE, UL and CSA approvals and offer a current range from 1 to 75A with nominal voltage up to 250 Vac as the standard. Additional select lines are custom available up to 690 Vac. For all models, a dedicated low leakage current solution is available for medical applications.

This series features various connections such as: IEC plugs, fastons, terminal blocks, cables, screws, and DIN rail mounting for fast and easy installation within the enclosure.

Single-phase filter applications include:

- Power supplies
- Industrial automation
- Machine tools
- Packagine equipment
- Renewable energy
- Medical equipment
- LED lights



Datasheet 202405

EMI/RFI Filter with high attenuation for industrial applications

APPROVALS:

E215863

FIN21.(003 - 020).M

FEATURES

- Rated current from 3 to 20A
- High differential and common mode attenuation
- Very low leakage current
- DIN rail mounting

BENEFITS

- 5 Year warranty
- Suitable for medical applications
- Compact design

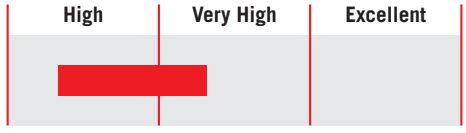
MARKETS

- Conveyors
- Vending machines
- Industrial equipment
- PLCs

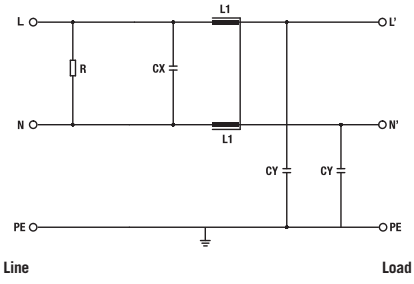
ORDERING CODE

FIN21	.016	.M
Model	Current (A)	Connection
		M = Terminal block

ATTENUATION INDICATOR



ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 250 Vac
Frequency	50/60 Hz
Rated current	3 - 20 A
Potential test voltage phase to phase	1750 Vdc (2 sec.)
Potential test voltage phase to ground	2150 Vdc (2 sec.)
Leakage current normal conditions	< 1 mA *
Leakage current worst conditions	< 3 mA
IP Protection	IP20
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

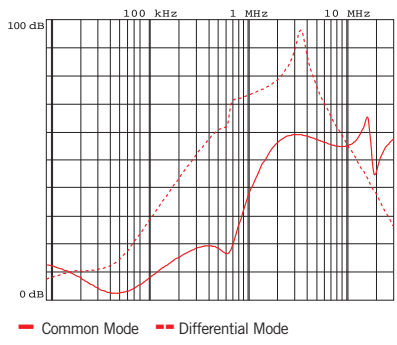
ELECTRICAL CHARACTERISTICS

FIN21	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.003.M	3	2	1.5
.006.M	6	5	2.1
.010.M	10	8	2.8
.016.M	16	14	3.2
.020.M	20	17	4

CONNECTIONS

	LINE			PE
	Solid Cable (mm²)	Stranded Cable (mm²)	Terminal Block Torque (Nm)	Torque (Nm)
.003.M	0.2 - 4	0.2 - 4	0.5	0.5
.006.M	0.2 - 4	0.2 - 4	0.5	0.5
.010.M	0.2 - 4	0.2 - 4	0.5	0.5
.016.M	0.2 - 4	0.2 - 4	0.5	0.5
.020.M	0.2 - 4	0.2 - 4	0.5	0.5

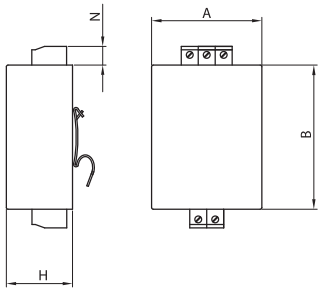
TYPICAL ATTENUATION



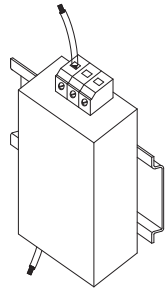
MECHANICAL DIMENSIONS mm

FIN21	A	B	H	N	Weight Kg.	Case
.003.M	65	85	39	11	0.32	1
.006.M	65	85	39	11	0.32	1
.010.M	65	85	39	11	0.32	1
.016.M	65	85	39	11	0.32	1
.020.M	65	85	39	11	0.32	1

CASE 1



ASSEMBLY CONNECTION "M"



Datasheet 202405

EMI/RFI Filter with very high attenuation for industrial and residential applications

APPROVALS:

E215863

FIN26.(003 - 020).M

FEATURES

- Rated current from 3 to 20A
- Very low leakage current
- DIN rail mounting
- Panel mounting available

BENEFITS

- 5 Year warranty
- Suitable for medical applications
- Compact design
- Very high differential and common mode attenuation

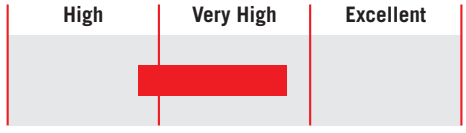
MARKETS

- Conveyors
- Automated machinery
- Variable frequency drives / servo drives
- Medical equipment

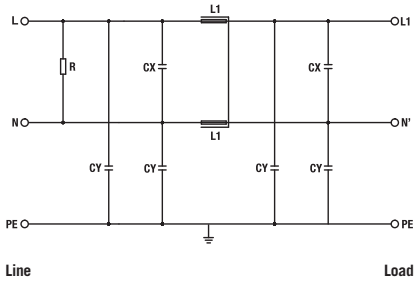
ORDERING CODE

FIN26	.016	.M
Model	Current (A)	Connection
		M = Terminal block

ATTENUATION INDICATOR



ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 250 Vac
Frequency	50/60 Hz
Rated current	3 - 20 A
Potential test voltage phase to phase	1750 Vdc (2 sec.)
Potential test voltage phase to ground	2150 Vdc (2 sec.)
Leakage current normal conditions	< 1 mA *
Leakage current worst conditions	< 3 mA
IP Protection	IP20
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

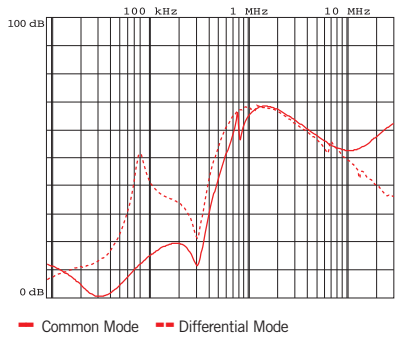
ELECTRICAL CHARACTERISTICS

FIN26	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.003.M	3	2	1.5
.006.M	6	5	2.1
.010.M	10	8	2.8
.016.M	16	14	3.2
.020.M	20	17	4

CONNECTIONS

	LINE			PE
FIN26	Solid Cable (mm²)	Stranded Cable (mm²)	Terminal Block Torque (Nm)	Torque (Nm)
.003.M	0.2 - 4	0.2 - 4	0.5	0.5
.006.M	0.2 - 4	0.2 - 4	0.5	0.5
.010.M	0.2 - 4	0.2 - 4	0.5	0.5
.016.M	0.2 - 4	0.2 - 4	0.5	0.5
.020.M	0.2 - 4	0.2 - 4	0.5	0.5

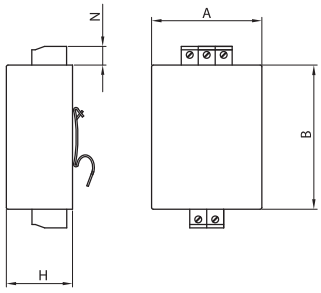
TYPICAL ATTENUATION



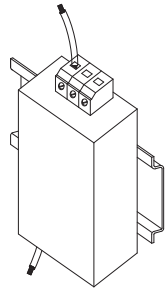
MECHANICAL DIMENSIONS mm

FIN26	A	B	H	N	Weight Kg.	Case
.003.M	65	85	39	11	0.32	1
.006.M	65	85	39	11	0.32	1
.010.M	65	85	39	11	0.32	1
.016.M	65	85	39	11	0.32	1
.020.M	65	85	39	11	0.32	1

CASE 1



ASSEMBLY CONNECTION "M"



Datasheet 202405

EMI/RFI Filter with excellent attenuation for industrial and residential applications

APPROVALS:

E215863

FIN27.(003 - 020).M

FEATURES

- Rated current from 3 to 20A
- Low leakage current
- DIN rail mounting
- Panel mounting available

BENEFITS

- 5 Year warranty
- Excellent differential and common mode attenuation
- Compact design
- Helps pass industrial and residential Standards

MARKETS

- Automated machinery
- LED applications
- Variable frequency drives / servo drives
- Medical equipment

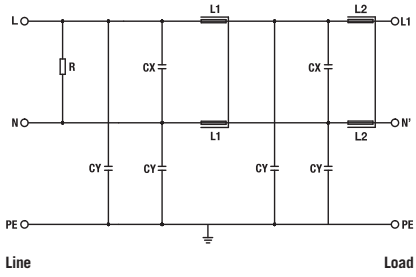
ORDERING CODE

FIN27	.016	.M
Model	Current (A)	Connection
		M = Terminal block

ATTENUATION INDICATOR

High	Very High	Excellent

ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 250 Vac
Frequency	50/60 Hz
Rated current	3 - 20 A
Potential test voltage phase to phase	1750 Vdc (2 sec.)
Potential test voltage phase to ground	2150 Vdc (2 sec.)
Leakage current normal conditions	< 1 mA *
Leakage current worst conditions	< 3 mA
IP Protection	IP20
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

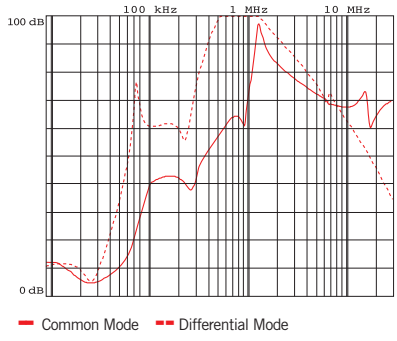
ELECTRICAL CHARACTERISTICS

FIN27	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.003.M	3	2	1.5
.006.M	6	5	2.1
.010.M	10	8	2.8
.016.M	16	14	3.2
.020.M	20	17	4

CONNECTIONS

	LINE			PE
	Solid Cable (mm²)	Stranded Cable (mm²)	Terminal Block Torque (Nm)	Torque (Nm)
.003.M	0.2 - 4	0.2 - 4	0.5	0.5
.006.M	0.2 - 4	0.2 - 4	0.5	0.5
.010.M	0.2 - 4	0.2 - 4	0.5	0.5
.016.M	0.2 - 4	0.2 - 4	0.5	0.5
.020.M	0.2 - 4	0.2 - 4	0.5	0.5

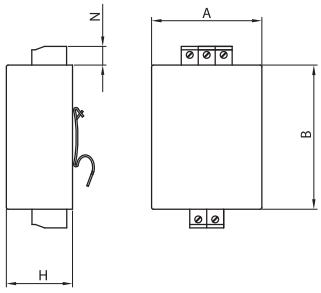
TYPICAL ATTENUATION



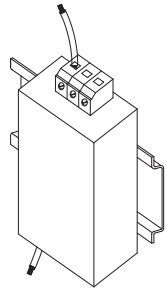
MECHANICAL DIMENSIONS mm

FIN27	A	B	H	N	Weight Kg.	Case
.003.M	65	85	39	11	0.32	1
.006.M	65	85	39	11	0.32	1
.010.M	65	85	39	11	0.32	1
.016.M	65	85	39	11	0.32	1
.020.M	65	85	39	11	0.32	1

CASE 1



ASSEMBLY CONNECTION "M"



Datasheet 202405

EMI/RFI Filter with excellent attenuation for industrial, residential and medical applications

APPROVALS:

E215863

FIN27G.(003 – 020).M

FEATURES

- Rated current from 3 to 20A
- Low leakage current
- DIN rail mounting
- Panel mounting available

BENEFITS

- 5 Year warranty
- Excellent differential and common mode attenuation
- Compact design
- Designed for medical applications

MARKETS

- Automated machinery
- CNC machinery
- Variable frequency drives / servo drives
- Medical equipment

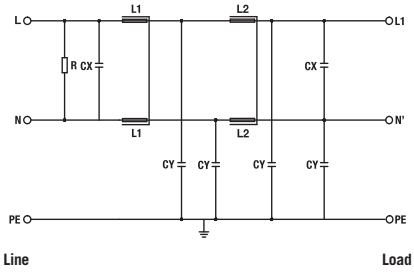
ORDERING CODE

FIN27G	.016	.M
Model	Current (A)	Connection
		M = Terminal block

ATTENUATION INDICATOR

High	Very High	Excellent

ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 250 Vac
Frequency	50/60 Hz
Rated current	3 - 20 A
Potential test voltage phase to phase	1750 Vdc (2 sec.)
Potential test voltage phase to ground	2150 Vdc (2 sec.)
Leakage current normal conditions	< 0.4 mA *
Leakage current worst conditions	< 1.5 mA
IP Protection	IP20
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

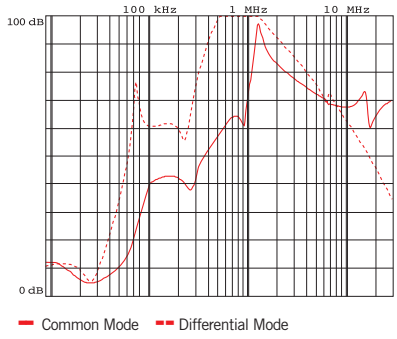
ELECTRICAL CHARACTERISTICS

FIN27G	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.003.M	3	2	1.5
.006.M	6	5	2.1
.010.M	10	8	2.8
.016.M	16	14	3.2
.020.M	20	17	4

CONNECTIONS

	LINE			PE
FIN27G	Solid Cable (mm²)	Stranded Cable (mm²)	Terminal Block Torque (Nm)	Torque (Nm)
.003.M	0.2 - 4	0.2 - 4	0.5	0.5
.006.M	0.2 - 4	0.2 - 4	0.5	0.5
.010.M	0.2 - 4	0.2 - 4	0.5	0.5
.016.M	0.2 - 4	0.2 - 4	0.5	0.5
.020.M	0.2 - 4	0.2 - 4	0.5	0.5

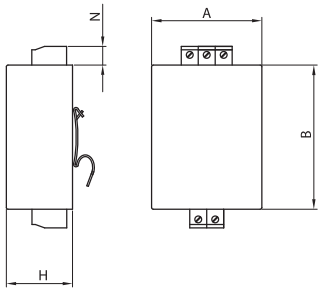
TYPICAL ATTENUATION



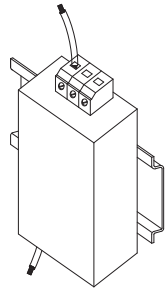
MECHANICAL DIMENSIONS mm

FIN27G	A	B	H	N	Weight Kg.	Case
.003.M	65	85	39	11	0.32	1
.006.M	65	85	39	11	0.32	1
.010.M	65	85	39	11	0.32	1
.016.M	65	85	39	11	0.32	1
.020.M	65	85	39	11	0.32	1

CASE 1



ASSEMBLY CONNECTION "M"

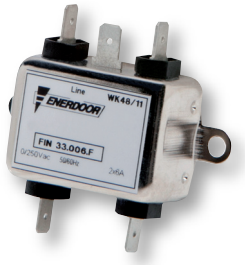


Datasheet 202405

EMI/RFI Filter with high attenuation for industrial and residential applications

APPROVALS:

CE RoHS UK CA



FIN33.(003 – 020).F

FEATURES

- Rated current from 3 to 75A
- Very low leakage current
- Faston connections
- Panel mounting

BENEFITS

- 5 Year warranty
- High differential and common mode attenuation
- Very compact design
- Excellent quality and value

MARKETS

- Conveyors
- Vending machinery
- Power supplies
- Medical equipment

ORDERING CODE

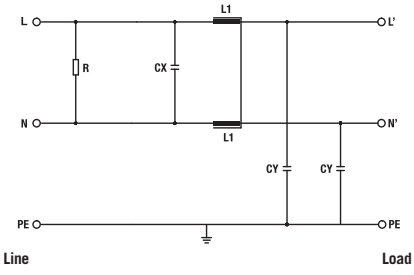
FIN33	.020	.F
Model	Current (A)	Connection F = Faston V = Screws

FIN33.(040 – 075).V

ATTENUATION INDICATOR

High	Very High	Excellent

ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 250 Vac
Frequency	50/60 Hz
Rated current	3 - 75 A
Potential test voltage phase to phase	1750 Vdc (2 sec.)
Potential test voltage phase to ground	2150 Vdc (2 sec.)
Leakage current normal conditions	< 1 mA *
Leakage current worst conditions	< 3 mA
IP Protection	IP00
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

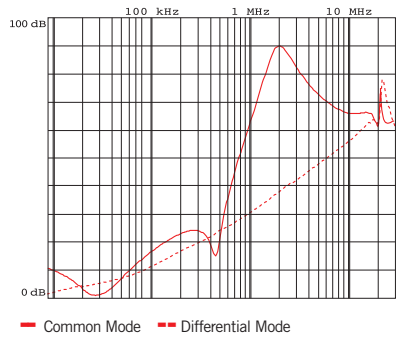
ELECTRICAL CHARACTERISTICS

FIN33	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.003.F	3	2	1.5
.006.F	6	5	2.1
.010.F	10	8	2.8
.020.F	20	16	3.8
.040.V	40	32	4.5
.050.V	50	40	5.5
.075.V	75	60	7

CONNECTIONS

LINE			PE	
Solid Cable (mm²)	Stranded Cable (mm²)	Terminal Torque (Nm)	d1 (mm)	Torque (Nm)
0.2 - 6	0.5 - 4	-	-	-
0.2 - 6	0.5 - 4	-	-	-
0.2 - 6	0.5 - 4	-	-	-
0.2 - 6	0.5 - 4	-	-	-
-	-	4	M5	4
-	-	6	M6	4
-	-	14	M8	4

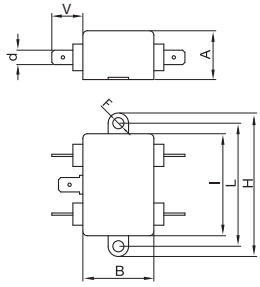
TYPICAL ATTENUATION



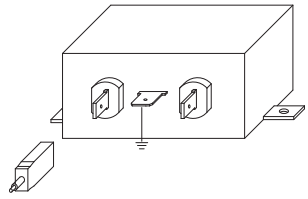
MECHANICAL DIMENSIONS mm

FIN33	A	B	V	F	H	I	L	N	d	Weight Kg.	Case
.003.F	20.5	33	14	5	66	45	56	-	6.5	0.13	1
.006.F	20.5	33	14	5	66	45	56	-	6.5	0.13	1
.010.F	20.5	33	14	5	66	45	56	-	6.5	0.2	1
.020.F	39	51.8	14	5	84	65	74	-	6.5	0.18	2
.040.V	40	86.6	20	6x4	107	100	55	96	M5	0.18	3
.050.V	50	100	25	6x4	125	180	120	115	M6	0.30	4
.075.V	72	120	30	8x4	152	182	120	135	M8	0.40	5

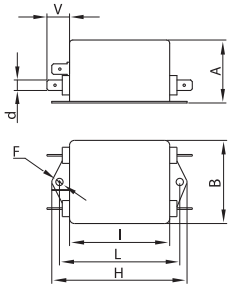
CASE 1



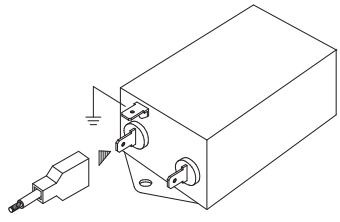
ASSEMBLY CONNECTION "F"



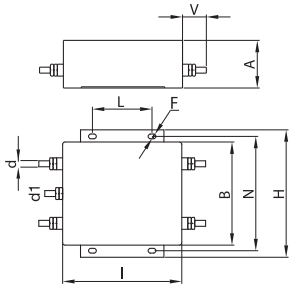
CASE 2



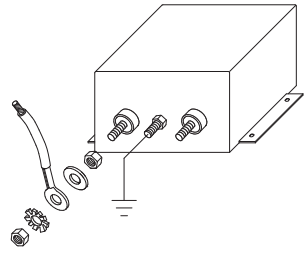
ASSEMBLY CONNECTION "F"



CASE 3, 4, 5



ASSEMBLY CONNECTION "V"



EMI/RFI Filter with high attenuation for industrial applications

Datasheet 202405

APPROVALS:

CE RoHS UKCA

FIN35.(005 - 016).F

FEATURES

- Rated current from 5 to 24A
- Low leakage current
- Faston connections
- Panel mounting

BENEFITS

- 5 Year warranty
- High differential and common mode attenuation
- Compact design
- Suitable for medical applications

MARKETS

- Automated machinery
- Medical equipment
- Power supplies
- Conveyors

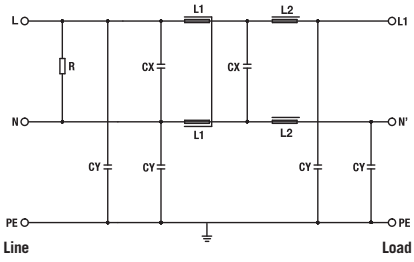
ORDERING CODE

FIN35	.016	.F
Model	Current (A)	Connection
		F = Faston
		M = Terminal block

FIN35.024.M

ATTENUATION INDICATOR

ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 250 Vac
Frequency	50/60 Hz
Rated current	5 - 24 A
Potential test voltage phase to phase	1750 Vdc (2 sec.)
Potential test voltage phase to ground	2150 Vdc (2 sec.)
Leakage current normal conditions	< 1 mA *
Leakage current worst conditions	< 3 mA
IP Protection	IP00 up to 16A – over IP20
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

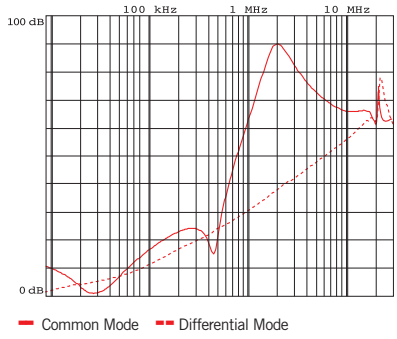
ELECTRICAL CHARACTERISTICS

FIN35	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.005.F	5	3	2
.010.F	10	7	2.7
.016.F	16	12	5
.024.M	24	20	6

CONNECTIONS

LINE			PE
Solid Cable (mm²)	Stranded Cable (mm²)	Terminal Block Torque (Nm)	Torque (Nm)
0.2 - 6	0.5 - 4	-	-
0.2 - 6	0.5 - 4	-	-
0.2 - 6	0.5 - 4	-	-
0.2 - 6	0.5 - 4	0.8	0.8

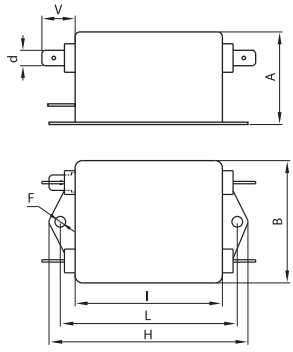
TYPICAL ATTENUATION



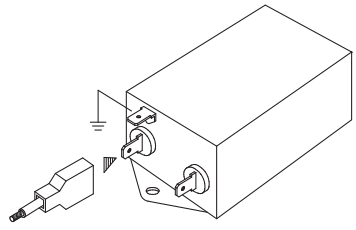
MECHANICAL DIMENSIONS mm

FIN35	A	B	V	F	H	I	L	N	d	Weight Kg.	Case
.005.F	29	51	13.5	4.5	84.5	63.5	74.5	-	6.5	0.13	1
.010.F	33	51	13.5	4.5	84.5	63.5	74.5	-	6.5	0.18	2
.016.F	39.5	51	13.5	4.5	97	75.5	86.5	-	6.5	0.26	3
.024.M	49.5	51	13	4.5	70	93	51	60	-	0.46	4

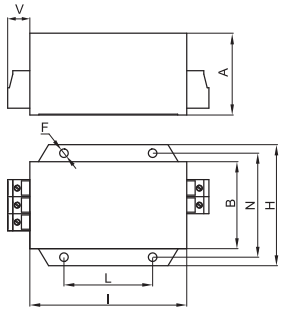
CASE 1, 2, 3



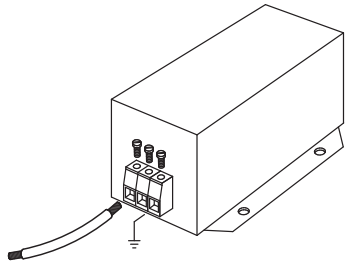
ASSEMBLY CONNECTION "F"



CASE 4



ASSEMBLY CONNECTION "M"

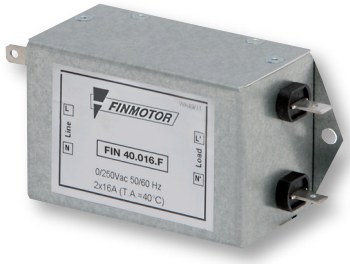


Datasheet 202405

EMI/RFI Filter with very high attenuation for industrial applications

APPROVALS:

CE RoHS UK CA



FIN40.(005 - 016).F

FEATURES

- Rated current from 5 to 24A
- Low leakage current
- Faston connections
- Panel mounting

BENEFITS

- 5 Year warranty
- Very high differential and common mode attenuation
- Compact design
- Suitable for medical applications

MARKETS

- Conveyors
- CNC machinery
- Variable frequency drives / servo drives
- Medical equipment

ORDERING CODE

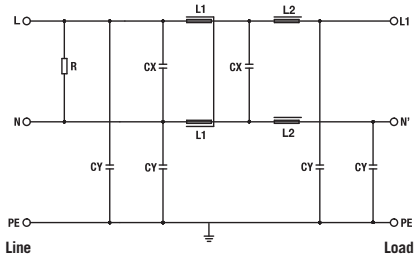
FIN40	.016	.F
Model	Current (A)	Connection
		F = Faston
		M = Terminal block

FIN40.024.M

ATTENUATION INDICATOR

High	Very High	Excellent

ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 250 Vac
Frequency	50/60 Hz
Rated current	5 - 24 A
Potential test voltage phase to phase	1750 Vdc (2 sec.)
Potential test voltage phase to ground	2150 Vdc (2 sec.)
Leakage current normal conditions	< 1.5 mA *
Leakage current worst conditions	< 5 mA
IP Protection	IP20
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

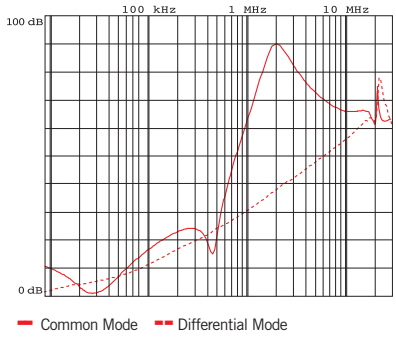
ELECTRICAL CHARACTERISTICS

FIN40	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.005.F	5	3	2
.010.F	10	7	2.7
.016.F	16	12	5
.024.M	24	20	6

CONNECTIONS

LINE			PE
Solid Cable (mm²)	Stranded Cable (mm²)	Terminal Block Torque (Nm)	Torque (Nm)
0.2 - 6	0.5 - 4	-	-
0.2 - 6	0.5 - 4	-	-
0.2 - 6	0.5 - 4	-	-
0.2 - 6	0.5 - 4	0.8	0.8

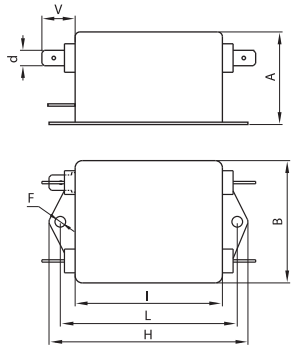
TYPICAL ATTENUATION



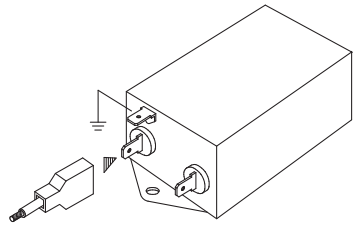
MECHANICAL DIMENSIONS mm

FIN40	A	B	V	F	H	I	L	N	d	Weight Kg.	Case
.005.F	29	51	13.5	4.5	84.5	63.5	74.5	-	6.5	0.13	1
.010.F	33	51	13.5	4.5	84.5	63.5	74.5	-	6.5	0.18	2
.016.F	39.5	51	13.5	4.5	97	75.5	86.5	-	6.5	0.26	3
.024.M	49.5	51	13	4.5	70	93	51	60	-	0.46	4

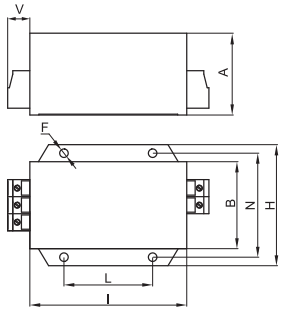
CASE 1, 2, 3



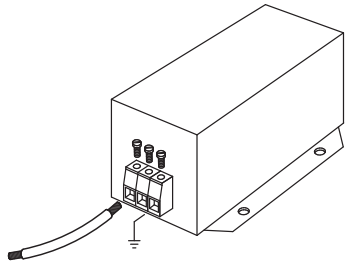
ASSEMBLY CONNECTION "F"



CASE 4



ASSEMBLY CONNECTION "M"



EMI/RFI Filter with excellent attenuation for industrial applications

Datasheet 202405

APPROVALS:

CE RoHS UKCA

FIN50.(005 - 016).F

FEATURES

- Rated current from 5 to 24A
- Low leakage current
- Panel mounting

BENEFITS

- 5 Year warranty
- High differential and common mode attenuation
- High performance

MARKETS

- Packaging machinery
- Renewable energy
- CNC machinery
- Printing machinery

ORDERING CODE

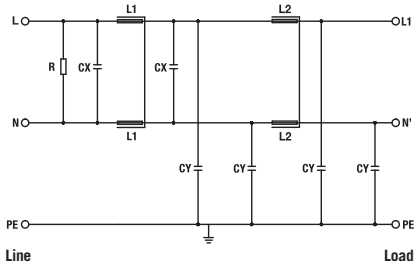
FIN50	.016	.F
Model	Current (A)	Connection F = Faston M = Terminal block

FIN50.024.M

ATTENUATION INDICATOR

High	Very High	Excellent

ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 250 Vac
Frequency	50/60 Hz
Rated current	5 - 24 A
Potential test voltage phase to phase	1750 Vdc (2 sec.)
Potential test voltage phase to ground	2150 Vdc (2 sec.)
Leakage current normal conditions	< 2.2 mA *
Leakage current worst conditions	< 7 mA
IP Protection	IP00 up to 16A – over IP20
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

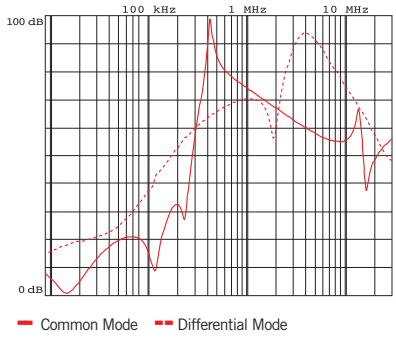
ELECTRICAL CHARACTERISTICS

FIN50	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.005.F	5	3	2
.010.F	10	7	2.7
.016.F	16	12	5
.024.M	24	20	6

CONNECTIONS

LINE			PE
Solid Cable (mm²)	Stranded Cable (mm²)	Terminal Block Torque (Nm)	Torque (Nm)
0.2 - 6	0.5 - 4	-	-
0.2 - 6	0.5 - 4	-	-
0.2 - 6	0.5 - 4	-	-
0.2 - 6	0.5 - 4	0.8	0.8

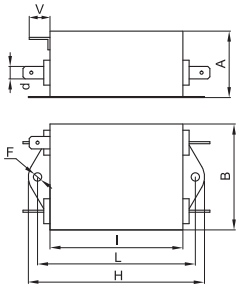
TYPICAL ATTENUATION



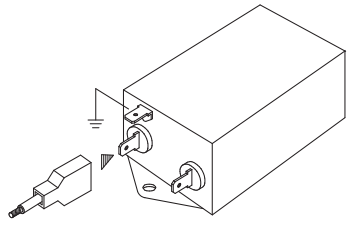
MECHANICAL DIMENSIONS mm

FIN50	A	B	V	F	H	I	L	N	d	Weight Kg.	Case
.005.F	39	51	13.5	4.5	84.5	63.5	74.5	-	6.5	0.20	1
.010.F	49.5	51	13.5	4.5	97	75.5	86.5	-	6.5	0.35	2
.016.F	45	84.5	13.5	4.5	105	99.5	51	95	6.5	0.70	3
.024.M	49.5	84.5	13	4.5	105	99.5	51	95	-	0.93	4

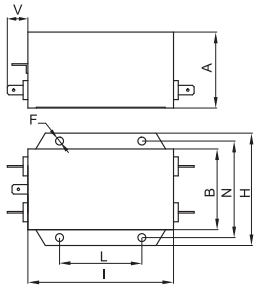
CASE 1, 2



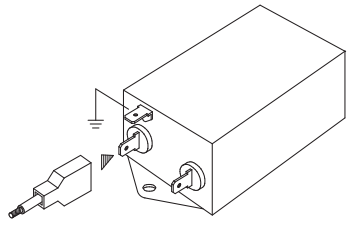
ASSEMBLY CONNECTION "F"



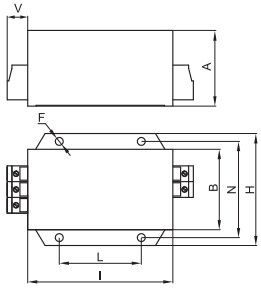
CASE 3



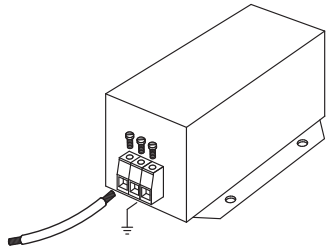
ASSEMBLY CONNECTION "F"



CASE 4



ASSEMBLY CONNECTION "M"



Datasheet 202405

EMI/RFI Filter with excellent attenuation for industrial applications

APPROVALS:

CE RoHS UKCA

FIN57.(006 – 016).F

FEATURES

- Rated current from 6 to 25A
- Low leakage current
- Excellent performance

BENEFITS

- 5 Year warranty
- Excellent differential and common mode attenuation
- Compact design

MARKETS

- Packaging machinery
- Renewable energy
- CNC machinery
- Printing machinery

ORDERING CODE

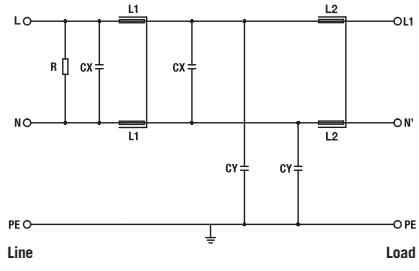
FIN57	.016	.F
Model	Current (A)	Connection
		F = Faston
		V = Screw

FIN57.025.V

ATTENUATION INDICATOR

High	Very High	Excellent

ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 250 Vac
Frequency	50/60 Hz
Rated current	6 - 25 A
Potential test voltage phase to phase	1750 Vdc (2 sec.)
Potential test voltage phase to ground	2150 Vdc (2 sec.)
Leakage current normal conditions	< 2.2 mA *
Leakage current worst conditions	< 7 mA
IP Protection	IP00
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

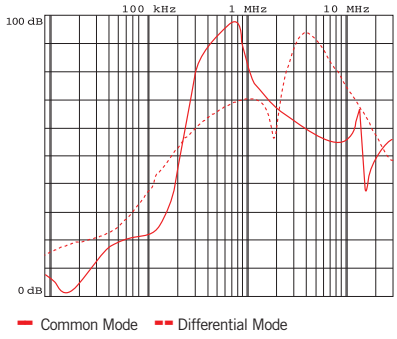
ELECTRICAL CHARACTERISTICS

FIN57	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.006.F	6	4	2
.010.F	10	7	2.7
.016.F	16	12	5
.025.V	25	20	6

CONNECTIONS

LINE			PE	
Solid Cable (mm²)	Stranded Cable (mm²)	Terminal Torque (Nm)	d1 (mm)	Torque (Nm)
0.2 - 6	0.5 - 4	-	-	-
0.2 - 6	0.5 - 4	-	-	-
0.2 - 6	0.5 - 4	-	-	-
-	-	-	M4	3

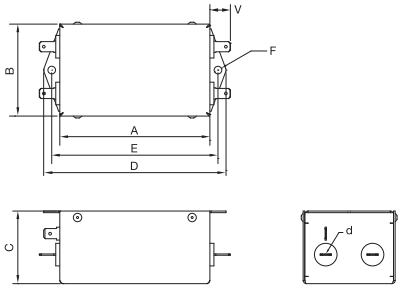
TYPICAL ATTENUATION



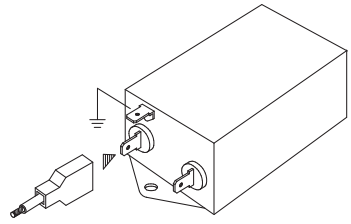
MECHANICAL DIMENSIONS mm

FIN57	A	B	C	D	E	F	G	V	d	d1	Weight Kg.	Case
.006.F	93	57	45	113	103	4.75	-	12.7	6.3	-	0.45	1
.010.F	93	57	45	113	103	4.75	-	12.7	6.3	-	0.47	1
.016.F	98.5	85.5	57.6	119	109	4.4	51	12.7	6.3	-	0.59	2
.025.V	130.5	56	45	156	143	6	-	15	M4	M4	0.61	3

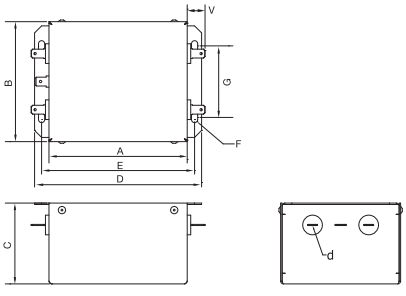
CASE 1



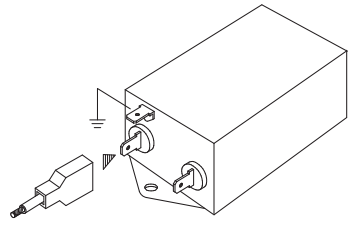
ASSEMBLY CONNECTION "F"



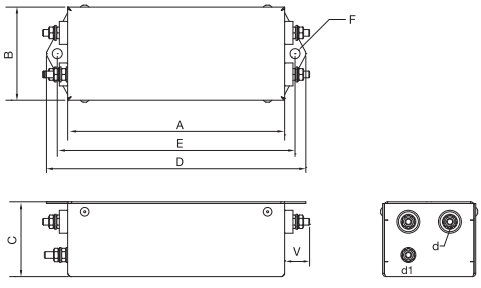
CASE 2



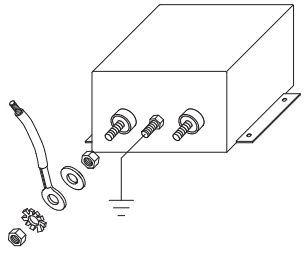
ASSEMBLY CONNECTION "F"



CASE 3



ASSEMBLY CONNECTION "V"



Datasheet 202405

EMI/RFI Filter with high attenuation for industrial and residential applications

APPROVALS:

CE RoHS UKCA

FIN60.(001 – 006).VF

FEATURES

- Rated current from 1 to 6A
- Very low leakage current
- Compact design

BENEFITS

- 5 Year warranty
- High differential and common mode attenuation
- Easy installation
- Suitable for medical applications

MARKETS

- Instrumentation
- Vending machinery
- Printing machinery
- Medical equipment

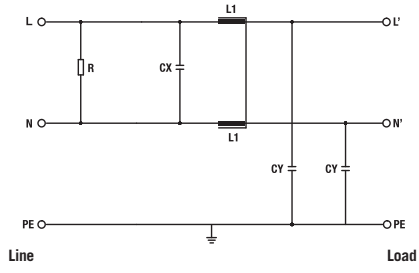
ORDERING CODE

FIN60	.006	.VF
Model	Current (A)	Connection
		VF = Faston

ATTENUATION INDICATOR

High	Very High	Excellent
■		

ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 250 Vac
Frequency	50/60 Hz
Rated current	1 - 6 A
Potential test voltage phase to phase	1450 Vdc (2 sec.)
Potential test voltage phase to ground	2150 Vdc (2 sec.)
Leakage current normal conditions	< 1 mA *
Leakage current worst conditions	< 3 mA
IP Protection	IP00
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

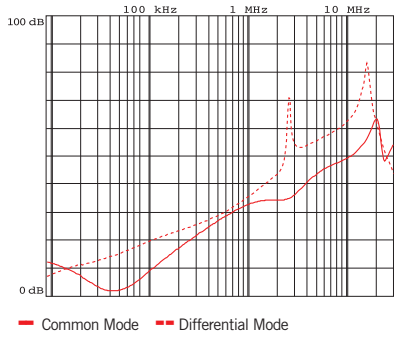
ELECTRICAL CHARACTERISTICS

FIN60	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.001.VF	1	0.7	1
.003.VF	3	2.4	2
.006.VF	6	4	3

CONNECTIONS

LINE			PE
Solid Cable (mm²)	Stranded Cable (mm²)	Terminal Block Torque (Nm)	Torque (Nm)
0.2 - 6	0.5 - 4	-	-
0.2 - 6	0.5 - 4	-	-
0.2 - 6	0.5 - 4	-	-

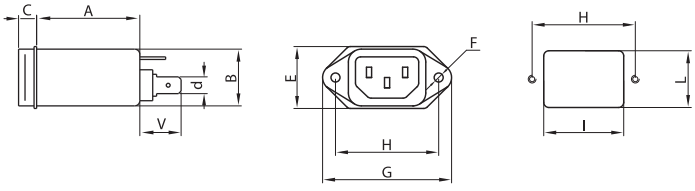
TYPICAL ATTENUATION



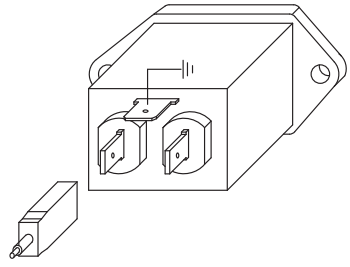
MECHANICAL DIMENSIONS mm

FIN60	A	B	V	F	H	I	L	C	E	G	d	Weight Kg.	Case
.001.VF	40	22	14	3.5	40	31	23	7	24	50	6.5	0.10	1
.003.VF	40	22	14	3.5	40	31	23	7	24	50	6.5	0.10	1
.006.VF	40	22	14	3.5	40	31	23	7	24	50	6.5	0.11	1

CASE 1



ASSEMBLY CONNECTION "VF"



Datasheet 202405

EMI/RFI Filter with high attenuation for industrial and residential applications

APPROVALS:

CE RoHS UKCA

FIN70.(001 – 006).VF

FEATURES

- Rated current from 1 to 6A
- Very low leakage current
- Fuse integrated

BENEFITS

- 5 Year warranty
- High differential and common mode attenuation
- Compact design
- Suitable for medical applications

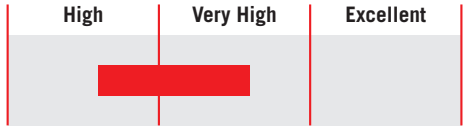
MARKETS

- Instrument and testing machinery
- Vending machinery
- Printing machinery
- Medical equipment

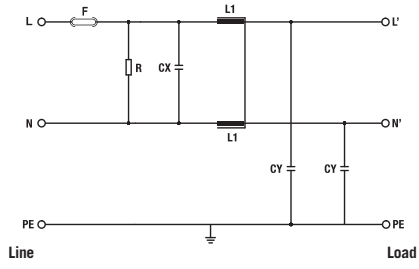
ORDERING CODE

FIN70	.006	.VF
Model	Current (A)	Connection
		VF = Faston

ATTENUATION INDICATOR



ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 250 Vac
Frequency	50/60 Hz
Rated current	1 - 6 A
Potential test voltage phase to phase	1450 Vdc (2 sec.)
Potential test voltage phase to ground	2150 Vdc (2 sec.)
Leakage current normal conditions	< 1 mA *
Leakage current worst conditions	< 3 mA
IP Protection	IP00
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

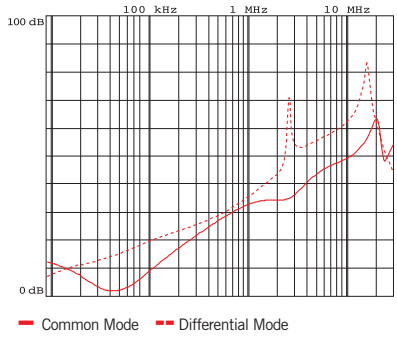
ELECTRICAL CHARACTERISTICS

FIN70	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.001.VF	1	0.7	1
.003.VF	3	2.4	2
.006.VF	6	4	3

CONNECTIONS

LINE			PE
Solid Cable (mm²)	Stranded Cable (mm²)	Terminal Block Torque (Nm)	Torque (Nm)
0.2 - 6	0.5 - 4	-	-
0.2 - 6	0.5 - 4	-	-
0.2 - 6	0.5 - 4	-	-

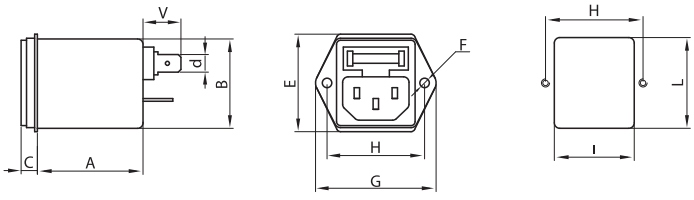
TYPICAL ATTENUATION



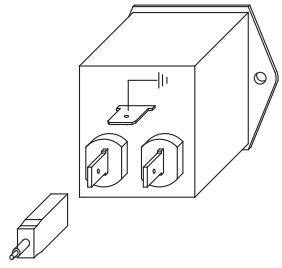
MECHANICAL DIMENSIONS mm

FIN70	A	B	V	F	H	I	L	C	E	G	d	Weight Kg.	Case
.001.VF	40	33	14	3.5	36	29.5	33.5	7	36	45	6.5	0.12	1
.003.VF	40	33	14	3.5	36	29.5	33.5	7	36	45	6.5	0.12	1
.006.VF	40	33	14	3.5	36	29.5	33.5	7	36	45	6.5	0.12	1

CASE 1



ASSEMBLY CONNECTION "VF"



Datasheet 202405

EMI/RFI Filter with very high attenuation for industrial and residential applications

APPROVALS:

CE RoHS UK CA

FIN80.(001 – 010).VFI

FEATURES

- Rated current from 1 to 10A
- Very low leakage current
- Integrated fuse and power switch

BENEFITS

- 5 Year warranty
- Very high differential and common mode attenuation
- Compact design
- Suitable for medical applications

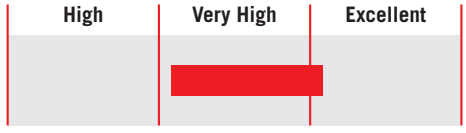
MARKETS

- Instrument and testing machinery
- Vending machinery
- Printing machinery
- Medical equipment

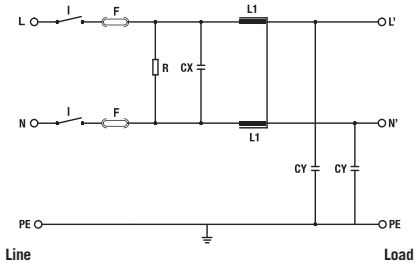
ORDERING CODE

FIN80	.006	VFI
Model	Current (A)	Connection
		VFI = Faston with switch

ATTENUATION INDICATOR



ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 250 Vac
Frequency	50/60 Hz
Rated current	1 - 10 A
Potential test voltage phase to phase	1450 Vdc (2 sec.)
Potential test voltage phase to ground	2150 Vdc (2 sec.)
Leakage current normal conditions	< 1 mA *
Leakage current worst conditions	< 3 mA
IP Protection	IP00
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

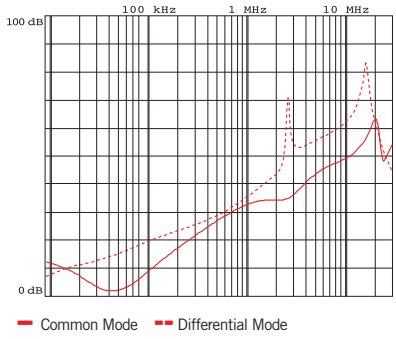
ELECTRICAL CHARACTERISTICS

FIN80	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.001.VFI	1	0.7	1
.003.VFI	3	2.5	2
.006.VFI	6	4	3
.010.VFI	10	8	5

CONNECTIONS

LINE			PE
Solid Cable (mm²)	Stranded Cable (mm²)	Terminal Block Torque (Nm)	Torque (Nm)
02. - 6	02. - 6	-	-
02. - 6	02. - 6	-	-
02. - 6	02. - 6	-	-
02. - 6	02. - 6	-	-

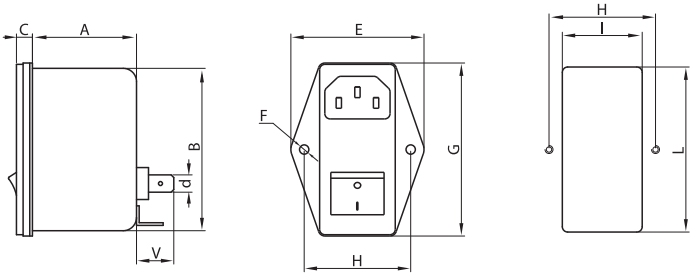
TYPICAL ATTENUATION



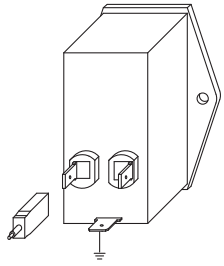
MECHANICAL DIMENSIONS mm

FIN80	A	B	V	F	H	I	L	C	E	G	d	Weight Kg.	Case
.001.VFI	39	61	14	3.5	40	30	62	6	50	65	6.5	0.20	1
.003.VFI	39	61	14	3.5	40	30	62	6	50	65	6.5	0.20	1
.006.VFI	39	61	14	3.5	40	30	62	6	50	65	6.5	0.21	1
.010.VFI	39	61	14	3.5	40	30	62	6	50	65	6.5	0.22	1

CASE 1



ASSEMBLY CONNECTION "VFI"



ENERDOOR
Engineered by Finmotor

Filter Selection Guide Parallel Filters	Description	Voltage	CONNECTORS						FEATURES					APPLICATIONS					Approval
			Faston	Terminal Blocks	Screws	Bus Bar	Cables	IEC Connector/ Faston	DIN Rail Mount	Long Cable Applications	High Att. Low Frequency	Book Case Style	Low Leakage Current	Multiple Drives	Automation	Renewable Energy	Commercial Building	Recharging Station	
FIN130SP	3-phase	0-600		•					•	•	•				•		•		c UL us
FIN230SP	3-phase	0-600		•					•	•	•			•	•	•			c UL us
FIN730	3-phase	0-750		•					•		•			•	•	•		•	c UL us
FIN735	3-phase	0-650		•					•								•		c UL us
FIN740	3-phase plus neutral	0-480		•					•	•	•			•	•	•		•	c UL us

ENERDOOR
Engineered by Finmotor

THREE-PHASE PARALLEL FILTERS

Enerdoor three-phase parallel filters stand as a formidable defense against electrical noise emanating from variable frequency drives, SCRs, controllers, and high-commutation electrical equipment.

Unlike other filters, only one parallel filter is needed for any current range, making it a versatile and cost-effective choice. Compact and uniquely designed, it attenuates RF noise in lower frequencies, ensuring comprehensive protection.

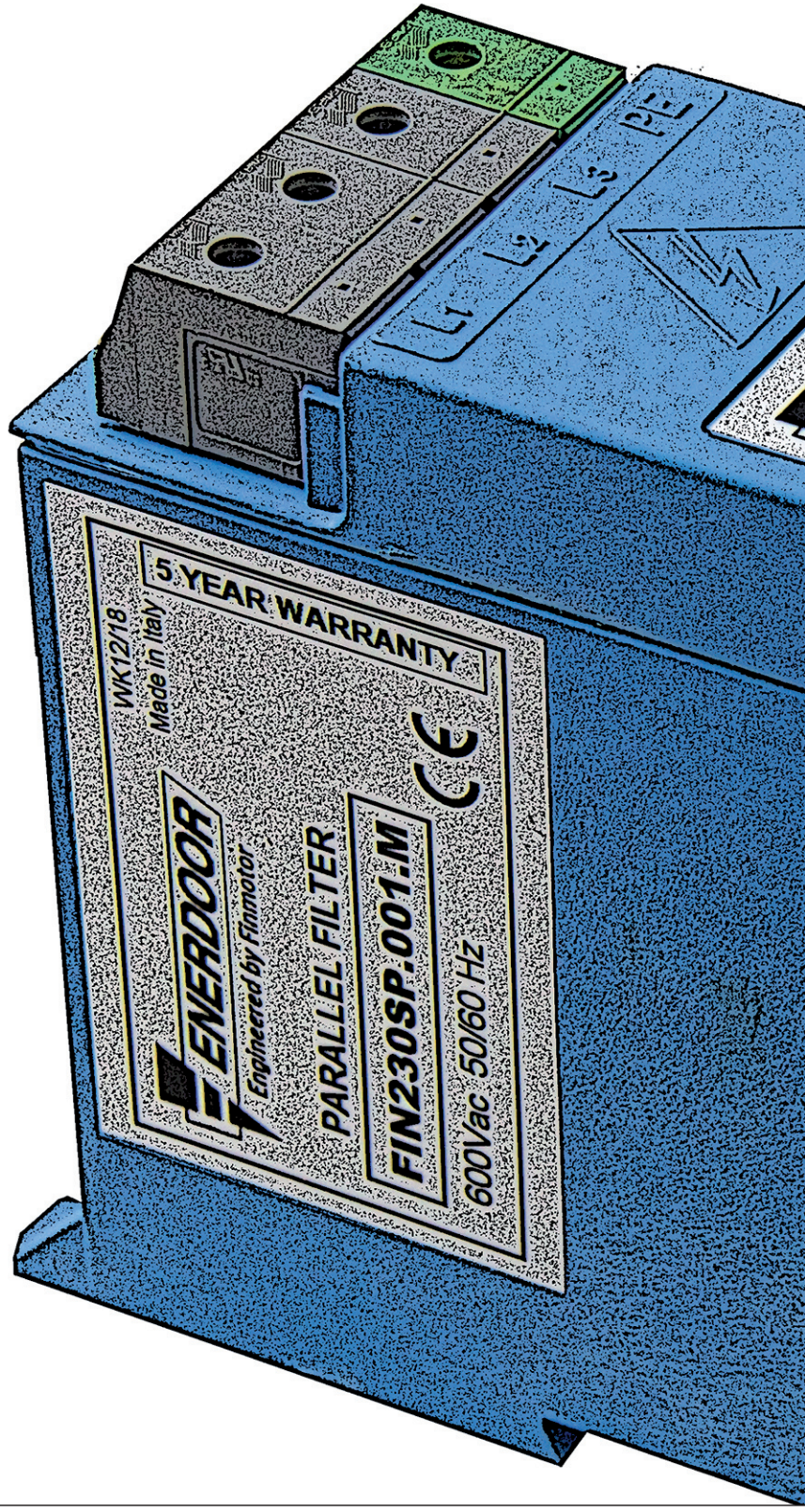
With high attenuation in the frequency range of 10 KHz to 10 MHz, this series addresses low to medium frequency concerns, providing a solution for diverse applications. The parallel filter series guarantees EMI/RFI protection in any environment, safeguarding equipment from malfunctions and minimizing production downtime.

Available with a nominal voltage of up to 750 Vac and adaptable to any current level thanks to its parallel connection, this series is offered in both 3-phase and 3-phase plus neutral configurations. With CE and UL approvals, it ensures easy installation using either panel or DIN rail mounting options.

The FIN230SP.001.M filter is a general-purpose choice for OEM equipment. The FIN730.001.M filter was designed specifically for regenerated systems and OEM equipment, targeting the low-frequency range of 10 kHz to 4 MHz.

Parallel filter applications include:

- CNC machinery
- Recharging stations
- Multiple drive applications
- Renewable energy
- SCR applications

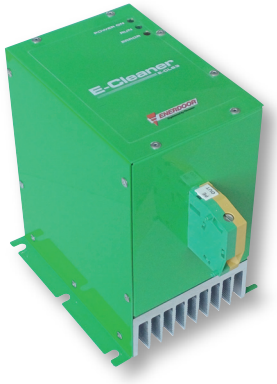


Datasheet 202405

Active PE ground noise reducer with excellent performance for industrial and residential applications.

APPROVALS:

CE RoHS UKCA



FIN E-CL

FEATURES

- Clean the PE
- Safety terminal block
- Over temperature protection
- Actively reduces noise on PE

BENEFITS

- Eliminates noise interference on PE ground
- Compact design

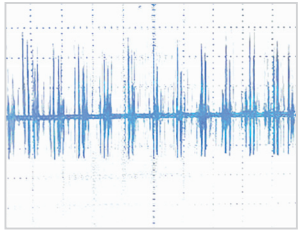
MARKETS

- Variable frequency drives
- Automated machinery
- Packaging machinery
- Processing equipment

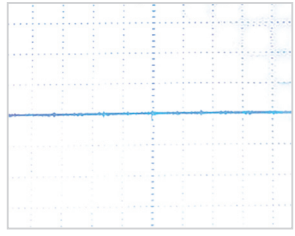
ORDERING CODE

ECL	.01	.M	.A
Model		Connection	Voltage supply
		M = Terminal block	A = 115/230 VAC B = 400/480 VAC

TYPICAL MEASUREMENT



Typical noise on ground busbar



Effect of E-Cleaner on ground busbar noise

TECHNICAL SPECIFICATIONS

Nominal voltage	115, 230, 400, 480 VAC
Frequency	50 - 60 Hz
Max power dissipation	10W
Fan dissipation	20W
IP protection	IP20
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

E-CLEANER E-CL

Ground Noise Reducer

ELECTRICAL CHARACTERISTICS

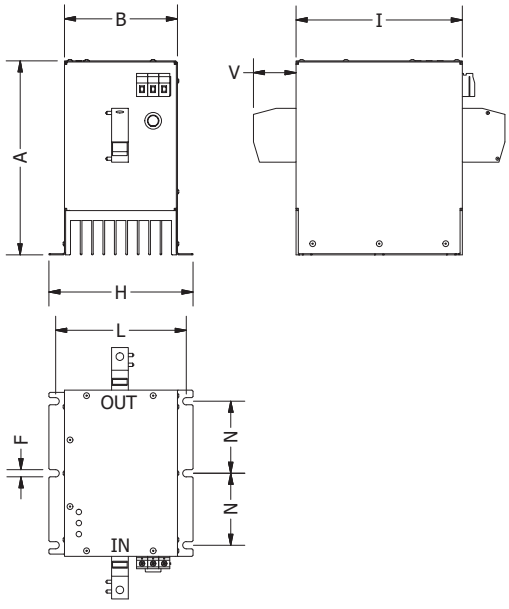
CONNECTIONS

E-CL	Nominal Voltage AC (Vac)	Power Loss (W)	INPUT			OUTPUT		
			Solid Cable (mm^2)	Stranded Cable (mm^2)	Terminal Torque (mm^2)	Solid Cable (mm^2)	Stranded Cable (mm^2)	Terminal Torque (mm^2)
.01.M.A	115/230	<5	6 - 16	10 - 35	4.5	6 - 35	4 - 25	4.5
.01.M.B	400/480	<6	6 - 16	10 - 35	4.5	6 - 35	4 - 25	4.5

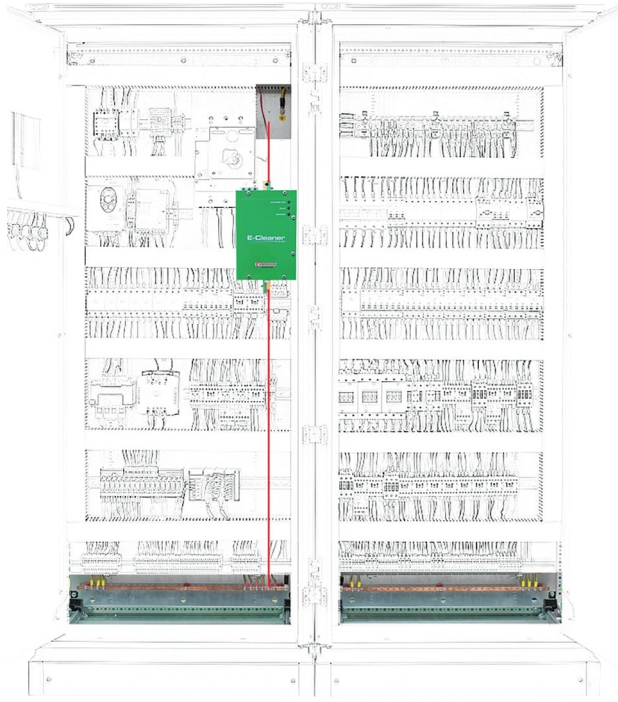
MECHANICAL DIMENSIONS mm

E-CL	A	B	F	H	I	L	N	V	Weight Kg.	Case
.01.M.A	175	102	6.5	130	150	118	65	38,5	2	1
.01.M.B	175	102	6.5	130	150	118	65	38,5	2	1

CASE 1



CONNECTIONS



Datasheet 202405

EMI/RFI Parallel filter with excellent attenuation in low frequency range

APPROVALS:

CE c UL us E215863 RoHS UK CA

FIN130SP.001.M

FEATURES

- Independent from nominal current
- Low leakage current
- DIN rail or panel mounting
- Excellent differential and common mode attenuation in low frequency range (50 kHz - 5 MHz)

BENEFITS

- 5 Year warranty
- High differential and common mode attenuation
- Compact design
- Easy installation

MARKETS

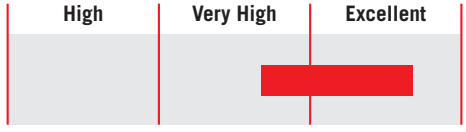
- CNC machinery
- Recharging stations
- Multiple drive applications
- Renewable energy

ORDERING CODE

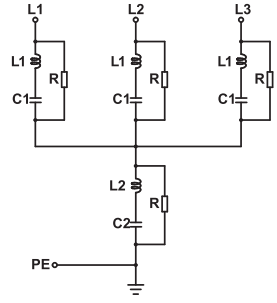
FIN 230SP	.001	.M
Model		Connection
		M = Terminal Blocks

FIN230SP.001.M

ATTENUATION INDICATOR



ELECTRIC DIAGRAM



FIN735.001.M

TECHNICAL SPECIFICATIONS

Nominal voltage	See electrical characteristics
Frequency	50/60 Hz
Rated current	Unlimited
Potential test voltage phase to phase	2400 Vdc (2 sec.)
Potential test voltage phase to ground	3200 Vdc (2 sec.)
Leakage current normal conditions	< 25 mA *
Leakage current worst conditions	< 70 mA
IP Protection	IP20
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50H / 40°C**

ELECTRICAL CHARACTERISTICS

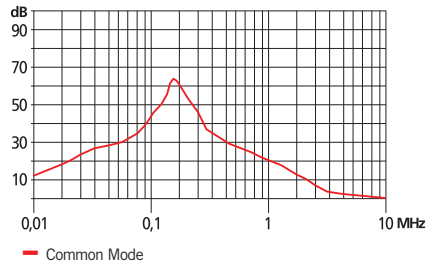
Model	Nominal Voltage AC (Vac)	Nominal Voltage DC (Vdc)	Power Loss (W)
FIN130SP.001.M	600	1000	10
FIN230SP.001.M	600	1000	10
FIN735.001.M	650	1100	10

CONNECTIONS

LINE			PE
Solid Cable (mm^2)	Stranded Cable (mm^2)	Terminal Block Torque (Nm)	Torque (Nm)
1 - 4	1 - 4	1.8	1.8
1 - 4	1 - 4	1.8	1.8
1 - 4	1 - 4	1.8	1.8

TYPICAL ATTENUATION

FIN130SP.001M

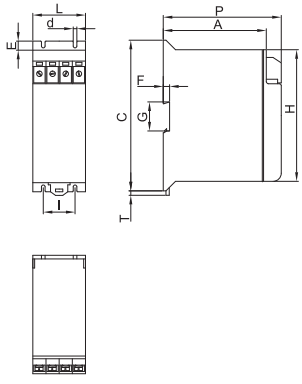


FIN230SP.001M / FIN735.001.M

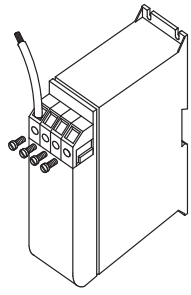
MECHANICAL DIMENSIONS mm

Model	L	d	E	I	P	A	C	T	G	F	H	Weight Kg.	Case
FIN130SP.001.M	59	4.5	10	35	130	112	166	4	37.5	7	146	1.15	1
FIN230SP.001.M	59	4.5	10	35	130	112	166	4	37.5	7	146	1.15	1
FIN735.001.M	59	4.5	10	35	130	112	166	4	37.5	7	146	1.15	1

CASE 1



ASSEMBLY CONNECTION "M"



Datasheet 202405

EMI/RFI Parallel filter with excellent attenuation in low frequency range

APPROVALS:

E215863

FIN730.001.M (C - LCP)

FEATURES

- Independent from nominal current
- Low leakage current
- DIN rail or panel mounting
- Excellent differential and common mode attenuation in low frequency range (30 kHz - 10 MHz)

BENEFITS

- 5 Year warranty
- High differential and common mode attenuation
- Compact design
- Easy installation

MARKETS

- CNC machinery
- Recharging stations
- Multiple drive applications
- Renewable energy

ORDERING CODE

FIN 730.001. .M

Model — Nominal voltage

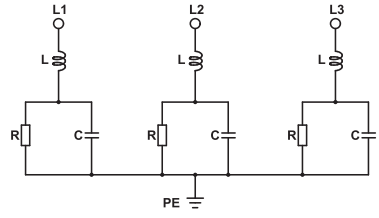
M = 750Vac

MC = 600Vac

MLCP = 480Vac

ATTENUATION INDICATOR

ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	See electrical characteristics
Frequency	50/60 Hz
Rated current	Unlimited
Potential test voltage phase to phase	2400 Vdc (2 sec.)
Potential test voltage phase to ground	3200 Vdc (2 sec.)
Leakage current normal conditions	< 25 mA *
Leakage current worst conditions	< 70 mA
IP Protection	IP20
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

FIN730

Three-Phase Parallel Filter

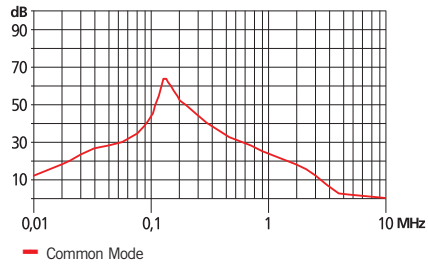
ELECTRICAL CHARACTERISTICS

Model	Nominal Voltage AC (Vac)	Nominal Voltage DC (Vdc)	Power Loss (W)
FIN730.001.M	750	1200	10
FIN730.002.MC	600	1000	10
FIN730.001.MLCP	480	800	10

CONNECTIONS

LINE			PE
Solid Cable (mm^2)	Stranded Cable (mm^2)	Terminal Block Torque (Nm)	Torque (Nm)
1 - 4	1 - 4	1.8	1.8
1 - 4	1 - 4	1.8	1.8
1 - 4	1 - 4	1.8	1.8

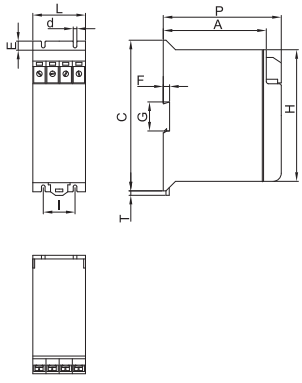
TYPICAL ATTENUATION



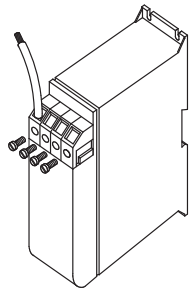
MECHANICAL DIMENSIONS mm

Model	L	d	E	I	P	A	C	T	G	F	H	Weight Kg.	Case
FIN730.001.M	59	4.5	10	35	130	112	166	4	37.5	7	146	1.15	1
FIN730.002.MC	59	4.5	10	35	130	112	166	4	37.5	7	146	1.15	1
FIN730.001.MLCP	59	4.5	10	35	130	112	166	4	37.5	7	146	1.15	1

CASE 1



ASSEMBLY CONNECTION "M"

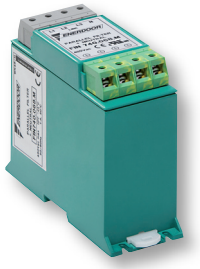


Datasheet 202405

EMI/RFI Parallel filter with excellent attenuation in low frequency range

APPROVALS:

E215863



FIN740.068.M

FEATURES

- Independent from nominal current
- Low leakage current
- DIN rail or panel mounting
- Excellent differential and common mode attenuation in low frequency range (30 kHz - 10 MHz)

BENEFITS

- 5 Year warranty
- High differential and common mode attenuation
- Compact design
- 3-phase plus neutral application

MARKETS

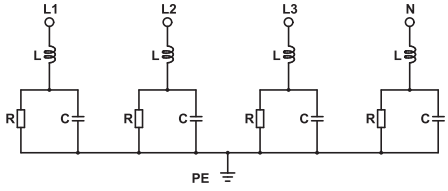
- CNC machinery
- Recharging stations
- Multiple drive applications
- Renewable energy

ORDERING CODE

FIN740	.068	.M
Model		Connection
		M = Terminal block

ATTENUATION INDICATOR

ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 480 Vac
Frequency	50/60 Hz
Rated current	Unlimited
Potential test voltage phase to phase	2200 Vdc (2 sec.)
Potential test voltage phase to ground	2900 Vdc (2 sec.)
Leakage current normal conditions	<20 mA*
Leakage current worst conditions	<60 mA
IP Protection	IP20
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

FIN740

Three-Phase + Neutral Parallel Filter

ELECTRICAL CHARACTERISTICS

Model	Nominal Voltage AC (Vac)	Nominal Voltage DC (Vdc)	Power Loss (W)
FIN740.068.M	480	800	10

CONNECTIONS

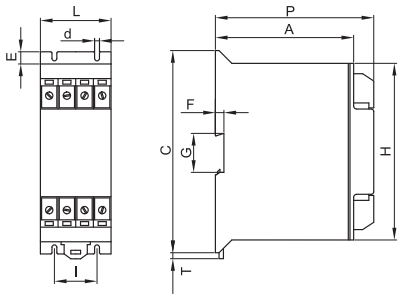
LINE			PE
Solid Cable (mm^2)	Stranded Cable (mm^2)	Terminal Block Torque (Nm)	Torque (Nm)
1 - 4	1 - 4	1.8	1.8

TYPICAL ATTENUATION

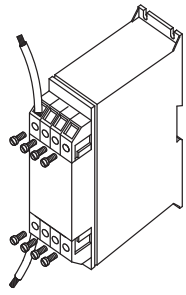
MECHANICAL DIMENSIONS mm

Model	L	d	E	I	P	A	C	T	G	F	H	Weight Kg.	Case
FIN740.068.M	59	4.5	10	35	130	112	166	4	37.5	7	146	1.15	1

CASE 1



ASSEMBLY CONNECTION "M"



ENERDOOR
Engineered by Finmotor

Filter Selection Guide				CONNECTORS			FEATURES						APPLICATIONS					
Three-Phase	Description	Current Range (A)	Voltage	Terminal Blocks	Screws	Bus Bar	Regenerative Systems	DIN Rail Mount	Long Cable Applications	Low Frequency Attenuation	Book Case Style	Very Low Leakage Current	Machine Tools	Automation	Renewable Energy	IT Network	Medical	Approval
FIN1351	3-phase	6-16	0-480	•				•				•		•			•	
FIN538	3-phase	5-30	0-480	•				•						•				
FIN538S	3-phase	7-180	0-600	•	•	•			•					•	•			cULus
FIN538S1	3-phase	7-3000	0-600	•	•	•	•		•		•		•	•	•			cULus
FIN539S	3-phase	400-2500	0-600			•	•		•		•							
FIN1200	3-phase	5-3000	0-480		•	•						•		•			•	cULus
FIN1200HV	3-phase	5-3000	0-750		•	•						•					•	cULus
FIN1500	3-phase	5-3000	0-480		•	•	•		•	•			•		•			cULus
FIN1500HV	3-phase	5-3000	0-750		•	•	•		•	•			•		•			cULus
FIN1600	3-phase	7-200	0-480	•					•		•							
FIN1700	3-phase	6-200	0-600	•							•	•		•			•	cULus
FIN1700G	3-phase	6-200	0-600	•					•		•	•		•			•	cULus
FIN1700E	3-phase	7-230	0-500	•							•	•		•			•	cULus
FIN1700EG	3-phase	7-230	0-500	•							•	•		•			•	cULus
FIN1700IT	3-phase	6-200	0-600	•	•	•					•					•		
FIN1900	3-phase	6-200	0-600	•			•				•		•	•	•			cULus
FIN1900G	3-phase	6-200	0-600	•			•		•		•		•	•	•			cULus
FIN1900E	3-phase	6-230	0-500	•							•		•	•	•			cULus
FIN1900EG	3-phase	6-230	0-500	•					•		•		•	•	•			cULus
FIN1900S	3-phase	42-200	0-600	•			•		•	•	•		•	•	•			cULus
FIN3755	3-phase	7-280	0-480	•							•			•				cULus
FIN7213	3-phase	20-2000	0-480			•	•		•	•				•	•			

THREE-PHASE FILTERS

Enerdoor's three-phase EMI/RFI filters are designed to effectively diminish electromagnetic interference, ensuring compliance with stringent emission standards. Covering an extensive current range from 5 to 3000A, this series supports standard nominal voltages up to 600 Vac, with the HV version reaching 750 Vac.

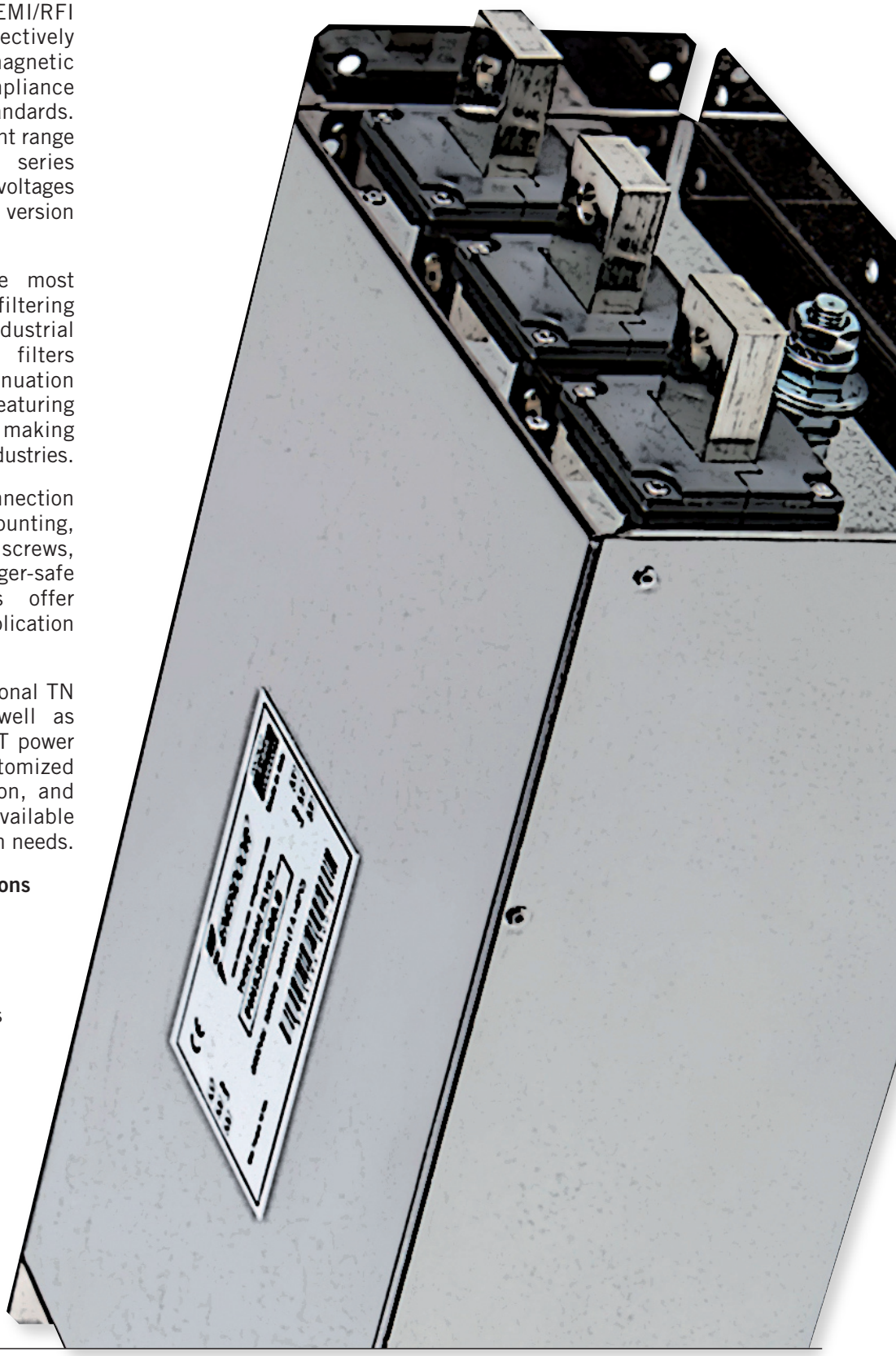
Regarded as one of the most comprehensive EMC filtering solutions in the industrial automation sector, these filters deliver exceptional attenuation within a compact casing, featuring low leakage currents and making them suitable for various industries.

Equipped with versatile connection options such as DIN rail mounting, terminal blocks, cables, screws, bus bars, and finger-safe protection, these filters offer adaptability to different application scenarios.

This series caters to traditional TN and TNS networks, as well as specific applications like IT power line configurations. Customized voltage, current, connection, and attenuation solutions are available to satisfy various application needs.

Three-phase filter applications include:

- Automated machinery
- Packaging machinery
- Variable frequency drives
- Servo drives
- IT networks
- Medical equipment
- CNC machinery
- HVAC systems
- Recharging stations
- Renewable energy
- Uninterruptible power supplies



Datasheet 202405

EMI/RFI filter with high attenuation for industrial and residential applications

APPROVALS:

CE RoHS UKCA

FIN1351.(006 - 016).M

FEATURES

- Rated current from 6 to 16A
- Very low leakage current
- DIN rail mounting

BENEFITS

- 5 Year warranty
- Suitable for medical applications
- Very compact design
- Protects equipment

MARKETS

- Conveyors
- Testing equipment
- High tech machinery
- Automated machinery

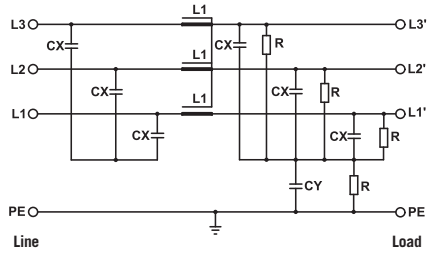
ORDERING CODE

FIN1351	.016	.M
Model	Current (A)	Connection
		M = Terminal block

ATTENUATION INDICATOR

High	Very High	Excellent

ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 480 Vac
Frequency	50/60 Hz
Rated current	6 - 16 A
Potential test voltage phase to phase	2200 Vdc (2 sec.)
Potential test voltage phase to ground	2900 Vdc (2 sec.)
Leakage current normal conditions	< 3 mA *
Leakage current worst conditions	< 5 mA
IP Protection	IP20
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

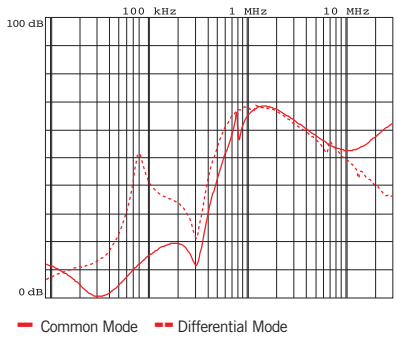
ELECTRICAL CHARACTERISTICS

FIN1351	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.006.M	6	5	6
.010.M	10	8	8
.016.M	16	14	10

CONNECTIONS

	LINE			PE
	Solid Cable (mm²)	Stranded Cable (mm²)	Terminal Block Torque (Nm)	Torque (Nm)
.006.M	0.2 - 4	0.2 - 4	0.5	0.5
.010.M	0.2 - 4	0.2 - 4	0.5	0.5
.016.M	0.2 - 4	0.2 - 4	0.5	0.5

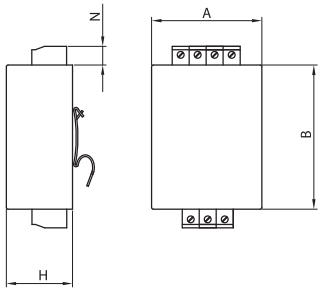
TYPICAL ATTENUATION



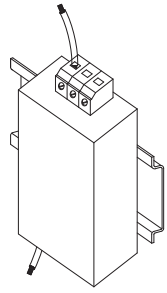
MECHANICAL DIMENSIONS mm

FIN1351	A	B	H	N	Weight Kg.	Case
.006.M	65	85	39	11	0.32	1
.010.M	65	85	39	11	0.32	1
.016.M	65	85	39	11	0.32	1

CASE 1



ASSEMBLY CONNECTION "M"



Datasheet 202405

EMI/RFI Filter with high attenuation for industrial applications

APPROVALS:

CE RoHS UKCA

FIN538.(005 - 030).M

FEATURES

- Rated current from 5 to 30A
- High differential and common mode attenuation
- Low leakage current
- DIN rail mounting

BENEFITS

- 5 Year warranty
- Easy installation
- Very compact design
- Helps pass immunity and emission tests for the IEC61000-6-2 and IEC61000-6-4 Standards

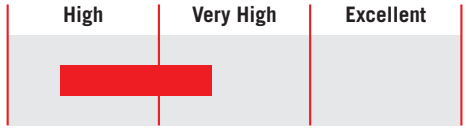
MARKETS

- Conveyors
- Testing equipment
- High tech machinery
- Automated machinery

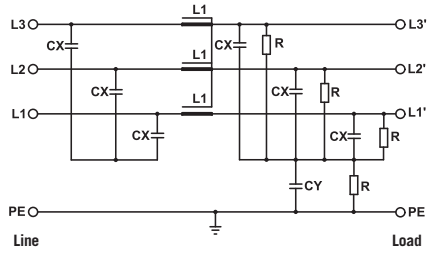
ORDERING CODE

FIN538	.016	.M
Model	Current (A)	Connection
		M = Terminal block

ATTENUATION INDICATOR



ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 480 Vac
Frequency	50/60 Hz
Rated current	5 - 30 A
Potential test voltage phase to phase	2200 Vdc (2 sec.)
Potential test voltage phase to ground	2900 Vdc (2 sec.)
Leakage current normal conditions	< 10 mA *
Leakage current worst conditions	< 80 mA
IP Protection	IP20
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

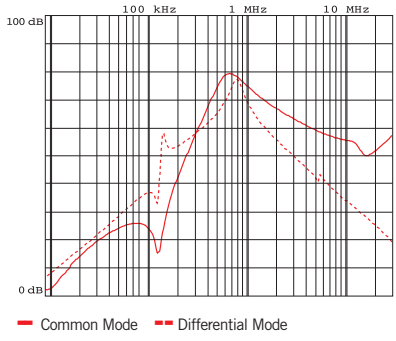
ELECTRICAL CHARACTERISTICS

FIN538	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.005.M	8	6	8
.010.M	14	12	10
.016.M	18	16	12
.025.M	28	25	15
.030.M	35	32	23

CONNECTIONS

	LINE			PE
FIN538	Solid Cable (mm²)	Stranded Cable (mm²)	Terminal Block Torque (Nm)	Torque (Nm)
.005.M	1 - 4	1 - 4	1.8	1.8
.010.M	1 - 4	1 - 4	1.8	1.8
.016.M	1 - 4	1 - 4	1.8	1.8
.025.M	1 - 4	1 - 4	1.8	1.8
.030.M	1 - 4	1 - 4	1.8	1.8

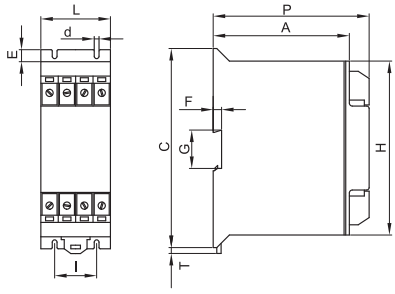
TYPICAL ATTENUATION



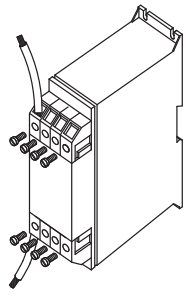
MECHANICAL DIMENSIONS mm

FIN538	A	E	C	P	F	H	I	L	G	d	T	Weight Kg.	Case
.005.M	112	10	166	130	7	146	35	59	37.5	4.5	4	1.15	1
.010.M	112	10	166	130	7	146	35	59	37.5	4.5	4	1.15	1
.016.M	112	10	166	130	7	146	35	59	37.5	4.5	4	1.15	1
.025.M	112	10	166	130	7	146	35	59	37.5	4.5	4	1.15	1
.030.M	112	10	166	130	7	146	35	59	37.5	4.5	4	1.15	1

CASE 1



ASSEMBLY CONNECTION "M"

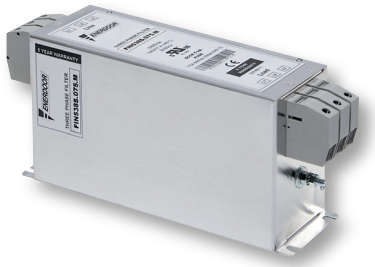


Datasheet 202405

EMI/RFI Filter with very high attenuation for industrial applications

APPROVALS:

CE cULus E215863 RoHS UKCA



FIN538S.(007 - 180).M

FEATURES

- Rated current from 7 - 180 A
- Very high differential and common mode attenuation
- Low leakage current

BENEFITS

- 5 Year warranty
- Very high attenuation
- Easy installation

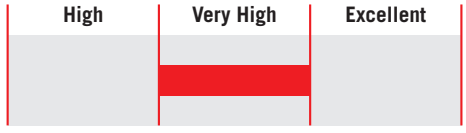
MARKETS

- Conveyors
- Testing equipment
- High tech machinery
- Automated machinery

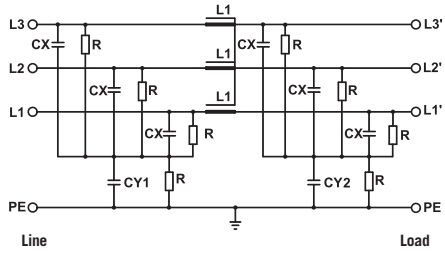
ORDERING CODE

FIN538S	.016	.M
Model	Current (A)	Connection
		M = Terminal block

ATTENUATION INDICATOR



ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 600 Vac
Frequency	50/60 Hz
Rated current	7 - 180 A
Potential test voltage phase to phase	2400 Vdc (2 sec.)
Potential test voltage phase to ground	3200 Vdc (2 sec.)
Leakage current normal conditions	< 10 mA *
Leakage current worst conditions	< 80 mA
IP Protection	IP20
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

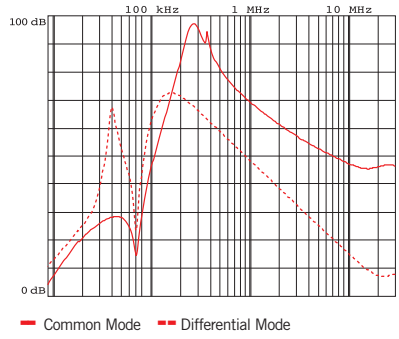
ELECTRICAL CHARACTERISTICS

FIN538S	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.007.M	8	7	3
.016.M	18	16	4
.030.M	34	30	10
.042.M	47	42	18
.055.M	60	55	23
.075.M	83	75	37
.100.M	110	100	52
.130.M	142	130	65
.180.M	200	180	77

CONNECTIONS

	LINE			PE	
	Solid Cable (mm^2)	Stranded Cable (mm^2)	Terminal Torque (Nm)	d (mm)	Torque (Nm)
.007.M	0.5 - 10	0.5 - 10	1.2	M6	1.2
.016.M	0.5 - 10	0.5 - 10	1.2	M6	1.2
.030.M	0.5 - 10	0.5 - 10	1.2	M6	1.2
.042.M	0.5 - 10	0.5 - 16	1.8	M6	1.8
.055.M	0.5 - 10	0.5 - 16	1.8	M6	1.8
.075.M	6 - 16	10 - 35	4.5	M6	4.5
.100.M	16 - 50	16 - 50	4	M10	4
.130.M	16 - 50	16 - 50	4	M10	4
.180.M	35 - 95	35 - 95	20	M10	20

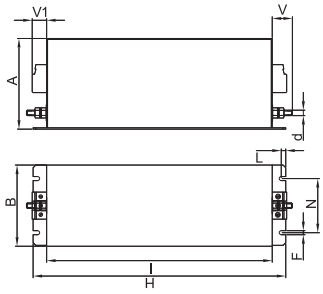
TYPICAL ATTENUATION



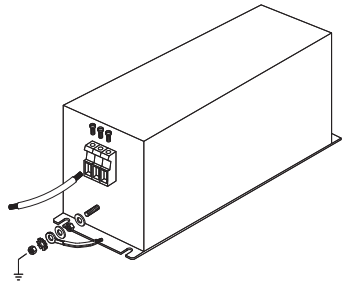
MECHANICAL DIMENSIONS mm

FIN538S	A	B	V	V1	F	H	I	L	N	d	Weight Kg.	Case
.007.M	100	90	22	16	5.4	250	220	7.5	60	M6	1.3	1
.016.M	100	90	22	16	5.4	250	220	7.5	60	M6	1.3	1
.030.M	100	90	22	16	5.4	250	220	7.5	60	M6	1.3	1
.042.M	100	90	22	35	5.4	250	220	7.5	60	M6	1.5	1
.055.M	100	90	22	35	5.4	250	220	7.5	60	M6	1.7	1
.075.M	135	85	22	39	6.5	270	240	7.5	60	M6	2.2	1
.100.M	155	90	24	43	6.5	270	240	7.5	60	M10	3.2	1
.130.M	155	90	24	43	6.5	270	240	7.5	60	M10	3.2	1
.180.M	170	125	26	51	6.5	380	350	7.5	102	M10	5.1	1

CASE 1



ASSEMBLY CONNECTION "M"

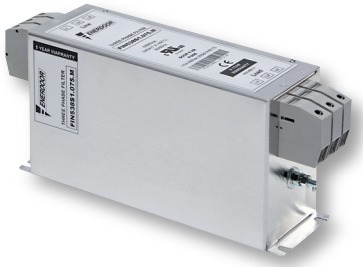


Datasheet 202405

EMI/RFI Filter with excellent attenuation for industrial applications

APPROVALS:

E215863



FIN538S1.(007 – 180).M

FEATURES

- Rated current from 7 - 3000 A
- Excellent differential and common mode attenuation
- Low leakage current
- Terminal blocks up to 180A

BENEFITS

- 5 Year warranty
- Various connections available
- Finger safe protection available
- Vertical bus bar available

MARKETS

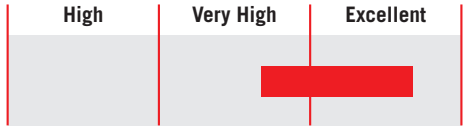
- Electrical equipment
- Machine tools
- Industrial automation
- Frequency drives and servo drives
- Regenerative systems
- Renewable energy

ORDERING CODE

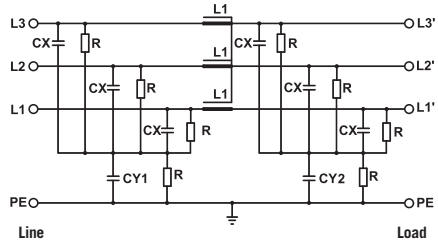
FIN538S1	.007	.M
Model	Current (A)	Connection
		M = Terminal block
		V = Screw
		BC = Bus bar

FIN538S1.(250 – 280).V

ATTENUATION INDICATOR



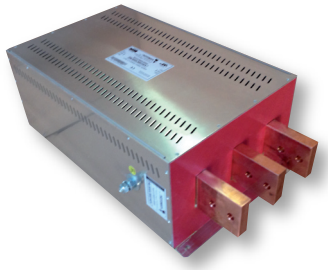
ELECTRIC DIAGRAM



FIN538S1.(280 – 1750).BC

TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 600 Vac
Frequency	50/60 Hz
Rated current	7 - 3000 A
Potential test voltage phase to phase	2400 Vdc (2 sec.)
Potential test voltage phase to ground	3200 Vdc (2 sec.)
Leakage current normal conditions	< 10 mA *
Leakage current worst conditions	< 80 mA
IP Protection	IP20 up to 180A
	IP00 over 280A
	(IP 20 available with protection FINPRT)
Overload capability	4 x Rated current (Switch ON)
	2 x In 10 seconds
	1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours



FIN538S1.(1750 – 3000).BC

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

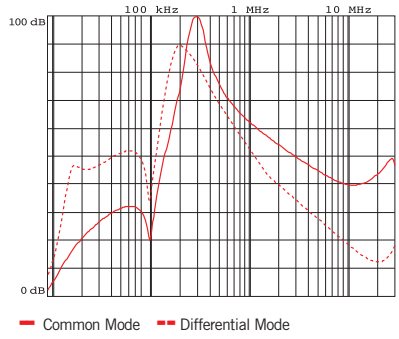
ELECTRICAL CHARACTERISTICS

FIN538S1	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.007.M	8	7	3
.016.M	18	16	4
.030.M	34	30	10
.042.M	47	42	18
.055.M	60	55	23
.075.M	83	75	37
.100.M	110	100	52
.130.M	142	130	65
.180.M	200	180	77

CONNECTIONS

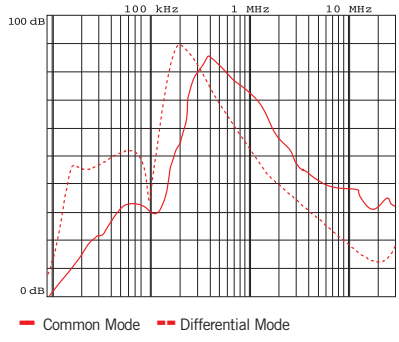
	LINE			PE	
FIN538S1	Solid Cable (mm^2)	Stranded Cable (mm^2)	Terminal Torque (Nm)	d (mm)	Torque (Nm)
.007.M	0.5 - 10	0.5 - 10	1.2	M10	6
.016.M	0.5 - 10	0.5 - 10	1.2	M10	6
.030.M	0.5 - 10	0.5 - 10	1.2	M10	6
.042.M	0.5 - 10	0.5 - 16	1.8	M10	6
.055.M	0.5 - 10	0.5 - 16	1.8	M10	6
.075.M	6 - 16	10 - 35	4.5	M10	6
.100.M	16 - 50	16 - 50	4.0	M10	6
.130.M	16 - 50	16 - 50	4.0	M10	6
.180.M	35 - 95	35 - 95	20.0	M10	6

TYPICAL ATTENUATION



Typical attenuation 7A – 400A

FIN538S1	Rated Current 40°C	Rated Current 50°C	Power Loss (W)	LINE d (mm)	LINE Torque (Nm)	PE d 1 (mm)	PE Torque (Nm)
.250.V	272	250	80	M12	20	M10	18
.280.V	290	280	80	M12	20	M10	18
.280.BC	297	280	80	M8	14	M10	18
.320.BC	330	320	80	M8	14	M10	18
.360.BC	390	360	105	M8	14	M10	18
.400.BC	435	400	110	M8	14	M10	18
.500.BC	545	500	102	M8	14	M10	18
.600.BC	654	600	108	M10	25	M10	18
.750.BC	800	750	96	M10	25	M10	18
.900.BC	940	900	80	M12	50	M12	20
.1000.BC	1050	1000	115	M12	50	M12	20
.1250.BC	1290	1250	101	M12	50	M12	20
.1500.BC	1550	1500	120	M12	50	M12	20
.1600.BC	1650	1600	130	M12	50	M12	20
.1750.BC	1800	1750	135	M12	50	M12	20
.2000.BC	2040	2000	138	M12	50	M12	20
.2250.BC	2290	2250	145	M12	50	M12	20
.2500.BC	2535	2500	170	M12	50	M12	20
.3000.BC	3050	3000	180	M12	50	M12	20

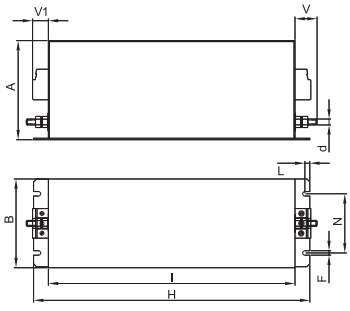


Typical attenuation 500A – 3000A

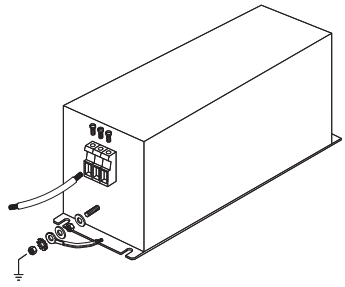
MECHANICAL DIMENSIONS mm

FIN538S1	A	B	V	V1	F	H	I	L	N	d	Weight Kg.	Case
.007.M	100	90	22	16	5.4	250	220	7.5	60	M6	1.3	1
.016.M	100	90	22	16	5.4	250	220	7.5	60	M6	1.3	1
.030.M	100	90	22	16	5.4	250	220	7.5	60	M6	1.3	1
.042.M	100	90	22	35	5.4	250	220	7.5	60	M6	1.5	2
.055.M	100	90	22	35	5.4	250	220	7.5	60	M6	1.5	2
.075.M	135	85	22	39	6.5	270	240	7.5	60	M6	2.2	3
.100.M	155	90	24	43	6.5	270	240	7.5	65	M10	3.2	4
.130.M	155	90	24	43	6.5	270	240	7.5	65	M10	3.2	4
.180.M	170	125	26	51	6.5	380	350	7.5	102	M10	5.5	5

CASE 1, 2, 3, 4, 5



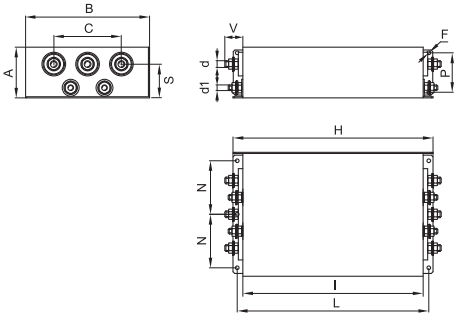
ASSEMBLY CONNECTION “M”



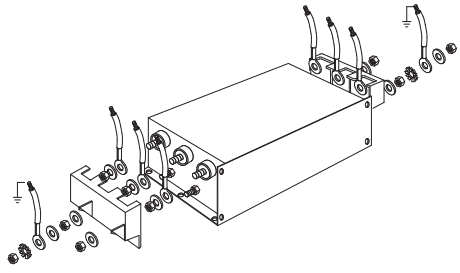
MECHANICAL DIMENSIONS mm

FIN538S1	A	B	C	d	d1	V	F	H	I	L	N	P	S	Weight Kg.	Case
.250.V	90	220	120	M12	M10	30	6.5	356	320	340	95	70	60	9	6
.280.V	90	220	120	M12	M10	30	6.5	356	320	340	95	70	60	9	6

CASE 6



ASSEMBLY CONNECTION “V”



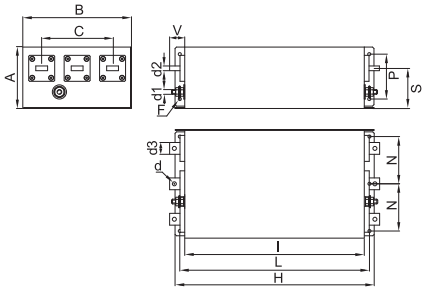
FIN538S1

Three-Phase Filter

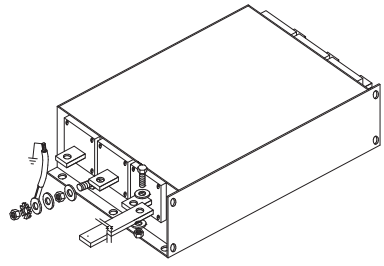
MECHANICAL DIMENSIONS mm

FIN538S1	A	B	C	d	d1	d2	d3	V	F	H	I	L	N	P	S	Weight Kg.	Case
.280.BC	90	220	120	M8	M10	6	20	42	6.5	356	320	340	95	70	55	9	7
.320.BC	90	220	120	M8	M10	6	20	42	6.5	356	320	340	95	70	55	9	7
.360.BC	130	230	150	M8	M10	10	25	42	6.5	420	380	400	100	100	85	13.5	8
.400.BC	130	230	150	M8	M10	10	25	42	6.5	420	380	400	100	100	85	13.5	8
.500.BC	130	230	150	M8	M10	10	25	42	6.5	420	380	400	100	100	85	13.5	8
.600.BC	130	230	150	M10	M10	15	30	50	6.5	510	450	480	100	100	85	19	9
.750.BC	130	230	150	M10	M10	15	30	50	6.5	510	450	480	100	100	85	19	9
.900.BC	160	250	140	M12	M12	20	40	94	8.5	510	450	480	100	110	110	27	10
.1000.BC	160	250	140	M12	M12	20	40	94	8.5	510	450	480	100	110	110	27	10
.1250.BC	160	250	140	M12	M12	20	40	94	8.5	510	450	480	100	110	110	27	10
.1500.BC	180	300	200	M12	M12	20	60	100	8.5	560	500	530	125	130	117	30	11
.1600.BC	180	300	200	M12	M12	20	60	100	8.5	560	500	530	125	130	117	30	11
.1750.BC	180	300	200	M12	M12	20	60	100	8.5	560	500	530	125	130	117	30	11
.2000.BC	225	350	200	M12	M12	25	80	100	8.5	610	550	580	150	-	113	68	12
.2250.BC	225	350	200	M12	M12	25	80	100	8.5	610	550	580	150	-	113	68	12
.2500.BC	225	350	200	M12	M12	25	80	100	8.5	610	550	580	150	-	113	68	12
.3000.BC	225	350	200	M12	M12	25	80	100	8.5	610	550	580	150	-	113	68	12

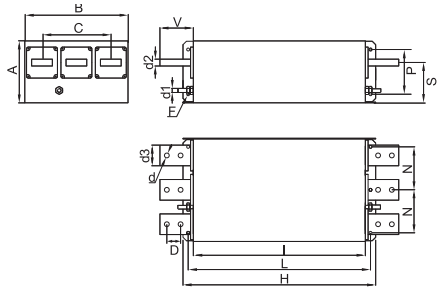
CASE 7, 8, 9



ASSEMBLY CONNECTION "BC"



CASE 10, 11



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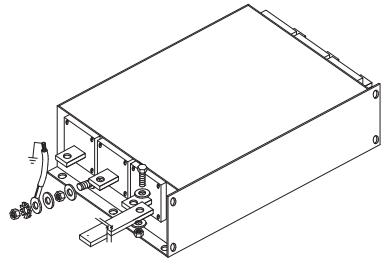
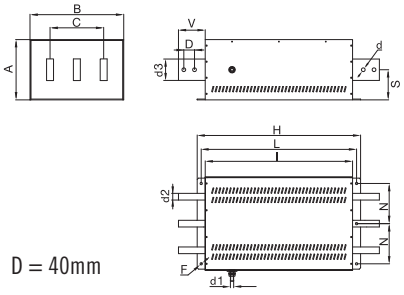
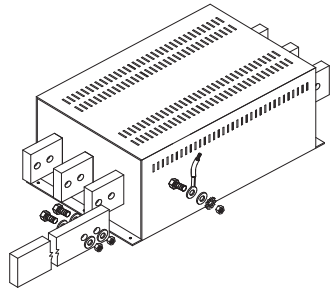


CASE 12



D = 40mm

ASSEMBLY CONNECTION "BC"



Datasheet 202405

EMI/RFI Filter with very high attenuation for industrial applications

APPROVALS:

CE RoHS UKCA

FIN539S.(400 - 2500).B

FEATURES

- Rated current from 400 - 2500 A
- Very high differential and common mode attenuation
- Low leakage current

BENEFITS

- 5 Year warranty
- Large bus bars allow ambient temperature of 70°C
- Compact design

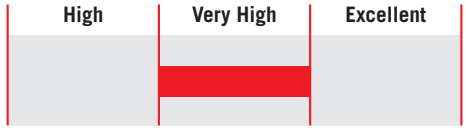
MARKETS

- Renewable energy
- Uninterruptible power supplies
- Packaging machinery
- Process plants

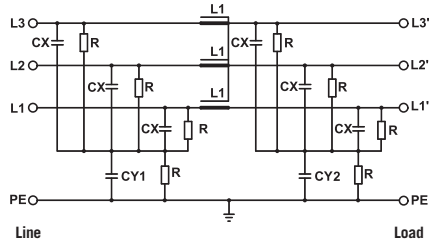
ORDERING CODE

FIN539S	.900	.M
Model	Current (A)	Connection
		B = Bus bar

ATTENUATION INDICATOR



ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 600 Vac
Frequency	50/60 Hz
Rated current	400 - 2500 A
Potential test voltage phase to phase	2400 Vdc (2 sec.)
Potential test voltage phase to ground	3200 Vdc (2 sec.)
Leakage current normal conditions	< 10 mA *
Leakage current worst conditions	< 80 mA
IP Protection	IP00
	IP 20 with FINPRT protection (optional)
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

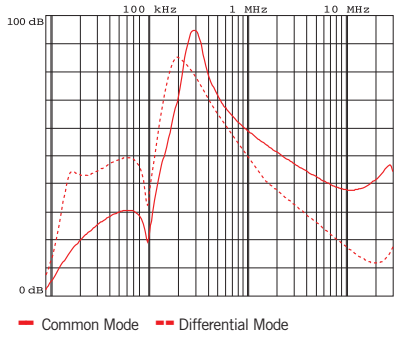
ELECTRICAL CHARACTERISTICS

FIN539S	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.400.B	420	400	92
.500.B	525	500	102
.600.B	630	600	82
.750.B	790	750	95
.900.B	945	900	105
.1000.B	1050	1000	92
.1250.B	1300	1300	98
.1500.B	1550	1500	108
.1750.B	1800	1750	105
.2000.B	2100	2000	92
.2250.B	2350	2250	98
.2500.B	2650	2500	108

CONNECTIONS

LINE		PE	
d (mm)	Torque (Nm)	d 1 (mm)	Torque (Nm)
M8	14	M10	18
M8	14	M10	18
M8	14	M10	18
M10	25	M10	18
M10	25	M10	18
M12	50	M12	20
M12	50	M12	20
M12	50	M12	20
M12	50	M12	20
M12	50	M12	20
M12	50	M12	20
M12	50	M12	20

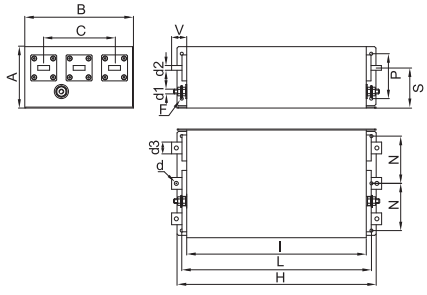
TYPICAL ATTENUATION



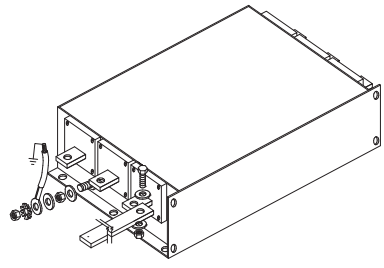
MECHANICAL DIMENSIONS mm

FIN539S	A	B	C	d	d1	d 2	d 3	V	F	H	I	L	N	P	S	Weight Kg.	Case
.400.B	130	230	150	M8	M10	10	25	42	6.5	420	380	400	100	100	85	13.5	1
.500.B	130	230	150	M8	M10	10	25	42	6.5	420	380	400	100	100	85	13.5	1
.600.B	130	230	150	M8	M10	15	30	48	6.5	510	450	480	100	100	85	19	2
.750.B	130	230	150	M10	M10	15	30	48	6.5	510	450	480	100	100	85	19	2
.900.B	130	230	150	M10	M10	15	30	48	6.5	510	450	480	100	100	85	19	2
.1000.B	160	250	140	M12	M12	20	40	94	8.5	510	450	480	100	110	110	27	3
.1250.B	160	250	140	M12	M12	20	40	94	8.5	510	450	480	100	110	110	27	3
.1500.B	160	250	140	M12	M12	20	40	94	8.5	510	450	480	100	110	110	27	3
.1750.B	180	350	200	M12	M12	20	60	97	8.5	610	550	580	150	130	117	32	4
.2000.B	180	350	200	M12	M12	20	60	97	8.5	610	550	580	150	130	117	32	4
.2250.B	180	350	200	M12	M12	20	60	97	8.5	610	550	580	150	130	117	32	4
.2500.B	180	350	200	M12	M12	20	60	97	8.5	610	550	580	150	130	117	32	4

CASE 1, 2, 3, 4



ASSEMBLY CONNECTION "B"



Datasheet 202405

EMI/RFI Filter with excellent attenuation for industrial applications

APPROVALS:

E215863

FIN1200.(005 - 280).V

FEATURES

- Rated current from 5 - 3000 A
- Excellent differential and common mode attenuation
- Very low leakage current

BENEFITS

- 5 Year warranty
- Various connections available
- Finger safe protection available
- Vertical bus bar available

MARKETS

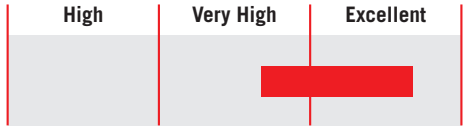
- Electrical equipment
- Semiconductor equipment
- Industrial automation
- Variable frequency drives / servo drives
- MRI - Medical equipment
- Renewable energy

ORDERING CODE

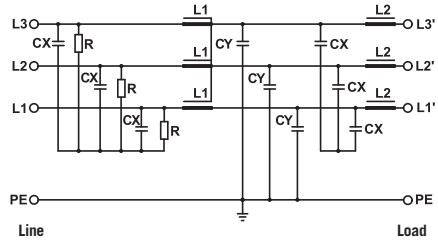
FIN1200(HV)	.100	.V
Model	Current (A)	Connection
HV = 600Vac		V = Screw
		BC = Bus bar

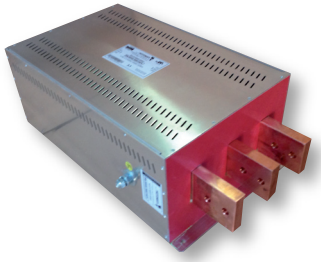
FIN1200.(280 - 1750).BC

ATTENUATION INDICATOR



ELECTRIC DIAGRAM





FIN1200.(2000 - 3000).BC

FIN1200HV AVAILABLE UP TO 750 Vac

TECHNICAL SPECIFICATIONS	FIN1200	FIN1200HV
Nominal voltage	0 - 480 Vac	0 - 600 Vac
Frequency	50/60 Hz	
Rated current	5 - 3000 A	
Potential test voltage phase to phase	2200 Vdc (2 sec.)	2400 Vdc (2 sec.)
Potential test voltage phase to ground	2900 Vdc (2 sec.)	3200 Vdc (2 sec.)
Leakage current normal conditions	< 3 mA *	
Leakage current worst conditions	< 10 mA	
IP Protection	IP20 up to 280A	
	IP00 over 280A	
	(IP 20 available with protection FINPRT)	
Overload capability	4 x Rated current (Switch ON)	
	2 x In 10 seconds	
	1.5 In for 10 minutes	
Climatic class	-40 to 85°C	
MTBF at 40°C	250,000 Hours	

* **Voltage 230 Vac phase to ground 50Hz / 40°C**

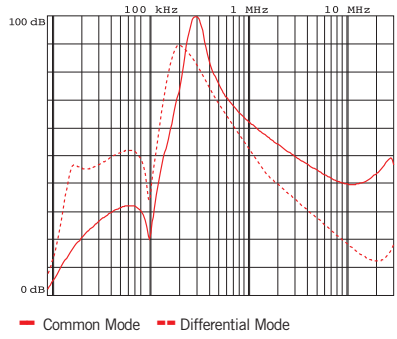
ELECTRICAL CHARACTERISTICS

FIN1200 FIN1200HV	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.005.V	5	4	5
.010.V	10	8	7
.016.V	16	14	14
.030.V	30	27	11
.050.V	50	46	10
.080.V	80	75	35
.100.V	100	90	42
.150.V	150	140	74
.200.V	200	190	90
.250.V	272	250	90
.280.V	290	280	80
.280.BC	297	280	78
.320.BC	330	320	80
.360.BC	390	360	105
.400.BC	435	400	110
.500.BC	545	500	102
.600.BC	654	600	108
.750.BC	800	750	96
.900.BC	940	900	80
.1000.BC	1050	1000	115
.1250.BC	1290	1250	101
.1500.BC	1550	1500	120
.1600.BC	1650	1600	130
.1750.BC	1800	1750	135
.2000.BC	2050	2000	138
.2250.BC	2300	2250	145
.2500.BC	2550	2500	170
.3000.BC	3000	2950	180

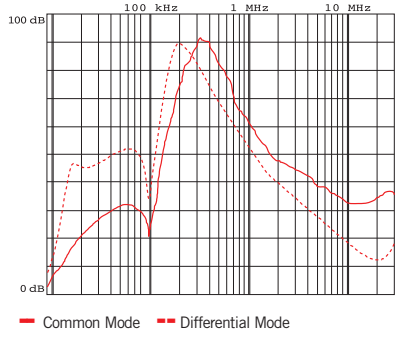
CONNECTIONS

LINE		PE	
d (mm)	Torque (Nm)	d1 (mm)	Torque (Nm)
M4	1.2	M4	1.2
M4	1.2	M4	1.2
M5	4	M5	4
M5	4	M5	4
M6	6	M5	4
M8	14	M8	14
M8	14	M8	14
M10	18	M10	18
M10	18	M10	18
M12	20	M10	18
M12	20	M10	18
M8	14	M10	18
M8	14	M10	18
M8	14	M10	18
M8	14	M10	18
M8	14	M10	18
M10	25	M10	18
M10	25	M10	18
M12	50	M12	20
M12	50	M12	20
M12	50	M12	20
M12	50	M12	20
M12	50	M12	20
M12	50	M12	20
M12	50	M12	20
M12	50	M12	20
M12	50	M12	20

TYPICAL ATTENUATION



Typical attenuation 5A – 400A

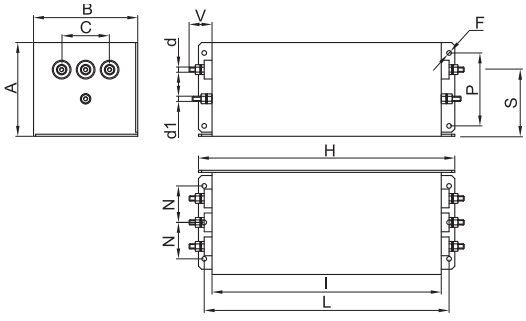


Typical attenuation 500A – 3000A

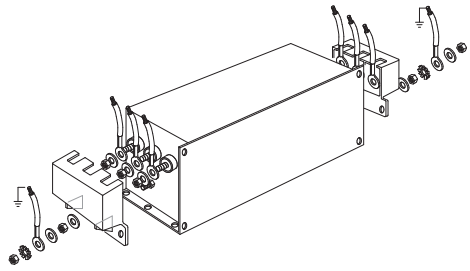
MECHANICAL DIMENSIONS mm

FIN1200 FIN1200HV	A	B	C	d	d1	V	F	H	I	L	N	P	S	Weight Kg.	Case
.005.V	58	86	44	M4	M4	14	4.5	186	160	176	30	40	38	2	1
.010.V	58	86	44	M4	M4	14	4.5	186	160	176	30	40	38	2	1
.016.V	90	100	46	M5	M5	28	4.5	246	220	235	35	70	64	3	2
.030.V	90	100	46	M5	M5	28	4.5	246	220	235	35	70	64	3	2
.050.V	90	100	46	M6	M5	28	4.5	246	220	235	35	70	64	3	3
.080.V	90	185	84	M8	M8	25	6.5	356	320	340	77.5	70	69	5	4
.100.V	90	185	84	M8	M8	25	6.5	356	320	340	77.5	70	69	5	4
.150.V	90	220	120	M10	M10	29	6.5	356	320	340	95	70	60	7	5
.200.V	90	220	120	M10	M10	29	6.5	356	320	340	95	70	60	7	5
.250.V	90	220	120	M12	M10	30	6.5	356	320	340	95	70	60	9	6
.280.V	90	220	120	M12	M10	30	6.5	356	320	340	95	70	60	9	6

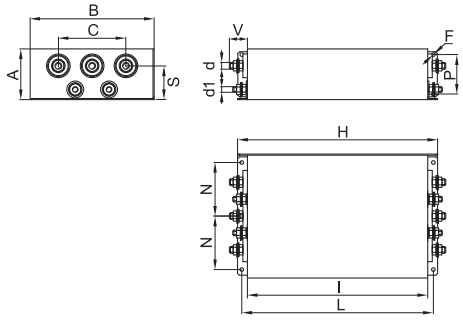
CASE 1, 2, 3, 4



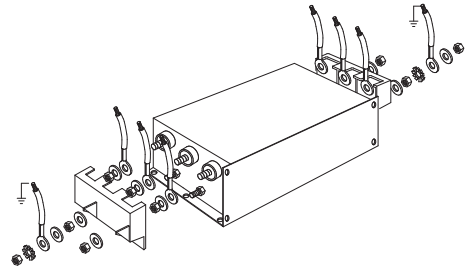
ASSEMBLY CONNECTION “V”



CASE 5, 6



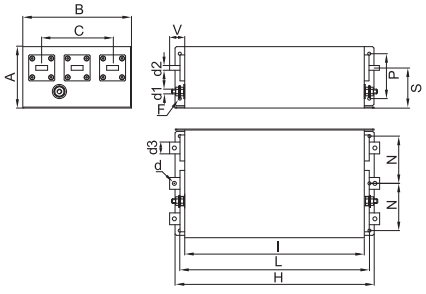
ASSEMBLY CONNECTION “V”



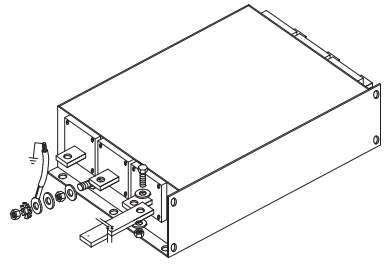
MECHANICAL DIMENSIONS mm

FIN1200 FIN1200HV	A	B	C	d	d1	d2	d3	V	F	H	I	L	N	P	S	Weight Kg.	Case
.280.BC	90	220	120	M8	M10	6	20	42	6.5	356	320	340	95	70	55	9	7
.320.BC	90	220	120	M8	M10	6	20	42	6.5	356	320	340	95	70	55	9	7
.360.BC	130	230	150	M8	M10	10	25	42	6.5	420	380	400	100	100	85	13.5	8
.400.BC	130	230	150	M8	M10	10	25	42	6.5	420	380	400	100	100	85	13.5	8
.500.BC	130	230	150	M8	M10	10	25	42	6.5	420	380	400	100	100	85	13.5	8
.600.BC	130	230	150	M10	M10	15	30	50	6.5	510	450	480	100	100	85	19	9
.750.BC	130	230	150	M10	M10	15	30	50	6.5	510	450	480	100	100	85	19	9
.900.BC	160	250	140	M12	M12	20	40	94	8.5	510	450	480	100	110	110	27	10
.1000.BC	160	250	140	M12	M12	20	40	94	8.5	510	450	480	100	110	110	27	10
.1250.BC	160	250	140	M12	M12	20	40	94	8.5	510	450	480	100	110	110	27	10
.1500.BC	180	300	200	M12	M12	20	60	100	8.5	560	500	530	125	130	117	30	11
.1600.BC	180	300	200	M12	M12	20	60	100	8.5	560	500	530	125	130	117	30	11
.1750.BC	180	300	200	M12	M12	20	60	100	8.5	560	500	530	125	130	117	30	11
.2000.BC	225	350	200	M12	M12	25	80	100	8.5	610	550	580	150	-	113	68	12
.2250.BC	225	350	200	M12	M12	25	80	100	8.5	610	550	580	150	-	113	68	12
.2500.BC	225	350	200	M12	M12	25	80	100	8.5	610	550	580	150	-	113	68	12
.3000.BC	225	350	200	M12	M12	25	80	100	8.5	610	550	580	150	-	113	68	12

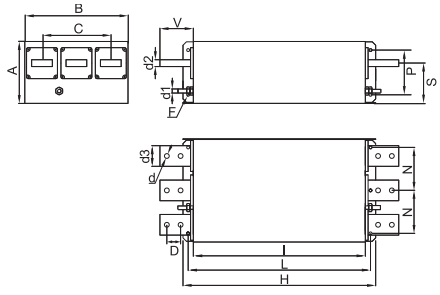
CASE 7, 8, 9



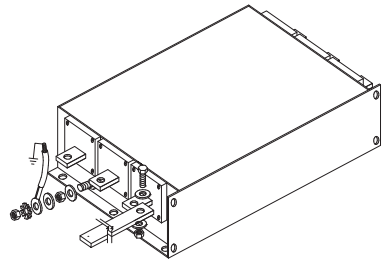
ASSEMBLY CONNECTION "BC"



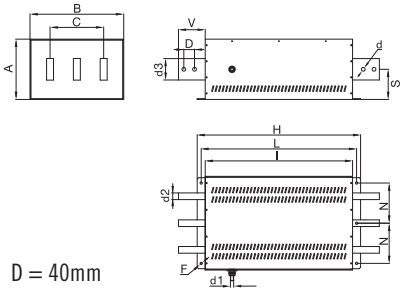
CASE 10, 11



ASSEMBLY CONNECTION "BC"

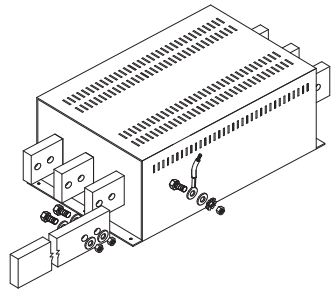


CASE 12



D = 40mm

ASSEMBLY CONNECTION "BC"



Datasheet 202405

EMI/RFI Filter with excellent attenuation for industrial applications

APPROVALS:

E215863

FIN1500.(005 – 280).V

FEATURES

- Rated current from 5 - 3000 A
- Excellent differential and common mode attenuation
- Low leakage current

BENEFITS

- 5 Year warranty
- Various connections
- Finger safe protection available
- Vertical bus bar available

MARKETS

- Electrical equipment
- Machine tools
- Industrial automation
- Variable frequency drives / servo drives
- Regenerative system
- Renewable energy

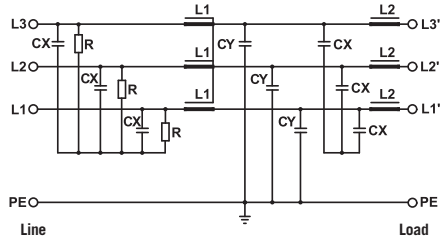
ORDERING CODE

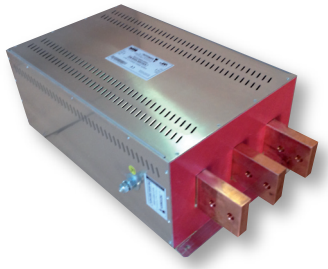
FIN1500(HV)	.100	.V
Model	Current (A)	Connection
HV = 600Vac		V = Screw
		BC = Bus bar

FIN1500.(280 – 1750).BC

ATTENUATION INDICATOR

ELECTRIC DIAGRAM





FIN1500.(1750 – 3000).BC

TECHNICAL SPECIFICATIONS	FIN1500	FIN1500HV
Nominal voltage	0 - 480 Vac	0 - 600 Vac
Frequency	50/60 Hz	
Rated current	5 - 3000 A	
Potential test voltage phase to phase	2200 Vdc (2 sec.)	2400 Vdc (2 sec.)
Potential test voltage phase to ground	2900 Vdc (2 sec.)	3200 Vdc (2 sec.)
Leakage current normal conditions	<10 mA*	
Leakage current worst conditions	<35 mA	
IP Protection	IP20 up to 280A	
	IP00 over 280A	
	(IP 20 available with protection FINPRT)	
Overload capability	4 x Rated current (Switch ON)	
	2 x In 10 seconds	
	1.5 In for 10 minutes	
Climatic class	-40 to 85°C	
MTBF at 40°C	250,000 Hours	

FIN1500HV AVAILABLE UP TO 750 Vac

* **Voltage 230 Vac phase to ground 50Hz / 40°C**

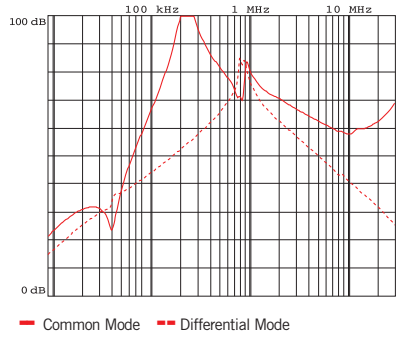
ELECTRICAL CHARACTERISTICS

FIN1500 FIN1500HV	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.005.V	5	4	5
.010.V	10	8	7
.016.V	16	14	14
.030.V	30	27	11
.050.V	50	46	10
.080.V	80	75	35
.100.V	100	90	42
.150.V	150	140	74
.200.V	200	190	90
.250.V	272	250	90
.280.V	290	280	80
.280.BC	297	280	78
.320.BC	330	320	80
.360.BC	390	360	105
.400.BC	435	400	110
.500.BC	545	500	102
.600.BC	654	600	108
.750.BC	800	750	96
.900.BC	940	900	80
.1000.BC	1050	1000	115
.1250.BC	1290	1250	101
.1500.BC	1550	1500	120
.1600.BC	1650	1600	130
.1750.BC	1800	1750	135
.2000.BC	2050	2000	138
.2250.BC	2300	2250	145
.2500.BC	2550	2500	170
.3000.BC	3000	2950	180

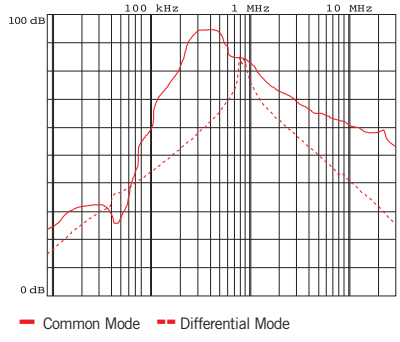
CONNECTIONS

LINE		PE	
d (mm)	Torque (Nm)	d1 (mm)	Torque (Nm)
M4	1.2	M4	1.2
M4	1.2	M4	1.2
M5	4	M5	4
M5	4	M5	4
M6	6	M5	4
M8	14	M8	14
M8	14	M8	14
M10	18	M10	18
M10	18	M10	18
M12	20	M10	18
M12	20	M10	18
M8	14	M10	18
M8	14	M10	18
M8	14	M10	18
M8	14	M10	18
M8	14	M10	18
M10	25	M10	18
M10	25	M10	18
M12	50	M12	20
M12	50	M12	20
M12	50	M12	20
M12	50	M12	20
M12	50	M12	20
M12	50	M12	20
M12	50	M12	20
M12	50	M12	20
M12	50	M12	20

TYPICAL ATTENUATION



Typical attenuation 5A – 400A

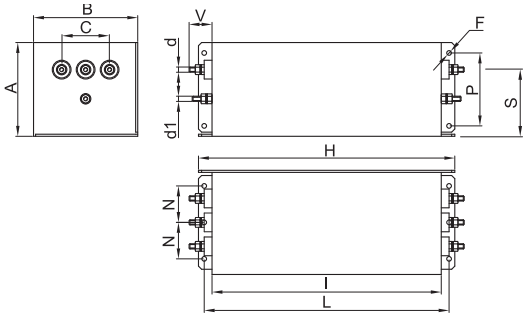


Typical attenuation 500A – 3000A

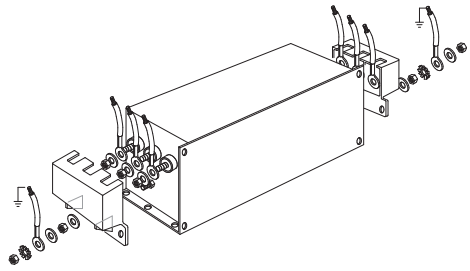
MECHANICAL DIMENSIONS mm

FIN1500 FIN1500HV	A	B	C	d	d1	V	F	H	I	L	N	P	S	Weight Kg.	Case
.005.V	58	86	44	M4	M4	14	4.5	186	160	176	30	40	38	2	1
.010.V	58	86	44	M4	M4	14	4.5	186	160	176	30	40	38	2	1
.016.V	90	100	46	M5	M5	28	4.5	246	220	235	35	70	64	3	2
.030.V	90	100	46	M5	M5	28	4.5	246	220	235	35	70	64	3	2
.050.V	90	100	46	M6	M5	28	4.5	246	220	235	35	70	64	3	3
.080.V	90	185	84	M8	M8	25	6.5	356	320	340	77.5	70	69	5	4
.100.V	90	185	84	M8	M8	25	6.5	356	320	340	77.5	70	69	5	4
.150.V	90	220	120	M10	M10	29	6.5	356	320	340	95	70	60	7	5
.200.V	90	220	120	M10	M10	29	6.5	356	320	340	95	70	60	7	5
.250.V	90	220	120	M12	M10	30	6.5	356	320	340	95	70	60	9	6
.280.V	90	220	120	M12	M10	30	6.5	356	320	340	95	70	60	9	6

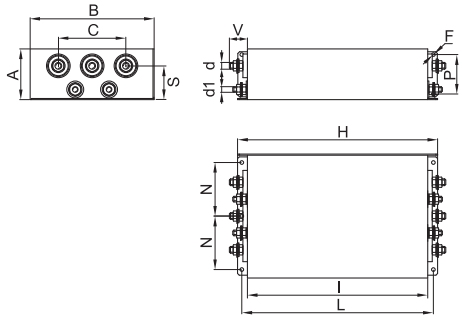
CASE 1, 2, 3, 4



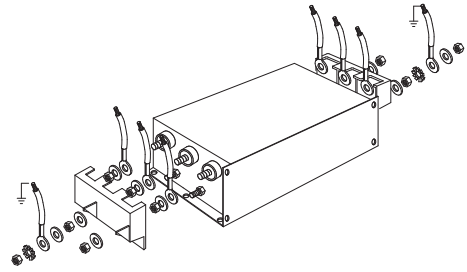
ASSEMBLY CONNECTION “V”



CASE 5, 6



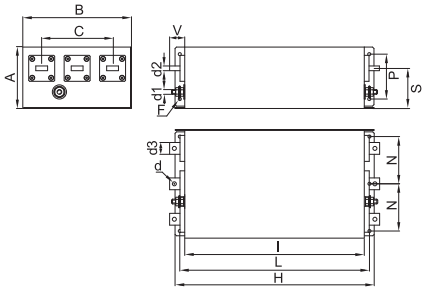
ASSEMBLY CONNECTION “V”



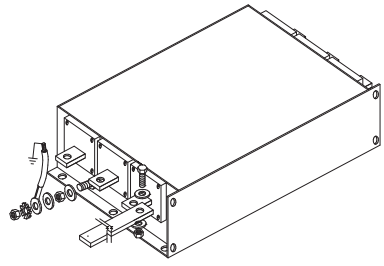
MECHANICAL DIMENSIONS mm

FIN1500 FIN1500HV	A	B	C	d	d1	d2	d3	V	F	H	I	L	N	P	S	Weight Kg.	Case
.280.BC	90	220	120	M8	M10	6	20	42	6.5	356	320	340	95	70	55	9	7
.320.BC	90	220	120	M8	M10	6	20	42	6.5	356	320	340	95	70	55	9	7
.360.BC	130	230	150	M8	M10	10	25	42	6.5	420	380	400	100	100	85	13.5	8
.400.BC	130	230	150	M8	M10	10	25	42	6.5	420	380	400	100	100	85	13.5	8
.500.BC	130	230	150	M8	M10	10	25	42	6.5	420	380	400	100	100	85	13.5	8
.600.BC	130	230	150	M10	M10	15	30	50	6.5	510	450	480	100	100	85	19	9
.750.BC	130	230	150	M10	M10	15	30	50	6.5	510	450	480	100	100	85	19	9
.900.BC	160	250	140	M12	M12	20	40	94	8.5	510	450	480	100	110	110	27	10
.1000.BC	160	250	140	M12	M12	20	40	94	8.5	510	450	480	100	110	110	27	10
.1250.BC	160	250	140	M12	M12	20	40	94	8.5	510	450	480	100	110	110	27	10
.1500.BC	180	300	200	M12	M12	20	60	100	8.5	560	500	530	125	130	117	30	11
.1600.BC	180	300	200	M12	M12	20	60	100	8.5	560	500	530	125	130	117	30	11
.1750.BC	180	300	200	M12	M12	20	60	100	8.5	560	500	530	125	130	117	30	11
.2000.BC	225	350	200	M12	M12	25	80	100	8.5	610	550	580	150	-	113	68	12
.2250.BC	225	350	200	M12	M12	25	80	100	8.5	610	550	580	150	-	113	68	12
.2500.BC	225	350	200	M12	M12	25	80	100	8.5	610	550	580	150	-	113	68	12
.3000.BC	225	350	200	M12	M12	25	80	100	8.5	610	550	580	150	-	113	68	12

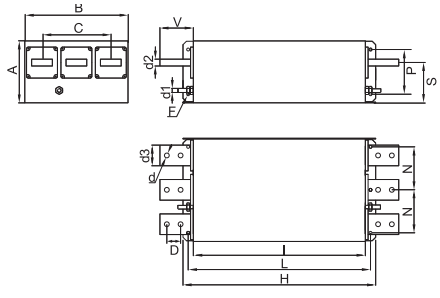
CASE 7, 8, 9



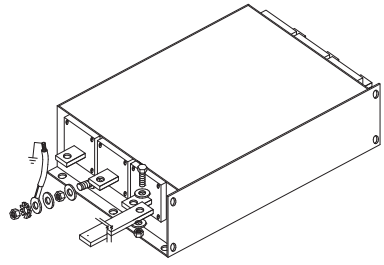
ASSEMBLY CONNECTION "BC"



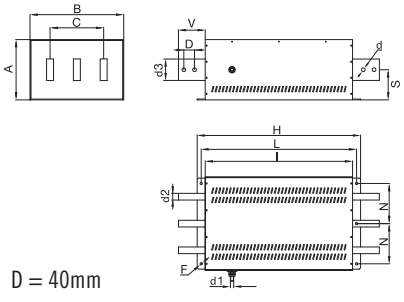
CASE 10, 11



ASSEMBLY CONNECTION "BC"

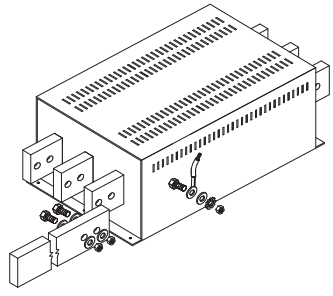


CASE 12



D = 40mm

ASSEMBLY CONNECTION "BC"



Datasheet 202405

EMI/RFI Filter with very high attenuation for industrial applications

APPROVALS:

CE RoHS UKCA

FIN1600.(007 – 200).M

FEATURES

- Rated current from 7 to 200A
- Very high differential and common mode attenuation

BENEFITS

- 5 Year warranty
- Safety terminal block connector
- Compact design

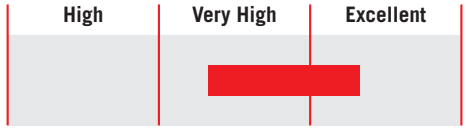
MARKETS

- Elevators
- Processing machinery
- Regeneration systems
- Uninterruptible power supplies

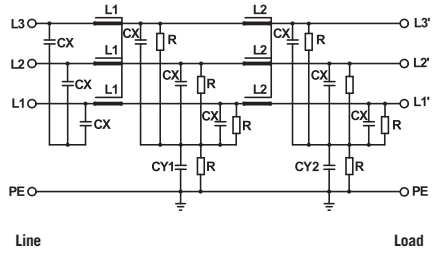
ORDERING CODE

FIN1600	.055	.M
Model	Current (A)	Connection
		M = Terminal block

ATTENUATION INDICATOR



ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 480 Vac
Frequency	50/60 Hz
Rated current	7 - 200 A
Potential test voltage phase to phase	2200 Vdc (2 sec.)
Potential test voltage phase to ground	2900 Vdc (2 sec.)
Leakage current normal conditions	< 10 mA *
Leakage current worst conditions	< 130 mA
IP Protection	IP20
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

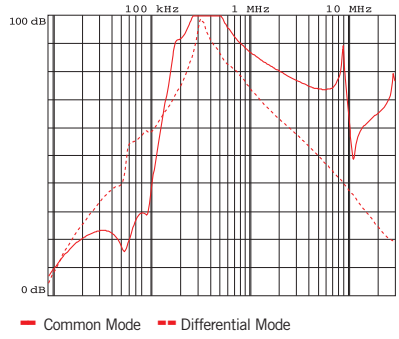
ELECTRICAL CHARACTERISTICS

FIN1600	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.007.M	7	5	6
.013.M	13	11	10
.018.M	18	16	12
.034.M	34	30	24
.055.M	55	50	27
.090.M	90	80	37
.110.M	110	100	67
.160.M	160	150	100
.200.M	200	180	93

CONNECTIONS

	LINE			PE	
FIN1600	Solid Cable (mm^2)	Stranded Cable (mm^2)	Terminal Torque (Nm)	d (mm)	Torque (Nm)
.007.M	0.2 - 6	0.2 - 4	0.5	M5	0.5
.013.M	0.2 - 6	0.2 - 4	0.5	M5	0.5
.018.M	0.2 - 6	0.2 - 4	0.5	M5	0.5
.034.M	0.2 - 10	0.2 - 6	1.2	M5	1.2
.055.M	0.5 - 16	0.5 - 10	1.8	M6	1.8
.090.M	4 - 25	6 - 35	4.5	M6	4.5
.110.M	10 - 50	10 - 50	4	M10	4
.160.M	10 - 50	10 - 50	4	M10	4
.200.M	35 - 95	35 - 95	20	M10	20

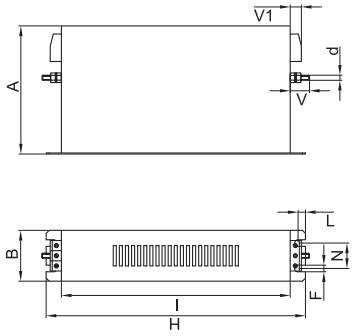
TYPICAL ATTENUATION



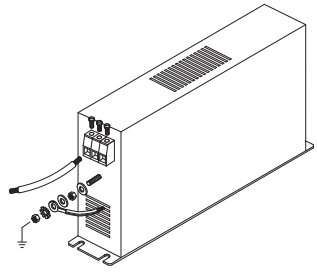
MECHANICAL DIMENSIONS mm

FIN1600	A	B	V	V1	F	H	I	L	N	d	Weight Kg.	Case
.007.M	126	50	19	11	6.5	255	225	7.5	25	M5	1.6	1
.013.M	126	50	19	11	6.5	255	225	7.5	25	M5	1.6	1
.018.M	143	55	19	11	6.5	305	276	7.5	30	M5	2.2	1
.034.M	150	60	19	16	6.5	335	305	7.5	35	M5	2.7	1
.055.M	185	70	18	33	6.5	329	300	7.5	45	M6	4.7	1
.090.M	220	80	18	39	6.5	329	300	7.5	55	M6	5.5	1
.110.M	220	90	28	43	6.5	379	350	7.5	65	M10	7.7	1
.160.M	240	110	28	43	6.5	439	400	12.5	65	M10	11	1
.200.M	240	110	28	50	6.5	439	400	12.5	65	M10	12	1

CASE 1



ASSEMBLY CONNECTION "M"



Datasheet 202405

EMI/RFI Filter with very high attenuation for industrial applications

APPROVALS:

CE cULus E215863 RoHS UKCA

FIN1700.(006 - 200).M

FEATURES

- Rated current from 6 - 200 A
- Very high differential and common mode attenuation
- Very low leakage current

BENEFITS

- 5 Year warranty
- Safety terminal block connector
- Helps pass immunity and emission tests for the IEC61000-6-2 and IEC61000-6-4 Standards

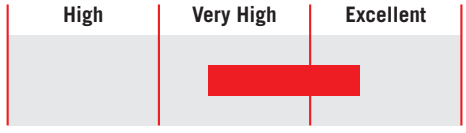
MARKETS

- Food industry
- Woodworking machinery
- Packaging machinery
- Printing machinery

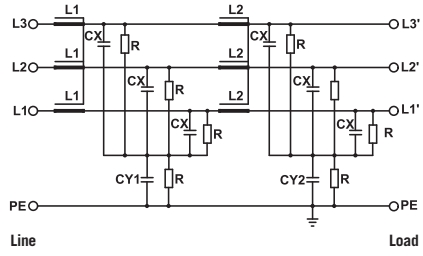
ORDERING CODE

FIN1700	.055	.M
Model	Current (A)	Connection
		M = Terminal block

ATTENUATION INDICATOR



ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 600 Vac
Frequency	50/60 Hz
Rated current	6 - 200 A
Potential test voltage phase to phase	2400 Vdc (2 sec.)
Potential test voltage phase to ground	3200 Vdc (2 sec.)
Leakage current normal conditions	< 3 mA *
Leakage current worst conditions	< 15 mA
IP Protection	IP20
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

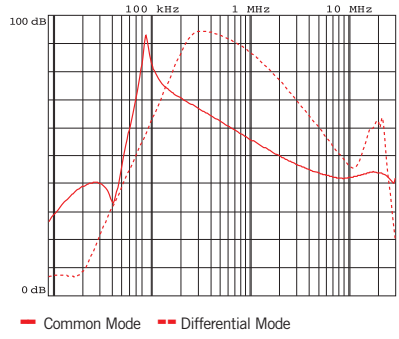
ELECTRICAL CHARACTERISTICS

FIN1700	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.006.M	8	6	8
.012.M	14	12	10
.016.M	18	16	12
.025.M	28	25	15
.032.M	35	32	23
.042.M	50	42	32
.055.M	63	55	37
.070.M	80	70	52
.080.M	90	80	60
.100.M	110	100	92
.115.M	130	115	101
.150.M	175	150	115
.200.M	230	200	120

CONNECTIONS

	LINE			PE	
	Solid Cable (mm^2)	Stranded Cable (mm^2)	Terminal Torque (Nm)	d (mm)	Torque (Nm)
.006.M	0.5 - 10	0.5 - 10	1.2	M6	6
.012.M	0.5 - 10	0.5 - 10	1.2	M6	6
.016.M	0.5 - 10	0.5 - 10	1.2	M6	6
.025.M	0.5 - 10	0.5 - 10	1.2	M6	6
.032.M	0.5 - 10	0.5 - 10	1.2	M6	6
.042.M	0.5 - 10	0.5 - 16	1.8	M6	6
.055.M	0.5 - 16	10 - 25	2.2	M6	6
.070.M	6 - 16	10 - 35	4.5	M10	18
.080.M	6 - 16	10 - 35	4.5	M10	18
.100.M	16 - 50	16 - 50	4	M10	18
.115.M	16 - 50	16 - 50	4	M10	18
.150.M	35 - 95	35 - 95	20	M10	18
.200.M	35 - 95	35 - 95	20	M10	18

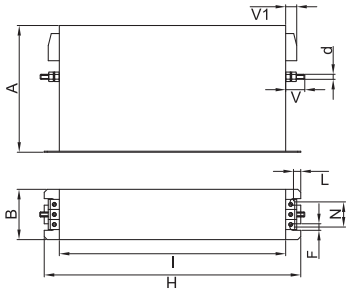
TYPICAL ATTENUATION



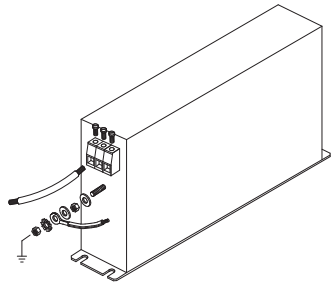
MECHANICAL DIMENSIONS mm

FIN1700	A	B	V	V1	F	H	I	L	N	d	Weight Kg.	Case
.006.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.012.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.016.M	177	60	19	15	6	267	237	8	34	M6	1.7	1
.025.M	177	60	19	15	6	267	237	8	34	M6	2.3	1
.032.M	177	60	19	15	6	267	237	8	34	M6	2.3	1
.042.M	177	70	19	25	6	295	265	8	44	M6	3.4	1
.055.M	177	70	19	33	6	295	265	8	44	M6	3.5	1
.070.M	205	80	28	38	8	390	340	12	53	M10	6	1
.080.M	205	80	28	38	8	390	340	12	53	M10	6	1
.100.M	205	80	28	43	8	390	340	12	53	M10	7.1	1
.115.M	205	80	28	43	8	390	340	12	53	M10	7.1	1
.150.M	220	105	28	50	8	420	370	12	78	M10	8.5	1
.200.M	220	105	28	50	8	420	370	12	78	M10	8.5	1

CASE 1



ASSEMBLY CONNECTION "M"



Datasheet 202405

EMI/RFI Filter with very high attenuation for industrial applications

APPROVALS:

CE c UL us E215863 RoHS UK CA

FIN1700G.(006 - 200).M

FEATURES

- Rated current from 6 - 200 A
- Very high differential and common mode attenuation
- Very low leakage current
- High attenuation in the low frequency range 100 kHz – 2 MHz

BENEFITS

- 5 Year warranty
- Safety terminal block connector
- Helps pass immunity and emission tests for the IEC61000-6-2 and IEC61000-6-4 Standards

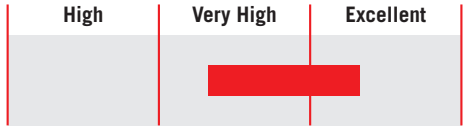
MARKETS

- Food industry
- Woodworking machinery
- Packaging machinery
- Printing machinery

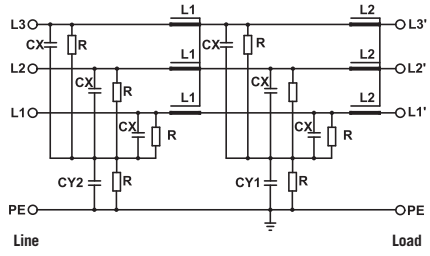
ORDERING CODE

FIN1700G	.055	.M
Model	Current (A)	Connection
		M = Terminal block

ATTENUATION INDICATOR



ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 600 Vac
Frequency	50/60 Hz
Rated current	6 - 200 A
Potential test voltage phase to phase	2400 Vdc (2 sec.)
Potential test voltage phase to ground	3200 Vdc (2 sec.)
Leakage current normal conditions	< 3 mA *
Leakage current worst conditions	< 15 mA
IP Protection	IP20
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

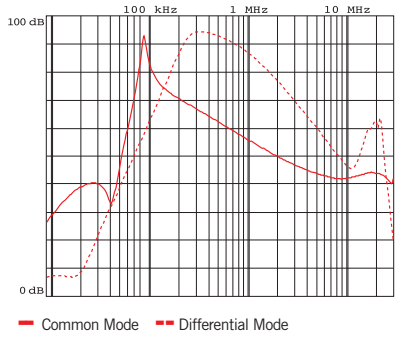
ELECTRICAL CHARACTERISTICS

FIN1700G	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.006.M	8	6	8
.012.M	14	12	10
.016.M	18	16	12
.025.M	28	25	15
.032.M	35	32	23
.042.M	50	42	32
.055.M	63	55	37
.070.M	80	70	52
.080.M	90	80	60
.100.M	110	100	92
.115.M	130	115	101
.150.M	175	150	115
.200.M	230	200	120

CONNECTIONS

	LINE			PE	
	Solid Cable (mm^2)	Stranded Cable (mm^2)	Terminal Torque (Nm)	d (mm)	Torque (Nm)
.006.M	0.5 - 10	0.5 - 10	1.2	M6	6
.012.M	0.5 - 10	0.5 - 10	1.2	M6	6
.016.M	0.5 - 10	0.5 - 10	1.2	M6	6
.025.M	0.5 - 10	0.5 - 10	1.2	M6	6
.032.M	0.5 - 10	0.5 - 10	1.2	M6	6
.042.M	0.5 - 10	0.5 - 16	1.8	M6	6
.055.M	0.5 - 16	10 - 25	2.2	M6	6
.070.M	6 - 16	10 - 35	4.5	M10	18
.080.M	6 - 16	10 - 35	4.5	M10	18
.100.M	16 - 50	16 - 50	4	M10	18
.115.M	16 - 50	16 - 50	4	M10	18
.150.M	35 - 95	35 - 95	20	M10	18
.200.M	35 - 95	35 - 95	20	M10	18

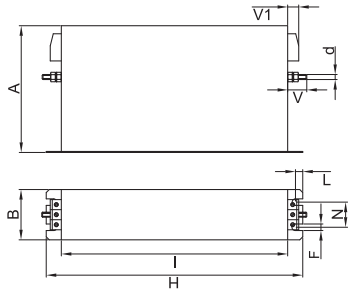
TYPICAL ATTENUATION



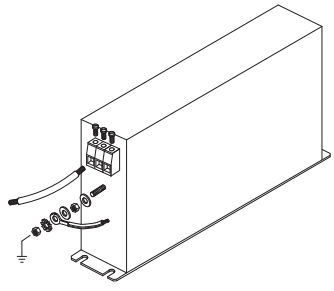
MECHANICAL DIMENSIONS mm

FIN1700G	A	B	V	V1	F	H	I	L	N	d	Weight Kg.	Case
.006.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.012.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.016.M	177	60	19	15	6	267	237	8	34	M6	1.7	1
.025.M	177	60	19	15	6	267	237	8	34	M6	2.3	1
.032.M	177	60	19	15	6	267	237	8	34	M6	2.3	1
.042.M	177	70	19	25	6	295	265	8	44	M6	3.4	1
.055.M	177	70	19	33	6	295	265	8	44	M6	3.5	1
.070.M	205	80	28	38	8	390	340	12	53	M10	6	1
.080.M	205	80	28	38	8	390	340	12	53	M10	6	1
.100.M	205	80	28	43	8	390	340	12	53	M10	7.1	1
.115.M	205	80	28	43	8	390	340	12	53	M10	7.1	1
.150.M	220	105	28	50	8	420	370	12	78	M10	8.5	1
.200.M	220	105	28	50	8	420	370	12	78	M10	8.5	1

CASE 1



ASSEMBLY CONNECTION "M"



Datasheet 202405

EMI/RFI Filter with very high attenuation for industrial applications

APPROVALS:

CE cULus E215863 RoHS UKCA

FIN1700E.(007 - 230).M

FEATURES

- Rated current from 7 - 230 A
- Very high differential and common mode attenuation
- Very low leakage current

BENEFITS

- 5 Year warranty
- Safety terminal block connector
- Very compact design

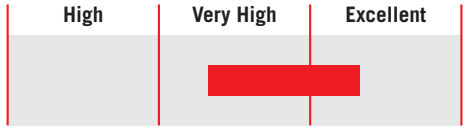
MARKETS

- Packaging machinery
- Printing machinery
- Variable frequency drives / servo drives
- Medical equipment

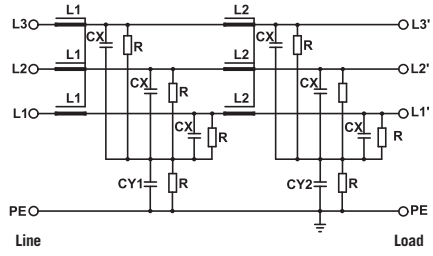
ORDERING CODE

FIN1700E	.070	.M
Model	Current (A)	Connection
		M = Terminal block

ATTENUATION INDICATOR



ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 500 Vac
Frequency	50/60 Hz
Rated current	7 - 230 A
Potential test voltage phase to phase	2300 Vdc (2 sec.)
Potential test voltage phase to ground	3100 Vdc (2 sec.)
Leakage current normal conditions	< 3 mA *
Leakage current worst conditions	< 15 mA
IP Protection	IP20
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

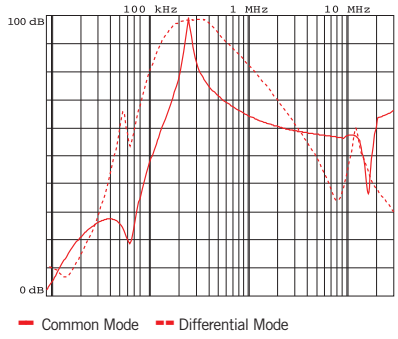
ELECTRICAL CHARACTERISTICS

FIN1700E	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.007.M	7	6	8
.013.M	13	12	12
.018.M	18	16	15
.027.M	27	25	20
.034.M	34	32	32
.040.M	40	36	23
.055.M	55	50	42
.070.M	70	64	55
.100.M	100	90	60
.110.M	110	100	90
.130.M	130	120	98
.150.M	150	135	103
.200.M	200	180	115
.230.M	230	210	120

CONNECTIONS

	LINE			PE	
	Solid Cable (mm^2)	Stranded Cable (mm^2)	Terminal Torque (Nm)	d (mm)	Torque (Nm)
.007.M	0.5 - 10	0.5 - 10	1.2	M6	6
.013.M	0.5 - 10	0.5 - 10	1.2	M6	6
.018.M	0.5 - 10	0.5 - 10	1.2	M6	6
.027.M	0.5 - 10	0.5 - 10	1.2	M6	6
.034.M	0.5 - 10	0.5 - 10	1.2	M6	6
.040.M	0.5 - 10	0.5 - 10	1.2	M6	6
.055.M	0.5 - 10	0.5 - 16	1.8	M6	6
.070.M	0.5 - 16	10 - 25	2.2	M6	6
.100.M	6 - 16	10 - 35	4.5	M10	18
.110.M	6 - 16	10 - 35	4.5	M10	18
.130.M	16 - 50	16 - 50	4	M10	18
.150.M	16 - 50	16 - 50	4	M10	18
.200.M	35 - 95	35 - 95	20	M10	18
.230.M	35 - 95	35 - 95	20	M10	18

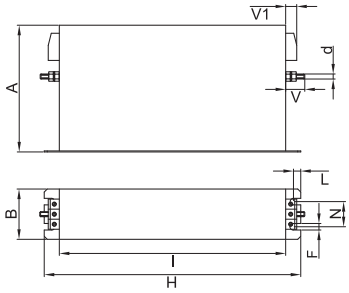
TYPICAL ATTENUATION



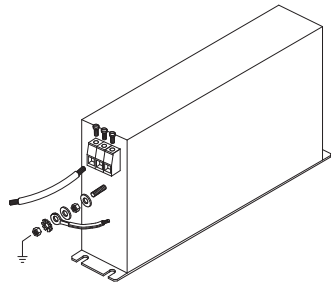
MECHANICAL DIMENSIONS mm

FIN1700E	A	B	V	V1	F	H	I	L	N	d	Weight Kg.	Case
.007.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.013.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.018.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.027.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.034.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.040.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.055.M	177	70	19	25	6	295	265	8	44	M6	3.7	1
.070.M	177	70	19	33	6	295	265	8	44	M6	5.2	1
.100.M	205	80	28.5	38	8	390	340	12	53	M10	6.5	1
.110.M	205	80	28.5	38	8	390	340	12	53	M10	6.5	1
.130.M	205	80	28.5	43	8	390	340	12	53	M10	7.1	1
.150.M	205	80	28.5	43	8	390	340	12	53	M10	7.1	1
.200.M	220	105	28.5	50	8	420	370	12	78	M10	8	1
.230.M	220	105	28.5	50	8	420	370	12	78	M10	8	1

CASE 1



ASSEMBLY CONNECTION "M"



Datasheet 202405

EMI/RFI Filter with very high attenuation for industrial applications

APPROVALS:

CE cULus E215863 RoHS UKCA

FIN1700EG.(007 – 230).M

FEATURES

- Rated current from 7 - 230 A
- Very high differential and common mode attenuation
- Very low leakage current
- High attenuation in the low frequency range 100 kHz – 2 MHz

BENEFITS

- 5 Year warranty
- Safety terminal block connector
- Very compact design

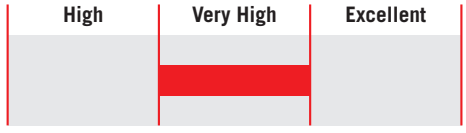
MARKETS

- Packaging machinery
- Printing machinery
- Variable frequency drives / servo drives
- Medical equipment

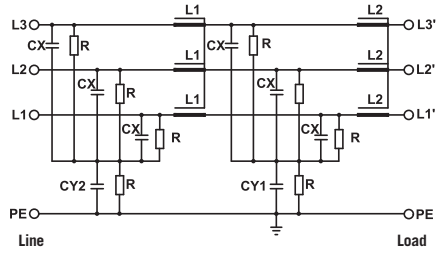
ORDERING CODE

FIN1700EG	.070	.M
Model	Current (A)	Connection
		M = Terminal block

ATTENUATION INDICATOR



ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 500 Vac
Frequency	50/60 Hz
Rated current	7 - 230 A
Potential test voltage phase to phase	2300 Vdc (2 sec.)
Potential test voltage phase to ground	3100 Vdc (2 sec.)
Leakage current normal conditions	< 3 mA *
Leakage current worst conditions	< 15 mA
IP Protection	IP20
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

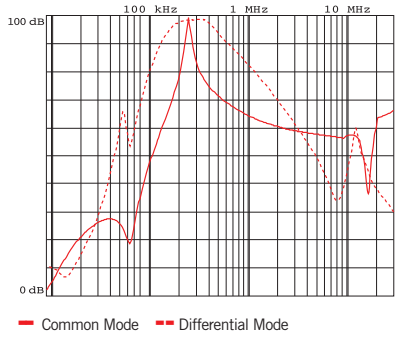
ELECTRICAL CHARACTERISTICS

FIN1700EG	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.007.M	7	6	8
.013.M	13	12	12
.018.M	18	16	15
.027.M	27	25	20
.034.M	34	32	32
.040.M	40	36	23
.055.M	55	50	42
.070.M	70	64	55
.100.M	100	90	60
.110.M	110	100	90
.130.M	130	120	98
.150.M	150	135	103
.200.M	200	180	115
.230.M	230	210	120

CONNECTIONS

	LINE			PE	
FIN1700EG	Solid Cable (mm^2)	Stranded Cable (mm^2)	Terminal Torque (Nm)	d (mm)	Torque (Nm)
.007.M	0.5 - 10	0.5 - 10	1.2	M6	6
.013.M	0.5 - 10	0.5 - 10	1.2	M6	6
.018.M	0.5 - 10	0.5 - 10	1.2	M6	6
.027.M	0.5 - 10	0.5 - 10	1.2	M6	6
.034.M	0.5 - 10	0.5 - 10	1.2	M6	6
.040.M	0.5 - 10	0.5 - 10	1.2	M6	6
.055.M	0.5 - 10	0.5 - 16	1.8	M6	6
.070.M	0.5 - 16	10 - 25	2.2	M6	6
.100.M	6 - 16	10 - 35	4.5	M10	18
.110.M	6 - 16	10 - 35	4.5	M10	18
.130.M	16 - 50	16 - 50	4	M10	18
.150.M	16 - 50	16 - 50	4	M10	18
.200.M	35 - 95	35 - 95	20	M10	18
.230.M	35 - 95	35 - 95	20	M10	18

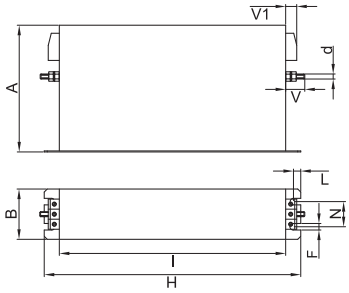
TYPICAL ATTENUATION



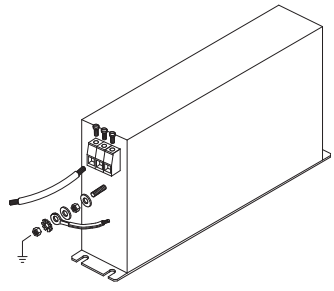
MECHANICAL DIMENSIONS mm

FIN1700EG	A	B	V	V1	F	H	I	L	N	d	Weight Kg.	Case
.007.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.013.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.018.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.027.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.034.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.040.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.055.M	177	70	19	25	6	295	265	8	44	M6	3.7	1
.070.M	177	70	19	33	6	295	265	8	44	M6	5.2	1
.100.M	205	80	28.5	38	8	390	340	12	53	M10	6.5	1
.110.M	205	80	28.5	38	8	390	340	12	53	M10	6.5	1
.130.M	205	80	28.5	43	8	390	340	12	53	M10	7.1	1
.150.M	205	80	28.5	43	8	390	340	12	53	M10	7.1	1
.200.M	220	105	28.5	50	8	420	370	12	78	M10	8	1
.230.M	220	105	28.5	50	8	420	370	12	78	M10	8	1

CASE 1



ASSEMBLY CONNECTION "M"



Datasheet 202405

EMI/RFI Filter with very high attenuation for IT network applications

APPROVALS:

CE RoHS UKCA

FIN1700IT.(006 - 200).M

FEATURES

- Rated current from 6 - 200 A
- Very high differential and common mode attenuation
- Very low leakage current
- Designed for IT networks

BENEFITS

- 5 Year warranty
- Safety terminal block connector
- Available up to 2500A

MARKETS

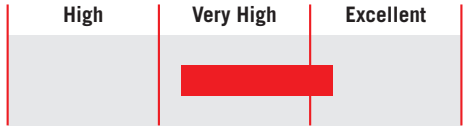
- IT networks
- Semiconductor machinery

ORDERING CODE

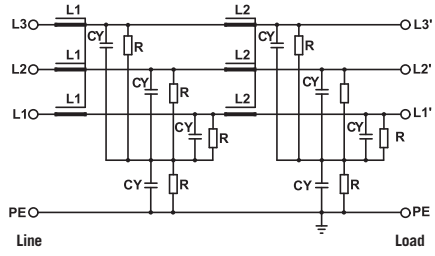
FIN1700IT	.055	.M
Model	Current (A)	Connection
		M = Terminal block

Models available with current ratings up to 2500A

ATTENUATION INDICATOR



ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 600 Vac
Frequency	50/60 Hz
Rated current	6 - 200 A
Potential test voltage phase to phase	2700 Vdc (2 sec.)
Potential test voltage phase to ground	3200 Vdc (2 sec.)
Leakage current normal conditions	< 1 mA *
Leakage current worst conditions	< 3 mA
IP Protection	IP20 up to 200A
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

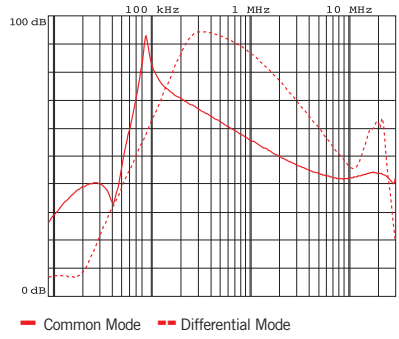
ELECTRICAL CHARACTERISTICS

FIN1700IT	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.006.M	8	6	8
.012.M	14	12	10
.016.M	18	16	12
.025.M	28	25	15
.032.M	35	32	23
.042.M	50	42	32
.055.M	63	55	37
.070.M	80	70	52
.080.M	90	80	60
.100.M	110	100	92
.115.M	130	115	101
.150.M	175	150	115
.200.M	230	200	120

CONNECTIONS

	LINE			PE	
	Solid Cable (mm^2)	Stranded Cable (mm^2)	Terminal Torque (Nm)	d (mm)	Torque (Nm)
.006.M	0.5 - 10	0.5 - 10	1.2	M6	6
.012.M	0.5 - 10	0.5 - 10	1.2	M6	6
.016.M	0.5 - 10	0.5 - 10	1.2	M6	6
.025.M	0.5 - 10	0.5 - 10	1.2	M6	6
.032.M	0.5 - 10	0.5 - 10	1.2	M6	6
.042.M	0.5 - 10	0.5 - 16	1.8	M6	6
.055.M	0.5 - 16	10 - 25	2.2	M6	6
.070.M	6 - 16	10 - 35	4.5	M10	18
.080.M	6 - 16	10 - 35	4.5	M10	18
.100.M	16 - 50	16 - 50	4	M10	18
.115.M	16 - 50	16 - 50	4	M10	18
.150.M	35 - 95	35 - 95	20	M10	18
.200.M	35 - 95	35 - 95	20	M10	18

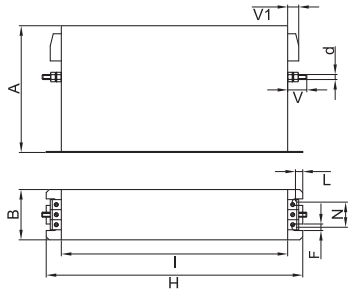
TYPICAL ATTENUATION



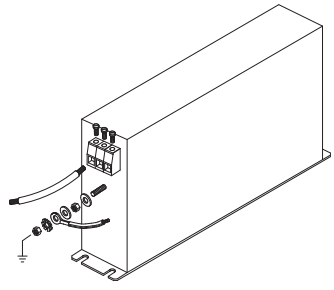
MECHANICAL DIMENSIONS mm

FIN1700IT	A	B	V	V1	F	H	I	L	N	d	Weight Kg.	Case
.006.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.012.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.016.M	177	60	19	15	6	267	237	8	34	M6	1.7	1
.025.M	177	60	19	15	6	267	237	8	34	M6	2.3	1
.032.M	177	60	19	15	6	267	237	8	34	M6	2.3	1
.042.M	177	70	19	25	6	295	265	8	44	M6	3.4	1
.055.M	177	70	19	33	6	295	265	8	44	M6	3.5	1
.070.M	205	80	28	38	8	390	340	12	53	M10	6	1
.080.M	205	80	28	38	8	390	340	12	53	M10	6	1
.100.M	205	80	28	43	8	390	340	12	53	M10	7.1	1
.115.M	205	80	28	43	8	390	340	12	53	M10	7.1	1
.150.M	220	105	28	50	8	420	370	12	78	M10	8.5	1
.200.M	220	105	28	50	8	420	370	12	78	M10	8.5	1

CASE 1



ASSEMBLY CONNECTION "M"



Datasheet 202405

EMI/RFI Filter with excellent attenuation for industrial applications

APPROVALS:

CE c UL us E215863 RoHS UK CA

FIN1900.(006 – 200).M

FEATURES

- Rated current from 6 - 200 A
- Excellent differential and common mode attenuation
- Low leakage current

BENEFITS

- 5 Year warranty
- Safety terminal block connector
- Helps pass immunity and emission tests for the IEC61000-6-2 and IEC61000-6-4 Standards

MARKETS

- Machine tools
- Packaging machinery
- Semiconductor machinery
- Processing machinery

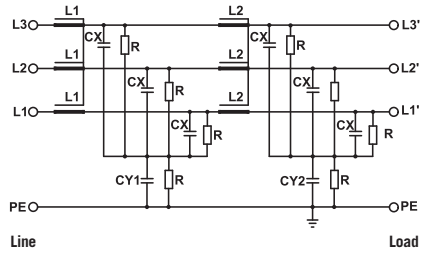
ORDERING CODE

FIN1900	.055	.M
Model	Current (A)	Connection
		M = Terminal block

ATTENUATION INDICATOR

High	Very High	Excellent

ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 600 Vac
Frequency	50/60 Hz
Rated current	6 - 200 A
Potential test voltage phase to phase	2400 Vdc (2 sec.)
Potential test voltage phase to ground	3200 Vdc (2 sec.)
Leakage current normal conditions	< 10 mA *
Leakage current worst conditions	< 80 mA
IP Protection	IP20
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

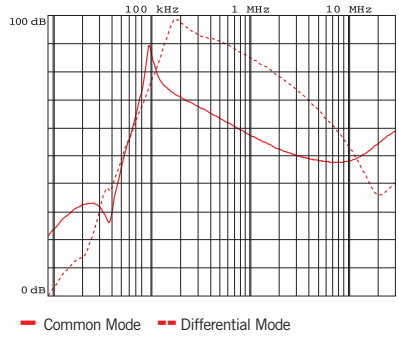
ELECTRICAL CHARACTERISTICS

FIN1900	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.006.M	8	6	8
.012.M	14	12	10
.016.M	18	16	12
.025.M	28	25	15
.032.M	35	32	23
.042.M	50	42	32
.055.M	63	55	37
.070.M	80	70	52
.080.M	90	80	60
.100.M	110	100	92
.115.M	130	115	101
.150.M	175	150	115
.200.M	230	200	120

CONNECTIONS

	LINE			PE	
	Solid Cable (mm^2)	Stranded Cable (mm^2)	Terminal Torque (Nm)	d (mm)	Torque (Nm)
.006.M	0.5 - 10	0.5 - 10	1.2	M6	6
.012.M	0.5 - 10	0.5 - 10	1.2	M6	6
.016.M	0.5 - 10	0.5 - 10	1.2	M6	6
.025.M	0.5 - 10	0.5 - 10	1.2	M6	6
.032.M	0.5 - 10	0.5 - 10	1.2	M6	6
.042.M	0.5 - 10	0.5 - 16	1.8	M6	6
.055.M	0.5 - 16	10 - 25	2.2	M6	6
.070.M	6 - 16	10 - 35	4.5	M10	18
.080.M	6 - 16	10 - 35	4.5	M10	18
.100.M	16- 50	16 - 50	4	M10	18
.115.M	16 - 50	16 - 50	4	M10	18
.150.M	35 - 95	35 - 95	20	M10	18
.200.M	35 - 95	35 - 95	20	M10	18

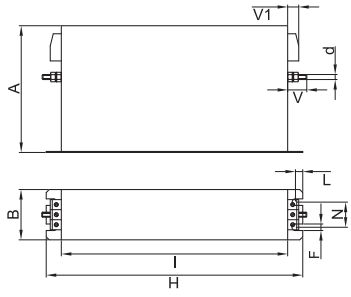
TYPICAL ATTENUATION



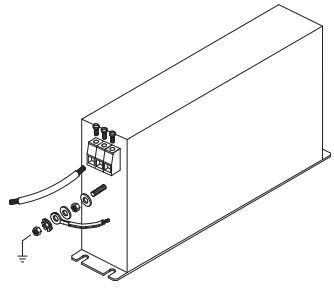
MECHANICAL DIMENSIONS mm

FIN1900	A	B	V	V1	F	H	I	L	N	d	Weight Kg.	Case
.006.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.012.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.016.M	177	60	19	15	6	267	237	8	34	M6	1.7	1
.025.M	177	60	19	15	6	267	237	8	34	M6	2.3	1
.032.M	177	60	19	15	6	267	237	8	34	M6	2.3	1
.042.M	177	70	19	25	6	295	265	8	44	M6	3.4	1
.055.M	177	70	19	33	6	295	265	8	44	M6	3.5	1
.070.M	205	80	28	38	8	390	340	12	53	M10	6	1
.080.M	205	80	28	38	8	390	340	12	53	M10	6	1
.100.M	205	80	28	43	8	390	340	12	53	M10	7.1	1
.115.M	205	80	28	43	8	390	340	12	53	M10	7.1	1
.150.M	220	105	28	50	8	420	370	12	78	M10	8.5	1
.200.M	220	105	28	50	8	420	370	12	78	M10	8.5	1

CASE 1



ASSEMBLY CONNECTION "M"



Datasheet 202405

EMI/RFI Filter with excellent attenuation for industrial applications

APPROVALS:

CE cULus E215863 RoHS UKCA

FIN1900G.(006 – 200).M

FEATURES

- Rated current from 6 - 200 A
- Excellent differential and common mode attenuation
- Low leakage current
- High attenuation in the low frequency range 100 kHz – 2 MHz

BENEFITS

- 5 Year warranty
- Safety terminal block connector
- Helps pass immunity and emission tests for the IEC61000-6-2 and IEC61000-6-4 Standards

MARKETS

- Machine tools
- Packaging machinery
- Semiconductor machinery
- Processing machinery

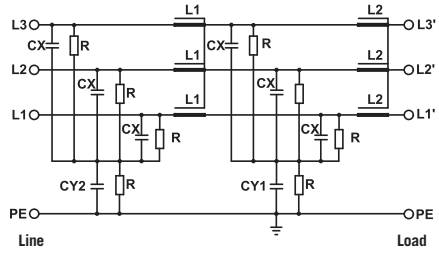
ORDERING CODE

FIN1900G	.055	.M
Model	Current (A)	Connection
		M = Terminal block

ATTENUATION INDICATOR

High	Very High	Excellent

ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 600 Vac
Frequency	50/60 Hz
Rated current	6 - 200 A
Potential test voltage phase to phase	2400 Vdc (2 sec.)
Potential test voltage phase to ground	3200 Vdc (2 sec.)
Leakage current normal conditions	< 10 mA *
Leakage current worst conditions	< 80 mA
IP Protection	IP20
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

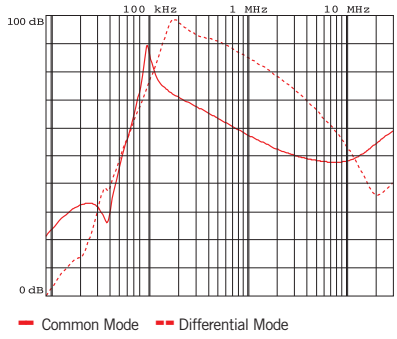
ELECTRICAL CHARACTERISTICS

FIN1900G	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.006.M	8	6	8
.012.M	14	12	10
.016.M	18	16	12
.025.M	28	25	15
.032.M	35	32	23
.042.M	50	42	32
.055.M	63	55	37
.070.M	80	70	52
.080.M	90	80	60
.100.M	110	100	92
.115.M	130	115	101
.150.M	175	150	115
.200.M	230	200	120

CONNECTIONS

	LINE			PE	
	Solid Cable (mm^2)	Stranded Cable (mm^2)	Terminal Torque (Nm)	d (mm)	Torque (Nm)
.006.M	0.5 - 10	0.5 - 10	1.2	M6	6
.012.M	0.5 - 10	0.5 - 10	1.2	M6	6
.016.M	0.5 - 10	0.5 - 10	1.2	M6	6
.025.M	0.5 - 10	0.5 - 10	1.2	M6	6
.032.M	0.5 - 10	0.5 - 10	1.2	M6	6
.042.M	0.5 - 10	0.5 - 16	1.8	M6	6
.055.M	0.5 - 16	10 - 25	2.2	M6	6
.070.M	6 - 16	10 - 35	4.5	M10	18
.080.M	6 - 16	10 - 35	4.5	M10	18
.100.M	16 - 50	16 - 50	4	M10	18
.115.M	16 - 50	16 - 50	4	M10	18
.150.M	35 - 95	35 - 95	20	M10	18
.200.M	35 - 95	35 - 95	20	M10	18

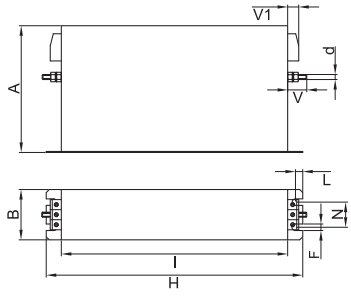
TYPICAL ATTENUATION



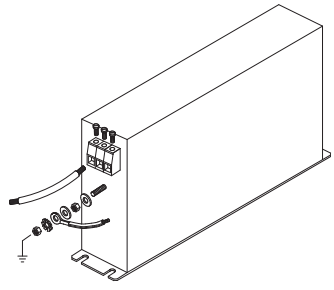
MECHANICAL DIMENSIONS mm

FIN1900G	A	B	V	V1	F	H	I	L	N	d	Weight Kg.	Case
.006.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.012.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.016.M	177	60	19	15	6	267	237	8	34	M6	1.7	1
.025.M	177	60	19	15	6	267	237	8	34	M6	2.3	1
.032.M	177	60	19	15	6	267	237	8	34	M6	2.3	1
.042.M	177	70	19	25	6	295	265	8	44	M6	3.4	1
.055.M	177	70	19	33	6	295	265	8	44	M6	3.5	1
.070.M	205	80	28	38	8	390	340	12	53	M10	6	1
.080.M	205	80	28	38	8	390	340	12	53	M10	6	1
.100.M	205	80	28	43	8	390	340	12	53	M10	7.1	1
.115.M	205	80	28	43	8	390	340	12	53	M10	7.1	1
.150.M	220	105	28	50	8	420	370	12	78	M10	8.5	1
.200.M	220	105	28	50	8	420	370	12	78	M10	8.5	1

CASE 1



ASSEMBLY CONNECTION "M"



Datasheet 202405

EMI/RFI Filter with excellent attenuation for industrial applications

APPROVALS:

CE cULus E215863 RoHS UKCA

FIN1900E.(007 – 230).M

FEATURES

- Rated current from 7 - 230 A
- Excellent differential and common mode attenuation
- Low leakage current

BENEFITS

- 5 Year warranty
- Safety terminal block connector
- High performance in a compact design

MARKETS

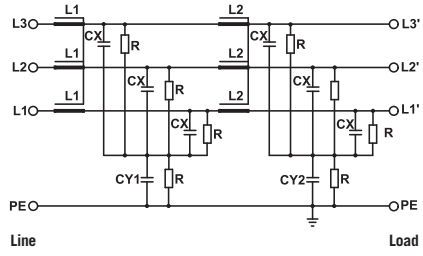
- Machine tools
- Laser machinery
- Recharging stations
- Uninterruptible power supplies

ORDERING CODE

FIN1900E	.070	.M
Model	Current (A)	Connection
		M = Terminal block

ATTENUATION INDICATOR

ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 500 Vac
Frequency	50/60 Hz
Rated current	7 - 230 A
Potential test voltage phase to phase	2300 Vdc (2 sec.)
Potential test voltage phase to ground	3100 Vdc (2 sec.)
Leakage current normal conditions	< 10 mA *
Leakage current worst conditions	< 80 mA
IP Protection	IP20
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

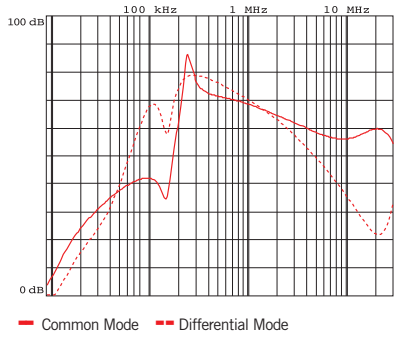
ELECTRICAL CHARACTERISTICS

FIN1900E	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.007.M	7	6	8
.013.M	13	12	12
.018.M	18	16	15
.027.M	27	25	20
.034.M	34	32	32
.040.M	40	36	23
.055.M	55	50	42
.070.M	70	64	55
.100.M	100	90	60
.110.M	110	100	90
.130.M	130	120	98
.150.M	150	135	103
.200.M	200	180	115
.230.M	230	210	120

CONNECTIONS

	LINE			PE	
	Solid Cable (mm^2)	Stranded Cable (mm^2)	Terminal Torque (Nm)	d (mm)	Torque (Nm)
.007.M	0.5 - 10	0.5 - 10	1.2	M6	6
.013.M	0.5 - 10	0.5 - 10	1.2	M6	6
.018.M	0.5 - 10	0.5 - 10	1.2	M6	6
.027.M	0.5 - 10	0.5 - 10	1.2	M6	6
.034.M	0.5 - 10	0.5 - 10	1.2	M6	6
.040.M	0.5 - 10	0.5 - 10	1.2	M6	6
.055.M	0.5 - 10	0.5 - 16	1.8	M6	6
.070.M	0.5 - 16	10 - 25	2.2	M6	6
.100.M	6 - 16	10 - 35	4.5	M10	18
.110.M	6 - 16	10 - 35	4.5	M10	18
.130.M	16 - 50	16 - 50	4	M10	18
.150.M	16 - 50	16 - 50	4	M10	18
.200.M	35 - 95	35 - 95	20	M10	18
.230.M	35 - 95	35 - 95	20	M10	18

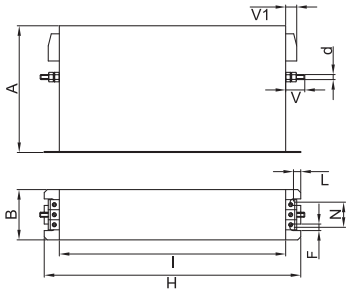
TYPICAL ATTENUATION



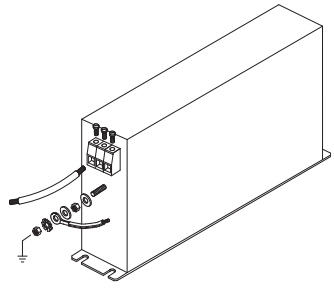
MECHANICAL DIMENSIONS mm

FIN1900E	A	B	V	V1	F	H	I	L	N	d	Weight Kg.	Case
.007.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.013.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.018.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.027.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.034.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.040.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.055.M	177	70	19	25	6	295	265	8	44	M6	3.7	1
.070.M	177	70	19	33	6	295	265	8	44	M6	5.2	1
.100.M	205	80	28.5	38	8	390	340	12	53	M10	6.5	1
.110.M	205	80	28.5	38	8	390	340	12	53	M10	6.5	1
.130.M	205	80	28.5	43	8	390	340	12	53	M10	7.1	1
.150.M	205	80	28.5	43	8	390	340	12	53	M10	7.1	1
.200.M	220	105	28.5	50	8	420	370	12	78	M10	8	1
.230.M	220	105	28.5	50	8	420	370	12	78	M10	8	1

CASE 1



ASSEMBLY CONNECTION "M"



Datasheet 202405

EMI/RFI Filter with excellent attenuation for industrial applications

APPROVALS:

CE cULus E215863 RoHS UKCA

FIN1900EG.(007 – 230).M

FEATURES

- Rated current from 7 - 230 A
- Excellent differential and common mode attenuation
- Low leakage current
- High attenuation in the low frequency range 100 kHz – 2 MHz

BENEFITS

- 5 Year warranty
- Safety terminal block connector
- High performance in a compact design

MARKETS

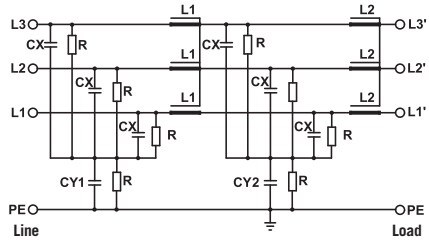
- Machine tools
- Laser machinery
- Recharging stations
- Uninterruptible power supplies

ORDERING CODE

FIN1900EG	.070	.M
Model	Current (A)	Connection
		M = Terminal block

ATTENUATION INDICATOR

ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 500 Vac
Frequency	50/60 Hz
Rated current	7 - 230 A
Potential test voltage phase to phase	2300 Vdc (2 sec.)
Potential test voltage phase to ground	3100 Vdc (2 sec.)
Leakage current normal conditions	< 10 mA *
Leakage current worst conditions	< 80 mA
IP Protection	IP20
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

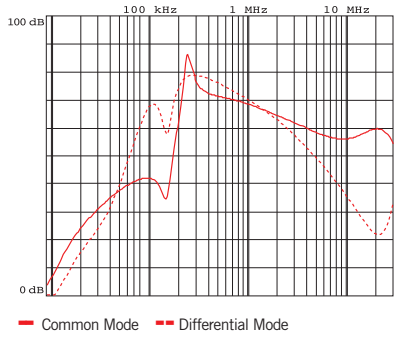
ELECTRICAL CHARACTERISTICS

FIN1900EG	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.007.M	7	6	8
.013.M	13	12	12
.018.M	18	16	15
.027.M	27	25	20
.034.M	34	32	32
.040.M	40	36	23
.055.M	55	50	42
.070.M	70	64	55
.100.M	100	90	60
.110.M	110	100	90
.130.M	130	120	98
.150.M	150	135	103
.200.M	200	180	115
.230.M	230	210	120

CONNECTIONS

	LINE			PE	
FIN1900EG	Solid Cable (mm²)	Stranded Cable (mm²)	Terminal Torque (Nm)	d (mm)	Torque (Nm)
.007.M	0.5 - 10	0.5 - 10	1.2	M6	6
.013.M	0.5 - 10	0.5 - 10	1.2	M6	6
.018.M	0.5 - 10	0.5 - 10	1.2	M6	6
.027.M	0.5 - 10	0.5 - 10	1.2	M6	6
.034.M	0.5 - 10	0.5 - 10	1.2	M6	6
.040.M	0.5 - 10	0.5 - 10	1.2	M6	6
.055.M	0.5 - 10	0.5 - 16	1.8	M6	6
.070.M	0.5 - 16	10 - 25	2.2	M6	6
.100.M	6 - 16	10 - 35	4.5	M10	18
.110.M	6 - 16	10 - 35	4.5	M10	18
.130.M	16 - 50	16 - 50	4	M10	18
.150.M	16 - 50	16 - 50	4	M10	18
.200.M	35 - 95	35 - 95	20	M10	18
.230.M	35 - 95	35 - 95	20	M10	18

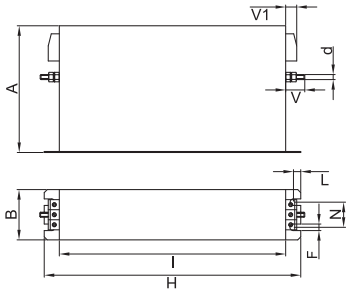
TYPICAL ATTENUATION



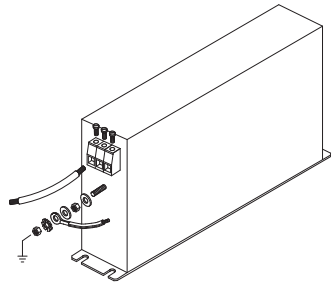
MECHANICAL DIMENSIONS mm

FIN1900EG	A	B	V	V1	F	H	I	L	N	d	Weight Kg.	Case
.007.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.013.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.018.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.027.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.034.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.040.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.055.M	177	70	19	25	6	295	265	8	44	M6	3.7	1
.070.M	177	70	19	33	6	295	265	8	44	M6	5.2	1
.100.M	205	80	28.5	38	8	390	340	12	53	M10	6.5	1
.110.M	205	80	28.5	38	8	390	340	12	53	M10	6.5	1
.130.M	205	80	28.5	43	8	390	340	12	53	M10	7.1	1
.150.M	205	80	28.5	43	8	390	340	12	53	M10	7.1	1
.200.M	220	105	28.5	50	8	420	370	12	78	M10	8	1
.230.M	220	105	28.5	50	8	420	370	12	78	M10	8	1

CASE 1



ASSEMBLY CONNECTION "M"



Datasheet 202405

EMI/RFI Filter with excellent attenuation for industrial applications

APPROVALS:

E215863

FIN1900S.(042 – 200).M

FEATURES

- Rated current from 42 to 200A
- Excellent differential and common mode attenuation
- Low leakage current

BENEFITS

- 5 Year warranty
- Safety terminal block connector
- Helps pass immunity and emission tests for the IEC61000-6-2 and IEC61000-6-4 Standards

MARKETS

- CNC machinery
- Multiple axis applications
- Recharging stations
- Welding systems

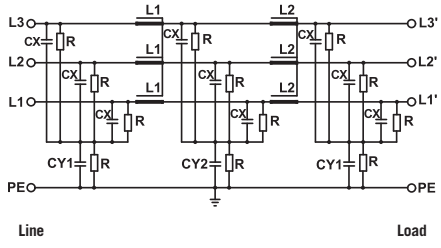
ORDERING CODE

FIN1900S	.055	.M
Model	Current (A)	Connection
		M = Terminal block

ATTENUATION INDICATOR

High	Very High	Excellent

ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 600 Vac
Frequency	50/60 Hz
Rated current	42 to 200A
Potential test voltage phase to phase	2400 Vdc (2 sec.)
Potential test voltage phase to ground	3200 Vdc (2 sec.)
Leakage current normal conditions	< 15 mA *
Leakage current worst conditions	< 150 mA
IP Protection	IP20
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

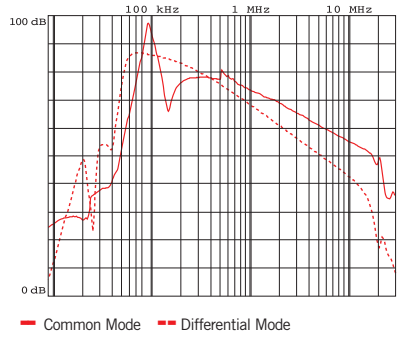
ELECTRICAL CHARACTERISTICS

FIN1900S	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.042.M	50	42	32
.055.M	63	55	37
.070.M	80	70	52
.080.M	90	80	60
.100.M	110	100	92
.115.M	130	115	101
.150.M	175	150	115
.200.M	230	200	120

CONNECTIONS

LINE			PE	
Solid Cable (mm²)	Stranded Cable (mm²)	Terminal Torque (Nm)	d (mm)	Torque (Nm)
0.5 - 10	0.5 - 16	1.8	M6	6
0.5 - 16	10 - 25	2.2	M6	6
6 - 16	10 - 35	4.5	M10	18
6 - 16	10 - 35	4.5	M10	18
16 - 50	16 - 50	4	M10	18
16 - 50	16 - 50	4	M10	18
35 - 95	35 - 95	20	M10	18
35 - 95	35 - 95	20	M10	18

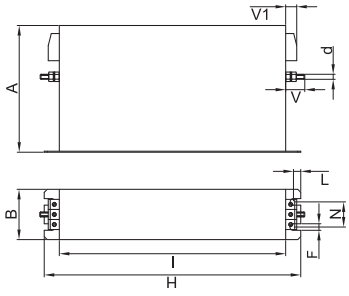
TYPICAL ATTENUATION



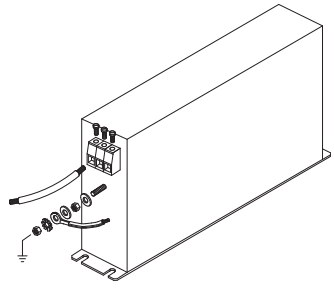
MECHANICAL DIMENSIONS mm

FIN1900S	A	B	V	V1	F	H	I	L	N	d	Weight Kg.	Case
.042.M	177	70	19	25	6	295	265	8	44	M6	3.4	1
.055.M	177	70	19	33	6	295	265	8	44	M6	3.5	1
.070.M	205	80	28	38	8	390	340	12	53	M10	6	1
.080.M	205	80	28	38	8	390	340	12	53	M10	6	1
.100.M	205	80	28	43	8	390	340	12	53	M10	7.1	1
.115.M	205	80	28	43	8	390	340	12	53	M10	7.1	1
.150.M	220	105	28	50	8	420	370	12	78	M10	8	1
.200.M	220	105	28	50	8	420	370	12	78	M10	8	1

CASE 1



ASSEMBLY CONNECTION "M"



Datasheet 202405

EMI/RFI Filter with very high attenuation for industrial applications

APPROVALS:

E215863

FIN3755.(007 – 180).M

FEATURES

- Rated current from 7 - 280 A
- Very high differential and common mode attenuation
- Excellent performance and value

BENEFITS

- 5 Year warranty
- Safety terminal block connector
- Extremely compact design

MARKETS

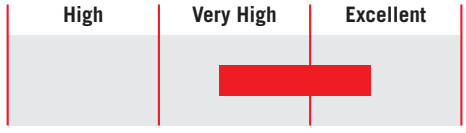
- Variable frequency drives / servo drives
- Automated machinery
- Packaging machinery
- HVAC systems

ORDERING CODE

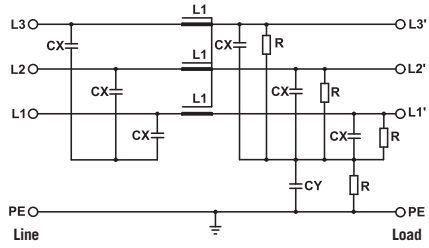
FIN3755	.055	.M
Model	Current (A)	Connection
		M = Terminal block
		B = bus bar

FIN3755.280.B

ATTENUATION INDICATOR



ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 480 Vac
Frequency	50/60 Hz
Rated current	7 - 280 A
Potential test voltage phase to phase	2200 Vdc (2 sec.)
Potential test voltage phase to ground	2900 Vdc (2 sec.)
Leakage current normal conditions	< 10 mA *
Leakage current worst conditions	< 80 mA
IP Protection	IP20 up to 180A
	IP00 over 180A
Overload capability	4 x Rated current (Switch ON)
	2 x In 10 seconds
	1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

FIN3755

Three-Phase Filter

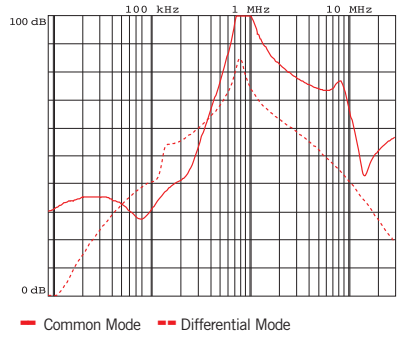
ELECTRICAL CHARACTERISTICS

FIN3755	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.007.M	8	7	3
.016.M	18	16	4
.030.M	32	30	11
.042.M	45	42	15
.055.M	58	55	19
.075.M	80	75	25
.100.M	105	100	42
.130.M	140	130	48
.150.M	160	150	52
.180.M	190	180	61
.150.B	160	150	35
.200.B	210	200	55
.280.B	280	250	75

CONNECTIONS

LINE			PE	
Solid Cable (mm²)	Stranded Cable (mm²)	Terminal Torque (Nm)	d (mm)	Torque (Nm)
0.5 - 10	0.5 - 10	0.5	M5	4
0.5 - 10	0.5 - 10	0.5	M5	4
0.5 - 10	0.5 - 10	1.2	M6	6
0.5 - 10	0.5 - 10	1.2	M6	6
0.5 - 16	10 - 25	2.2	M6	6
6 - 16	10 - 35	4.5	M6	6
6 - 16	10 - 35	4.5	M10	18
16 - 50	16 - 50	4.5	M10	18
16 - 50	16 - 50	20	M10	18
35 - 95	35 - 95	20	M10	18
-	-	14	M8	14
-	-	14	M8	14
-	-	14	M8	14

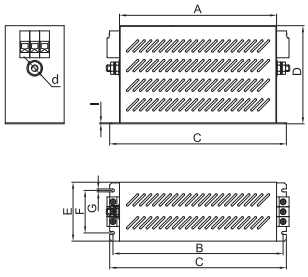
TYPICAL ATTENUATION



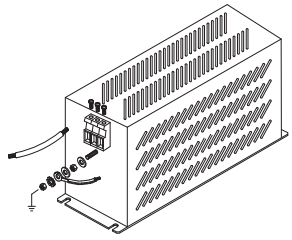
MECHANICAL DIMENSIONS mm

FIN3755	A	B	C	D	E	F	G	d	I	Weight Kg.	Case
.007.M	160	180	190	78	48	20	4	M5	1	1.1	1
.016.M	220	235	250	85	48	25	5	M5	1	1.5	1
.030.M	240	255	270	85	50	30	5	M6	1	2.1	1
.042.M	280	295	310	85	50	30	5	M6	1	2.7	1
.055.M	220	235	250	100	90	60	5	M6	1	3.1	1
.075.M	240	255	270	135	85	60	5	M6	1.5	3.6	1
.100.M	240	255	270	155	90	65	6	M10	1.5	4.2	1
.130.M	300	315	330	156.5	90	65	6	M10	1.5	6	1
.150.M	300	315	330	156.5	90	65	6	M10	1.5	6	1
.180.M	350	365	380	170	125	102	6.5	M10	1.5	7.5	1

CASE 1

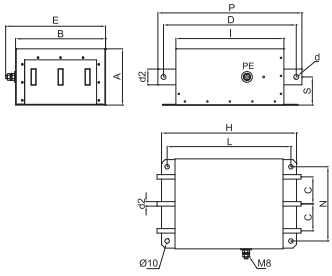


ASSEMBLY CONNECTION "M"

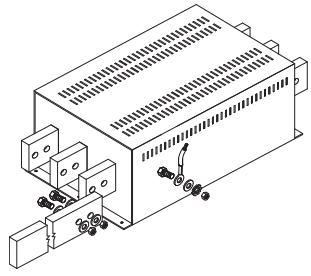


FIN3755	A	B	C	D	E	H	I	L	N	P	S	d	d2	Weight Kg.	Case
.150.B	86	200	60	300	277	300	240	275	165	320	37	9	20x6	4.9	2
.200.B	86	200	60	300	277	300	240	275	165	320	37	9	20x6	5.0	2
.280.B	86	200	60	300	277	300	240	275	165	320	37	9	20x6	5.2	2

CASE 2



ASSEMBLY CONNECTION "B"



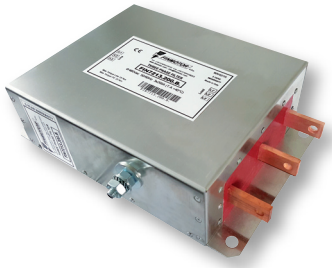
EMI/RFI Filter with very high attenuation for industrial applications

Datasheet 9/2023

APPROVALS:

CE RoHS UKCA

FIN7213.(12 - 110).M



FIN7213.(150 - 2000).B

Models available with current ratings up to 3000A

FEATURES

- Rated current from 12 to 2000A
- Very high differential and common mode attenuation
- Low leakage current

BENEFITS

- 5 Year warranty
- Very compact design
- Finger safe protection available
- Zero volt insulated available

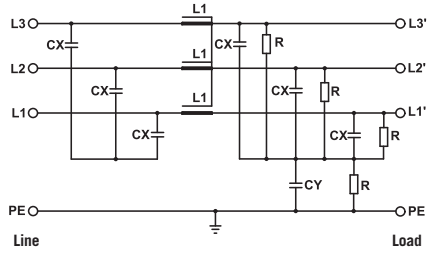
MARKETS

- Electrical equipment
- Machine tools
- Industrial automation
- Variable frequency drives / servo drives
- Regenerative systems
- Renewable energy

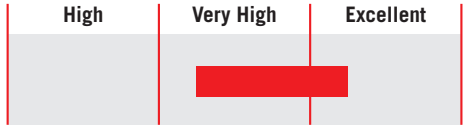
ORDERING CODE

FIN7213	.280	.M	.A (up to 110A)
Model	Current (A)	Connection M = Terminal blocks B = Bus bar	Option A=Standard B=Low leakage current C=High saturation

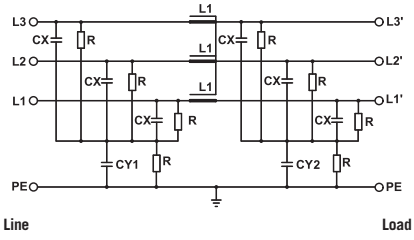
ELECTRIC DIAGRAM 12 - 110A



ATTENUATION INDICATOR



ELECTRIC DIAGRAM 150 - 2000A



TECHNICAL SPECIFICATIONS

	FIN7213
Nominal voltage	0 - 480 Vac
Frequency	50/60 Hz
Rated current	12 - 2000 A
Potential test voltage phase to phase	2400 Vdc (2 sec.)
Potential test voltage phase to ground	3200 Vdc (2 sec.)
Leakage current normal conditions	<10 mA*, < 3mA option B
Leakage current worst conditions	< 35 mA
IP Protection	IP 20 up to 115A IP 00 over 150A
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to +85° C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50Hz / 40°C**

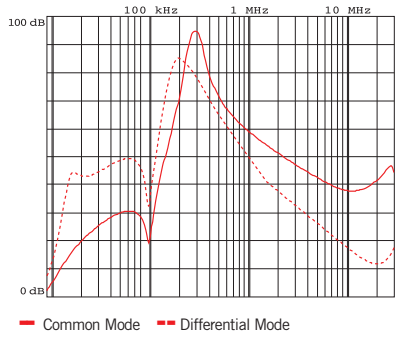
ELECTRICAL CHARACTERISTICS

FIN7213	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.012.M	12	10	4
.025.M	25	20	10
.040.M	40	35	15
.055.M	55	50	20
.070.M	70	65	25
.090.M	90	80	39
.110.M	110	100	45

CONNECTIONS

LINE			PE	
Solid Cable (mm^2)	Stranded Cable (mm^2)	Terminal Torque (Nm)	d (mm)	Torque (Nm)
0.5 - 10	0.5-10	1.2	M4	3.5
0.5 - 10	0.5-10	1.2	M4	3.5
0.5 - 10	0.5-10	1.2	M6	6
6 - 16	10 - 35	4	M6	6
6 - 16	10 - 35	4	M6	6
16 - 50	16 - 50	4	M8	12
16 - 50	16 - 50	4	M8	12

TYPICAL ATTENUATION



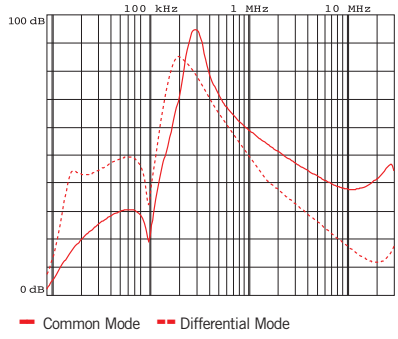
Typical attenuation 12A - 110A

ELECTRICAL CHARACTERISTICS

FIN7213	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.150.B	150	135	65
.200.B	200	180	70
.280.B	280	250	75
.320.B	320	290	80
.360.B	360	325	95
.400.B	400	360	110
.500.B	500	450	102
.600.B	600	540	95
.750.B	750	675	80
.900.B	900	810	90
.1000.B	1000	900	100
.1250.B	1250	1120	105
.1500.B	1500	1350	110
.1750.B	1750	1500	125
.2000.B	2000	1750	132

CONNECTIONS

LINE		PE	
d (mm)	Torque (Nm)	d1 (mm)	Torque (Nm)
M8	14	M8	14
M8	14	M8	14
M8	14	M8	14
M8	14	M8	14
M8	14	M8	14
M8	14	M8	14
M8	14	M8	14
M10	18	M8	14
M10	18	M8	14
M10	18	M8	14
M10	18	M8	14
M10	18	M8	14
M10	18	M8	14
M10	18	M8	14
M10	18	M8	14

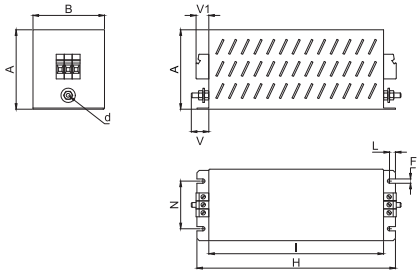


Typical attenuation 150A - 2000A

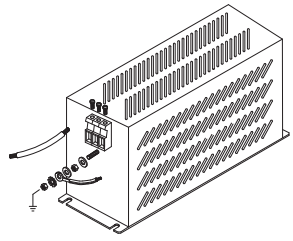
MECHANICAL DIMENSIONS mm

FIN7213	A	B	V	V1	F	H	I	L	N	d	Weight Kg.	Case
.012.M	62	58	19	11.2	4.5	150	120	8.75	42	M4	0.3	1
.025.M	62	58	19	11.2	4.5	150	120	8.75	42	M4	0.4	1
.040.M	68	70	18.5	14.5	5.5	160	130	8.75	50	M6	1.1	1
.055.M	80	85	18.5	38.5	5.5	170	140	8.75	65	M6	1.2	1
.070.M	80	85	18.5	38.5	5.5	170	140	8.75	65	M6	1.3	1
.090.M	90	95	22	43	5.5	200	170	8.75	75	M8	1.6	1
.110.M	90	95	22	43	5.5	230	200	8.75	75	M8	1.8	1

CASE 1



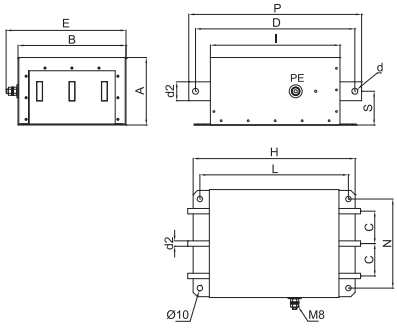
ASSEMBLY CONNECTION "M"



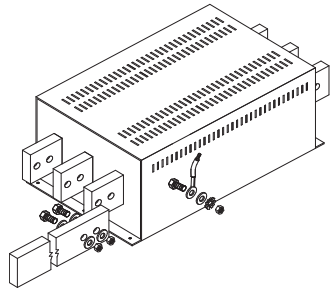
MECHANICAL DIMENSIONS mm

FIN7213	A	B	C	D	E	H	I	L	N	P	S	d	d2	Weight Kg.	Case
.150.B	86	200	60	300	227	300	240	275	165	320	37	9	20x6	5	2
.200.B	86	200	60	300	227	300	240	275	165	320	37	9	20x6	5.1	2
.280.B	86	200	60	300	227	300	240	275	165	320	37	9	20x6	5.2	2
.320.B	86	200	60	300	227	300	240	275	165	320	37	9	20x6	5.2	2
.360.B	86	200	60	300	227	300	240	275	165	320	37	9	20x6	5.3	2
.400.B	86	200	60	300	227	300	240	275	165	320	37	9	20x6	5.3	2
.500.B	125	200	60	295	222	300	240	275	200	320	62.5	11	35x10	8.2	3
.600.B	125	200	60	295	222	300	240	275	200	320	62.5	11	35x10	8.4	3
.750.B	125	200	60	295	222	300	240	275	200	320	62.5	11	35x10	8.5	3

CASE 2, 3



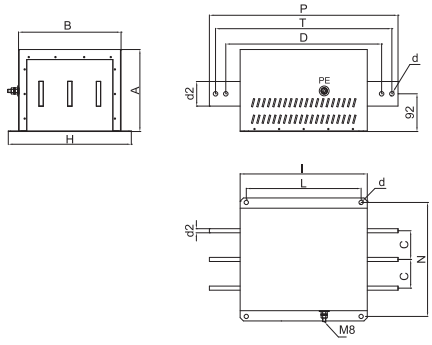
ASSEMBLY CONNECTION “B”



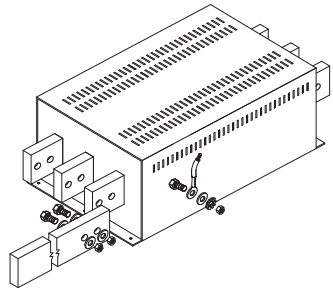
MECHANICAL DIMENSIONS mm

FIN7213	A	B	C	D	H	I	L	N	P	S	T	d	d2	Weight Kg.	Case
.900.B	200	250	70	380	292	310	280	278	460	-	430	10.5	60x10	8.4	4
.1000.B	200	250	70	380	292	310	280	278	460	-	430	10.5	60x10	20.2	5
.1250.B	200	250	70	380	292	310	280	278	460	-	430	10.5	60x10	20.5	5

CASE 4, 5



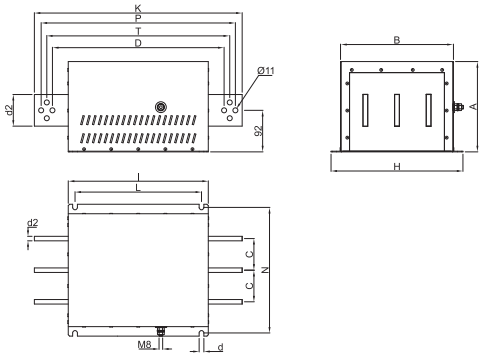
ASSEMBLY CONNECTION “B”



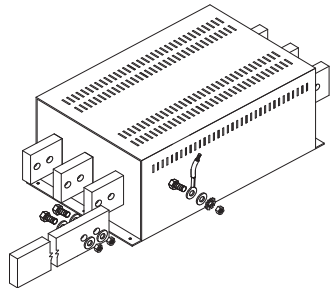
MECHANICAL DIMENSIONS mm

FIN7213	A	B	C	D	H	I	L	N	P	K	T	d	d2	Weight Kg.	Case
.1500.B	200	250	70	380	292	310	280	278	460	430	405	10.5	70x10	22	6
.1750.B	200	250	70	380	292	310	280	278	460	430	405	10.5	80x10	25	6
.2000.B	200	250	70	380	292	310	280	278	460	430	405	10.5	80x10	25	6

CASE 6



ASSEMBLY CONNECTION “B”



ENERDOOR
Engineered by Finmotor

Filter Selection Guide Three-Phase + Neutral	Description	Current Range (A)	Voltage	CONNECTORS			FEATURES						APPLICATIONS				Approval
				Terminal Blocks	Screws	Bus Bar	Regenerative Systems	DIN Rail Mount	Long Cable Applications	Low Frequency Attenuation	Book Case Style	Very Low Leakage Current	Multiple Drives	Automation	Renewable Energy	Medical	
FIN15	3-phase plus neutral	3-20	0-480	•				•				•				•	c UL us
FIN1240	3-phase plus neutral	5-2000	0-480	•	•	•	•		•	•		•	•		•		c UL us
FIN1740	3-phase plus neutral	6-200	0-600	•			•		•		•	•		•			c UL us
FIN1740ESM	3-phase plus neutral	10-180	0-500	•								•		•		•	c UL us
FIN1940	3-phase plus neutral	6-200	0-600	•			•		•		•		•		•		c UL us
FIN1940E	3-phase plus neutral	18-200	0-500	•						•		•	•		•		c UL us

THREE-PHASE + NEUTRAL FILTERS

Enerdoor's three-phase plus neutral series stands out for its remarkable high attenuation within a compact casing, featuring low leakage currents, and proving its adaptability across a wide spectrum of industries.

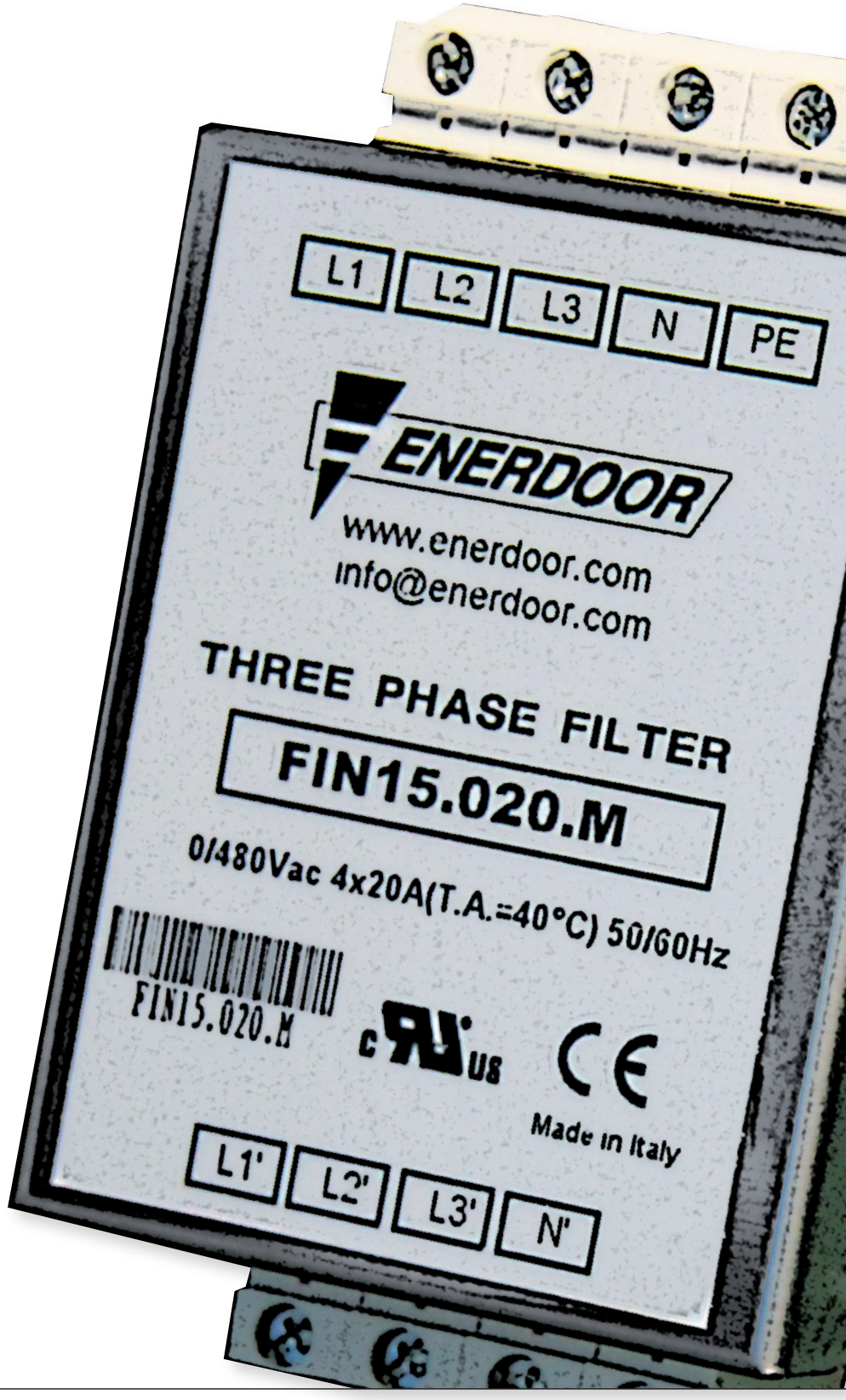
This series features CE and UL approvals and a versatile current range spanning from 3 to 2000A, with a nominal voltage capability of up to 600 Vac.

Equipped with convenient terminal blocks, screws, and bus bar connections, this series incorporates essential features like finger-safe protection and the efficiency of DIN rail mounting. These elements combine to facilitate a rapid and straightforward installation process directly into enclosures.

Customized solutions are available to satisfy various application requirements.

Three-phase + neutral applications include:

- Conveyors
- Packaging machinery
- Medical equipment
- 3D printers
- Semiconductor machinery
- Automated machinery
- Woodworking machinery
- Multiple drive applications
- Laser equipment
- CNC machinery



Datasheet 202405

EMI/RFI Filter with high attenuation for industrial applications

APPROVALS:

CE cULus E215863 RoHS UKCA

FIN15.(003 - 020).M

FEATURES

- Rated current from 3 to 20A
- High differential and common mode attenuation
- Very low leakage current
- DIN rail mounting

BENEFITS

- 5 Year warranty
- Suitable for medical applications
- Compact design

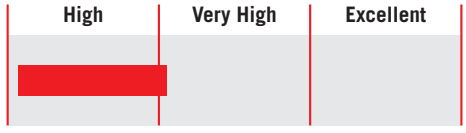
MARKETS

- Conveyors
- Packaging machinery
- Medical equipment
- 3D printers

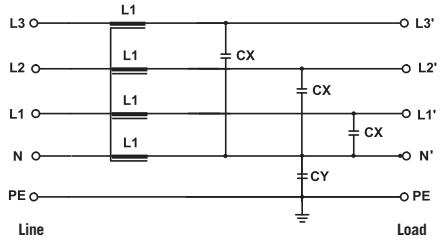
ORDERING CODE

FIN15	.020	.M
Model	Current (A)	Connection
		M = Terminal block

ATTENUATION INDICATOR



ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 480 Vac
Frequency	50/60 Hz
Rated current	3 - 20 A
Potential test voltage phase to phase	2200 Vdc (2 sec.)
Potential test voltage phase to ground	2900 Vdc (2 sec.)
Leakage current normal conditions	< 1 mA *
Leakage current worst conditions	< 3 mA
IP Protection	IP20
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

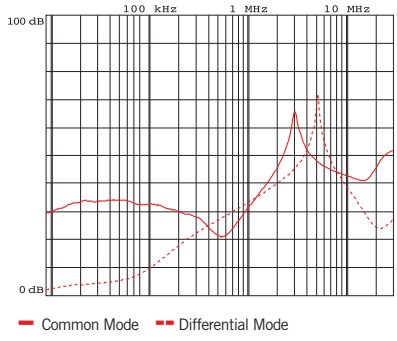
ELECTRICAL CHARACTERISTICS

FIN15	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.003.M	3	2	1.5
.006.M	6	5	2.1
.010.M	10	8	2.8
.016.M	16	14	3.2
.020.M	20	17	4

CONNECTIONS

	LINE			PE
	Solid Cable (mm²)	Stranded Cable (mm²)	Terminal Block Torque (Nm)	Torque (Nm)
.003.M	0.2 - 4	0.2 - 4	0.5	0.5
.006.M	0.2 - 4	0.2 - 4	0.5	0.5
.010.M	0.2 - 4	0.2 - 4	0.5	0.5
.016.M	0.2 - 4	0.2 - 4	0.5	0.5
.020.M	0.2 - 4	0.2 - 4	0.5	0.5

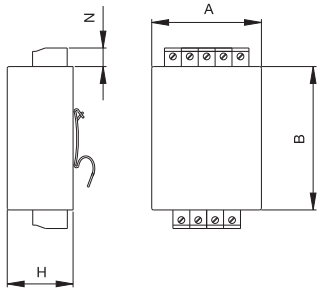
TYPICAL ATTENUATION



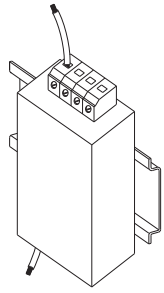
MECHANICAL DIMENSIONS mm

FIN15	A	B	H	N	Weight Kg.	Case
.003.M	65	85	39	11	0.32	1
.006.M	65	85	39	11	0.32	1
.010.M	65	85	39	11	0.32	1
.016.M	65	85	39	11	0.32	1
.020.M	65	85	39	11	0.32	1

CASE 1



ASSEMBLY CONNECTION "M"



Datasheet 202405

EMI/RFI Filter with excellent attenuation for industrial applications

APPROVALS:

E215863

FIN1240.(005 - 150).M

FEATURES

- Rated current from 5 to 1000 A
- Excellent differential and common mode attenuation
- Very low leakage current

BENEFITS

- 5 Year warranty
- Suitable for medical applications
- Compact design

MARKETS

- Semiconductor machinery
- Medical machinery
- Automated machinery

ORDERING CODE

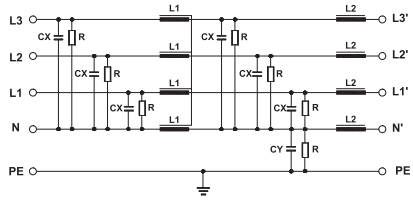
FIN 1240	.150	.M
Model	Current (A)	Connection
		M = Terminal block
		V = Screws
		B = Bus bar

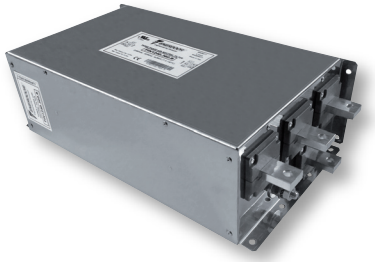
FIN1240.200.V

ATTENUATION INDICATOR

High	Very High	Excellent

ELECTRIC DIAGRAM





FIN1240.(360 - 1000).B

Models available with current ratings up to 2000A

TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 480 Vac
Frequency	50/60 Hz
Rated current	5 - 1000 A
Potential test voltage phase to phase	2200 Vdc (2 sec.)
Potential test voltage phase to ground	2900 Vdc (2 sec.)
Leakage current normal conditions	< 3 mA *
Leakage current worst conditions	< 10 mA
IP Protection	IP20
	IP00 over 200A **
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* Voltage 230 Vac phase to ground 50 Hz / 40°C
** Protection cover available

FIN1240

Three-Phase + Neutral Filter

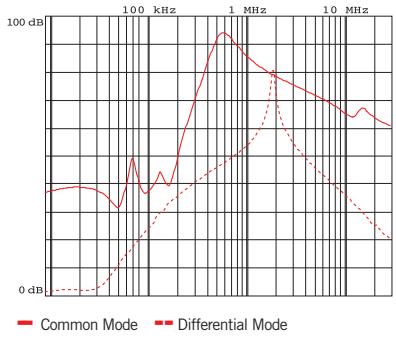
ELECTRICAL CHARACTERISTICS

FIN1240	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.005.M	5	4	5
.010.M	10	8	7
.016.M	16	14	14
.030.M	30	27	11
.050.M	50	46	10
.080.M	80	75	35
.100.M	100	90	42
.150.M	150	140	74

CONNECTIONS

	LINE			PE	
	Solid Cable (mm^2)	Stranded Cable (mm^2)	Terminal Torque (Nm)	d1 (mm)	Torque (Nm)
.005.M	0.5 - 10	0.5 - 10	1.2	M4	2
.010.M	0.5 - 10	0.5 - 10	1.2	M4	2
.016.M	0.5 - 10	0.5 - 10	1.2	M5	4
.030.M	0.5 - 10	0.5 - 10	1.2	M5	4
.050.M	0.5 - 10	0.5 - 16	1.8	M6	6
.080.M	6 - 16	10 - 35	4.5	M8	14
.100.M	6 - 16	10 - 35	4.5	M8	14
.150.M	16 - 50	16 - 50	4	M10	18

TYPICAL ATTENUATION



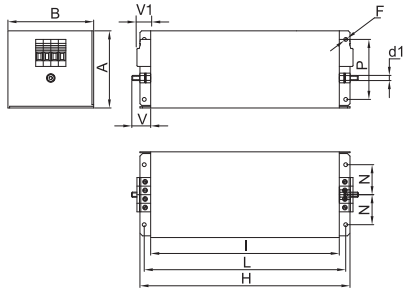
FIN1240	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.200.V	200	190	75
.360.B	360	345	96
.500.B	500	465	101
.750.B	750	710	103
.1000.B	1000	940	115

	LINE		PE	
	d (mm)	Torque (Nm)	d1 (mm)	Torque (Nm)
.200.V	M10	18	M10	18
.360.B	M8	14	M10	18
.500.B	M10	25	M10	18
.750.B	M12	50	M12	20
.1000.B	M12	50	M12	20

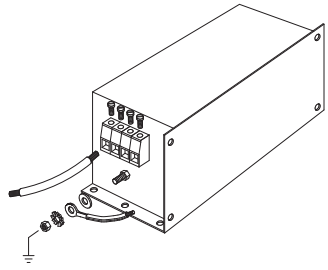
MECHANICAL DIMENSIONS mm

FIN1240	A	B	V	V1	F	H	I	L	N	d1	P	Weight Kg.	Case
.005.M	58	86	19	11	4.5	186	160	176	30	M4	40	1.5	1
.010.M	58	86	19	11	4.5	186	160	176	30	M4	40	1.5	1
.016.M	90	100	19	15	4.5	246	220	235	35	M5	70	2	2
.030.M	90	100	19	15	4.5	246	220	235	35	M5	70	2.5	2
.050.M	90	100	20	25	4.5	246	220	235	35	M6	70	3	3
.080.M	90	185	25	38	6.5	356	320	340	77.5	M8	70	12	4
.100.M	90	185	25	38	6.5	356	320	340	77.5	M8	70	13	4
.150.M	90	220	28	42	6.5	356	320	340	95	M10	70	15	5

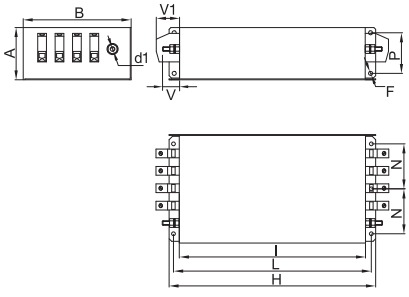
CASE 1, 2, 3



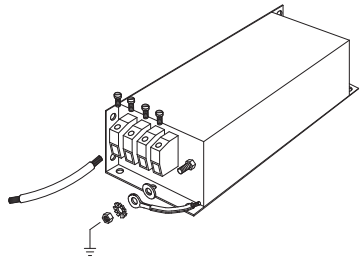
ASSEMBLY CONNECTION "M"



CASE 4, 5



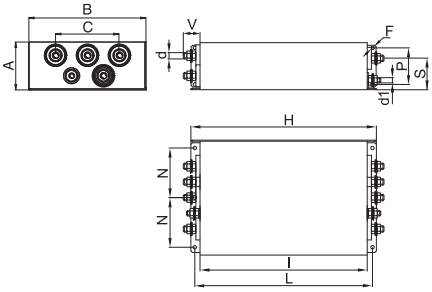
ASSEMBLY CONNECTION "M"



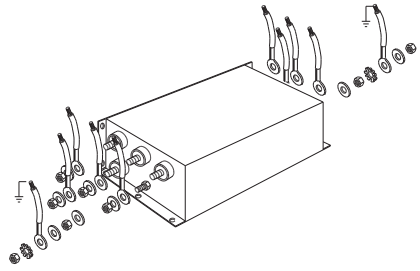
MECHANICAL DIMENSIONS mm

FIN1240	A	B	C	d	d1	d2	d3	V	F	H	I	L	N	P	S	Weight Kg.	Case
.200.V	90	220	120	M10	M10	-	-	30	6.5	356	320	340	95	70	60	20	6
.360.B	130	230	150	M8	M8	10	25	42	6.5	420	380	400	100	100	90	27	7
.500.B	130	230	150	M8	M8	15	30	48	6.5	510	450	480	100	100	90	33.5	8
.750.B	160	250	140	M10	M10	20	40	94	8.5	510	450	480	100	110	110	37	9
.1000.B	210	350	200	M12	M12	20	60	97	8.5	610	550	580	150	160	147	55	10

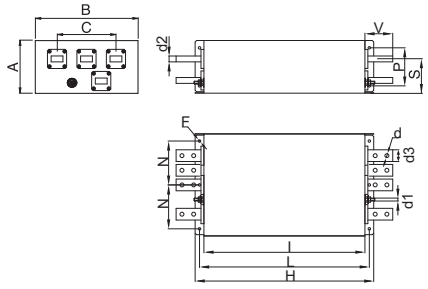
CASE 6



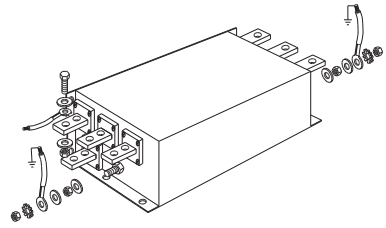
ASSEMBLY CONNECTION “V”



CASE 7, 8, 9, 10



ASSEMBLY CONNECTION “B”



Datasheet 202405

EMI/RFI Filter with excellent attenuation for industrial, residential and medical applications

APPROVALS:

CE cULus E215863 RoHS UKCA

FIN1740.(006 – 200).M

FEATURES

- Rated current from 6 - 200 A
- Excellent differential and common mode attenuation
- Low leakage current
- DIN rail mounting

BENEFITS

- 5 Year warranty
- Suitable for medical applications
- Compact design

MARKETS

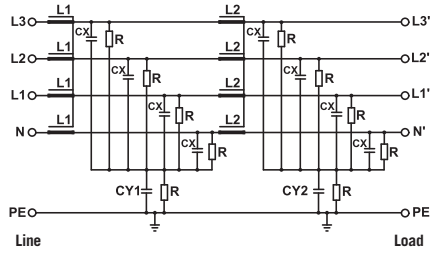
- Conveyors
- Packaging machinery
- Woodworking machinery
- Medical equipment

ORDERING CODE

FIN1740	.055	.M
Model	Current (A)	Connection
		M = Terminal block

ATTENUATION INDICATOR

ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 600 Vac
Frequency	50/60 Hz
Rated current	6 - 200 A
Potential test voltage phase to phase	2400 Vdc (2 sec.)
Potential test voltage phase to ground	3200 Vdc (2 sec.)
Leakage current normal conditions	< 3 mA *
Leakage current worst conditions	< 15 mA
IP Protection	IP20
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

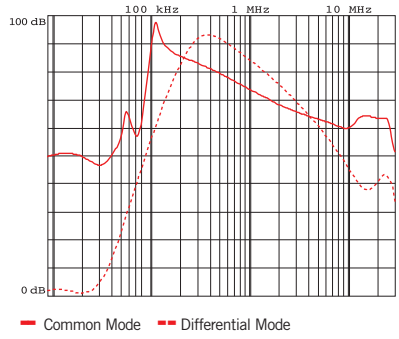
ELECTRICAL CHARACTERISTICS

FIN1740	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.006.M	8	6	8
.012.M	14	12	10
.016.M	18	16	12
.025.M	28	25	15
.032.M	35	32	23
.042.M	50	42	32
.055.M	63	55	37
.070.M	80	70	52
.080.M	90	80	60
.100.M	110	100	92
.115.M	130	115	101
.150.M	175	150	115
.200.M	230	200	120

CONNECTIONS

	LINE			PE	
	Solid Cable (mm²)	Stranded Cable (mm²)	Terminal Torque (Nm)	d (mm)	Torque (Nm)
.006.M	0.5 - 10	0.5 - 10	1.2	M6	6
.012.M	0.5 - 10	0.5 - 10	1.2	M6	6
.016.M	0.5 - 10	0.5 - 10	1.2	M6	6
.025.M	0.5 - 10	0.5 - 10	1.2	M6	6
.032.M	0.5 - 10	0.5 - 10	1.2	M6	6
.042.M	0.5 - 10	0.5 - 16	1.8	M6	6
.055.M	0.5 - 16	10 - 25	2.2	M6	6
.070.M	6 - 16	10 - 35	4.5	M10	18
.080.M	6 - 16	10 - 35	4.5	M10	18
.100.M	16 - 50	16 - 50	4	M10	18
.115.M	16 - 50	16 - 50	4	M10	18
.150.M	35 - 95	35 - 95	20	M10	18
.200.M	35 - 95	35 - 95	20	M10	18

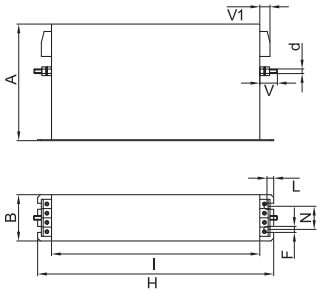
TYPICAL ATTENUATION



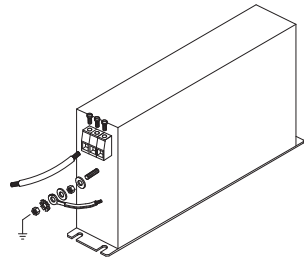
MECHANICAL DIMENSIONS mm

FIN1740	A	B	V	V1	F	H	I	L	N	d	Weight Kg.	Case
.006.M	140	60	19	16	6	226	200	7	38	M6	1.9	1
.012.M	140	60	19	16	6	226	200	7	38	M6	1.9	1
.016.M	177	70	19	16	6	267	237	8	44	M6	1.9	1
.025.M	177	70	19	16	6	267	237	8	44	M6	2.5	1
.032.M	177	70	19	16	6	267	237	8	44	M6	2.5	1
.042.M	177	80	19	34	6	295	265	8	54	M6	3.7	1
.055.M	177	80	19	33	6	295	265	8	54	M6	3.9	1
.070.M	205	100	28.5	38	8	390	340	12	73	M10	6.2	1
.080.M	205	100	28.5	38	8	390	340	12	73	M10	6.2	1
.100.M	205	100	28.5	43	8	390	340	12	73	M10	7.5	1
.115.M	205	100	28.5	43	8	390	340	12	73	M10	7.5	1
.150.M	220	130	28.5	50	8	420	370	12	103	M10	9.4	1
.200.M	220	130	28.5	50	8	420	370	12	103	M10	9.4	1

CASE 1



ASSEMBLY CONNECTION "M"



Datasheet 202405

EMI/RFI Filter with very high attenuation for industrial applications

APPROVALS:

CE · cULus E215863 · RoHS · UKCA

FIN1740ESM.(010 – 180).M

FEATURES

- Rated current from 10 - 180 A
- Very high differential and common mode attenuation
- Low leakage current

BENEFITS

- 5 Year warranty
- Suitable for medical applications
- Compact design

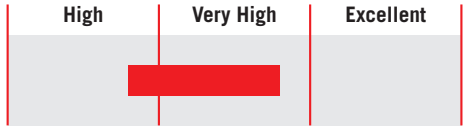
MARKETS

- Conveyors
- Automated machinery
- 3D printers
- Medical equipment

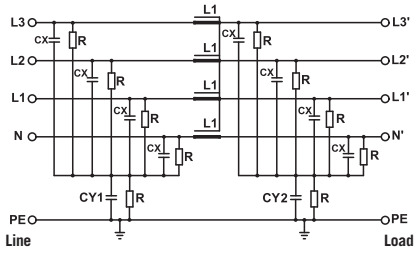
ORDERING CODE

FIN 1740ESM	.072	.M
Model	Current (A)	Connection
		M = Terminal block

ATTENUATION INDICATOR



ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 500 Vac
Frequency	50/60 Hz
Rated current	10 - 180 A
Potential test voltage phase to phase	2300 Vdc (2 sec.)
Potential test voltage phase to ground	3100 Vdc (2 sec.)
Leakage current normal conditions	< 3 mA *
Leakage current worst conditions	< 15 mA
IP Protection	IP20
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

FIN1740ESM

Three-Phase + Neutral Filter

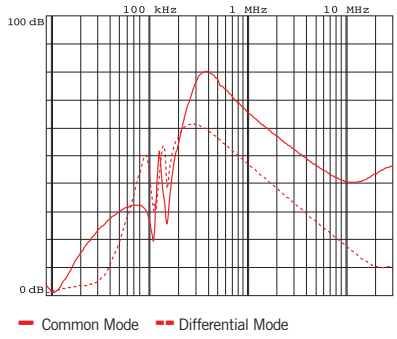
ELECTRICAL CHARACTERISTICS

FIN1740ESM	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.010.M	10	9	5
.018.M	18	16	5
.036.M	36	32	18
.072.M	72	64	40
.100.M	100	90	102
.135.M	135	120	96
.180.M	180	160	98

CONNECTIONS

LINE			PE	
Solid Cable (mm^2)	Stranded Cable (mm^2)	Terminal Torque (Nm)	d (mm)	Torque (Nm)
0.5 - 10	0.5 - 10	1.2	M6	6
0.5 - 10	0.5 - 10	1.2	M6	6
0.5 - 10	0.5 - 10	1.2	M6	6
0.5 - 16	10 - 25	2.2	M6	6
6 - 16	10 - 35	4.5	M10	18
16 - 50	16 - 50	4	M10	18
35 - 95	35 - 95	20	M10	18

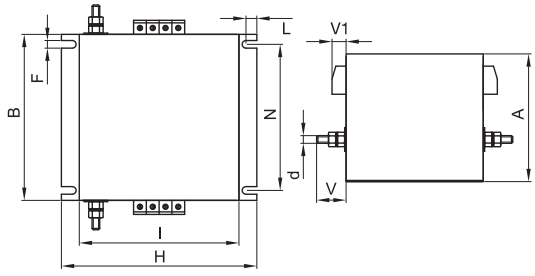
TYPICAL ATTENUATION



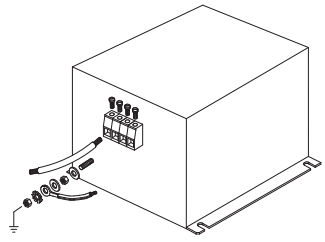
MECHANICAL DIMENSIONS mm

FIN1740ESM	A	B	V	V1	F	H	I	L	N	d	Weight Kg.	Case
.010.M	100	130	22.5	16	6.5	153	125	8.5	90	M6	1	1
.018.M	100	130	22.5	16	6.5	153	125	8.5	90	M6	1	1
.036.M	100	130	22.5	16	6.5	153	125	8.5	90	M6	1.1	1
.072.M	125	118	22.5	32.5	6.5	153	128	8.5	50	M6	1.6	1
.100.M	140	180	30	39	6.5	170	140	8.5	65	M10	3.4	1
.135.M	140	180	30	43	6.5	170	140	8.5	65	M10	4.5	1
.180.M	160	200	30	51.5	6.5	170	140	8.5	75	M10	4.8	1

CASE 1



ASSEMBLY CONNECTION "M"



Datasheet 202405

EMI/RFI Filter with excellent attenuation for industrial applications

APPROVALS:

E215863

FIN1940.(006 – 200).M

FEATURES

- Rated current from 6 - 200 A
- Excellent differential and common mode attenuation
- Low leakage current

BENEFITS

- 5 Year warranty
- High attenuation in low frequency range
- Compact design

MARKETS

- Printing machinery
- Laser equipment
- CNC machinery
- Multiple drive installations

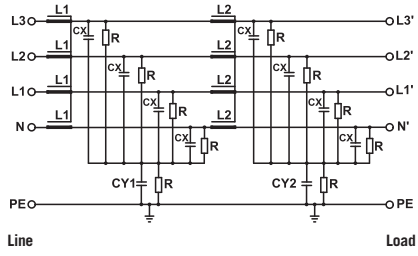
ORDERING CODE

FIN1940	.055	.M
Model	Current (A)	Connection
		M = Terminal block

ATTENUATION INDICATOR

High	Very High	Excellent

ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 600 Vac
Frequency	50/60 Hz
Rated current	6 - 200 A
Potential test voltage phase to phase	2400 Vdc (2 sec.)
Potential test voltage phase to ground	3200 Vdc (2 sec.)
Leakage current normal conditions	< 3 mA *
Leakage current worst conditions	< 15 mA
IP Protection	IP20
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

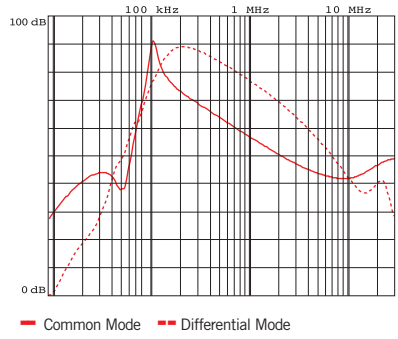
ELECTRICAL CHARACTERISTICS

FIN1940	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.006.M	8	6	8
.012.M	14	12	10
.016.M	18	16	12
.025.M	28	25	15
.032.M	35	32	23
.042.M	50	42	32
.055.M	63	55	37
.070.M	80	70	52
.080.M	90	80	60
.100.M	110	100	92
.115.M	130	115	101
.150.M	175	150	115
.200.M	230	200	120

CONNECTIONS

	LINE			PE	
	Solid Cable (mm²)	Stranded Cable (mm²)	Terminal Torque (Nm)	d (mm)	Torque (Nm)
.006.M	0.5 - 10	0.5 - 10	1.2	M6	6
.012.M	0.5 - 10	0.5 - 10	1.2	M6	6
.016.M	0.5 - 10	0.5 - 10	1.2	M6	6
.025.M	0.5 - 10	0.5 - 10	1.2	M6	6
.032.M	0.5 - 10	0.5 - 10	1.2	M6	6
.042.M	0.5 - 10	0.5 - 16	1.8	M6	6
.055.M	0.5 - 16	10 - 25	2.2	M6	6
.070.M	6 - 16	10 - 35	4.5	M10	18
.080.M	6 - 16	10 - 35	4.5	M10	18
.100.M	16 - 50	16 - 50	4	M10	18
.115.M	16 - 50	16 - 50	4	M10	18
.150.M	35 - 95	35 - 95	20	M10	18
.200.M	35 - 95	35 - 95	20	M10	18

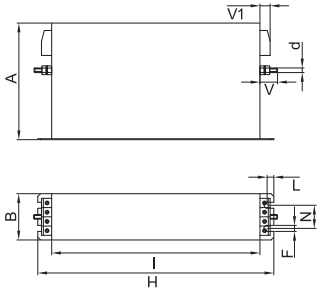
TYPICAL ATTENUATION



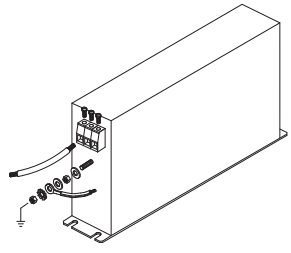
MECHANICAL DIMENSIONS mm

FIN1940	A	B	V	V1	F	H	I	L	N	d	Weight Kg.	Case
.006.M	140	60	19	16	6	226	200	7	38	M6	1.9	1
.012.M	140	60	19	16	6	226	200	7	38	M6	1.9	1
.016.M	177	70	19	16	6	267	237	8	44	M6	1.9	1
.025.M	177	70	19	16	6	267	237	8	44	M6	2.5	1
.032.M	177	70	19	16	6	267	237	8	44	M6	2.5	1
.042.M	177	80	19	34	6	295	265	8	54	M6	3.7	1
.055.M	177	80	19	33	6	295	265	8	54	M6	3.9	1
.070.M	205	100	28.5	38	8	390	340	12	73	M10	6.2	1
.080.M	205	100	28.5	38	8	390	340	12	73	M10	6.2	1
.100.M	205	100	28.5	43	8	390	340	12	73	M10	7.5	1
.115.M	205	100	28.5	43	8	390	340	12	73	M10	7.5	1
.150.M	220	130	28.5	50	8	420	370	12	103	M10	9.4	1
.200.M	220	130	28.5	50	8	420	370	12	103	M10	9.4	1

CASE 1



ASSEMBLY CONNECTION "M"



Datasheet 202405

EMI/RFI Filter with excellent attenuation for industrial, residential and medical applications

APPROVALS:

CE cULus E215863 RoHS UKCA

FIN1940E.(018 – 200).M

FEATURES

- Rated current from 18 - 200 A
- Very high differential and common mode attenuation
- Very low leakage current

BENEFITS

- 5 Year warranty
- Excellent attenuation in low frequency range
- Compact design

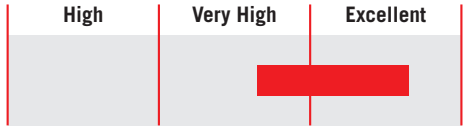
MARKETS

- Conveyors
- Automated machinery
- 3D printers
- Medical equipment

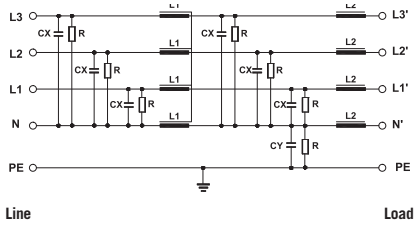
ORDERING CODE

FIN 1940E	.018	.M
Model	Current (A)	Connection
		M = Terminal block

ATTENUATION INDICATOR



ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 500 Vac
Frequency	50/60 Hz
Rated current	18 - 200 A
Potential test voltage phase to phase	2300 Vdc (2 sec.)
Potential test voltage phase to ground	3100 Vdc (2 sec.)
Leakage current normal conditions	< 3 mA *
Leakage current worst conditions	< 15 mA
IP Protection	IP20
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50 Hz / 40°C**

FIN1940E

Three-Phase + Neutral Filter

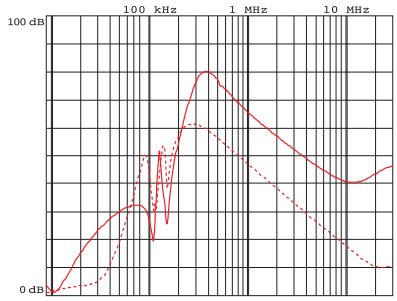
ELECTRICAL CHARACTERISTICS

FIN1940E	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.018.M	18	16	5
.036.M	36	32	18
.072.M	72	64	40
.100.M	100	90	102
.130.M	130	120	96
.200.M	200	180	98

CONNECTIONS

LINE			PE	
Solid Cable (mm^2)	Stranded Cable (mm^2)	Terminal Torque (Nm)	d (mm)	Torque (Nm)
0.5 - 10	0.5 - 10	1.2	M5	4
0.5 - 10	0.5 - 10	1.2	M6	6
0.5 - 16	10 - 25	2.2	M10	18
6 - 16	10 - 35	4.5	M10	18
16 - 50	16 - 50	4	M10	18
35 - 95	35 - 95	20	M10	18

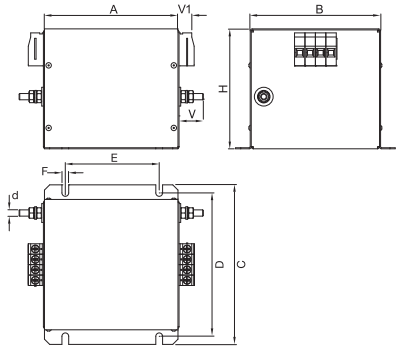
TYPICAL ATTENUATION



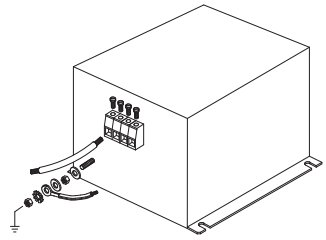
MECHANICAL DIMENSIONS mm

FIN1940E	A	B	C	D	E	F	H	d	V	V1	Weight Kg.	Case
.018.M	120	115	143	127.5	80	6.5	80	M5	23.5	11.2	1	1
.036.M	130	125	153	137.5	90	6.5	115	M6	23.5	14.5	1.1	2
.072.M	160	125	153	137.5	100	6.5	125	M10	28	32.5	1.6	3
.100.M	230	135	163	147.5	60	6.5	125	M10	27.5	38.5	3.4	4
.130.M	250	140	170	153.5	100	6.5	140	M10	27.5	43	4.5	5
.200.M	280	140	170	153.5	115	6.5	170	M10	27.5	50	4.8	6

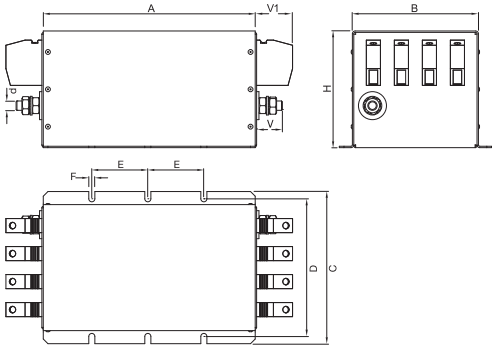
CASE 1, 2, 3



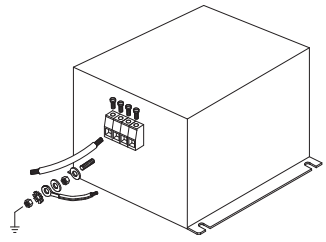
ASSEMBLY CONNECTION "M"



CASE 4, 5, 6



ASSEMBLY CONNECTION "M"



ENERDOOR
Engineered by Finmotor

Filter Selection Guide DC Filters	Description	Current Range (A)	Voltage DC	CONNECTORS		FEATURES			APPLICATIONS			Approval
				Screws	Bus Bar	High Attenuation	Chassis Insulated (0 Volt)	Very Low Leakage Current	PV with PE Insulated	Recharging Station	Renewable Energy	
FIN1220	2-phase filter	5-3000	0-1000	•	•			•		•	•	cULus
FIN1220.0V	2-phase filter	5-3000	0-1000	•	•		•	•	•			cULus
FIN1520	2-phase filter	5-3000	0-1000	•	•	•				•	•	cULus
FIN1520.0V	2-phase filter	5-3000	0-1000	•	•	•	•		•			cULus
FIN7212	2-phase filter	150-3000	0-1000		•		•		•		•	

DC FILTERS

Enerdoor's DC EMI filters were designed exclusively for the solar industry and recharging stations. These filters are engineered to enable the passage of DC and low-frequency currents while effectively blocking harmful high-frequency currents resulting in a streamlined operation where devices function seamlessly by diverting unnecessary RF noise.

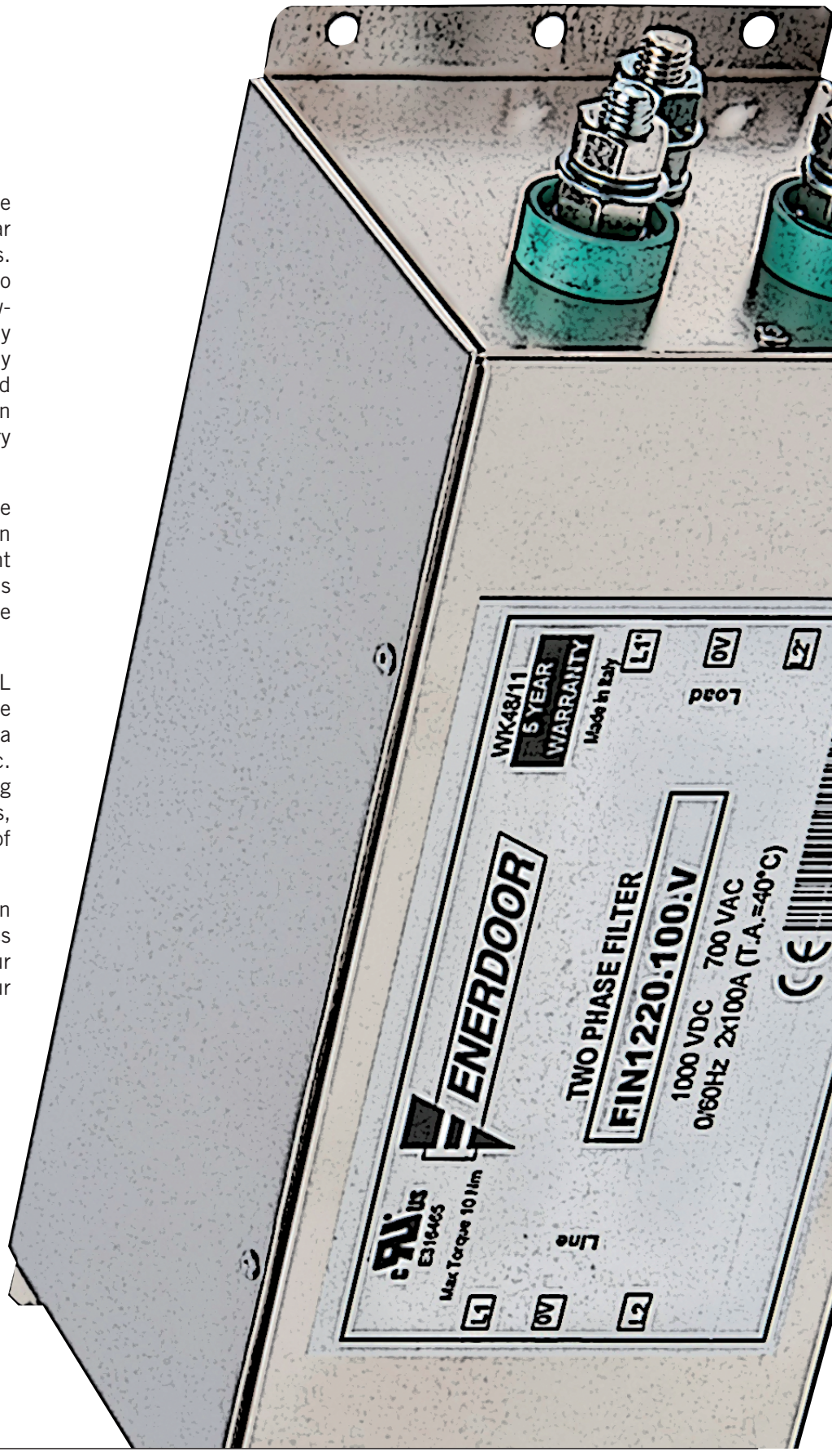
This series offers the unique advantage of a ground connection separated from the virtual zero point which is particularly advantageous for critical networks on the protective earth conductor.

These filters are CE and UL approved, with a current range spanning from 5 to 3000A and a nominal voltage of up to 1000 Vdc. The compact case design, along with screw and bus bar connections, adds to the practicality and ease of installation.

Tailored to meet varying application requirements, Enerdoor provides customized solutions, ensuring our filters seamlessly integrate into your specific application.

DC Filter applications include:

- Solar inverters
- Recharging stations
- Renewable energy
- AC/DC converters
- Single-phase machines (up to 700 Vac)

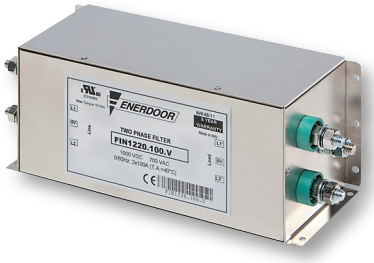


Datasheet 202405

EMI/RFI DC Filter with very high attenuation for DC industrial and residential applications

APPROVALS:

E215863



FIN1220.(005 - 280).V

FEATURES

- Rated current from 5 - 3000 A
- Very high common mode attenuation
- Very low leakage current

BENEFITS

- 5 Year warranty
- Various connections available
- Finger safe protection available

MARKETS

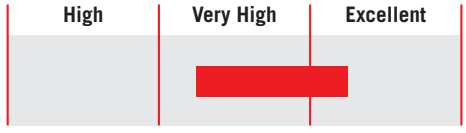
- Renewable energy
- Recharging stations
- AC/DC converters
- Single-Phase machines up to 700 Vac

ORDERING CODE

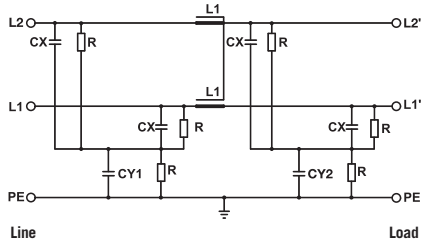
FIN1220	.100	.V
Model	Current (A)	Connection
		V = Screw
		B = Bus bar

FIN1220.(280 - 1750).B

ATTENUATION INDICATOR



ELECTRIC DIAGRAM



FIN1220.(2000 - 3000).B

TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 1000 Vdc and 0 - 700 Vac
Frequency	50/60 Hz
Rated current	5 - 3000 A
Potential test voltage phase to phase	3100 Vdc (2 sec.)
Potential test voltage phase to ground	3400 Vdc (2 sec.)
Leakage current normal conditions	< 3 mA *
Leakage current worst conditions	< 10 mA
IP Protection	IP20 up to 280A
	IP00 over 280A
	IP20 available with protection FINPRT
Overload capability	4 x Rated current (Switch ON)
	2 x In 10 seconds
	1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50Hz / 40°C**

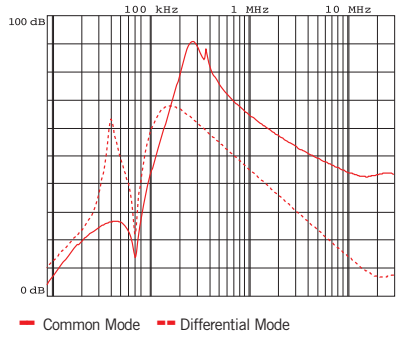
ELECTRICAL CHARACTERISTICS

FIN1220	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.005.V	5	4	5
.010.V	10	8	7
.016.V	16	14	14
.030.V	30	27	11
.050.V	50	46	10
.080.V	80	75	39
.100.V	100	90	45
.130.V	130	110	49
.150.V	150	140	69
.180.V	180	165	77
.200.V	200	190	85
.250.V	272	250	87
.280.V	297	280	77
.280.B	330	320	76
.320.B	330	320	77
.360.B	390	360	98
.400.B	435	400	102
.500.B	545	500	96
.600.B	654	600	102
.750.B	800	750	88
.900.B	940	900	72
.1000.B	1050	1000	102
.1250.B	1290	1250	96
.1500.B	1550	1500	108
.1600.B	1650	1600	115
.1750.B	1800	1750	120
.2000.B	2050	2000	122
.2250.B	2300	2250	127
.2500.B	2550	2500	140
.3000.B	3000	2950	150

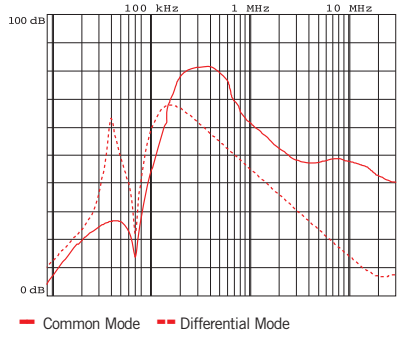
CONNECTIONS

LINE		PE	
d (mm)	Torque (Nm)	d1 (mm)	Torque (Nm)
M4	1.2	M4	1.2
M4	1.2	M4	1.2
M5	4	M5	4
M5	4	M5	4
M6	6	M5	4
M8	14	M8	14
M8	14	M8	14
M10	18	M10	18
M10	18	M10	18
M10	18	M10	18
M10	18	M10	18
M12	20	M10	18
M12	20	M10	18
M8	14	M10	18
M8	14	M10	18
M8	14	M10	18
M8	14	M10	18
M8	14	M10	18
M10	25	M10	18
M10	25	M10	18
M12	50	M12	20
M12	50	M12	20
M12	50	M12	20
M12	50	M12	20
M12	50	M12	20
M12	50	M12	20
M12	50	M12	20
M12	50	M12	20
M12	50	M12	20
M12	50	M12	20

TYPICAL ATTENUATION



Typical attenuation 7A – 400A

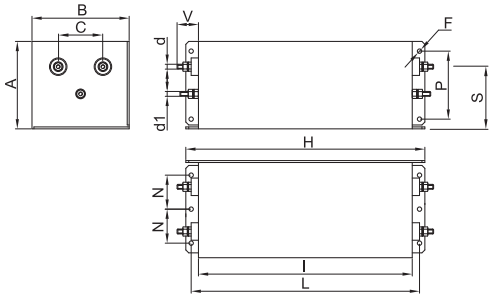


Typical attenuation 500A – 3000A

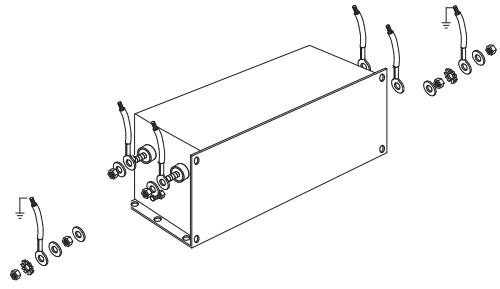
MECHANICAL DIMENSIONS mm

FIN1220	A	B	C	d	d1	V	F	H	I	L	N	P	S	Weight Kg.	Case
.005.V	58	86	44	M4	M4	14	4.5	186	160	176	30	40	38	2	1
.010.V	58	86	44	M4	M4	14	4.5	186	160	176	30	40	38	2	1
.016.V	90	100	46	M5	M5	28	4.5	246	220	235	35	70	64	3	2
.030.V	90	100	46	M5	M5	28	4.5	246	220	235	35	70	64	3	2
.050.V	90	100	46	M6	M6	28	4.5	246	220	235	35	70	64	3	3
.080.V	90	100	40	M8	M8	28	4.5	246	220	235	35	70	69	3	4
.100.V	90	100	40	M8	M8	28	4.5	246	220	235	35	70	69	3	4
.130.V	90	185	120	M10	M10	29	6.5	356	320	340	77.5	70	60	5	5
.150.V	90	185	120	M10	M10	29	6.5	356	320	340	77.5	70	60	5	5
.180.V	90	185	120	M10	M10	29	6.5	356	320	340	77.5	70	60	5	5
.200.V	90	185	120	M10	M10	29	6.5	356	320	340	77.5	70	60	5	5
.250.V	90	220	120	M12	M12	30	6.5	356	320	340	95	70	60	7.5	6
.280.V	90	220	120	M12	M12	30	6.5	356	320	340	95	70	60	7.5	6

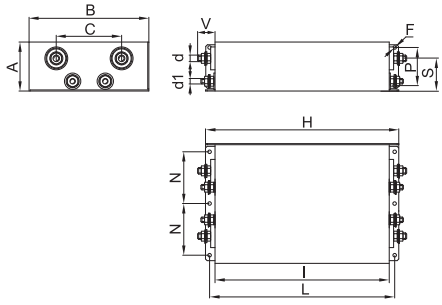
CASE 1, 2, 3, 4



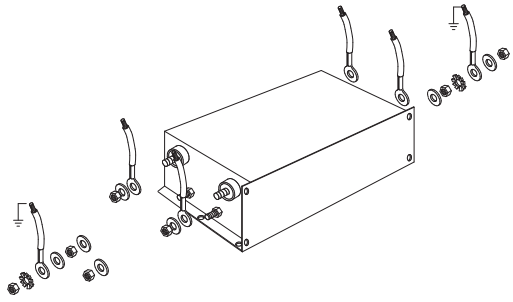
ASSEMBLY CONNECTION "V"



CASE 5, 6



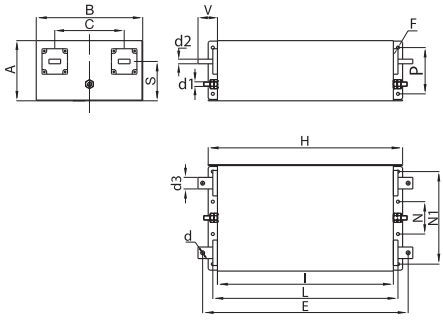
ASSEMBLY CONNECTION "V"



MECHANICAL DIMENSIONS mm

FIN1220	A	B	C	d	d1	d2	d3	V	F	H	I	L	N	N1	P	S	Weight Kg.	Case
.280.B	90	220	120	M8	M10	6	20	42	6.5	356	320	340	50	190	70	55	7.5	7
.320.B	90	220	120	M8	M10	6	20	42	6.5	356	320	340	50	190	70	55	7.5	7
.360.B	130	230	150	M8	M10	10	25	42	6.5	420	380	400	70	200	85	85	10	8
.400.B	130	230	150	M8	M10	10	25	42	6.5	420	380	400	70	200	85	85	10	8
.500.B	130	230	150	M8	M10	10	25	42	6.5	420	380	400	70	200	85	85	10	8
.600.B	130	230	150	M10	M10	15	30	48	6.5	510	450	480	70	200	100	85	15.5	9
.750.B	130	230	150	M10	M10	15	30	48	6.5	510	450	480	70	200	100	85	15.5	9
.900.B	160	250	140	M12	M12	20	40	94	8.5	510	450	480	70	200	110	110	23	10
.1000.B	160	250	140	M12	M12	20	40	94	8.5	510	450	480	70	200	110	110	23	10
.1250.B	160	250	140	M12	M12	20	40	94	8.5	510	450	480	70	200	110	110	23	10
.1500.B	180	300	200	M12	M12	20	60	97	8.5	560	500	530	80	250	130	117	27	11
.1600.B	180	300	200	M12	M12	20	60	97	8.5	560	500	530	80	250	130	117	27	11
.1750.B	180	300	200	M12	M12	20	60	97	8.5	560	500	530	80	250	130	117	27	11
.2000.B	225	350	200	M12	M12	25	80	100	8.5	610	550	580	150	-	-	112.5	45	12
.2250.B	225	350	200	M12	M12	25	80	100	8.5	610	550	580	150	-	-	112.5	45	12
.2500.B	225	350	200	M12	M12	25	80	100	8.5	610	550	580	150	-	-	112.5	45	12
.3000.B	225	350	200	M12	M12	25	80	100	8.5	610	550	580	150	-	-	112.5	45	12

CASE 7, 8, 9



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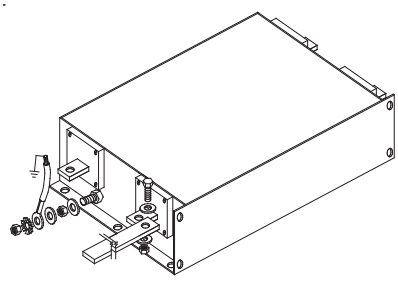
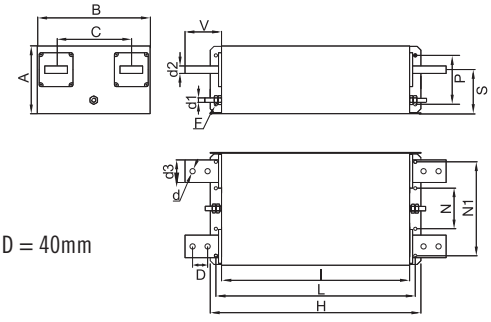
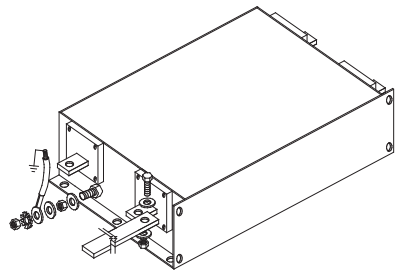


CASE 10, 11

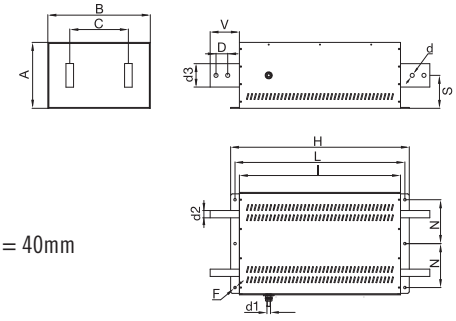


D = 40mm

ASSEMBLY CONNECTION “B”

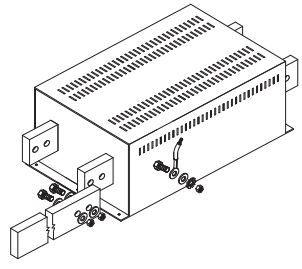


CASE 12



D = 40mm

ASSEMBLY CONNECTION “B”

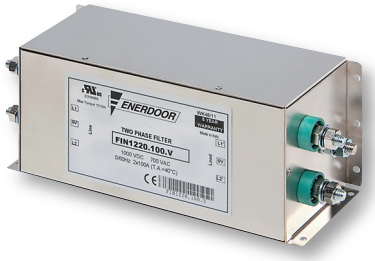


EMI/RFI DC Filter with very high attenuation and zero volt insulated option for DC industrial applications

Datasheet 202405

APPROVALS:

CE cULus RoHS UKCA
E215863



FIN1220.(005 - 280).0V

FEATURES

- Rated current from 5 - 3000 A
- Very high common mode attenuation
- Zero volt connector for PE floating systems

BENEFITS

- 5 Year warranty
- Various connections available
- Finger safe protection available

MARKETS

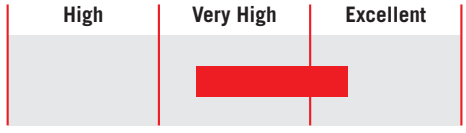
- Renewable energy
- Recharging stations
- AC/DC converters
- Single-Phase machines up to 700 Vac

ORDERING CODE

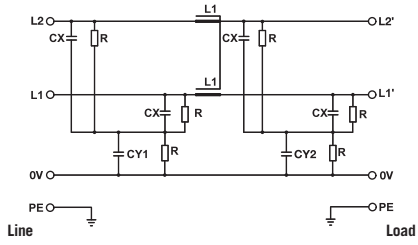
FIN1220	.100	.V	.0V
Model	Current (A)	Connection V = Screw B = Bus bar	PE insulated

FIN1220.(280 - 1750).B.0V

ATTENUATION INDICATOR



ELECTRIC DIAGRAM



FIN1220.(2000 - 3000).B.0V

TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 1000 Vdc and 0 - 700 Vac
Frequency	50/60 Hz
Rated current	5 - 3000 A
Potential test voltage phase to phase	3100 Vdc (2 sec.)
Potential test voltage phase to ground	3400 Vdc (2 sec.)
Leakage current normal conditions	< 3 mA *
Leakage current worst conditions	< 10 mA
IP Protection	IP20 up to 280A IP00 over 280A IP20 available with protection FINPRT
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50Hz / 40°C**

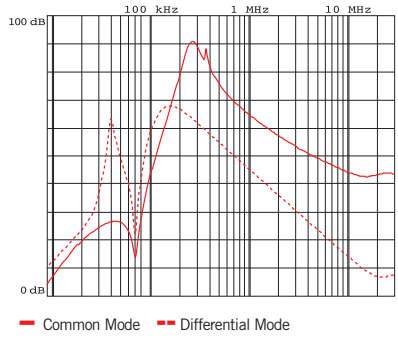
ELECTRICAL CHARACTERISTICS

FIN1220.0V	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.005.V.0V	5	4	5
.010.V.0V	10	8	7
.016.V.0V	16	14	14
.030.V.0V	30	27	11
.050.V.0V	50	46	10
.080.V.0V	80	75	39
.100.V.0V	100	90	45
.130.V.0V	130	110	49
.150.V.0V	150	140	69
.180.V.0V	180	165	77
.200.V.0V	200	190	85
.250.V.0V	272	250	87
.280.V.0V	297	280	77
.280.B.0V	330	320	76
.320.B.0V	330	320	77
.360.B.0V	390	360	98
.400.B.0V	435	400	102
.500.B.0V	545	500	96
.600.B.0V	654	600	102
.750.B.0V	800	750	88
.900.B.0V	940	900	72
.1000.B.0V	1050	1000	102
.1250.B.0V	1290	1250	96
.1500.B.0V	1550	1500	108
.1600.B.0V	1650	1600	115
.1750.B.0V	1800	1750	120
.2000.B.0V	2050	2000	122
.2250.B.0V	2300	2250	127
.2500.B.0V	2550	2500	140
.3000.B.0V	3000	2950	150

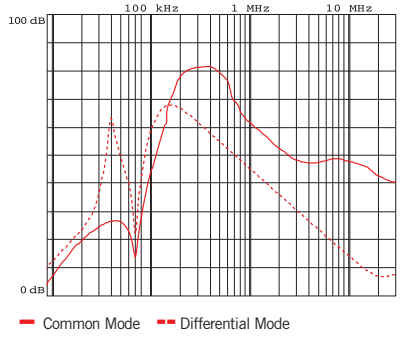
CONNECTIONS

LINE		PE		OV	
d (mm)	Torque (Nm)	d1 (mm)	Torque (Nm)	d4 (mm)	Torque (Nm)
M4	1.2	M4	1.2	M4	1.2
M4	1.2	M4	1.2	M4	1.2
M5	4	M5	4	M5	4
M5	4	M5	4	M5	4
M6	6	M5	4	M5	4
M8	14	M8	14	M6	6
M8	14	M8	14	M6	6
M10	18	M10	18	M10	18
M10	18	M10	18	M10	18
M10	18	M10	18	M10	18
M10	18	M10	18	M10	18
M12	20	M10	18	M10	18
M12	20	M10	18	M10	18
M8	14	M10	18	M10	18
M8	14	M10	18	M10	18
M8	14	M10	18	M10	18
M8	14	M10	18	M10	18
M8	14	M10	18	M10	18
M10	25	M10	18	M10	18
M10	25	M10	18	M10	18
M12	50	M12	20	M12	20
M12	50	M12	20	M12	20
M12	50	M12	20	M12	20
M12	50	M12	20	M12	20
M12	50	M12	20	M12	20
M12	50	M12	20	M12	20
M12	50	M12	20	M12	20
M12	50	M12	20	M12	20
M12	50	M12	20	M12	20

TYPICAL ATTENUATION



Typical attenuation 5A – 400A

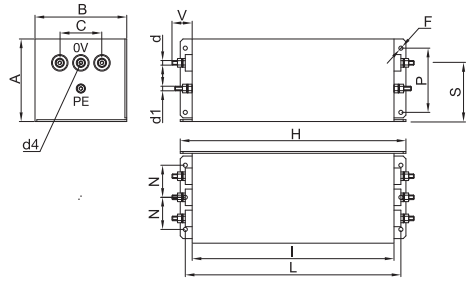


Typical attenuation 500A – 3000A

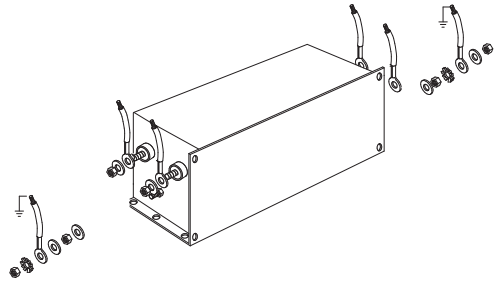
MECHANICAL DIMENSIONS mm

FIN1220.0V	A	B	C	d	d1	d4	V	F	H	I	L	N	P	S	Weight Kg.	Case
.005.V.0V	58	86	44	M4	M4	M4	14	4.5	186	160	176	30	40	38	2	1
.010.V.0V	58	86	44	M4	M4	M4	14	4.5	186	160	176	30	40	38	2	1
.016.V.0V	90	100	46	M5	M5	M5	28	4.5	246	220	235	35	70	64	3	2
.030.V.0V	90	100	46	M5	M5	M5	28	4.5	246	220	235	35	70	64	3	2
.050.V.0V	90	100	46	M6	M5	M5	28	4.5	246	220	235	35	70	64	3	3
.080.V.0V	90	100	40	M8	M8	M6	28	4.5	246	220	235	35	70	69	3	4
.100.V.0V	90	100	40	M8	M8	M6	28	4.5	246	220	235	35	70	69	3	4
.130.V.0V	90	185	120	M10	M10	M10	29	6.5	356	320	340	77.5	70	60	5	5
.150.V.0V	90	185	120	M10	M10	M10	29	6.5	356	320	340	77.5	70	60	5	5
.180.V.0V	90	185	120	M10	M10	M10	29	6.5	356	320	340	77.5	70	60	5	5
.200.V.0V	90	185	120	M10	M10	M10	29	6.5	356	320	340	77.5	70	60	5	5
.250.V.0V	90	220	120	M12	M10	M10	30	6.5	356	320	340	95	70	60	7.5	6
.280.V.0V	90	220	120	M12	M10	M10	30	6.5	356	320	340	95	70	60	7.5	6

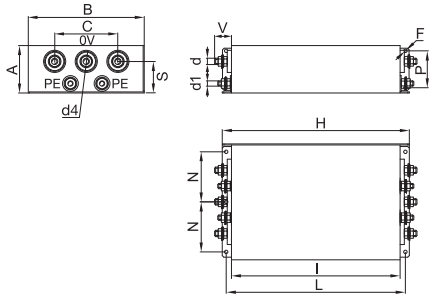
CASE 1, 2, 3, 4



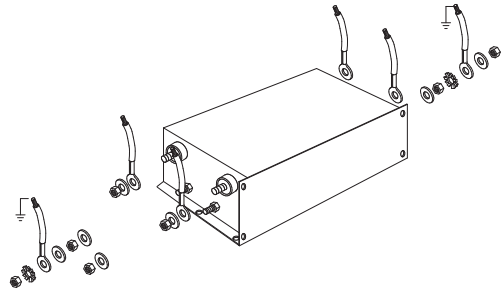
ASSEMBLY CONNECTION “V”



CASE 5, 6



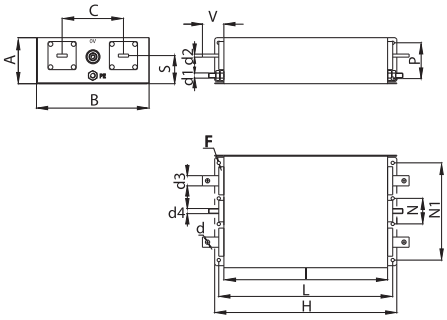
ASSEMBLY CONNECTION “V”



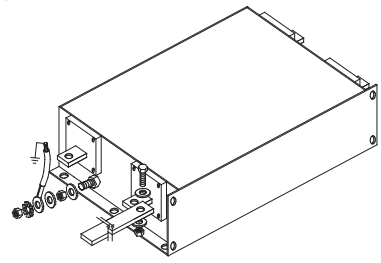
MECHANICAL DIMENSIONS mm

FIN1220.0V	A	B	C	d	d1	d2	d3	d4	V	F	H	I	L	N	N1	P	S	Weight Kg.	Case
.280.B.0V	90	220	120	M8	M10	6	20	M10	42	6.5	356	320	340	50	190	70	55	7.5	7
.320.B.0V	90	220	120	M8	M10	6	20	M10	42	6.5	356	320	340	50	190	70	55	7.5	7
.360.B.0V	130	230	150	M8	M10	10	25	M10	42	6.5	420	380	400	70	200	85	85	10	8
.400.B.0V	130	230	150	M8	M10	10	25	M10	42	6.5	420	380	400	70	200	85	85	10	8
.500.B.0V	130	230	150	M8	M10	10	25	M10	42	6.5	420	380	400	70	200	85	85	10	8
.600.B.0V	130	230	150	M10	M10	15	30	M10	48	6.5	510	450	480	70	200	100	85	15.5	9
.750.B.0V	130	230	150	M10	M10	15	30	M10	48	6.5	510	450	480	70	200	100	85	15.5	9
.900.B.0V	160	250	140	M12	M12	20	40	M12	94	8.5	510	450	480	70	200	110	110	23	10
.1000.B.0V	160	250	140	M12	M12	20	40	M12	94	8.5	510	450	480	70	200	110	110	23	10
.1250.B.0V	160	250	140	M12	M12	20	40	M12	94	8.5	510	450	480	70	200	110	110	23	10
.1500.B.0V	180	300	200	M12	M12	20	60	M12	97	8.5	560	500	530	80	250	130	117	27	11
.1600.B.0V	180	300	200	M12	M12	20	60	M12	97	8.5	560	500	530	80	250	130	117	27	11
.1750.B.0V	180	300	200	M12	M12	20	60	M12	97	8.5	560	500	530	80	250	130	117	27	11
.2000.B.0V	225	350	200	M12	M12	25	80	M12	100	8.5	610	550	580	150	-	-	112.5	45	12
.2250.B.0V	225	350	200	M12	M12	25	80	M12	100	8.5	610	550	580	150	-	-	112.5	45	12
.2500.B.0V	225	350	200	M12	M12	25	80	M12	100	8.5	610	550	580	150	-	-	112.5	45	12
.3000.B.0V	225	350	200	M12	M12	25	80	M12	100	8.5	610	550	580	150	-	-	112.5	45	12

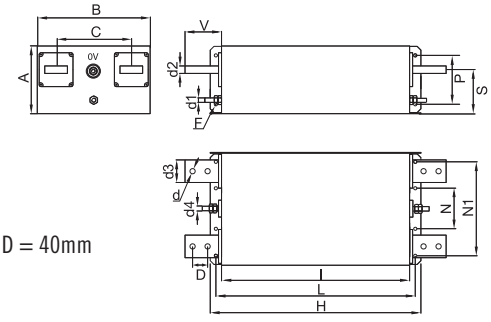
CASE 7, 8, 9



ASSEMBLY CONNECTION “B”

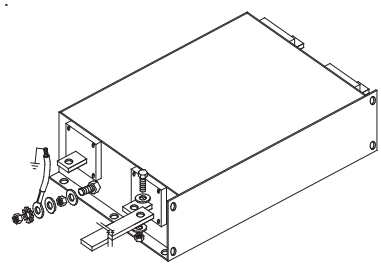


CASE 10, 11

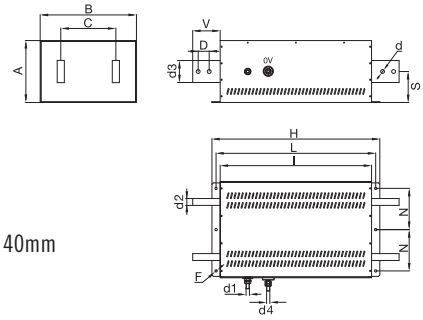


D = 40mm

ASSEMBLY CONNECTION “B”

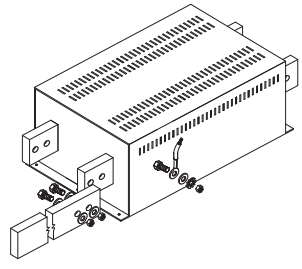


CASE 12



D = 40mm

ASSEMBLY CONNECTION “B”

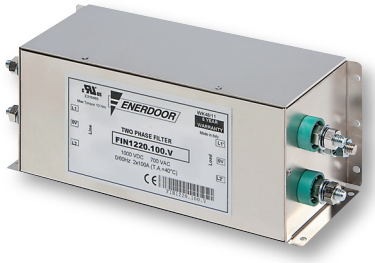


Datasheet 202405

EMI/RFI DC Filter with excellent attenuation performance for DC industrial applications

APPROVALS:

E215863



FIN1520.(005 - 280).V

FEATURES

- Rated current from 5 - 3000 A
- Excellent common mode attenuation
- Low leakage current

BENEFITS

- 5 Year warranty
- Compact case
- Voltage spike reduction

MARKETS

- Renewable energy
- Recharging stations
- AC/DC converters
- Single-Phase machines up to 700 Vac

ORDERING CODE

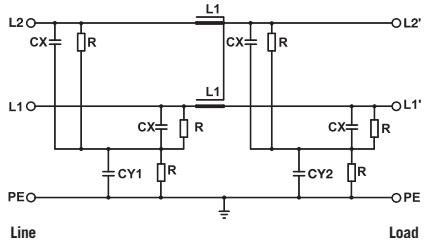
FIN1520	.100	.V
Model	Current (A)	Connection
		V = Screw
		B = Bus bar

FIN1520.(280 - 1750).B

ATTENUATION INDICATOR

High	Very High	Excellent

ELECTRIC DIAGRAM



FIN1520.(2000 - 3000).B

TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 1000 Vdc and 0 - 700 Vac
Frequency	50/60 Hz
Rated current	5 - 3000 A
Potential test voltage phase to phase	3100 Vdc (2 sec.)
Potential test voltage phase to ground	3400 Vdc (2 sec.)
Leakage current normal conditions	<10 mA *
Leakage current worst conditions	<80 mA
IP Protection	IP20 up to 280A
	IP00 over 280A
	IP20 available with protection FINPRT
Overload capability	4 x Rated current (Switch ON)
	2 x In 10 seconds
	1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50Hz / 40°C**

ELECTRICAL CHARACTERISTICS

FIN1520	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.005.V	5	4	5
.010.V	10	8	7
.016.V	16	14	14
.030.V	30	27	11
.050.V	50	46	10
.080.V	80	75	39
.100.V	100	90	45
.130.V	130	110	49
.150.V	150	140	69
.180.V	180	165	77
.200.V	200	190	85
.250.V	272	250	87
.280.V	297	280	77
.280.B	330	320	76
.320.B	330	320	77
.360.B	390	360	98
.400.B	435	400	102
.500.B	545	500	96
.600.B	654	600	102
.750.B	800	750	88
.900.B	940	900	72
.1000.B	1050	1000	102
.1250.B	1290	1250	96
.1500.B	1550	1500	108
.1600.B	1650	1600	115
.1750.B	1800	1750	120
.2000.B	2050	2000	122
.2250.B	2300	2250	127
.2500.B	2550	2500	140
.3000.B	3000	2950	150

CONNECTIONS

LINE		PE	
d (mm)	Torque (Nm)	d1 (mm)	Torque (Nm)
M4	1.2	M4	1.2
M4	1.2	M4	1.2
M5	4	M5	4
M5	4	M5	4
M6	6	M5	4
M8	14	M8	14
M8	14	M8	14
M10	18	M10	18
M10	18	M10	18
M10	18	M10	18
M10	18	M10	18
M12	20	M10	18
M12	20	M10	18
M8	14	M10	18
M8	14	M10	18
M8	14	M10	18
M8	14	M10	18
M8	14	M10	18
M10	25	M10	18
M10	25	M10	18
M12	50	M12	20
M12	50	M12	20
M12	50	M12	20
M12	50	M12	20
M12	50	M12	20
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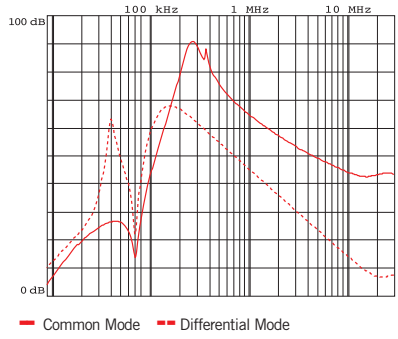
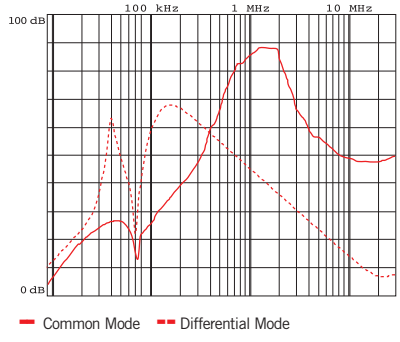
M12	50	M12	20
M12	50	M12	20
M12	50	M12	20

TYPICAL ATTENUATION



Typical attenuation 5A - 400A

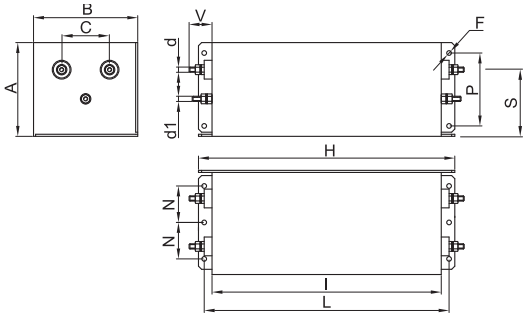


Typical attenuation 500A - 3000A

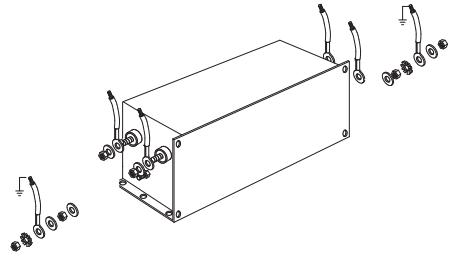
MECHANICAL DIMENSIONS mm

FIN1520	A	B	C	d	d1	V	F	H	I	L	N	P	S	Weight Kg.	Case
.005.V	58	86	44	M4	M4	14	4.5	186	160	176	30	40	38	2	1
.010.V	58	86	44	M4	M4	14	4.5	186	160	176	30	40	38	2	1
.016.V	90	100	46	M5	M5	28	4.5	246	220	235	35	70	64	3	2
.030.V	90	100	46	M5	M5	28	4.5	246	220	235	35	70	64	3	2
.050.V	90	100	46	M6	M5	28	4.5	246	220	235	35	70	64	3	3
.080.V	90	100	40	M8	M8	28	4.5	246	220	235	35	70	69	3	4
.100.V	90	100	40	M8	M8	28	4.5	246	220	235	35	70	69	3	4
.130.V	90	185	120	M10	M10	29	6.5	356	320	340	77.5	70	60	5	5
.150.V	90	185	120	M10	M10	29	6.5	356	320	340	77.5	70	60	5	5
.180.V	90	185	120	M10	M10	29	6.5	356	320	340	77.5	70	60	5	5
.200.V	90	185	120	M10	M10	29	6.5	356	320	340	77.5	70	60	5	5
.250.V	90	220	120	M12	M10	30	6.5	356	320	340	95	70	60	7.5	6
.280.V	90	220	120	M12	M10	30	6.5	356	320	340	95	70	60	7.5	6

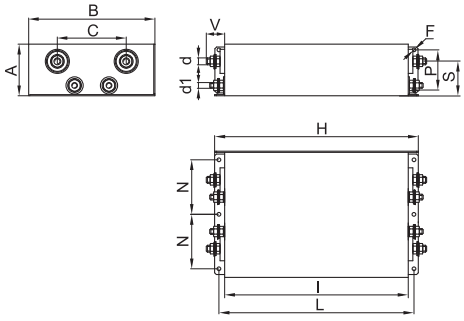
CASE 1, 2, 3, 4



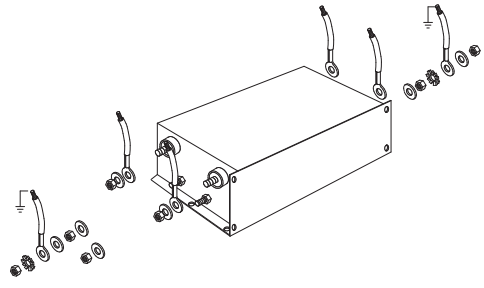
ASSEMBLY CONNECTION “V”



CASE 5, 6



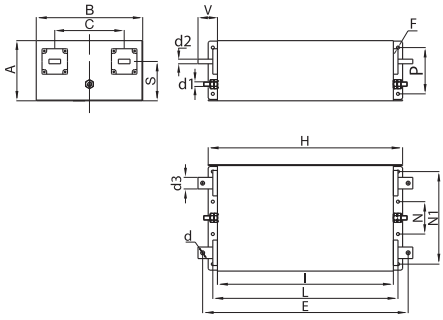
ASSEMBLY CONNECTION “V”



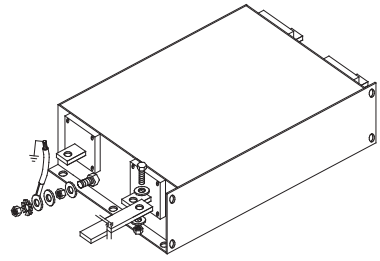
MECHANICAL DIMENSIONS mm

FIN1520	A	B	C	d	d1	d2	d3	V	F	H	I	L	N	N1	P	S	Weight Kg.	Case
.280.B	90	220	120	M8	M10	6	20	42	6.5	356	320	340	50	190	70	55	7.5	7
.320.B	90	220	120	M8	M10	6	20	42	6.5	356	320	340	50	190	70	55	7.5	7
.360.B	130	230	150	M8	M10	10	25	42	6.5	420	380	400	70	200	85	85	10	8
.400.B	130	230	150	M8	M10	10	25	42	6.5	420	380	400	70	200	85	85	10	8
.500.B	130	230	150	M8	M10	10	25	42	6.5	420	380	400	70	200	85	85	10	8
.600.B	130	230	150	M10	M10	15	30	48	6.5	510	450	480	70	200	100	85	15.5	9
.750.B	130	230	150	M10	M10	15	30	48	6.5	510	450	480	70	200	100	85	15.5	9
.900.B	160	250	140	M12	M12	20	40	94	8.5	510	450	480	70	200	110	110	23	10
.1000.B	160	250	140	M12	M12	20	40	94	8.5	510	450	480	70	200	110	110	23	10
.1250.B	160	250	140	M12	M12	20	40	94	8.5	510	450	480	70	200	110	110	23	10
.1500.B	180	300	200	M12	M12	20	60	97	8.5	560	500	530	80	250	130	117	27	11
.1600.B	180	300	200	M12	M12	20	60	97	8.5	560	500	530	80	250	130	117	27	11
.1750.B	180	300	200	M12	M12	20	60	97	8.5	560	500	530	80	250	130	117	27	11
.2000.B	225	350	200	M12	M12	25	80	100	8.5	610	550	580	150	-	-	112.5	45	12
.2250.B	225	350	200	M12	M12	25	80	100	8.5	610	550	580	150	-	-	112.5	45	12
.2500.B	225	350	200	M12	M12	25	80	100	8.5	610	550	580	150	-	-	112.5	45	12
.3000.B	225	350	200	M12	M12	25	80	100	8.5	610	550	580	150	-	-	112.5	45	12

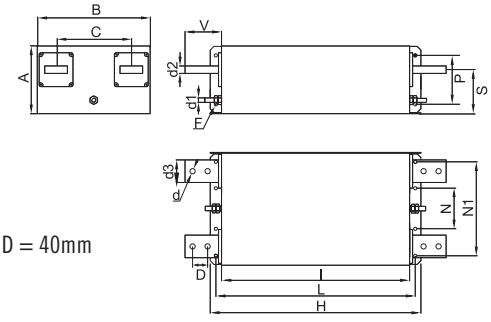
CASE 7, 8, 9



ASSEMBLY CONNECTION “B”

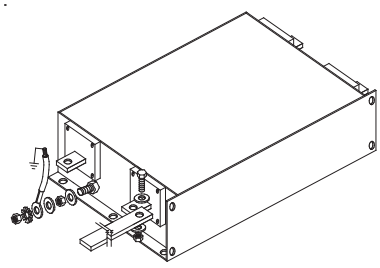


CASE 10, 11

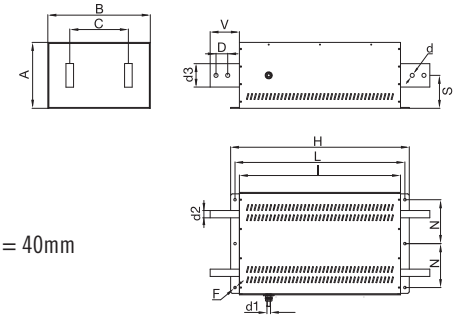


D = 40mm

ASSEMBLY CONNECTION “B”

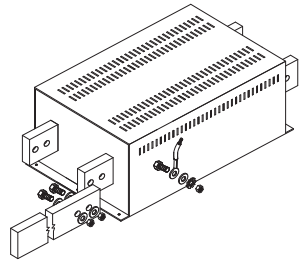


CASE 12



D = 40mm

ASSEMBLY CONNECTION “B”

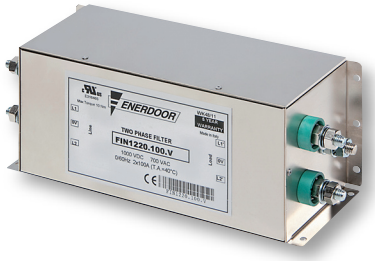


Datasheet 202405

EMI/RFI DC Filter with excellent attenuation and zero volt insulated option for DC industrial applications

APPROVALS:

CE cULus RoHS UKCA
E215863



FIN1520.(005 – 280).V.0V

FEATURES

- Rated current from 5 - 3000 A
- Excellent common mode attenuation
- Low leakage current

BENEFITS

- 5 Year warranty
- Various connections available
- Zero volt connector for PE floating systems

MARKETS

- Renewable energy
- AC/DC converters
- Single-Phase machines up to 700 Vac

ORDERING CODE

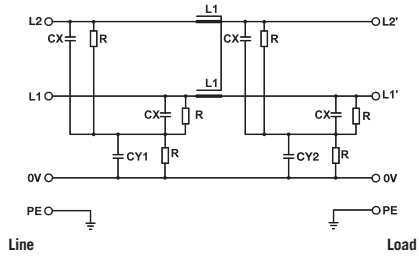
FIN1520	.100	.V	.0V
Model	Current (A)	Connection V = Screw B = Bus bar	PE insulated

FIN1520.(280 - 1750).B.0V

ATTENUATION INDICATOR

High	Very High	Excellent

ELECTRIC DIAGRAM



FIN1520.(2000 - 3000).B.0V

Vertical bus bar connections available upon request

TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 1000 Vdc and 0 - 700 Vac
Frequency	50/60 Hz
Rated current	5 - 3000 A
Potential test voltage phase to phase	3100 Vdc (2 sec.)
Potential test voltage phase to ground	3400 Vdc (2 sec.)
Leakage current normal conditions	< 10 mA *
Leakage current worst conditions	< 80 mA
IP Protection	IP20 up to 280A IP00 over 280A IP20 available with protection FINPRT
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50Hz / 40°C**

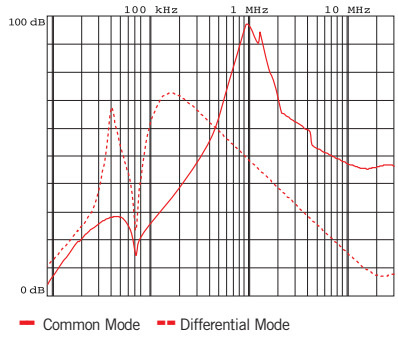
ELECTRICAL CHARACTERISTICS

FIN1520.0V	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.005.V.0V	5	4	5
.010.V.0V	10	8	7
.016.V.0V	16	27	14
.030.V.0V	30	46	11
.050.V.0V	50	75	10
.080.V.0V	80	90	39
.100.V.0V	100	110	45
.130.V.0V	130	140	49
.150.V.0V	150	165	69
.180.V.0V	200	190	77
.200.V.0V	210	200	85
.250.V.0V	272	250	87
.280.V.0V	297	280	77
.280.B.0V	330	320	76
.320.B.0V	330	320	77
.360.B.0V	390	360	98
.400.B.0V	435	400	102
.500.B.0V	545	500	96
.600.B.0V	654	600	102
.750.B.0V	800	750	88
.900.B.0V	940	900	72
.1000.B.0V	1050	1000	102
.1250.B.0V	1290	1250	96
.1500.B.0V	1550	1500	108
.1600.B.0V	1650	1600	115
.1750.B.0V	1800	1750	120
.2000.B.0V	2050	2000	122
.2250.B.0V	2300	2250	127
.2500.B.0V	2550	2500	140
.3000.B.0V	3000	2950	150

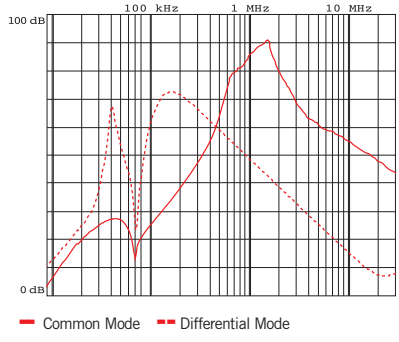
CONNECTIONS

LINE		PE		OV	
d (mm)	Torque (Nm)	d1 (mm)	Torque (Nm)	d4 (mm)	Torque (Nm)
M4	1.2	M4	1.2	M4	1.2
M4	1.2	M4	1.2	M4	1.2
M5	4	M5	4	M5	4
M5	4	M5	4	M5	4
M6	6	M5	4	M5	4
M8	14	M8	14	M6	6
M8	14	M8	14	M6	6
M10	18	M10	18	M10	18
M10	18	M10	18	M10	18
M10	18	M10	18	M10	18
M10	18	M10	18	M10	18
M12	20	M10	18	M10	18
M12	20	M10	18	M10	18
M8	14	M10	18	M10	18
M8	14	M10	18	M10	18
M8	14	M10	18	M10	18
M8	14	M10	18	M10	18
M8	14	M10	18	M10	18
M10	25	M10	18	M10	18
M10	25	M10	18	M10	18
M12	50	M12	20	M12	20
M12	50	M12	20	M12	20
M12	50	M12	20	M12	20
M12	50	M12	20	M12	20
M12	50	M12	20	M12	20
M12	50	M12	20	M12	20
M12	50	M12	20	M12	20
M12	50	M12	20	M12	20
M12	50	M12	20	M12	20

TYPICAL ATTENUATION



Typical attenuation 5A - 400A

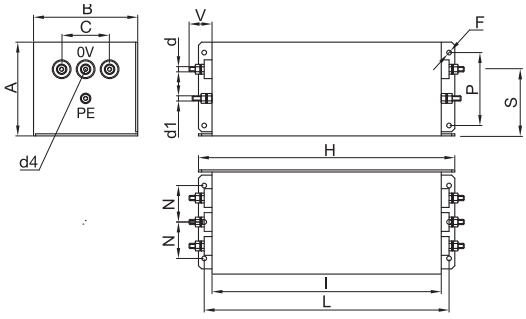


Typical attenuation 500A - 3000A

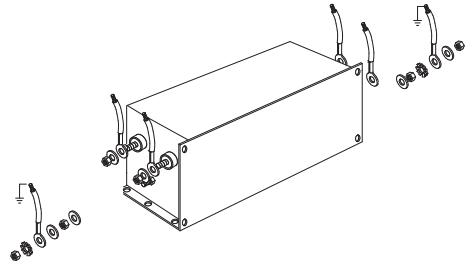
MECHANICAL DIMENSIONS mm

FIN1520.0V	A	B	C	d	d1	d4	V	F	H	I	L	N	P	S	Weight Kg.	Case
.005.V.0V	58	86	44	M4	M4	M4	14	4.5	186	160	176	30	40	38	2	1
.010.V.0V	58	86	44	M4	M4	M4	14	4.5	186	160	176	30	40	38	2	1
.016.V.0V	90	100	46	M5	M5	M5	28	4.5	246	220	235	35	70	64	3	2
.030.V.0V	90	100	46	M5	M5	M5	28	4.5	246	220	235	35	70	64	3	2
.050.V.0V	90	100	46	M6	M5	M5	28	4.5	246	220	235	35	70	64	3	3
.080.V.0V	90	100	40	M8	M8	M6	28	4.5	246	220	235	35	70	69	3	4
.100.V.0V	90	100	40	M8	M8	M6	28	4.5	246	220	235	35	70	69	3	4
.130.V.0V	90	185	120	M10	M10	M10	29	6.5	356	320	340	77.5	70	60	5	5
.150.V.0V	90	185	120	M10	M10	M10	29	6.5	356	320	340	77.5	70	60	5	5
.180.V.0V	90	185	120	M10	M10	M10	29	6.5	356	320	340	77.5	70	60	5	5
.200.V.0V	90	185	120	M10	M10	M10	29	6.5	356	320	340	77.5	70	60	5	5
.250.V.0V	90	220	120	M12	M10	M10	30	6.5	356	320	340	95	70	60	7.5	6
.280.V.0V	90	220	120	M12	M10	M10	30	6.5	356	320	340	95	70	60	7.5	6

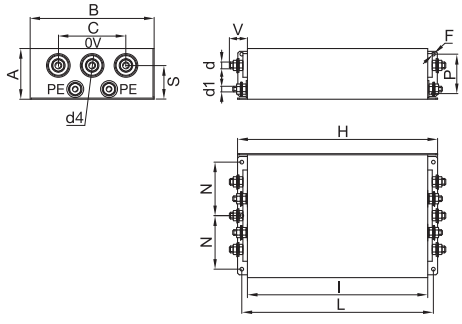
CASE 1, 2, 3, 4



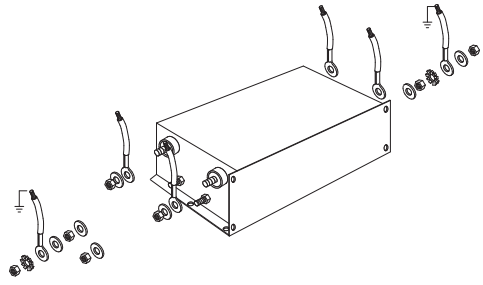
ASSEMBLY CONNECTION “V”



CASE 5, 6



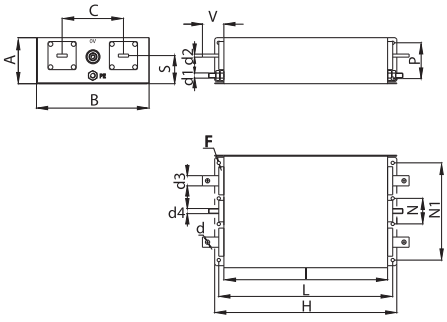
ASSEMBLY CONNECTION “V”



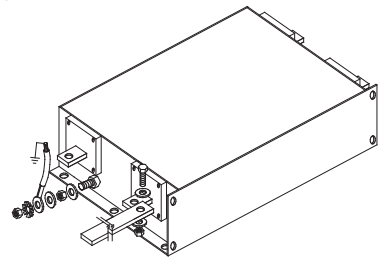
MECHANICAL DIMENSIONS mm

FIN1520.0V	A	B	C	d	d1	d2	d3	d4	V	F	H	I	L	N	N1	P	S	Weight Kg.	Case
.280.B.0V	90	220	120	M8	M10	6	20	M10	42	6.5	356	320	340	50	190	70	55	7.5	7
.320.B.0V	90	220	120	M8	M10	6	20	M10	42	6.5	356	320	340	50	190	70	55	7.5	7
.360.B.0V	130	230	150	M8	M10	10	25	M10	42	6.5	420	380	400	70	200	85	85	10	8
.400.B.0V	130	230	150	M8	M10	10	25	M10	42	6.5	420	380	400	70	200	85	85	10	8
.500.B.0V	130	230	150	M8	M10	10	25	M10	42	6.5	420	380	400	70	200	85	85	10	8
.600.B.0V	130	230	150	M10	M10	15	30	M10	48	6.5	510	450	480	70	200	100	85	15.5	9
.750.B.0V	130	230	150	M10	M10	15	30	M10	48	6.5	510	450	480	70	200	100	85	15.5	9
.900.B.0V	160	250	140	M12	M12	20	40	M12	94	8.5	510	450	480	70	200	110	110	23	10
.1000.B.0V	160	250	140	M12	M12	20	40	M12	94	8.5	510	450	480	70	200	110	110	23	10
.1250.B.0V	160	250	140	M12	M12	20	40	M12	94	8.5	510	450	480	70	200	110	110	23	10
.1500.B.0V	180	300	200	M12	M12	20	60	M12	97	8.5	560	500	530	80	250	130	117	27	11
.1600.B.0V	180	300	200	M12	M12	20	60	M12	97	8.5	560	500	530	80	250	130	117	27	11
.1750.B.0V	180	300	200	M12	M12	20	60	M12	97	8.5	560	500	530	80	250	130	117	27	11
.2000.B.0V	225	350	200	M12	M12	25	80	M12	100	8.5	610	550	580	150	-	-	112.5	45	12
.2250.B.0V	225	350	200	M12	M12	25	80	M12	100	8.5	610	550	580	150	-	-	112.5	45	12
.2500.B.0V	225	350	200	M12	M12	25	80	M12	100	8.5	610	550	580	150	-	-	112.5	45	12
.3000.B.0V	225	350	200	M12	M12	25	80	M12	100	8.5	610	550	580	150	-	-	112.5	45	12

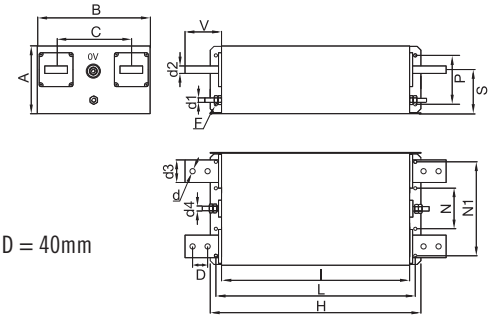
CASE 7, 8, 9



ASSEMBLY CONNECTION “B”

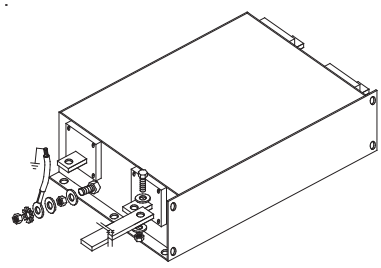


CASE 10, 11

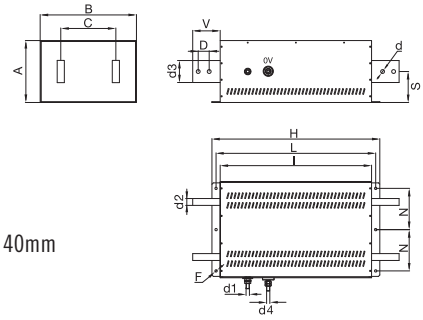


D = 40mm

ASSEMBLY CONNECTION “B”

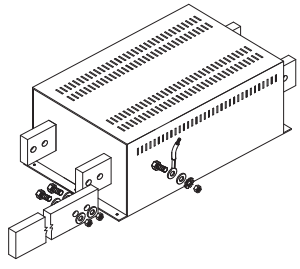


CASE 12



D = 40mm

ASSEMBLY CONNECTION “B”



Datasheet 202405

EMI/RFI DC Filter with excellent attenuation for DC industrial applications

APPROVALS:

CE RoHS UK CA

FIN7212.(150 - 2000).B

Models available with current ratings up to 3000A upon request

FEATURES

- Rated current from 150 - 2000 A
- Excellent differential and common mode attenuation
- Low leakage current

BENEFITS

- 5 Year warranty
- Very compact case
- Finger safe protection available
- Zero volt insulated model available

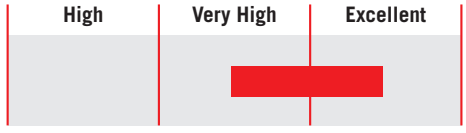
MARKETS

- Electrical equipment
- Machine tools
- Industrial automation
- Variable frequency drives / servo drives
- Regenerative systems
- Renewable energy

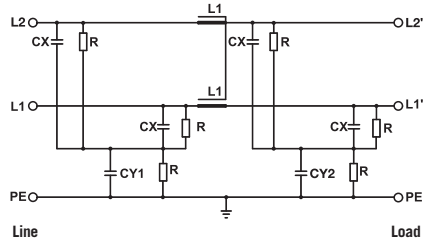
ORDERING CODE

FIN7212	.100	.B	.0V
Model	Current (A)	Connection B = Bus bar	zero volt connection optional

ATTENUATION INDICATOR



ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

	FIN7212
Nominal voltage	0 - 1000 Vdc and 0 - 700 Vac
Frequency	50/60 Hz
Rated current	150 - 2000 A
Potential test voltage phase to phase	2400 Vdc (2 sec.)
Potential test voltage phase to ground	3200 Vdc (2 sec.)
Leakage current normal conditions	< 10 mA
Leakage current worst conditions	< 35 mA *
IP Protection	IP00 over
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

* **Voltage 230 Vac phase to ground 50Hz / 40°C**

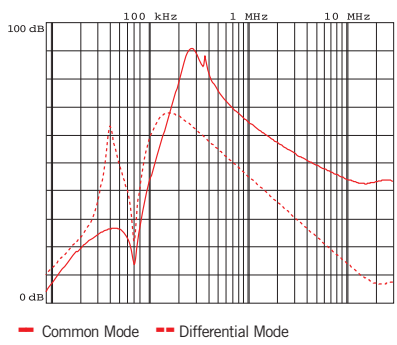
ELECTRICAL CHARACTERISTICS

FIN7212	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.150.B	150	135	65
.200.B	200	180	70
.280.B	280	250	75
.320.B	320	290	80
.360.B	360	325	90
.400.B	400	360	110
.500.B	500	450	102
.600.B	600	540	95
.750.B	750	675	80
.800.B	800	720	82
.900.B	900	810	90
.1000.B	1000	900	100
.1250.B	1250	1120	105
.1500.B	1500	1350	110
.1750.B	1750	1500	125
.2000.B	2000	1750	132

CONNECTIONS

LINE		PE	
d (mm)	Torque (Nm)	d1 (mm)	Torque (Nm)
M8	14	M8	14
M8	14	M8	14
M8	14	M8	14
M8	14	M8	14
M8	14	M8	14
M8	14	M8	14
M8	14	M8	14
M10	18	M8	14
M10	18	M8	14
M10	18	M8	14
M10	18	M8	14
M10	18	M8	14
M10	18	M8	14
M10	18	M8	14
M10	18	M8	14
M10	18	M8	14

TYPICAL ATTENUATION

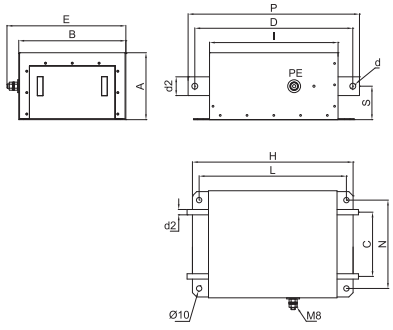


Typical attenuation 150A - 2000A

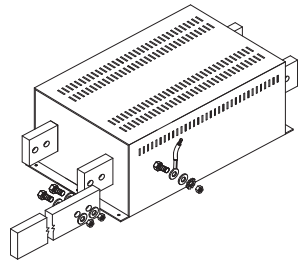
MECHANICAL DIMENSIONS mm

FIN7212	A	B	C	D	E	H	I	L	N	P	S	d	d2	Weight Kg.	Case
.150.B	86	200	120	300	227	300	240	275	165	320	37	9	20x6	4.5	1
.200.B	86	200	120	300	227	300	240	275	165	320	37	9	20x6	4.6	1
.280.B	86	200	120	300	227	300	240	275	165	320	37	9	20x6	4.7	1
.320.B	86	200	120	300	227	300	240	275	165	320	37	9	20x6	4.75	1
.360.B	86	200	120	300	227	300	240	275	165	320	37	9	20x6	4.8	1
.400.B	86	200	120	300	227	300	240	275	165	320	37	9	20x6	4.8	1
.500.B	125	200	120	295	222	300	240	275	200	320	62.5	11	35x10	7.7	2
.600.B	125	200	120	295	222	300	240	275	200	320	62.5	11	35x10	7.8	2
.750.B	125	200	120	295	222	300	240	275	200	320	62.5	11	35x10	7.95	2

CASE 1, 2



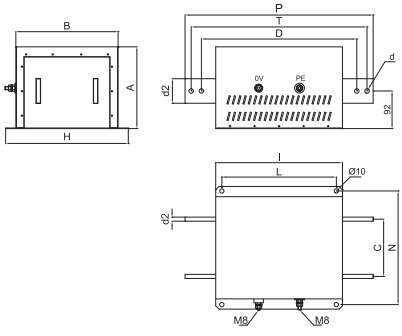
ASSEMBLY CONNECTION "B"



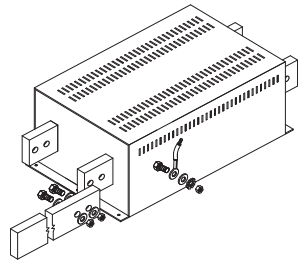
MECHANICAL DIMENSIONS mm

FIN7212	A	B	C	D	E	H	I	L	N	P	S	T	d	d2	Weight Kg.	Case
.800.B	200	250	140	380	277	300	310	280	278	460	-	430	11	50x10	15	3
.900.B	200	250	140	380	277	300	310	280	278	460	-	430	11	50x10	15	3
.1000.B	200	250	140	380	277	300	310	280	278	460	-	430	11	60x10	16	4
.1250.B	200	250	140	380	277	300	310	280	278	460	-	430	11	60x10	17	4

CASE 3, 4



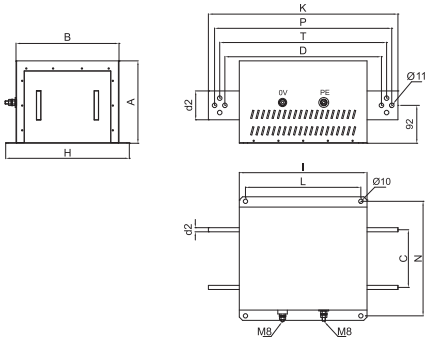
ASSEMBLY CONNECTION "B"



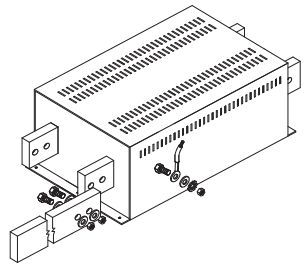
MECHANICAL DIMENSIONS mm

FIN7212	A	B	C	D	H	I	L	N	K	P	T	d	d2	Weight Kg.	Case
.1500.B	200	250	140	380	300	310	280	278	460	430	405	11	70x10	22	5
.1750.B	200	250	140	380	300	310	280	278	460	430	405	11	80x10	25	5
.2000.B	200	250	140	380	300	310	280	278	460	430	405	11	80x10	26	5

CASE 5



ASSEMBLY CONNECTION “B”

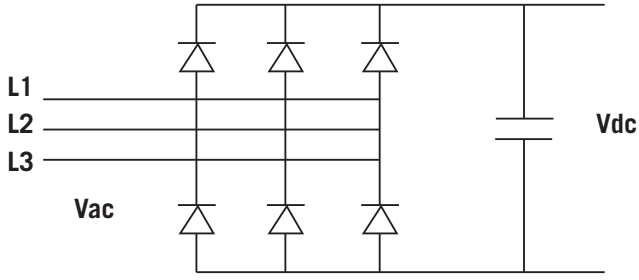


Introduction

Ensuring power quality is a significant concern for manufacturing and power generation facilities. Addressing unbalanced loads is crucial, with harmonic distortion and reactive power stemming from a low power factor being two major challenges.
Devices like variable frequency drives, servo drives, and LED light drivers, which convert AC to DC, can introduce harmonic distortion. It is imperative to control this distortion within defined limits to mitigate its impact on other equipment within a facility.
Reactive power, whether capacitive or inductive, alters the phase relationship between current and voltage waveforms. Capacitance causes the current to lead, while inductance causes it to lag. In power transmission, where the majority of loads are inductive, excess reactive power results in additional current supply, leading to power losses, elevated temperatures, and increased operational costs. Industries with a low power factor often face additional charges due to these inefficiencies.

Harmonic Theory

Understanding the generation of harmonics in a sinusoidal wave is crucial. The electrical network delivers a sinusoidal voltage, and the load absorbs a current based on its impedance.
In cases where the response is linear, the relationship between voltage and current remains constant. For instance, in a resistive load, the current waveform mirrors the sinusoidal voltage waveform, resulting in a distortion-free output.
However, in non-linear loads, the current waveform deviates from the voltage waveform and depends on the instantaneous ratio between voltage and current. This leads to the creation of a non-sinusoidal waveform.
A classic example of a non-linear load is found in the input rectifier bridge embedded within drives. Understanding these principles is essential for managing harmonics effectively.



INPUT RECTIFIER BRIDGE IS A TYPICAL EXAMPLE OF NON-LINEAR LOAD

Harmonic Rating

Assessing harmonic content involves the use of THD (Total Harmonic Distortion) and TDD (Total Demand Distortion) parameters.
THD, expressed as a percentage, is calculated by the following formula:

$$THD = \frac{\sqrt{I2^2+I3^2+I4^2+I5^2+\cdots}}{I1}$$

Here, I1 represents the current at that moment, while I2, I3, ... denote the harmonic currents at that same moment.

TDD, akin to calculating THD, differs in that it refers to the current Ir, which is the rated current at full load:

$$TDD = \frac{\sqrt{I2^2+I3^2+I4^2+I5^2+\cdots}}{Ir}$$

While THD is a percentage measured at an instant, it lacks a real indication of harmonic distortion without knowledge of the load current absorbed at that specific moment.

Contrastingly, TDD, referring to the rated current, provides an immediate indication of harmonic distortion, leveraging the known datum of the rated current. Both THD and TDD align with the rated current.

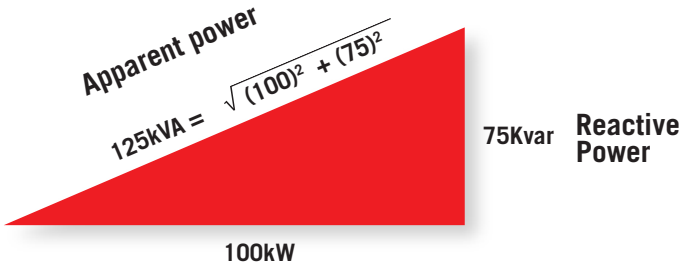
Power Factor

Power factor is the ratio between real power and apparent power in a circuit.

The measured power factor falls within the -1 to 1 interval. A power factor less than one indicates a phase misalignment between voltage and current waveforms. A negative power factor arises when generated power from the load flows back to the source.

Common instances of low power factor include linear loads like induction motors and non-linear loads like rectifiers.

In an electric power system, a low power factor load draws more current than a load with a higher power factor. The higher current results in increased energy loss, necessitating larger cable wires and additional solutions. Consequently, facilities with a low power factor often incur higher charges from electrical utilities.



$$\text{Power Factor } \cos\Theta = \frac{\text{P, real power}}{\text{S, apparent power}}$$

Challenges Arising from Harmonic and Displacement Power Factor

Both harmonic distortion and displacement power factor give rise to several issues within an installation:

- Oversizing of power cables, transformers, and generators to accommodate higher currents resulting from reactive energy
- Voltage harmonic distortion caused by an unbalanced load can extend its impact to other loads within the installation
- Disruptive resonance may occur with other reactive components on the same power line
- Increased utility costs may result from kVAR (reactive power) returning to the mains
- Communication interference
- Energy loss

Harmonic Solutions

Enerdoor offers a range of devices designed to effectively mitigate harmonic distortion, including:

- DC chokes
- Line reactors
- Passive and active harmonic filters

The table below illustrates typical examples of a non-linear load with current THD % and the Enerdoor solution:

Technique	Current THD %
No mitigation	50 - 70%
DC Choke	30 - 40%
3% Line reactor + DC choke	30 - 40%
5% Line reactor + DC choke	25 - 35%
Passive harmonic filter	5 - 10%
Active front end	3 - 6%
Active harmonic filter	5%

Enerdoor has developed a series of line reactors and passive and active harmonic filters to cater to various requirements concerning harmonic reduction and cost-effectiveness. Line reactors and passive harmonic filters are recommended for single-drive applications and sized according to the total current. Alternatively, the active harmonic filter, working in parallel, compensates current for single or multiple load applications operating under varied loads. These solutions can be applied to individual applications or an entire facility.

Power Factor Correction:

While a capacitor bank is the conventional solution for power factor correction, introducing capacitance effectively offsets the effects of inductive loads, bringing the power factor close to 1.
Enerdoor offers an advanced alternative – the static var generator, surpassing the capabilities of traditional capacitor banks. This innovative technology utilizes an Insulated Gate Bipolar Transistor (IGBT) and operates as a modular system, allowing parallel installation to the main line.
Key advantages of the static var generator over traditional capacitor banks include:

- Immunity to harmonic resonance influences
- Compensation for both inductive and capacitive reactive power
- Active system, unaffected by voltage fluctuations from the grid
- Rapid response time

ENERDOOR
Engineered by Finmotor

Filter Selection Guide Harmonic Filters	Description	Current Range (A)	Voltage	CONNECTORS			FEATURES					APPLICATIONS					Approval
				Terminal Blocks	Screws	Bus Bar	Additional Power Factor Port	Enclosed	Active Technology	Meets IEC61000-3-12 / IEEE 519	Compact Case	Variable Frequency Drive	Automation	Power Factor Correction	HVAC System	End-User Application	
LRT	3-phase	2-1000	400-480	●	●	●					●	●	●				c UL us
FINHRM5C	3-phase	10-750	400-480	●	●	●				●		●			●		c UL us
AHF	3-phase 3-phase plus neutral	50-150	400	●				●	●	●	●		●			●	
SVG	3-phase 3-phase plus neutral	50-100 Kvar	400	●			●	●	●					●		●	

HARMONIC FILTERS

The Enerdoor Harmonic Filter Series provides comprehensive solutions, including passive and active harmonic filters, line reactors, and static var generators.

The Passive Harmonic Filter, FINHRM5C, is available up to 750 A with nominal voltages up to 690 Vac. These filters reduce Total Harmonic Distortion (THD) to below 5%, ensuring compliance with international standards such as EN61000-3-2, EN61000-3-12, and IEEE-519.

Our Active Harmonic Filters, AHF, feature a modular design installed in parallel with the power line. AHFs effectively reduce harmonics to less than 5%, support nominal voltages up to 400 Vac, and offer reactive power compensation ranging from 50 to 150 A.

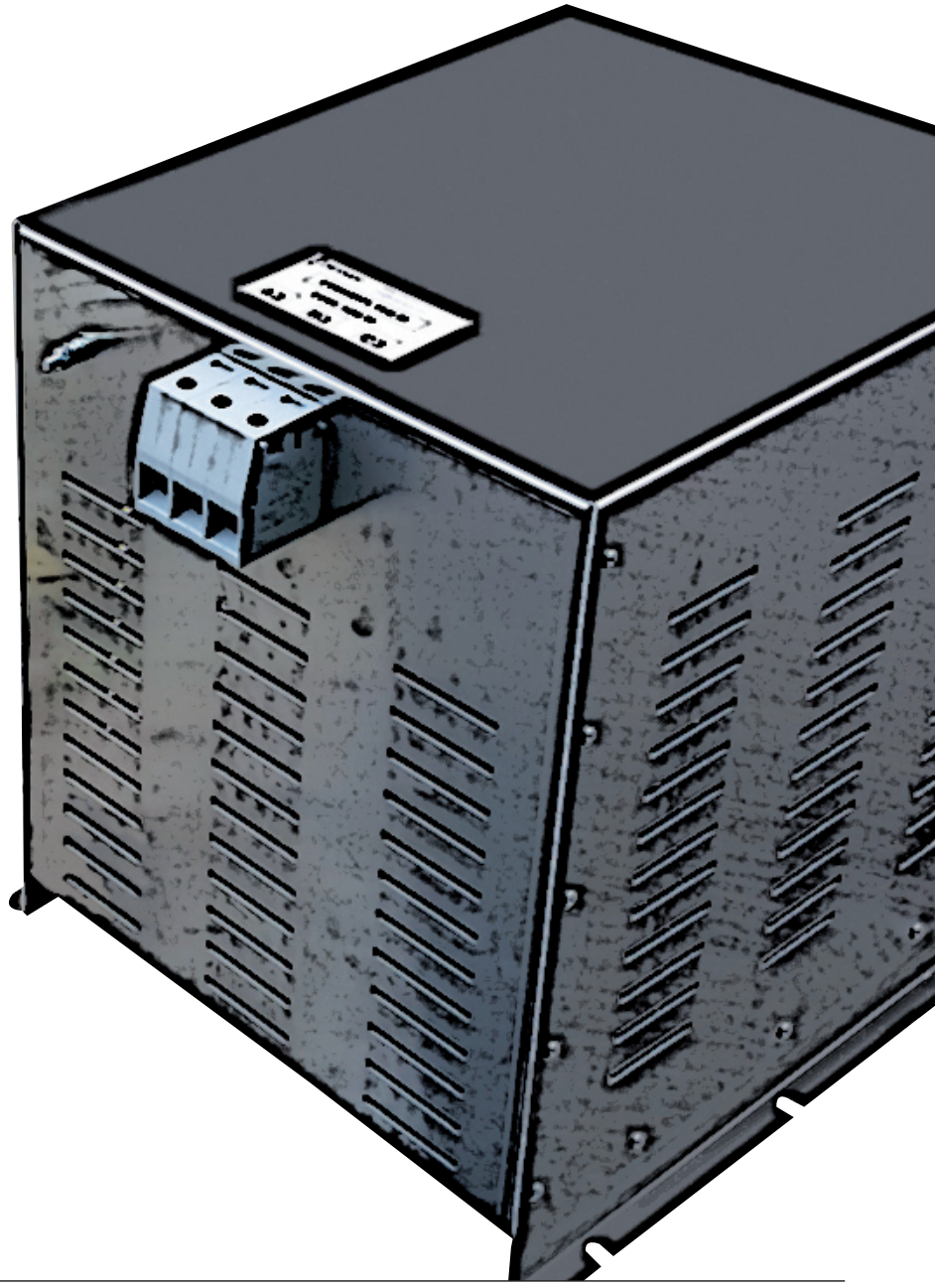
Our Line Reactor series, LRT, offers impedance options of 3%, 4%, and 5%, with nominal voltages up to 690 Vac. These reactors are ideal for harmonic reduction and inverter protection.

The Enerdoor SVG, designed with a modular structure, integrates seamlessly in parallel with the power line. It compensates reactive power and significantly improves power factor.

Explore the Enerdoor Harmonic Filter Series for reliable, high-performance solutions to meet your power quality needs.

Harmonic filter applications include:

- VFDs and servo drives
- Water and wastewater
- Oil and gas industries
- HVAC systems
- Automated machinery
- Industrial equipment
- Mining operations
- Packaging and printing machinery

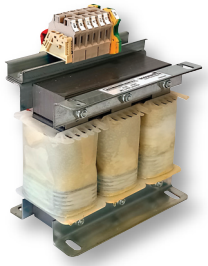


Datasheet 202405

Three-phase line reactor with 3%, 4%, 5% drop for harmonic reduction and inverter protection

APPROVALS:

E480443



LRT025 - LRT030

LRT040 - LRT050

LRT060 - LRT080

CHARACTERISTICS

- Class H windings
- Compact dimensions
- Available with thermocouples

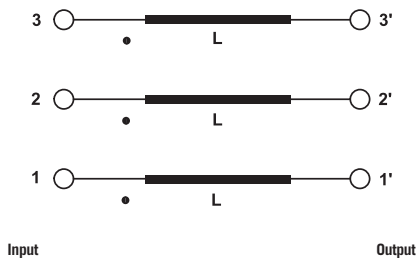
BENEFITS

- Minimal power loss
- Ventilation-free design
- Mitigates harmonic distortion

MARKETS

- Variable frequency drives / servo drives
- Water treatment plants
- Industrial automation
- HVAC systems

ELECTRICAL DIAGRAM



CODE

LRT040.0075453MXXA

LRT040	0075	4	5	3	M	XX	A
Model	***Current***	***Voltage***	***Frequency***	***Drop***	***Connection***	***Protection***	***Open Frame***
		400/480 V	50/60 Hz	3 = 3%	M = Terminal block	XX = None	
				4 = 4%	B = Bus bar	T1=1 Thermocouple	
				5 = 5%		T3 = 3 Thermocouples	

TECHNICAL SPECIFICATIONS

Nominal voltage	400 - 480 Vac
Frequency	50/60 Hz
Rated current	2 - 1000 A
Ambient temperature	40°C Derating $I_T = \sqrt{(85-T)/45}$
Altitude	1000m Derating 0.5% every 100m
Relative humidity	<95% no condensation
Overload capability	1.5 x Rated current
IP Protection	IP20 up to 180A IP00 over 260A
Optional	Current and inductance customizations available on request

LRT 3%

Three-Phase Line Reactor

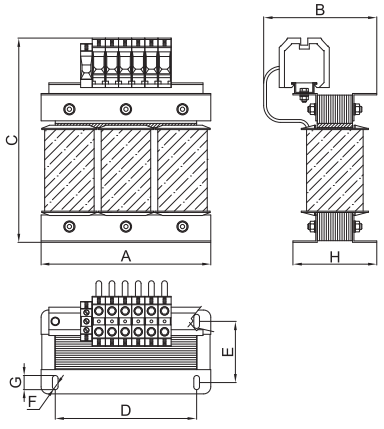
ELECTRICAL CHARACTERISTICS / MECHANICAL DIMENSIONS mm / CONNECTIONS

LRT	Rated Current 40°C	Power Loss (W)	A	B	C	D	E	F	G	H	Weight (Kg.)	Case	LINE Cable (mm²)	LINE Terminal Torque (Nm)	PE Cable (mm²)	PE Terminal Torque (Nm)
LRT025.0002453MXXA	2	7	150	98	185	125	56	6	13	73	3	1	0.5-4	0.8	0.5-4	0.8
LRT025.0004453MXXA	4	11	150	98	185	125	56	6	13	73	3	1	0.5-4	0.8	0.5-4	0.8
LRT025.0006453MXXA	6	15	150	98	185	125	56	6	13	73	3	1	0.5-4	0.8	0.5-4	0.8
LRT025.0008453MXXA	8	19	150	98	185	125	56	6	13	73	3	1	0.5-4	0.8	0.5-4	0.8
LRT025.0012453MXXA	12	26	150	98	185	125	56	6	13	73	3.5	1	0.5-4	0.8	0.5-4	0.8
LRT025.0016453MXXA	16	25	150	113	189	125	71	6	13	88	5	1	0.5-6	1.8	0.5-6	1.8
LRT025.0020453MXXA	20	30	150	113	189	125	71	6	13	88	5	1	0.5-6	1.8	0.5-6	1.8
LRT030.0025453MXXA	25	35	180	130	218	150	72	8	20	100	6.5	1	0.5-10	1.8	0.5-10	1.8
LRT030.0032453MXXA	32	48	180	140	218	150	82	8	20	110	8	1	0.5-10	1.8	0.5-10	1.8
LRT030.0038453MXXA	38	53	180	140	218	150	82	8	20	110	8	1	1.5-16	3.4	1.5-16	3.4
LRT030.0045453MXXA	45	48	180	150	231	150	92	8	20	120	10	1	1.5-16	3.4	1.5-16	3.4
LRT030.0060453MXXA	60	53	180	165	231	150	107	8	20	135	12	1	1.5-16	3.4	1.5-16	3.4
LRT040.0075453MXXA	75	79	240	149	281	200	87	8	20	119	15	1	1.5-16	3.4	1.5-16	3.4
LRT040.0090453MXXA	90	82	240	160	289	200	87	8	20	119	15.5	1	16-50	5.6	1.5-35	6.5
LRT040.0110453MXXA	110	93	240	170	289	200	97	8	20	129	19	1	16-50	5.6	1.5-35	6.5
LRT040.0130453MXXA	130	108	240	200	309	200	117	8	20	149	24.5	1	35-95	10	16-50	5.6
LRT050.0150453MXXA	150	112	300	184	359	260	103	8	26	143	28	1	35-95	10	16-50	5.6
LRT050.0180453MXXA	180	134	300	200	359	260	103	8	26	143	30	1	35-95	10	16-50	5.6

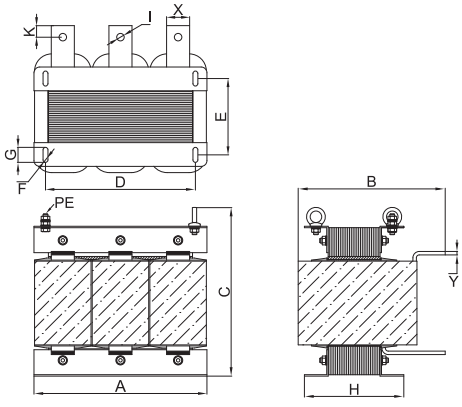
ELECTRICAL CHARACTERISTICS / MECHANICAL DIMENSIONS mm / CONNECTIONS

LRT	Rated Current 40°C	Power Loss (W)	A	B	C	D	E	F	G	H	I	M	J	K	X	Y	Weight (Kg.)	Case	LINE Torque (Nm)	PE Screw (mm)
LRT050.0210453BXXA	210	104	300	223	295	260	113	8	26	153	11			15	30	6	34	2	25	8x25
LRT050.0260453BXXA	260	134	300	245	295	260	133	8	26	173	13			15	40	6	43	2	50	8x25
LRT050.0320453BXXA	320	142	300	288	295	260	143	8	26	183	13	20	20	15	50	6	52	3	50	8x25
LRT060.0380453BXXA	380	162	360	242	345	260	115	8	26	155	13	20	20	15	50	6	55	3	50	8x25
LRT060.0440453BXXA	440	196	360	260	345	260	145	8	26	185	13	14	20	15	40	10	71	3	50	8x25
LRT060.0500453BXXA	500	210	360	279	345	260	145	8	26	185	13	20	20	15	50	10	73	3	50	8x25
LRT060.0600453BXXA	600	250	360	334	345	260	185	8	26	225	13	20	20	15	50	10	95	3	50	8x25
LRT080.0700453BXXA	700	260	480	298	459	360	154	10	30	200	13	20	20	20	60	10	102	3	50	10x35
LRT080.0800453BXXA	800	355	480	363	459	360	214	10	30	260	13	20	20	20	60	10	165	3	50	10x35
LRT100.0900453BXXA	900	475	600	360	559	380	210	14	30	254	13	40	40	20	80	10	235	3	50	10x35
LRT100.1000453BXXA	1000	550	600	360	559	380	210	14	30	254	13	40	40	20	100	10	236	3	50	10x35

CASE 1



CASE 2



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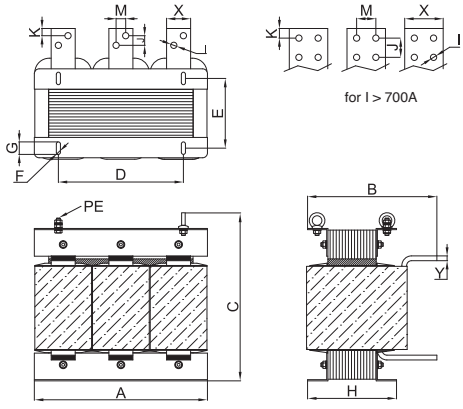


LRT 4%

Three-Phase Line Reactor

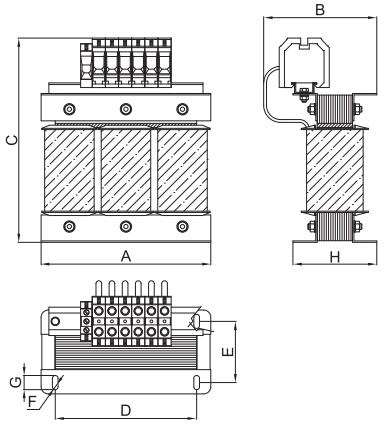
ELECTRICAL CHARACTERISTICS / MECHANICAL DIMENSIONS mm / CONNECTIONS

LRT	Rated Current 40°C	Power Loss (W)	A	B	C	D	E	F	G	H	Weight (Kg.)	Case	LINE Cable (mm²)	LINE Terminal Torque (Nm)	PE Cable (mm²)	PE Terminal Torque (Nm)
LRT025.0002454MXXA	2	8	150	98	185	125	56	6	13	73	3	1	0.5-6	0.8	0.5-4	0.8
LRT025.0004454MXXA	4	13	150	98	185	125	56	6	13	73	3	1	0.5-4	0.8	0.5-4	0.8
LRT025.0006454MXXA	6	18	150	98	185	125	56	6	13	73	3	1	0.5-4	0.8	0.5-4	0.8
LRT025.0008454MXXA	8	22	150	98	185	125	56	6	13	73	3.5	1	0.5-4	0.8	0.5-4	0.8
LRT025.0012454MXXA	12	29	150	103	185	125	61	6	13	78	4	1	0.5-4	0.8	0.5-4	0.8
LRT025.0016454MXXA	16	31	150	113	189	125	71	6	13	88	5.5	1	0.5-6	1.8	0.5-6	1.8
LRT030.0020454MXXA	20	45	180	125	214	150	72	8	20	100	6.5	1	0.5-6	1.8	0.5-6	1.8
LRT030.0025454MXXA	25	41	180	140	218	150	82	8	20	110	8.5	1	0.5-10	1.8	0.5-10	1.8
LRT030.0032454MXXA	32	51	180	140	218	150	82	8	20	110	9	1	0.5-10	1.8	0.5-10	1.8
LRT030.0038454MXXA	38	47	180	150	231	150	92	8	20	120	10.5	1	1.5-16	3.4	1.5-16	3.4
LRT030.0045454MXXA	45	58	180	165	231	150	107	8	20	135	12.5	1	1.5-16	3.4	1.5-16	3.4
LRT040.0060454MXXA	60	74	240	149	281	200	87	8	20	119	15.5	1	1.5-16	3.4	1.5-16	3.4
LRT040.0075454MXAA	75	87	240	159	281	200	97	8	20	129	19	1	1.5-16	3.4	1.5-16	3.4
LRT040.0090454MXXA	90	92	240	169	289	200	97	8	20	129	19.5	1	16-50	5.6	1.5-35	6.5
LRT040.0110454MXXA	110	109	240	189	289	200	117	8	20	149	26	1	16-50	5.6	1.5-35	6.5
LRT050.0130454MXXA	130	127	300	200	359	260	103	8	26	143	30	1	35-95	10	16-50	5.6
LRT050.0150454MXXA	150	132	300	200	359	260	103	8	26	143	32	1	35-95	10	16-50	5.6
LRT050.0180454MXXA	180	147	300	210	359	260	113	8	26	153	36	1	35-95	10	16-50	5.6

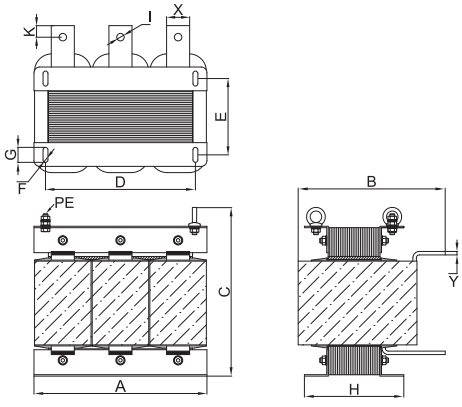
ELECTRICAL CHARACTERISTICS / MECHANICAL DIMENSIONS mm / CONNECTIONS

LRT	Rated Current 40°C	Power Loss (W)	A	B	C	D	E	F	G	H	I	M	J	K	X	Y	Weight (Kg.)	Case	LINE Torque (Nm)	PE Screw (mm)
LRT050.0210454BXXA	210	133	300	273	295	260	133	8	26	173	11			15	30	6	46	2	25	8x25
LRT060.0260454BXXA	260	154	360	273	345	260	115	8	26	155	13	20	20	15	50	6	52	2	50	8x25
LRT060.0320454BXXA	320	175	360	289	345	260	115	8	26	155	13	20	20	15	50	6	56	3	50	8x25
LRT060.0380454BXXA	380	185	360	289	345	260	145	8	26	185	13	20	20	15	50	6	74	3	50	8x25
LRT060.0440454BXXA	440	225	360	312	345	260	165	8	26	205	13	14	20	15	40	10	85	3	50	8x25
LRT060.0500454BXXA	500	239	360	315	345	260	165	8	26	205	13	20	20	15	50	10	88	3	50	8x25
LRT080.0600454BXXA	600	288	480	306	459	360	154	10	30	200	13	20	20	15	50	10	108	3	50	8x25
LRT080.0700454BXXA	700	335	480	323	459	360	184	10	30	230	13	20	20	20	60	10	135	3	50	10x35
LRT100.0800454BXXA	800	482	600	375	559	380	210	14	30	252	13	40	40	20	80	10	235	3	50	10x35
LRT100.0900454BXXA	900	534	600	375	559	380	210	14	30	252	13	40	40	20	80	10	235	3	50	10x35
LRT100.1000454BXXA	1000	546	600	394	559	380	210	14	30	252	13	40	40	20	100	10	239	3	50	10x35

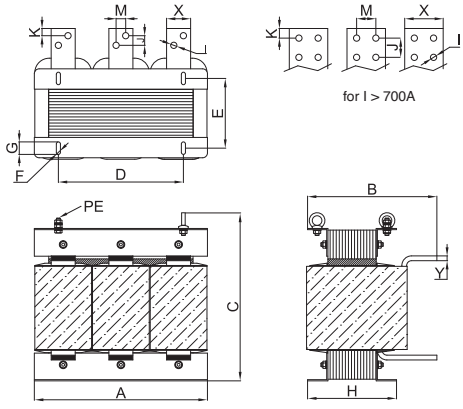
CASE 1



CASE 2



CASE 3



LRT 5%

Three-Phase Line Reactor

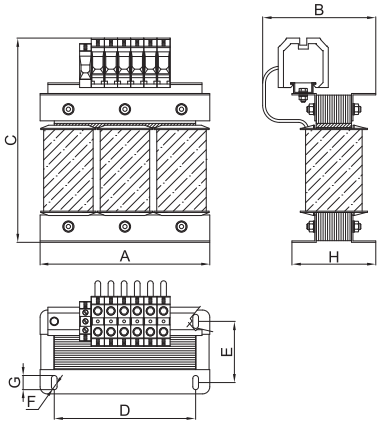
ELECTRICAL CHARACTERISTICS / MECHANICAL DIMENSIONS mm / CONNECTIONS

LRT	Rated Current 40°C	Power Loss (W)	A	B	C	D	E	F	G	H	Weight (Kg.)	Case	LINE Cable (mm²)	LINE Terminal Torque (Nm)	PE Cable (mm²)	PE Terminal Torque (Nm)
LRT025.0002455MXXA	2	10	150	98	185	125	56	6	13	73	3	1	0.5-6	0.8	0.5-4	0.8
LRT025.0004455MXXA	4	15	150	98	185	125	56	6	13	73	3	1	0.5-4	0.8	0.5-4	0.8
LRT025.0006455MXXA	6	22	150	98	185	125	56	6	13	73	3	1	0.5-4	0.8	0.5-4	0.8
LRT025.0008455MXXA	8	27	150	98	185	125	56	6	13	73	3.5	1	0.5-4	0.8	0.5-4	0.8
LRT025.0012455MXXA	12	29	150	113	185	125	71	6	13	88	5.5	1	0.5-4	0.8	0.5-4	0.8
LRT030.0016455MXXA	16	42	180	125	214	150	72	8	20	100	6.5	1	0.5-6	1.8	0.5-6	1.8
LRT030.0020455MXXA	20	41	180	135	214	150	82	8	20	110	8	1	0.5-6	1.8	0.5-6	1.8
LRT030.0025455MXXA	25	50	180	140	218	150	82	8	20	110	8.5	1	0.5-10	1.8	0.5-10	1.8
LRT030.0032455MXXA	32	59	180	150	218	150	92	8	20	120	10.5	1	0.5-10	1.8	0.5-10	1.8
LRT030.0038455MXXA	38	55	180	165	231	150	107	8	20	135	13.5	1	1.5-16	3.4	1.5-16	3.4
LRT040.0045455MXXA	45	73	240	149	281	200	87	8	20	119	15.5	1	1.5-16	3.4	1.5-16	3.4
LRT040.0060455MXXA	60	88	240	149	281	200	87	8	20	119	16.5	1	1.5-16	3.4	1.5-16	3.4
LRT040.0075455MXAA	75	94	240	179	281	200	117	8	20	149	25	1	1.5-16	3.4	1.5-16	3.4
LRT040.0090455MXXA	90	112	240	189	289	200	117	8	20	149	25	1	16-50	5.6	1.5-35	6.5
LRT040.0110455MXXA	110	116	240	189	289	200	117	8	20	149	27	1	16-50	5.6	1.5-35	6.5
LRT050.0130455MXXA	130	138	300	193	359	260	113	8	26	153	35	1	35-95	10	16-50	5.6
LRT050.0130455MXXA	150	148	300	193	359	260	113	8	26	153	37	1	35-95	10	16-50	5.6
LRT050.0180455MXXA	180	169	300	220	359	260	133	8	26	173	45	1	35-95	10	16-50	5.6

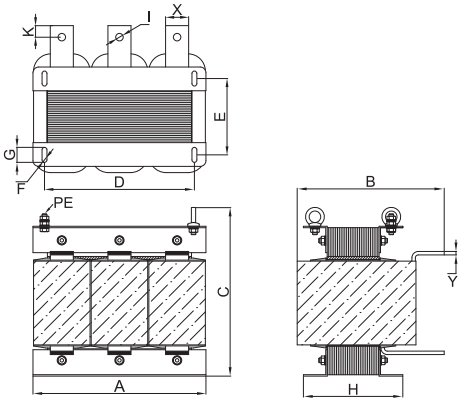
ELECTRICAL CHARACTERISTICS / MECHANICAL DIMENSIONS mm / CONNECTIONS

LRT	Rated Current 40°C	Power Loss (W)	A	B	C	D	E	F	G	H	I	M	J	K	X	Y	Weight (Kg.)	Case	LINE Torque (Nm)	PE Screw (mm)
LRT050.0210455BXXA	210	152	300	286	295	260	143	8	26	183	11			15	30	6	51.5	2	25	8x25
LRT060.0260455BXXA	260	180	360	299	345	260	145	8	26	185	13	20	20	15	50	6	71	2	50	8x25
LRT060.0320455BXXA	320	201	360	310	345	260	145	8	26	185	13	20	20	15	50	6	74	3	50	8x25
LRT060.0380455BXXA	380	228	360	323	345	260	165	8	26	205	13	20	20	15	50	6	90	3	50	8x25
LRT080.0440455BXXA	440	285	480	315	445	360	154	10	30	200	13	14	20	15	40	10	104	3	50	8x25
LRT080.0500455BXXA	500	302	480	321	445	360	154	10	30	200	13	20	20	15	50	10	110	3	50	8x25
LRT080.0600455BXXA	600	318	480	321	445	360	184	10	30	230	13	20	20	15	50	10	139	3	50	8x25
LRT080.0700455BXXA	700	398	480	353	445	360	214	10	30	260	13	20	20	20	60	10	169	3	50	10x35
LRT100.0800455BXXA	800	537	600	387	559	380	210	14	30	252	13	40	40	20	80	10	239	3	50	10x35
LRT100.0900455BXXA	900	557	600	389	559	380	210	14	30	252	13	40	40	20	80	10	244	3	50	10x35
LRT100.1000455BXXA	1000	640	600	417	559	380	210	14	30	252	13	40	40	20	100	10	290	3	50	10x35

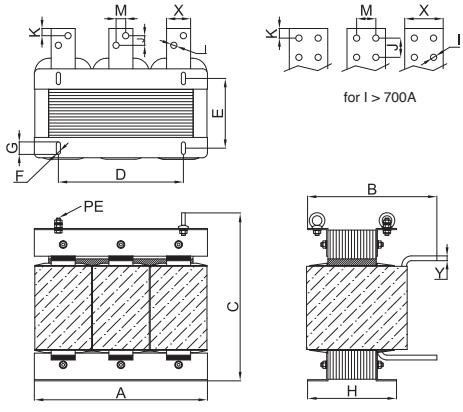
CASE 1



CASE 2



CASE 3

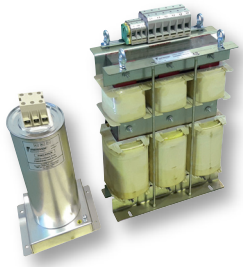


Datasheet 03/2021

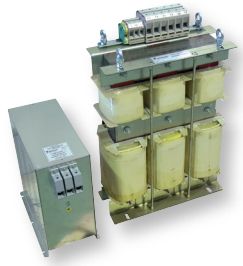
Passive harmonic filter with excellent THD reduction to <5%

APPROVALS:

E480443



FINHRM5C. (010-110).M



FINHRM5C. (150-210).M

FINHRM5C. (260-750).B

FEATURES

- Rated current from 10 to 1400A
- Reduces current THD <5% with an unbalanced voltage of 2.5%
- Improves flicker and power factor
- UL Recognized
- Very compact case, open frame or enclosed

BENEFITS

- Breaker available upon request
- Finger safe protection upon request
- Ensures IEEE519 and EN61000-3-12 compliance
- Low power loss and operating temperature
- Remote power quality monitor available

MARKETS

- VFDs and servo drives
- Processing and industrial automation
- Water and wastewater
- Oil & gas
- HVAC systems
- End user facilities

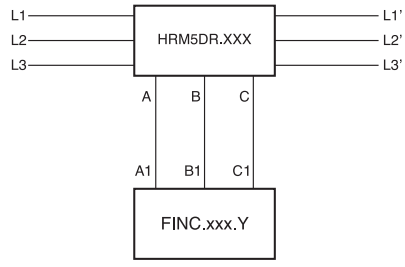
ORDERING CODE

FINHRM5C	.010	.M	-60
Model	Current (A)	Connection	Frequency
		M = Terminal block	50 = 50Hertz
		V = Screw	60 = 60Hertz
		B = Bus bar	

ATTENUATION INDICATOR

High	Very High	Excellent

ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0-480 Vac / 690 Vac HV Version
Frequency	50 – 60 Hz
Rated current	10 - 750A
Potential test voltage phase to phase	2400 Vdc (2 sec.)
Potential test voltage phase to ground	3200 Vdc (2 sec.)
IP Protection	IP20 up to 210A
	IP00 over 210A
Overload capability	4 x Rated current (Switch ON)
	2 x In 10 seconds
	1.5 In for 10 minutes
Climatic class	-40 to +85° C
MTBF at 40°C	250.000 Hrs

FINHRM5C

Passive Harmonic Filter

ELECTRICAL CHARACTERISTICS

FINHRM5C	Rated Current 50° C	Rated Power (KW)		Power Loss (W)	
		400 Vac	480 Vac	400 Vac	480 Vac
.010.M	10	4	5.5	165	198
.016.M	16	7.5	11	245	294
.024.M	24	11	14	263	316
.032.M	32	15	18.5	310	372
.038.M	38	18	22	380	456
.045.M	45	22	30	420	504
.060.M	60	29	35	505	606
.075.M	75	36	44	520	624
.090.M	90	43	52	530	636
.110.M	110	53	64	646	775
.150.M	150	73	87	775	930
.180.M	180	87	105	797	956
.210.M	210	105	126	815	978

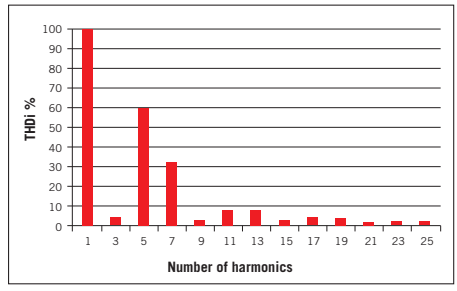
FINHRM5C	Rated Current 50° C	Rated Power (KW)		Power Loss (W)	
		400 Vac	480 Vac	400 Vac	480 Vac
.260.B	260	130	160	710	852
.320.B	320	160	200	725	870
.380.B	380	184	221	690	828
.470.B	470	228	273	620	744
.580.B	580	280	337	1000	1200
.650.B	650	315	378	1130	1356
.750.B	750	365	437	1280	1360

CONNECTIONS

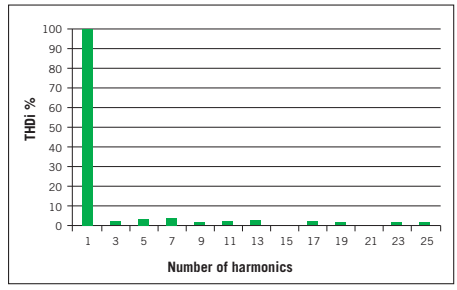
Cross Section (AWG)	Stranded (mm^2)	Terminal Block Torque (Nm)	PE Torque (Nm)
26-8	1.5-10	1.6	1.6
16-4	1.5-16	1.9	1.9
14-6	1.5-25	4	4
14-6	1.5-25	4	4
12-2	2.5-50	5	5
12-2	2.5-50	5	5
8-0	10-70	6	6
8-0	10-70	6	6
0-6	16-95	12	12
0-6	16-95	12	12
4-250	16-150	12-20	12-20
4-250	16-150	12-20	12-20
2-250	35-150	10-20	10-20

Line		Ground	
D (mm)	Torque (Nm)	D (mm)	Torque (Nm)
M8	18	M10	18
M8	18	M10	18
M8	18	M10	18
M8	18	M10	18
M8	18	M10	18
M8	18	M10	18
M8	18	M10	18

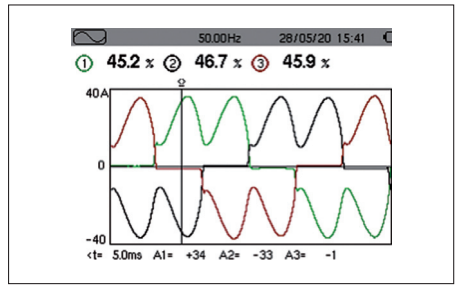
TYPICAL MEASUREMENT



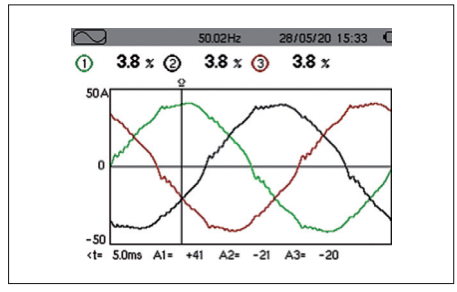
Typical measurement without FINHRM5C



Typical measurement with FINHRM5C



THD current Distortion from VFD - No Filtering



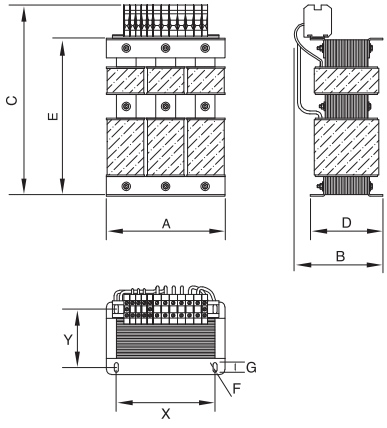
THD current Distortion from VFD - with FINHRM5C

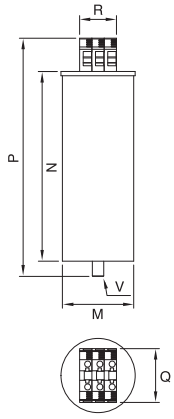
MECHANICAL DIMENSIONS mm

FINHRM5C	A	B	C	D	E	F	G	X	Y	M	N	P	Q	R	V	Weight Kg.	Case
.010.M-50	180	145	282	120	225	8	20	150	90	75	163	198	44	44	M12	15	1
.010.M-60	180	145	282	120	225	8	20	150	90	75	163	198	36	48	M12	15	1
.016.M-50	240	160	385	126	315	8	20	200	98	75	200	235	44	44	M12	27	1
.016.M-60	240	160	385	126	315	8	20	200	98	75	163	198	44	44	M12	27	1
.024.M.*	240	160	380	128	315	8	20	200	100	75	200	235	44	44	M12	30	1
.032.M-50	240	180	390	147	320	8	20	200	118	75	275	320	44	44	M12	34	1
.032.M-60	240	180	390	147	320	8	20	200	118	75	200	235	44	44	M12	34	1
.038.M.*	300	200	468	153	397	8.5	26	260	115	75	275	320	44	44	M12	47	1
.045.M-50	300	200	468	150	400	8.5	26	260	110	85	275	320	44	44	M12	50	1
.045.M-60	300	200	468	150	400	8.5	26	260	110	116	275	372	61	50	M12	50	1
.060.M.*	300	220	470	175	400	8.5	26	260	130	136	236	276	48	36	M12	63	1
.075.M-50	360	210	564	155	480	8.5	26	260	115	116	281	321	48	36	M12	68	1
.075.M-60	360	210	564	155	480	8.5	26	260	115	96	275	327	61	50	M12	68	1
.090.M-50	360	230	572	165	475	8.5	26	260	125	116	281	321	48	36	M12	80	1
.090.M-60	360	230	572	165	475	8.5	26	260	125	116	251	303	48	36	M12	80	1
.110.M-50	360	250	572	185	475	8.5	26	260	145	136	251	326	61	50	M12	94	1
.110.M-60	360	250	572	185	475	8.5	26	260	145	116	281	321	61	50	M12	94	1

*** = Mechanical dimensions suitable for both 50/60 Hz applications**

CASE 1

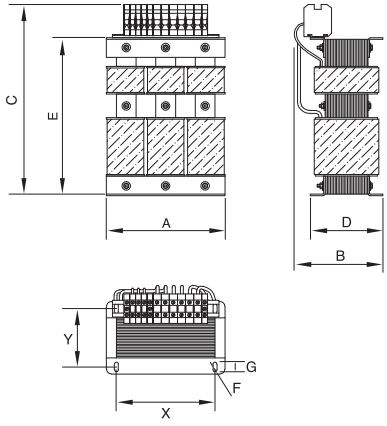


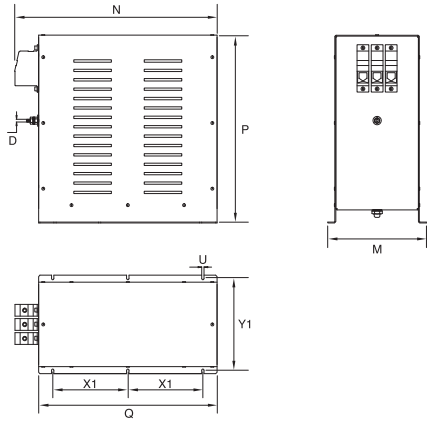


FINHRM5C	A	B	C	D	E	F	G	X	Y	M	N	P	Q	U	V	X1	Y1	Weight Kg.	Case
.150.M.*	360	335	577	235	480	8.5	26	260	190	210	432	400	380	5	M6	160	195	130	2
.180.M.*	480	280	750	205	650	11	30	360	196	210	432	400	380	5	M6	160	195	150	2
.210.M.*	480	300	765	225	690	11	30	360	175	210	432	400	380	5	M6	160	195	175	2

*** = Mechanical dimensions suitable for both 50/60 Hz applications**

CASE 2



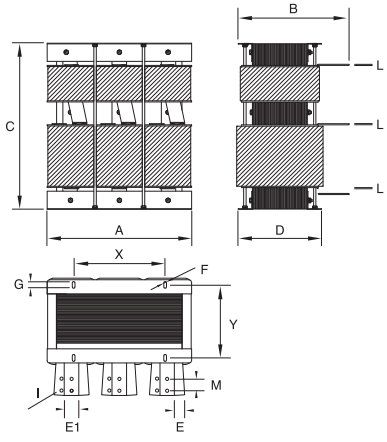


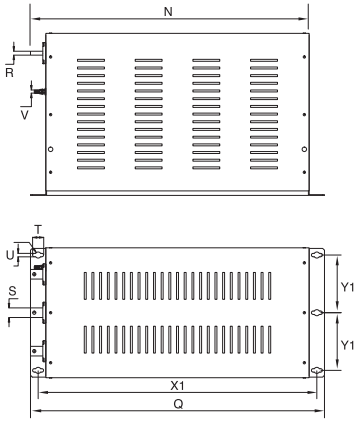
MECHANICAL DIMENSIONS mm

FINHRM5C	A	B	C	D	E	E1	F	G	I	L1	L	M	N	P	Q	R	S	T	U	V	X	Y	X1	Y1	Weight Kg.	Case
.260.B*	480	360	620	290	30	30	11	30	13	6	6	338	412	422	450	10	25	29	16	M8	360	250	410	150	198	3
.320.B*	480	370	640	300	30	30	11	30	13	6	6	338	412	422	450	10	25	29	16	M8	360	260	410	150	250	3
.380.B*	480	405	620	317	30	30	11	30	13	6	6	338	412	422	450	10	25	29	16	M8	360	275	410	150	320	3
.470.B-50	660	400	690	280	30	60	14	30	13	6	5	338	412	422	450	10	25	29	16	M8	410	235	410	150	390	3
.470.B-60	660	400	690	280	30	60	14	30	13	6	5	338	735	422	765	15	30	29	16	M8	410	235	725	150	390	3
.580.B*	660	500	690	394	30	40	14	30	13	6	10	338	735	422	765	15	30	29	16	M8	410	350	725	150	490	3
.650.B-50	660	470	790	344	30	40	14	30	13	6	10	338	735	422	765	15	30	29	16	M8	410	299	725	150	530	3
.650.B-60	660	470	790	344	30	40	14	30	13	6	10	340	570	422	600	15	30	29	16	M8	410	299	560	150	530	3
.750.B-50	660	460	790	363	30	40	14	30	13	6	10	338	735	422	765	15	30	29	16	M8	410	320	725	150	550	3
.750.B-60	660	460	790	363	30	40	14	30	13	6	10	340	570	422	600	15	30	29	16	M8	410	320	560	150	550	3

*** = Mechanical dimensions suitable for both 50/60 Hz applications**

CASE 3





Datasheet 5/2023

Active harmonic filter with excellent attenuation of current harmonic distortion

APPROVALS:

CE RoHS UKCA

RACK MOUNTED

WALL MOUNTED

FEATURES

- Compact and reliable installation
- Advanced software control algorithm
- Communication protocol RS485, Ethernet
- 3 level NPC topology, IGBT
- Random module combination

BENEFITS

- Harmonic compensation, reactive power compensation and three-phase unbalanced compensation
- Complete protection against overvoltage, undervoltage and short circuits
- Double-DSP control system
- Fault alarm and recording function
- Touch screen HMI interface

MARKETS

- VFDs and servo drives
- Water and wastewater
- Oil and gas industries
- Commercial buildings
- Process automation
- End-user plants

ORDERING CODE

AHF	.050.	.4	.3F	.R
Model	Current (A)	2 = 220 V 4 = 400 V 5 = 480 V 7 = 690 V	3F = 3phase 4F = 3phase with neutral	R = Rack mount W = Wall mount

ATTENUATION INDICATOR

High	Very High	Excellent

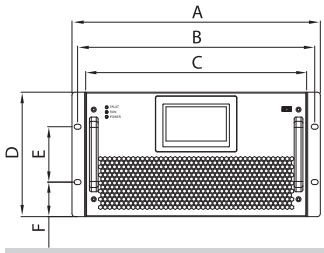
TECHNICAL SPECIFICATIONS

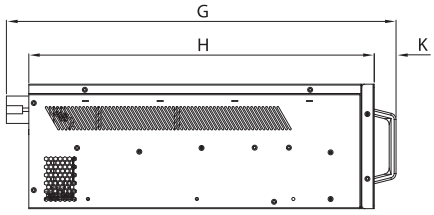
Nominal voltage	400 Vac (other voltages available on request)
Frequency	50 – 60 Hz -5 to +3%
Current compensation	15 to 200A
Overall efficiency	>97%
Power grid structure	3-phase, 3-phase plus neutral
Earthing connection system	TT, TN-C, TN-S, TN-C-S, IT
Current transformer	150:5 ~ 6000:5
Harmonic filtering range	2nd to 50th orders
Reaction time	<50 us
Overall response time	<5 ms
Switching frequency	20 KHz
Communication ports	RS485, Ethernet
Module display interface	4.3 inch color LCD touch screen
Altitude	1000m Over power decreases by 1% every 100m
Operating temperature	-10°C to + 40°C
Protection class	IP 20
Noise level	<56 dB
Color	Ral 7035, Light gray

RACK MOUNTED

AHF	I (A)	Connection	Air cooling	A	B	C	D	E	F	G	H	K	Case
.050.4.3F.R	50	3P	150 l/s	359	341	315	200	89	55,5	538	500	13	1
.050.4.4F.R	50	3P+N	150 l/s	359	341	315	200	89	55,5	538	500	13	1
.100.4.3F.R	100	3P	300 l/s	484	466	440	232	89	71,5	646	575	35	1
.100.4.4F.R	100	3P+N	300 l/s	484	466	440	232	89	71,5	646	575	35	1
.100.7.3F.R	100	3P	600 l/s	569	551	525	250	89	80,5	697	626	35	1
.100.7.4F.R	100	3P+N	600 l/s	569	551	525	250	89	80,5	697	626	35	1
.150.4.3F.R	150	3P	450 l/s	554	536	510	250	89	80,5	656	585	35	1
.150.4.4F.R	150	3P+N	450 l/s	554	536	510	250	89	80,5	656	585	35	1
.200.4.3F.R	200	3P	600 l/s	674	656	630	250	89	80,5	676	640	30	1
.200.4.4F.R	200	3P+N	600 l/s	674	656	630	250	89	80,5	676	640	30	1

CASE 1

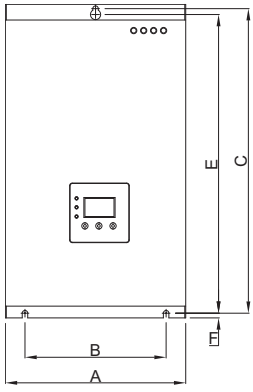


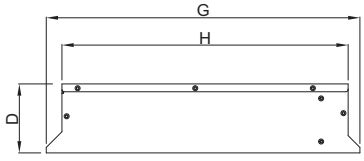


WALL MOUNTED

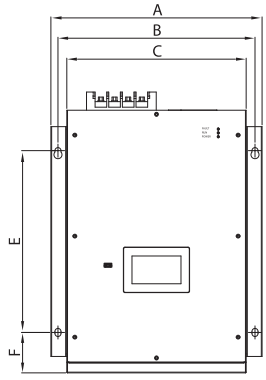
AHF	I (A)	Connection	Air cooling	A	B	C	D	E	F	G	H	Case
.015.4.3F.W	15	3P	50 l/s	230	180	389	88	331	6	400	350	1
.015.4.4F.W	15	3P+N	50 l/s	230	180	389	88	331	6	400	350	1
.050.4.3F.W	50	3P	150 l/s	378	350	315	200	300	120.5	525	500	2
.050.4.4F.W	50	3P+N	150 l/s	378	350	315	200	300	120.5	525	500	2
.075.4.3F.W	75	3P	225 l/s	418	290	355	200	360	80	556	520	2
.075.4.4F.W	75	3P+N	225 l/s	418	290	355	200	360	80	556	520	2
.100.4.3F.W	100	3P	300 l/s	503	475	440	232	300	137.5	611	575	2
.100.4.4F.W	100	3P+N	300 l/s	503	475	440	232	300	137.5	611	575	2
.150.4.3F.W	150	3P	450 l/s	573	545	510	250	300	142.5	621	585	2
.150.4.4F.W	150	3P+N	450 l/s	573	545	510	250	300	142.5	621	585	2
.200.4.3F.W	200	3P	600 l/s	694	666	630	250	420	110	680	640	2
.200.4.4F.W	200	3P+N	600 l/s	694	666	630	250	420	110	680	640	2

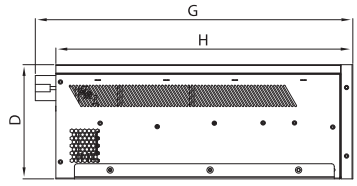
CASE 1





CASE 2





Static var generator with excellent attenuation of inductive and reactive power

Datasheet 5/2023

APPROVALS:

CE RoHS UK CA

RACK MOUNTED

FEATURES

- Latest IGBT technology
- Quick responce and minimal losses
- Full digital control systems DSP
- 3 level NPC topology, IGBT
- Switching frequency up to 35 KHz

BENEFITS

- Compensation from 50 KVAR
- Compensation for inductive and capacitive reactive power
- Suppress voltage fluctuation and flicker
- Suppress Three-Phase unbalance

MARKETS

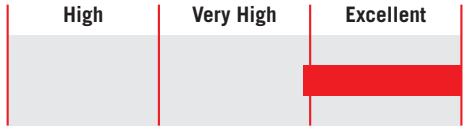
- Hotel, hospital
- Car charger station, railway
- Oil and water plants
- Processing machinery
- End-user facilities

ORDERING CODE

SVG	.100	.4	.4F	.W
Model	Kvar	4 = 400V 5 = 480V 6 = 600V 7 = 690V	3F = 3phase 4F = 3 phase with neutral	R = Rack mount W = Wall mount

WALL MOUNTED

ATTENUATION INDICATOR



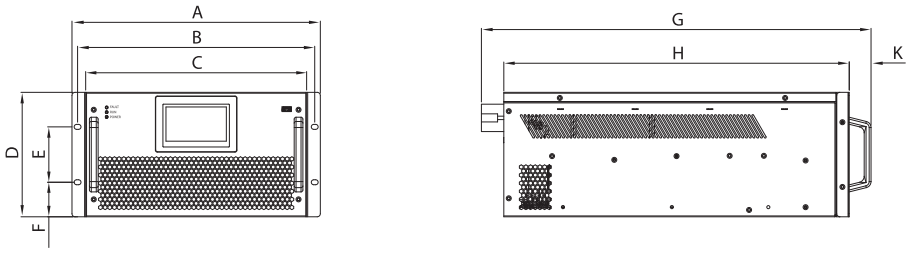
TECHNICAL SPECIFICATIONS

Nominal voltage	400 Vac (other voltages available on demand)
Frequency	50 – 60 Hz ± 3 Hz
Reactive power compensation	50-100 Kvar
PF Compensation	0.99
Overall efficiency	>97%
Power grid structure	3-phase, 3-phase plus neutral
Current transformer	150:5 ~ 6000:5
Reaction time	<50 us
Overall response time	<5 ms
Switching frequency	20 kHz
Communication ports	RS485
Module display interface	LCD touch screen
Altitude	1000m Over power decreases by 1% every 100m
Operating temperature	-10°C / + 40°C
Protection class	IP 20
Noise level	<56 dB
Color	Ral 7035 (Grey)
Humidity	Less than 95% RH, no condensing

RACK MOUNTED Nominal Voltage 400 Vac

SVG	Power (KVar)	Connection	Air cooling	A	B	C	D	E	F	G	H	K
.050.4.3F.R	50	3P	150 l/s	399	381	355	200	89	55.5	626	555	35
.050.4.4F.R	50	3P+N	150 l/s	399	381	355	200	89	55.5	626	555	35
.100.4.3F.R	100	3P	300 l/s	554	536	510	250	89	80.5	656	585	35
.100.4.4F.R	100	3P+N	300 l/s	554	536	510	250	89	80.5	656	585	35
.150.4.3F.R	150	3P	450 l/s	674	656	630	250	89	80.5	676	640	30
.150.4.4F.R	150	3P+N	450 l/s	674	656	630	250	89	80.5	676	640	30

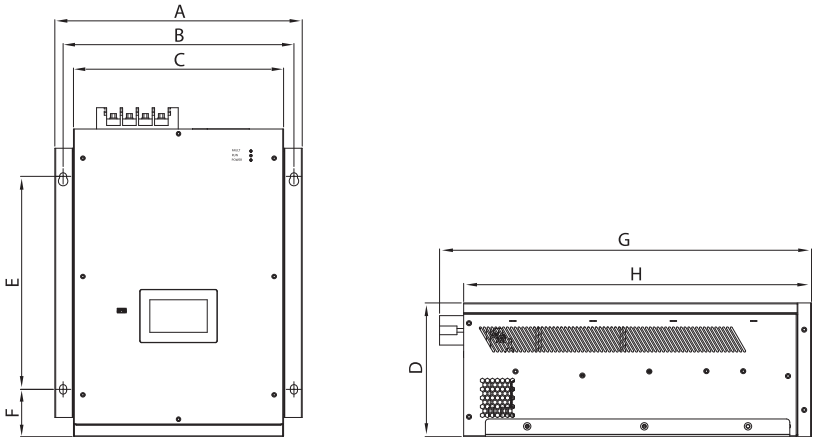
RACK MOUNTED



WALL MOUNTED Nominal Voltage 400 Vac

SVG	Power (KVar)	Connection	Air cooling	A	B	C	D	E	F	G	H
.050.4.3F.W	50	3P	150 l/s	418	390	355	200	360	80	556	520
.050.4.4F.W	50	3P+N	150 l/s	418	390	355	200	360	80	556	520
.075.4.3F.W	75	3P	225 l/s	503	475	440	232	300	137.5	611	575
.075.4.4F.W	75	3P+N	225 l/s	503	475	440	232	300	137.5	611	575
.100.4.3F.W	100	3P	300 l/s	573	545	510	250	300	142.5	621	585
.100.4.4F.W	100	3P+N	300 l/s	573	545	510	250	300	142.5	621	585

WALL MOUNTED



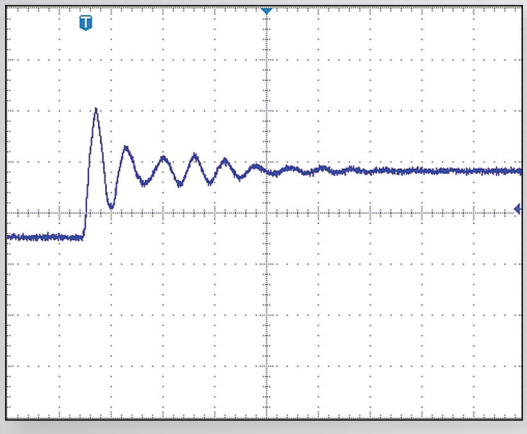
Introduction

The operation of motors under the control of variable frequency drives (VFDs) or servo drives demands careful consideration to prevent overvoltage spikes, commonly referred to as dV/dt. The occurrence of voltage wave reflection is intricately tied to the voltage rise time (dV/dt) and the length of the motor cables. This phenomenon introduces additional overvoltage spikes, leading to premature degradation and potential failure of the motor insulation.

Meeting the challenge of safeguarding motors against overvoltage is crucial for Original Equipment Manufacturers (OEMs), system integrators, and distributors. Industries utilizing VFDs have embraced a specialized motor category known as a motor rated VFD or inverter duty motor.

The construction of a motor rated VFD can vary significantly among manufacturers. However, adhering to the guidelines of the National Electrical Manufacturer's Association (NEMA), the primary distinction between a standard motor and an inverter duty motor lies in the winding insulation.

As an illustration, consider a nominal 480 Vac AC drive utilizing a standard-grade motor, which should maintain performance and function with peak voltage up to 1000V. In contrast, for inverter duty-rated motors, the acceptable peak voltage typically extends to 1500V.



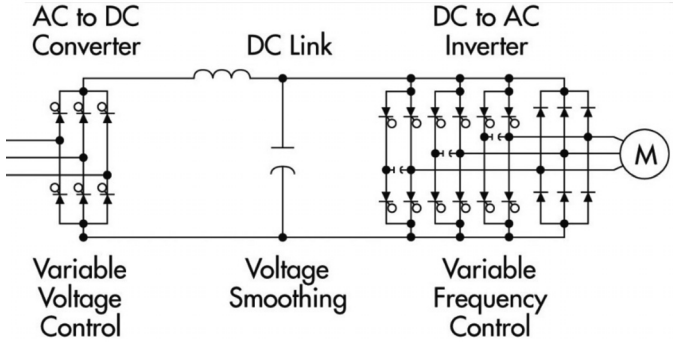
Typical example of dV/dt measured on the motor with cable length of 50m (150 ft)

Theory

To gain a comprehensive understanding of the factors leading to motor failure and unforeseen challenges, it's essential to understand the construction of a VFD. They consist of three major components:

- The rectifier - transforms incoming AC power into DC power
- The DC link - incorporates multiple capacitors for storing energy from the rectifier's output
- The inverter - generates a 2-20 kHz signal, utilizing pulse width modulation to produce the output waveform directed to the motor

Pulse Width Modulation (PWM) is a technique that adjusts the width of a pulse based on modulation signal information. This technique introduces a notable concern related to dV/dt within the system.



Typical example of VFD layout

The Solution

Enerdoor presents its Motor Protection Series, specifically crafted to shield motors from detrimental overvoltage and dV/dt spikes emanating from the drive's output. This solution is particularly valuable for applications involving variable frequency drives and servo drives.

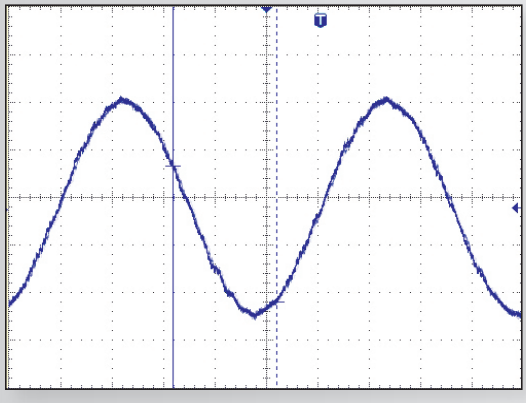
Enerdoor's array of solutions encompasses common mode and differential mode chokes, sine wave filters, and snubbers—all meticulously designed to seamlessly integrate with diverse carrier frequencies, output frequencies, and applications.

Specific Solutions

Sine Wave Filters: This specialized series mitigates the impact of PWM by transforming the drive's output into an authentic sine waveform, effectively eliminating dV/dt.

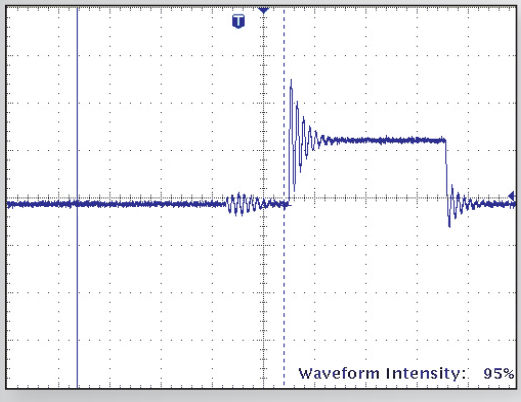
The **FIN915SF** model is specifically designed for applications with fundamental frequencies reaching up to 25 kHz.

The **FIN960F** high-frequency inductance caters to synchronous motor spindle applications, offering a unique approach to handling output frequencies spanning from 1 Hz to 10 kHz.

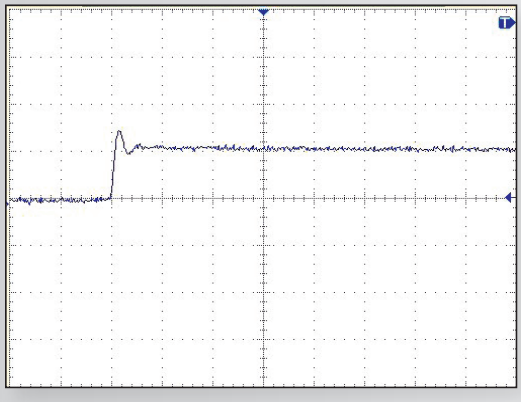


Typical example of a waveform between the VFD and motor using an Enerdoor sine wave filter FIN915SFH

The Enerdoor Snubber (**FIN47SNB**) – is a distinctive solution engineered to minimize both common mode and differential mode noise. This specialized snubber operates in parallel with the system, offering an ideal remedy for clients seeking to enhance the reliability of winding insulation and bearings.



Typical measurement of dV/dt on the motor side of VFD with cable length of 100m (300ft)



Typical measurement of dV/dt on the motor side of VFD with cable length of 100m (300ft) with Enerdoor snubber FIN47SNB installed

ENERDOOR
Engineered by Finmotor

Filter Selection Guide Motor Protection	Description	Current Range (A)	Voltage	CONNECTORS				FEATURES					APPLICATIONS					Approval
				Cables	Terminal Blocks	Screws	Bus Bar	Common Mode Attenuation	Differential Mode Attenuation	Very Long Cable Applications	Output Frequency >75Hz	Compact Case	Long Cable Application >300m	CNC Machine	High Frequency Spindle Motor	Motor Controlled by VFD <100m	Closed Loop Motor Application	
FIN900	3-phase	10-280	0-600	●	●	●		●				●		●		●		
FIN930	3-phase	6-200	0-600		●			●									●	
ORT	3-phase	2-1000	0-480		●		●		●							●		c UL us
FIN5955	3-phase	3-20	0-600		●				●			●		●		●		c UL us
FIN958	3-phase	12-110	0-600		●				●		●	●	●	●	●		●	
FIN5980P	3-phase	9-22	0-480	●	●									●				c UL us
FIN5983	3-phase	12-60	0-600		●								●	●			●	c UL us
FIN960F	3-phase	10-1000	0-750		●				●		●			●	●			
FVT	3-phase	2-1000	0-690		●		●		●	●			●					c UL us
SWF	3-phase	2-1000	0-690		●		●		●	●			●					c UL us
FIN915SFH	3-phase	5-1100	0-600		●				●	●	●				●			
FIN47SNB	3-phase plus neutral	unlimited	0-600		●					●		●	●			●	●	
FINSTP	star point to groud	unlimited	0-600		●					●	●	●	●			●	●	c UL us
FINTR	-	-	-															
FINFE	-	-	-															

MOTOR PROTECTION

The Enerdoor Motor Protection Series provides safeguarding against overvoltage and dV/dt spikes originating from drive outputs, particularly vital for applications involving variable frequency drives (VFDs), servo drives, and long cable runs.

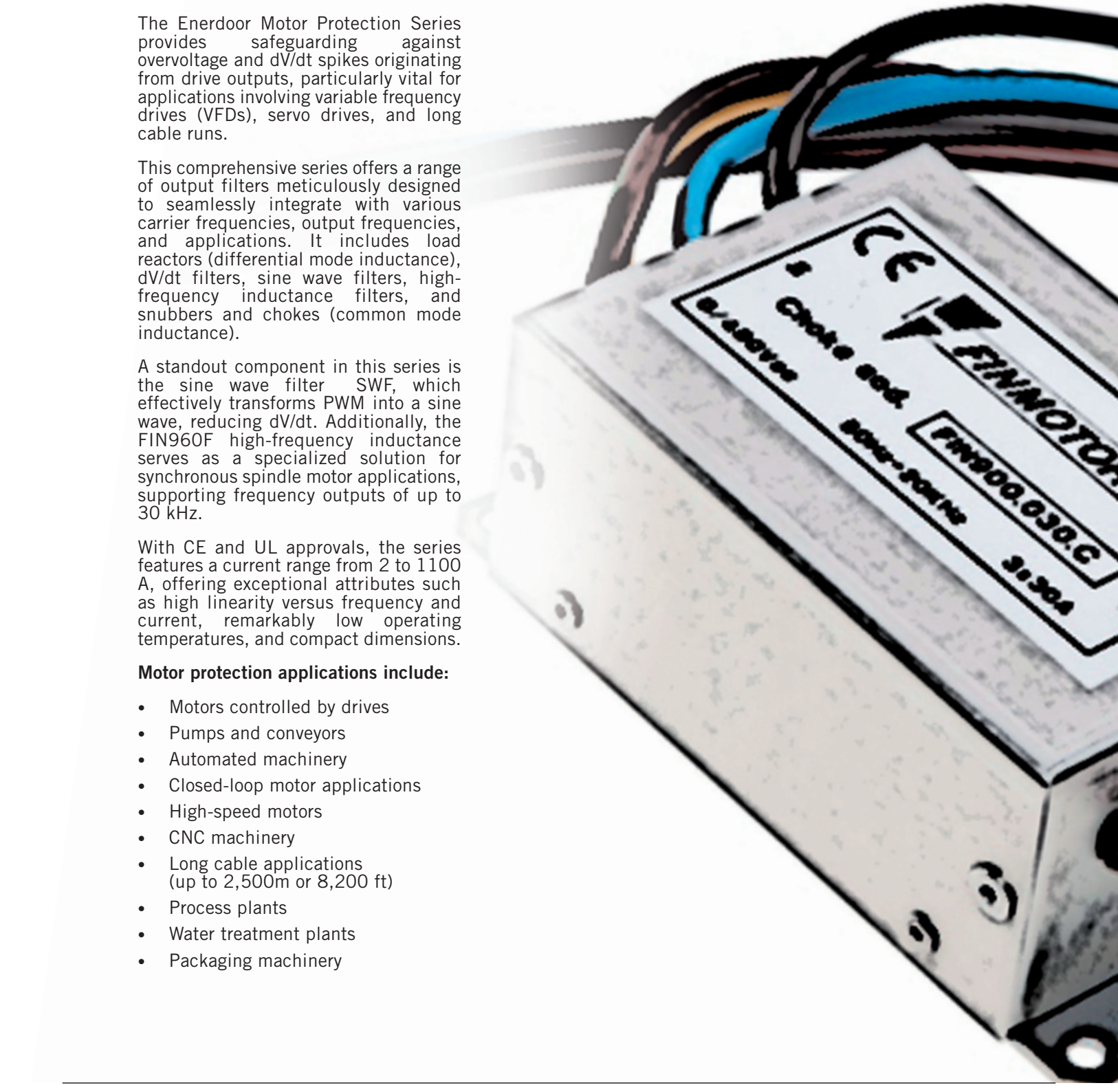
This comprehensive series offers a range of output filters meticulously designed to seamlessly integrate with various carrier frequencies, output frequencies, and applications. It includes load reactors (differential mode inductance), dV/dt filters, sine wave filters, high-frequency inductance filters, and snubbers and chokes (common mode inductance).

A standout component in this series is the sine wave filter SWF, which effectively transforms PWM into a sine wave, reducing dV/dt. Additionally, the FIN960F high-frequency inductance serves as a specialized solution for synchronous spindle motor applications, supporting frequency outputs of up to 30 kHz.

With CE and UL approvals, the series features a current range from 2 to 1100 A, offering exceptional attributes such as high linearity versus frequency and current, remarkably low operating temperatures, and compact dimensions.

Motor protection applications include:

- Motors controlled by drives
- Pumps and conveyors
- Automated machinery
- Closed-loop motor applications
- High-speed motors
- CNC machinery
- Long cable applications (up to 2,500m or 8,200 ft)
- Process plants
- Water treatment plants
- Packaging machinery



Datasheet 202405

Common mode choke with high attenuation for reducing dV/dt and high frequency

APPROVALS:

CE RoHS UK CA

FIN900.(010 - 030).1C

FEATURES

- 5 Year warranty
- Protects against voltage spikes on the motor
- Compact design

BENEFITS

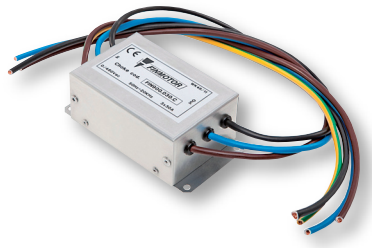
- Rated current from 10 to 280A
- Reduces voltage rise and high frequency noise
- Helps pass emission tests for the IEC61000-6-4 Standards

MARKETS

- Motors controlled by drives
- Automated machinery
- Conveyors
- Pumps

ORDERING CODE

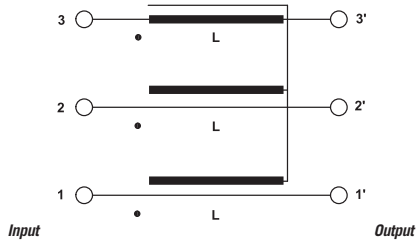
FIN900	.016	.1C
Model	Current (A)	Connection
		1 C = cable 200mm
		2 C = cable 400mm
		C = cable
		V = screws



FIN900.(010 - 030).C

ATTENUATION INDICATOR

ELECTRIC DIAGRAM



FIN900.(010 - 280).V

TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 600 Vac
Output frequency	50 - 3500 Hz
Rated current	10 - 280 A
Carrier frequency (PWM)	0 - 16 kHz
Potential test voltage phase to phase	1750 Vdc (2 sec.)
Potential test voltage phase to ground	2150 Vdc (2 sec.)
IP Protection	IP20
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

ELECTRICAL CHARACTERISTICS

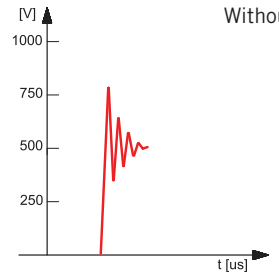
CONNECTIONS

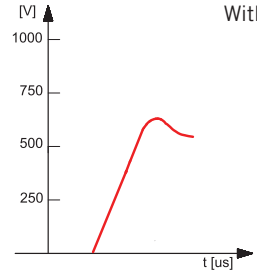
FIN900	Rated Current 40°C	Rated Current 50°C	Power Loss (W)	LINE		PE	
				d (mm)	Torque (Nm)	d1 (mm)	Torque (Nm)
.010.1C	10	9	6	-	-	M12	20
.016.1C	16	14	6	-	-	M12	20
.030.1C	30	26	6	-	-	M12	20

FIN900	Rated Current 40°C	Rated Current 50°C	Power Loss (W)	LINE		PE	
				d (mm)	Torque (Nm)	d1 (mm)	Torque (Nm)
.010.C	10	9	6	-	-	-	-
.016.C	16	14	6	-	-	-	-
.030.C	30	26	6	-	-	-	-

FIN900	Rated Current 40°C	Rated Current 50°C	Power Loss (W)	LINE		PE	
				d (mm)	Torque (Nm)	d1 (mm)	Torque (Nm)
.010.V	10	9	6	M4	1.2	M4	1.2
.016.V	16	14	10	M5	4	M4	1.2
.030.V	30	26	15	M5	4	M4	1.2
.050.V	50	45	23	M6	6	M5	4
.080.V	80	72	28	M6	6	M5	4
.100.V	100	90	45	M8	14	M8	14
.150.V	150	135	75	M8	14	M8	14
.200.V	200	180	83	M10	18	M10	18
.280.V	280	252	96	M12	18	M10	18

TYPICAL MEASUREMENT



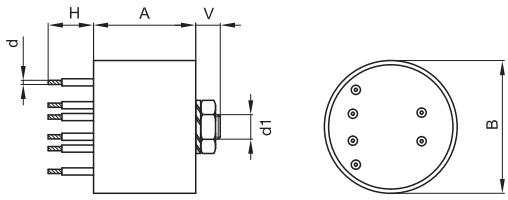


Example of measurement in a typical application using a servo drive

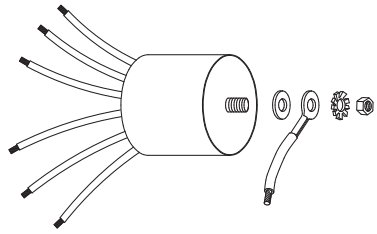
MECHANICAL DIMENSIONS mm

FIN900	A	B	d	V	d1	H	Weight Kg.	Case
.010.1C	60	65	2	12	M12	200	0.5	1C
.016.1C	60	65	2	12	M12	200	0.5	1C
.030.1C	60	65	2	12	M12	200	0.55	1C

CASE 1C

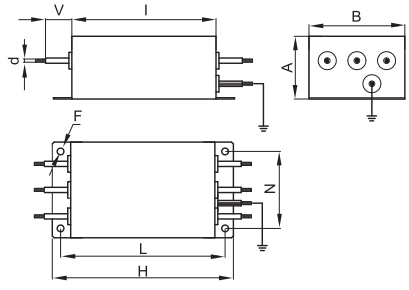


ASSEMBLY CONNECTION "1C"

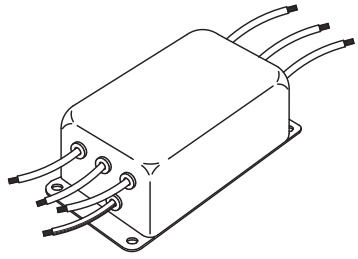


FIN900	A	B	d	V	F	H	I	L	N	Weight Kg.	Case
.010.C	42	65	2	200	4.2	120	96	110	51	0.7	C
.016.C	42	65	2	200	4.2	120	96	110	51	0.7	C
.030.C	42	65	2	200	4.2	120	96	110	51	0.75	C

CASE C



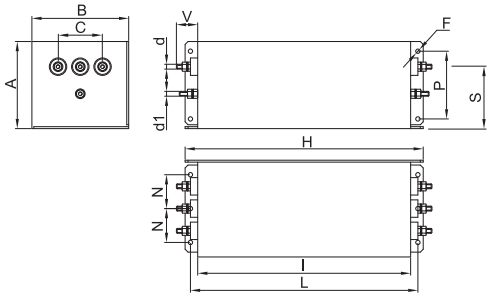
ASSEMBLY CONNECTION "C"



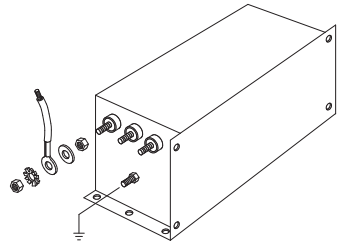
MECHANICAL DIMENSIONS mm

FIN900	A	B	C	d	d1	V	F	H	I	L	N	P	S	Weight Kg.	Case
.010.V	58	86	44	M4	M4	14	4.5	186	160	176	30	40	38	2	1
.016.V	58	86	44	M5	M4	14	4.5	186	160	176	30	40	38	2	1
.030.V	58	86	44	M5	M4	14	4.5	186	160	176	30	40	38	2	1
.050.V	58	86	44	M6	M5	14	4.5	186	160	176	30	40	38	2	1
.080.V	90	100	46	M6	M5	28	4.5	246	220	235	35	70	64	3	2
.100.V	90	185	84	M8	M8	25	6.5	356	320	340	77.5	70	69	5	3
.150.V	90	220	120	M8	M8	29	6.5	356	320	340	95	70	60	7	4
.200.V	90	220	120	M10	M10	29	6.5	356	320	340	95	70	60	7.5	4
.280.V	90	220	120	M12	M10	29	6.5	356	320	340	95	70	60	8	4

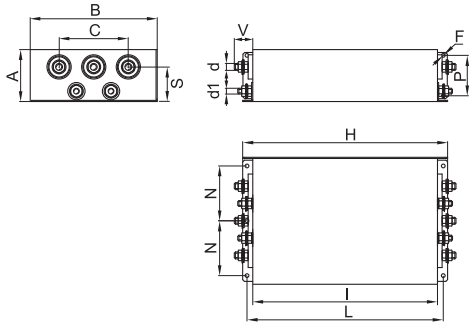
CASE 1, 2



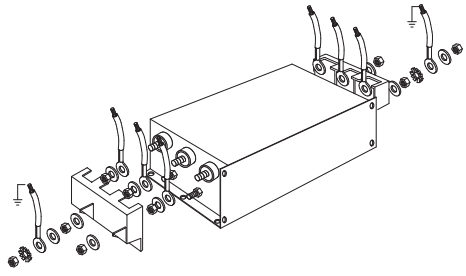
ASSEMBLY CONNECTION "V"



CASE 3, 4



ASSEMBLY CONNECTION "V"



Datasheet 202405

Common mode choke with very high attenuation for reducing dV/dt

APPROVALS: CE RoHS UKCA

FIN930.(006 - 200).M

FEATURES

- Rated current from 6 - 200 A
- Increases motor life
- Protects against voltage spikes on the motor

BENEFITS

- 5 Year warranty
- Safety terminal block connectors
- Helps pass immunity and emission tests for the IEC61000-6-2 and IEC61000-6-4 Standards

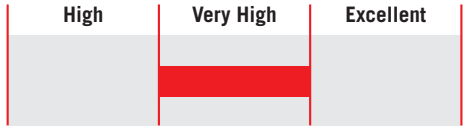
MARKETS

- Motors controlled by drives
- Pumps
- Conveyors
- Spindle motors closed loop

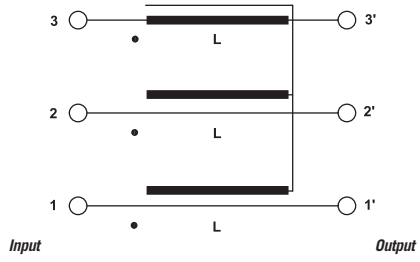
ORDERING CODE

FIN930	.055	.M
Model	Current (A)	Connection
		M = Terminal block

ATTENUATION INDICATOR



ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 600 Vac
Output frequency	50 - 3500 Hz
Rated current	6 - 200 A
Carrier frequency (PWM)	0 - 16 kHz
Potential test voltage phase to phase	2400 Vdc (2 sec.)
Potential test voltage phase to ground	3200 Vdc (2 sec.)
IP Protection	IP20
Overload capability	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

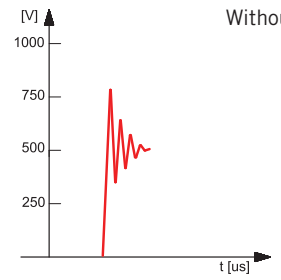
ELECTRICAL CHARACTERISTICS

FIN930	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.006.M	8	6	3
.012.M	14	12	3
.016.M	18	16	4
.025.M	28	25	4
.032.M	35	32	5
.042.M	50	42	7
.055.M	63	55	8
.070.M	80	70	13
.080.M	90	80	13
.100.M	110	100	15
.115.M	130	115	22
.150.M	175	150	25
.200.M	230	200	28

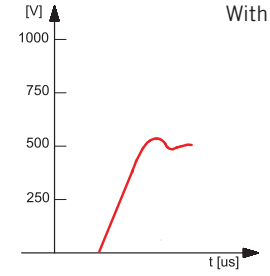
CONNECTIONS

	LINE			PE	
FIN930	Solid Cable (mm^2)	Stranded Cable (mm^2)	Terminal Torque (Nm)	d (mm)	Torque (Nm)
.006.M	0.2 - 10	0.2 - 6	1.2	M6	1.2
.012.M	0.2 - 10	0.2 - 6	1.2	M6	1.2
.016.M	0.2 - 10	0.2 - 6	1.2	M6	1.2
.025.M	0.2 - 10	0.2 - 6	1.2	M6	1.2
.032.M	0.2 - 10	0.2 - 6	1.2	M6	1.2
.042.M	0.5 - 16	0.5 - 10	1.8	M6	1.8
.055.M	0.5 - 16	0.5 - 10	1.8	M6	1.8
.070.M	4 - 25	6 - 35	4.5	M10	4.5
.080.M	4 - 25	6 - 35	4.5	M10	4.5
.100.M	10 - 50	10 - 50	4	M10	4
.115.M	10 - 50	10 - 50	4	M10	4
.150.M	35 - 95	35 - 95	20	M10	20
.200.M	35 - 95	35 - 95	20	M10	20

TYPICAL MEASUREMENT



Without FIN930



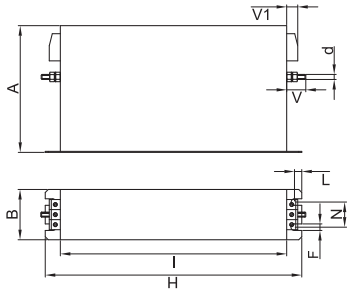
With FIN930

Example of measurement in a typical application using a servo drive

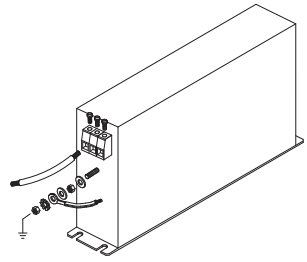
MECHANICAL DIMENSIONS mm

FIN930	A	B	V	V1	F	H	I	L	N	d	Weight Kg.	Case
.006.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.012.M	140	50	19	15	6	226	200	7	28	M6	1.7	1
.016.M	177	60	19	15	6	267	237	8	34	M6	1.7	1
.025.M	177	60	19	15	6	267	237	8	34	M6	2.3	1
.032.M	177	60	19	15	6	267	237	8	34	M6	2.3	1
.042.M	177	70	19	25	6	295	265	8	44	M6	3.4	1
.055.M	177	70	19	33	6	295	265	8	44	M6	3.5	1
.070.M	205	80	28	38	8	390	340	12	53	M10	6	1
.080.M	205	80	28	38	8	390	340	12	53	M10	6	1
.100.M	205	80	28	43	8	390	340	12	53	M10	7.1	1
.115.M	205	80	28	43	8	390	340	12	53	M10	7.1	1
.150.M	220	105	28	50	8	420	370	12	78	M10	8.5	1
.200.M	220	105	28	50	8	420	370	12	78	M10	8.5	1

CASE 1



ASSEMBLY CONNECTION "M"



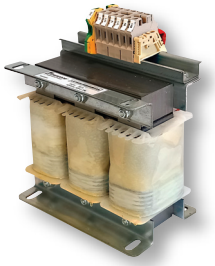
Datasheet 202402

Load reactor with high attenuation for effective dV/dt reduction

APPROVALS:

E480443

Up to 650A
Up to 480 Vac



ORT025 - ORT030

ORT040 - ORT050

ORT060 - ORT080

CHARACTERISTICS

- Class H windings
- Compact dimensions
- Available with thermocouples

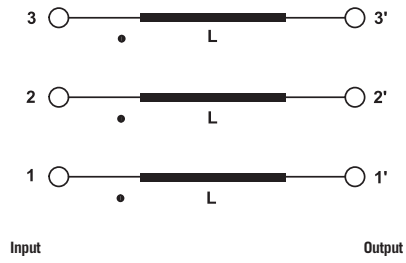
BENEFITS

- Minimal power loss
- Ventilation-free design
- Reduces dV/dt voltage peaks

MARKETS

- Variable frequency drives / servo drives
- Water treatment plants
- Industrial automation

ELECTRICAL DIAGRAM



CODE

LRT040.0075453MXXA

LRT040	0075	4	5	2	M	XX	A
Model	***Current***	***Voltage***	***Frequency***	***Drop***	***Connection***	***Protection***	***Open Frame***
		400/480 V	50/60 Hz		M = Clamp	XX = None	
					B = Bus bar	T1=1 Thermocouple	
						T3 = 3 Thermocouples	

TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 690 Vac
Frequency	Up to 70 Hz
Rated current	2 - 1000 A
Switching frequency	Up to 16 kHz
Ambient temperature	40°C derating $I_T = \sqrt{(85-T)/45}$
Altitude	1000m Derating 0.5% every 100m
Relative humidity	<95% no condensation
Overload capability	1.5 x Rated current
IP Protection	IP20 up to 180 A IP00 over 260 A
Optional	Current and inductance customizations available on request

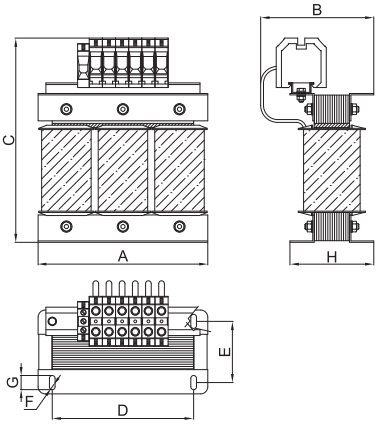
ELECTRICAL CHARACTERISTICS / MECHANICAL DIMENSIONS mm / CONNECTIONS

ORT	Rated Current 40°C	Power Loss (W)	A	B	C	D	E	F	G	H	Weight (Kg.)	Case	LINE Cable (mm²)	LINE Terminal Torque (Nm)	PE Cable (mm²)	PE Terminal Torque (Nm)
ORT025.0002452MXXA	2	6	150	98	185	125	56	6	13	73	3	1	0.5-4	0.8	0.5-4	0.8
ORT025.0004452MXXA	4	8	150	98	185	125	56	6	13	73	3	1	0.5-4	0.8	0.5-4	0.8
ORT025.0006452MXXA	6	11	150	98	185	125	56	6	13	73	3	1	0.5-4	0.8	0.5-4	0.8
ORT025.0008452MXXA	8	13	150	98	185	125	56	6	13	73	3	1	0.5-4	0.8	0.5-4	0.8
ORT025.0012452MXXA	12	19	150	98	185	125	56	6	13	73	3.5	1	0.5-4	0.8	0.5-4	0.8
ORT025.0016452MXXA	16	24	150	98	189	125	56	6	13	73	3.5	1	0.5-6	1.8	0.5-6	1.8
ORT025.0020452MXXA	20	26	150	103	189	125	61	6	13	78	5	1	0.5-6	1.8	0.5-6	1.8
ORT025.0025452MXXA	25	27	150	118	193	125	71	6	13	88	6.5	1	0.5-10	1.8	0.5-10	1.8
ORT025.0032452MXXA	32	33	150	118	193	125	71	6	13	88	6.5	1	0.5-10	1.8	0.5-10	1.8
ORT030.0038452MXXA	38	43	180	130	231	150	72	8	20	100	8	1	1.5-16	3.4	1.5-16	3.4
ORT030.0045452MXXA	45	47	180	140	231	150	82	8	20	110	8	1	1.5-16	3.4	1.5-16	3.4
ORT030.0060452MXXA	60	52	180	150	231	150	92	8	20	120	12	1	1.5-16	3.4	1.5-16	3.4
ORT030.0075452MXXA	75	57	180	150	231	150	92	8	20	120	12	1	1.5-16	3.4	1.5-16	3.4
ORT030.0090452MXXA	90	65	180	175	239	150	107	8	20	135	12	1	16-50	5.6	1.5-35	6.5
ORT040.0110452MXXA	110	84	240	170	302	200	87	8	20	119	19	1	16-50	5.6	1.5-35	6.5
ORT040.0130452MXXA	130	78	240	190	309	200	97	8	20	129	24.5	1	35-95	10	16-50	5.6
ORT040.0150452MXXA	150	87	240	210	309	200	117	8	20	149	28	1	35-95	10	16-50	5.6
ORT040.0180452MXXA	180	97	240	210	309	200	117	8	20	149	28	1	35-95	10	16-50	5.6

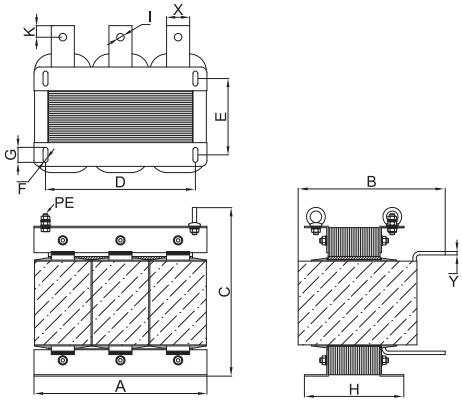
ELECTRICAL CHARACTERISTICS / MECHANICAL DIMENSIONS mm / CONNECTIONS

ORT	Rated Current 40°C	Power Loss (W)	A	B	C	D	E	F	G	H	I	M	J	K	X	Y	Weight (Kg.)	Case	LINE Torque (Nm)	PE Screw (mm)
ORT050.0210452BXXA	210	102	300	180	295	260	103	8	26	143	11				30	6	34	2	25	8x25
ORT050.0260452BXXA	260	126	300	187	295	260	103	8	26	153	13				40	6	34	2	50	8x25
ORT050.0320452BXXA	320	112	300	227	295	260	113	8	26	153	13	20	20		50	6	52	3	50	8x25
ORT050.0380452BXXA	380	126	300	245	295	260	113	8	26	155	13	14	20		40	10	55	3	50	8x25
ORT060.0440452BXXA	440	138	360	240	345	260	115	8	26	155	13	14	20	15	50	10	71	3	50	8x25
ORT060.0500452BXXA	500	160	360	240	345	260	115	8	26	155	13	20	20	15	50	10	73	3	50	8x25
ORT060.0600452BXXA	600	195	360	257	345	260	145	8	26	185	13	20	20	15	50	10	95	3	50	8x25
ORT080.0700452BXXA	700	234	480	317	459	360	154	10	30	200	13	20	20	20	60	10	102	3	50	10x35
ORT080.0800452BXXA	800	286	480	352	459	360	184	10	30	230	13	40	40	20	80	10	165	3	50	10x35
ORT080.0900452BXXA	900	318	480	370	459	360	214	10	30	260	13	40	40	20	80	10	235	3	50	10x35
ORT080.1000452BXXA	1000	347	480	370	459	360	214	10	30	260	13	40	40	20	80	10	236	3	50	10x35

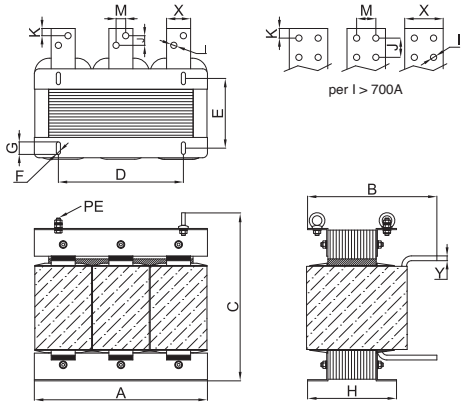
CASE 1



CASE 2



CASE 3



Datasheet 202405

High frequency differential choke with excellent attenuation to reduce dV/dt

APPROVALS:

E480443

FIN955.(003 - 020).M

FEATURES

- Rated current from 3 to 20A
- Increases motor life
- Protects against voltage spikes on the motor
- Low power loss up to 250 Hz frequency output

BENEFITS

- 2 Year warranty
- Safety terminal block connectors
- Very compact design

MARKETS

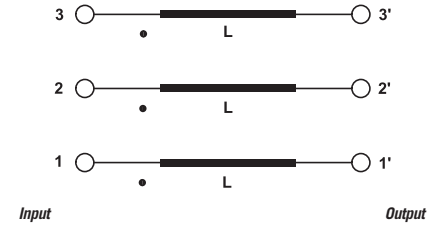
- High speed motors up to 250 Hz
- AC motors controlled by VFDs
- Woodworking machinery
- Spindle motors closed loop

ORDERING CODE

FIN955	.020	.M
Model	Current (A)	Connection
		M = Terminal block

ATTENUATION INDICATOR

ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 600 Vac
Output frequency	0 - 250 Hz*
Rated current	3 - 20 A
Carrier frequency (PWM)	0 - 16 kHz
Potential test voltage phase to phase	2400 Vdc (2 sec.)
Potential test voltage phase to ground	3200 Vdc (2 sec.)
IP Protection	IP20
Saturation current	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes 1.5 x Nominal current
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours.

* **Optional output frequency 850 Hz**

FIN955

Differential Choke

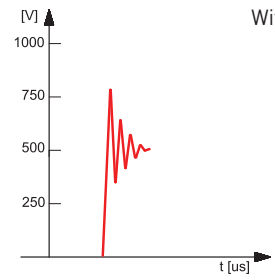
ELECTRICAL CHARACTERISTICS

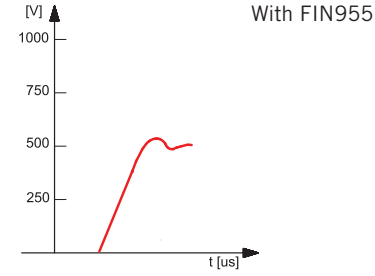
FIN955	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.003.M	3	2	2.2
.006.M	6	5	2.4
.010.M	10	8	2.7
.020.M	20	17	3

CONNECTIONS

	LINE			PE	
	Solid Cable (mm^2)	Stranded Cable (mm^2)	Terminal Torque (Nm)	V (mm)	Torque (Nm)
.003.M	0.2 - 6	0.2 - 6	1.2	M4	1.2
.006.M	0.2 - 6	0.2 - 6	1.2	M4	1.2
.010.M	0.2 - 6	0.2 - 6	1.2	M4	1.2
.020.M	0.2 - 6	0.2 - 6	1.2	M4	1.2

TYPICAL MEASUREMENT



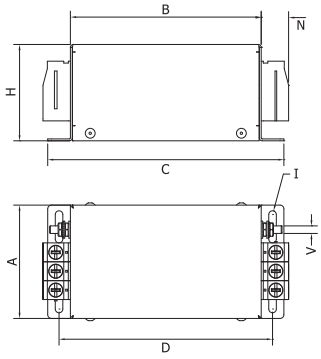


Example of measurement in a typical application using a servo drive

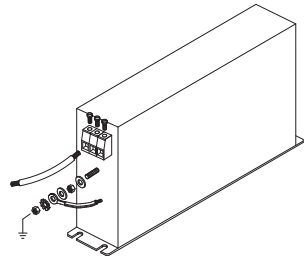
MECHANICAL DIMENSIONS mm

FIN955	A	B	C	D	H	N	I	V	Weight Kg.	Case
.003.M	60	101	125	113	51	11	4x17	M4	0.40	1
.006.M	60	101	125	113	51	11	4x17	M4	0.40	1
.010.M	60	101	125	113	51	11	4x17	M4	0.45	1
.020.M	60	101	125	113	51	11	4x17	M4	0.45	1

CASE 1



ASSEMBLY CONNECTION "M"

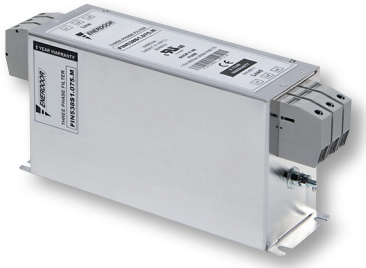


Datasheet 202405

High frequency differential choke with excellent attenuation to reduce dV/dt

APPROVALS:

CE RoHS UKCA



FIN958.(012 - 110).M

FEATURES

- Rated current from 12 to 110A
- Protects against voltage spikes on the motor
- Low power loss up to 1 kHz frequency output

BENEFITS

- 2 Year warranty
- Safety terminal block connectors

MARKETS

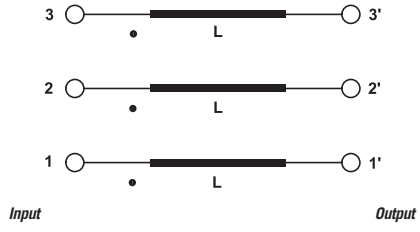
- High speed motors
- High speed pumps
- Woodworking machinery
- Spindle motors closed loop

ORDERING CODE

FIN958	.012	.M
Model	Current (A)	Connection
		M = Terminal block

ATTENUATION INDICATOR

ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 600 Vac
Output frequency	0 - 1000 Hz
Rated current	12 - 110 A
Carrier frequency (PWM)	0 - 16 kHz
Potential test voltage phase to phase	2400 Vdc (2 sec.)
Potential test voltage phase to ground	3200 Vdc (2 sec.)
IP Protection	IP20
Saturation current	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes 1.5 x Nominal current
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

ELECTRICAL CHARACTERISTICS

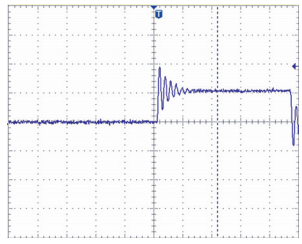
FIN958	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.012.M	12	10	3.4
.020.M	20	18	4.4
.025.M	25	23	4.8
.032.M	32	28	5.3
.042.M	42	38	7
.060.M	60	54	11
.075.M	75	67	12
.090.M	90	81	12.7
.110.M	110	100	13

CONNECTIONS

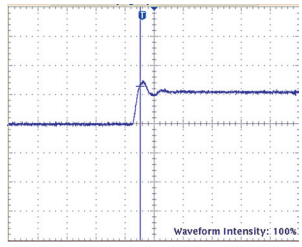
LINE			PE	
Solid Cable (mm²)	Stranded Cable (mm²)	Terminal Torque (Nm)	d (mm)	Torque (Nm)
0.5 - 10	0.5 - 10	1.2	M6	1.2
0.5 - 10	0.5 - 10	1.2	M6	1.2
0.5 - 10	0.5 - 10	1.2	M6	1.2
0.5 - 10	0.5 - 10	1.2	M6	1.2
0.5 - 10	0.5 - 16	1.2	M6	1.2
6 - 16	10 - 35	4.5	M6	6
6 - 16	10 - 35	4.5	M6	6
16 - 50	16 - 50	4.0	M10	6
35 - 95	35 - 95	20.0	M10	6

TYPICAL MEASUREMENT

Without FIN958



With FIN958

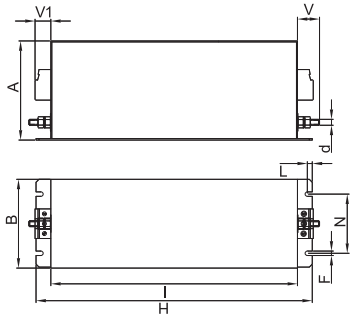


Example of measurement in a typical application using a servo drive

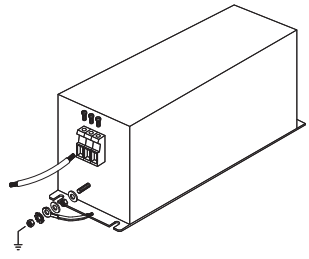
MECHANICAL DIMENSIONS mm

FIN958	A	B	V	V1	F	H	I	L	N	d	Weight Kg.	Case
.012.M	100	90	22	16	5.4	250	220	7.5	60	M6	1.9	1
.020.M	100	90	22	16	5.4	250	220	7.5	60	M6	1.9	1
.025.M	100	90	22	16	5.4	250	220	7.5	60	M6	1.9	1
.032.M	100	90	22	16	5.4	250	220	7.5	60	M6	2.0	1
.042.M	100	90	22	35	5.4	250	220	7.5	60	M6	2.5	2
.060.M	135	85	22	39	6.5	270	240	7.5	60	M6	3.8	3
.075.M	135	85	22	39	6.5	270	240	7.5	60	M6	4.5	3
.090.M	155	90	24	43	6.5	270	240	7.5	65	M10	6.0	3
.110.M	170	125	26	51	6.5	380	350	7.5	102	M10	8.5	4

CASE 1, 2, 3, 4



ASSEMBLY CONNECTION "M"

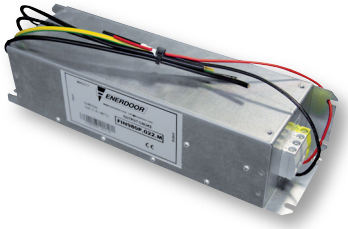


Datasheet 202405

High frequency differential choke with excellent attenuation to reduce dV/dt

APPROVALS:

E215863



FIN980P.(009 - 022).M

FEATURES

- Rated current from 9 to 22A
- Increases motor life
- Protects against voltage spikes on the motor

BENEFITS

- Overvoltage spikes regenerate into the DC bus
- Safety terminal block connectors
- Low power loss up to 1.5 kHz frequency output

MARKETS

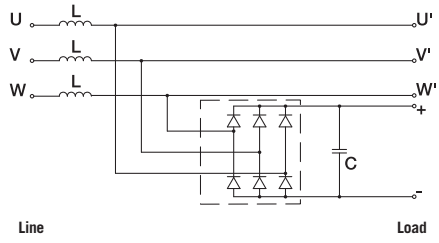
- Servo drives
- Spindle motors
- Closed loop motor applications

ORDERING CODE

FIN 980P	.022	.M
Model	Current (A)	Connection
		M = Terminal block

ATTENUATION INDICATOR

ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 480 Vac
Output frequency	1 - 1500 Hz
Rated current	9 - 22 A
Carrier frequency (PWM)	0 - 16 kHz
Potential test voltage phase to phase	1200 Vdc (2 sec.)
Potential test voltage phase to ground	3200 Vdc (2 sec.)
IP Protection	IP20
Saturation current	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes 1.5 x Nominal current
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours.

FIN980P

Differential Choke

ELECTRICAL CHARACTERISTICS

FIN980P	Rated Current 40°C	Rated Current 50°C	Power Loss at 50 Hz (1000 Hz)
.009.M	12	10	1.2 (2.7)
.022.M	30	25	1.8 (4.7)

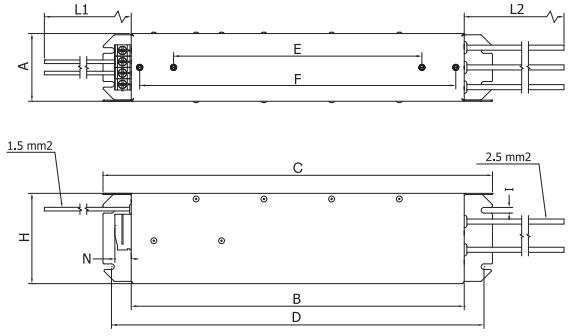
CONNECTIONS

	LINE			PE
	Solid Cable (mm^2)	Stranded Cable (mm^2)	Terminal Block Torque (Nm)	Torque (Nm)
.009.M	0.5 - 16	0.5 - 10	1.8	1.8
.022.M	0.5 - 16	0.5 - 10	1.8	1.8

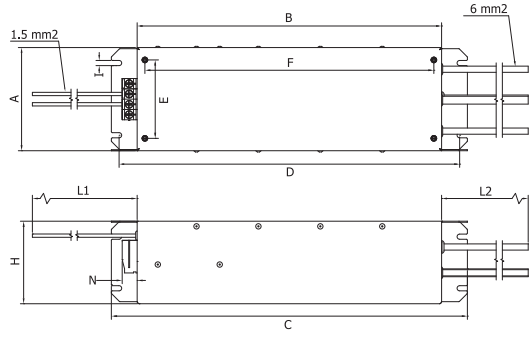
MECHANICAL DIMENSIONS mm

FIN980P	A	B	C	D	E	F	H	I	L1	L2	N	Weight Kg.	Case
.009.M	60	295	345	330	220	280	60	5	300	300	11	2.2	1
.022.M	100	295	345	330	76	280	100	5	300	300	11	3	2

CASE 1



CASE 2



Datasheet 202405

High frequency differential choke with excellent attenuation to reduce dV/dt

APPROVALS:

E215863

FIN983.(012 - 060).M

FEATURES

- Rated current from 12 to 60A
- Increases motor life
- Protects against voltage spikes on the motor

BENEFITS

- Safety terminal block connectors
- Low power loss up to 1 kHz frequency output

MARKETS

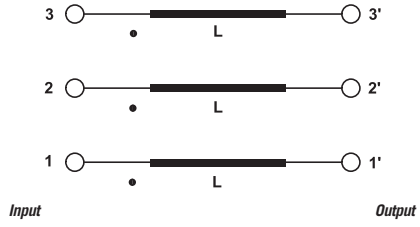
- Motors controlled by drives
- Woodworking machinery
- Closed loop motor applications

ORDERING CODE

FIN 983	.030	.M
Model	Current (A)	Connection
		M = Terminal block

ATTENUATION INDICATOR

ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 600 Vac
Output frequency	0 - 1000 Hz
Rated current	12 - 60 A
Carrier frequency (PWM)	0 - 16 kHz
Potential test voltage phase to phase	2400 Vdc (2 sec.)
Potential test voltage phase to ground	3200 Vdc (2 sec.)
IP Protection	IP20
Saturation current	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes 1.5 x Nominal current
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours.

FIN983

Differential Choke

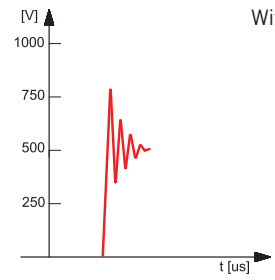
ELECTRICAL CHARACTERISTICS

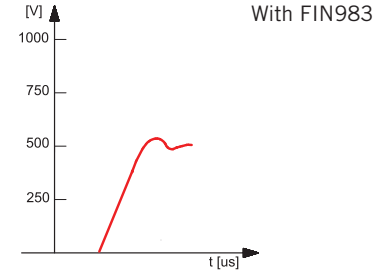
FIN983	Rated Current 40°C	Rated Current 50°C	Power Loss (W)
.012.M	12	10	1.2 (2.7)
.030.M	30	25	1.8 (4.7)
.040.M	45	37	3 (7)
.060.M	60	50	8 (16.8)

CONNECTIONS

LINE			PE
Solid Cable (mm²)	Stranded Cable (mm²)	Terminal Torque (Nm)	Torque (Nm)
0.5 - 16	0.5 - 10	1.8	1.8
0.5 - 16	0.5 - 10	1.8	1.8
0.5 - 16	0.5 - 10	1.8	1.8
4 - 25	6 - 35	4.5	4.5

TYPICAL MEASUREMENT



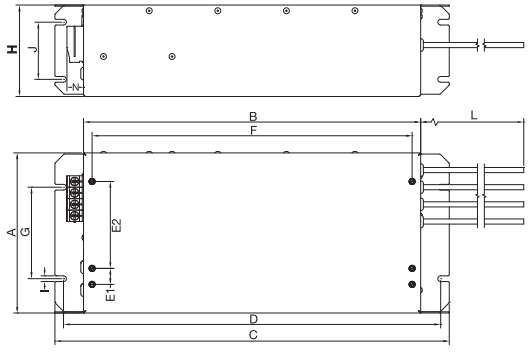


Example of measurement in a typical application using a servo drive

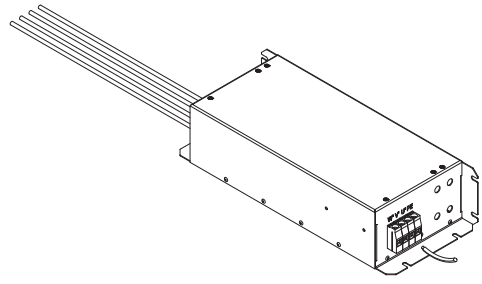
MECHANICAL DIMENSIONS mm

FIN983	A	B	C	D	E1	E2	F	G	H	J	L	I	N	Weight Kg.	Case
.012.M	140	295	345	330	14	76	280	80	80	50	300	5	33	2.2	1
.030.M	140	295	345	330	14	76	280	80	80	50	300	5	33	2.5	1
.040.M	200	295	345	330	-	160	280	120	80	50	300	5	38	3.2	1
.060.M	200	295	345	330	-	160	280	120	80	50	300	5	38	4	1

CASE 1



ASSEMBLY CONNECTION "M"

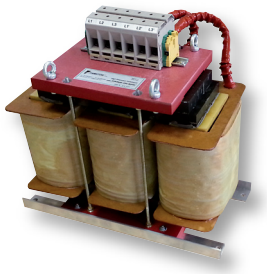


Datasheet 202405

High frequency differential mode choke with excellent attenuation for high speed motors

APPROVALS:

CE RoHS UKCA



FIN960F.(010 - 1000).M

FEATURES

- Rated current from 10 to 1000A
- Increases motor life
- Protects against voltage spikes on the motor
- Customizable per motor specifics to optimize the system

BENEFITS

- Low power loss with frequency output up to 30 kHz
- No ventilation required
- Excellent performance versus frequency and current
- Available in open frame or enclosure

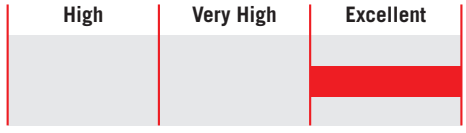
MARKETS

- High speed motors
- CNC machinery
- Woodworking machinery

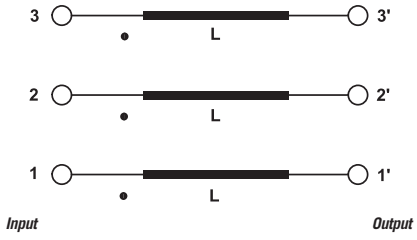
ORDERING CODE

FIN960F	.050	.M	010
Model	Current (A)	Connection	Inductance value (L)
		M = Terminal block	

ATTENUATION INDICATOR



ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 750 Vac
Output frequency	0 - 30 kHz
Rated current	10 - 1000 A
Carrier frequency (PWM)	0 - 60 kHz
Potential test voltage phase to phase	2400 Vdc (2 sec.)
Potential test voltage phase to ground	3200 Vdc (2 sec.)
IP Protection	IP20
Saturation current	4 x Rated current (Switch ON) 2 x In 10 seconds 1.5 In for 10 minutes 1.5 x Nominal current
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

ELECTRICAL CHARACTERISTICS

CONNECTIONS

FIN960F	Rated Current (S1)	Peak Current (S6)	Power Loss (W)	LINE			PE
				Solid Cable (mm^2)	Stranded Cable (mm^2)	Terminal Block Torque (Nm)	Torque (Nm)
.050.M010	50	75	70	2.5 - 50	2.5 - 35	5	5
.110.M010	110	150	110	10 - 70	10 - 50	6	6
.160.M010	160	200	150	10 - 95	10 - 50	10	10
.095.M020	95	130	90	10 - 70	10 - 50	6	6
.130.M025	130	160	115	10 - 95	10 - 70	10	10
.160.M025	160	180	170	10 - 95	10 - 70	10	10
.090.M030	90	120	60	10 - 70	10 - 50	6	6
.050.M040	50	75	80	2.5 - 50	2.5 - 35	5	5
.110.M040	110	150	280	10 - 70	10 - 50	6	6
.200.M040	200	240	580	16 - 150	16 - 95	20	20
.085.M060	85	120	280	10 - 70	10 - 50	6	6
.135.M060	135	165	300	10 - 95	10 - 70	10	10
.170.M060	170	205	520	10 - 95	10 - 70	10	10
.120.M100	120	145	305	10 - 70	10 - 50	6	6
.200.M100	200	240	820	16 - 250	16 - 95	20	20

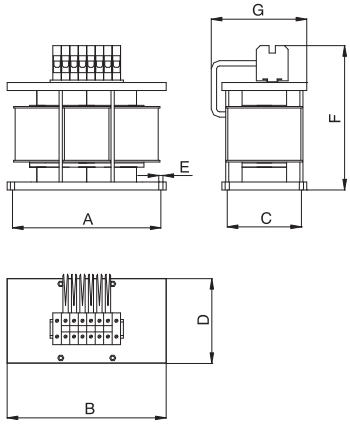
S1 (100%) at 40C° - S6 (40% 2 min) at 40C°

Custom nominal current and inductance value combinations are available to accommodate specific motor characteristics and working cycles.

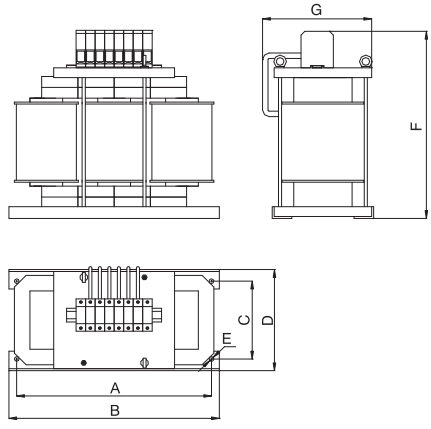
MECHANICAL DIMENSIONS mm

FIN960F	A	B	C	D	E	F	G	Weight Kg.	Case
.050.M010	230	250	80	100	7	270	120	6	1
.110.M010	240	260	110	140	7	270	150	18	2
.160.M010	370	400	170	230	12	350	250	37	3
.095.M020	240	260	110	140	7	270	150	20	2
.160.M025	500	540	200	260	12	500	300	75	5
.130.M030	500	540	200	260	12	500	300	65	5
.050.M040	280	300	140	160	8	280	180	19	6
.110.M040	500	540	200	260	12	500	300	65	5
.200.M040	500	540	200	260	12	500	300	120	5
.085.M060	500	540	200	260	12	500	300	65	5
.135.M060	500	540	200	260	12	500	300	88	5
.170.M060	500	540	200	260	12	500	300	105	5
.120.M100	500	540	200	260	12	500	300	95	5
.200.M100	660	700	320	390	12	600	410	200	7

CASE 1, 2, 6



CASE 3, 4, 5, 7

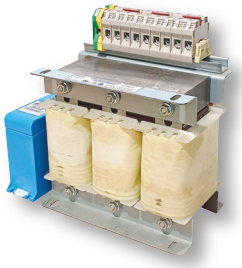


Output filter with excellent attenuation for effective dV/dt reduction

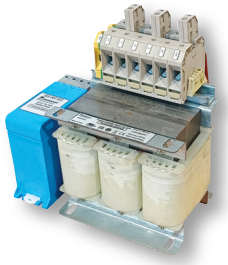
Datasheet 202401

APPROVALS:

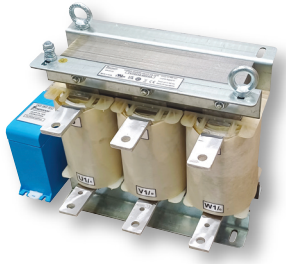
E480443
Up to 650A
Up to 480 Vac



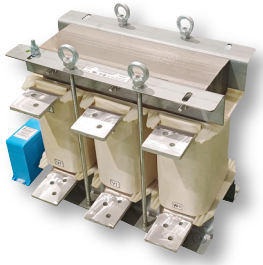
FINFVT.(002 - 075).M



FINFVT.(090 - 180).M



FINFVT.(210 - 260).B



FINFVT.(320 - 1000).B

CHARACTERISTICS

- Rated current from 2 to 1000A
- Compact design
- Enclosure available upon request

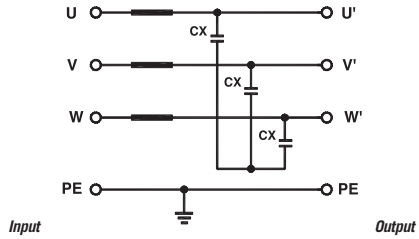
BENEFITS

- Minimal power loss
- Ventilation-free design
- Eliminates voltage peaks and high frequency noise

MARKETS

- Applications with motor cables up to 250 m
- Variable frequency drives / servo drives
- Industrial automation
- Water treatment plants
- Agriculture

ELECTRICAL DIAGRAM

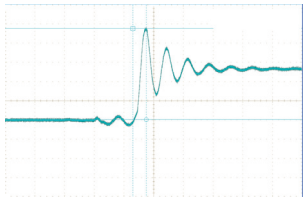


CODE

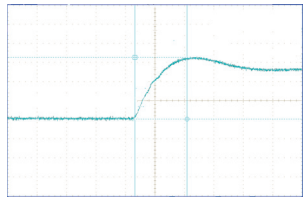
FVT0012.4MXXA

FVT	0012	4	M	XX	A
Model	***Current***	***Voltage***	***Connection***	***Protection***	***Open Frame***
		4 = 400/480 V	M = Clamp	XX = None	
		7 = 690 V	B = Bus bar	T1 = 1 Thermocouple	
				T3 = 3 Thermocouples	

TYPICAL MEASUREMENT



Motor side pulse without FVT filter



Motor side pulse with FVT filter

TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 480 Vac or 0 - 690 Vac
Frequency	0 - 70 Hz
Rated current	2 - 1000 A
Ambient temperature	40°C
	Derating $I_T = \sqrt{(85-T)/45}$
Altitude	1000m
	Derating 0.5% every 100m
Relative humidity	<95% no condensation
Overload capability	1.5 x Rated current
IP Protection	IP20 up to 180 A
	IP00 over 260 A
Optional	Current and inductance customizations available on request

ELECTRICAL CHARACTERISTICS

FVT	Voltage (V)	Rated Current 40°C	Power Loss (W)
FVT0002.4MXXA	480	2	7
FVT0004.4MXXA	480	4	9
FVT0006.4MXXA	480	6	12
FVT0008.4MXXA	480	8	15
FVT0012.4MXXA	480	12	22
FVT0016.4MXXA	480	16	28
FVT0020.4MXXA	480	20	31
FVT0025.4MXXA	480	25	32
FVT0032.4MXXA	480	32	39
FVT0038.4MXXA	480	38	51
FVT0045.4MXXA	480	45	55
FVT0060.4MXXA	480	60	61
FVT0075.4MXXA	480	75	68
FVT0090.4MXXA	480	90	77
FVT0110.4MXXA	480	110	100
FVT0130.4MXXA	480	130	93
FVT0150.4MXXA	480	150	104
FVT0180.4MXXA	480	180	116

CONNECTIONS

LINE		PE		CAPACITORS		CAPACITOR BOX	
Cable (mm²)	Terminal Torque (Nm)	Cable (mm²)	Terminal Torque (Nm)	Cable (mm²)	Terminal Torque (Nm)	Cable (mm²)	Terminal Torque (Nm)
0.5-4	0.8	0.5-4	0.8	0.5-4	0.8	0.5-4	0.8
0.5-4	0.8	0.5-4	0.8	0.5-4	0.8	0.5-4	0.8
0.5-4	0.8	0.5-4	0.8	0.5-4	0.8	0.5-4	0.8
0.5-4	0.8	0.5-4	0.8	0.5-4	0.8	0.5-4	0.8
0.5-4	0.8	0.5-4	0.8	0.5-4	0.8	0.5-4	0.8
0.5-6	1.8	0.5-6	1.8	0.5-6	1.8	0.5-4	0.8
0.5-6	1.8	0.5-6	1.8	0.5-6	1.8	0.5-4	0.8
0.5-10	1.3	0.5-10	1.3	0.5-10	1.3	0.5-4	0.8
0.5-10	1.3	0.5-10	1.3	0.5-10	1.3	0.5-4	0.8
1.5-16	3.4	1.5-16	3.4	1.5-16	3.4	0.5-4	0.8
1.5-16	3.4	1.5-16	3.4	1.5-16	3.4	0.5-4	0.8
1.5-35	6.5	1.5-16	3.4	1.5-35	6.5	0.5-4	0.8
1.5-35	6.5	1.5-16	3.4	1.5-35	6.5	0.5-4	0.8
10-70	6	2.5-50	5	05-6	1.8	0.5-4	0.8
10-70	6	2.5-50	5	05-6	1.8	0.5-4	0.8
10-95	10	10-70	6	05-6	1.8	0.5-4	0.8
16-150	20	10-95	10	05-6	1.8	0.5-4	0.8
16-150	20	10-95	10	05-6	1.8	0.5-4	0.8

ELECTRICAL CHARACTERISTICS

FVT	Voltage (V)	Rated Current 40°C	Power Loss (W)
FVT0210.4BXXA	480	210	122
FVT0260.4BXXA	480	260	151
FVT0320.4BXXA	480	320	134
FVT0380.4BXXA	480	380	150
FVT0440.4BXXA	480	440	165
FVT0500.4BXXA	480	500	191
FVT0600.4BXXA	480	600	234
FVT0700.4BXXA	480	700	280
FVT0800.4BXXA	480	800	0
FVT0900.4BXXA	480	900	0
FVT1000.4BXXA	480	1000	0

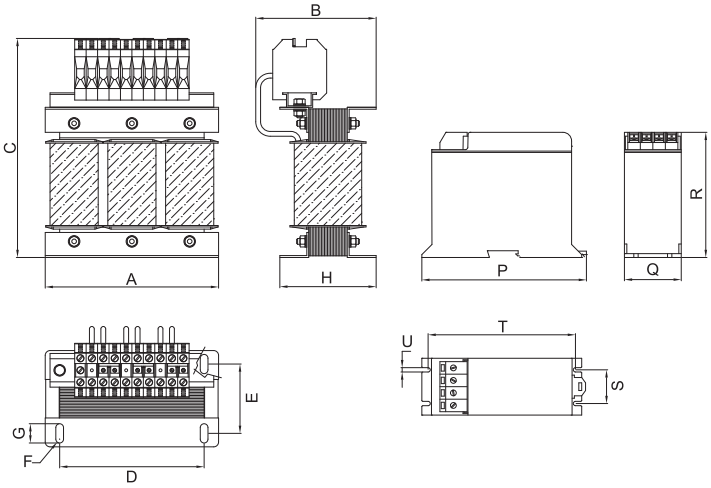
CONNECTIONS

LINE	PE	CAPACITORS	CAPACITOR BOX	
Torque (Nm)	Screw (mm)	Torque (Nm)	Cable (mm²)	Terminal Torque (Nm)
25	8x25	14	0.5-4	0.8
50	8x25	14	0.5-4	0.8
50	8x25	14	0.5-4	0.8
50	8x25	14	0.5-4	0.8
50	8x25	14	0.5-4	0.8
50	8x25	14	0.5-4	0.8
50	8x25	14	0.5-4	0.8
50	10x35	14	0.5-4	0.8
50	10x35	14	0.5-4	0.8
50	10x35	14	0.5-4	0.8
50	10x35	14	0.5-4	0.8

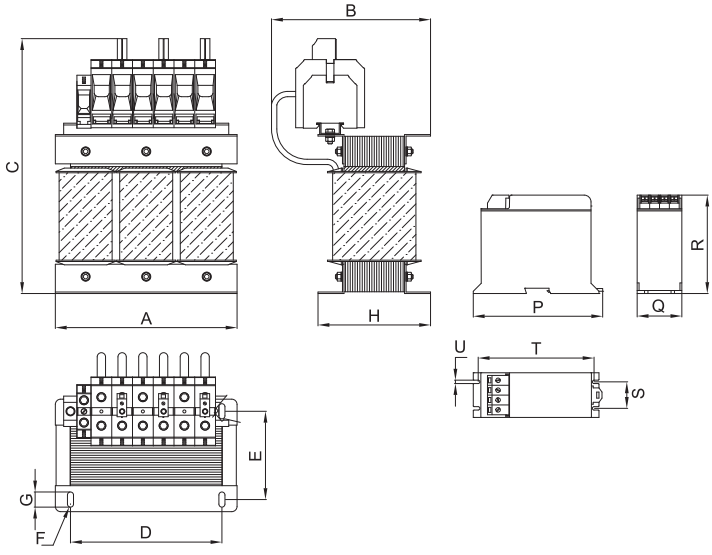
MECHANICAL DIMENSIONS mm

FVT	A	B	C	D	E	F	G	H	P	Q	R	S	T	U	Weight Kg.	Case
FVT0002.4MXXA	150	98	185	125	56	6	13	73	170	59	130	35	153	4.5	3.5	1
FVT0004.4MXXA	150	98	185	125	56	6	13	73	170	59	130	35	153	4.5	3.6	1
FVT0006.4MXXA	150	98	185	125	56	6	13	73	170	59	130	35	153	4.5	3.7	1
FVT0008.4MXXA	150	98	185	125	56	6	13	73	170	59	130	35	153	4.5	3.8	1
FVT0012.4MXXA	150	98	185	125	56	6	13	73	170	59	130	35	153	4.5	3.9	1
FVT0016.4MXXA	150	98	189	125	56	6	13	73	170	59	130	35	153	4.5	4.1	1
FVT0020.4MXXA	150	103	189	125	61	6	13	78	170	59	130	35	153	4.5	4.7	1
FVT0025.4MXXA	150	118	193	125	71	6	13	88	170	59	130	35	153	4.5	5.8	1
FVT0032.4MXXA	150	118	193	125	71	6	13	88	170	59	130	35	153	4.5	6.1	1
FVT0038.4MXXA	180	130	231	150	72	8	20	100	170	59	130	35	153	4.5	7.3	1
FVT0045.4MXXA	180	140	231	150	82	8	20	110	170	59	130	35	153	4.5	8.6	1
FVT0060.4MXXA	180	150	231	150	92	8	20	120	170	59	130	35	153	4.5	10.2	1
FVT0075.4MXXA	180	150	231	150	92	8	20	120	170	59	130	35	153	4.5	10.6	1
FVT0090.4MXXA	180	175	264	150	107	8	20	135	170	59	130	35	153	4.5	12.9	2
FVT0110.4MXXA	240	170	330	200	87	8	20	119	170	59	130	35	153	4.5	15.7	2
FVT0130.4MXXA	240	180	334	200	97	8	20	129	170	59	130	35	153	4.5	18.5	2
FVT0150.4MXXA	240	210	334	200	117	8	20	149	170	59	130	35	153	4.5	23.9	2
FVT0180.4MXXA	240	210	334	200	117	8	20	149	170	59	130	35	153	4.5	24.5	2

CASE 1



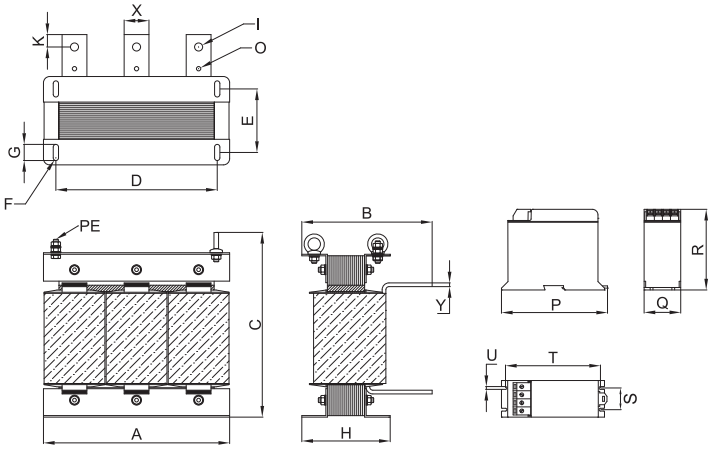
CASE 2



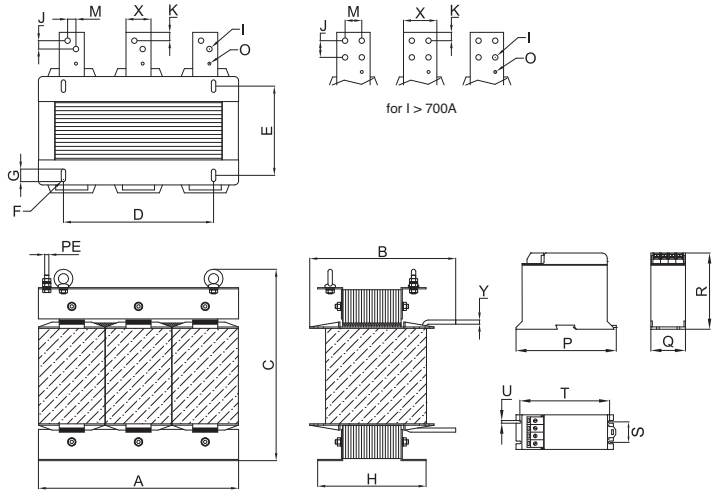
MECHANICAL DIMENSIONS mm

FVT	A	B	C	D	E	F	G	H	I	M	O	J	K	X	Y	P	Q	R	S	T	U	Weight Kg.	Case
FVT0210.4BXXA	300	206	295	260	103	8	26	143	11		7		15	30	6	170	59	130	35	153	4.5	28.8	3
FVT0260.4BXXA	300	210	295	260	103	8	26	143	13		7		20	40	6	170	59	130	35	153	4.5	29.4	3
FVT0320.4BXXA	300	247	295	260	113	8	26	153	13	20	7	20	15	50	6	170	59	130	35	153	4.5	35.3	4
FVT0380.4BXXA	300	256	295	260	113	8	26	153	13	14	7	20	15	40	10	170	59	130	35	153	4.5	37.0	4
FVT0440.4BXXA	360	247	345	260	115	8	26	155	13	14	7	20	15	50	10	170	59	130	35	153	4.5	50.1	4
FVT0500.4BXXA	360	247	345	260	115	8	26	155	13	20	7	20	15	50	10	170	59	130	35	153	4.5	50.2	4
FVT0600.4BXXA	360	277	345	260	145	8	26	1856	13	20	7	20	15	50	10	170	59	130	35	153	4.5	69.0	4
FVT0700.4BXXA	480	316	445	360	154	10	30	200	13	20	7	20	20	60	10	170	59	130	35	153	4.5	97.2	4
FVT0800.4BXXA	480	357	459	360	184	10	30	230	13	40	7	40	20	80	10	170	59	130	35	153	4.5	126	5
FVT0900.4BXXA	480	372	459	360	214	10	30	260	13	40	7	40	20	80	10	170	59	130	35	153	4.5	156	5
FVT1000.4BXXA	480	372	459	360	214	10	30	260	13	40	7	40	20	80	10	170	59	130	35	153	4.5	156	5

CASE 3



CASE 4. 5



ELECTRICAL CHARACTERISTICS

FVT	Voltage (V)	Rated Current 40°C	Power Loss (W)
FVT0002.7MXXA	690	2	9
FVT0004.7MXXA	690	4	15
FVT0006.7MXXA	690	6	21
FVT0008.7MXXA	690	8	25
FVT0012.7MXXA	690	12	34
FVT0016.7MXXA	690	16	36
FVT0020.7MXXA	690	20	53
FVT0025.7MXXA	690	25	48
FVT0032.7MXXA	690	32	60
FVT0038.7MXXA	690	38	55
FVT0045.7MXXA	690	45	69
FVT0060.7MXXA	690	60	88
FVT0075.7MXXA	690	75	103
FVT0090.7MXXA	690	90	110
FVT0110.7MXXA	690	110	131
FVT0130.7MXXA	690	130	151
FVT0150.7MXXA	690	150	156
FVT0180.7MXXA	690	180	175

CONNECTIONS

LINE		PE		CAPACITORS		CAPACITOR BOX	
Cable (mm²)	Terminal Torque (Nm)	Cable (mm²)	Terminal Torque (Nm)	Cable (mm²)	Terminal Torque (Nm)	Cable (mm²)	Terminal Torque (Nm)
0.5-4	0.8	0.5-4	0.8	0.5-4	0.8	0.5-4	0.8
0.5-4	0.8	0.5-4	0.8	0.5-4	0.8	0.5-4	0.8
0.5-4	0.8	0.5-4	0.8	0.5-4	0.8	0.5-4	0.8
0.5-4	0.8	0.5-4	0.8	0.5-4	0.8	0.5-4	0.8
0.5-4	0.8	0.5-4	0.8	0.5-4	0.8	0.5-4	0.8
0.5-6	1.8	0.5-6	1.8	0.5-6	1.8	0.5-4	0.8
0.5-6	1.8	0.5-6	1.8	0.5-6	1.8	0.5-4	0.8
0.5-10	1.3	0.5-10	1.3	0.5-10	1.3	0.5-4	0.8
0.5-10	1.3	0.5-10	1.3	0.5-10	1.3	0.5-4	0.8
1.5-16	3.4	1.5-16	3.4	1.5-16	3.4	0.5-4	0.8
1.5-16	3.4	1.5-16	3.4	1.5-16	3.4	0.5-4	0.8
1.5-35	6.5	1.5-16	3.4	1.5-35	6.5	0.5-4	0.8
1.5-35	6.5	1.5-16	3.4	1.5-35	6.5	0.5-4	0.8
10-70	6	2.5-50	5	05-6	1.8	0.5-4	0.8
10-70	6	2.5-50	5	05-6	1.8	0.5-4	0.8
10-95	10	10-70	6	05-6	1.8	0.5-4	0.8
16-150	20	10-95	10	05-6	1.8	0.5-4	0.8
16-150	20	10-95	10	05-6	1.8	0.5-4	0.8

ELECTRICAL CHARACTERISTICS

FVT	Voltage (V)	Rated Current 40°C	Power Loss (W)
FVT0210.7BXXA	690	210	1158
FVT0260.7BXXA	690	260	183
FVT0320.7BXXA	690	320	208
FVT0380.7BXXA	690	380	220
FVT0440.7BXXA	690	440	268
FVT0500.7BXXA	690	500	284
FVT0600.7BXXA	690	600	343
FVT0700.7BXXA	690	700	401
FVT0800.7BXXA	690	800	578
FVT0900.7BXXA	690	900	640
FVT1000.7BXXA	690	1000	654

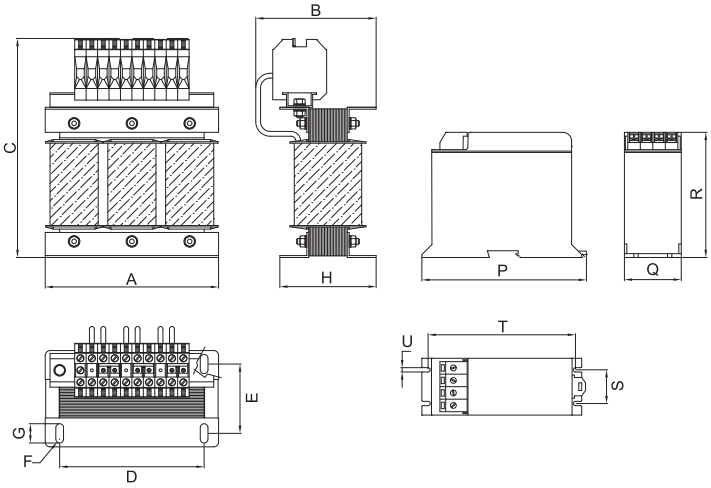
CONNECTIONS

LINE	PE	CAPACITORS	CAPACITOR BOX	
Torque (Nm)	Screw (mm)	Torque (Nm)	Cable (mm²)	Terminal Torque (Nm)
25	8x25	14	0.5-4	0.8
50	8x25	14	0.5-4	0.8
50	8x25	14	0.5-4	0.8
50	8x25	14	0.5-4	0.8
50	8x25	14	0.5-4	0.8
50	8x25	14	0.5-4	0.8
50	8x25	14	0.5-4	0.8
50	10x35	14	0.5-4	0.8
50	10x35	14	0.5-4	0.8
50	10x35	14	0.5-4	0.8
50	10x35	14	0.5-4	0.8

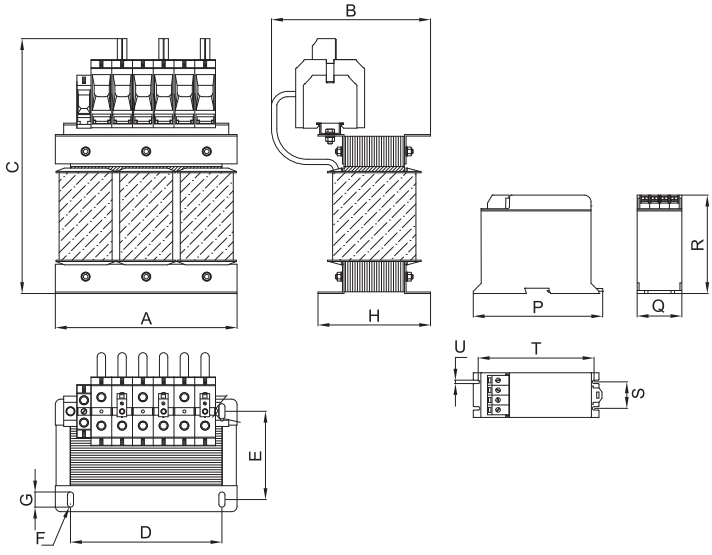
MECHANICAL DIMENSIONS mm

FVT	A	B	C	D	E	F	G	H	P	Q	R	S	T	U	Weight Kg.	Case
FVT0002.7MXXA	150	98	185	125	56	6	13	73	170	59	130	35	153	4.5	2.6	1
FVT0004.7MXXA	150	98	185	125	56	6	13	73	170	59	130	35	153	4.5	2.7	1
FVT0006.7MXXA	150	98	185	125	56	6	13	73	170	59	130	35	153	4.5	2.9	1
FVT0008.7MXXA	150	98	185	125	56	6	13	73	170	59	130	35	153	4.5	3.1	1
FVT0012.7MXXA	150	103	185	125	61	6	13	78	170	59	130	35	153	4.5	3.8	1
FVT0016.7MXXA	150	113	189	125	71	8	13	88	170	59	130	35	153	4.5	5.1	1
FVT0020.7MXXA	180	125	214	150	72	8	20	100	170	59	130	35	153	4.5	6.3	1
FVT0025.7MXXA	180	140	218	150	82	8	20	110	170	59	130	35	153	4.5	7	1
FVT0032.7MXXA	180	140	218	150	82	8	20	110	170	59	130	35	153	4.5	8.2	1
FVT0038.7MXXA	180	150	231	150	92	8	20	120	170	59	130	35	153	4.5	9.9	1
FVT0045.7MXXA	180	165	231	150	107	8	20	135	170	59	130	35	153	4.5	11.9	1
FVT0060.7MXXA	240	149	281	200	87	8	20	119	170	59	130	35	153	4.5	15	1
FVT0075.7MXXA	240	159	281	200	97	8	20	129	170	59	130	35	153	4.5	17.9	1
FVT0090.7MXXA	240	169	316	200	97	8	20	129	170	59	130	35	153	4.5	18.8	2
FVT0110.7MXXA	240	189	316	200	117	8	20	149	170	59	130	35	153	4.5	24.3	2
FVT0130.7MXXA	300	200	384	260	103	8	26	143	170	59	130	35	153	4.5	28.5	2
FVT0150.7MXXA	300	200	384	260	103	8	26	143	170	59	130	35	153	4.5	29.6	2
FVT0180.7MXXA	300	217	384	260	113	8	26	153	170	59	130	35	153	4.5	34.1	2

CASE 1



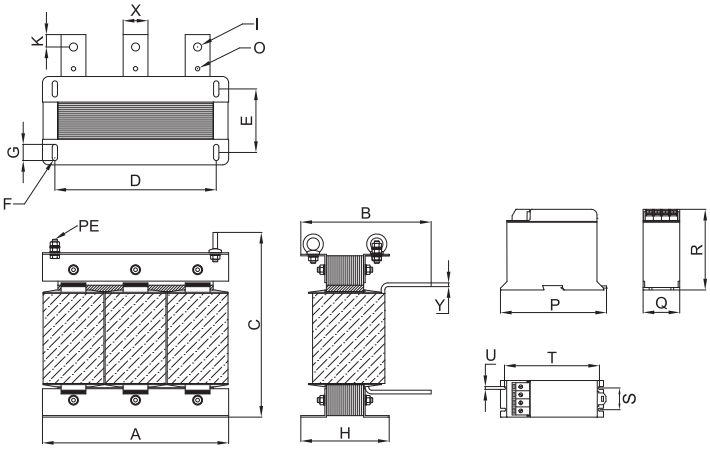
CASE 2



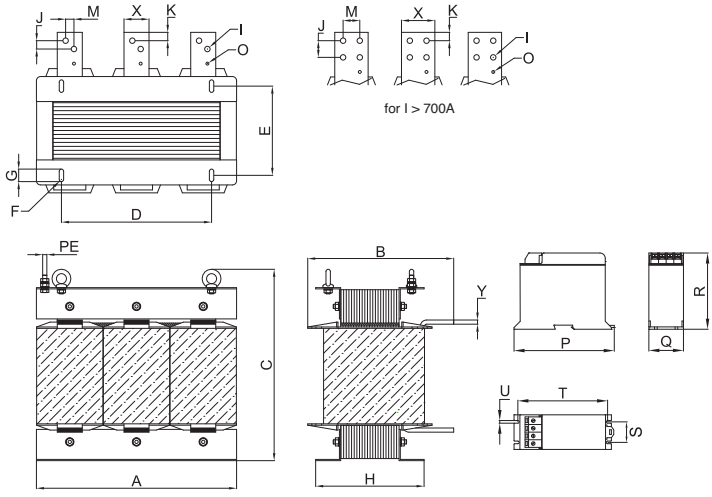
MECHANICAL DIMENSIONS mm

FVT	A	B	C	D	E	F	G	H	I	M	O	J	K	X	Y	P	Q	R	S	T	U	Weight Kg.	Case
FVT0210.7BXXA	300	292	295	260	133	8	26	173	11		7		15	30	6	170	59	130	35	153	4.5	45	3
FVT0260.7BXXA	360	292	345	260	115	8	26	155	13	20	7	20	15	50	6	170	59	130	35	153	4.5	51	3
FVT0320.7BXXA	360	303	345	260	115	8	26	155	13	20	7	20	15	50	6	170	59	130	35	153	4.5	54.9	4
FVT0380.7BXXA	360	303	345	260	145	8	26	185	13	20	7	20	15	50	6	170	59	130	35	153	4.5	72.6	4
FVT0440.7BXXA	360	332	345	260	165	8	26	205	13	14	7	20	15	40	10	170	59	130	35	153	4.5	83.3	4
FVT0500.7BXXA	360	335	345	260	165	8	26	205	13	20	7	20	15	50	10	170	59	130	35	153	4.5	86	4
FVT0600.7BXXA	480	316	459	360	154	10	30	200	13	20	7	20	15	50	10	170	59	130	35	153	4.5	106.3	4
FVT0700.7BXXA	480	343	459	360	184	10	30	230	13	20	7	20	20	60	10	170	59	130	35	153	4.5	133.5	4
FVT0800.7BXXA	600	400	559	380	210	14	30	254	13	40	7	40	20	80	10	170	59	130	35	153	4.5	235	5
FVT0900.7BXXA	600	400	559	380	210	14	30	254	13	40	7	40	20	80	10	170	59	130	35	153	4.5	235	5
FVT1000.7BXXA	600	424	559	380	210	14	30	254	13	40	7	40	20	100	10	170	59	130	35	153	4.5	238	5

CASE 3



CASE 4. 5



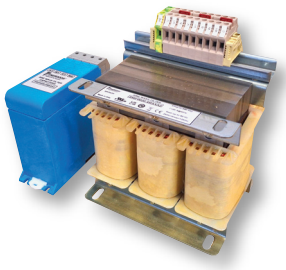
Datasheet 202404

Sine wave filter with excellent attenuation for VFD applications

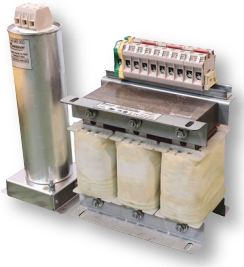
APPROVALS:

E480443

Up to 650A



SWF.(002 - 020).M



SWF.(025 - 180).M

SWF.(210 - 380).M

SWF.(440 - 1000).M

CHARACTERISTICS

- Rated current from 2 to 1000A
- Compact design
- Enclosure available upon request

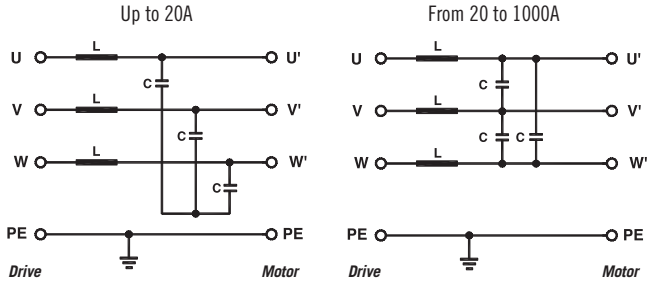
BENEFITS

- Minimal power loss
- Ventilation-free design
- Eliminates high-frequency disturbance

MARKETS

- Applications with motor cables longer than 250m
- Variable frequency drives / servo drives
- Industrial automation
- Water treatment plants
- Agriculture

ELECTRICAL DIAGRAM

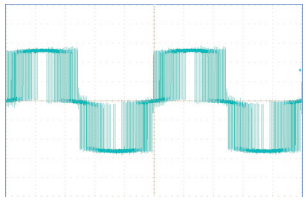


CODE

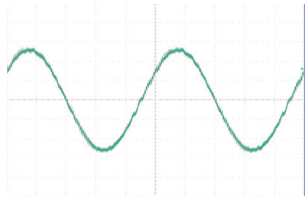
SWF0012.4MXXA2

SWF	0012	4	M	XX	A	2
Model	***Current***	***Voltage***	***Connection***	***Protection***	***Open Frame***	***Min. PWM Freq.***
		4 = 400/480 V	M = Terminal block	XX = None		2 = 2 kHz
		7 = 690 V	B = Bus bar	T1 = 1 Thermocouple		4 = 4 kHz
				T3 = 3 Thermocouples		

TYPICAL MEASUREMENT



Motor side pulse without SWF filter



Motor side pulse with SWF filter

TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 480 Vac (690 Vac option)
Frequency	0 - 70 Hz
Rated current	2 to 1000 A
Ambient temperature	40°C
	Derating $I_T = \sqrt{(85-T)/45}$
Altitude	1000 m
	Derating 0.5% every 100 m
Relative humidity	<95% no condensation
Overload capability	1.5 x Rated current
IP Protection	IP20 up to 180 A
	IP00 over 260 A
Optional	Current and frequency customizations available on request

ELECTRICAL CHARACTERISTICS

SWF	Rated Current 40°C	Min Switching Frequency (kHz)	Power Loss (W)
SWF0002.4MXXA4	2	4	22
SWF0004.4MXXA4	4	4	36
SWF0006.4MXXA4	6	4	50
SWF0008.4MXXA4	8	4	52
SWF0012.4MXXA4	12	4	70
SWF0016.4MXXA4	16	4	73
SWF0020.4MXXA4	20	4	94
SWF0025.4MXXA4	25	4	145
SWF0032.4MXXA4	32	4	164
SWF0038.4MXXA4	38	4	156
SWF0045.4MXXA4	45	4	167
SWF0060.4MXXA4	60	4	191
SWF0075.4MXXA4	75	4	232
SWF0090.4MXXA4	90	4	265
SWF0110.4MXXA4	110	4	268
SWF0130.4MXXA4	130	4	288
SWF0150.4MXXA4	150	4	354
SWF0180.4MXXA4	180	4	327

CONNECTIONS

LINE		PE		CAPACITORS		CAPACITOR BOX	
Cable (mm²)	Terminal Torque (Nm)	Cable (mm²)	Terminal Torque (Nm)	Cable (mm²)	Terminal Torque (Nm)	Cable (mm²)	Terminal Torque (Nm)
0.5-4	0.8	0.5-4	0.8	0.5-4	0.8	0.5-4	0.8
0.5-4	0.8	0.5-4	0.8	0.5-4	0.8	0.5-4	0.8
0.5-4	0.8	0.5-4	0.8	0.5-4	0.8	0.5-4	0.8
0.5-4	0.8	0.5-4	0.8	0.5-4	0.8	0.5-4	0.8
0.5-4	0.8	0.5-4	0.8	0.5-4	0.8	0.5-4	0.8
0.5-6	1.8	0.5-6	1.8	0.5-6	1.8	0.5-4	0.8
0.5-6	1.8	0.5-6	1.8	0.5-6	1.8	0.5-4	0.8
0.5-10	1.3	0.5-10	1.3	0.5-10	1.3	4-25	2
0.5-10	1.3	0.5-10	1.3	0.5-10	1.3	4-25	2
1.5-16	3.4	1.5-16	3.4	1.5-16	3.4	4-25	2
1.5-16	3.4	1.5-16	3.4	1.5-16	3.4	4-25	2
1.5-35	6.5	1.5-16	3.4	1.5-35	6.5	4-25	2
1.5-35	6.5	1.5-16	3.4	1.5-35	6.5	4-25	2
16-50	5.6	1.5-35	6.5	16-50	5.6	4-25	2
16-50	5.6	1.5-35	6.5	16-50	5.6	4-25	2
35-95	10	16-50	5.6	35-95	10	4-25	2
35-95	10	16-50	5.6	35-95	10	4-25	2
35-95	10	16-50	5.6	35-95	10	4-25	2

ELECTRICAL CHARACTERISTICS

SWF	Rated Current 40°C	Min Switching Frequency (kHz)	Power Loss (W)
SWF0210.4BXXA4	210	4	375
SWF0260.4BXXA4	260	4	467
SWF0320.4BXXA4	320	4	541
SWF0380.4BXXA4	380	4	569
SWF0440.4BXXA4	440	4	634
SWF0500.4BXXA4	500	4	735
SWF0600.4BXXA4	600	4	824
SWF0700.4BXXA4	700	4	869
SWF0800.4BXXA4	800	4	975
SWF0900.4BXXA4	900	4	1050
SWF1000.4BXXA4	1000	4	1305

CONNECTIONS

LINE	PE	CAPACITORS	CAPACITOR BOX	
Torque (Nm)	Screw (mm)	Torque (Nm)	Cable (mm²)	Terminal Torque (Nm)
25	8x25	14	4-25	2
50	8x25	14	4-25	2
50	8x25	14	4-25	2
50	8x25	14	4-25	2
50	8x25	14	35-95	15
50	8x25	14	35-95	15
50	8x25	14	35-95	15
50	10x35	14	35-95	15
50	10x35	14	-	14
50	10x35	14	-	14
50	10x35	14	-	14

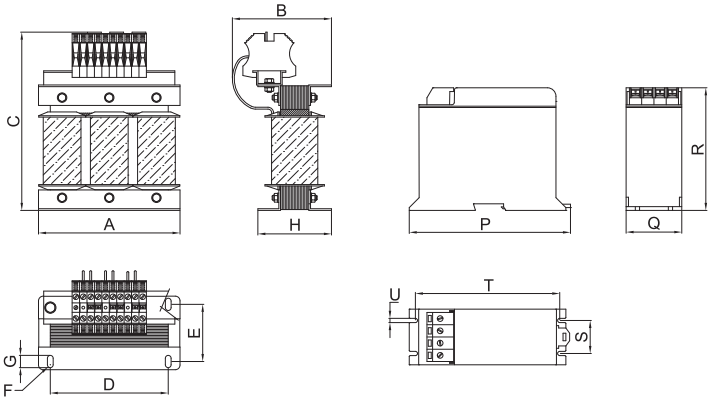
SWF f PWM > 4 kHz

Sine Wave Output Filter

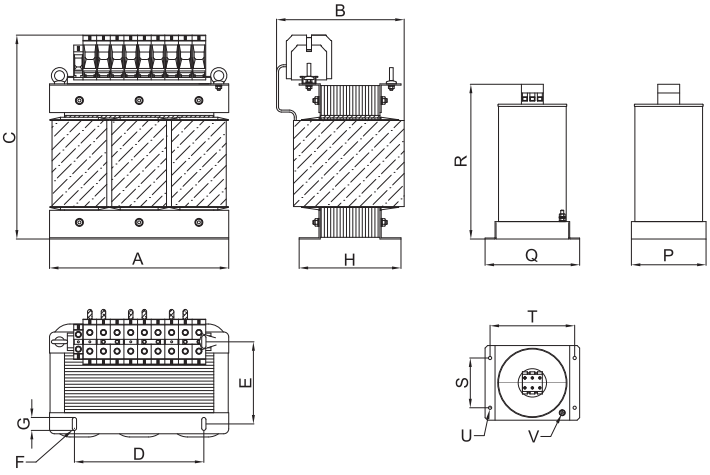
MECHANICAL DIMENSIONS mm

SWF	A	B	C	D	E	F	G	H	P	Q	R	S	T	U	V	Weight Kg.	Cus.
SWF0002.4MXXA4	150	98	185	125	56	6	13	73	170	59	130	35	153	4.5	-	3.5	1
SWF0004.4MXXA4	150	98	185	125	56	6	13	73	170	59	130	35	153	4.5	-	3.5	1
SWF0006.4MXXA4	150	113	185	125	71	6	13	88	170	59	130	35	153	4.5	-	6	1
SWF0008.4MXXA4	180	125	210	150	72	8	20	100	170	59	130	35	153	4.5	-	6	1
SWF0012.4MXXA4	180	125	210	150	72	8	20	100	170	59	130	35	153	4.5	-	8	1
SWF0016.4MXXA4	180	135	214	150	82	8	20	110	170	59	130	35	153	4.5	-	11	1
SWF0020.4MXXA4	180	160	214	150	107	8	20	135	170	59	130	35	153	4.5	-	14	1
SWF0025.4MXXA4	240	159	268	200	97	8	20	129	110	150	232	80	130	6.5	M6x25	18	2
SWF0032.4MXXA4	240	179	268	200	117	8	20	149	110	150	232	80	130	6.5	M6x25	24	2
SWF0038.4MXXA4	240	179	281	200	117	8	20	149	110	150	270	80	130	6.5	M6x25	25	2
SWF0045.4MXXA4	300	173	331	260	103	8	26	143	110	150	270	80	130	6.5	M6x25	19	2
SWF0060.4MXXA4	300	173	331	260	103	8	26	143	110	150	270	80	130	6.5	M6x25	20	2
SWF0075.4MXXA4	360	185	381	260	115	8	26	155	110	150	270	80	130	6.5	M6x25	34	2
SWF0090.4MXXA4	360	195	414	260	115	8	26	155	110	150	270	80	130	6.5	M6x25	37	2
SWF0110.4MXXA4	360	225	414	260	145	8	26	185	110	150	345	80	130	6.5	M6x25	47	2
SWF0130.4MXXA4	360	230	434	260	145	8	26	185	110	150	345	80	130	6.5	M6x25	51	2
SWF0150.4MXXA4	360	250	434	260	165	8	26	205	110	150	345	80	130	6.5	M6x25	82	2
SWF0180.4MXXA4	360	250	434	260	165	8	26	205	150	190	311	100	170	6.5	M6x25	83	2

CASE 1



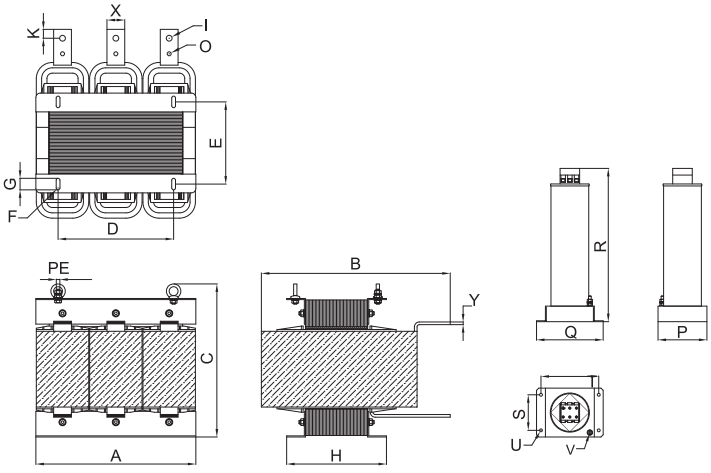
CASE 2



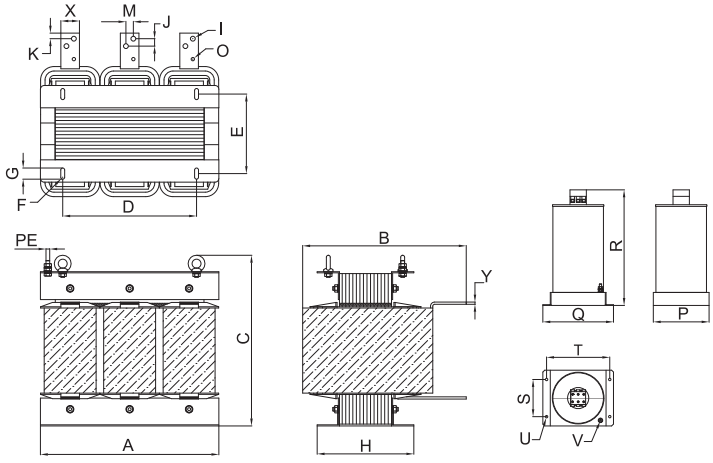
MECHANICAL DIMENSIONS mm

SWF	A	B	C	D	E	F	G	H	I	M	O	J	K	X	Y	P	Q	R	S	T	U	V	W	X1	Y1	Weight Kg.	Cus.
SWF0210.4BXXA4	360	343	345	260	185	8	26	225	11	-	9	-	20	40	6	150	190	326	100	170	6.5	M6x25	-	-	-	93	3
SWF0260.4BXXA4	480	395	459	360	184	10	30	230	13	-	11	-	20	40	6	150	190	326	100	170	6.5	M6x25	-	-	-	128	3
SWF0320.4BXXA4	480	398	459	360	214	10	30	260	13	20	11	20	15	50	6	150	190	311	100	170	6.5	M6x25	-	-	-	167	4
SWF0380.4BXXA4	480	395	459	360	214	10	30	260	13	20	11	20	15	50	6	150	190	326	100	170	6.5	M6x25	-	-	-	170	4
SWF0440.4BXXA4	480	450	459	360	234	10	30	280	13	14	11	20	15	40	10	432	210	400	195	160	5	M5x20	-	-	-	202	5
SWF0500.4BXXA4	600	398	559	380	210	14	30	254	13	20	11	20	15	50	10	432	210	400	195	160	5	M5x20	-	-	-	247	5
SWF0600.4BXXA4	600	434	559	380	240	14	30	284	13	20	11	20	15	60	10	432	210	400	195	160	5	M5x20	-	-	-	298	5
SWF0700.4BXXA4	600	434	559	380	240	14	30	284	13	20	11	20	20	60	10	432	210	400	195	160	5	M5x20	-	-	-	305	5
SWF0800.4BXXA4	600	464	559	380	240	14	30	284	13	40	11	40	20	80	10	450	338	422	150	410	9	M8X20	29	20	6	301	6
SWF0900.4BXXA4	600	481	559	380	260	14	30	304	13	40	11	40	20	80	10	450	338	422	150	410	9	M8X20	29	20	6	332	6
SWF1000.4BXXA4	600	531	559	380	300	14	30	344	13	40	11	40	20	100	10	450	338	422	150	410	9	M8X20	29	20	6	400	6

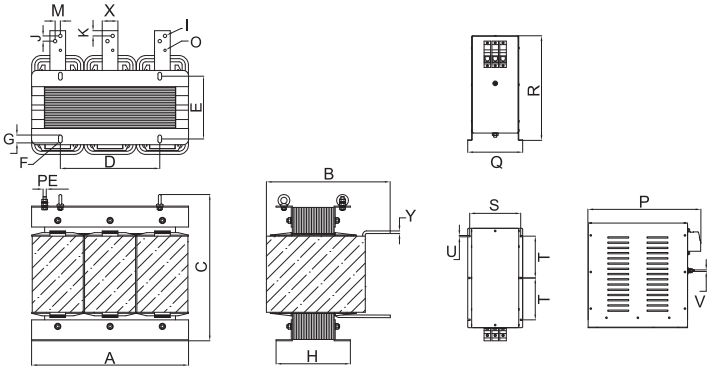
CASE 3



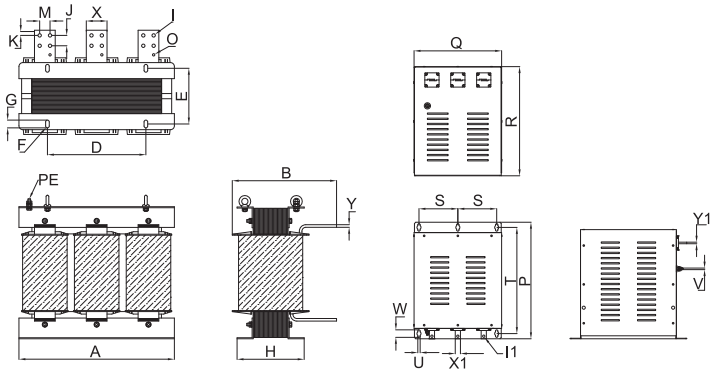
CASE 4



CASE 5



CASE 6



ELECTRICAL CHARACTERISTICS

SWF	Rated Current 40°C	Min Switching Frequency (kHz)	Power Loss (W)
SWF0002.4MXXA2	2	2	20
SWF0004.4MXXA2	4	2	135
SWF0006.4MXXA2	6	2	138
SWF0008.4MXXA2	8	2	163
SWF0012.4MXXA2	12	2	167
SWF0016.4MXXA2	16	2	210
SWF0020.4MXXA2	20	2	229
SWF0025.4MXXA2	25	2	278
SWF0032.4MXXA2	32	2	329
SWF0038.4MXXA2	38	2	313
SWF0045.4MXXA2	45	2	350
SWF0060.4MXXA2	60	2	374
SWF0075.4MXXA2	75	2	556
SWF0090.4MXXA2	90	2	630
SWF0110.4MXXA2	110	2	821
SWF0130.4MXXA2	130	2	834
SWF0150.4MXXA2	150	2	970
SWF0180.4MXXA2	180	2	1033

CONNECTIONS

LINE		PE		CAPACITORS		CAPACITOR BOX	
Cable (mm²)	Terminal Torque (Nm)	Cable (mm²)	Terminal Torque (Nm)	Cable (mm²)	Terminal Torque (Nm)	Cable (mm²)	Terminal Torque (Nm)
0.5-4	0.8	0.5-4	0.8	0.5-4	0.8	0.5-4	0.8
0.5-4	0.8	0.5-4	0.8	0.5-4	0.8	0.5-4	0.8
0.5-4	0.8	0.5-4	0.8	0.5-4	0.8	0.5-4	0.8
0.5-4	0.8	0.5-4	0.8	0.5-4	0.8	0.5-4	0.8
0.5-4	0.8	0.5-4	0.8	0.5-4	0.8	0.5-4	0.8
0.5-6	1.8	0.5-6	1.8	0.5-6	1.8	0.5-4	0.8
0.5-6	1.8	0.5-6	1.8	0.5-6	1.8	0.5-4	0.8
0.5-10	1.3	0.5-10	1.3	0.5-10	1.3	4-25	2
0.5-10	1.3	0.5-10	1.3	0.5-10	1.3	4-25	2
1.5-16	3.4	1.5-16	3.4	1.5-16	3.4	4-25	2
1.5-16	3.4	1.5-16	3.4	1.5-16	3.4	4-25	2
1.5-35	6.5	1.5-16	3.4	1.5-35	6.5	4-25	2
1.5-35	6.5	1.5-16	3.4	1.5-35	6.5	4-25	2
16-50	5.6	1.5-35	6.5	16-50	5.6	4-25	2
16-50	5.6	1.5-35	6.5	16-50	5.6	4-25	2
35-95	10	16-50	5.6	35-95	10	4-25	2
35-95	10	16-50	5.6	35-95	10	4-25	2
35-95	10	16-50	5.6	35-95	10	4-25	2

ELECTRICAL CHARACTERISTICS

SWF	Rated Current 40°C	Min Switching Frequency (kHz)	Power Loss (W)
SWF0210.4BXXA2	210	2	1104
SWF0260.4BXXA2	260	2	467
SWF0320.4BXXA2	320	2	541
SWF0380.4BXXA2	380	2	569
SWF0440.4BXXA2	440	2	634
SWF0500.4BXXA2	500	2	735
SWF0600.4BXXA2	600	2	824
SWF0700.4BXXA2	700	2	1353
SWF0800.4BXXA2	800	2	1497
SWF0900.4BXXA2	900	2	1413
SWF1000.4BXXA2	1000	2	1388

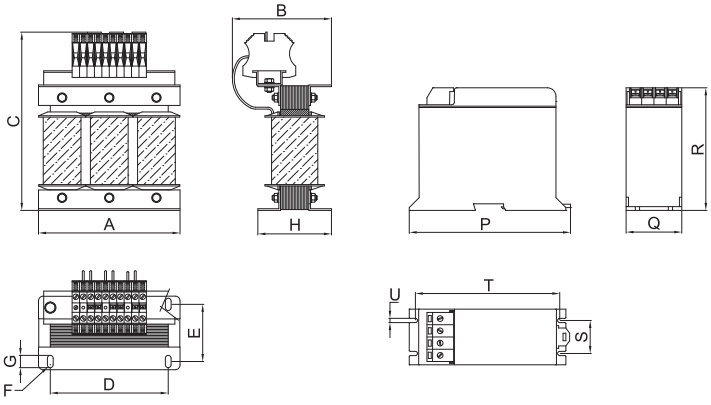
CONNECTIONS

LINE	PE	CAPACITORS	CAPACITOR BOX	
Torque (Nm)	Screw (mm)	Torque (Nm)	Cable (mm²)	Terminal Torque (Nm)
25	8x25	14	4-25	2
50	8x25	14	4-25	2
50	8x25	14	4-25	2
50	8x25	14	4-25	2
50	8x25	14	35-95	15
50	8x25	14	35-95	15
50	8x25	14	35-95	15
50	10x35	14	35-95	15
50	10x35	14	-	14
50	10x35	14	-	14
50	10x35	14	-	14

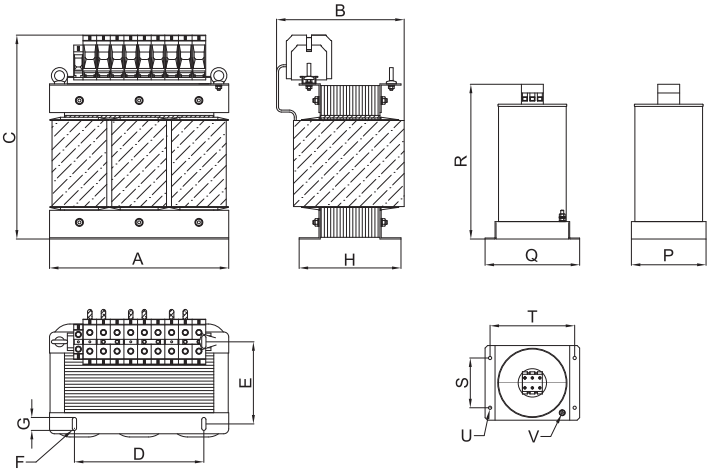
MECHANICAL DIMENSIONS mm

SWF	A	B	C	D	E	F	G	H	P	Q	R	S	T	U	V	Weight Kg.	Case
SWF0002.4MXXA2	150	88	185	125	56	6	13	73	170	59	130	35	153	4.5	-	5	1
SWF0004.4MXXA2	150	103	185	125	71	6	13	88	170	59	130	35	153	4.5	-	7	1
SWF0006.4MXXA2	180	115	200	150	72	8	20	100	170	59	130	35	153	4.5	-	10	1
SWF0008.4MXXA2	180	125	200	150	82	8	20	110	170	59	130	35	153	4.5	-	11	1
SWF0012.4MXXA2	180	135	200	150	92	8	20	120	170	59	130	35	153	4.5	-	14	1
SWF0016.4MXXA2	180	150	214	150	107	8	20	135	170	59	130	35	153	4.5	-	16	1
SWF0020.4MXXA2	240	144	264	200	97	8	20	130	170	59	130	35	153	4.5	-	17	1
SWF0025.4MXXA2	240	164	268	200	117	8	20	150	110	150	232	80	130	6.5	M6x25	24	2
SWF0032.4MXXA2	240	164	268	200	117	8	20	150	110	150	232	80	130	6.5	M6x25	25	2
SWF0038.4MXXA2	300	158	331	260	103	8	26	142	110	150	270	80	130	6.5	M6x25	29	2
SWF0045.4MXXA2	300	158	331	260	103	8	26	142	110	150	270	80	130	6.5	M6x25	30	2
SWF0060.4MXXA2	300	188	331	260	133	8	26	172	110	150	270	80	130	6.5	M6x25	46	2
SWF0075.4MXXA2	300	198	331	260	143	8	26	182	110	150	270	80	130	6.5	M6x25	47	2
SWF0090.4MXXA2	360	250	389	260	115	8	26	154	110	150	270	80	130	6.5	M6x25	53	2
SWF0110.4MXXA2	360	225	389	260	165	8	26	204	110	150	345	80	130	6.5	M6x25	82	2
SWF0130.4MXXA2	360	230	434	260	185	8	26	224	110	150	345	80	130	6.5	M6x25	98	2
SWF0150.4MXXA2	360	395	340	260	185	8	26	224	110	150	345	80	130	6.5	M6x25	97	2
SWF0180.4MXXA2	480	460	450	360	154	10	30	200	150	190	311	100	170	6.5	M6x25	103	2

CASE 1



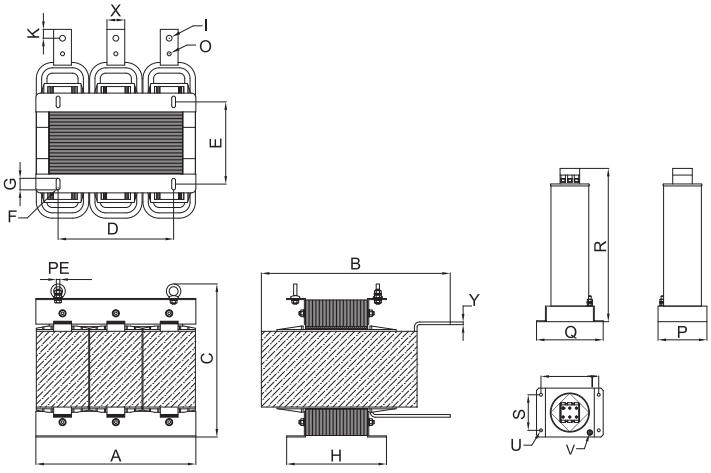
CASE 2



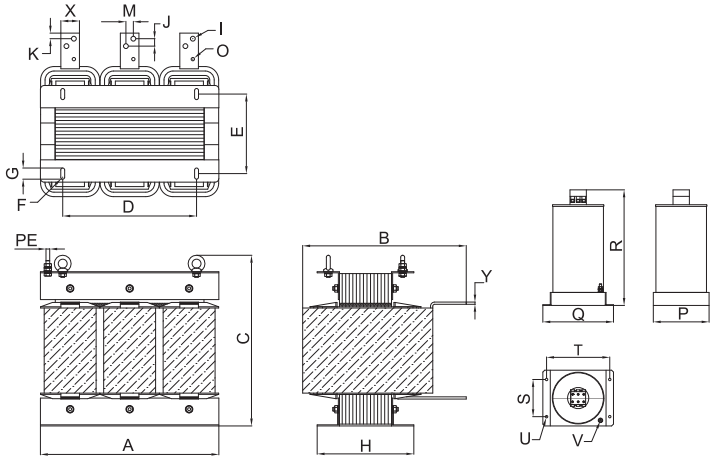
MECHANICAL DIMENSIONS mm

SWF	A	B	C	D	E	F	G	H	I	M	O	J	K	X	Y	P	Q	R	S	T	U	V	W	X1	Y1	Weight Kg.	Case
SWF0210.4BXXA2	480	351	450	360	184	10	30	230	11	-	9	-	15	30	6	150	190	326	100	170	6.5	M6x25	-	-	-	136	3
SWF0260.4BXXA2	480	440	450	360	214	10	30	260	13	-	11	-	15	40	6	150	190	326	100	170	6.5	M6x25	-	-	-	178	3
SWF0320.4BXXA2	600	459	559	380	210	14	30	254	13	20	11	20	15	50	10	150	190	311	100	170	6.5	M6x25	-	-	-	256	4
SWF0380.4BXXA2	600	493	559	380	210	14	30	254	13	20	11	20	15	50	10	150	190	326	100	170	6.5	M6x25	-	-	-	271	4
SWF0440.4BXXA2	600	493	559	380	210	14	30	254	13	20	11	20	15	50	10	432	210	400	195	160	5	M5x20	-	-	-	273	5
SWF0500.4BXXA2	600	502	559	380	240	14	30	284	13	20	11	20	15	50	10	432	210	400	195	160	5	M5x20	-	-	-	325	5
SWF0600.4BXXA2	600	491	559	380	240	14	30	284	13	20	11	20	20	60	10	432	210	400	195	160	5	M5x20	-	-	-	335	5
SWF0700.4BXXA2	600	513	559	380	300	14	30	344	13	20	11	20	20	60	10	432	210	400	195	160	5	M5x20	-	-	-	422	5
SWF0800.4BXXA2	600	556	559	380	330	14	30	374	13	40	11	40	20	80	10	450	338	422	150	410	9	M8X20	29	20	6	464	6
SWF0900.4BXXA2	600	554	559	380	330	14	30	374	13	40	11	40	20	80	10	450	338	422	150	410	9	M8X20	29	20	6	535	6
SWF1000.4BXXA2	600	549	559	380	330	14	30	374	13	40	11	40	20	100	10	450	338	422	150	410	9	M8X20	29	20	6	576	6

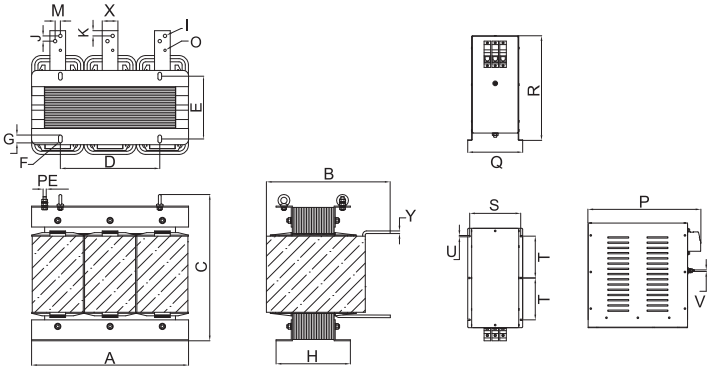
CASE 3



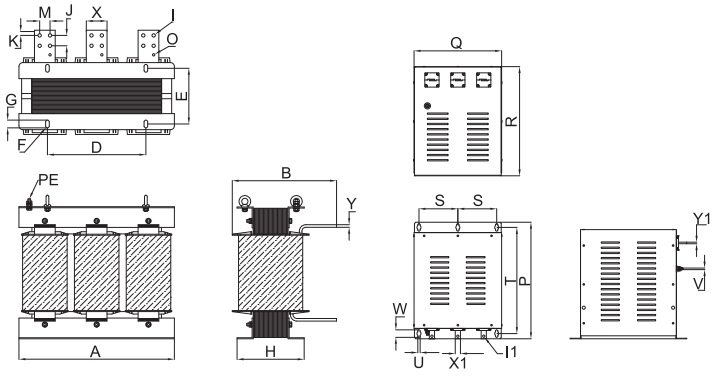
CASE 4



CASE 5



CASE 6

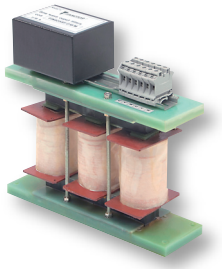


Datasheet 202405

High frequency sine wave filter with excellent attenuation for variable frequency drive applications

APPROVALS:

CE RoHS UK CA



FIN915SFH.(005 - 048).M

FEATURES

- Rated current from 5 to 1100A
- High performance sine wave output
- Eliminates dV/dt and increases motor life
- Ideal for high speed motors

BENEFITS

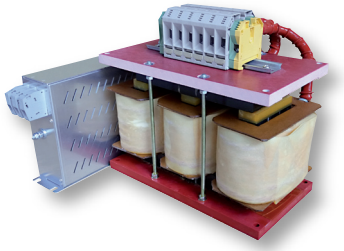
- Terminal blocks up to 880A
- Very compact design
- Available in open frame or enclosure

MARKETS

- Long cable applications - 2,500m
- Frequency drives and servo drives >75 Hz
- Process plants
- Water treatment plants
- Agriculture

ORDERING CODE

FIN915SF	.100	.M	-N1
Model	Current (A)	Connection	Enclosure
		M = Terminal	N1 = Nema 1
		V = Screws	N3R = Nema 3R
		BC = Bus bar	

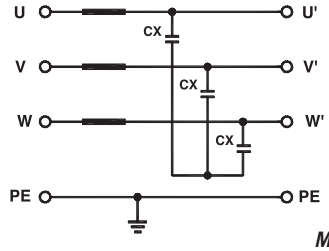


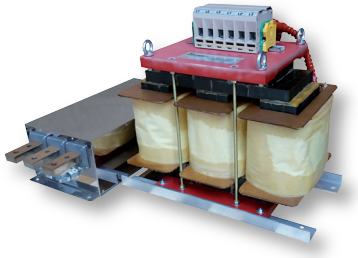
FIN915SFH.(060 - 360).M

ATTENUATION INDICATOR

High	Very High	Excellent

ELECTRIC DIAGRAM





FIN915SFH.(480 - 1100).M

TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 600 Vac
Output frequency	0 - 3 kHz
Rated current	5 - 1100 A
Carrier frequency (PWM)	>2 kHz, see table
Ambient temperature	70°C
Altitude	1000 m
Relative humidity	<95% no condensation
Saturation current	4 x Rated Current (Switch ON) 2 x In 10 seconds 1.5 x In 10 minutes 1.5 x Nominal current
IP Protection	IP20 up to 360A IP00 over 480A
Optional	Enclosure, fan, finger safe protection

FIN915SFH

Sine Wave Filter

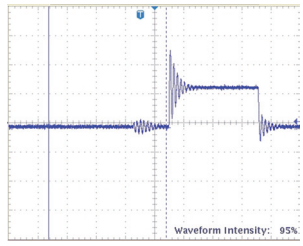
ELECTRICAL CHARACTERISTICS

FIN915SFH	Rated Current 40°C	Min Switch Freq. (kHz)	Power Loss (W)
.005.M	5	2	50
.010.M	10	2	70
.016.M	16	2	98
.025.M	25	2	105
.036.M	36	2	110
.048.M	48	2	195
.060.M	60	2	220
.075.M	75	2	255
115.M	115	4	420
.180.M	180	4	602
.210.M	210	4	650
.260.M	260	4	701
.360.M	360	6	800
.480.M	480	6	980
.610.M	610	6	1300
.680.M	680	6	1400
.770.M	770	6	2050
.860.M	860	6	2430
.960.M	960	6	2765
.1100.M	1100	6	2915

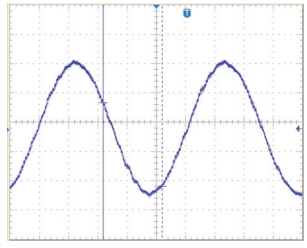
CONNECTIONS

LINE			PE
Solid Cable (mm^2)	Stranded Cable (mm^2)	Terminal Block Torque (Nm)	Torque (Nm)
0.2-10	0.2-6	1.2	1.2
0.2-10	0.2-6	1.2	1.2
0.2-10	0.2-6	1.2	1.2
0.2-10	0.2-6	1.2	1.2
0.2-10	0.2-6	1.8	1.8
0.2-10	0.2-6	1.8	1.8
6-35	4-25	4.5	4.5
6-35	4-25	4.5	4
10-50	10-50	4	4
39-95	35-95	20	20
35-150	35-150	20	20
35-150	35-150	20	20
35-150	35-150	20	20
35-150	35-150	20	20
35-150	35-150	20	20
35-150	35-150	20	20
35-150	35-150	20	20
35-150	35-150	20	20
35-150	35-150	20	20

TYPICAL MEASUREMENT



Standard waveform measured when the motor is controlled by VFD drive.

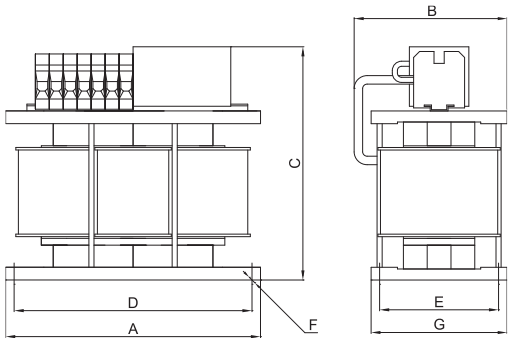


Standard waveform measured when Enerdoor sine wave filter is installed on motor controlled by VFD drive.

MECHANICAL DIMENSIONS mm

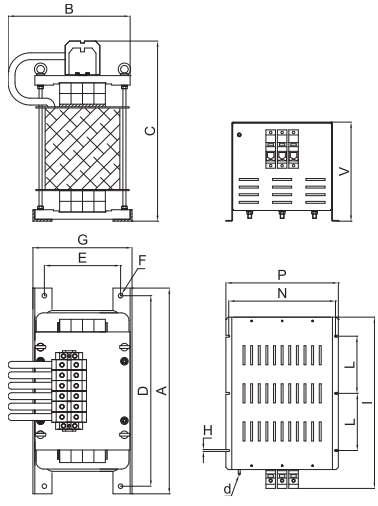
FIN915SFH	A	B	C	D	E	F	G	Weight Kg.	Case
.005.M	260	170	252	240	110	8	138	5	1
.010.M	260	170	252	240	110	8	138	6.5	1
.016.M	260	170	252	240	110	8	138	8	1
.025.M	300	240	265	280	140	8	160	12	2
.036.M	300	240	265	280	140	8	160	14	2
.048.M	300	240	265	280	140	8	160	17	2

CASE 1, 2



FIN915SFH	A	B	C	D	E	F	G	I	L	N	P	R	d Ø	V	Weight Kg.	Case
.060.M	400	250	335	370	170	12	260	293	100	120	135	5	5	180	30	3
.075.M	540	360	460	500	200	12	260	293	100	120	135	5	5	180	38	3
.115.M	540	360	460	500	200	12	260	389	130	205	220	5	5	260	63	4
.140.M	540	360	460	500	200	12	260	389	130	205	220	5	5	260	80	4
.180.M	540	320	465	500	200	12	260	389	130	205	220	5	5	260	83	4
.210.M	540	320	465	500	200	12	260	450	150	280	295	5	5	260	88	5
.260.M	540	320	465	500	200	12	260	450	150	280	295	5	5	260	110	5
.360.M	540	320	465	500	200	12	260	450	150	280	295	5	5	260	150	5

CASE 3, 4, 5



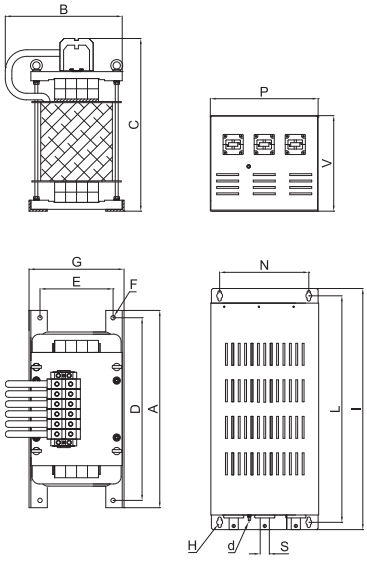
FIN915SFH

Sine Wave Filter

MECHANICAL DIMENSIONS mm

FIN915SFH	A	B	C	D	E	F	G	I	L	N	P	V	H	d	S	Weight Kg.	Case
.480.M	540	340	475	500	200	12	260	620	660	244	295	262	16	M5	25x10	115	6
.610.M	540	340	475	500	200	12	260	620	660	244	295	262	16	M5	25x10	120	6
.680.M	540	340	475	500	200	12	260	830	790	244	292	292	16	M5	25x10	126	7
.770.M	540	340	475	500	200	12	260	830	790	244	292	292	16	M5	25x10	130	7
.860.M	540	340	475	500	200	12	260	885	830	474	520	292	16	M5	40x20	135	8
.960.M	540	340	475	500	200	12	260	885	830	474	520	292	16	M5	40x20	150	8
.1100.M	540	340	475	500	200	12	260	885	830	474	520	292	16	M5	40x20	200	8

CASE 6, 7, 8

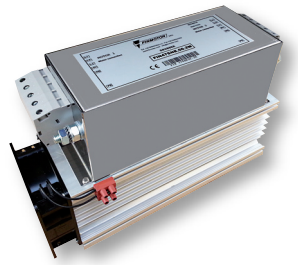


Datasheet 202405

Three-phase plus neutral star point snubber with excellent attenuation to reduce dV/dt

APPROVALS:

CE RoHS UK CA



FIN47SNB.050.1M

FEATURES

- Reduces dV/dt
- Protects motor windings, insulation and bearings
- Remote contact indicator

BENEFITS

- Very low power loss
- Available with remote electronic control
- Easy installation
- Only one model for unlimited HP motors

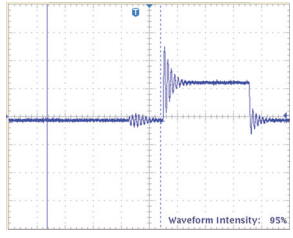
MARKETS

- Large motors
- Spindle motors
- Long cable applications with variable frequency drives or servo drives

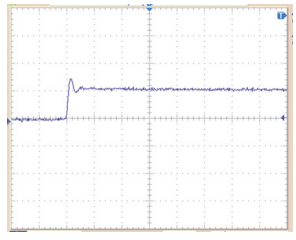
ORDERING CODE

FIN47SNB	.050	.1M	.A	MSD1	.F
Model	Impedance	Connection	Fan nominal voltage	Electronic control or HV version	Flange mounting
		1M = 1 motor	A = 24Vdc B = 24Vac	MSD1 at 24Vdc	
		2M = 2 motors	C = 110Vac D = 220Vac	MSD2 at 230Vac	
				HV 690Vac	

TYPICAL MEASUREMENT

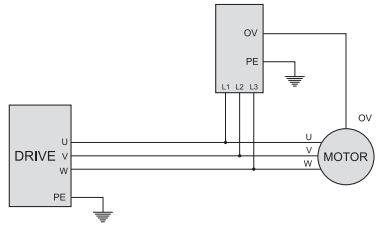


Typical measurement of dV/dt without snubber installed



Typical measurement of dV/dt with snubber installed

ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 600 Vac
Frequency	50 - 1000 Hz
Rated current	Unlimited
Carrier frequency (PWM)	Not applicable
Max peak voltage phase to phase	3000V
Max peak voltage phase to ground	3500V
Max power dissipation	250W
Fan dissipation	20W
IP protection	IP20
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours

FIN47SNB

Star Point Snubber

ELECTRICAL CHARACTERISTICS

FIN47SNB	Nominal Voltage AC (Vac)	Drive Carrier Frequency (kHz)	Power Loss at 100Hz (W)
.050.1M	600	<5	250

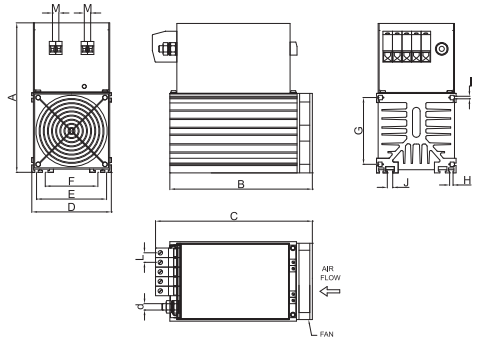
CONNECTIONS

LINE			PE	
Solid Cable (mm^2)	Stranded Cable (mm^2)	Terminal Torque (Nm)	d (mm)	Torque (Nm)
10 - 50	10 - 50	4.0	M10	6

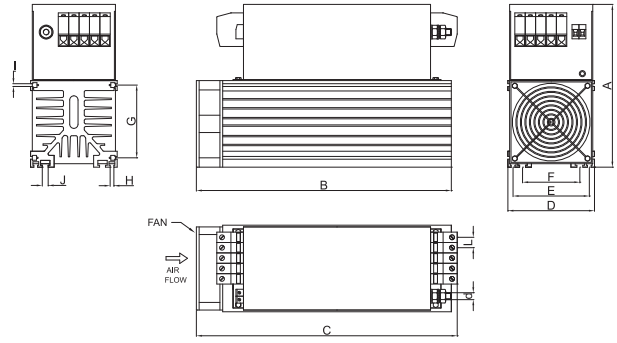
MECHANICAL DIMENSIONS mm

FIN47SNB	A	B	C	D	E	F	G	H	I	J	M	L	d	Weight Kg.	Case
.050.1M.X.Y	235	224	252	125	110	83	125	8.5	4	13.5	10	15	M10	5	1
.050.2M.X.Y	235	368	376.5	125	110	83	105	5.4	4	8.5	-	15	M10	10	2
.050.1M.X.Y.F	235	224	252	155	145	150	-	6	-	-	10	15	M10	5	3
.050.2M.X.Y.F	235	368	376.5	155	145	140	-	6	-	-	-	15	M10	10	4

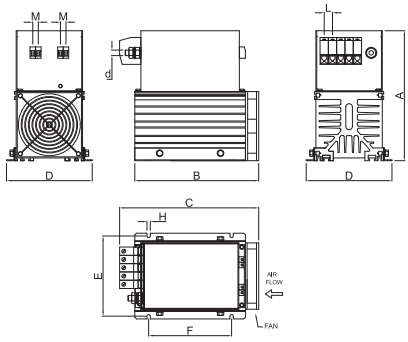
CASE 1



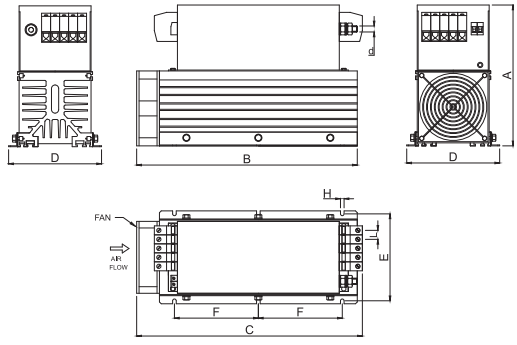
CASE 2



CASE 3

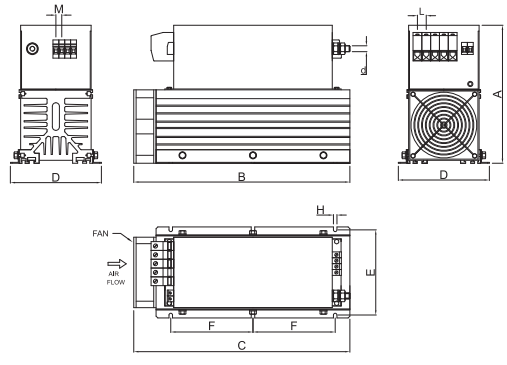


CASE 4



FIN47SNB	A	B	C	D	E	F	G	H	I	J	M	L	d	Weight Kg.	Case
.050.1M.X.Y.MDSX	235	368	368	155	145	140	-	6	-	-	-	15	M10	7	1
.050.1M.X.Y.HV	235	368	368	155	145	140	-	6	-	-	-	15	M10	7	1

CASE 1



Datasheet 202405

Star point snubber with excellent attenuation to reduce dV/dt

APPROVALS:

E215863

FINSTP.(068 - 100).M100

FEATURES

- Reduces dV/dt star point -PE
- Protects motor windings, insulation and bearings
- Remote contact indicator
- Compact dimension due to the parallel installation

BENEFITS

- Very low power loss
- Over temperature protection
- Easy installation
- Only one model for unlimited HP motors

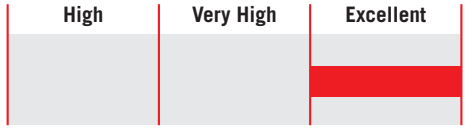
MARKETS

- Large motors
- Spindle motors
- Long cable applications with variable frequency drives or servo drives

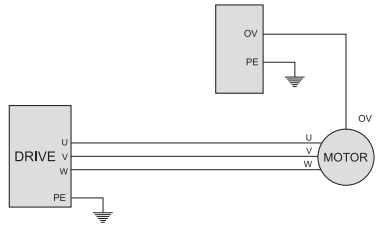
ORDERING CODE

FINSTP	.068	.M100	.A	.F
Model	Impedance	-	Fan nominal voltage A = 24Vdc B = 24Vac C = 110Vac D = 220Vac	Flange mounting

ATTENUATION INDICATOR



ELECTRIC DIAGRAM



TECHNICAL SPECIFICATIONS

Nominal voltage	0 - 600 Vac
Frequency	50 - 1000 Hz
Rated current	Unlimited
Carrier frequency (PWM)	Not applicable
Max peak voltage phase to phase	3000V
Max peak voltage phase to ground	3500V
Max power dissipation	250W
Fan dissipation	20W
IP protection	IP20
Climatic class	-40 to 85°C
MTBF at 40°C	250,000 Hours.

FINSTP

Star Point Snubber

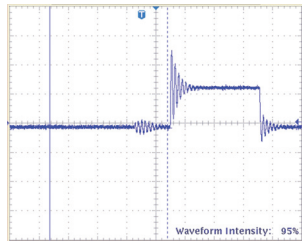
ELECTRICAL CHARACTERISTICS

FINSTP	Nominal Voltage AC (Vac)	Drive Carrier Frequency (kHz)	Power Loss at 100Hz (W)
.068.M100.X	600	<5	200
.100.M100.X	600	<5	200
.068.M100.X.F	600	<5	200
.100.M100.X.F	600	<5	200

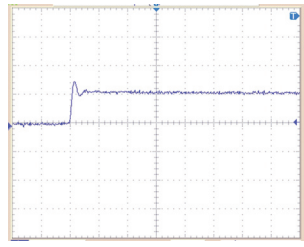
CONNECTIONS

LINE			PE
Solid Cable (mm^2)	Stranded Cable (mm^2)	Terminal Block Torque (Nm)	Torque (Nm)
10-50	10-50	4.0	6
10-50	10-50	4.0	6
10-50	10-50	4.0	6
10-50	10-50	4.0	6

TYPICAL MEASUREMENT



Typical measurement of dV/dt without snubber installed

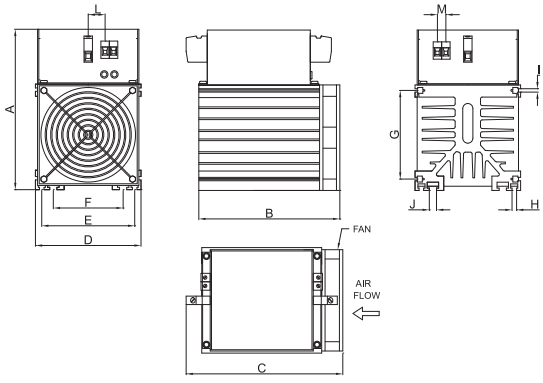


Typical measurement of dV/dt with snubber installed

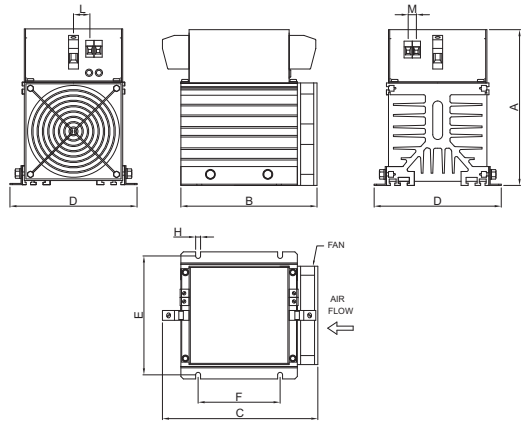
MECHANICAL DIMENSIONS mm

FINSTP	A	B	C	D	E	F	G	H	I	J	M	L	Weight Kg.	Case
.068.M100.X	190	167	189.5	125	110	83	105	5.4	4	8.5	10	20	4	1
.100.M100.X	190	167	189.5	125	110	83	105	5.4	4	8.5	10	20	4	1
.068.M100.X.F	190	167	189.5	155	145	100	-	6	-	-	10	20	4	2
.100.M100.X.F	190	167	189.5	155	145	100	-	6	-	-	10	20	4	2

CASE 1



CASE 2



Datasheet 202405

High permeability toroid and ferrite core to reduce common mode noise

APPROVALS:

CE RoHS UKCA

FEATURES

- Insulation housing included
- FINTR with high permeability
- Available in various sizes

BENEFITS

- Easy installation
- Ideal for radiated emission tests for the EN61000-6-4 Standard

FINTR.(3600 - 14000)
FINFE.13

MARKETS

- Indoor and outdoor applications

ORDERING CODE

FINTR .4900
Model
TR = Toroid Size
FE = Ferrite

FINTR	Permeability μ
.3600	5000
.4900	10000
.6300	10000
.10000	5500
.14000	5500

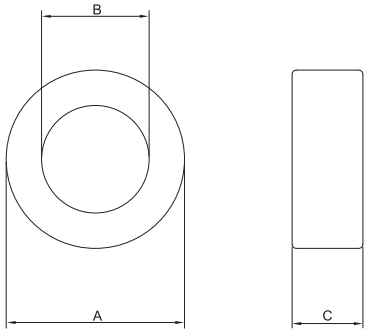
FINFE.13	
Frequency (MHz)	Impedance (Ohm)
25	150
100	250

MECHANICAL DIMENSIONS mm

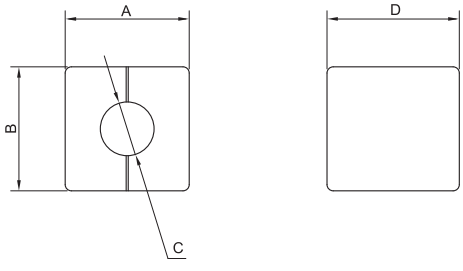
FINTR	A	B	C	Weight Kg.	Case
.3600	37	22	16	0.04	1
.4900	49	34	16	0.08	1
.6300	63	38	25	0.25	1
.10000	102	66	15	0.36	1
.14000	140	106	25	0.80	1

FINFE	A	B	C	D	Weight Kg.	Case
.13	31	32	13	33	0.1	2

CASE 1



CASE 2



ACCESSORIES

Enerdoor offers a range of accessories designed to elevate functionality and safeguarding measures.

The FINPRT series prioritizes safety with finger-safe protection, specifically engineered for EMI/RFI filters with bus bar connections. This ensures ease of installation while maintaining optimal safety standards.

The FINENCL series presents enclosures with IP21 (NEMA 1) and IP44 (NEMA 3R) ratings, catering to both indoor and outdoor installations. This versatility extends to various applications involving line reactors, output filters, and sine wave filters.

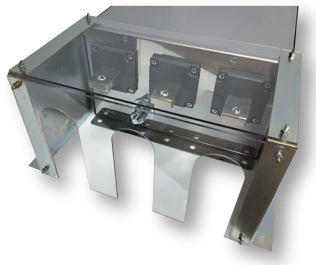
With user-friendly installation features and the option for an additional fan, these accessories are tailored to enhance adaptability and performance across diverse settings.

Datasheet 202405

Protection covers for filters with high currents and bus bar connections

APPROVALS:

CE RoHS UKCA



FINPRT.(250 - 1000).P

FEATURES

- Rated current from 150 to 1750A

BENEFITS

- Easy installation
- Increases IP protection

MARKETS

- Enerdoor filter with bus bar connection

ORDERING CODE

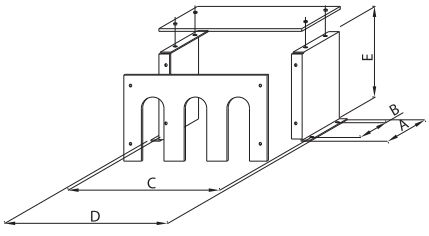
FINPRT	.250	.P
Model	Size	Connection
		P = Protection

FINPRT	FIN1200 / FIN1200HV	FIN1500 / FIN1500HV	FIN538S1	FIN539S
.250.P	.150.V	.150.V	.150.V	-
	.200.V	.200.V	.200.V	.200.V
	.280.V	.280.V	.280.V	.280.V
	.280.BC	.280.BC	.280.BC	.280.BC
	.320.BC	.320.BC	.320.BC	.320.BC
.360.P	.360.BC	.360.BC	.360.BC	.400.B
	.400.BC	.400.BC	.400.BC	.500.B
	.500.BC	.500.BC	.500.BC	.600.B
	.600.BC	.600.BC	.600.BC	.750.B
	.750.BC	.750.BC	.750.BC	.900.B
.750.P	.900.BC	.900.BC	.900.BC	.1000.B
	.1000.BC	.1000.BC	.1000.BC	.1250.B
	.1250.BC	.1250.BC	.1250.BC	.1500.B
.1000.P	.1500.BC	.1500.BC	.1500.BC	.1750.B
	.1600.BC	.1600.BC	.1600.BC	.2000.B
	.1750.BC	.1750.BC	.1750.BC	.2250.B

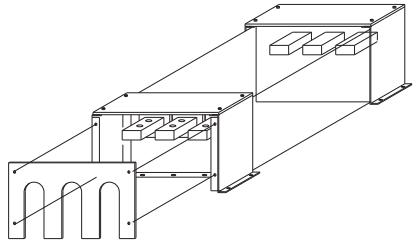
MECHANICAL DIMENSIONS mm

FINPRT	A	B	C	D	E	Case
.250.P	135	115	250	270	110	1
.360.P	135	115	260	280	150	1
.750.P	165	145	280	300	180	1
.1000.P	165	145	380	400	200	1

CASE 1



ASSEMBLY



Enclosures for line reactors, high-frequency inductors, and sine wave filters

Datasheet 202405

APPROVALS:

CE RoHS UKCA

FINENCL.(31 - 101)

FEATURES

- Different IP protections available
- Used for line reactors, output filters and sine wave filters

BENEFITS

- Easy installation
- Fan available upon request

MARKETS

- Indoor and outdoor applications

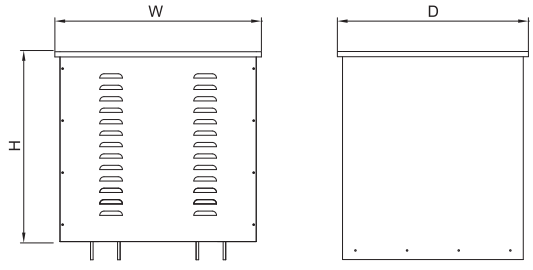
ORDERING CODE

COF .31
Model Size

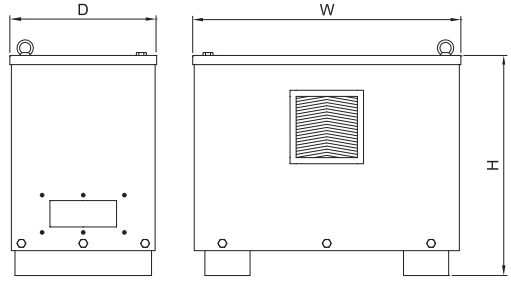
FINECL.(A - D)

FINENCL	IP Protection (Nema)	W	D	H	Weight Kg.	Case
.31	IP21 (Nema 1)	340	340	330	7	1
.41	IP21 (Nema 1)	340	340	380	9	1
.51	IP21 (Nema 1)	390	390	430	12	1
.61	IP21 (Nema 1)	490	370	480	16	1
.71	IP21 (Nema 1)	540	440	590	22	1
.81	IP21 (Nema 1)	640	490	695	30	1
.101	IP21 (Nema 1)	800	800	800	43	1
.A	IP44 (Nema 3R)	450	360	620	23	2
.B	IP44 (Nema 3R)	610	460	720	35	2
.C	IP44 (Nema 3R)	810	560	920	56	2
.D	IP44 (Nema 3R)	1306	1000	1426	95	2

CASE 1



CASE 2



EMI/RFI Filters: Overview

EMI/RFI filters play a crucial role in minimizing both conducted and radiated electromagnetic interference. Refer to **Figure 4** for a visual depiction of a standard EMI/RFI filter.
These filters function bidirectionally, effectively diminishing unwanted signals measured on output terminals when compared to those on input terminals, and vice versa. Leveraging their bidirectional characteristics, EMI/RFI filters not only decrease the levels of emitted disturbances but also enhance the immunity levels of the filtered equipment or systems.

1.1 Active and passive filters

a) Active filters are devices in which mainly active components are used, such as transistors
b) Passive filters are devices in which only passive components such as resistances, inductances and capacitors are used

1.2 Single-Phase and Three-Phase filters

a) Single-Phase filters are suitable for application on Single-Phase equipment or electric installations (See **Figure 5**)
b) Three-Phase filters are suitable for application on Three-Phase equipment or electric installations (See **Figure 6**)

1.3 Single and double function filters

a) Single function filters, such as the Enerdoor FIN538 as illustrated in **Figure 7**, are specialized RFI devices adept at effectively reducing common mode interference. Typically, these filters can achieve a maximum attenuation level of 70-80 dB for common mode interference.

b) Double function filters, such as the Enerdoor FIN1500 depicted in **Figure 8**, excel in attenuating both common mode and differential mode interference. This category of filter allows for a maximum attenuation level surpassing 80 dB, offering robust interference suppression capabilities.

The following Single-Phase filters are double function filters: FIN33, FIN35, FIN40 and FIN50.

The following Three-Phase filters are double function filters: FIN538S, FIN538S1, FIN1200, FIN1500, FIN1600, FIN1700, FIN1900, FIN1740, and FIN1940.

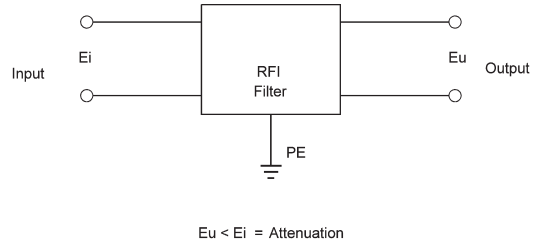


Fig. 4: Typical representation of an EMI/RFI filter

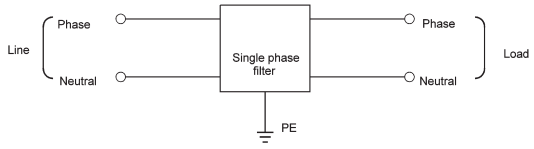


Fig. 5: Schematic diagram of a single-phase filter

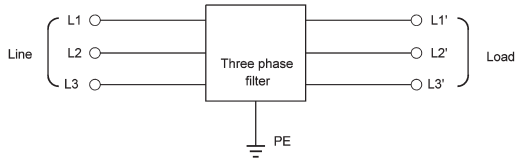


Fig. 6: Schematic diagram of a three-phase filter

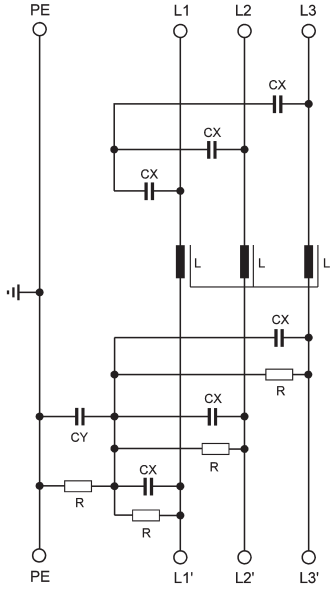


Fig. 7: Electrical diagram of Enerdoor single function filter FIN538

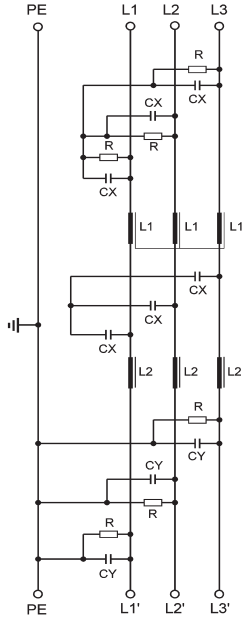


Fig. 8: Electrical diagram of Enerdoor double function filter FIN1500

1.4 Series and parallel filters

a) Series filters are the most commonly used EMI/RFI filters, typically interconnected in series between the energized electric point and the load. The entire load current traverses through the inductive components of a series filter, necessitating them to be capable of supporting the load (See **Figure 9**). In this configuration, capacitive and resistive components are connected in parallel, and absorb a very low current from the main supply.

The following RFI filters are Three-Phase filters: FIN538, FIN538S, FIN538S1, FIN539S, FIN1200, FIN1500, FIN1600, FIN1700, FIN1900, FIN3755, FIN1240, FIN1740, FIN1740ESM, and FIN1940.

The following RFI filters are Single-Phase filters: FIN21, FIN26, FIN27, FIN33, FIN35, FIN40, FIN50, FIN60, FIN70 and FIN80.

b) Parallel filters are connected in parallel to the main; therefore their inductive, resistive and capacitive components absorb only a small current independent of the level of load current. **Figure 10** illustrates the typical application of single-function parallel filters such as the FIN130SP, FIN230SP, FIN730, FIN735, and FIN740 series.

Enerdoor has specifically engineered these parallel filters to elevate the attenuation level for lower frequency interference, particularly in the range from a few kHz to a few MHz. They play a crucial role in safeguarding electronic control devices in industrial automatic machines from short-duration, high-voltage surges.

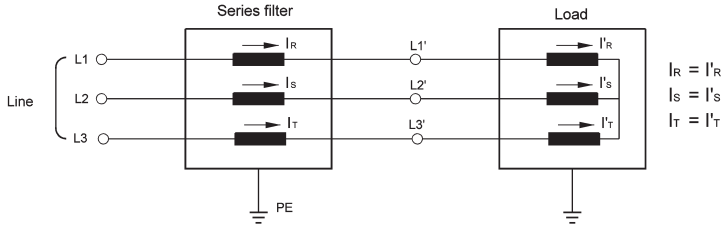


Fig. 9: Example of connection of a series filter: the total load current flows through the inductive components of the filter.

Note: An example of a simple series filter is represented by a common mode choke (for example an Enerdoor choke series FIN900) to be connected between the inverter and the load.

The above choke application allows an important reduction of radiated interference and a lower attenuation of the conducted interference present on the mains.

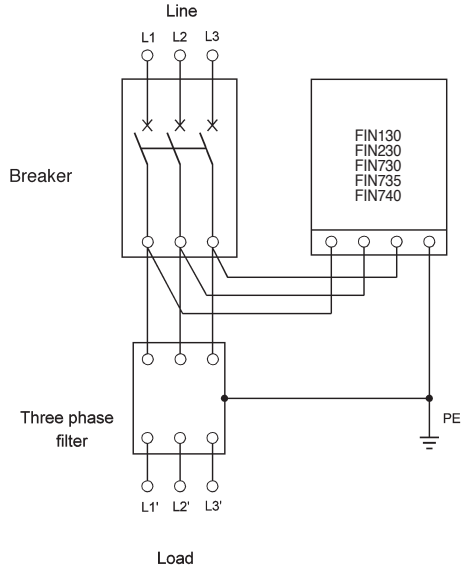


Fig. 10: Application diagram of single stage Enerdoor FIN730 and FIN230SP parallel filters

2. Normative References

2.1 European EMC Framework I Directive 2014/30/EU

In accordance with the European Framework 2014/30/EU concerning Electromagnetic Compatibility (EMC), every device, machine, or installation housing electric components that either emit interference or are susceptible to it must adhere to the following imperatives:

a) Ensure that electromagnetic disturbance levels generated do not exceed those specified in the Directive, ensuring the seamless operation of all equipment within the surrounding environment.

b) Adhere to the standard level of immunity to prevent electromagnetic disturbances from influencing operational behavior.

2.2 Normative references for emission and immunity tests

In order to certify that a device, machine or installation complies with the European Directive EMC 2014/30/EU, it is necessary to carry out a complete series of electromagnetic compatibility tests.

A comprehensive set of emission and immunity electromagnetic compatibility tests must be conducted.

A) EMISSION TEST

STANDARD REFERENCE	TYPE OF EMC TEST
EN 55014	Conducted emissions
EN 55014	Radiated power
EN 55014	Intermitted interference (click)
EN 55011	Conducted emissions
EN 55011	Radiated emissions
EN 55022	Conducted emissions
EN 55022	Radiated emissions

B) IMMUNITY TEST

STANDARD REFERENCE	TYPE OF EMC TEST
EN 61000-4-2	Electrostatic discharge immunity
EN 61000-4-3	RF radiated immunity
EN 61000-4-4	Immunity to fast transients (burst)
EN 61000-4-5	Immunity to high energy transients (surge)
EN 61000-4-6	Conducted immunity
EN 61000-4-8	Power frequency magnetic field immunity
EN 61000-4-11	Immunity to voltage dips and variations

3. Classification of industrial environments in accordance with the EMC level

3.1 General

Electromagnetic interference may originate from sources both internal and external to a device, machine, or installation. Internally generated interference primarily triggers electromagnetic emission issues, whereas external sources can pose challenges to immunity. EMI/RFI filters must effectively mitigate both internal and external disturbances to comprehensively address the entire electromagnetic compatibility challenge faced by the device, machine, or installation.

3.2 EMC environment classifications

To ascertain the optimal EMI/RFI filter for a particular application, environments are categorized based on EMC interference levels as follows:

- Normal: Characterized by low EMC interference levels.
- Severe: Exhibiting medium EMC interference levels.
- Very Severe: Indicative of high EMC interference levels.

Emission and immunity tests (Refer to Clause 2.2) serve to confirm the suitability of a device, machine, or installation for a specified EMC environment.

4. Enerdoor EMI/RFI filters in accordance with EMC environments

4.1 Residential, commercial and light industrial environments

Enerdoor filters used for:

- Single-Phase circuits: FIN21, FIN26, FIN27, FIN 40, FIN50
- Three-Phase circuits: FIN538, FIN538S, FIN538S1, FIN1200, FIN1700, FIN1700E, FIN1700G, FIN1700EG, FIN3755 double function filters

4.2 Industrial environments (Severe environments)

Enerdoor filters used for:

- Single-Phase circuits: FIN27, FIN 35, FIN40, FIN50
- Three-Phase circuits: FIN538, FIN538S, FIN538S1, FIN1200 (HV*), FIN1500 (HV*), FIN1600, FIN1700, FIN1700E, FIN1700EG, FIN1900, FIN1900E, FIN1900G, FIN1900EG, FIN1900S, FIN3755, FIN1240, FIN1740, FIN1740ESM, FIN1940 double function filters

4.3 Industrial environment (Very severe environments)

Enerdoor filters used for:

- Single-Phase circuits: FIN27, FIN35, FIN40, FIN50
- Three-Phase circuits: FIN538, FIN538S, FIN538S1, FIN539S, FIN1200 (HV*), FIN1500 (HV*), FIN1600, FIN1700, FIN1700E, FIN1700EG, FIN1900, FIN1900E, FIN1900G, FIN1900EG, FIN1900S, FIN3755, FIN1240, FIN1740, FIN1740ESM, FIN1940 double function filters; FIN130SP, FIN230SP, FIN730, FIN735, FIN740

4.4 Filters for a specific application

The information provided serves as a broad recommendation for the application of Enerdoor filters. A more precise alignment between a device, machine, or installation and an EMI/RFI filter can only be established after conducting the comprehensive series of emission and immunity EMC tests.

(*) The FIN1200HV and FIN1500HV filters offer the same attenuation characteristics as the FIN1200 and FIN1500 but have nominal voltage of 750V – 50 Hz instead of 480V – 50 Hz.

5. Application example for Enerdoor filters and chokes

The selection of the optimal filters for a specific application may vary based on the following criteria.

5.1 Filter parameters

a) The power reference of the filter:

$$P = \sqrt{3}\ V \bullet I \cos \varphi$$

P	Is the total power of device and motor of the considered system
V	Is the phase to phase nominal voltage of the installation (for example 400V-50 Hz)
cos φ	Is the average power factor

b) The nominal current (I) of the filter derives from the previous formula, as follows:

$$I = \frac{P}{\sqrt{3} \bullet V \bullet \cos \varphi}$$

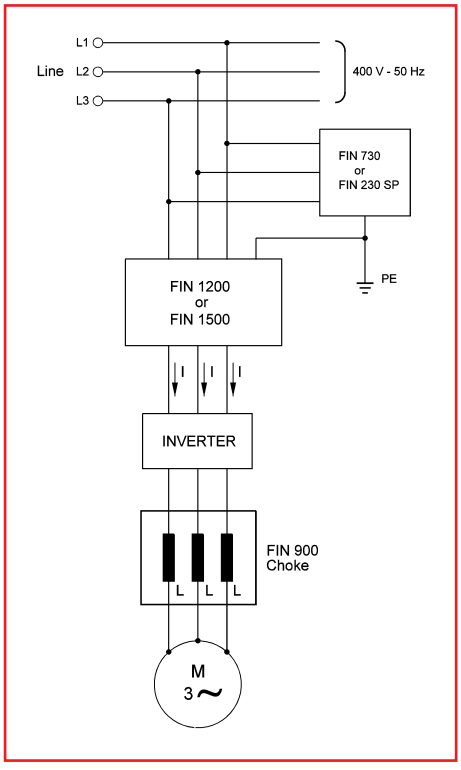


Fig. 11: Typical electric diagram relevant to the application of Enerdoor filters and chokes

Note: The low voltage breaker is not

5.2 Calculation example (See Figure 11)

What is the best Enerdoor filter for an installation with total power P of 85 kW and phase to phase voltage of 400 Volts?

a) It is assumed the power factor **cos** φ value is 0.7
Knowing the power **P**, the voltage **V**, and the **cos** φ, the current value is calculated as follows:

$$I = \frac{P}{\sqrt{3} \bullet V \bullet \cos \varphi} = \frac{85{,}000}{\sqrt{3} \bullet 400 \bullet 0.7} \simeq 175\ A$$

Therefore the best Enerdoor filter for this specific application is one with the nominal current of 200A.

In accordance with the EMC environment (typically severe or very severe), a two stage series filter in combination with a single stage parallel filter is recommended.

b) The choke installed between the inverter and the motor shall have a nominal current higher than that calculated for the filter. This is due to the following effects:

- The working frequency PWM of the inverter is between 5 and 20 kHz. This causes an augmentation of choke loss and consequently increases temperature.
- During the motor acceleration and deceleration the output current of the inverter may be double its nominal value for up to one minute.

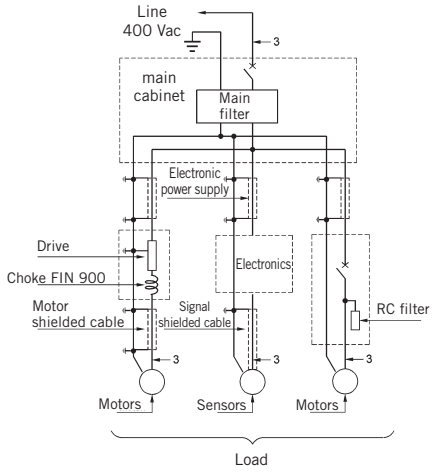
Practical experience suggests using a choke about 50% larger compared to the corresponding EMI/RFI filters nominal current. Therefore, for this application an Enerdoor choke with nominal current equal to 280A is recommended.

APPLICATION DIAGRAMS

Example of Filter Application in a System with One Master Cabinet and Multiple Auxiliary Cabinets

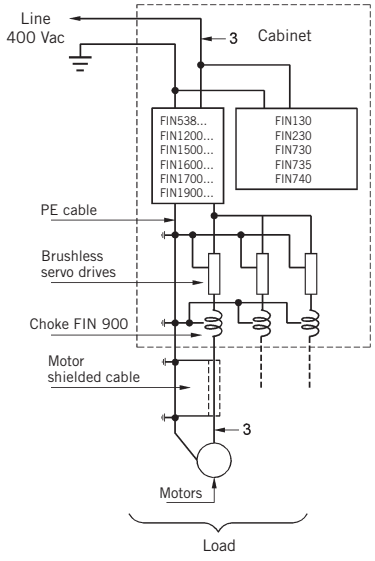
In this scenario, a singular mains filter is installed exclusively on the master cabinet.

Note: Power cables departing from a filtered cabinet are consistently shielded, with the shield grounded at both ends. However, shielded signal cables have their screens grounded solely at the electronic board end.



Example of a Filter Application with Brushless Drives

The inclusion of a mains filter in series with the power supply at the panel input; a cell in parallel with the filter on the mains side; chokes on the drive output; and a screened motor cable with the cable screen connected to earth at both ends (preferably with the earth conductor external to the screen).



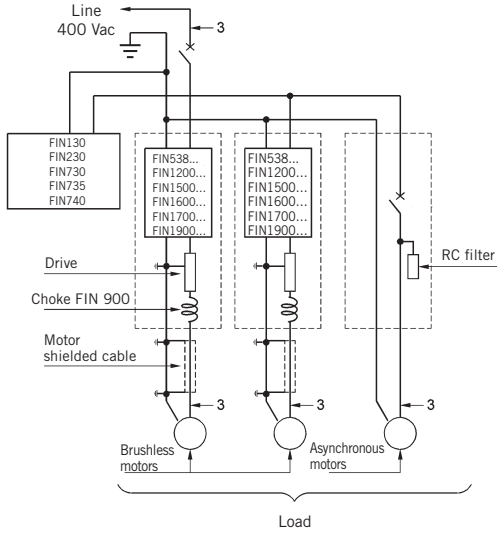
Example of a Filter Application in a Multi-Cabinet Plant

A single cell spans the entire plant.

Each cabinet is individually equipped with its own filter.

Filters may be excluded from panels lacking components that generate high disturbance levels, such as asynchronous motors.

Note: The inclusion of an RC filter on the remote control breaker of asynchronous motors is imperative to eliminate disturbances on the motor cable caused by contact opening..



Reactance application example:

a) with one generic driver system

b) with one SCR driver system which pilots two motors

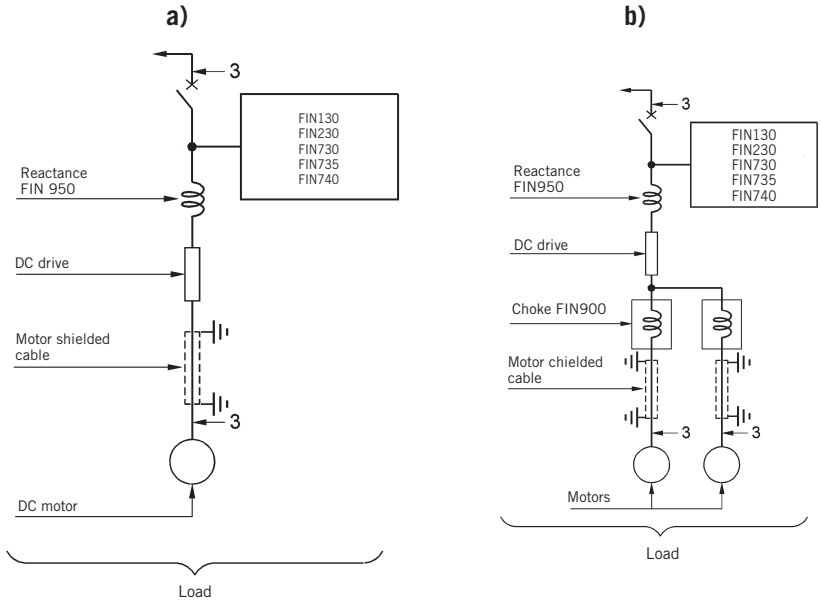


Figure 1

In **Example A**, the technically correct application of a filter exclusively feeding the driver/inverter poses a potential risk. This risk arises if cable 1 runs parallel to and in close proximity to cables 2 and 3 within the cableform. In such a scenario, cable **1** becomes coupled with cables **2** and **3**, inducing disturbances in the latter. These disturbances are then transmitted to the mains network, diminishing the effectiveness of the filter.
The recommended solution is depicted in **Example B**. The only precaution necessary is to ensure the avoidance of close proximity and parallel run of cables **1** and **2**.

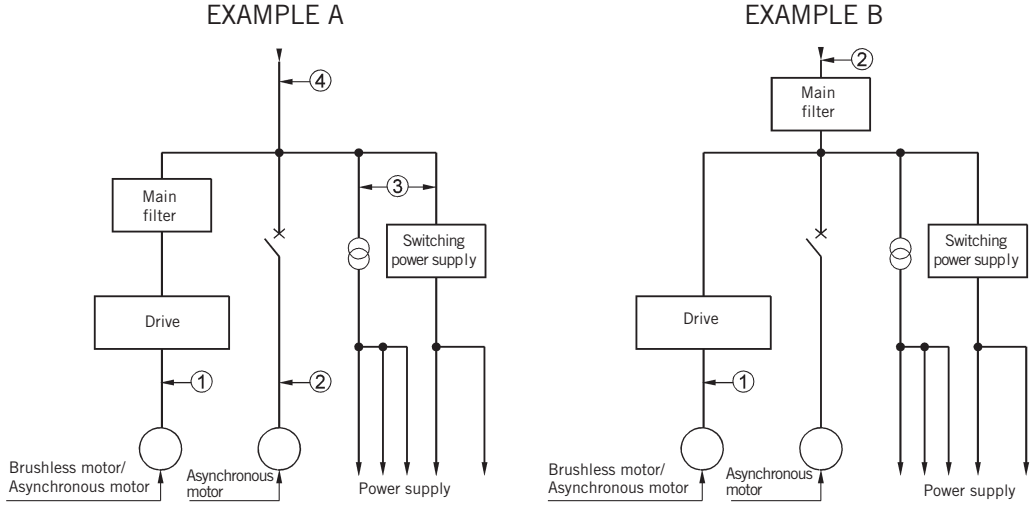


Figure 2

In this example, the filter application is appropriately configured. **System 2**, devoid of disruptive components, remains unfiltered. However, it is imperative, as explained in connection with **Figure 1**, to prevent cable 1 from running parallel and in close proximity to cables 2, 3, and 4 outside the system. Such coupling could induce disturbances in the latter, ultimately diminishing the effectiveness of the filters when transmitted to the mains network.

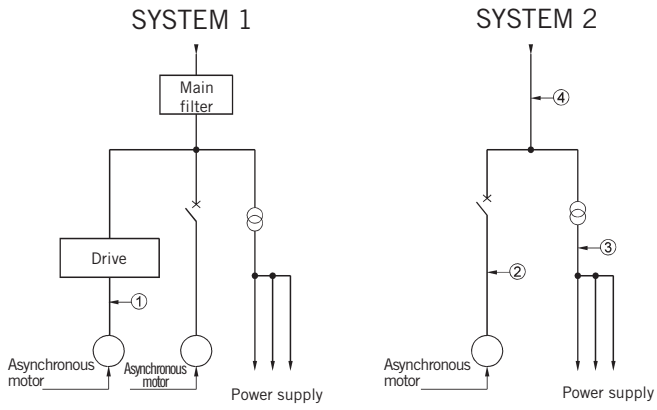
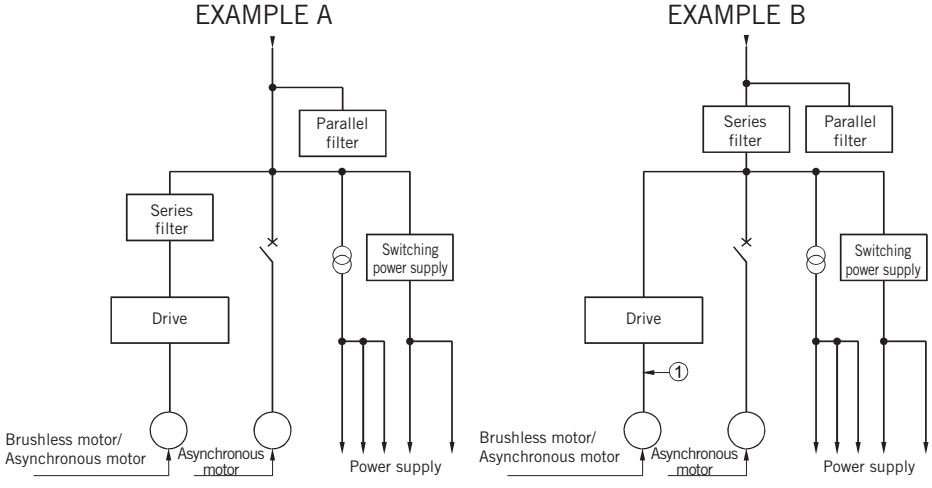


Figure 3

In **Example A**, where the EMI/RFI Filter series is installed in a specific section of the machine, the parallel filter should be linked directly after the main breaker of the panel, positioned in close proximity to the primary grounding collector.
In **Example B**, the parallel filter is incorporated in parallel with the input of the mains filter. In both scenarios, it is crucial to keep the wires connecting the parallel filter as short as possible.



GENERAL APPLICATION INSTRUCTIONS

These General Application Instructions serve as a general guide for the proper utilization of interference-suppressing filters and chokes under safe conditions.

To ensure safety, proper functioning, and longevity, filters must be installed, protected, and utilized in accordance with designated conditions. Filters should meet the intended conditions of use for which they were designed and guaranteed. Avoid exposing filters to potentially damaging substances, including but not limited to solvents, oils, grease, base or acid solutions, and chemical products.

It's imperative to protect filters from mechanical damage during installation and normal operation. Installation in areas prone to rainfall or water contact should be avoided unless the filters are expressly declared suitable for such conditions. Special care should be taken to shield filters from polluted atmospheres or harmful substances. The filters are designed for use in closed spaces, usually inside electrical cubicles and may be used outside stated enclosures only when the necessary protection is supplied.

GENERAL INSTALLATION REQUIREMENTS

In the absence of specific installation instructions, adhere to the following guidelines:

- *Connections should meticulously adhere to technical information and be executed using appropriate tools/fixtures.*
- *Metallic containers must be effectively grounded.*
- *Filters should not be installed in direct contact with, or in proximity to, hot surfaces. If deployed in such conditions, they must undergo proper preparation, allowing a 10% degradation for every 20°C, up to a maximum of 30% at 100°C. For non-standard applications of this nature, contact the Enerdoor Service Center.*
- *Filters must be adequately supported and shielded from potential damage caused by mechanical supporting devices.*
- *Contact terminals of filters should feature secure clamps at the cable-to-filter contact points to prevent disconnection due to vibrations. Precise clamping is essential and should undergo periodic inspection.*
- *When filters are integrated into mobile structures, they must be housed in protective enclosures ensuring both mechanical and electrical protection for the filter connecting terminals.*
- *If filters and coils are connected using screened cables, minimize the length of the unscreened portion of the cable.*
- *Filters and coils should not be exposed to mechanical stresses such as pulling, twisting, compression, squashing, or scraping.*

GENERAL USE REQUIREMENTS

Regarding the limiting conditions for filter use, reference must be made to defined technical specifications concerning nominal voltage, current capacity, working temperature, and thermal effects. Current and voltage specifications assume an ambient temperature of 40°C. Always consult characteristics quoted in product specifications, and it is imperative to scrupulously adhere to stated specifications, especially concerning specific parameters.

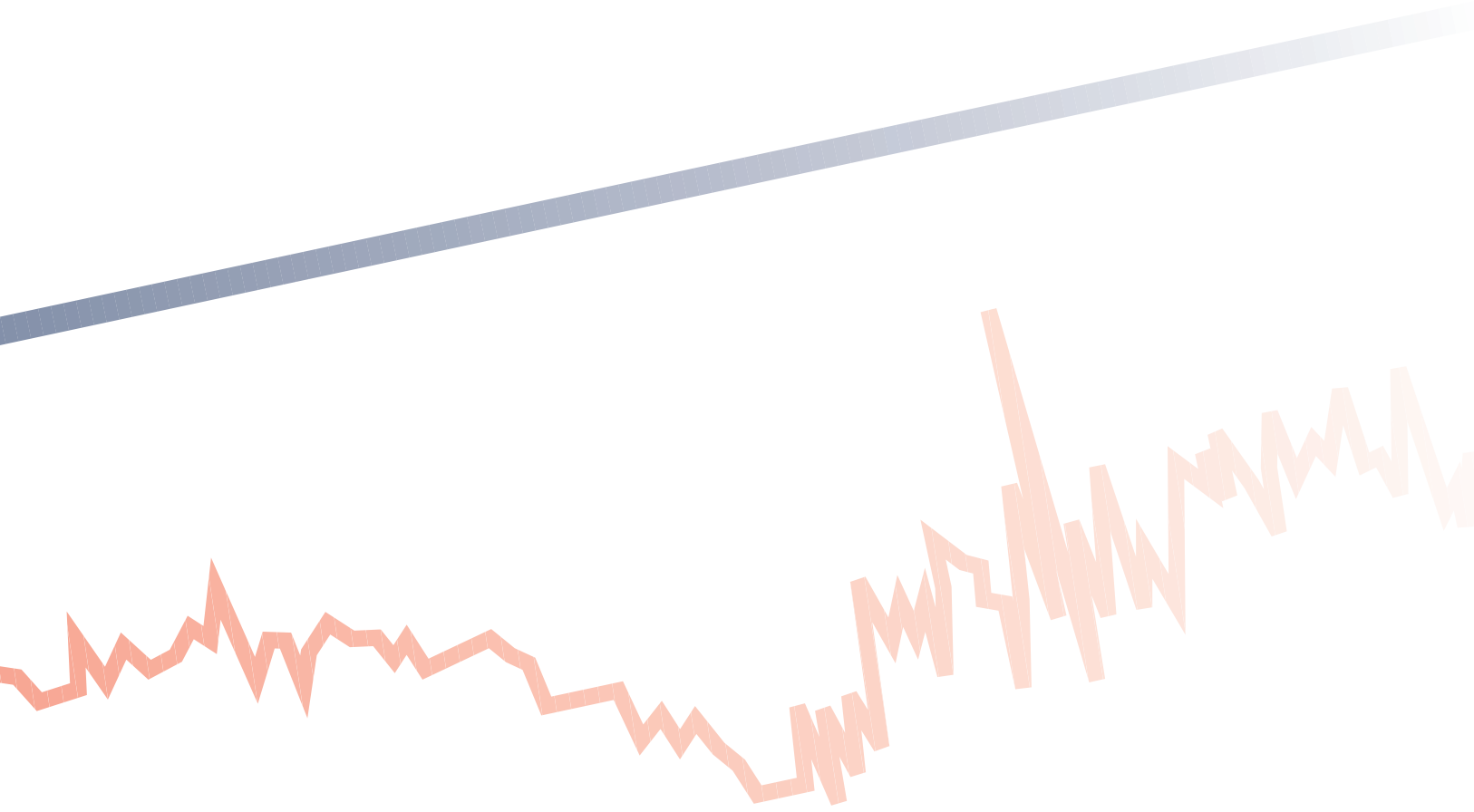
PERIODIC CHECKS BY THE PURCHASER

Filters should undergo periodic examinations, especially when there is a concern about potential damage from electrical stress (overvoltage, overload) or mechanical stress (squashing, twisting, scraping, etc.). If a filter displays visible changes in appearance or signs of damage or wear, it must be either repaired by skilled and qualified personnel using suitable facilities or replaced. Filters mounted on mobile or portable structures should be examined after each duty cycle, and it is recommended to conduct routine inspections every 2 years.

STORAGE CONDITIONS

All filters, unless explicitly designed for external use, must be stored in closed and dry storage spaces.

SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.



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