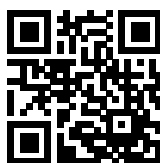


# Single-phase EMC Filter for Control Equipment

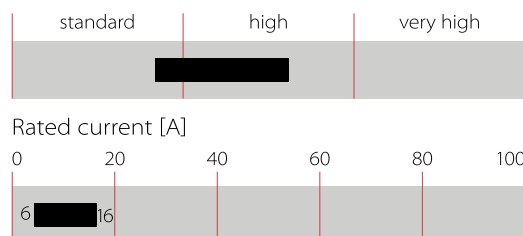


- Filter for the control line of complex equipment and machinery
- To ensure interference-free operation of control equipment (PLC, Motion-, Robot Control etc.)
- To improve operational reliability and system stability
- Compact EMC filter design with minimum space requirement



## Performance indicators

### Attenuation performance



## Technical Specifications

Maximum continuous operating voltage	250 VAC
Nominal operating voltage	230 VAC
Rated currents	6 to 16 A @ 50°C
Overload capability	4x rated current at switch on, 1.5x rated current for 1 minute, once per hour
Operating frequency	DC to 400 Hz
High potential test voltage	P/N → E 2250 VDC for 2 sec P → N 1100 VDC for 2 sec
Temperature range (operation and storage)	-25°C to +100°C (25/100/21)
Protection category	IP 20
Flammability corresponding to	UL 94 V-0
Design corresponding to	UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939
MTBF (Mil-HB-217F)	>1,300,000 h @ 50°C/230 V

## Approvals & Compliances



## Features and Benefits

- An additional filter for the supply cables of controls of rather large and complex systems, to ensure a reliable operation of the control unit.
  - To achieve significant system stability improvement by reducing the risk of internal interference propagation and coupling.
- 
- FN 2415 B version without leakage current (0 mA)
  - FN 2415 L version with leakage current of less than 3.5 mA.
- 
- Simple and time-saving installation with good accessibility for automatic and hand tools
  - Solid, touch-safe terminal blocks offering sufficient contacting cross section according to the EN 60204-1 installation standard
  - By providing a very decent attenuation performance, FN 2415 contributes significantly to the achievement of electromagnetic compliance, e.g. EN50370-1 standards for machine tools.

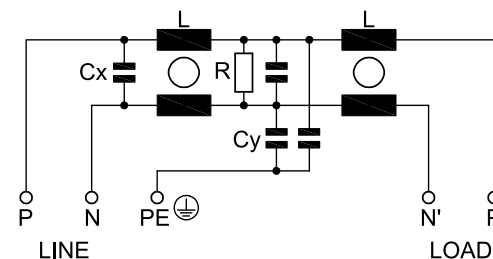
## Typical Applications

Ideal for industrial equipment, machinery and diverse process automation systems, which involve any kind of control units (NC, CNC, Motion- and Robot Controls).











Large and complex machine tools with multiple driving axes and very long motor cables can be subjected to major reliability problems, provoked and by internal coupling of interferences from the drive system to the control wires.

This can cause drop outs and interrupts of the control unit and consequently lead to unnecessary downtimes of the entire machine. FN 2415 can also be used for most diverse single-phase applications, e.g. motor drives and power supplies.

### Typical electrical schematic



Filter Selection Table

Filter	Buy	Rated current @40°C (25°C)	Leakage current* 250VAC/50Hz (120VAC/60Hz)	Power loss	Inductance** L	Capacitance**		Resistance** R	Input/Output	Weight
						Cx	Cy			
		[A]	[mA]	[W]	[mH]***	[µF]	[nF]	[kΩ]		[kg]
FN2415-6-29		6 (6.6)	7.85 (4.52)	2.2	8	3.3	100	220	-29	0.4
FN2415-10-29		10 (11)	7.85 (4.52)	2.4	4.2	3.3	100	220	-29	0.4
FN2415-16-29		16 (17.5)	7.85 (4.52)	4.3	3	3.3	100	220	-29	0.4
FN2415B-6-29		6 (6.6)	0.00 (0.00)	2.2	8	3.3		220	-29	0.4
FN2415B-10-29		10 (11)	0.00 (0.00)	2.4	4.2	3.3		220	-29	0.4
FN2415B-16-29		16 (17.5)	0.00 (0.00)	4.3	3	3.3		220	-29	0.4
FN2415L-6-29		6 (6.6)	2.59 (1.49)	2.2	8	3.3	33	220	-29	0.4
FN2415L-10-29		10 (11)	2.59 (1.49)	2.4	4.2	3.3	33	220	-29	0.4
FN2415L-16-29		16 (17.5)	2.59 (1.49)	4.3	3	3.3	33	220	-29	0.4

\* Maximum leakage under normal operating conditions (acc. to IEC60939-3). Note: if the neutral line is interrupted, worst case leakage could reach twice this level.

\*\* Tolerances apply: Inductance: -30/+50%, Capacitance: ±20%, Resistance: ±10%

\*\*\* Value of both inductors in the same

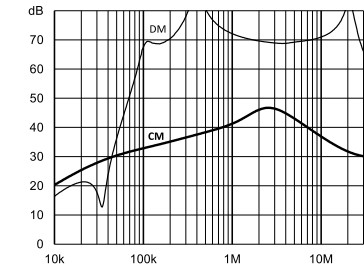
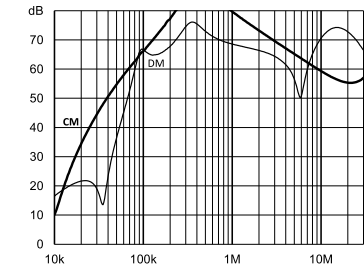
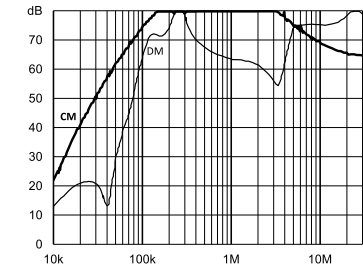
Typical Filter Attenuation

Per CISPR 17; DM (differential mode) =50 Ω/50 Ω sym; CM (common mode)=50 Ω/50 Ω asym

6 A: Standard type

L type

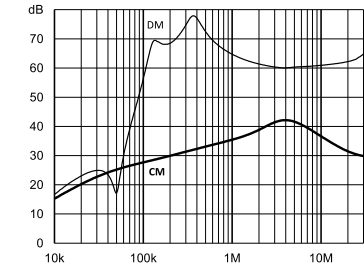
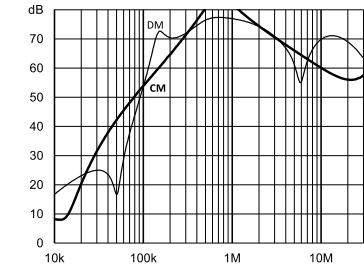
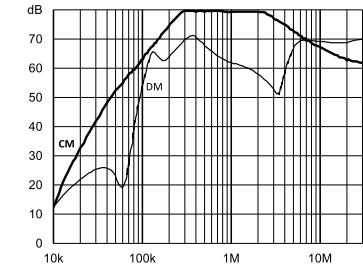
B type



10 A: Standard type

L type

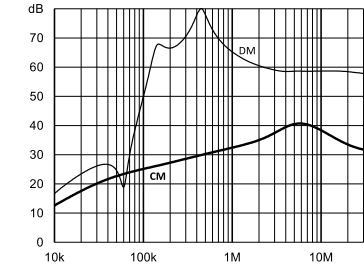
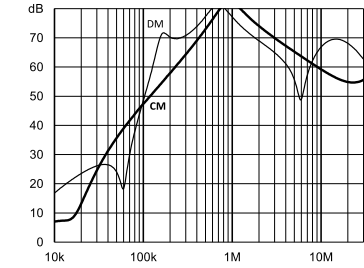
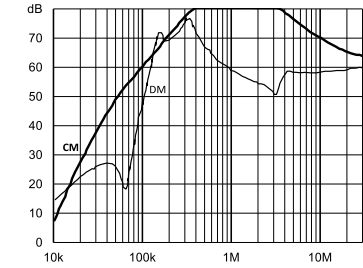
B type



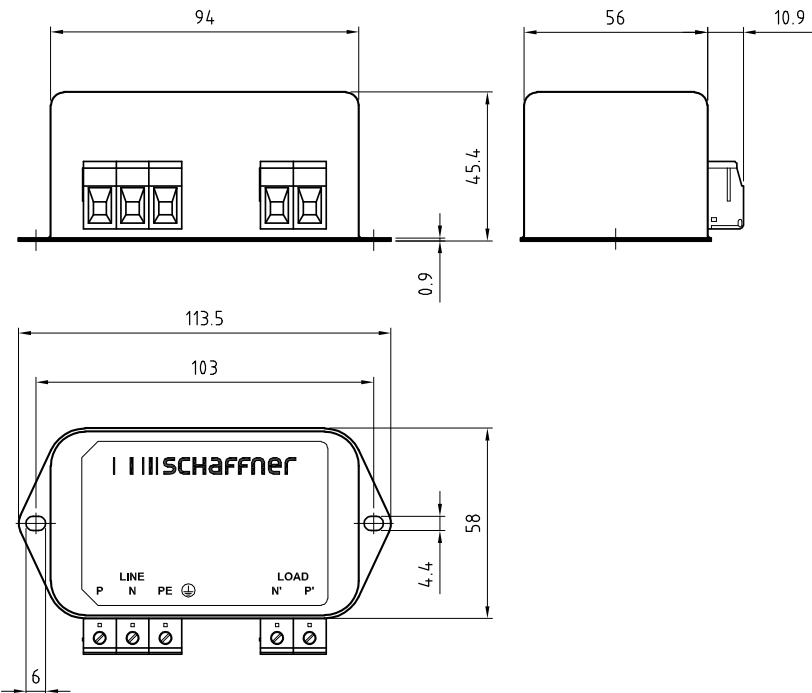
16 A: Standard type

L type

B type



Mechanical Data



All dimensions in mm; 1 inch = 25.4 mm ; Tolerances according: ISO 2768-m/EN 22768-m

Filter Input/Output Connector Cross Sections

	-29
Solid wire	6 mm <sup>2</sup>
Flex wire	4 mm <sup>2</sup>
AWG type wire	AWG 10
Recommended torque	0.6-0.8 Nm

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**France**  
**Schaffner EMC S.A.S.**  
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**Germany**  
**Schaffner Deutschland GmbH**  
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Karlsruhe  
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[germanysales@schaffner.com](mailto:germanysales@schaffner.com)

**Italy**  
**Schaffner EMC S.r.l.**  
Via Ticino, 30  
20900  
Monza (MB)  
+39 335 120 44 32  
[italysales@schaffner.com](mailto:italysales@schaffner.com)

**Japan**  
**Schaffner EMC K.K.**  
ISM Sangenjaya 7F  
1-32-12 Kamiuma Setagaya-ku  
154-0011  
Tokyo  
+81 3 5712 3650  
[japansales@schaffner.com](mailto:japansales@schaffner.com)

**Singapore**  
**Schaffner EMC Pte Ltd.**  
Blk 3015A Ubi Road 1 #05-09 Kampong Ubi  
Industrial Estate  
408705  
Singapore  
+65 63773283  
[singaporesales@schaffner.com](mailto:singaporesales@schaffner.com)

**Sweden**  
**Schaffner EMC AB**  
Östermalmströg 1  
114 42  
Stockholm  
+46 8 5050 2425  
[swedensales@schaffner.com](mailto:swedensales@schaffner.com)

**Switzerland**  
**Schaffner EMV AG**  
Industrie Nord  
Nordstrasse 5  
4542  
Luterbach  
+41 32 681 66 26  
[switzerlandsales@schaffner.com](mailto:switzerlandsales@schaffner.com)

**India**  
**Schaffner India Pvt. Ltd**  
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WTC 22nd Floor Unit No 2238 Brigade  
Gateway Campus 26/1 Dr. Rajkumar Road  
Malleshwaram (W)  
560055  
Bangalore  
+91 8067935355  
[indiasales@schaffner.com](mailto:indiasales@schaffner.com)

**United Kingdom**  
**Schaffner Ltd.**  
Suite 1 Oakmede Place  
Terrace Road  
RG42 4JF  
Binfield  
+44 118 9770070  
[schaffner.uksales@te.com](mailto:schaffner.uksales@te.com)

**United States**  
**Schaffner EMC Inc.**  
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