

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

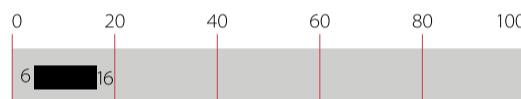


Performance indicators

Attenuation performance



Rated current [A]



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.

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

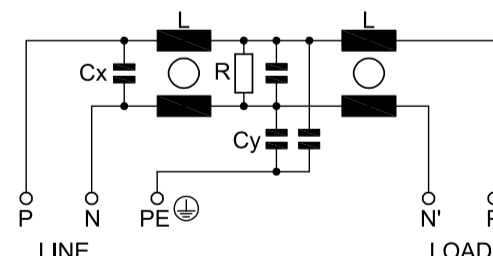
Typical Applications

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

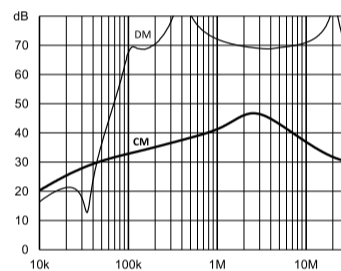
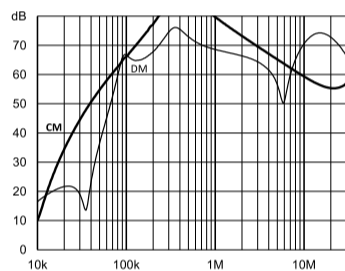
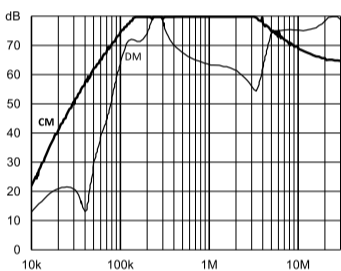
Typical Filter Attenuation

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

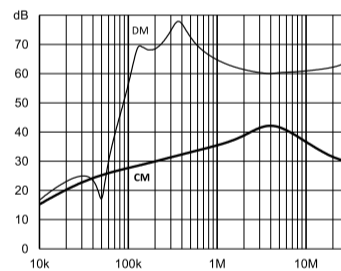
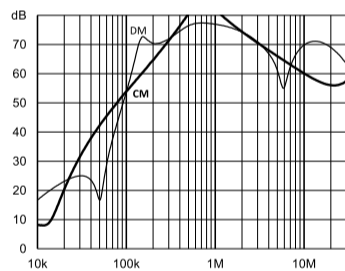
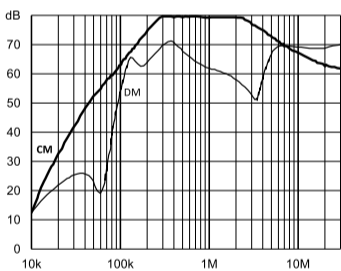
B type



10 A: Standard type

L type

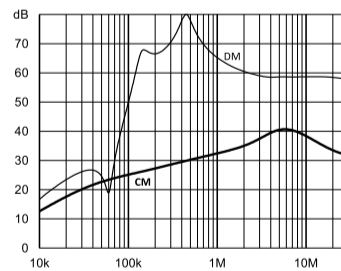
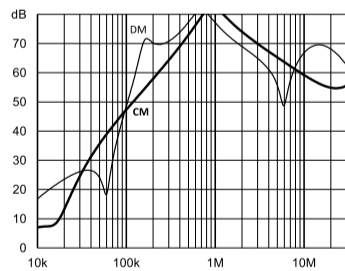
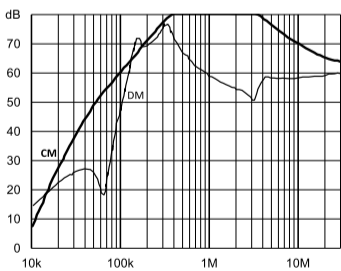
B type



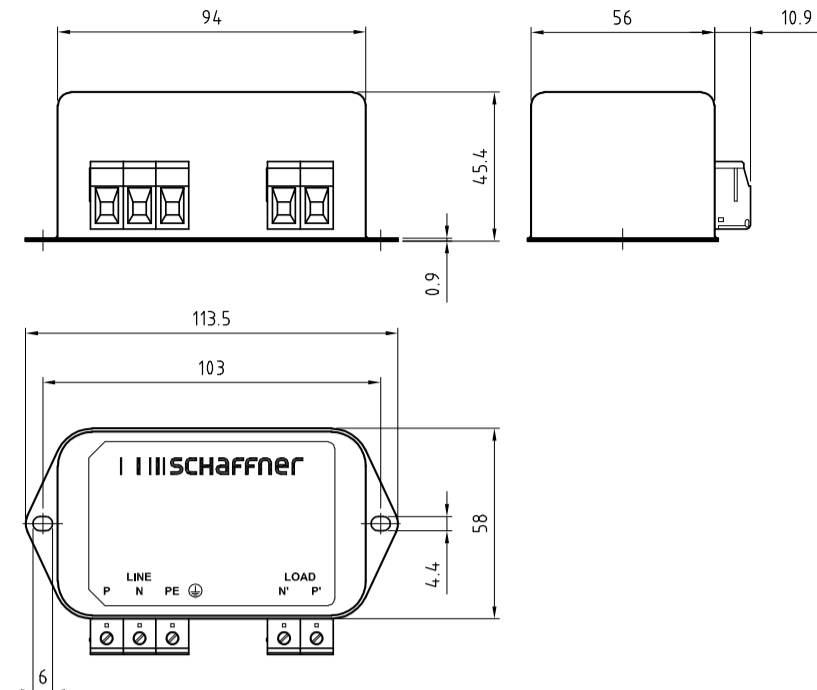
16 A: Standard type

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 ²
Flex wire	4 mm ²
AWG type wire	AWG 10
Recommended torque	0.6-0.8 Nm

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Headquarters, Global Innovation and Development

Switzerland

Schaffner Group

Industrie Nord
Nordstrasse 5
4542
Luterbach
+41 32 681 66 26
info@schaffner.com

Sales and Application Centers

Finland

Schaffner Oy

Lohjanharjuntie 1109
08500
Lohja
+ 358 50 468 72 84
finlandsales@schaffner.com

France

Schaffner EMC S.A.S.

16-20 Rue Louis Rameau
95875
Bezons
+33 1 34 34 30 60
francesales@schaffner.com

Germany

Schaffner Deutschland GmbH

Ohiostr. 8
76149
Karlsruhe
+49 721 56910
germanysales@schaffner.com

Italy

Schaffner EMC S.r.l.

Via Ticino, 30
20900
Monza (MB)
+39 335 120 44 32
italysales@schaffner.com

Japan

Schaffner EMC K.K.

ISM Sangenjaya 7F
1-32-12 Kamiyama Setagaya-ku
154-0011
Tokyo
+81 3 5712 3650
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

Sweden

Schaffner EMC AB

Östermalmströgrg 1
114 42
Stockholm
+46 8 5050 2425
swedensales@schaffner.com

Switzerland

Schaffner EMV AG

Industrie Nord
Nordstrasse 5
4542
Luterbach
+41 32 681 66 26
switzerlandsales@schaffner.com

India

Schaffner India Pvt. Ltd

Regus World Trade Centre
WTC 22nd Floor Unit No 2238 Brigade
Gateway Campus 26/1 Dr. Rajkumar Road
Malleshwaram (W)
560055
Bangalore
+91 8067935355
indiasales@schaffner.com

United Kingdom

Schaffner Ltd.

Suite 1 Oakmede Place
Terrace Road
RG42 4JF
Binfield
+44 118 9770070
schaffner.uksales@te.com

United States

Schaffner EMC Inc.

52 Mayfield Avenue
Edison, New Jersey
+1 732 225 9533
usasales@schaffner.com

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