

## Single-phase Filter for the Control Line of Equipment

**SCHAFFNER**  
energy efficiency and reliability



- Filter for the control line of complex equipment and machinery
- Ensures the interference-free operation of the control unit / PLC
- Improves the immunity and reliability of the entire system
- Compact EMC filter design with minimum space requirement

### Approvals



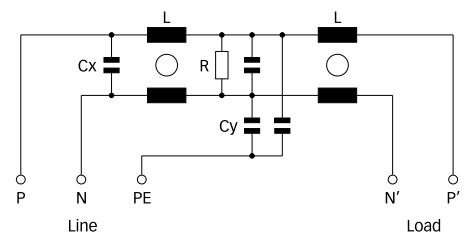
### Technical specifications

Maximum continuous operating voltage:	250VAC (230VAC +10% possible)
Operating frequency:	dc to 60Hz
Rated currents:	6 to 16A @ 50°C
High potential test voltage:	P/N → E 2250VDC for 2 sec P → N 1100VDC for 2 sec
Protection category:	IP20
Overload capability:	4x rated current at switch on, 1.5x rated current for 1 minute, once per hour
Temperature range (operation and storage):	-25°C to +100°C (25/100/21)
Flammability corresponding to:	UL 94V-2 or better
Design corresponding to:	UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939
MTBF @ 50°C/230V (Mil-HB-217F):	>1,300,000 hours

### Features and benefits

- An additional filter for the supply cables of controls of rather large and complex systems, to ensure a fault free operation of the control unit (PLC, Motion Control etc.).
- Improves the immunity, reliability and service security of the entire system significant by reducing the risk of internal interference propagation and coupling.
- An extremely compact and light weight filter design requiring minimum mounting space in machinery and equipment.
- 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, which is very common for machine tools and industrial equipment.
- By providing a very decent attenuation performance, FN 2415 contributes significant to the achievement of electromagnetic compliance according to the last standards (like EN 50370-1 for machine tools).


### Typical electrical schematic



### Typical applications

Ideal for industrial equipment, machinery and diverse process automation systems, which involve any kind of control units (NC, CNC, PLC, Motion Controls). Rather large and complex machine tools, with 8 or even more driving axes and very long motor cables, can be subjected to major reliability problems, caused by internal coupling of interferences from the drive system to the control lines. Very often, this causes a drop out of the control unit and consequently downtimes of the entire machine. By operating an FN 2415 in addition to a mains input filter, these negative effects can be eliminated for most situations. FN 2415 can also be used for the most diverse single-phase applications with medium to high interference levels, such as single-phase motor drives or power supplies.

**Filter selection table**

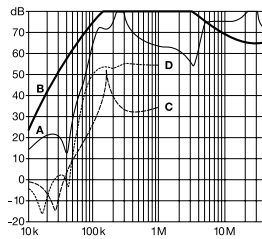
Filter	Rated current @ 50°C (40°C)	Leakage current* @ 250VAC/50Hz	Power loss @ 25°C/50Hz	Input/Output connections 	Weight [kg]
	[A]	[mA]	[W]		
FN 2415-6-29	6 (6.6)	9.4	2.2	-29	0.4
FN 2415-10-29	10 (11)	9.4	2.4	-29	0.4
FN 2415-16-29	16 (17.5)	9.4	4.3	-29	0.4

\* Maximum leakage under normal operating conditions. Note: if the neutral line is interrupted, worst case leakage could reach twice this level.

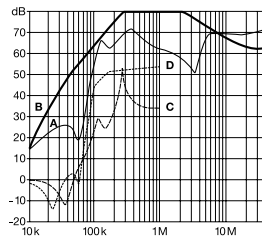
**Typical filter attenuation**

Per CISPR 17; A = 50Ω/50Ω sym; B = 50Ω/50Ω asym; C = 0.1Ω/100Ω sym; D = 100Ω/0.1Ω sym

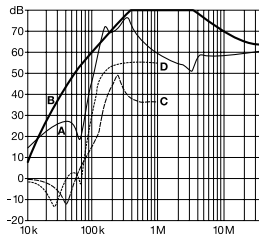
**6A types**



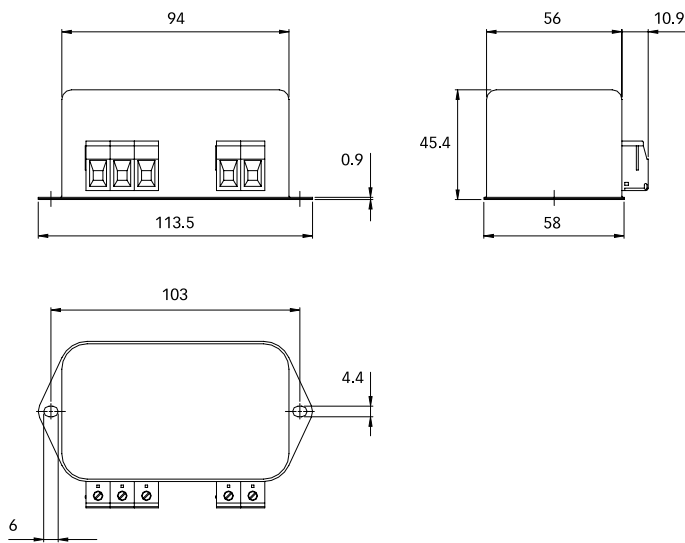
**10A types**



**16A types**




**Mechanical data**



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

**Filter input/output connector cross sections**

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

Please visit [www.schaffner.com](http://www.schaffner.com) to find more details on filter connectors.

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