schaffner
energy efficiency and reliability

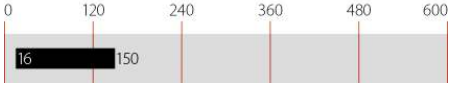
General Purpose EMC/EMI Line Filter

- Three-phase and neutral line filter for general four-wire filtering tasks
- Choice of connection style
- Low operating leakage current
- Compliant with IEC 60950
- Suitable to meet EN 55011/14/22

Performance indicators

Attenuation performance

Rated current [A]



Technical specifications

Maximum continuous operating voltage	3x 440/250 VAC
Operating frequency	dc to 60 Hz
Rated currents	16 to 150 A @ 40 °C
High potential test voltage	P –> E 2000 VAC for 2 sec P –> P 1900 VDC for 2 sec
Protection category	IP20 (filters with connectors -29, -33, -34) IP00 (filters with connectors -06, -24, -28)
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 94 V-2 or better
Design corresponding to	UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939
MTBF @ 40°C/400V (Mil-HB-217F)	220,000 hours

Approvals

(FN 356 up to 100 A)

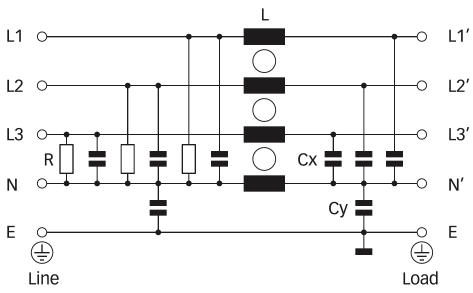
Features and benefits

- FN 356 represents the industry standard filter solutions for EMC compliance on three-phases and the neutral conductor, providing high attenuation of both symmetrical and asymmetrical interference
- Choice of connection style is offered for an application-specific filter selection
- Solid touch-safe terminal blocks (-29, -33, -34 versions) offer a generous contacting cross section and contribute to overall safety (IP20)
- Used as a mains input filter, FN 356 filters increase the conducted immunity and thus contribute to system reliability
- Design compliance with IEC 60950 provides additional application flexibility

Typical applications

- General purpose four-wire filtering
- Mainframe computer systems
- High power office equipment
- UPS
- Installations comprising automation equipment

Typical electrical schematic



Filter selection table

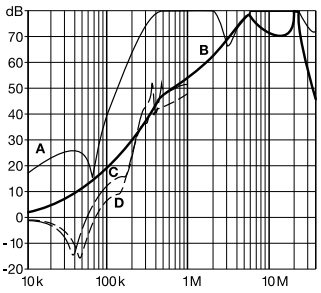
Filter*	Rated current @ 40 °C (25 °C) [A]	Leakage current** @ 400 VAC/50 Hz [mA]	Power loss @ 25 °C/ 50Hz [W]	Input/Output connections			Weight [kg]
FN 356-16-..	16 (18.4)	0.43	7.0	-06		-29	1.2
FN 356-25-..	25 (28.8)	0.43	10.1		-24	-33	1.5
FN 356-36-..	36 (41.5)	0.43	10.9		-24	-33	1.6
FN 356-50-..	50 (57.7)	0.43	15.8		-24	-33	2.3
FN 356-100-..	100 (115.0)	1.33	24.0		-28	-34	5.9
FN 356-150-28	150 (172.5)	8.00	45.9		-28		8.1

* To compile a complete part number, please replace the -.. with the required I/O connection style.
** Maximum leakage under normal operating conditions, based on the assumption that all three phases and the neutral conductor are connected to the supply and the consumer. In this case, the current will mainly return through the neutral line, not as earth leakage.

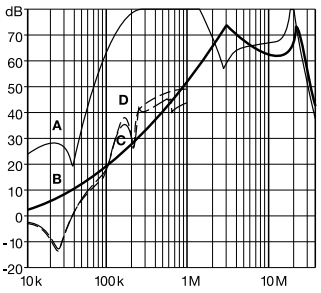
Typical filter attenuation

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

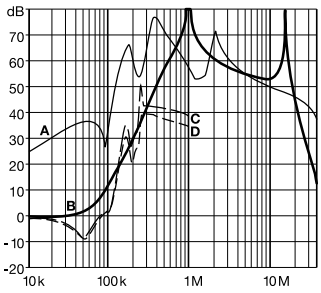
16 A types



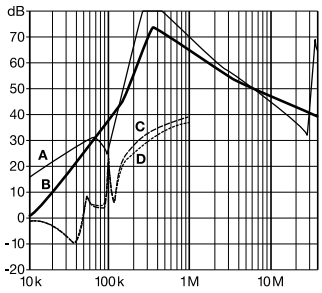
25 to 50 A types



100 A types

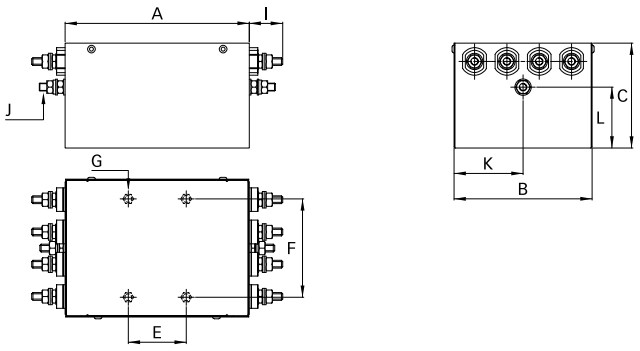


150 A types

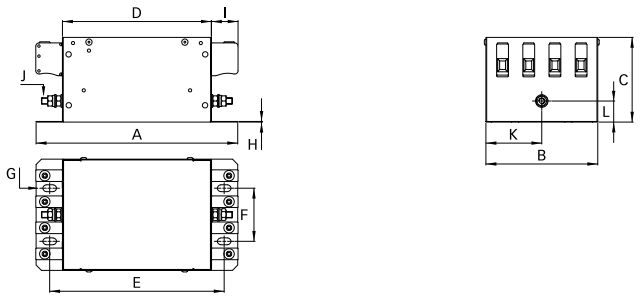


Mechanical data

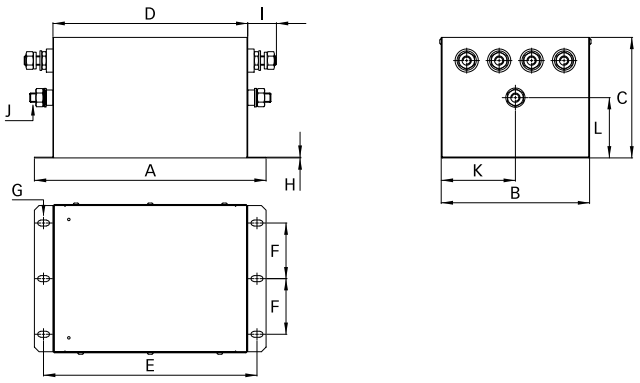
16 to 50 A types (-06, -24)



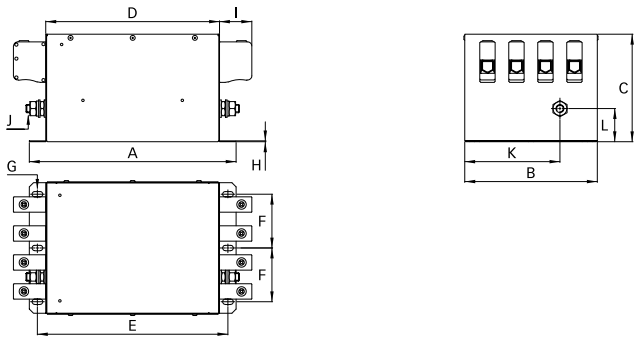
16 to 50 A types (-29, -33)



100 and 150 A types (-28)



100 A type (-34)



Note: in favour of a better readability, connectors and earth studs are not shown in the horizontal projection.

Dimensions

	16 A (-06)	16 A (-29)	25 A (-24)	25 A (-33)	36 A (-24)	36 A (-33)	50 A (-24)	50 A (-33)	100 A (-28)	100 A (-34)	150 A
A	149	189.5	140	189.5	140	189.5	143.25	192	250	250	340
B*	104	105	105	105	105	105	122	122	160	160	160
C	50	80	80	80	80	80	102	102	130	130	130
D		140		140		140		142.5	210	210	300
E	44 ±0.3	165.5	44 ±0.3	165.5	44 ±0.3	165.5	44 ±0.3	168	230	230	320
F	75 ±0.3	80	75 ±0.3	50	75 ±0.3	50	75 ±0.3	98	60	65	60
G	M5 x 7	13 x 6.5	M5 x 7	13 x 6.5	M5 x 7	13 x 6.5	M5 x 7	13 x 6.5	13 x 6.5	13 x 6.5	13 x 6.5
H		0.7		0.7		0.7		0.7	1	1	1
I	11	10.9	25.4	25	25.4	25	25.4	25	34	39	34
J	6.3 x 0.8	M6	M6	M6	M6	M6	M6	M6	M10	M10	M10
K	52	82	52.5	52.5	52.5	52.5	61	61	80	116	80
L	22.5	25	46.5	20	46.5	20	68.5	35	65	40	65

* Rivets exceed this dimension by max. 1.3mm on each side.
All dimensions in mm; 1 inch = 25.4 mm
Tolerances according: ISO 2768-m / EN 22768-m

Filter input/output connector cross sections

	-06 (6.3 x 0.8mm)	-24 (M6)	-28 (M10)	-29	-33	-34
Solid wire	n/a	n/a	n/a	6 mm^2	16 mm^2	35 mm^2
Flex wire	n/a	n/a	n/a	4 mm^2	10 mm^2	25 mm^2
AWG type wire	n/a	n/a	n/a	AWG 10	AWG 6	AWG 2
Recommended torque	n/a	3.5 4.0 Nm	15-17 Nm	0.6-0.8 Nm	1.5-1.8 Nm	4.0-4.5 Nm

Please visit www.schaffner.com to find more details on filter connectors.

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