

3-phase filters FN 3258

Ultra-compact EMC/RFI filter for three-phase systems and motor drives

SCHAFFNER

energy efficiency and reliability



- New: solid safety connector blocks available for the whole range
- Exceptional attenuation performance from 150kHz to 30MHz
- Excellent saturation resistance up to 50m cable length
- Most compact and slim filter design in its class

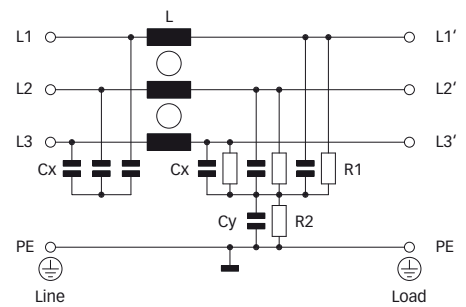
Approvals



Technical specifications

Maximum continuous operating voltage:	3x 480/277VAC (FN 3258) 3x 520/300VAC (FN 3258H)
Operating frequency:	dc to 60Hz
Rated currents:	7 to 180A @ 50°C
High potential test voltage:	P → E 2650VDC for 2 sec P → P 2100VDC 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/400V (Mil-HB-217F):	300,000 hours

Typical electrical schematic





Features and benefits

- The extremely compact and slim filter design allows a trouble-free installation even where the available mounting space is minimal.
- With new additional filter types providing safety terminal blocks, the most preferred connection style can be chosen fast and easy. This helps to stay in line with the electrical connection concept of a given application.
- FN 3258 filters ensure compliance with Class A limits according to EN 55011 up to 50m cable length and beyond. Further they can contribute significantly to meet conducted emission limits according to Class B.
- Filter operation on the mains input side of consumers increases their reliability and conducted immunity significant.
- Chokes with exceptional saturation resistance and excellent thermal behavior are a vital part of FN 3258 design. Thus, all filters retain the expected filter performance even in very noisy applications and under full load conditions.

Typical applications

- Three-phase variable speed motor drives, servo drives, inverters and converters
- Applications comprising energy conversion devices like machines or process automation equipment
- HVAC equipment, elevators, power supplies, UPS and further three-phase applications

Filter selection table

Filter*	Rated current @ 50°C (40°C)	Typical drive power rating**	Leakage current*** @ 400VAC/50Hz	Power loss @ 25°C/50Hz	Input/Output connections		Weight
	[A]	[kW]	[mA]	[W]			[kg]
FN 3258-7-..	7 (7.7)	4	33.0	3.8	-45	-44	0.5
FN 3258-16-..	16 (17.5)	7.5	33.0	6.1	-45	-44	0.8
FN 3258-30-..	30 (32.9)	15	33.0	11.8	-47	-33	1.2
FN 3258-42-..	42 (46.0)	22	33.0	15.7	-47	-33	1.4
FN 3258-55-..	55 (60.2)	30	33.0	25.9	-52	-34	2.0
FN 3258-75-..	75 (82.2)	37	33.0	32.2	-52	-34	2.7
FN 3258-100-35	100 (109.5)	55	33.0	34.5		-35	4.3
FN 3258-130-35	130 (142.4)	75	33.0	43.1		-35	4.5
FN 3258-180-40	180 (197.1)	90	33.0	58.3		-40	6.0
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FN 3258H-7-..	7 (7.7)	4	33.0	3.8	-45	-44	0.5
FN 3258H-16-..	16 (17.5)	7.5	33.0	6.1	-45	-44	0.8
FN 3258H-30-..	30 (32.9)	18.5	33.0	11.8	-47	-33	1.2
FN 3258H-42-..	42 (46.0)	22	33.0	15.7	-47	-33	1.4
FN 3258H-55-..	55 (60.2)	37	33.0	25.9	-52	-34	2.0
FN 3258H-75-..	75 (82.2)	45	33.0	32.2	-52	-34	2.7
FN 3258H-100-35	100 (109.5)	55	33.0	34.5		-35	4.3
FN 3258H-130-35	130 (142.4)	75	33.0	43.1		-35	4.5
FN 3258H-180-40	180 (197.1)	110	33.0	58.3		-40	6.0

* To compile a complete part number, please replace the .. with the required I/O connection style.

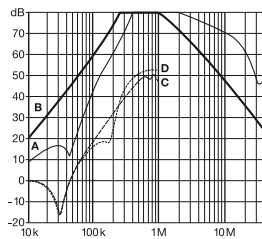
** Calculated at rated current, 440VAC (FN 3258)/480VAC (FN 3258H) and $\cos \phi = 0.8$. The exact value depends upon the efficiency of the drive, the motor and the entire application.

*** Maximum leakage under normal operating conditions. Note: if two phases are interrupted, worst case leakage could reach 5.4 times higher levels.

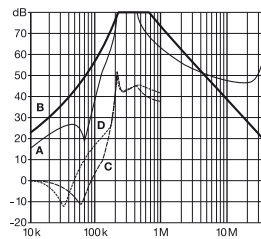
Typical filter attenuation

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

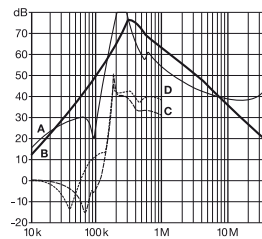
7 to 42A types



55 to 100A types

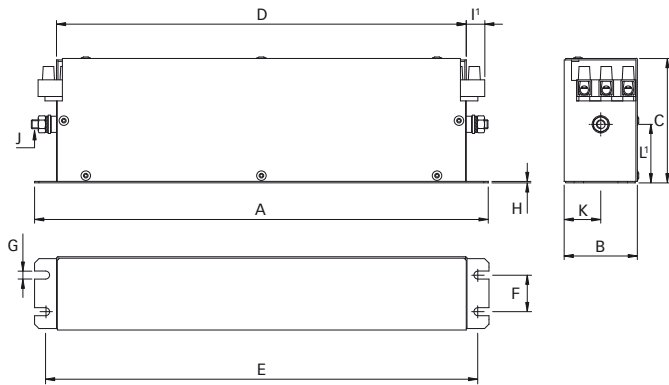


130 and 180A types

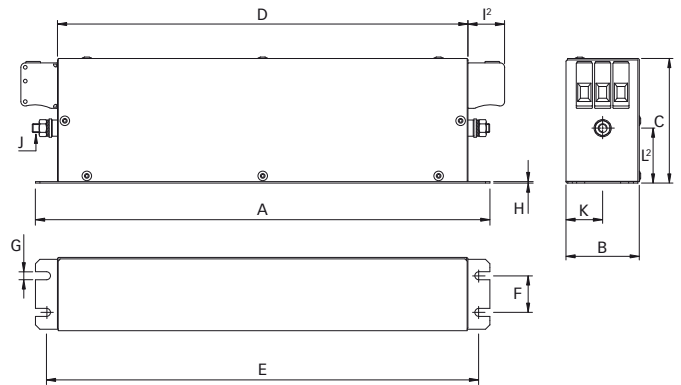


Mechanical data

Filters with strip terminals (7 to 75A types)



Filters with safety connector blocks (7 to 180A types)



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

Dimensions

	7A	16A	30A	42A	55A	75A	100A	130A	180A
A	190	250	270	310	250	270	270	270	380
B	40	45	50	50	85	80	90	90	120
C	70	70	85	85	90	135	150	150	170
D	160	220	240	280	220	240	240	240	350
E	180	235	255	295	235	255	255	255	365
F	20	25	30	30	60	60	65	65	102
G	4.5	5.4	5.4	5.4	5.4	6.5	6.5	6.5	6.5
H	1	1	1	1	1	1.5	1.5	1.5	1.5
I1	10.6	10.6	12.6	12.6	19	19			
I2	22	22	25	25	39	39	45	45	49.5
J	M5	M5	M5	M6	M6	M6	M10	M10	M10
K	20	22.5	25	25	42.5	40	45	45	60
L1	31	31	40	40	45	60			
L2	29.5	29.5	39.5	37.5	26.5	70.5	64	64	47

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

Filter input/output connector cross sections

	-33	-34	-35	-40	-44	-45	-47	-52
Solid wire	16mm ²	35mm ²	50mm ²	95mm ²	10mm ²	6mm ²	16mm ²	25mm ²
Flex wire	10mm ²	25mm ²	50mm ²	95mm ²	6mm ²	4mm ²	10mm ²	16mm ²
AWG type wire	AWG 6	AWG 2	AWG 1/0	AWG 4/0	AWG 8	AWG 12	AWG 8	AWG 4
Recommended torque	1.5 - 1.8Nm	4.0 - 4.5Nm	7 - 8Nm	17 - 20Nm	1.5 - 1.8Nm	0.7 - 0.8Nm	1.9 - 2.2Nm	1.9 - 2.2Nm