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Book-style EMC/RFI Filter for Inverters and Power Drive Systems



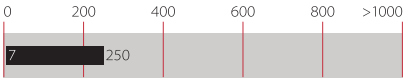
- Industry standard EMC solution for three-phase PDS filtering
- Slim space-saving book-style housing
- Solid safety connector blocks or optional wire output connections
- Excellent attenuation performance
- HV versions for up to 690 VAC
- HVIT versions for IT distribution networks
- P/L versions with low leakage current

Performance indicators

Attenuation performance



Rated current [A]



Technical specifications

Maximum continuous operating voltage	3x 480/277 VAC (FN 258, FN 258 L, FN 258 P) 3x 690/400 VAC (FN 258 HV, FN 258 HVIT)
Rated currents	7 to 250 A @50°C (480 V filters)
Operating frequency	DC to 60 Hz
High potential test voltage	P –> E 2650 VDC for 2 sec (480 V filters) P –> P 2100 VDC for 2 sec (480 V filters) P –> E 3100 VDC for 2 sec (690 V filters) P –> P 3000 VDC for 2 sec (690 V filters)
Protection category	IP 20
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 @ 50°C/400 V (Mil-HB-217F)	220,000 hours

Approvals

UL/CSA: FN 258 up to 180 A (ex. -180-07)

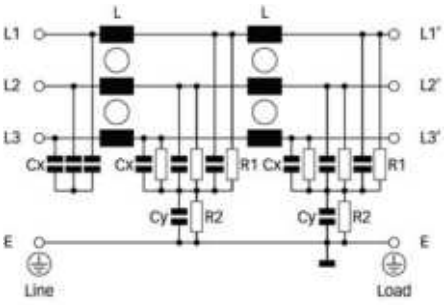
Features and benefits

- FN 258 range of filters provides state-of- the-art EMI attenuation based on an innovative multi-stage filter topology. They help to ensure compliance with Class A or even Class B limits
- The slim book-style shape allows a convenient and space-saving installation next to inverters and motor drives
- With 480 VAC rating and filter modules from 7 to 250 A, FN 258 are ready for the most diverse applications worldwide
- FN 258 HV filters up to 130 A are designed for 690 VAC distribution networks
- FN 258 HVIT filters up to 130 A meet the special requirements for the application in industrial 690 VAC IT distribution networks
- FN 258 L and FN 258 P filters help to fulfill tough requirements in respect of leakage current limitation and provide an excellent solution to overcome problems with nuisance tripping of sensitive earth leakage detectors

Typical applications

- Three-phase variable speed drives and power drive systems (PDS)
- IT power distribution networks (FN 258 HVIT)
- Applications comprising energy conversion devices (inverters, converters)
- Process automation equipment
- Three-phase power supplies and UPS
- Applications with low-leakage current requirements (FN 258 L and FN 258 P)

Typical electrical schematic



Note: HVIT versions without discharge resistor to ground.

Filter selection table

Filter*	Rated current @ 50°C (40°C) [A]	Typical drive power rating** [kW]	Leakage current*** @ 440 VAC/50 Hz [mA]	Power loss @ 25°C/50 Hz [W]	Input connections	Output connections		Weight [kg]
FN 258-7-..	7 (7.7)	4	16.5	9	-29	-07	-29	1.0
FN 258-16-..	16 (17.5)	7.5	18.3	20	-29	-07	-29	1.4
FN 258-30-..	30 (33)	15	24.2	21	-33	-07	-33	1.7
FN 258-42-..	42 (46)	22	25.8	30	-33	-07	-33	2.5
FN 258-55-..	55 (60)	30	25.8	30	-34	-07	-34	2.9
FN 258-75-34	75 (82)	37	25.8	24	-34		-34	3.9
FN 258-100-35	100 (110)	55	25.8	51	-35		-35	5.5
FN 258-130-35	130 (143)	75	30.0	50	-35		-35	6.9
FN 258-180-..	180 (197)	90	30.0	73	-40	-07	-40	11.0
FN 258-250-..	250 (275)	132	30.0	79	-40	-07	-40	12.0
FN 258 HV-7-29	7 (7.7)	5.5	13.0	9	-29		-29	1.0
FN 258 HV-16-29	16 (17.5)	11	19.0	20	-29		-29	1.5
FN 258 HV-30-33	30 (33)	22	19.0	21	-33		-33	1.8
FN 258 HV-42-33	42 (46)	30	21.6	30	-33		-33	2.6
FN 258 HV-55-34	55 (60)	45	21.6	30	-34		-34	3.0
FN 258 HV-75-34	75 (82)	55	21.6	24	-34		-34	4.3
FN 258 HV-100-35	100 (110)	90	21.6	51	-35		-35	5.6
FN 258 HV-130-35	130 (143)	110	25.0	50	-35		-35	7.1
FN 258 HVIT-7-29	7 (7.7)	5.5	13.0	9	-29		-29	1.0
FN 258 HVIT-16-29	16 (17.5)	11	19.0	20	-29		-29	1.5
FN 258 HVIT-30-33	30 (33)	22	19.0	21	-33		-33	1.8
FN 258 HVIT-42-33	42 (46)	30	21.6	30	-33		-33	2.6
FN 258 HVIT-55-34	55 (60)	45	21.6	30	-34		-34	3.0
FN 258 HVIT-75-34	75 (82)	55	21.6	24	-34		-34	4.3
FN 258 HVIT-100-35	100 (110)	90	21.6	51	-35		-35	5.6
FN 258 HVIT-130-35	130 (143)	110	25.0	50	-35		-35	7.1
FN 258 L-7-..	7 (7.7)	4	0.8	9	-29	-07	-29	1.0
FN 258 L-16-..	16 (17.5)	7.5	0.8	20	-29	-07	-29	1.4
FN 258 L-30-..	30 (33)	15	0.8	21	-33	-07	-33	1.7
FN 258 L-42-..	42 (46)	22	0.7	30	-33	-07	-33	2.5
FN 258 L-55-..	55 (60)	30	0.7	30	-34	-07	-34	2.9
FN 258 L-75-34	75 (82)	37	0.7	24	-34		-34	3.9
FN 258 L-100-35	100 (110)	55	0.7	51	-35		-35	5.5
FN 258 L-130-35	130 (143)	75	0.7	50	-35		-35	6.9
FN 258 L-180-..	180 (197)	90	0.7	73	-40	-07	-40	11.0
FN 258 L-250-07	250 (275)	132	0.7	79	-40	-07		12.0
FN 258 P-7-..	7 (7.7)	4	3.3	9	-29	-07	-29	1.0
FN 258 P-16-..	16 (17.5)	7.5	3.3	20	-29	-07	-29	1.4
FN 258 P-30-..	30 (33)	15	3.3	21	-33	-07	-33	1.7
FN 258 P-42-..	42 (46)	22	3.5	30	-33	-07	-33	2.5
FN 258 P-55-..	55 (60)	30	3.5	30	-34	-07	-34	2.9
FN 258 P-75-34	75 (82)	37	3.5	24	-34		-34	3.9
FN 258 P-100-35	100 (110)	55	3.5	51	-35		-35	5.5
FN 258 P-130-35	130 (143)	75	3.5	50	-35		-35	6.9
FN 258 P-180-..	180 (197)	90	3.5	73	-40	-07	-40	11.0
FN 258 P-250-07	250 (275)	132	3.6	79	-40	-07		12.0

* To compile a complete part number, please replace the -.. with the required output connection style.

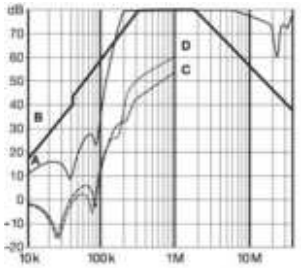
** Calculated at rated current, 440 VAC (FN 258)/690 VAC (FN 258 HV) and cos phi=0.8. The exact value depends upon the efficiency of the drive, the motor and the entire application.

***Maximum leakage under normal operating conditions (FN 258 at 440 V, FN 258 HV at 690 V). Note: if two phases are interrupted, worst case leakage could reach 5.7 times higher levels.

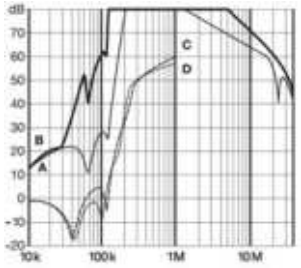
Typical filter attenuation

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

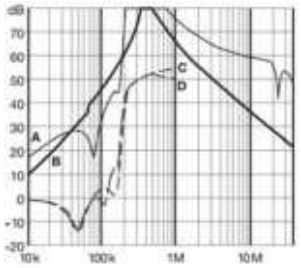
7 to 30 A types



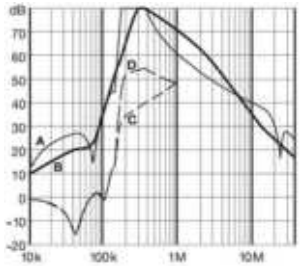
42 to 100 A types



130 A types



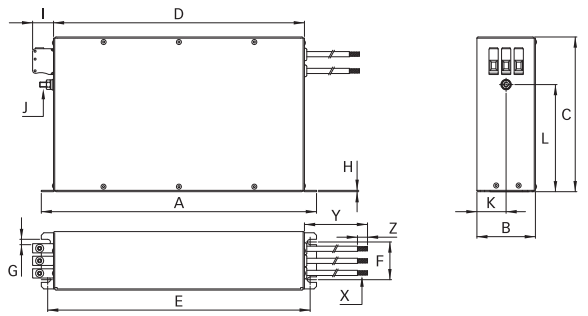
180 and 250 A types



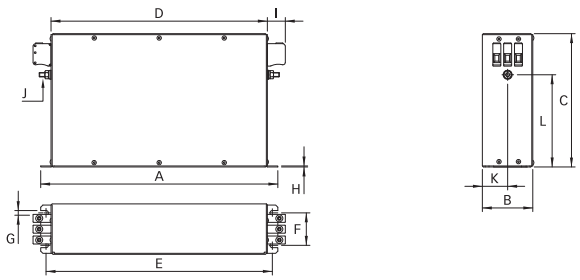
Note: typical attenuation performance of FN 258 standard filters. The behavior of FN 258 HV, FN 258 HVIT, FN 258 P and FN 258 L may be slightly different.

Mechanical data

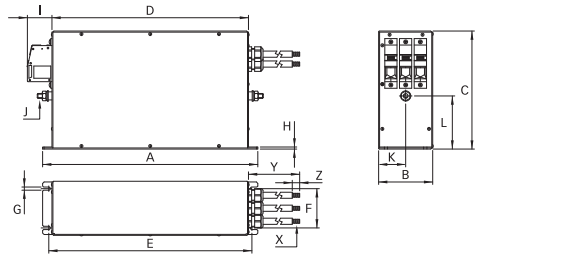
7 to 55 A types (-07)



7 to 130 A types (-29, -33, -34, -35)

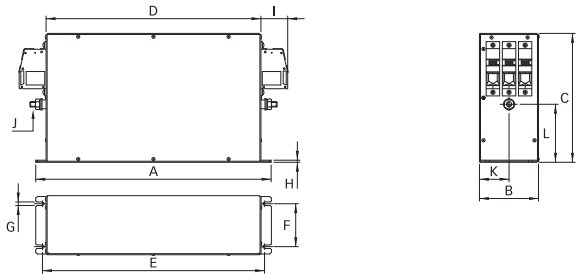


180 and 250 A types (-07)



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

180 and 250 A types (-40)



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

Dimensions

	7 A	16 A	30 A	42 A	55 A	75 A	100 A	130 A	180 A	250 A
A	255	305	335	329	329	329	379	439	438	478
B	50	55	60	70	80	80	90	110	110	110
C	126	142	150	185	185	220	220	240	240	240
D	225	275	305	300	300	300	350	400	400	440
E	240	290	320	314	314	314	364	414	413	453
F	25	30	35	45	55	55	65	80	80	80
G	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
H	1	1	1	1.5	1.5	1.5	1.5	3	4	4
I	10.9	10.9	25	25	39	39	45	45	51	51
J	M5	M5	M5	M6	M6	M6	M10	M10	M10	M10
K	25	27.5	30	35	40	40	45	55	55	55
L	85	100	110	130	105	140	130	140	110	110
X*	AWG 16	AWG 14	AWG 10	AWG 8	AWG 6				50 mm^2	70 mm^2
Y*	300 ±10	300 ±10	400 ±10	500 ±10	500 ±10				500 ±10	500 ±10
Z*	9	9	9	12	12				15	15

* Filters with output wire connections (-07) only.
All dimensions in mm; 1 inch = 25.4 mm
Tolerances according: ISO 2768-m/EN 22768-m

Filter input/output connector cross sections

	-29	-33	-34	-35	-40
					
Solid wire	6 mm^2	16 mm^2	35 mm^2	50 mm^2	95 mm^2
Flex wire	4 mm^2	10 mm^2	25 mm^2	50 mm^2	95 mm^2
AWG type wire	AWG 10	AWG 6	AWG 2	AWG 1/0	AWG 4/0
Recommended torque	0.6-0.8 Nm	1.5-1.8 Nm	4.0-4.5 Nm	7-8 Nm	17-20 Nm

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

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