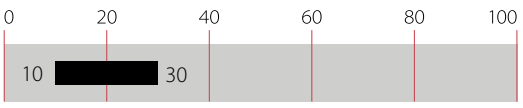
Low leakage current filter for the Japanese Market

- Designed for corner grounded delta networks (e.g. Japanese electric networks)
- Improvement of system reliability
- Two capacitors in series for high voltage tolerance to ground
- Industry standard form factor
- Lightweight EMC filter housing

Performance indicators

Attenuation performance

Rated current [A]



Approvals & Compliances

Features and Benefits

- A plastic housing combined with a metal ground plate achieve the lowest possible product weight without compromising EMC behaviour
- The embedded terminals from Schaffner guarantee user-friendly handling and reliable, long-lasting electrical connection
- fixed, hinged terminal covers contribute to overall safety by providing protection against unintended contact with life conductors. They are included in the standard scope of delivery without any extra cost
- Very low leakage current values make the filters suitable for grids with very tough requirements or sensitive GFCIs, and for applications which set value on safety and reliability
- FN3030 feature an ecologically conscious construction without the use of potting compound or banned substances (RoHS). Used raw materials can be easily separated at the end of the product life time for proper and environmentally safe disposal

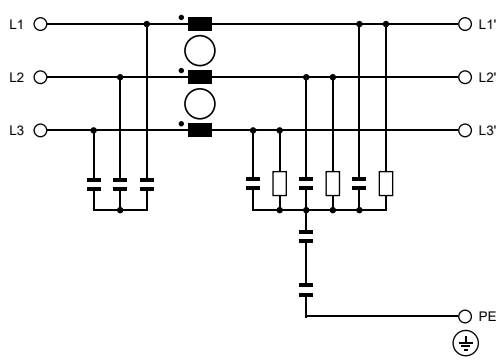
Typical Applications

- Electrical and electronic equipment
- Test and measurement devices
- Medical devices & Industrial automation
- Small machines

Technical Specifications

Maximum continuous operating voltage	530 / 305 VAC
Nominal operating voltage	480 VAC
Rated currents	10 to 30 A @ 50°C
Overload capability	1.5 x rated current for 1 minute once per hour
Operating frequency	DC to 60 Hz
High potential test voltage	2.28 kV DC 2s, phase to phase 2.5 kV AC 60s, phase to protected earth Repetition with max. 80% of the HV test voltage
Overvoltage category	III (acc. IEC 60664-1)
Pollution degree	PD2 (acc. IEC60664-1)
Surge withstand	2 kV, phase to phase (acc. to IEC 61000-4-5) 4 kV, phase to protected earth (acc. to IEC 61000-4-5)
Temperature range (operation and storage)	-40°C to +100°C (with derating >50°C)
Climatic category	40/100/21 (acc. IEC 60068-1)
Altitude	2000 m, current and voltage derating above
Protection category	IP 00 (acc. IEC 60529-1)
Flammability corresponding to	UL 94 V0
Vibration and shock	3M4 (acc. to IEC60721-3-3) Vibration: 10 to 55Hz, 2G, 3min, 1h each direction Shock: 20G, 11ms once each axis
Design corresponding to	UL/IEC 60939-3 CSA C22.2 No. 8-13
MTBF (Mil-HB-217F)	>300,000 h @ 50°C/480V

Typical electrical schematic



Filter Selection Table

Filter	Core*	Rated current		Leakage current**	Typical Power Loss****	Weight	Input/ Output
		@ 50°C	530 V/50 Hz	250 V/60 Hz*** corner grounded	@ 25°C		connections
		[A]	[mA]	[mA]	[W]	[kg]	
Standard Housing							
FN3030-10-61-C00-R6	MnZn	10	0.00	0.0	6.0	0.45	-61
FN3030-10-61-C12-R6	MnZn	10	0.01	0.3	6.0	0.45	-61
FN3030-10-61-C18-R6	MnZn	10	0.07	1.8	6.0	0.45	-61
FN3030-10-61-C20-R6	MnZn	10	0.14	4.0	6.0	0.45	-61
FN3030-20-61-C00-R6	MnZn	20	0.00	0.0	8.4	0.45	-61
FN3030-20-61-C12-R6	MnZn	20	0.01	0.3	8.4	0.45	-61
FN3030-20-61-C18-R6	MnZn	20	0.07	1.8	8.4	0.45	-61
FN3030-20-61-C20-R6	MnZn	20	0.14	4.0	8.4	0.45	-61
FN3030-30-61-C00-R6	MnZn	30	0.00	0.0	9.5	0.45	-61
FN3030-30-61-C12-R6	MnZn	30	0.01	0.3	9.5	0.45	-61
FN3030-30-61-C18-R6	MnZn	30	0.07	1.8	9.5	0.45	-61
FN3030-30-61-C20-R6	MnZn	30	0.14	4.0	9.5	0.45	-61
FN3031-10-61-C20-R6	Nano	10	0.14	4.0	6.0	0.43	-61
FN3031-20-61-C20-R6	Nano	20	0.14	4.0	8.4	0.43	-61
FN3031-30-61-C20-R6	Nano	30	0.14	4.0	9.5	0.43	-61
DIN Rail Housing							
FN3032-10-61-C00-R6	MnZn	10	0.00	0.0	6.0	0.50	-61
FN3032-10-61-C12-R6	MnZn	10	0.01	0.3	6.0	0.50	-61
FN3032-10-61-C18-R6	MnZn	10	0.07	1.8	6.0	0.50	-61
FN3032-10-61-C20-R6	MnZn	10	0.14	4.0	6.0	0.50	-61
FN3032-20-61-C00-R6	MnZn	20	0.00	0.0	8.4	0.50	-61
FN3032-20-61-C12-R6	MnZn	20	0.01	0.3	8.4	0.50	-61
FN3032-20-61-C18-R6	MnZn	20	0.07	1.8	8.4	0.50	-61
FN3032-20-61-C20-R6	MnZn	20	0.14	4.0	8.4	0.50	-61
FN3032-30-61-C00-R6	MnZn	30	0.00	0.0	9.5	0.50	-61
FN3032-30-61-C12-R6	MnZn	30	0.01	0.3	9.5	0.50	-61
FN3032-30-61-C18-R6	MnZn	30	0.07	1.8	9.5	0.50	-61
FN3032-30-61-C20-R6	MnZn	30	0.14	4.0	9.5	0.50	-61
FN3033-10-61-C20-R6	Nano	10	0.14	4.0	6.0	0.45	-61
FN3033-20-61-C20-R6	Nano	20	0.14	4.0	8.4	0.45	-61
FN3033-30-61-C20-R6	Nano	30	0.14	4.0	9.5	0.45	-61

* Core material: MnZn: Ferrite core material / nano: Nanocrystalline core material
** Maximum leakage current under normal operating conditions (acc. to IEC60939-3).
*** Leakage current for delta network grids, with one corner grounded
**** Power Loss [W] calculated: 3*RatedCurrent²*Max.DCRes

Product Selector

FN30vx-yy-Czz-R6

R6
R6: X-resistor value 1.5 MOhm

zz – Y-capacitor Option
12: 6.8 nF
18: 68 nF
20: 150 nF

yy – Rated Current
10: 10 A
20: 20 A
30: 30 A

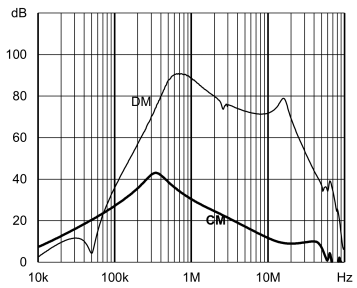
x – Core technology / Mechanical Mounting Version
0: Ferrite core / standard housing (recommended for most applications)
1: Nanocrystalline core / Standard housing (increased performance at ~150 kHz)
2: Ferrite core / DIN-rail mounting
3: Nanocrystalline core / DIN-rail mounting

v – Performance / Leakage Current
3: Standard performance, low leakage current (This series)
4: High performace, increased leakage current (Refer to FN3040 series)

Typical Filter Attenuation

Per CISPR 17; A=50 Ω/50 Ω sym; B=50 Ω/50 Ω asym

FN3030-10-61-C00 and FN3032-10-61-C00



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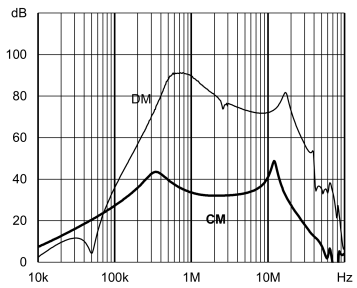

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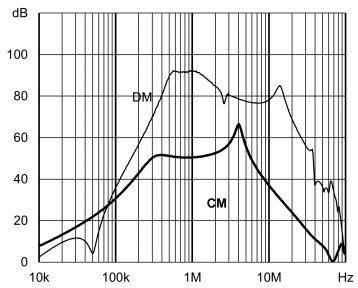

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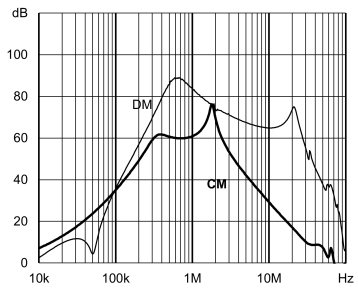

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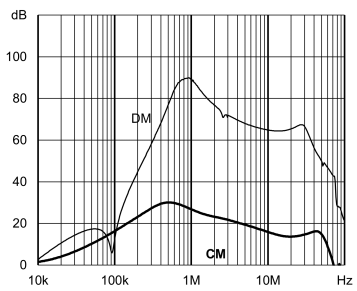

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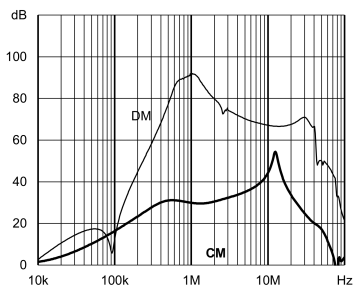

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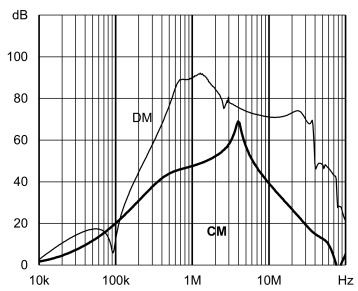

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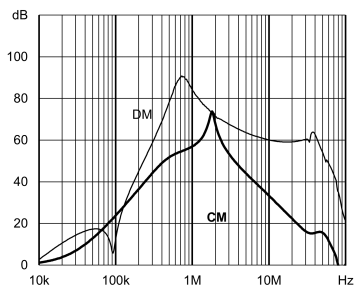

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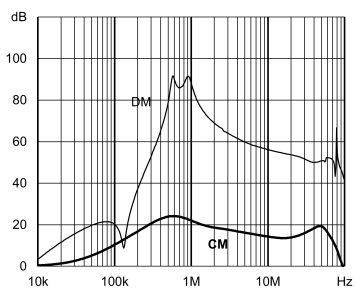

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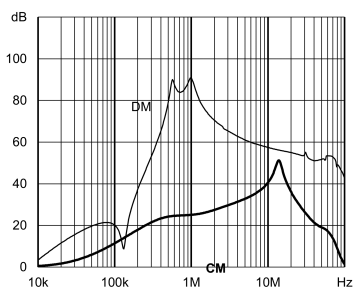

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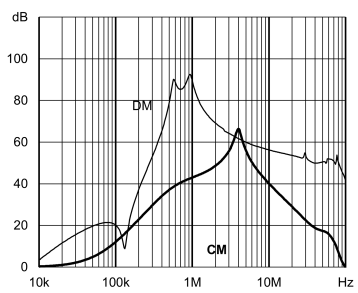

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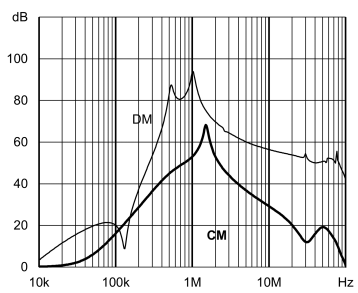

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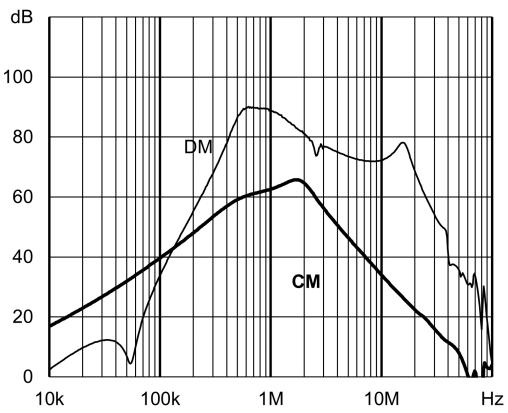

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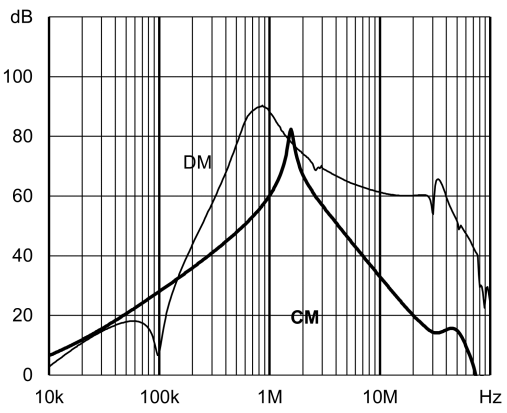

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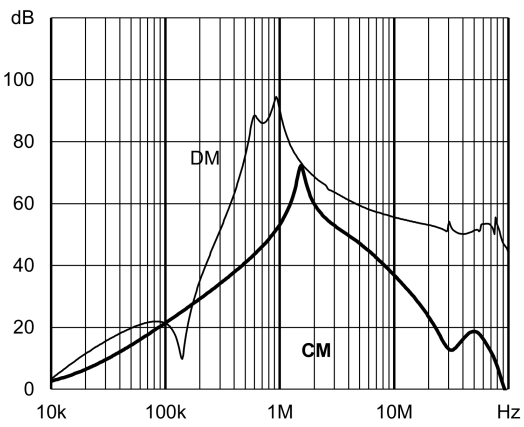
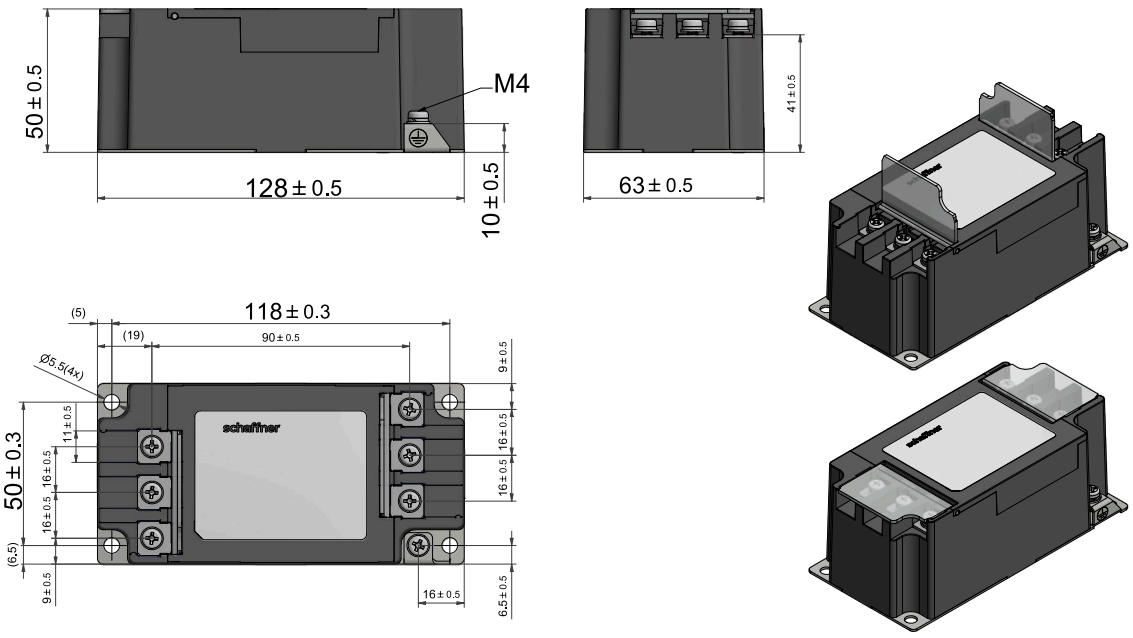
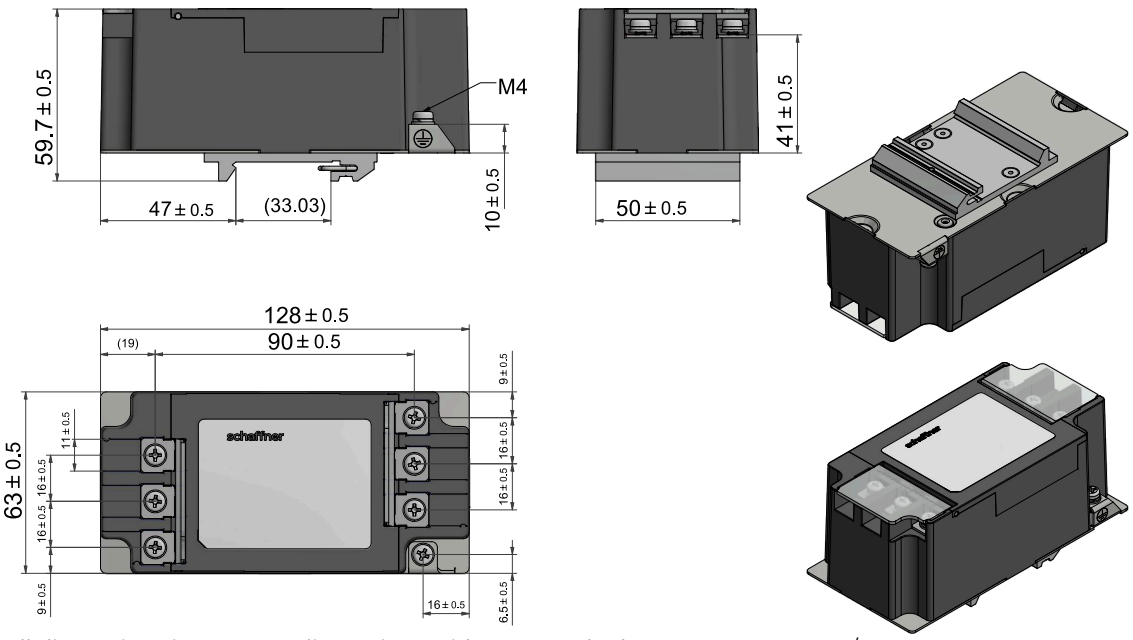


Mechanical Data

Chassis Mounting FN3030 & FN3031



DIN Rail Mounting FN3032 & FN3033



All dimensions in mm. For dimensions without stated tolerances: ISO 2768-m/EN 22768-m
Recommended torque PE: 1.2 - 1.4 Nm

Filter Input/Output Connector Cross Sections

	-61 (10 A)	-61 (20 A)	-61 (30 A)
Ring/fork lug (W/d)*	max. 11 mm/min. Ø 4.3 mm	max. 11 mm/min. Ø 4.3 mm	max. 11 mm/min. Ø4.3 mm
Recommended torque	1.2 - 1.4 Nm	1.2 - 1.4 Nm	1.2 - 1.4 Nm

* Schaffner recommends the use of insulated and UL-recognized ring lugs or fork lugs of the appropriate size.

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