schaffner MORE POWER TO YOU is now part of TE connectivity

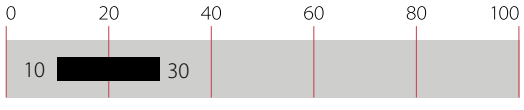
Filter for low leakage current application

- Low leakage EMC filter with high performance options
- Improvement of system reliability
- Tight packaged EMC filter
- Industry standard form factor

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 and for applications which set value on safety and reliability
- FN3040 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

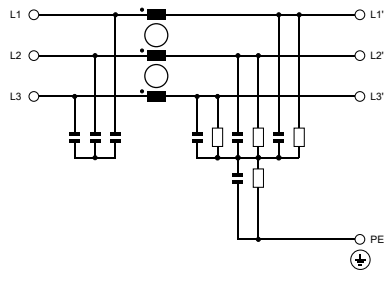
Typical Applications

- 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 - 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 2.26 kV DC 2s Repetition with max. 80% of the HV test voltage
Operating voltage	530 / 305 VAC
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 (cc. IEC60721-3-3) Vibration: 10 to 55Hz, 2G, 3min, 1h each direction Shock: 20G, 11ms once each axial
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	@ 25°C		connections
		[A]	[mA]	[W]	[kg]	
Standard Housing						
FN3040-10-61-C19-R65	MnZn	10	0.19	6.0	0.45	-61
FN3040-10-61-C20-R65	MnZn	10	0.28	6.0	0.45	-61
FN3040-10-61-C21-R65	MnZn	10	0.40	6.0	0.45	-61
FN3040-20-61-C19-R65	MnZn	20	0.19	8.4	0.45	-61
FN3040-20-61-C20-R65	MnZn	20	0.28	8.4	0.45	-61
FN3040-20-61-C21-R65	MnZn	20	0.40	8.4	0.45	-61
FN3040-30-61-C19-R65	MnZn	30	0.19	9.5	0.45	-61
FN3040-30-61-C20-R65	MnZn	30	0.28	9.5	0.45	-61
FN3040-30-61-C21-R65	MnZn	30	0.40	9.5	0.45	-61
FN3041-10-61-C21-R65	Nano	10	0.40	6.0	0.43	-61
FN3041-20-61-C21-R65	Nano	20	0.40	8.4	0.43	-61
FN3041-30-61-C21-R65	Nano	30	0.40	9.5	0.43	-61
DIN Rail Housing						
FN3042-10-61-C19-R65	MnZn	10	0.19	6.0	0.50	-61
FN3042-10-61-C20-R65	MnZn	10	0.28	6.0	0.50	-61
FN3042-10-61-C21-R65	MnZn	10	0.40	6.0	0.50	-61
FN3042-20-61-C19-R65	MnZn	20	0.19	8.4	0.50	-61
FN3042-20-61-C20-R65	MnZn	20	0.28	8.4	0.50	-61
FN3042-20-61-C21-R65	MnZn	20	0.40	8.4	0.50	-61
FN3042-30-61-C19-R65	MnZn	30	0.19	9.5	0.50	-61
FN3042-30-61-C20-R65	MnZn	30	0.28	9.5	0.50	-61
FN3042-30-61-C21-R65	MnZn	30	0.40	9.5	0.50	-61
FN3043-10-61-C21-R65	Nano	10	0.40	6.0	0.45	-61
FN3043-20-61-C21-R65	Nano	20	0.40	8.4	0.45	-61
FN3043-30-61-C21-R65	Nano	30	0.40	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).
*** Power Loss [W] calculated: $3*RatedCurrent^2*Max.DCRes$

Product Selector

FN304x-yy-Czz-R65

zz – Y-capacitor Option
19: 100 nF
20: 150 nF
21: 220 nF

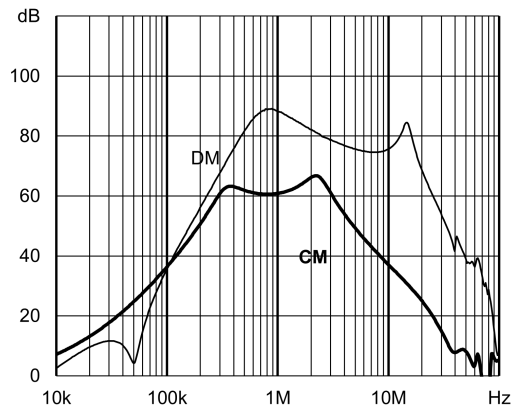
yy – Rated Current
10: 10 A
20: 20 A
30: 30 A

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

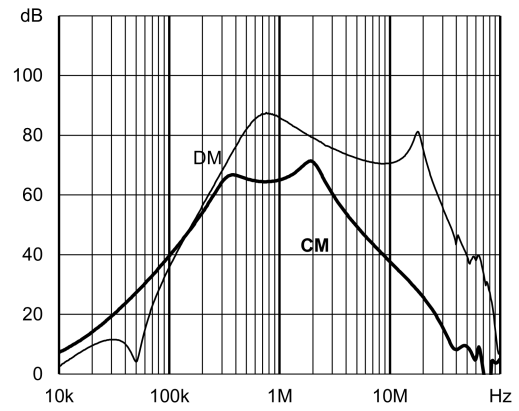
Typical Filter Attenuation

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

FN3040-10-61-C19 and FN3042-10-61-C19



FN3040-10-61-C20 and FN3042-10-61-C20



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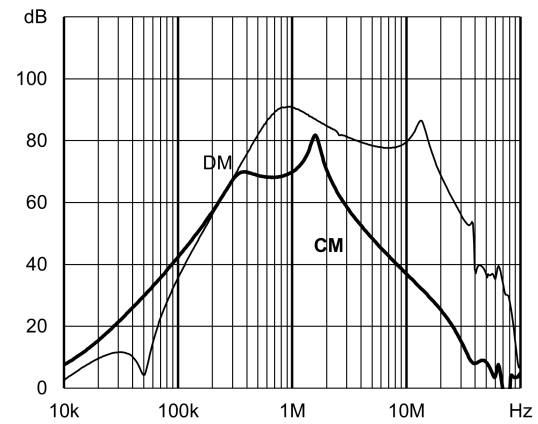

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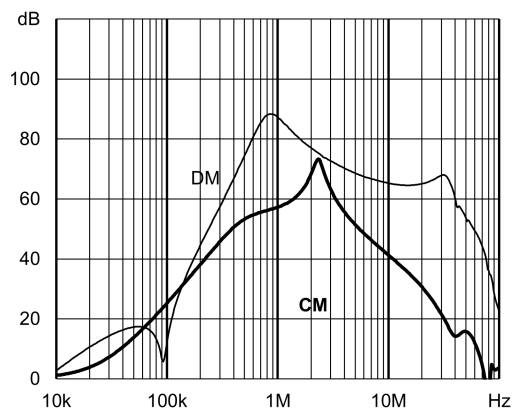

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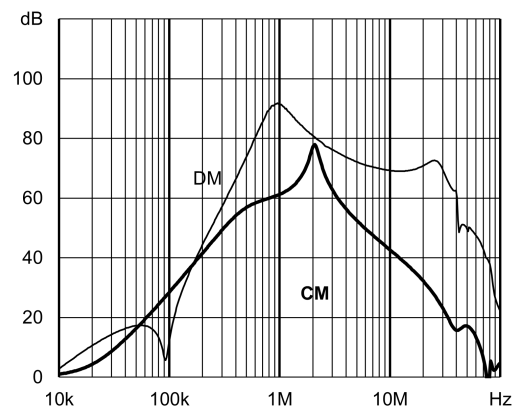

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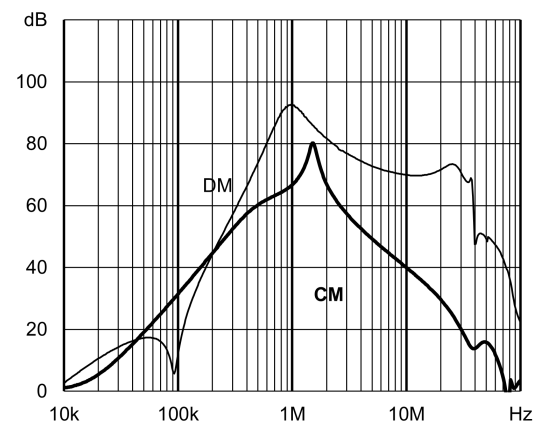

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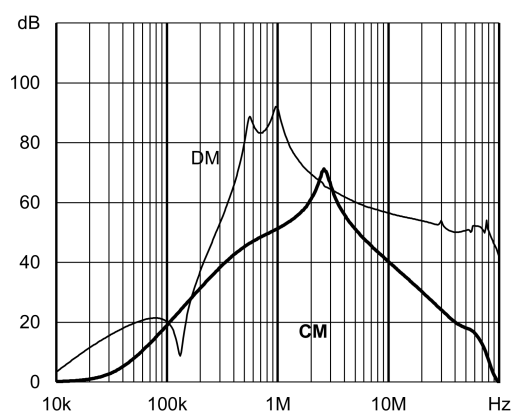

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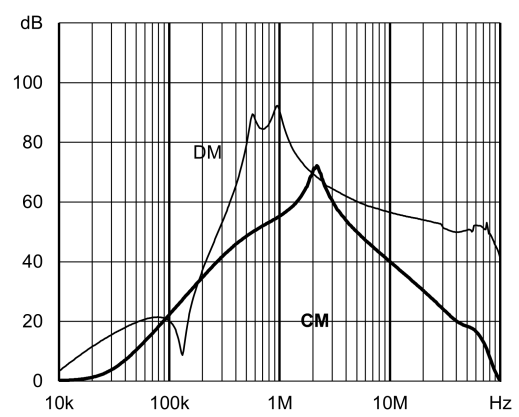

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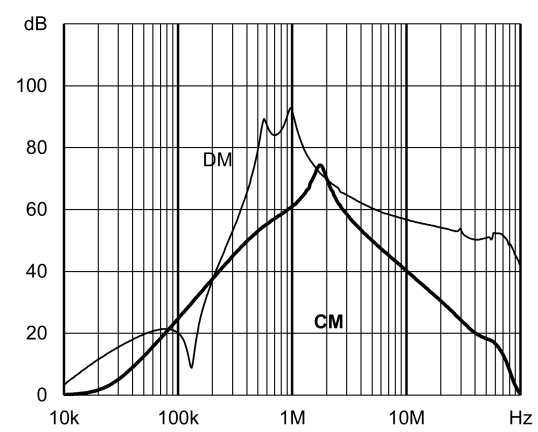
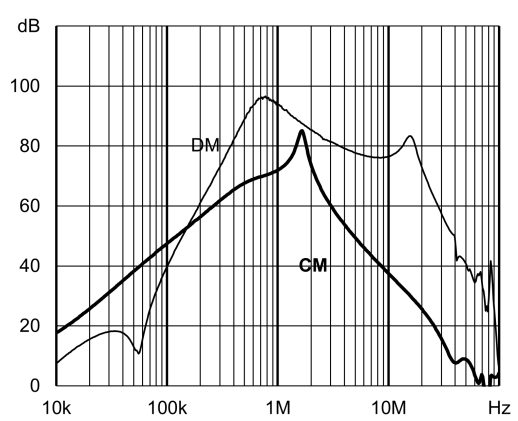


FN3041-10-61-C21 and FN3043-10-61-C21



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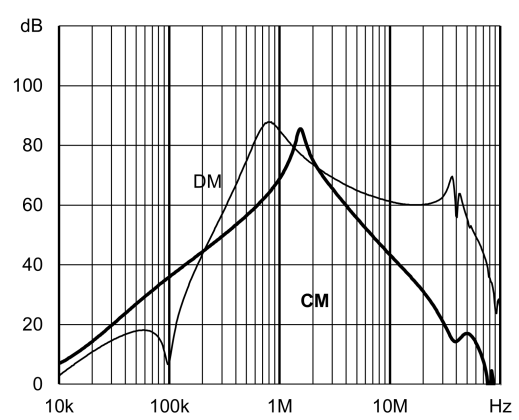
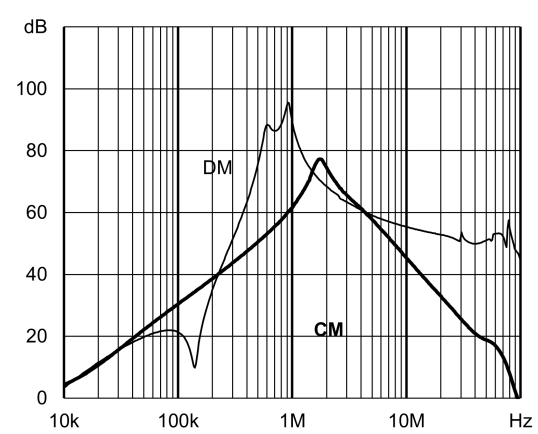
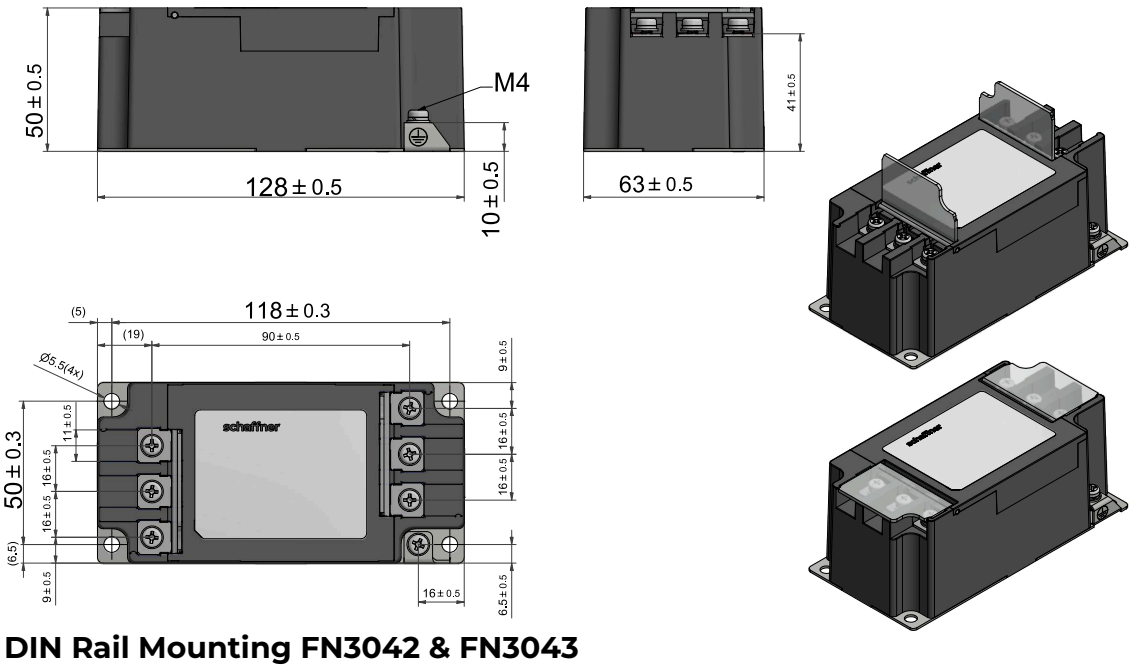


FN3041-30-61-C21 and FN3043-30-61-C21

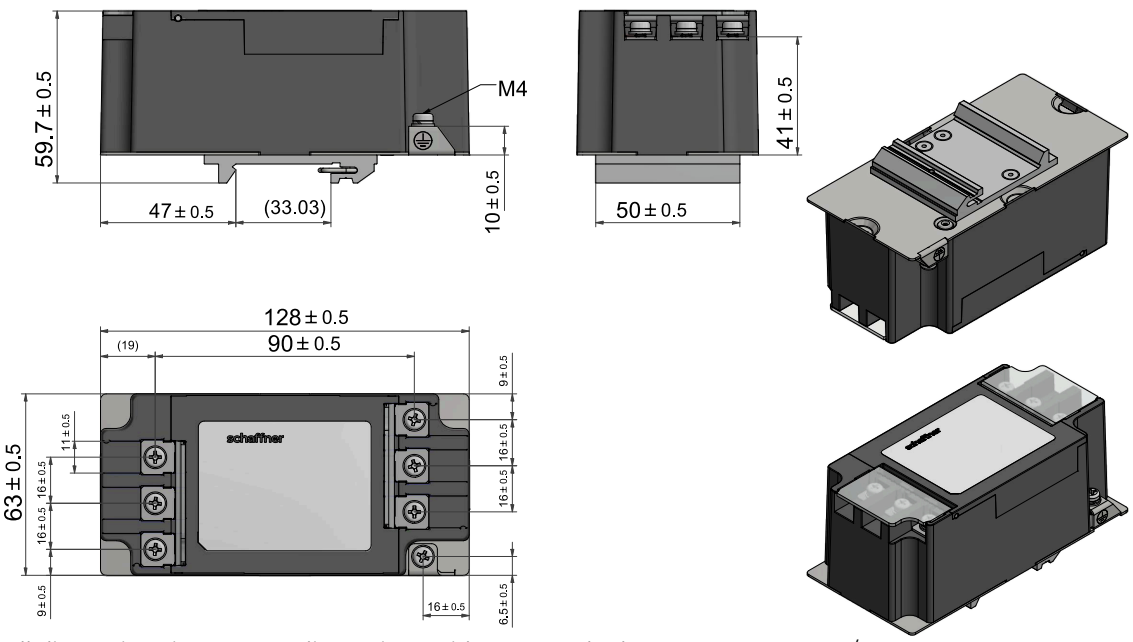


Mechanical Data

Chassis Mounting FN3040 & FN3041

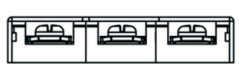
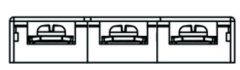
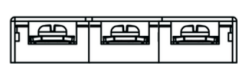


DIN Rail Mounting FN3042 & FN3043



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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