

DIN-Rail EMC/RFI Filter with Minimum Leakage Current



- Compact state-of-the-art filter concept
- Light weight plastic enclosure design
- Minimized filter leakage current
- Hinged safety covers
- Revolutionary embedded filter terminals
- Chassis or DIN-rail mounting option
- Selectable performance level
- Environmental friendly design without potting compound

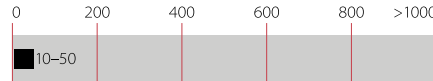


Performance indicators

Attenuation performance



Rated current [A]



Approvals & Compliances



Design protected by European patent (EP 1727280)

Features and benefits

- Two different mounting versions: FN 3025 for chassis mounting and FN3026 for DIN rail mounting
- Two different performance levels (L types, P types)
- A plastic housing and a metal ground plate are cleverly combined to get the lowest possible product weight without compromising EMC behavior
- The embedded jump-terminal system from Schaffner guarantees user-friendly handling as well as fast and reliable electrical connection
- Captive hinged protective covers contribute to overall safety by offering protection against unintended contact with live conductors. They are included in the standard delivery package without causing extra cost
- Very low leakage current values make these filter ranges ideally suitable for use in Japanese electricity networks as well as in applications which set value on safety and reliability

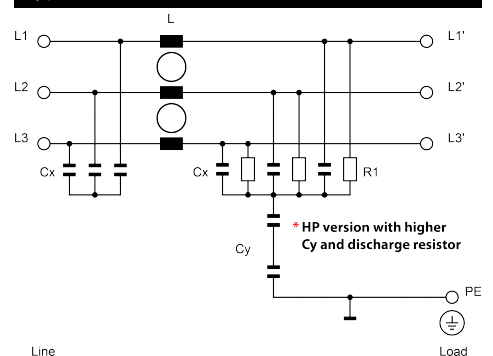
Technical specifications

Maximum continuous operating voltage	3x 520/300 VAC
Operating frequency	DC to 60 Hz
Rated currents	10 to 50 A @ 50°C
High potential test voltage	P → E 2000 VAC for 2 sec (HL types) P → E 3000 VDC for 2 sec (HP types) P → P 2250 VDC for 2 sec
Protection category	IP 00 (protection according to VBG 4)
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)	>200,000 hours

Typical applications

- Applications with the requirement for extremely compact filter solutions
- Applications with tough leakage current requirements or sensitive earth leakage detectors
- Applications with insufficient internal filtering or moderate interference levels
- Automation equipment
- Motor drives and servo drives with short motor cables
- Applications including stepping motors
- Semiconductor manufacturing equipment
- Three-phase power supplies
- Medical equipment (not patient-coupled)

Typical electrical schematic of HL version



Filter selection table

Filter	Rated current @ 50°C (40°C)	Typical drive power rating*	Leakage current** @ 520 VAC/50 Hz	Power loss @ 25°C/50 Hz	Input/Output connections 	Weight [kg]
	[A]	[kW]	[mA]	[W]		
FN 3025 HL-10-71	10 (10.7)	5.5	0.1	4.8	-71	0.52
FN 3025 HL-20-71	20 (21.4)	11	0.1	6.2	-71	0.52
FN 3025 HL-30-71	30 (32.1)	18.5	0.1	7.0	-71	0.54
FN 3025 HL-40-71	40 (43.8)	25	0.1	8.5	-71	0.63
FN 3025 HL-50-72	50 (53.5)	30	0.1	10.5	-72	0.93
FN 3025 HP-10-71	10 (10.7)	5.5	0.4	4.8	-71	0.52
FN 3025 HP-20-71	20 (21.4)	11	0.4	6.2	-71	0.52
FN 3025 HP-30-71	30 (32.1)	18.5	0.4	7.0	-71	0.54
FN 3025 HP-40-71	40 (43.8)	25	0.4	8.5	-71	0.63
FN 3025 HP-50-72	50 (53.5)	30	0.4	10.5	-72	0.93
FN 3026 HL-10-71	10 (10.7)	5.5	0.1	4.8	-71	0.56
FN 3026 HL-20-71	20 (21.4)	11	0.1	6.2	-71	0.56
FN 3026 HL-30-71	30 (32.1)	18.5	0.1	7.0	-71	0.58
FN 3026 HL-40-71	40 (43.8)	25	0.1	8.5	-71	0.74
FN 3026 HL-50-72	50 (53.5)	30	0.1	10.5	-72	0.98
FN 3026 HP-10-71	10 (10.7)	5.5	0.4	4.8	-71	0.56
FN 3026 HP-20-71	20 (21.4)	11	0.4	6.2	-71	0.56
FN 3026 HP-30-71	30 (32.1)	18.5	0.4	7.0	-71	0.58
FN 3026 HP-40-71	40 (43.8)	25	0.4	8.5	-71	0.74
FN 3026 HP-50-72	50 (53.5)	30	0.4	10.5	-72	0.98

* Calculated at rated current, 480 VAC and cos phi=0.8. The exact value depends upon the efficiency of the drive, the motor and the entire application.

** Standardized calculated leakage current acc. IEC60939 under normal operating conditions.

Typical filter attenuation

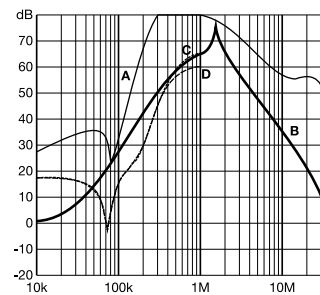
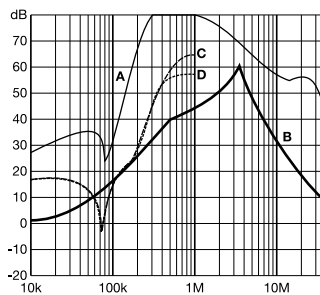
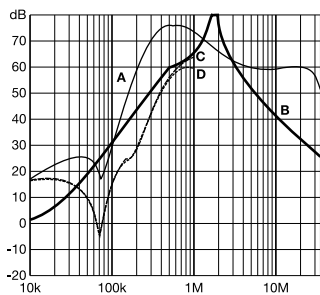
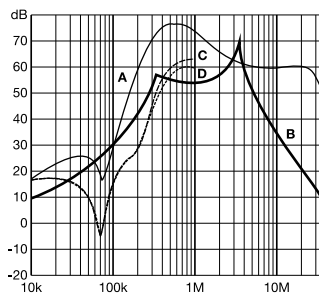
Per CISPR 17; A=50 Ω/50 Ω sym; B=50 Ω/50 Ω asym; C=0.1 Ω/100 Ω sym; D=100 Ω/0.1 Ω sym

10 and 20 A HL types

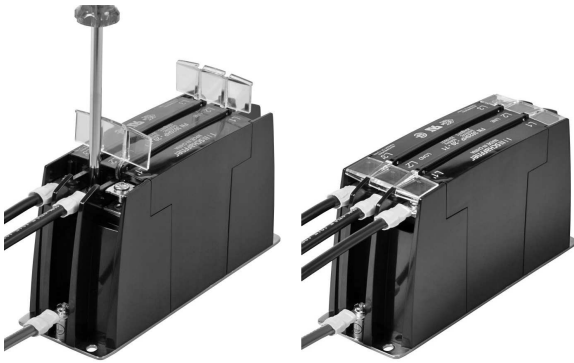
10 and 20 A HP types

30 to 50 A HL types

30 to 50 A HP types



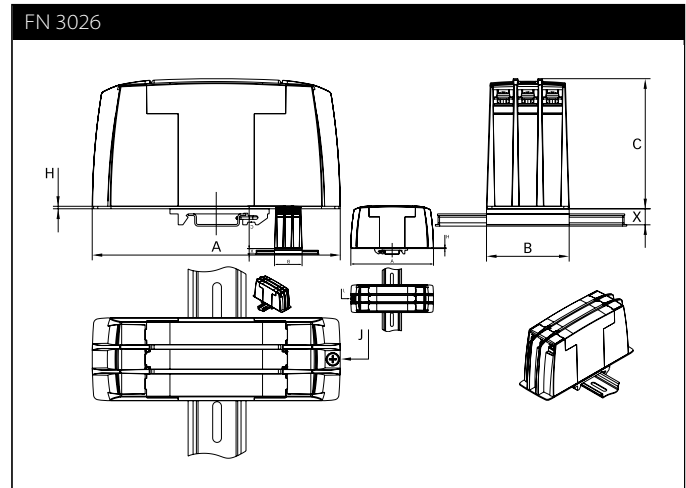
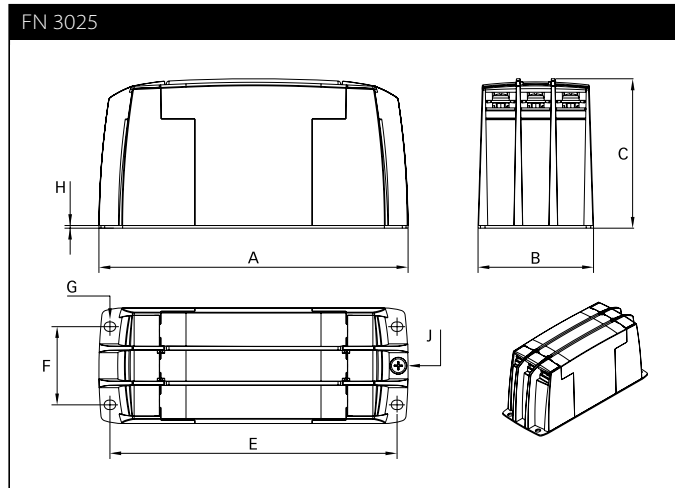
Installation



FN 3025/FN 3026 are delivered with closed plastic covers and unfastened terminals. To install the filter please proceed as follows:

- Mount the filter on a metal surface with four screws or snap it onto a TS 35 DIN- rail.
- First connect the green/yellow wire to the earth stud of the filter.
- Gently lift the two hinged plastic covers.
- Connect phase wires with cable lugs by pushing down and tightening the screws.
- Please note the torque recommendation on top of the filter.
- Push the covers back into their locked position to finish the filter installation.

Mechanical data







Dimensions

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	FN 3025					FN 3026				
	10 A	20 A	30 A	40 A	50 A	10 A	20 A	30 A	40 A	50 A
A	150	150	150	150	177	150	150	150	150	177
B	50	50	50	50	65	50	50	50	50	65
C	78	78	78	78	84	78	78	78	78	84
E	140	140	140	140	162					
F	32	32	32	32	44					
G	4.3 x 5.5	4.3 x 5.5	4.3 x 5.5	4.3 x 5.5	5.3 x 6.5					
H	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
J	M4	M4	M4	M4	M5	M4	M4	M4	M4	M5
X						9.7	9.7	9.7	9.7	9.7

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

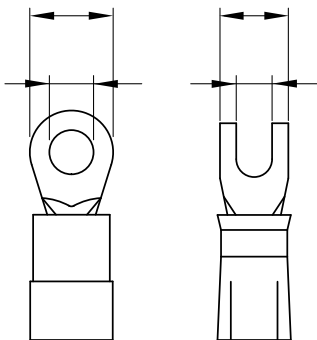
Filter input/output connector cross sections

	-71 (10 A)	-71 (20 A)	-71 (30 A and 40 A)	-72 (50 A)
				
Flex wire	1.3-2.5 mm ²	4-6 mm ²	8-10 mm ²	16-20 mm ²
AWG type wire	AWG 16-AWG 13	AWG 12-AWG 10	AWG 8-AWG 7	AWG 5-AWG 4
Ring/fork lug (W/d)*	max. 11 mm (9.5 mm)/ min. Ø4.3 mm**	max. 11 mm (9.5 mm)/ min. Ø4.3 mm**	max. 11 mm (9.5 mm)/ min. Ø4.3 mm**	max. 16.5 mm (15 mm)/ min. Ø5.3 mm**
Recommended torque	1.0-1.2 Nm	1.0-1.2 Nm	1.0-1.2 Nm	1.9-2.2 Nm

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

** Specification in () relates to earth connector.

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





Headquarters, global innovation and development

Switzerland

Schaffner Group

Industrie Nord
Nordstrasse 11e
4542 Luterbach
T +41 32 681 66 26
info@schaffner.com



Sales and application centers

China

Schaffner EMC Ltd. Shanghai

T20-3 C, No 565 Chuangye Road,
Pudong district
201201 Shanghai
T +86 21 3813 9500
cschina@schaffner.com
www.schaffner.com.cn

Finland

Schaffner Oy

Sauvonrinne 19 H
08500 Lohja
T +358 10 567 2855
finlandsales@schaffner.com

France

Schaffner EMC S.A.S.

16-20 Rue Louis Rameau
95875 Bezons
T +33 1 34 34 30 60
F +33 1 39 47 02 28
francesales@schaffner.com

Germany

Schaffner Deutschland GmbH

Schoemperlenstrasse 12B
76185 Karlsruhe
T +49 721 56910
F +49 721 569110
germanysales@schaffner.com

India

Schaffner India Pvt. Ltd

REGUS WORLD TRADE CENTRE
WTC, 22nd Floor Unit No 2238, Brigade
Gateway Campus, 26/1, Dr. Rajkumar Road
Malleshwaram (W)
560055 Bangalore
T +91 80 67935355
indiasales@schaffner.com

Italy

Schaffner EMC S.r.l.

Via Ticino, 30
20900 Monza (MB)
T +39 039 21 41 070
italysales@schaffner.com

Japan

Schaffner EMC K.K.

Taiju-Seimei Sangenjaya Bldg.
1-32-12, Kamiuma, Setagaya-ku
154-0011 Tokyo
T +81 3 5712 3650
F +81 3 5712 3651
japansales@schaffner.com
www.schaffner.jp

Singapore

Schaffner EMC Pte Ltd.

#05-09, Kg Ubi Ind. Estate
408705 Singapore
T +65 6377 3283
F +65 6377 3281
singaporesales@schaffner.com

Spain

Schaffner EMC España

Calle Caléndula 93, Miniparc III, Edificio E
El Soto de Moraleja, Alcobendas
28109 Madrid
T +34 917 912 900
F +34 917 912 901
spainsales@schaffner.com

Sweden

Schaffner EMC AB

Östermalmstorg 1
114 42 Stockholm
T +46 8 5050 2425
swedensales@schaffner.com
www.schaffner.com

Switzerland

Schaffner EMV AG

Industrie Nord
Nordstrasse 11e
4542 Luterbach
T +41 32 681 66 26
switzerlandsales@schaffner.com

Taiwan R.O.C.

Schaffner EMV Ltd.

20 Floor-2, No 97, Section 1, XinTai 5th Road
22175 XiZhi District New Taipei City 22175
T +886 2 2697 5500
F +886 2 2697 5533
taiwansales@schaffner.com
www.schaffner.com.tw

Thailand

Schaffner EMC Co. Ltd.

Northern Region Industrial Estate
67 Moo 4 Tambon Ban Klang
Amphur Muangng P.O. Box 14
51000 Lamphun
T +66 53 58 11 04
F +66 53 58 10 19
thailandsales@schaffner.com

United Kingdom

Schaffner Ltd.

1, Oakmede Place
Binfield
RG42 4JF Berkshire
T +44 118 9770070
F +44 118 9792969
uksales@schaffner.com

USA

Schaffner EMC Inc.

52 Mayfield Avenue
Edison, New Jersey
T +1 732 225 9533
F +1 732 225 4789
usasales@schaffner.com
www.schaffnerusa.com

Schaffner North America

6722 Thirlane Road
24019 Roanoke, Virginia
T +1 276 228 7943
F +1 276 228 7953

Schaffner North America

823 Fairview Road
24382 Wytheville, Virginia
T +1 276 228 7943
F +1 276 228 7258

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