

AC Feedthrough Filter



- | IEC/EN 60939 approval
- | Rated currents from 10 to 250 A
- | 5 kV pulse test capability
- | Class Y2 capacitor



Approvals



Feedthrough filters offer a high insertion loss across a broad band of frequencies from a few tens of kHz up to the GHz region. In general, feedthrough filters offer a higher level of EMI suppression than feedthrough capacitors of the same current rating. This is particularly relevant to applications where source impedance is smaller than 50 Ω. Different versions are available offering a wide selection on operating currents and performance levels. AC feedthrough filters are designed and approved for up to 300 VAC 50/60 Hz operation.

Technical specifications

| | |
|--|---|
| Maximum continuous operating voltage | 300 VAC, 50/60 Hz (ENEC) 250 VAC, 50/60 Hz (UL) 1000 VDC max. |
| Rated currents | 10 to 250 A @ 60 °C max. |
| Capacitor class | Y2 |
| High potential test voltage | 3000 VDC for 2 sec |
| Insulation resistance (100VDC after 60 sec) | < 0.33 μF, R > 15,000 MΩ > 0.33 μF, τ > 5000 s |
| Temperature range (operation and storage) | -40 °C to +100 °C (40/100/21) |
| Flammability corresponding to | UL 94 V-2 or better |
| MTBF @ 60°C/300V (Mil-HB-217F) | < 200 A: > 675,000 hours |
| MTBF @ 60°C/300V (Mil-HB-217F) | ≥ 200 A: > 494,000 hours |

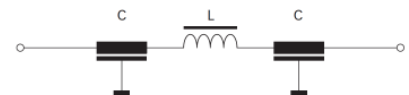
Features and benefits

- | Very low internal series inductance
- | Very high self-resonant frequency
- | Self-healing dielectric
- | High quality and reliability
- | Through-bulkhead mounting
- | Anti-twist protection
- | Custom-specific or dual-versions on request

Typical applications

- | Power line filter for 110/240 VAC power lines
- | Increasing system and information security
- | Power supplies
- | Switching and cellular equipment
- | Computer servers
- | UPS power supplies
- | Medical equipment
- | Shielded rooms

Typical electrical schematic



Feedthrough selector table

| Feedthrough | Rated current @ 60 °C [A] | Leakage current* @ 250 VAC/50 Hz [mA] | Capacitance** C [nF] | Inductance L @ 10 kHz [nH] | DC resistance*** R @ 25 °C [mΩ] | Weight [g] |
|-----------------|---------------------------------|---|----------------------------|----------------------------------|---------------------------------------|---------------|
| FN 7611-10-M3 | 10 | 1.89 | 10 | 70 | 1.2 | 55 |
| FN 7612-10-M3 | 10 | 8.86 | 47 | 70 | 1.52 | 70 |
| FN 7611-16-M4 | 16 | 4.15 | 22 | 70 | 0.65 | 80 |
| FN 7612-16-M4 | 16 | 18.85 | 100 | 70 | 0.92 | 90 |
| FN 7611-32-M4 | 32 | 4.15 | 22 | 70 | 0.65 | 80 |
| FN 7612-32-M4 | 32 | 18.85 | 100 | 70 | 0.92 | 90 |
| FN 7611-63-M6 | 63 | 28.3 | 150 | 186 | 0.47 | 250 |
| FN 7612-63-M6 | 63 | 88.6 | 470 | 124 | 0.53 | 500 |
| FN 7612-100-M8 | 100 | 188 | 1000 | 124 | 0.23 | 750 |
| FN 7611-250-M12 | 250 | 88.6 | 470 | 169 | 0.23 | 1086 |

* Tolerance +20%

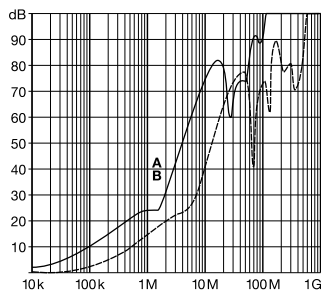
** Tolerance ±20%

*** Tolerance +15%

Typical filter attenuation

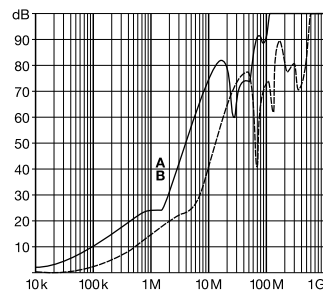
Full load, 50 Ω system

10 A types



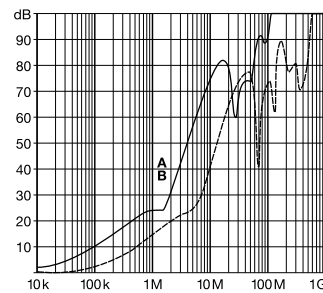
A = FN 7612-10-M3
B = FN 7611-10-M3

16 A types



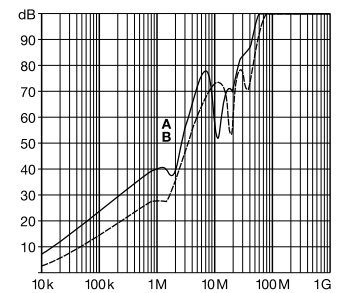
A = FN 7612-16-M4
B = FN 7611-16-M4

32 A types



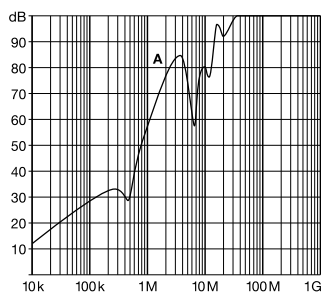
A = FN 7612-32-M4
B = FN 7611-32-M4

63 A types



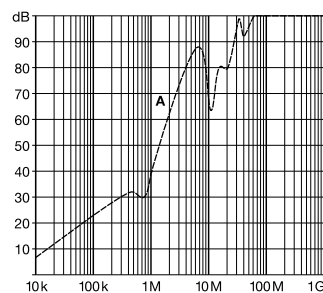
A = FN 7612-63-M6
B = FN 7611-63-M6

100 A types



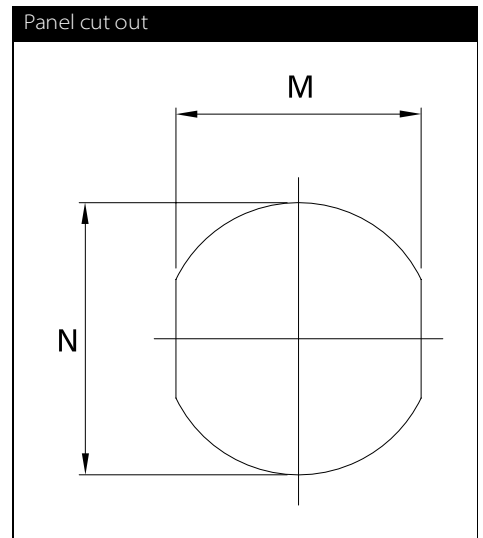
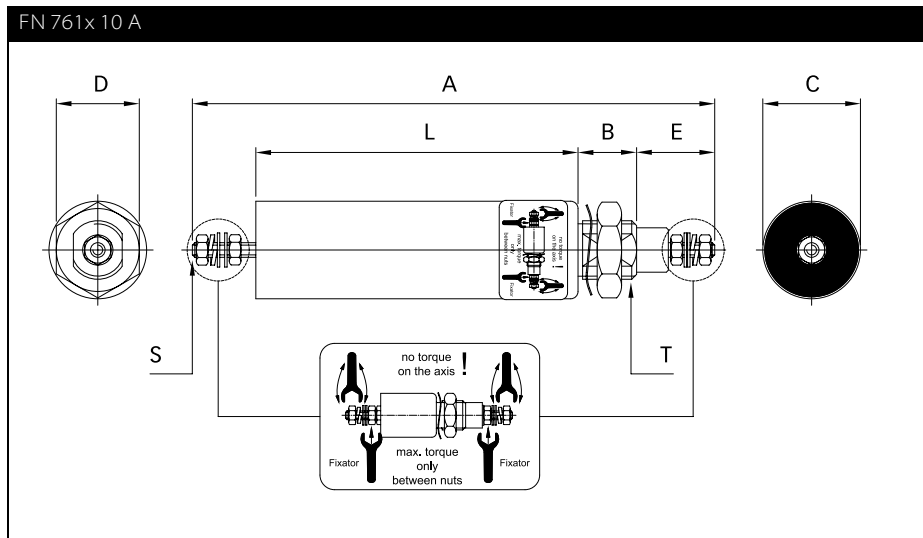
A = FN 7612-100-M8

250 A types



A = FN 7611-250-M12

Mechanical data



Dimensions

| | A | B | C | D | E | L | M | N | S | T |
|-------------------|-----|----|----|----|----|-----|------|--------|-----|---------|
| FN 7611-10-M3 | 107 | 12 | 20 | 17 | 16 | 66 | 10.3 | Ø 12.3 | M3 | M12x1 |
| FN 7612-10-M3 | 140 | 12 | 20 | 17 | 16 | 99 | 10.3 | Ø 12.3 | M3 | M12x1 |
| FN 7611-16-M4 | 116 | 14 | 25 | 22 | 18 | 69 | 14.3 | Ø 16.3 | M4 | M16x1 |
| FN 7612-16-M4 | 148 | 14 | 25 | 22 | 18 | 101 | 14.3 | Ø 16.3 | M4 | M16x1 |
| FN 7611-32-M4 | 116 | 14 | 25 | 22 | 18 | 69 | 14.3 | Ø 16.3 | M4 | M16x1 |
| FN 7612-32-M4 | 148 | 14 | 25 | 22 | 18 | 101 | 14.3 | Ø 16.3 | M4 | M16x1 |
| FN 7611-63-M6 | 173 | 16 | 32 | 27 | 26 | 105 | 18.3 | Ø 20.3 | M6 | M20x1 |
| FN 7612-63-M6 | 189 | 19 | 54 | 41 | 26 | 118 | 24.3 | Ø 27.3 | M6 | M27x1.5 |
| FN 7612-100-M8 | 227 | 19 | 54 | 41 | 32 | 144 | 24.3 | Ø 27.3 | M8 | M27x1.5 |
| FN 7611-250-M12 | 267 | 19 | 54 | 41 | 46 | 160 | 29.3 | Ø 32.3 | M12 | M32x1.5 |
| Tolerances | | | | | ±2 | | ±0.2 | | | |

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

Recommended torque

| | M3 | M4 | M6 | M8 | M12 | M12x1 | M16x1 | M20x1 | M27x1.5 | M32x1.5 |
|------------------------|--------|--------|--------|------|-------|-------|-------|-------|---------|---------|
| Terminal thread | 0.5 Nm | 1.2 Nm | 2.5 Nm | 5 Nm | 11 Nm | | | | | |
| Mounting thread | | | | | | 3 Nm | 4 Nm | 7 Nm | 12 Nm | 14 Nm |



Headquarters, global innovation and development center

Switzerland

Schaffner Group

Nordstrasse 11
4542 Luterbach
T +41 32 6816 626
F +41 32 6816 630
info@schaffner.com
<http://www.schaffner.com>



Sales and application centers

China

Schaffner EMC Ltd. Shanghai

T20-3, No 565 Chuangye Road
Pudong New Area
201201 Shanghai
T +86 21 3813 9500
F +86 21 3813 9501 / 02
cschina@schaffner.com
<http://www.schaffner.com.cn/>

Finland

Schaffner Oy

Sauvonrinne 19 H
08500 Lohja
T +358 19 35 72 71
finlandsales@schaffner.com

France

Schaffner EMC S.A.S.

112, Quai de Bezons
Boîte postale 133
95103 Argenteuil
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

Italy

Schaffner EMC S.r.l.

Via Galileo Galilei 47
20092 Cinisello Balsamo (MI)
T +39 02 66 04 30 45/47
F +39 02 61 23 943
italysales@schaffner.com

Japan

Schaffner EMC K.K.

1-32-12, Kamiyama, Setagaya-ku
7F Mitsui-seimei Sangenjaya Bldg.
154-0011 Tokyo
T +81 3 5712 3650
F +81 3 5712 3651
japansales@schaffner.com
<http://www.schaffner.jp>

Singapore

Schaffner EMC Pte Ltd.

Blk 3015A Ubi Road 1
05-09 Kampong Ubi Industrial 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 la Moraleja
Alcobendas
28109 Madrid
T +34 618 176 133
spainsales@schaffner.com

Sweden

Schaffner EMC AB

Turebergstorg 1, 6
19147 Sollentuna
T +46 8 5792 1121 / 22
F +46 8 92 96 90
swedensales@schaffner.com

Switzerland

Schaffner EMV AG

Nordstrasse 11
4542 Luterbach
T +41 32 6816 626
F +41 32 6816 641
sales@schaffner.ch

Taiwan R.O.C.

Schaffner EMV Ltd.

6 Floor, No. 413
Rui Guang Road
114 Neihu District Taipei City
T +886 2 87525050
F +886 2 87518086
taiwansales@schaffner.com

Thailand

Schaffner EMC Co. Ltd.

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

UK

Schaffner Ltd.

5 Ashville Way
Molly Millars Lane
Wokingham
RG41 2PL Berkshire
T +44 118 9770070
F +44 118 9792969
uksales@schaffner.com
<http://www.schaffner.uk.com>

USA

Schaffner EMC Inc.

52 Mayfield Avenue
08837 Edison, New Jersey
T +1 800 367 5566
T +1 732 225 9533
F +1 732 225 4789
usasales@schaffner.com
<http://www.schaffner.com/us>

Schaffner MTC LLC

6722 Thirlane Road
24019 Roanoke, Virginia
T +1 276 228 7943
F +1 276 228 7953
<http://www.schaffner-mtc.com>

Schaffner Trencos LLC

2550 Brookpark Road
44134 Cleveland, Ohio
T +1 216 741 5282
F +1 216 741 4860
www.schaffner-trencos.com

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