

AC Feedthrough Filter



- | IEC/EN 60939 approval
- | Rated currents from 10 to 100 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 100 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 MTBF @ 60°C/300 V (Mil-HB-217F) | UL 94 V-2 or better |
| | <200 A: >675,000 hours ≥200 A: >494,000 hours |
| Operating frequency | DC to 60 Hz |

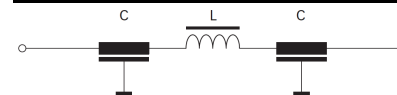
Features and benefits

- | 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

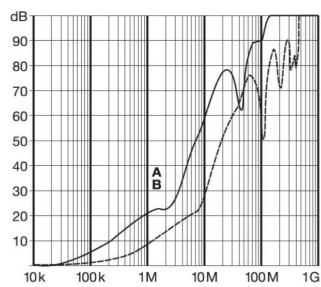
| Feedthrough | Rated current @ 60°C [A] | Leakage current* @ 250 VAC/50 Hz [mA] | Capacitance** C [nF] | Inductance L @ 10 kHz [nH] | DC resistance*** R @ 25°C [mΩ] | Weight [g] |
|-----------------------|--------------------------------|---|----------------------------|----------------------------------|--------------------------------------|---------------|
| 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 |

* Tolerance +20%
 ** Tolerance ±20%
 *** Tolerance +15%

Typical filter attenuation

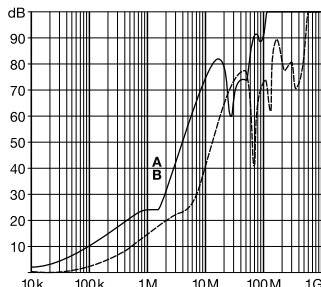
Full load, 50 Ω system

10 A types



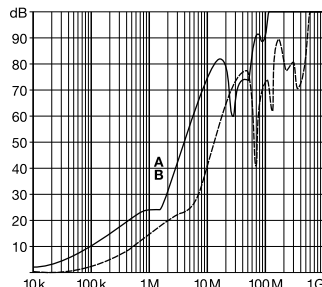
A = FN 7612-10-M3
 B = FN 7611-10-M3

16 A types



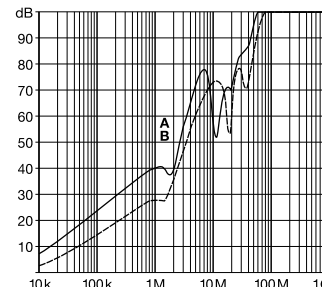
A = FN 7612-16-M4
 B = FN 7611-16-M4

32 A types



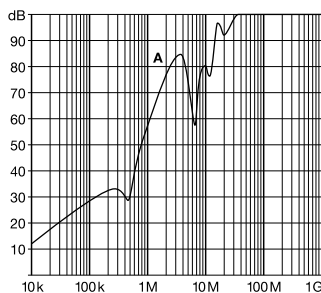
A = FN 7612-32-M4
 B = FN 7611-32-M4

63 A types



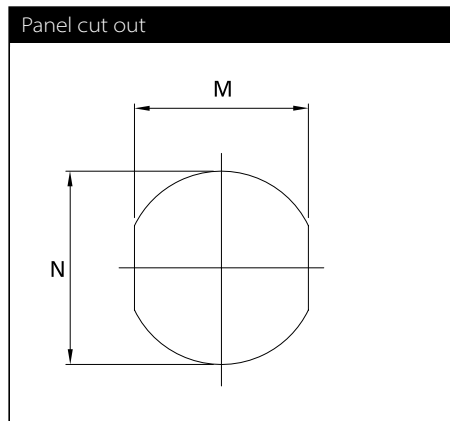
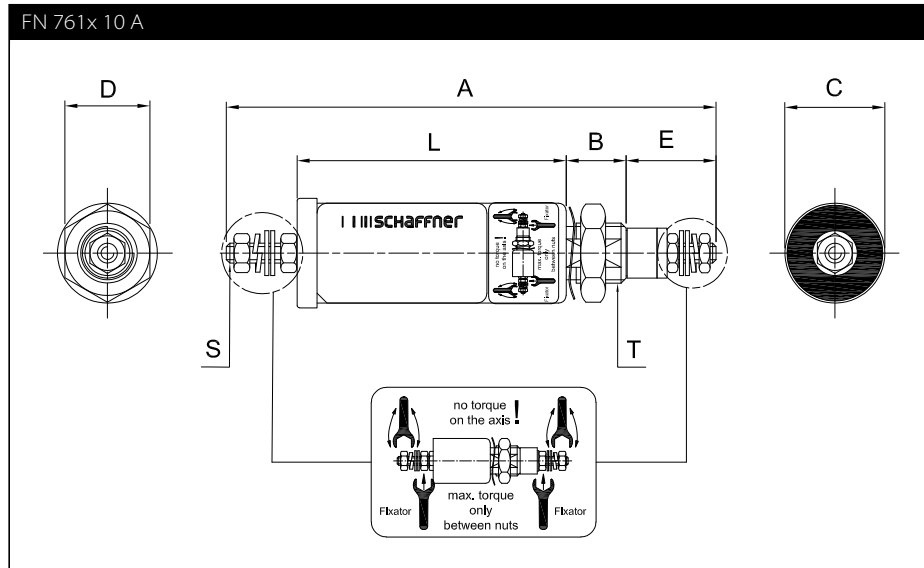
A = FN 7612-63-M6
 B = FN 7611-63-M6

100 A types



A = FN 7612-100-M8

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 | Ø12.3 | M3 | M12x1 |
| FN 7612-10-M3 | 140 | 12 | 20 | 17 | 16 | 99 | 10.3 | Ø12.3 | M3 | M12x1 |
| FN 7611-16-M4 | 116 | 14 | 25 | 22 | 18 | 69 | 14.3 | Ø16.3 | M4 | M16x1 |
| FN 7612-16-M4 | 148 | 14 | 25 | 22 | 18 | 101 | 14.3 | Ø16.3 | M4 | M16x1 |
| FN 7611-32-M4 | 116 | 14 | 25 | 22 | 18 | 69 | 14.3 | Ø16.3 | M4 | M16x1 |
| FN 7612-32-M4 | 148 | 14 | 25 | 22 | 18 | 101 | 14.3 | Ø16.3 | M4 | M16x1 |
| FN 7611-63-M6 | 173 | 16 | 32 | 27 | 26 | 105 | 18.3 | Ø20.3 | M6 | M20x1 |
| FN 7612-63-M6 | 189 | 19 | 54 | 41 | 26 | 118 | 24.3 | Ø27.3 | M6 | M27x1.5 |
| FN 7612-100-M8 | 227 | 19 | 54 | 41 | 32 | 144 | 24.3 | Ø27.3 | M8 | M27x1.5 |
| 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

Switzerland

Schaffner Group

Nordstrasse 11
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

Nordstrasse 11
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.

5 Ashville Way, Molly Millars Lane
Wokingham
RG41 2PL 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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Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: ocean@oceanchips.ru

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А