

1-phase filters FN 612

General purpose EMI filter

SCHAFFNER
safety for electronic systems



- Rated currents from 1 to 100A
- Good differential-mode attenuation
- Optional medical versions (B type)

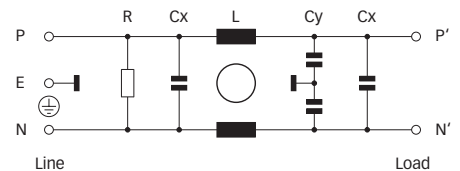
Approvals



Technical specifications

| | |
|--|--|
| Maximum continuous operating voltage: | 250VAC, 50/60Hz |
| Operating frequency: | dc to 400Hz |
| Rated currents: | 1 to 100A @ 40°C max. |
| High potential test voltage: | P → E 2000VAC for 2 sec P → E 2500VAC for 2 sec (B types) P → N 760VAC for 2 sec |
| Temperature range (operation and storage): | -25°C to +100°C (25/100/21) |
| Flammability corresponding to: | UL 94V-2 or better |
| Design corresponding to: | UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939 |
| MTBF @ 40°C/230V (Mil-HB-217F): | 800,000 hours |

Typical electrical schematic



Features and benefits

- FN 612 filters are designed for easy and fast chassis mounting.
- FN 612 offer a perfect combination of performance/size ratio.
- All filters provide a good differential-mode attenuation performance, based on two chokes with high saturation resistance and excellent thermal behavior and additional capacitor on load side.
- General purpose filter attenuation with good differential-mode performance suitable to be used in a broad range of applications.
- Multiple terminal connections like faston with additional spade solder possibility, wire connection and screw connection.
- Optional medical versions (B type) with low leakage current.
- FN 612 filters are also available as two-stage filters (FN 660, FN 670 series).
- Custom-specific versions on request.

Typical applications

- Electrical and electronic equipment
- Consumer goods
- Household equipment
- Industrial equipment
- Medical equipment
- Office automation equipment
- Datacom equipment

Filter selection table

| Filter* | Rated current @ 40°C (25°C) | Leakage current** @ 230VAC/50Hz | Inductance L | Capacitance | | Resistance R | Input/Output connections | | | Weight | | | |
|----------------|--------------------------------|------------------------------------|-----------------|-------------|------|-----------------|--------------------------|-----|-----|--------|-----|-----|------|
| | | | | Cx | Cy | | -03 | -06 | -10 | -24 | [g] | [g] | [g] |
| | [A] | [µA] | [mH] | [nF] | [nF] | [kΩ] | | | | | | | |
| FN 612-1-06 | 1 (1.15) | 190 | 3 | 100 | 2.2 | 1000 | | | | | | | 80 |
| FN 612-3-06 | 3 (3.4) | 190 | 2 | 100 | 2.2 | 1000 | | | | | | | 115 |
| FN 612-6-06 | 6 (6.9) | 190 | 0.75 | 100 | 2.2 | 1000 | | | | | | | 115 |
| FN 612-10-06 | 10 (11.5) | 190 | 0.45 | 100 | 2.2 | 1000 | | | | | | | 115 |
| FN 612-20-... | 20 (23) | 190 | 0.48 | 100 | 2.2 | 1000 | -03 | -06 | -10 | 290 | 260 | 290 | |
| FN 612-30-... | 30 (34) | 190 | 0.61 | 100 | 2.2 | 1000 | -03 | | -10 | 630 | | 630 | |
| FN 612-80-24 | 80 (92) | 450 | 0.2 | 470 | 4.7 | 1000 | | | -24 | | | | 700 |
| FN 612-100-24 | 100 (115) | 450 | 0.2 | 1000 | 4.7 | 470 | | | -24 | | | | 1100 |
| FN 612B-10-06 | 10 (11.5) | 2 | 0.45 | 100 | | 1000 | | | -06 | | | | 115 |
| FN 612B-30-... | 30 (34) | 2 | 0.61 | 100 | | 1000 | -03 | | -10 | 630 | | 630 | |
| FN 612B-100-24 | 100 (115) | 2 | 0.2 | 1000 | | 470 | | | -24 | | | | 1100 |

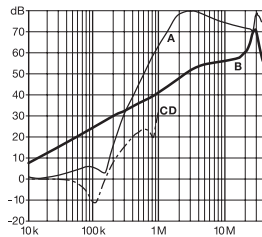
* To compile a complete part number, please replace the .. with the required I/O connection style (e.g. FN 612-20-03, FN 612B-30-10).

** Maximum leakage under normal operating conditions. Note: if the neutral line is interrupted, worst case leakage could reach twice this level.

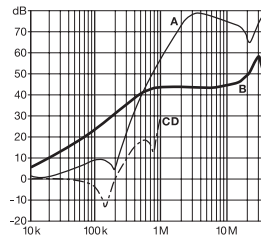
Typical filter attenuation

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

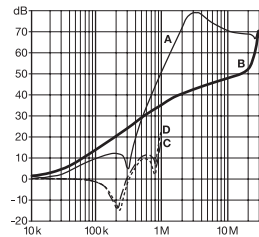
1A types



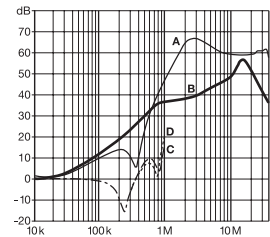
3A types



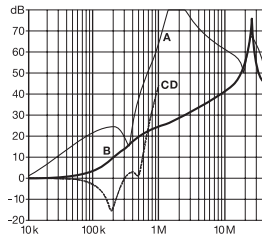
6 and 10A types



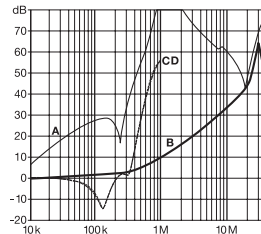
20 and 30A types



80A types

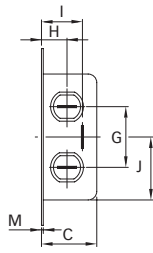
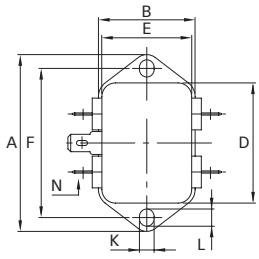


100A types

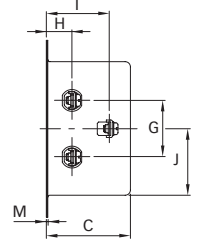
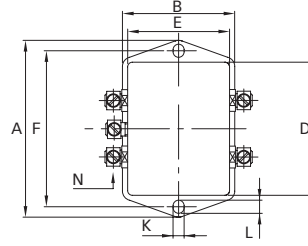


Mechanical data

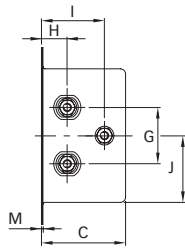
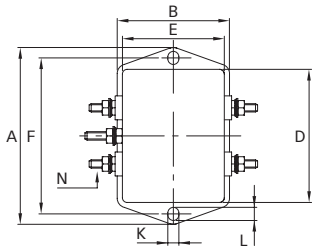
Connection style -06, 1 to 20A types



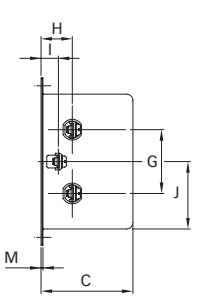
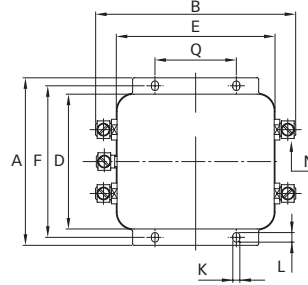
Connection style -03, 20A types



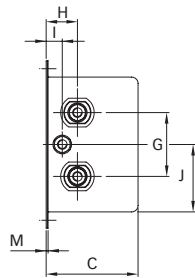
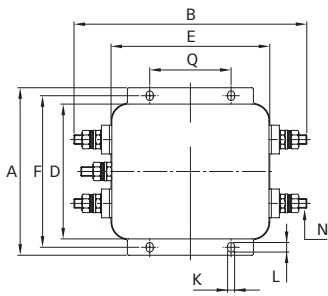
Connection style -10, 20A types



Connection style -03, 30A types



Connection style -10 and -24, 30 to 100A types



Dimensions

| | 1A | 3A | 6A | 10A | 20A | 30A | 80A | 100A | Tolerances |
|-----------------------------|-----------|-----------|-----------|-----------|-----------|----------|-------|-------|------------|
| A | 71 | 71 | 71 | 71 | 85 | 105 | 105 | 105 | ±0.5 |
| B | 46.6 | 46.6 | 46.6 | 46.6 | 54 | 126 | 126 | 126 | ±1 |
| C | 22.3 | 29.3 | 29.3 | 29.3 | 40.3 | 38.6 | 45 | 57.6 | ±1 |
| D | 50.5 | 50.5 | 50.5 | 50.5 | 64.8 | 84.5 | 84.5 | 84.5 | ±1 |
| E | 44.5 | 44.5 | 44.5 | 44.5 | 49.8 | 99.5 | 99.5 | 99.5 | ±1 |
| F | 61 | 61 | 61 | 61 | 75 | 95 | 95 | 95 | ±0.2 |
| G | 21 | 21 | 21 | 21 | 27 | 40 | 40 | 40 | ±0.5 |
| H | 10.8 | 10.8 | 10.8 | 10.8 | 12 | 19.3 | 19.3 | 19.3 | ±0.5 |
| I | 16.8 | 24.8 | 24.8 | 24.8 | 29.5 | 9.8 | 9.8 | 9.8 | ±0.5 |
| J | 25.25 | 25.25 | 25.25 | 25.25 | 32.4 | 42.25 | 42.25 | 42.25 | ±0.5 |
| K | 5.3 | 5.3 | 5.3 | 5.3 | 5.3 | 4.4 | 4.4 | 4.4 | |
| L | 6.3 | 6.3 | 6.3 | 6.3 | 6.3 | 6 | 6 | 6 | |
| M | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | | | | |
| N | 6.3 x 0.8 | 6.3 x 0.8 | 6.3 x 0.8 | 6.3 x 0.8 | 6.3 x 0.8 | | | | |
| Connection style -03 | | | | | | | | | |
| N | | | | | | | | | |
| Q | | | | | | 51 | | | ±0.1 |
| Connection style -10 | | | | | | | | | |
| N | | | | | UNC 8-32 | UNC 8-32 | | | |
| Q | | | | | | 51 | | | ±0.1 |
| Connection style -24 | | | | | | | | | |
| N | | | | | | | M6 | M6 | |
| Q | | | | | | | 51 | 51 | ±0.1 |

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