

General Purpose EMC/EMI Line Filter

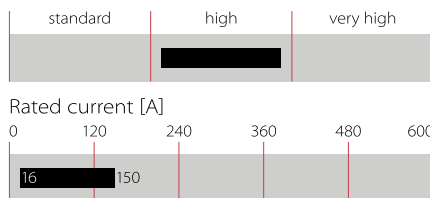


- Three-phase and neutral line filter for general four-wire filtering tasks
- Choice of connection style
- Low operating leakage current
- Compliant with IEC 60950
- Suitable to meet EN 55011/14/22



Performance indicators

Attenuation performance



Technical specifications

| | |
|--|--|
| Maximum continuous operating voltage | 3x 440/250 VAC |
| Rated currents | 16 to 150 A @ 40°C max. |
| High potential test voltage | P/N → E 2000 VAC for 2 sec P → P 1900 VDC for 2 sec P → N 1100 VDC for 2 sec |
| Protection category | IP 20 (filters with connectors -29, -33, -34) IP 00 (filters with connectors -06, -24, -28) |
| 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 @ 40°C/400 V (Mil-HB-217F) | 220,000 hours |

Approvals



(FN 356 up to 100 A)

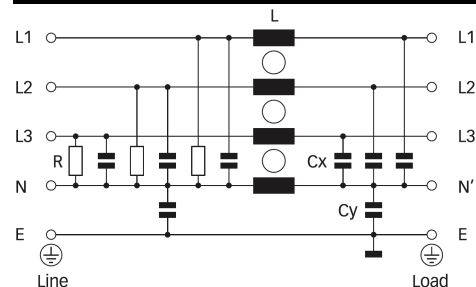
Features and benefits

- FN 356 represents the industry standard filter solutions for EMC compliance on three-phases and the neutral conductor, providing high attenuation of both symmetrical and asymmetrical interference
- Choice of connection style is offered for an application-specific filter selection
- Solid touch-safe terminal blocks (-29, -33, -34 versions) offer a generous contacting cross section and contribute to overall safety (IP 20)
- Used as a mains input filter, FN 356 filters increase the conducted immunity and thus contribute to system reliability
- Design compliance with IEC 60950 provides additional application flexibility




Typical applications

- General purpose four-wire filtering
- Mainframe computer systems
- High power office equipment
- UPS
- Installations comprising automation equipment

Typical electrical schematic



Filter selection table

| Filter* | Rated current | Leakage current** | Power loss | Input/Output connections | | | Weight |
|---------------|---------------|-------------------|---------------|---|---|---|--------|
| | @ 40°C (25°C) | @ 440 VAC/50 Hz | @ 25 °C/ 50Hz |  |  |  | |
| | [A] | [mA] | [W] | | | | |
| FN 356-16-.. | 16 (18.4) | 0.1 | 7.0 | -06 | | -29 | 1.2 |
| FN 356-25-.. | 25 (28.8) | 0.1 | 10.1 | | -24 | -33 | 1.5 |
| FN 356-36-.. | 36 (41.5) | 0.1 | 10.9 | | -24 | -33 | 1.6 |
| FN 356-50-.. | 50 (57.7) | 0.1 | 15.8 | | -24 | -33 | 2.3 |
| FN 356-100-.. | 100 (115.0) | 0.3 | 24.0 | | -28 | -34 | 5.9 |
| FN 356-150-28 | 150 (172.5) | 1.7 | 45.9 | | -28 | | 8.1 |

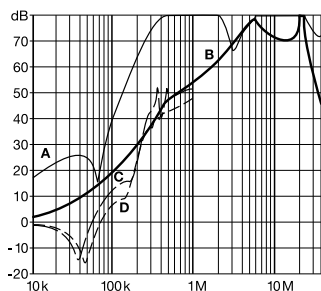
* To compile a complete part number, please replace the .. with the required I/O connection style.

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

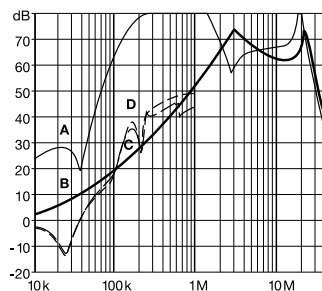
Typical filter attenuation

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

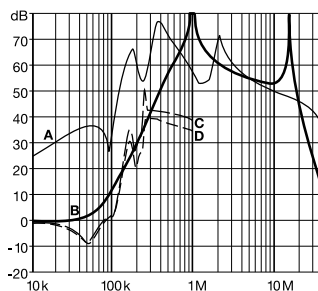
16 A types



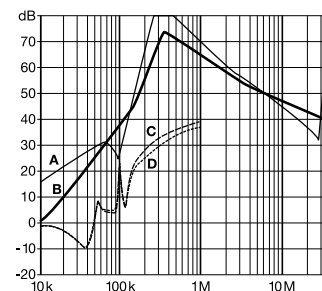
25 to 50 A types



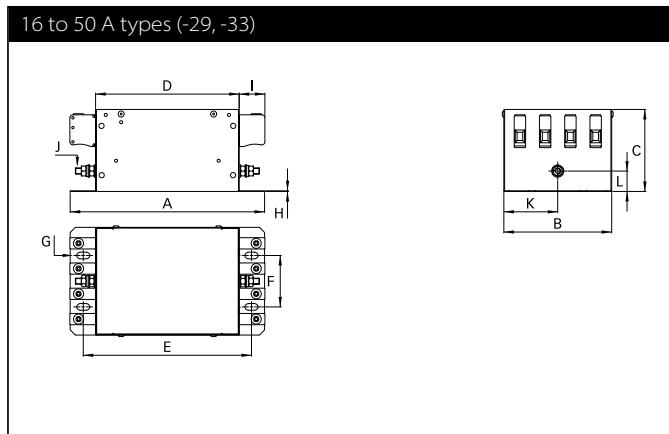
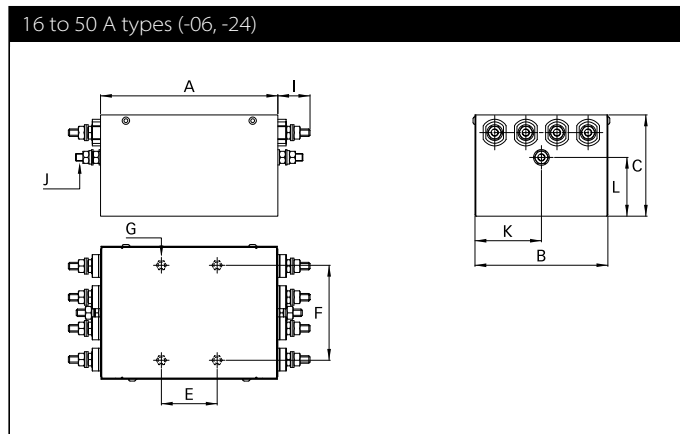
100 A types

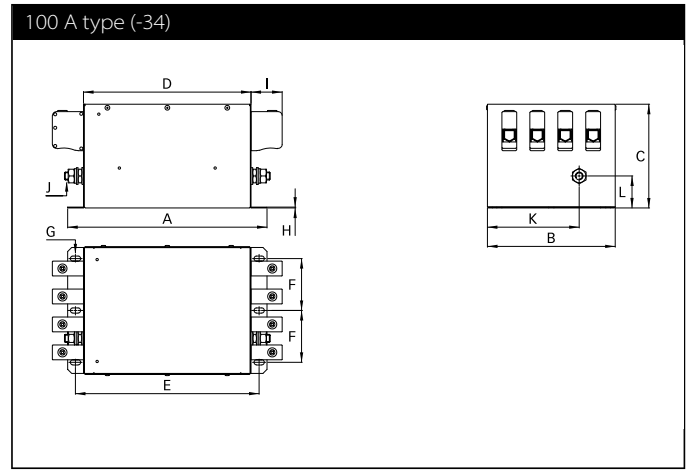
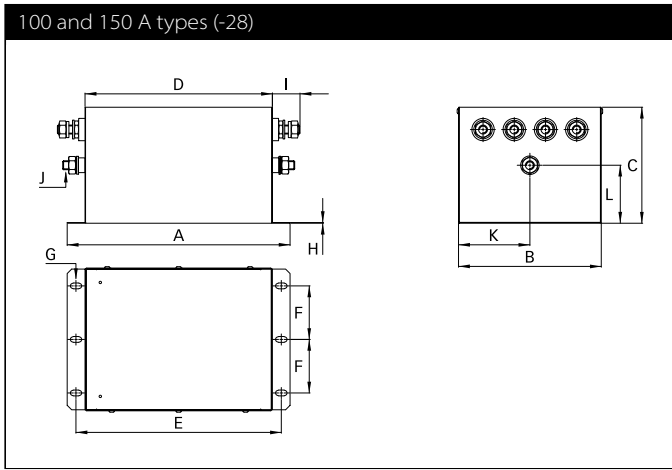


150 A types



Mechanical data





Note: in favour of a better readability, connectors and earth studs are not shown in the horizontal projection.

Dimensions

| | 16 A (-06) | 16 A (-29) | 25 A (-24) | 25 A (-33) | 36 A (-24) | 36 A (-33) | 50 A (-24) | 50 A (-33) | 100 A (-28) | 100 A (-34) | 150 A |
|-----------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|----------|
| A | 149 | 189.5 | 140 | 189.5 | 140 | 189.5 | 143.25 | 192 | 250 | 250 | 340 |
| B* | 104 | 105 | 105 | 105 | 105 | 105 | 122 | 122 | 160 | 160 | 160 |
| C | 50 | 80 | 80 | 80 | 80 | 80 | 102 | 102 | 130 | 130 | 130 |
| D | | 140 | | 140 | | 140 | | 142.5 | 210 | 210 | 300 |
| E | 44 ±0.3 | 165.5 | 44 ±0.3 | 165.5 | 44 ±0.3 | 165.5 | 44 ±0.3 | 168 | 230 | 230 | 320 |
| F | 75 ±0.3 | 80 | 75 ±0.3 | 50 | 75 ±0.3 | 50 | 75 ±0.3 | 98 | 60 | 65 | 60 |
| G | M5 x 7 | 13 x 6.5 | M5 x 7 | 13 x 6.5 | M5 x 7 | 13 x 6.5 | M5 x 7 | 13 x 6.5 | 13 x 6.5 | 13 x 6.5 | 13 x 6.5 |
| H | | 0.7 | | 0.7 | | 0.7 | | 0.7 | 1 | 1 | 1 |
| I | 11 | 10.9 | 25.4 | 25 | 25.4 | 25 | 25.4 | 25 | 34 | 39 | 34 |
| J | 6.3 x 0.8 | M6 | M6 | M6 | M6 | M6 | M6 | M6 | M10 | M10 | M10 |
| K | 52 | 82 | 52.5 | 52.5 | 52.5 | 52.5 | 61 | 61 | 80 | 116 | 80 |
| L | 22.5 | 25 | 46.5 | 20 | 46.5 | 20 | 68.5 | 35 | 65 | 40 | 65 |

* Rivets exceed this dimension by max. 1.3mm on each side.
 All dimensions in mm; 1 inch = 25.4 mm
 Tolerances according: ISO 2768-m/EN 22768-m

Filter input/output connector cross sections

| | -06 (6.3 x 0.8mm) | -24 (M6) | -28 (M10) | -29 | -33 | -34 |
|---------------------------|-------------------|------------|-----------|-------------------|--------------------|--------------------|
| Solid wire | n/a | n/a | n/a | 6 mm ² | 16 mm ² | 35 mm ² |
| Flex wire | n/a | n/a | n/a | 4 mm ² | 10 mm ² | 25 mm ² |
| AWG type wire | n/a | n/a | n/a | AWG 10 | AWG 6 | AWG 2 |
| Recommended torque | n/a | 3.5-4.0 Nm | 15-17 Nm | 0.6-0.8 Nm | 1.5-1.8 Nm | 4.0-4.5 Nm |

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



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