

## Compact EMC/RFI Filter for Motor Drives

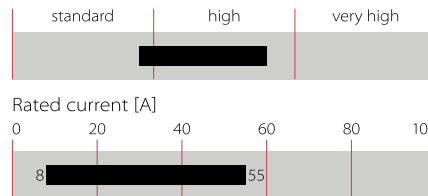


- Compact filter solution for single-phase motor drive applications
- Industrial grade safety terminal blocks
- Designed to meet EN 55011/14/22
- Compliant with IEC 60950



### Performance indicators

Attenuation performance



### Technical specifications

|  |  |
|--|--|
| <b>Maximum continuous operating voltage</b>      | 1x 250 VAC   |
| <b>Operating frequency</b>                       | DC to 400 Hz   |
| <b>Rated currents</b>                            | 8 to 55 A @ 40°C max.  |
| <b>High potential test voltage</b>               | P → E 2000 VAC for 2 sec<br>P → N 1100 VDC for 2 sec                             |
| <b>Protection category</b>                       | IP 20  |
| <b>Overload capability</b>                       | 4x rated current at switch on,<br>1.5x rated current for 1 minute, once per hour |
| <b>Temperature range (operation and storage)</b> | -25°C to +100°C (25/100/21)  |
| <b>Flammability corresponding to</b>             | UL 94 V-2 or better  |
| <b>Design corresponding to</b>                   | UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939                                       |
| <b>MTBF @ 40°C/230 V (Mil-HB-217F)</b>           | 420,000 hours  |

### Approvals



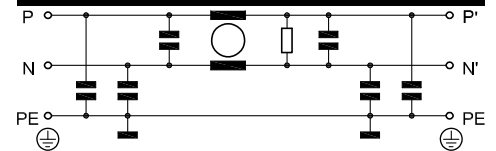
### Features and benefits

- High component values optimized for common and differential-mode attenuation in the lower frequency range makes this filter ideal for a large variety of single-phase motor drive applications
- Supplied in a relatively small housing design with safety terminal blocks for fast and easy installation in primarily industrial environments
- FN 350 also meets IEC 60950 requirements, thus providing additional application flexibility



### Typical applications

- Single-phase motor drives
- Automation equipment
- Power supplies, SMPS
- Office equipment
- Testing and measurements equipment

### Typical electrical schematic



### Filter selection table

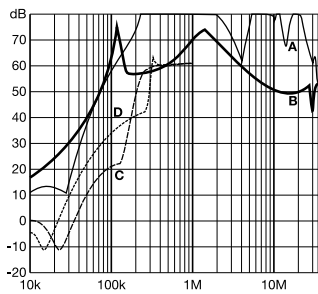
| Filter       | Rated current | Leakage current* | Power loss   | Input/Output connections  |   | Weight |
|--------------|---------------|------------------|--------------|---|---|--------|
|              | @ 40°C (25°C) | @ 230 VAC/50 Hz  | @ 25°C/50 Hz |  |  |        |
|              | [A]           | [mA]             | [W]          |   |   | [kg]   |
| FN 350-8-29  | 8 (9.0)       | 4.9              | 5.2          | -29   |   | 0.7    |
| FN 350-12-29 | 12 (13.5)     | 4.9              | 5.7          | -29   |   | 0.7    |
| FN 350-20-29 | 20 (22.4)     | 4.9              | 6.1          | -29   |   | 0.7    |
| FN 350-30-33 | 30 (33.6)     | 5.4              | 6.1          | -33   |   | 0.7    |
| FN 350-55-.. | 55 (61.5)     | 11.0             | 9.9          | -33   | -24   | 1.2    |

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

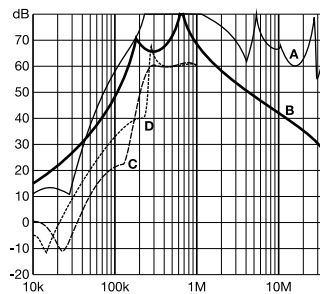
### Typical filter attenuation

Per CISPR 17; A = 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

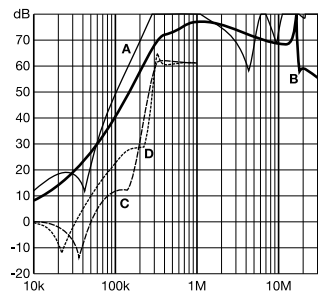
8 A types



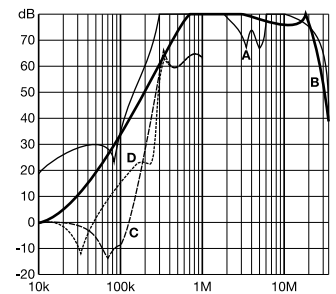
12 A types



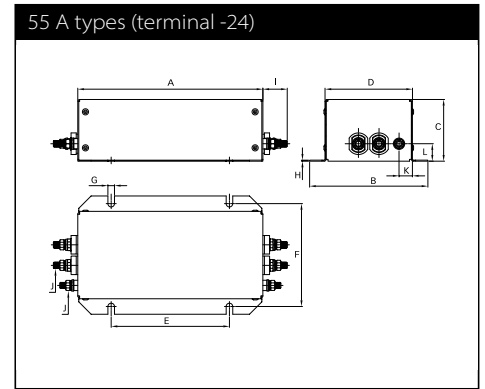
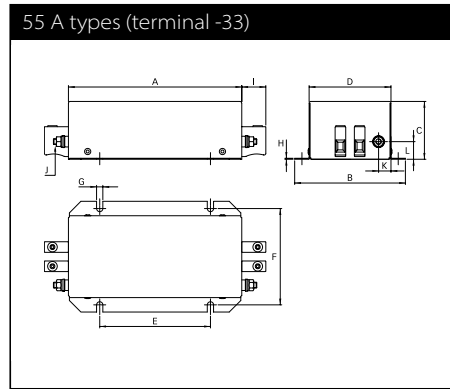
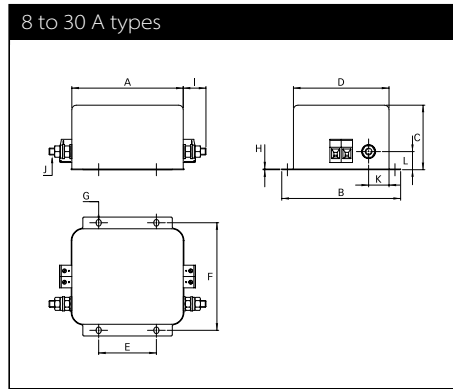
20 and 30 A types



55 A types



## Mechanical data






## Dimensions

|          | 8 A     | 12 A    | 20 A    | 30 A    | 55 A (-33) | 55 A (-24) |
|----------|---------|---------|---------|---------|------------|------------|
| <b>A</b> | 99.5    | 99.5    | 99.5    | 99.5    | 180        | 180        |
| <b>B</b> | 105     | 105     | 105     | 105     | 115        | 115        |
| <b>C</b> | 57      | 57      | 57      | 57.6    | 60         | 60         |
| <b>D</b> | 84.4    | 84.4    | 84.4    | 84.4    | 85         | 85         |
| <b>E</b> | 51      | 51      | 51      | 51      | 115        | 115        |
| <b>F</b> | 95      | 95      | 95      | 95      | 100        | 100        |
| <b>G</b> | 6 x 4.4 | 6 x 4.4 | 6 x 4.4 | 6 x 4.4 | 6.5        | 6.5        |
| <b>H</b> | 0.6     | 0.6     | 0.6     | 1.2     | 1          | 1          |
| <b>I</b> | 19.5    | 19.5    | 19.5    | 25      | 25         | 23.7       |
| <b>J</b> | M6      | M6      | M6      | M6      | M6         | M6         |
| <b>K</b> | 18      | 18      | 18      | 16      | 12.9       | 12.9       |
| <b>L</b> | 16      | 16      | 16      | 19      | 18.3       | 17         |

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

## Filter input/output connector cross sections

|                           | -29   | -33   | -24 (M6)  |
|---------------------------|---|---|---|
| <b>Solid wire</b>         |  6 mm <sup>2</sup> |  16 mm <sup>2</sup> |  |
| <b>Flex wire</b>          | 4 mm <sup>2</sup>   | 10 mm <sup>2</sup>  |   |
| <b>AWG type wire</b>      | AWG 10  | AWG 6   |   |
| <b>Recommended torque</b> | 0.6-0.8 Nm  | 1.5-1.8 Nm  | 3.5-4.0 Nm  |

Please visit [www.schaffner.com](http://www.schaffner.com) to find more details on filter connectors.



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