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

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

Technical specifications

<table>
<thead>
<tr>
<th>Performance indicators</th>
<th>Attenuation performance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>standard</td>
</tr>
<tr>
<td>Rated current (A)</td>
<td>0</td>
</tr>
</tbody>
</table>

| 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 & Compliances
- FN 356 up to 100 A
- UL, CSA, IEC, EN, and RoHS certifications

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

<table>
<thead>
<tr>
<th>Filter*</th>
<th>Buy</th>
<th>Rated current @ 40°C (25°C)</th>
<th>Leakage current** @ 440 VAC/50 Hz</th>
<th>Power loss @ 25 °C/ 50Hz</th>
<th>Input/Output connections</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>FN356-16-..</td>
<td>16 (18.4)</td>
<td>0.1</td>
<td>7.0</td>
<td>-06</td>
<td>-29</td>
<td>1.2</td>
</tr>
<tr>
<td>FN356-25-..</td>
<td>25 (28.8)</td>
<td>0.1</td>
<td>10.1</td>
<td>-24</td>
<td>-33</td>
<td>1.5</td>
</tr>
<tr>
<td>FN356-36-..</td>
<td>36 (41.5)</td>
<td>0.1</td>
<td>10.9</td>
<td>-24</td>
<td>-33</td>
<td>1.6</td>
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<tr>
<td>FN356-50-..</td>
<td>50 (57.7)</td>
<td>0.1</td>
<td>15.8</td>
<td>-24</td>
<td>-33</td>
<td>2.3</td>
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<tr>
<td>FN356-100-..</td>
<td>100 (115.0)</td>
<td>0.3</td>
<td>24.0</td>
<td>-28</td>
<td>-34</td>
<td>5.9</td>
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<tr>
<td>FN356-150-28</td>
<td>150 (172.5)</td>
<td>1.7</td>
<td>45.9</td>
<td>-28</td>
<td>-34</td>
<td>8.1</td>
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</tbody>
</table>

* 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

#### Mechanical data

16 to 50 A types (-06, -24)

16 to 50 A types (-29, -33)
**Dimensions**

<table>
<thead>
<tr>
<th></th>
<th>16 A (-06)</th>
<th>16 A (-29)</th>
<th>25 A (-24)</th>
<th>25 A (-33)</th>
<th>36 A (-24)</th>
<th>36 A (-33)</th>
<th>50 A (-24)</th>
<th>50 A (-33)</th>
<th>100 A (-28)</th>
<th>100 A (-34)</th>
<th>150 A</th>
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<tbody>
<tr>
<td>A</td>
<td>149</td>
<td>189.5</td>
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<td>143.25</td>
<td>192</td>
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<td>340</td>
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<td>B</td>
<td>104</td>
<td>105</td>
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<td>122</td>
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<td>E</td>
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<td>165.5</td>
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<td>165.5</td>
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<td>60</td>
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<tr>
<td>G</td>
<td>M5 x 7</td>
<td>13 x 6.5</td>
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<td>H</td>
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<td>25</td>
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<tr>
<td>J</td>
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<td>M6</td>
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<td>25</td>
<td>46.5</td>
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<td>46.5</td>
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<td>68.5</td>
<td>35</td>
<td>65</td>
<td>40</td>
<td>65</td>
</tr>
</tbody>
</table>

* 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**

| Solid wire | -06 (6.3 x 0.8mm) | n/a | n/a | n/a | 6 mm² | 16 mm² | 35 mm² |
| Flex wire  | -06 (6.3 x 0.8mm) | n/a | n/a | n/a | 4 mm² | 10 mm² | 25 mm² |
| AWG type wire | -06 (6.3 x 0.8mm) | n/a | n/a | n/a | AWG 10 | AWG 6 | AWG 2 |

Recommended torque

| Solid wire | 3.5-4.0 Nm |
| Flex wire  | 15-17 Nm |
| AWG type wire | 0.6-0.8 Nm |

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