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

### Technical Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum continuous operating voltage</td>
<td>3x 440/250 VAC</td>
</tr>
<tr>
<td>Rated currents</td>
<td>16 to 150 A @ 40°C max</td>
</tr>
<tr>
<td>High potential test voltage</td>
<td>P/N -&gt; E 2000 VAC for 2 sec</td>
</tr>
<tr>
<td></td>
<td>P -&gt; P 1900 VDC for 2 sec</td>
</tr>
<tr>
<td></td>
<td>P -&gt; N 1100 VDC for 2 sec</td>
</tr>
<tr>
<td>Protection category</td>
<td>IP 20 (filters with connectors -29, -33, -34)</td>
</tr>
<tr>
<td></td>
<td>IP 00 (filters with connectors -06, -24, -28)</td>
</tr>
<tr>
<td>Overload capability</td>
<td>4x rated current at switch on, 1.5x rated current for 1 minute, once per hour</td>
</tr>
<tr>
<td>Temperature range (operation and storage)</td>
<td>-25°C to +100°C (25/100/21)</td>
</tr>
<tr>
<td>Flammability corresponding to</td>
<td>UL 94 V-2 or better</td>
</tr>
<tr>
<td>Design corresponding to</td>
<td>UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939</td>
</tr>
<tr>
<td>MTBF @ 45°C/480 V (Mil-HB-217F)</td>
<td>220,000 hours</td>
</tr>
</tbody>
</table>

### Performance Indicators

- **Standard**
- **High**
- **Very High**

<table>
<thead>
<tr>
<th>Rated current (A)</th>
<th>0</th>
<th>120</th>
<th>240</th>
<th>360</th>
<th>480</th>
<th>600</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very High</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Approvals & Compliances

- UL, CE, UKCA
- RoHS

(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

<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>B</td>
<td>16 (18.4)</td>
<td>0.1</td>
<td>7.0</td>
<td>-0.6</td>
<td>-29</td>
</tr>
<tr>
<td>FN356-25-..</td>
<td>B</td>
<td>25 (28.8)</td>
<td>0.1</td>
<td>10.1</td>
<td>-24</td>
<td>-33</td>
</tr>
<tr>
<td>FN356-36-..</td>
<td>B</td>
<td>36 (41.5)</td>
<td>0.1</td>
<td>10.9</td>
<td>-24</td>
<td>-33</td>
</tr>
<tr>
<td>FN356-50-..</td>
<td>B</td>
<td>50 (57.7)</td>
<td>0.1</td>
<td>15.8</td>
<td>-24</td>
<td>-33</td>
</tr>
<tr>
<td>FN356-100-..</td>
<td>B</td>
<td>100 (115.0)</td>
<td>0.3</td>
<td>24.0</td>
<td>-28</td>
<td>-34</td>
</tr>
<tr>
<td>FN356-150-28</td>
<td>B</td>
<td>150 (172.5)</td>
<td>1.7</td>
<td>45.9</td>
<td>-28</td>
<td>-34</td>
</tr>
</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

#### 16 A types

#### 25 to 50 A types

#### 100 A types

#### 150 A types

### Mechanical Data

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

#### 16 to 50 A types (-29, -33)
100 and 150 A types (-28)

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

### 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>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>149</td>
<td>1895</td>
<td>140</td>
<td>1895</td>
<td>140</td>
<td>1895</td>
<td>143.25</td>
<td>192</td>
<td>250</td>
<td>250</td>
<td>340</td>
</tr>
<tr>
<td>B*</td>
<td>104</td>
<td>105</td>
<td>105</td>
<td>105</td>
<td>105</td>
<td>105</td>
<td>122</td>
<td>122</td>
<td>160</td>
<td>160</td>
<td>160</td>
</tr>
<tr>
<td>C</td>
<td>50</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>102</td>
<td>102</td>
<td>130</td>
<td>130</td>
<td>130</td>
</tr>
<tr>
<td>D</td>
<td>140</td>
<td>140</td>
<td>140</td>
<td>140</td>
<td>140</td>
<td>140</td>
<td>142.5</td>
<td>210</td>
<td>210</td>
<td>300</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>44 ±0.3</td>
<td>165.5</td>
<td>44 ±0.3</td>
<td>165.5</td>
<td>44 ±0.3</td>
<td>165.5</td>
<td>44 ±0.3</td>
<td>168</td>
<td>230</td>
<td>230</td>
<td>320</td>
</tr>
<tr>
<td>F</td>
<td>75 ±0.3</td>
<td>80</td>
<td>75 ±0.3</td>
<td>80</td>
<td>75 ±0.3</td>
<td>80</td>
<td>75 ±0.3</td>
<td>75 ±0.3</td>
<td>98</td>
<td>60</td>
<td>65</td>
</tr>
<tr>
<td>G</td>
<td>13 x 6.5</td>
<td>13 x 6.5</td>
<td>M5 x 7</td>
<td>13 x 6.5</td>
<td>M5 x 7</td>
<td>M5 x 7</td>
<td>13 x 6.5</td>
<td>13 x 6.5</td>
<td>13 x 6.5</td>
<td>13 x 6.5</td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>0.7</td>
<td>0.7</td>
<td>0.7</td>
<td>0.7</td>
<td>0.7</td>
<td>0.7</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>11</td>
<td>10.9</td>
<td>25.4</td>
<td>25</td>
<td>25</td>
<td>25</td>
<td>25</td>
<td>34</td>
<td>39</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>J</td>
<td>6.3 x 0.8</td>
<td>M6</td>
<td>M6</td>
<td>M6</td>
<td>M6</td>
<td>M6</td>
<td>M6</td>
<td>M10</td>
<td>M10</td>
<td>M10</td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>52</td>
<td>82</td>
<td>52.5</td>
<td>52.5</td>
<td>52.5</td>
<td>52.5</td>
<td>61</td>
<td>61</td>
<td>80</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>L</td>
<td>22.5</td>
<td>25</td>
<td>46.5</td>
<td>20</td>
<td>46.5</td>
<td>20</td>
<td>65.5</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

<table>
<thead>
<tr>
<th></th>
<th>-06 (6.3 x 0.8mm)</th>
<th>-24 (M6)</th>
<th>-28 (M10)</th>
<th>-29</th>
<th>-33</th>
<th>-34</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid wire</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>6 mm²</td>
<td>16 mm²</td>
<td>35 mm²</td>
</tr>
<tr>
<td>Flex wire</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>4 mm²</td>
<td>10 mm²</td>
<td>25 mm²</td>
</tr>
<tr>
<td>AWG type wire</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>AWG 10</td>
<td>AWG 6</td>
<td>AWG 2</td>
</tr>
<tr>
<td>Recommended torque</td>
<td>n/a</td>
<td>3.5-4.0 Nm</td>
<td>15-17 Nm</td>
<td>0.6-0.8 Nm</td>
<td>1.5-1.8 Nm</td>
<td>4.0-4.5 Nm</td>
</tr>
</tbody>
</table>

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