AC Feedthrough Capacitor

IEC/EN 60384-14 approval
Rated currents from 10 to 200 A
5 kV pulse test capability
Class Y2 capacitor

Technical specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum continuous operating voltage</td>
<td>250 VAC, 50/60 Hz (UL)</td>
</tr>
<tr>
<td></td>
<td>300 VAC, 50/60 Hz (ENEC)</td>
</tr>
<tr>
<td></td>
<td>1000 VDC max</td>
</tr>
<tr>
<td>Rated currents</td>
<td>10 to 200 A @ 60°C max.</td>
</tr>
<tr>
<td>Capacitor class</td>
<td>Y2</td>
</tr>
<tr>
<td>High potential test voltage</td>
<td>3000 VDC for 2 sec</td>
</tr>
<tr>
<td>Insulation resistance (100VDC after 60 sec)</td>
<td>&lt;0.33 μF, R &gt; 1500 kΩ</td>
</tr>
<tr>
<td></td>
<td>&gt;0.33 μF, t &gt; 5500 s</td>
</tr>
<tr>
<td>Temperature range (operation and storage)</td>
<td>-40°C to +100°C (40/100/21)</td>
</tr>
<tr>
<td>Flammability corresponding to</td>
<td>UL 94 V-2 or better</td>
</tr>
<tr>
<td>MTBF @ 60°C/300 V (Mil-HB-217F)</td>
<td>≥200 A: &gt;850,000 hours</td>
</tr>
<tr>
<td></td>
<td>&lt;200 A: &gt;1,600,000 hours</td>
</tr>
<tr>
<td>Operating frequency</td>
<td>DC to 60 Hz</td>
</tr>
</tbody>
</table>

Features and benefits

- Very low internal series inductance
- Very high self-resonant frequency
- Self-healing dielectric
- High quality and reliability
- Through-bulkhead mounting
- Anti-twist protection
- Custom-specific or dual-versions on request

Typical applications

- Power line filter for 110/240 VAC power lines
- Increasing system and information security
- Power supplies
- Switching and cellular equipment
- Computer servers
- UPS power supplies
- Medical equipment
- Shielded rooms

Typical electrical schematic

![Typical electrical schematic](image)
### Feedthrough selector table

<table>
<thead>
<tr>
<th>Feedthrough</th>
<th>Rated current @ 60°C [A]</th>
<th>Leakage current* @ 250 VAC/50 Hz [mA]</th>
<th>Capacitance** [nF]</th>
<th>DC resistance*** @ 25°C [mΩ]</th>
<th>Weight [g]</th>
</tr>
</thead>
<tbody>
<tr>
<td>FN 7510-10-M3</td>
<td>10</td>
<td>0.21</td>
<td>2.2</td>
<td>0.8</td>
<td>15</td>
</tr>
<tr>
<td>FN 7511-10-M3</td>
<td>10</td>
<td>0.44</td>
<td>4.7</td>
<td>0.8</td>
<td>15</td>
</tr>
<tr>
<td>FN 7510-16-M4</td>
<td>16</td>
<td>0.44</td>
<td>4.7</td>
<td>0.5</td>
<td>28</td>
</tr>
<tr>
<td>FN 7511-16-M4</td>
<td>16</td>
<td>0.94</td>
<td>10</td>
<td>0.52</td>
<td>28</td>
</tr>
<tr>
<td>FN 7512-16-M4</td>
<td>16</td>
<td>4.4</td>
<td>47</td>
<td>0.62</td>
<td>33</td>
</tr>
<tr>
<td>FN 7513-16-M4</td>
<td>16</td>
<td>9.4</td>
<td>100</td>
<td>0.58</td>
<td>65</td>
</tr>
<tr>
<td>FN 7510-32-M4</td>
<td>32</td>
<td>0.44</td>
<td>4.7</td>
<td>0.52</td>
<td>28</td>
</tr>
<tr>
<td>FN 7511-32-M4</td>
<td>32</td>
<td>0.94</td>
<td>10</td>
<td>0.52</td>
<td>28</td>
</tr>
<tr>
<td>FN 7512-32-M4</td>
<td>32</td>
<td>3.1</td>
<td>33</td>
<td>0.62</td>
<td>34</td>
</tr>
<tr>
<td>FN 7514-32-M4</td>
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<td>9.4</td>
<td>100</td>
<td>0.58</td>
<td>65</td>
</tr>
<tr>
<td>FN 7512-63-M6</td>
<td>63</td>
<td>9.4</td>
<td>100</td>
<td>0.3</td>
<td>70</td>
</tr>
<tr>
<td>FN 7510-100-M8</td>
<td>100</td>
<td>4.4</td>
<td>47</td>
<td>0.23</td>
<td>100</td>
</tr>
<tr>
<td>FN 7511-100-M8</td>
<td>100</td>
<td>9.4</td>
<td>100</td>
<td>0.23</td>
<td>100</td>
</tr>
<tr>
<td>FN 7511-200-M10</td>
<td>200</td>
<td>20.7</td>
<td>220</td>
<td>0.16</td>
<td>157</td>
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</tbody>
</table>

* Tolerance +20%
** Tolerance ±20%
*** Tolerance +15%

### Typical filter attenuation

**50 Ω system**

<table>
<thead>
<tr>
<th>10 A types</th>
<th>16 and 20 A types</th>
<th>32 A types</th>
<th>63 A types</th>
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<tbody>
<tr>
<td><img src="image1.png" alt="Graph" /></td>
<td><img src="image2.png" alt="Graph" /></td>
<td><img src="image3.png" alt="Graph" /></td>
<td><img src="image4.png" alt="Graph" /></td>
</tr>
</tbody>
</table>

A = FN 7511-10-M3  
B = FN 7510-10-M3  
C = FN 7512-16-M4  
D = FN 7510-16-M4  
E = FN 7510-20-M4  
F = FN 7511-100-M8 
G = FN 7512-63-M6  

**100 A types**

<table>
<thead>
<tr>
<th>200 A types</th>
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<tbody>
<tr>
<td><img src="image5.png" alt="Graph" /></td>
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</tbody>
</table>

A = FN 7511-100-M8  
B = FN 7510-100-M8
**Mechanical data**

### 10 A types

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>L</th>
<th>M</th>
<th>N</th>
<th>S</th>
<th>T</th>
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</thead>
<tbody>
<tr>
<td>FN 7510-10-M3</td>
<td>57</td>
<td>10</td>
<td>16.85 ±0.3</td>
<td>13</td>
<td>16 ±2.0</td>
<td>19.85 ±0.5</td>
<td>Ø10.3</td>
<td>M3</td>
<td>M10x1</td>
</tr>
<tr>
<td>FN 7511-10-M3</td>
<td>57</td>
<td>10</td>
<td>16.85 ±0.3</td>
<td>13</td>
<td>16 ±2.0</td>
<td>19.85 ±0.5</td>
<td>Ø10.3</td>
<td>M3</td>
<td>M10x1</td>
</tr>
<tr>
<td>FN 7510-16-M4</td>
<td>63</td>
<td>12</td>
<td>21.95 ±0.3</td>
<td>17</td>
<td>18 ±2.0</td>
<td>18.85 ±0.5</td>
<td>10.3</td>
<td>Ø12.3</td>
<td>M4</td>
</tr>
<tr>
<td>FN 7511-16-M4</td>
<td>63</td>
<td>12</td>
<td>21.95 ±0.3</td>
<td>17</td>
<td>18 ±2.0</td>
<td>18.85 ±0.5</td>
<td>10.3</td>
<td>Ø12.3</td>
<td>M4</td>
</tr>
<tr>
<td>FN 7512-16-M4</td>
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<td>21.95 ±0.3</td>
<td>17</td>
<td>18 ±2.0</td>
<td>30.85 ±0.5</td>
<td>10.3</td>
<td>Ø12.3</td>
<td>M4</td>
</tr>
<tr>
<td>FN 7513-16-M4</td>
<td>77</td>
<td>14</td>
<td>26.95 ±0.3</td>
<td>22</td>
<td>18 ±2.0</td>
<td>30.85 ±0.5</td>
<td>14.3</td>
<td>Ø16.3</td>
<td>M4</td>
</tr>
<tr>
<td>FN 7510-32-M4</td>
<td>63</td>
<td>12</td>
<td>21.95 ±0.3</td>
<td>17</td>
<td>18 ±2.0</td>
<td>18.85 ±0.5</td>
<td>10.3</td>
<td>Ø12.3</td>
<td>M4</td>
</tr>
<tr>
<td>FN 7511-32-M4</td>
<td>63</td>
<td>12</td>
<td>21.95 ±0.3</td>
<td>17</td>
<td>18 ±2.0</td>
<td>18.85 ±0.5</td>
<td>10.3</td>
<td>Ø12.3</td>
<td>M4</td>
</tr>
<tr>
<td>FN 7512-32-M4</td>
<td>75</td>
<td>12</td>
<td>21.95 ±0.3</td>
<td>17</td>
<td>18 ±2.0</td>
<td>30.85 ±0.5</td>
<td>10.3</td>
<td>Ø12.3</td>
<td>M4</td>
</tr>
<tr>
<td>FN 7514-32-M4</td>
<td>77</td>
<td>14</td>
<td>26.95 ±0.3</td>
<td>22</td>
<td>18 ±2.0</td>
<td>30.85 ±0.5</td>
<td>14.3</td>
<td>Ø16.3</td>
<td>M4</td>
</tr>
<tr>
<td>FN 7512-63-M6</td>
<td>96</td>
<td>14</td>
<td>25</td>
<td>22</td>
<td>26 ±2.0</td>
<td>30</td>
<td>14.3</td>
<td>Ø16.3</td>
<td>M6</td>
</tr>
<tr>
<td>FN 7510-100-M8</td>
<td>113</td>
<td>16</td>
<td>32</td>
<td>27</td>
<td>32 ±2.0</td>
<td>33</td>
<td>18.3</td>
<td>Ø20.3</td>
<td>M8</td>
</tr>
<tr>
<td>FN 7511-100-M8</td>
<td>113</td>
<td>16</td>
<td>32</td>
<td>27</td>
<td>32 ±2.0</td>
<td>33</td>
<td>18.3</td>
<td>Ø20.3</td>
<td>M8</td>
</tr>
<tr>
<td>FN 7511-200-M10</td>
<td>130</td>
<td>19</td>
<td>38</td>
<td>27</td>
<td>40 ±2.0</td>
<td>33</td>
<td>22.3</td>
<td>Ø24.3</td>
<td>M10</td>
</tr>
</tbody>
</table>

### Recommended torque

<table>
<thead>
<tr>
<th></th>
<th>M3</th>
<th>M4</th>
<th>M6</th>
<th>M8</th>
<th>M10</th>
<th>M10x1</th>
<th>M12x1</th>
<th>M16x1</th>
<th>M20x1</th>
<th>M24x1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal thread</td>
<td>0.5 Nm</td>
<td>1.2 Nm</td>
<td>2.5 Nm</td>
<td>5 Nm</td>
<td>8 Nm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mounting thread</td>
<td>2 Nm</td>
<td>3 Nm</td>
<td>4 Nm</td>
<td>7 Nm</td>
<td>8 Nm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All dimensions in mm; 1 inch = 25.4 mm

Tolerances according: ISO 2768-m/EN 22768-m
Headquarters, global innovation and development

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