Critical filter and surge protective devices—ITCFxxx60xxx models

Introduction
Since 1980, Eaton’s Innovative Technology® has provided surge protective devices (SPDs) to power quality equipment users around the world. Whatever your electrical surge protection need may be, Eaton’s Innovative Technology has a surge protective device to fill it.

Description
Series wired, terminal strip connected, multi-stage hybrid Active Tracking Network (ATN®) sine wave tracking surge protective device with remote alarm capability and two pair (RJ14) telecommunication circuit protection.

Application description
Dedicated 120 or 250 Vrms single-phase AC power circuits operating at ≤60A, feeding variable frequency drives, process controllers, PLCs, power supplies, microprocessor-based loads, CNCs, and a wide variety of other mission-critical and general-purpose loads.

Features
- Peak surge current: 80 kA per phase; 40 kA per mode
- Warranty: 10-year free replacement
- Enclosure: ABS plastic UL94-V0
- Connection: stud lugs
- Weight: ≈ 3 lb (1.5 kg)
- Operating temperature: −40°F (−40°C) to +140°F (+60°C)
- Protection modes: all mode—L–N (normal mode), L–G, N–G (common mode)
- Input power frequency: 47–64 Hz (AC)
- Response time: AC—Active <1 nanosecond
- Maximum continuous operating current: 60A
- Diagnostics: Form C dry relay contacts rated 1A at 30 Vdc, 0.5A at 125 Vac
- Circuit interrupt: reference installation instructions for details
  a With product registration.
  b Optional.

Table 1. Maximum EMI/RFI Attenuation—MIL-STD-220

<table>
<thead>
<tr>
<th>Model</th>
<th>kHz</th>
<th>100 kHz</th>
<th>1 MHz</th>
<th>10 MHz</th>
<th>100 MHz</th>
<th>Maximum Attenutation at 0.4 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>xxCF12060</td>
<td>20 dB</td>
<td>48 dB</td>
<td>53 dB</td>
<td>29 dB</td>
<td>46 dB</td>
<td>69 dB</td>
</tr>
</tbody>
</table>

Standards and certifications

- Manufacturer qualifications: ISO® 9001:1994 Quality System Certification BSI FM 30833
Performance data

Table 2. Technical Specifications

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Voltage Range</th>
<th>Protection Modes</th>
<th>VPR</th>
<th>MCOV</th>
<th>Iₚ</th>
<th>SCCR</th>
<th>Peak Surge Current Per Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>xxCF12060xxx</td>
<td>48–149 Vdc ① 100–127 Vac</td>
<td>L–N 500</td>
<td>150</td>
<td>5 kA</td>
<td>10 kA</td>
<td>40 kA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>L–G 600</td>
<td>150</td>
<td>5 kA</td>
<td>10 kA</td>
<td>40 kA</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>N–G 500</td>
<td>150</td>
<td>5 kA</td>
<td>10 kA</td>
<td>40 kA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>xxCF24060xxx</td>
<td>150–300 Vdc ① 200–240 Vac</td>
<td>L–N, L–G, N–G —</td>
<td>275</td>
<td>N/A</td>
<td>N/A</td>
<td>40 kA</td>
<td></td>
</tr>
</tbody>
</table>

② UL 1449 Third Edition does not list SPD products rated less than 100 Vac or Vdc voltages.

Table 3. Let-Through Voltages Based Upon IEEE Std C62.62-2010 Testing Waveforms ①

<table>
<thead>
<tr>
<th>Test Impulse</th>
<th>xxCF12060xxx</th>
</tr>
</thead>
<tbody>
<tr>
<td>IEEE Category A 100 kHz ring wave—6000V, 200A</td>
<td>90V</td>
</tr>
<tr>
<td>IEEE Category B 100 kHz ring wave—6000V, 500A</td>
<td>230V</td>
</tr>
<tr>
<td>IEEE Category B combination wave—6000V, 300A (UL 1449-3 VPR)</td>
<td>450V</td>
</tr>
</tbody>
</table>

① All tests conducted on 120 Vac units.

Telecom specifications (optional)

- Application: modular jacks are RJ11 (1 pair) or RJ14 (2 pair) compatible with standard voice grade lines including ISDN
- Protection modes: all mode—normal/transverse—tip to ring, common/longitudinal—tip to ring and ring to ground
- Frequency range: 0–16 MHz
- Data rate: ≤1.6 Mbps
- Continuous current maximum: 100 mA
- Response time: ≤1 nanosecond
- EMI/RFI attenuation: 3 dB point 17 MHz, maximum attenuation 39 dB at 38 MHz
- Maximum continuous operating voltage: 127 Vrms tip to ring, tip and ring to ground
- Series resistance: ≈10 ohms
- Pairs protected: (1–4) (203)

Table 4. Telcom RJ14 Waveform Specifications

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>RJ14</td>
<td>170</td>
<td>L–G, L–L</td>
<td>170</td>
<td>170</td>
<td>170</td>
<td>170</td>
</tr>
<tr>
<td></td>
<td>170</td>
<td>L–G, L–L</td>
<td>170</td>
<td>170</td>
<td>170</td>
<td>170</td>
</tr>
</tbody>
</table>

① Test environment: positive polarity. Tested with AC power applied. All units tested at terminals, time base = 1 ms. All measurements referenced from zero volts per NEMA® LS-1.

Product selection

Table 5. Catalog Numbering Selection

<table>
<thead>
<tr>
<th>Model</th>
<th>Voltage</th>
<th>Amperage</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITCF</td>
<td>120</td>
<td>60A</td>
<td>Blank = None</td>
</tr>
<tr>
<td>60</td>
<td>240</td>
<td>60A</td>
<td>RJ = Telcom protection and Form C status contacts</td>
</tr>
</tbody>
</table>

Dimensions

Approximate dimensions in inches (mm).

Figure 1. xxCFxxx60-RJ Model Dimensions

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