The easiest and fastest way to select and specify the right control circuit fuse
Bussmann's Fuses Made Simple program provides the easiest and fastest way to select and specify the right fuse. Whether it's branch circuit or control circuit (supplemental) fuses, we take the guesswork out of selecting the right fuse. What's more, we make it simple to replace fuses with six color groups (categorized by voltage rating)—all while enhancing the safety of the electrical system.

Find the control circuit fuse you need in three simple steps:

1. **TYPE**
   - Select the fuse type. Select from time-delay (for inductive loads) or fast-acting (for resistive loads).

2. **VOLTAGE**
   - Select the voltage rating needed. Keep in mind that fuse voltage rating must be equal to or greater than the circuit voltage.

3. **INTERRUPTING RATING**
   - Verify that the interrupting rating of the fuse selected is sufficient for the circuit application. Keep in mind that the interrupting rating must be equal to or greater than the available short-circuit current.

Use the following table to find and select the right control circuit fuse:

<table>
<thead>
<tr>
<th>VOLTAGE</th>
<th>600Vac</th>
<th>500Vac</th>
<th>250Vac</th>
<th>125Vac</th>
<th>48Vac</th>
<th>32Vac</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAMILY</td>
<td>INTERUPTING RATING</td>
<td>FAMILY</td>
<td>INTERUPTING RATING</td>
<td>FAMILY</td>
<td>INTERUPTING RATING</td>
<td>FAMILY</td>
</tr>
<tr>
<td>LOW-Peak™ Class CC (LP-CC) fuse recommended</td>
<td>FQ</td>
<td>10kA (1⁄10 - 30 Amp)</td>
<td>FMIM</td>
<td>35A (1⁄10 - 1 Amp)</td>
<td>FNA²</td>
<td>10kA (1⁄10 - 15 Amp)</td>
</tr>
<tr>
<td>Upgrade to 600Vac</td>
<td>100kA (1⁄10 - 30 Amp)</td>
<td>100kA (1⁄10 - 30 Amp)</td>
<td>48Vac 125Vac</td>
<td>125Vac 48Vac</td>
<td>48Vac 32Vac</td>
<td></td>
</tr>
<tr>
<td>FAMILY</td>
<td>INTERUPTING RATING</td>
<td>FAMILY</td>
<td>INTERUPTING RATING</td>
<td>FAMILY</td>
<td>INTERUPTING RATING</td>
<td>FAMILY</td>
</tr>
<tr>
<td>KT</td>
<td>10kA (1⁄10 - 30 Amp)</td>
<td>FAST-ACTING RATING</td>
<td>Upgrade up to 600Vac</td>
<td>FAMILY</td>
<td>INTERUPTING RATING</td>
<td>FAMILY</td>
</tr>
<tr>
<td>KM</td>
<td>100kA (1⁄10 - 30 Amp)</td>
<td>100kA (1⁄10 - 30 Amp)</td>
<td>750A (12 - 15 Amp)</td>
<td>1kA (12 - 30 Amp)</td>
<td>10kA (12 - 30 Amp)</td>
<td>10kA (12 - 30 Amp)</td>
</tr>
<tr>
<td>BBS1</td>
<td>10kA (1⁄10 - 30 Amp)</td>
<td>35A (1⁄10 - 1 Amp)</td>
<td>MIC2</td>
<td>35A (1⁄10 - 1 Amp)</td>
<td>100A (2 - 3 Amp)</td>
<td>200A (5 - 10 Amp)</td>
</tr>
<tr>
<td>BBS1</td>
<td>200A (20 - 30 Amp)</td>
<td>100A (1⁄10 - 3 Amp)</td>
<td>200A (4 - 10 Amp)</td>
<td>200A (4 - 10 Amp)</td>
<td>750A (15 Amp)</td>
<td>200A (20 - 30 Amp)</td>
</tr>
</tbody>
</table>

°Fuse is 11⁄4" long ¹Fuse is pin indicating ²Fuse is also rated for 600Vac, 50kA interrupting rating ³For primary protection of control transformers, use FNQ-R ⁴For interrupting rating, contact factory.

For ultimate protection, any of the control circuit fuses above can be upgraded to a branch circuit rated Low-Peak Class CC fuse (LP-CC).

*For primary protection of control transformers, use FNQ-R.
Importance of voltage rating and interrupting rating

Control circuit fuses have many different voltage ratings, ranging from 32Vac to 600Vac, and interrupting ratings up to 100kA. Because their physical size does not vary with voltage or interrupting ratings, the most frequent cause of misapplication is due to improper voltage or interrupting rating selection. This leads to compromised system integrity, and equipment and personnel safety. It is important to note, though, that when a fuse is applied beyond its ratings, there may not be any initial indicators. Adverse consequences typically result when a system fault occurs and an improperly sized fuse attempts to interrupt an overcurrent event.

VOLTAGE RATING

Voltage rating is extremely important. The proper application of an overcurrent protective device, according to its voltage rating, requires that the voltage rating of the device be equal to or greater than the system voltage. It can be higher but not lower. For instance, a 600V fuse can be used to safely protect a 208V circuit. However, when an overcurrent protective device is applied beyond its rating, there may be potential for fire and arcing energy, which poses a severe fire risk to other components in the panel.

INTERRUPTING RATING

Interrupting rating is also of critical importance. An overcurrent protective device must be able to withstand the destructive energy of short-circuit currents of the equipment it is protecting. If a fault current exceeds a level beyond the capacity of the protective device, the device may actually rupture, causing additional damage. It is therefore important when applying a fuse to use one that can sustain the largest potential short-circuit currents. Failure to apply fuses with the appropriate interrupting rating can be a serious safety hazard.

Fuses Made Simple™ - Control Circuits helps enhance safety

Bussmann’s Fuses Made Simple - Control Circuits helps minimize the risk of misapplication by clearly and consistently indicating both the voltage rating and interrupting rating on the fuse label. The voltage rating is easily identified by both the color code band and the large print on the fuse label. Additionally, the interrupting rating is printed on the side of each fuse.
# Easy Selection by Application

<table>
<thead>
<tr>
<th>Application*</th>
<th>Fast-Acting</th>
<th>Time-Delay</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 General purpose, non-inductive loads</td>
<td>✔ ✔ ✔ ✔</td>
<td>✔ ✔</td>
</tr>
<tr>
<td>2 277V lighting circuits</td>
<td>✔ ✔ ✔ ✔</td>
<td>✔ ✔</td>
</tr>
<tr>
<td>3 Meter circuits</td>
<td>✔ ✔ ✔ ✔</td>
<td>✔ ✔</td>
</tr>
<tr>
<td>4 Any non-inductive load 600Vac and less</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>5 Any non-inductive load 250Vac and less</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>6 DC control circuits up to 600Vdc</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>7 480V primary control transformer protection</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>8 DC control circuits requiring fast-acting fuses</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>9 Lighting circuit protection</td>
<td>✔ ✔</td>
<td>✔ ✔</td>
</tr>
<tr>
<td>10 250V and less secondary control transformer protection</td>
<td></td>
<td>✔ ✔</td>
</tr>
<tr>
<td>11 Lighting ballasts</td>
<td>✔</td>
<td>✔ ✔</td>
</tr>
<tr>
<td>12 PLC circuits</td>
<td>✔ ✔ ✔ ✔</td>
<td>✔ ✔</td>
</tr>
<tr>
<td>13 Electronic circuits</td>
<td>✔ ✔ ✔ ✔</td>
<td>✔ ✔</td>
</tr>
<tr>
<td>14 Control circuits</td>
<td>✔ ✔ ✔ ✔</td>
<td>✔ ✔</td>
</tr>
<tr>
<td>15 Solenoids (coils)</td>
<td>✔ ✔</td>
<td>✔ ✔</td>
</tr>
<tr>
<td>16 Power supply</td>
<td>✔</td>
<td>✔ ✔</td>
</tr>
<tr>
<td>17 Appliances</td>
<td>✔ ✔ ✔</td>
<td>✔ ✔</td>
</tr>
<tr>
<td>18 Flexible and extension cords</td>
<td>✔</td>
<td>✔ ✔</td>
</tr>
<tr>
<td>19 Control relay</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>20 Photovoltaic source circuits</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>21 Motor control circuits</td>
<td>✔</td>
<td>✔ ✔</td>
</tr>
<tr>
<td>22 Auxiliary and signal contacts</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>23 Amplifier protection</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>24 Contactors</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>25 Testing equipment (meters)</td>
<td>✔ ✔ ✔</td>
<td>✔ ✔</td>
</tr>
<tr>
<td>26 Receptacles</td>
<td>✔</td>
<td>✔ ✔</td>
</tr>
</tbody>
</table>

*Applied in circuits already properly protected by a branch circuit overcurrent protective device or when recognized by the NEC® to provide equivalent branch circuit overcurrent protection.*
Simple Replacement

Color-coded by voltage

Each fuse label has a unique identifying color band that represents the fuse’s maximum voltage rating. When it’s time to replace a fuse, Bussmann makes it easy to search for the replacement. Select the voltage needed by simply looking for the Bussmann fuse with the right color band in the storage bin. This narrows the search and speeds replacement time.

Consistent look for each label

Every fuse label now has a consistent look. Critical fuse information is presented in an easy-to-read format across the entire Bussmann control circuit fuse portfolio to help speed replacement.

Notes:
1. Fuse is 13/16” long
2. Fuse is pin indicating
3. Fuse is also rated for 600Vac

Consistent location
of part number and amperage

Easy-to-read voltage and type

Date code

Interrupting rating

500Vac TIME-DELAY FUSE

FNQ-30

Clearly identify the voltage by color

Agency information
In addition to supplemental control circuit fuses, Bussmann offers a broad portfolio of circuit protection solutions. Visit www.bussmann.com to learn more.

Additional fuse portfolio

- Fuses Made Simple™ UL low voltage
- Class CF time-delay and fast-acting CUBEFuse UL fuses
- High speed fuses
- Electronic and small dimension fuses

Fuse holders, blocks, and power distribution blocks

- Power distribution fuse blocks
- Modular knifeblade fuse blocks
- Finger-safe power distribution blocks
- Compact modular fuse holders

Disconnect switches and safety switches

- CUBEFuse Compact Circuit Protector (CCP_CF)
- Class CC and midget Compact Circuit Protector (CCP)
- Fused rotary disconnect switch
- Non-fused rotary disconnect switch

Surge protective devices

- Type 1 SurgePOD™ HEAVY DUTY
- Type 2 DIN-Rail SPDs
- DIN-Rail data signal SPDs
- BNC coaxial cable data signal SPDs
Fuses Made Simple™ - Control Circuits is the easiest and fastest way to select and specify the right control circuit fuse. In just three simple steps, you can find the control fuse you need.

1 **TYPE**

Select the fuse type. Select from time-delay (for inductive loads) or fast-acting (for resistive loads).

2 **VOLTAGE**

Select the voltage rating needed. Keep in mind that fuse voltage rating must be equal to or greater than the circuit voltage.

3 **INTERRUPTING RATING**

Verify that the interrupting rating of the fuse selected is sufficient for the circuit application. Keep in mind that the interrupting rating must be equal to or greater than the available short-circuit current.

Use the chart at the beginning of this document to go through the three steps and select the control fuse you need. Or, you can use the selection wheel attached below. Just remove it from this page and take it with you (it’s small enough to fit in a pocket). Now the selection of the right control fuse is at your fingertips. Visit www.cooperbussmann.com/FMSCC to learn more.
Customer Assistance

Customer Satisfaction Team
Available to answer questions regarding Bussmann products & services Monday-Friday, 7:00 a.m. – 6:00 p.m. Central Time. Contact:
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• Toll-free fax: 800-544-2570
• E-mail: busscustsat@eaton.com

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