# Low Voltage Supplementary Fuses

## Section Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuse Holder &amp; Block Selection Guide</td>
<td>44-45</td>
</tr>
<tr>
<td><strong>Cable limiters &amp; welder limiters</strong></td>
<td></td>
</tr>
<tr>
<td>K Series cable limiters</td>
<td>600V</td>
</tr>
<tr>
<td>64000 &amp; 68000 welder limiters</td>
<td>600V</td>
</tr>
<tr>
<td><strong>1/2” x 1 1/2” Fast-acting supplementary fuses</strong></td>
<td></td>
</tr>
<tr>
<td>BAF</td>
<td>250V</td>
</tr>
<tr>
<td>KTK</td>
<td>600V</td>
</tr>
<tr>
<td>KLM</td>
<td>500V</td>
</tr>
<tr>
<td>DCM</td>
<td>600Vac/dc</td>
</tr>
<tr>
<td>Solar PV</td>
<td>250V</td>
</tr>
<tr>
<td><strong>1/2” x 1 1/2” Time-delay supplementary fuses</strong></td>
<td></td>
</tr>
<tr>
<td>FNM</td>
<td>250V</td>
</tr>
<tr>
<td>FNQ</td>
<td>500V</td>
</tr>
<tr>
<td><strong>1/2” x 1 3/8” Fast-acting supplementary fuses</strong></td>
<td></td>
</tr>
<tr>
<td>BBS</td>
<td>600V</td>
</tr>
<tr>
<td>KTQ</td>
<td>600V</td>
</tr>
<tr>
<td><strong>Pin indication fuses and actuator</strong></td>
<td></td>
</tr>
<tr>
<td>GBA</td>
<td>125V</td>
</tr>
<tr>
<td>GLD</td>
<td>125V</td>
</tr>
<tr>
<td>MIC</td>
<td>250V fast-acting</td>
</tr>
<tr>
<td>MIN</td>
<td>250V fast-acting</td>
</tr>
<tr>
<td>FNA</td>
<td>250V time-delay</td>
</tr>
<tr>
<td>MIS</td>
<td>600V</td>
</tr>
<tr>
<td>KAZ</td>
<td>600V</td>
</tr>
<tr>
<td><strong>Limiters</strong></td>
<td></td>
</tr>
<tr>
<td>ANN</td>
<td>125V fast-acting</td>
</tr>
<tr>
<td>ANL</td>
<td>80Vdc time-delay</td>
</tr>
<tr>
<td>4164 &amp; 4164-FR</td>
<td>fuse blocks</td>
</tr>
<tr>
<td><strong>In-line size rejecting fuses and fuse holders</strong></td>
<td></td>
</tr>
<tr>
<td>GLQ</td>
<td>300V</td>
</tr>
<tr>
<td>GMQ</td>
<td>300V</td>
</tr>
<tr>
<td><strong>In-line non-rejecting fuses and fuse holders</strong></td>
<td></td>
</tr>
<tr>
<td>GLR</td>
<td>300V</td>
</tr>
<tr>
<td>GMF</td>
<td>300V</td>
</tr>
<tr>
<td>GRF</td>
<td>300V</td>
</tr>
<tr>
<td><strong>Automotive blade-type fuses</strong></td>
<td></td>
</tr>
<tr>
<td>ATC</td>
<td>32Vdc</td>
</tr>
<tr>
<td>ATC- _ID</td>
<td>32Vdc</td>
</tr>
<tr>
<td>ATM</td>
<td>32Vdc</td>
</tr>
<tr>
<td>ATM- _ID</td>
<td>32Vdc</td>
</tr>
<tr>
<td>MAX</td>
<td>32Vdc</td>
</tr>
<tr>
<td>MAX- _ID</td>
<td>32Vdc</td>
</tr>
<tr>
<td><strong>Automotive blade-type fuse holders</strong></td>
<td></td>
</tr>
<tr>
<td>HHC, HHD, HHF, HHG, ATC-FHID for ATC fuses</td>
<td>56</td>
</tr>
<tr>
<td>HHL, HHM, ATC-FHID for ATM fuses</td>
<td>56</td>
</tr>
<tr>
<td>HHX for MAX fuses</td>
<td>56</td>
</tr>
</tbody>
</table>
### Holders & Blocks for Low Voltage Supplementary Fuses

#### Limiters

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Volts</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>K Series</td>
<td>600V</td>
<td>46</td>
</tr>
<tr>
<td>68000 Series</td>
<td>600V</td>
<td>46</td>
</tr>
<tr>
<td>64000 Series</td>
<td>600V</td>
<td>46</td>
</tr>
<tr>
<td>ANN Fast acting limiter</td>
<td>125Vac/80Vdc</td>
<td>52</td>
</tr>
<tr>
<td>ANL Time-delay limiter</td>
<td>80Vdc</td>
<td>52</td>
</tr>
</tbody>
</table>

#### Holders

- CH Series Class J modular 1 to 3-pole, panel/DIN rail mount...254
- Safety J™ Series modular holders, panel/DIN rail mount...255

#### Blocks

- Modular Type Fuse Blocks 250/600V, panel mount...275
- H250 Series 1- to 3-pole 250V, panel mount...260
- H600 Series 1- to 3-pole 600V, panel mount...263

#### Blocks

- Modular Type Fuse Blocks 600V, panel mount...275
- J 600 Series, panel mount...266
- J P Series pyramid blocks, panel mount...268
- BH Series modular-style open blocks, panel mount...275

#### Limiter Blocks - ANN & ANL

- Blocks for 4164 & 4164-FR...52

### 1/2" X 1 1/2" Fuses

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Volts</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAF</td>
<td>250V</td>
<td>47</td>
</tr>
<tr>
<td>KTK</td>
<td>600V</td>
<td>47</td>
</tr>
<tr>
<td>KLM</td>
<td>600Vac/dc</td>
<td>47</td>
</tr>
<tr>
<td>DCM</td>
<td>600Vac/dc</td>
<td>47</td>
</tr>
<tr>
<td>Solar PV</td>
<td>250V</td>
<td>48</td>
</tr>
<tr>
<td>FNM</td>
<td>250V</td>
<td>49</td>
</tr>
<tr>
<td>FNQ</td>
<td>500V</td>
<td>49</td>
</tr>
</tbody>
</table>

#### Holders

- OPM-NG-SC3 3-pole, panel/DIN rail mount...252
- OPM-1038R 3-pole, panel/DIN rail mount...251
- OPM-1038RSW 3-pole w/ switch, panel/DIN rail mount...250
- CH Series Global 1- to 3-pole, DIN rail mount...259
- HPG Panel mount fuse holder...286
- HPC-D Panel mount fuse holder...287
- HPM Panel mount fuse holder...287
- HPS Series Panel mount fuse holder...286
- HPF Series Panel mount fuse holder...286
- HEB Series 1-Pole in-line fuse holder...279
- HEX & HEY Series 2-Pole in-line fuse holders...279
- NDNF1-WH Fuse holding rail mount terminal block...291

#### Blocks

- BM Series, panel/DIN rail with adapters...274
- 3723, 3742 and 3743 multi-pole add-on fuse blocks...290

---

For product data sheets, visit [www.cooperbussmann.com/datasheets/ulcsa](http://www.cooperbussmann.com/datasheets/ulcsa)

This document provided by Barr-Thorp Electric Co., Inc. 800-473-9123  www.barr-thorp.com
**Holdes & Blocks for Low Voltage Supplementary Fuses**

**13/32" X 1 3/8" Fuses**

<table>
<thead>
<tr>
<th>Catalog Numbers</th>
<th>Volts</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>GLQ rejecting fuse</td>
<td>300V</td>
<td>53</td>
</tr>
<tr>
<td>GMQ rejecting fuse</td>
<td>300V</td>
<td>53</td>
</tr>
<tr>
<td>GLR non-rejecting fuse</td>
<td>300V</td>
<td>54</td>
</tr>
<tr>
<td>GMF non-rejecting fuse</td>
<td>300V</td>
<td>54</td>
</tr>
<tr>
<td>GRF non-rejecting fuse</td>
<td>300V</td>
<td>54</td>
</tr>
</tbody>
</table>

**Holders**
- HLQ Rejection holder
- HLR & HLR-2A non-rejection holders

**Blocks**
- BM Series, panel/DIN rail with adapters
- 3723, 3742 and 3743 multi-pole add-on fuse blocks

**Pin Indicating Fuses**

<table>
<thead>
<tr>
<th>Catalog Numbers</th>
<th>Volts</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>GBA 1/4&quot; X 1 1/4&quot;</td>
<td>125V</td>
<td>51</td>
</tr>
<tr>
<td>GLD 1/4&quot; X 1 1/4&quot;</td>
<td>125V</td>
<td>51</td>
</tr>
<tr>
<td>MIC 3/16&quot; X 1 1/2&quot;</td>
<td>250V</td>
<td>51</td>
</tr>
<tr>
<td>MIN 3/16&quot; X 1 1/2&quot;</td>
<td>250V</td>
<td>51</td>
</tr>
<tr>
<td>FNA 3/16&quot; X 1 1/2&quot;</td>
<td>250V</td>
<td>51</td>
</tr>
<tr>
<td>MIS 3/16&quot; X 2&quot;</td>
<td>600V</td>
<td>52</td>
</tr>
<tr>
<td>KAZ 3/16&quot; X 2&quot;</td>
<td>600V</td>
<td>52</td>
</tr>
</tbody>
</table>

**Holders**
- 1/4" X 1 1/4": HLD Panel mount visual indication
- 1/4" X 1 1/4": HK Series Panel mount lamp indicating

**Blocks**
- Series 8000 for visual indication
- 1/4" X 1 1/4": 1-Pole signal block cat. # 3839 (not shown in catalog)*
- 1/4" X 2": 1-Pole signal block cat. # 2778 (not shown in catalog)*
- 1/4" X 2": 2-Pole signal block cat. # 2837 (not shown in catalog)*
- 1/4" X 2": 3-Pole signal block cat. # 2838 (not shown in catalog)*

*Call our customer satisfaction team at 636-527-3877 for more information.

**Automotive Blade-type Fuses**

<table>
<thead>
<tr>
<th>Catalog Numbers</th>
<th>Volts</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATC</td>
<td>32Vdc</td>
<td>55</td>
</tr>
<tr>
<td>ATM</td>
<td>32Vdc</td>
<td>55</td>
</tr>
<tr>
<td>MAX</td>
<td>32Vdc</td>
<td>55</td>
</tr>
</tbody>
</table>

**Holders**
- ATC: HHC, HHD, HHF & ATC-FHID In-line holders
- ATM: HHL, HHM & ATC-FHID In-line holders
- MAX: HHX In-line holders

**In-Line Rejecting and Non-Rejecting Fuses**

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Volts</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>GLQ rejecting fuse</td>
<td>300V</td>
<td>53</td>
</tr>
<tr>
<td>GMQ rejecting fuse</td>
<td>300V</td>
<td>53</td>
</tr>
<tr>
<td>GLR non-rejecting fuse</td>
<td>300V</td>
<td>54</td>
</tr>
<tr>
<td>GMF non-rejecting fuse</td>
<td>300V</td>
<td>54</td>
</tr>
<tr>
<td>GRF non-rejecting fuse</td>
<td>300V</td>
<td>54</td>
</tr>
</tbody>
</table>

**Holders**
- GLQ & GMQ: HLQ Rejection holder
- GLR, GMF & GRF: HLR & HLR-2A non-rejection holders

For product data sheets, visit [www.cooperbussmann.com/datasheets/ulcsa](http://www.cooperbussmann.com/datasheets/ulcsa)
Cable Limiters & Welder Limiters

K Series

Specifications
Description: Cable limiters.
Ratings:
Volts — 600Vac
IR — 200,000A RMS Sym.

Agency Information: UL
Listing: KDM, KDR, KDP and KFM, KCM, KCM-B and KCR.

Features and Benefits
• Sizes and ratings available to meet many applications.

Typical Applications
• Protecting low voltage distribution and service entrance cables against short-circuit currents.

Catalog Numbers

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Cable Size</th>
<th>Catalog Number</th>
<th>Cable Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tubular Terminals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KCY #4</td>
<td>KCF</td>
<td>4/0</td>
<td></td>
</tr>
<tr>
<td>KCA #3</td>
<td>KCH</td>
<td>250 MCM</td>
<td></td>
</tr>
<tr>
<td>KCB #2</td>
<td>KCM</td>
<td>350 MCM</td>
<td></td>
</tr>
<tr>
<td>KCC #1</td>
<td>KCV</td>
<td>500 MCM</td>
<td></td>
</tr>
<tr>
<td>KCD 2</td>
<td>KCR</td>
<td>750 MCM</td>
<td></td>
</tr>
<tr>
<td>KCE 3/0</td>
<td>KCS</td>
<td>1000 MCM</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Catalog Number</th>
<th>Nominal Amp Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>KFZ #8</td>
<td>KDF</td>
<td>40</td>
</tr>
<tr>
<td>KG #6</td>
<td>KDH</td>
<td>250 MCM</td>
</tr>
<tr>
<td>KDF #4</td>
<td>KDF2</td>
<td>350 MCM</td>
</tr>
<tr>
<td>KG #2</td>
<td>KDM</td>
<td>500 MCM</td>
</tr>
<tr>
<td>KDC 1/0</td>
<td>KDR</td>
<td>750 MCM</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Compression Connector Rod and Tubular Terminals</th>
<th>Nominal</th>
</tr>
</thead>
<tbody>
<tr>
<td>KEX #12</td>
<td>40</td>
</tr>
<tr>
<td>KEX-A 250 MCM</td>
<td>350 MCM</td>
</tr>
<tr>
<td>KQO 500 MCM</td>
<td>500 MCM</td>
</tr>
</tbody>
</table>

*Center Bolt-Type Terminal and Off-Set Bolt-Type Terminal

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Fuse Holder Type</th>
<th>Nominal Amp Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>68150</td>
<td>Class H</td>
<td>150</td>
</tr>
<tr>
<td>68200</td>
<td>Class H</td>
<td>200</td>
</tr>
<tr>
<td>68300</td>
<td>Class H</td>
<td>300</td>
</tr>
<tr>
<td>68400</td>
<td>Class H</td>
<td>400</td>
</tr>
<tr>
<td>68600</td>
<td>Class H</td>
<td>600</td>
</tr>
<tr>
<td>64200</td>
<td>Class J</td>
<td>200</td>
</tr>
<tr>
<td>64300</td>
<td>Class J</td>
<td>300</td>
</tr>
<tr>
<td>64400</td>
<td>Class J</td>
<td>400</td>
</tr>
<tr>
<td>64600</td>
<td>Class J</td>
<td>600</td>
</tr>
</tbody>
</table>

Accessories
Boots can be purchased separately.
For KCM Boot-KCM
For KDM Boot-KDM
Installation tools can be purchased separately from Thomas and Betts
• Crimp Tool: TBM-14M
• Die: 15596 KDM/15515 KDR

Recommended Fuse Blocks For 68000 & 64000 Series Limiters
• See page 44

Data Sheet: 1045
Low Voltage Supplementary Fuses

13/32” x 1 1/2” Fast-acting Fuses

**BAF**

**Specifications**
- **Class**: Supplemental
- **Description**: Fast-acting supplementary fuse.
- **Dimensions**: 13/32” x 1 1/2” (10.3 x 38.1mm).
- **Ratings**: Volts — 250Vac (or less)  
  Amps — 1⁄10-30A
  - IR — 10kA @ 125Vac (1⁄10-30A)
  - 35A (1⁄10-1A @ 250Vac)
  - 100A (1⁄10-3A @ 250Vac)
  - 200A (4-10A @ 250Vac)
  - 750A (12A-15A @ 250Vac)
  - 200A (20-30A @ 250Vac)

**Agency Information**: CE, Std. 248-14, UL 0-15/250V, Guide JDYX, File E19180.

**Features and Benefits**
- Low cost supplemental protection of 125V and 250V non-inductive circuits.
- Upgrade with LP-CC product to reduce SKU investment and minimize potential arc-flash hazards.

**Typical Applications**
- General Purpose Circuits
- Lighting Circuit Protection
- Meter Circuits

**Catalog Numbers (Amps)**

<table>
<thead>
<tr>
<th>Catalog Numbers (Amps)</th>
<th>1⁄10 A</th>
<th>1⁄8 A</th>
<th>1⁄4 A</th>
<th>3⁄10 A</th>
<th>1⁄2 A</th>
<th>5 A</th>
<th>15 A</th>
<th>20 A</th>
<th>30 A</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAF-1/10</td>
<td>BAF-1/8</td>
<td>BAF-5</td>
<td>BAF-10</td>
<td>BAF-15</td>
<td>BAF-20</td>
<td>BAF-25</td>
<td>BAF-30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BAF-1/8</td>
<td>BAF-1/4</td>
<td>BAF-5</td>
<td>BAF-10</td>
<td>BAF-15</td>
<td>BAF-20</td>
<td>BAF-25</td>
<td>BAF-30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BAF-1/4</td>
<td>BAF-1/2</td>
<td>BAF-5</td>
<td>BAF-10</td>
<td>BAF-15</td>
<td>BAF-20</td>
<td>BAF-25</td>
<td>BAF-30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BAF-1/2</td>
<td>BAF-1</td>
<td>BAF-5</td>
<td>BAF-10</td>
<td>BAF-15</td>
<td>BAF-20</td>
<td>BAF-25</td>
<td>BAF-30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BAF-1</td>
<td>BAF-6</td>
<td>BAF-5</td>
<td>BAF-10</td>
<td>BAF-15</td>
<td>BAF-20</td>
<td>BAF-25</td>
<td>BAF-30</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For superior electrical protection, Cooper Bussmann recommends upgrading BAF and fuse applications to Low-Peak LP-CC fuses See page 17.

Data Sheet: 2011 (0-30)

---

**KTK**

**Specifications**
- **Class**: Supplemental
- **Description**: Fast-acting supplementary fuse.
- **Dimensions**: 13/32” x 1 1/2” (10.3 x 38.1mm).
- **Ratings**: Volts — 600Vac (or less)  
  Amps — 1⁄10-30A
  - IR — 100kA RMS Sym. (UL)

**Agency Information**: CE, Std. 248-14, UL Listed, Guide JDYX, File E19180.

**Features and Benefits**
- Low cost supplemental protection of 600V or less non-inductive circuits.
- Upgrade with LP-CC product to reduce SKU investment and minimize potential arc-flash hazards.

**Typical Applications**
- Control Circuits
- Lighting Circuit Protection
- Meter Circuits

**Catalog Numbers (Amps)**

<table>
<thead>
<tr>
<th>Catalog Numbers (Amps)</th>
<th>1⁄10 A</th>
<th>1⁄8 A</th>
<th>1⁄4 A</th>
<th>3⁄10 A</th>
<th>1⁄2 A</th>
<th>5 A</th>
<th>15 A</th>
<th>20 A</th>
<th>30 A</th>
</tr>
</thead>
<tbody>
<tr>
<td>KTK-1/10</td>
<td>KTK-1/8</td>
<td>KTK-5</td>
<td>KTK-10</td>
<td>KTK-15</td>
<td>KTK-20</td>
<td>KTK-25</td>
<td>KTK-30</td>
<td>KTK-40*</td>
<td></td>
</tr>
<tr>
<td>KTK-1/8</td>
<td>KTK-1/4</td>
<td>KTK-5</td>
<td>KTK-10</td>
<td>KTK-15</td>
<td>KTK-20</td>
<td>KTK-25</td>
<td>KTK-30</td>
<td>KTK-40*</td>
<td></td>
</tr>
<tr>
<td>KTK-1/4</td>
<td>KTK-1/2</td>
<td>KTK-5</td>
<td>KTK-10</td>
<td>KTK-15</td>
<td>KTK-20</td>
<td>KTK-25</td>
<td>KTK-30</td>
<td>KTK-40*</td>
<td></td>
</tr>
<tr>
<td>KTK-1/2</td>
<td>KTK-1</td>
<td>KTK-5</td>
<td>KTK-10</td>
<td>KTK-15</td>
<td>KTK-20</td>
<td>KTK-25</td>
<td>KTK-30</td>
<td>KTK-40*</td>
<td></td>
</tr>
<tr>
<td>KTK-1</td>
<td>KTK-6</td>
<td>KTK-5</td>
<td>KTK-10</td>
<td>KTK-15</td>
<td>KTK-20</td>
<td>KTK-25</td>
<td>KTK-30</td>
<td>KTK-40*</td>
<td></td>
</tr>
<tr>
<td>KTK-6/10</td>
<td>KTK-2</td>
<td>KTK-7</td>
<td>KTK-10</td>
<td>KTK-15</td>
<td>KTK-20</td>
<td>KTK-25</td>
<td>KTK-30</td>
<td>KTK-40*</td>
<td></td>
</tr>
</tbody>
</table>

*Rated for no more than 24A continuous.

For superior electrical protection, Cooper Bussmann recommends upgrading KTK fuse applications to Low-Peak LP-CC fuses See page 17.

Data Sheet: 1011

---

**DCM & KLM**

**Specifications**
- **Class**: Supplemental
- **Description**: Full range, fast-acting, DC midget fuse.
- **Dimensions**: 13/32” x 1 1/2” (10.3 x 38.1mm).
- **Ratings**: Volts — 600Vac/dc  
  Amps — 1⁄10-30A
  - IR — 100kA AC
  - 50kA DC

**Agency Information**: CE, UL Listed: STD. 248-14, (FILE #E19180, GUIDE #JDYX), CSA Certified, C22.2 NO. 248. 14 (CLASS #1422-01, FILE #53787).

**Features and Benefits**
- Full range, fast-acting, 600Vac/dc midget fuse.
- Minimum interrupting rating or 200% rated current at 600Vac.

**Typical Applications**
- DC Control Circuits Requiring Fast-Acting Fuses.
- Solar power energy sources.

**Catalog Numbers (Amps) - DCM**

<table>
<thead>
<tr>
<th>Catalog Numbers (Amps)</th>
<th>1⁄10 A</th>
<th>1⁄8 A</th>
<th>1⁄4 A</th>
<th>3⁄10 A</th>
<th>1⁄2 A</th>
<th>2 A</th>
<th>2.5 A</th>
<th>3 A</th>
<th>4 A</th>
<th>5 A</th>
<th>6 A</th>
<th>8 A</th>
<th>10 A</th>
<th>12 A</th>
<th>15 A</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCM-1/10</td>
<td>DCM-1/8</td>
<td>DCM-5</td>
<td>DCM-10</td>
<td>DCM-15</td>
<td>DCM-20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DCM-1/8</td>
<td>DCM-1/4</td>
<td>DCM-5</td>
<td>DCM-10</td>
<td>DCM-15</td>
<td>DCM-20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DCM-1/4</td>
<td>DCM-1/2</td>
<td>DCM-5</td>
<td>DCM-10</td>
<td>DCM-15</td>
<td>DCM-20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DCM-1/2</td>
<td>DCM-1</td>
<td>DCM-5</td>
<td>DCM-10</td>
<td>DCM-15</td>
<td>DCM-20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DCM-1</td>
<td>DCM-6</td>
<td>DCM-5</td>
<td>DCM-10</td>
<td>DCM-15</td>
<td>DCM-20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DCM-6/10</td>
<td>DCM-2</td>
<td>DCM-5</td>
<td>DCM-10</td>
<td>DCM-15</td>
<td>DCM-20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Catalog Numbers (Amps) - KLM**

<table>
<thead>
<tr>
<th>Catalog Numbers (Amps)</th>
<th>1⁄10 A</th>
<th>1⁄8 A</th>
<th>1⁄4 A</th>
<th>3⁄10 A</th>
<th>1⁄2 A</th>
<th>2 A</th>
<th>2.5 A</th>
<th>3 A</th>
<th>4 A</th>
<th>5 A</th>
<th>6 A</th>
<th>8 A</th>
<th>10 A</th>
<th>12 A</th>
<th>15 A</th>
</tr>
</thead>
<tbody>
<tr>
<td>KLM-1/10</td>
<td>KLM-1/8</td>
<td>KLM-5</td>
<td>KLM-10</td>
<td>KLM-15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KLM-1/8</td>
<td>KLM-1/4</td>
<td>KLM-5</td>
<td>KLM-10</td>
<td>KLM-15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KLM-1/4</td>
<td>KLM-1/2</td>
<td>KLM-5</td>
<td>KLM-10</td>
<td>KLM-15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KLM-1/2</td>
<td>KLM-1</td>
<td>KLM-5</td>
<td>KLM-10</td>
<td>KLM-15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KLM-1</td>
<td>KLM-6</td>
<td>KLM-5</td>
<td>KLM-10</td>
<td>KLM-15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KLM-6/10</td>
<td>KLM-2</td>
<td>KLM-5</td>
<td>KLM-10</td>
<td>KLM-15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For superior electrical protection, Cooper Bussmann recommends upgrading KTK fuse applications to Low-Peak LP-CC fuses See page 17.

Data Sheet: DCM 2038   KLM 2020

---

Recommended fuse blocks/fuse holders for 13/32” x 1 1/2” fuses
- See page 44

For product data sheets, visit www.cooperbussmann.com/datasheets/ulcsa
Low Voltage Supplementary Fuses

Fuses for Solar Panel Applications

PV Specifications
Class: gPV

Description: A range of fuses specifically designed for the protection and isolation of photovoltaic strings.

Dimensions: ½” x ½” (10.3 x 38.1mm).

Ratings:
Volts — 1000Vdc
Amps — 1-15A
IR — 33kA
IR (Min) — 1.3 x Iₙ

Agency Information: UL Pending, CE, IEC 60269.

Features and Benefits
• Capable of interrupting low over currents associated with faulted PV strings.
• High DC voltage rating.
• Variety of mounting options for flexibility.

Catalog Numbers (Amps)
PV-1A10F  PV-3A10F  PV-5A10F  PV-8A10F  PV-12A10F
PV-2A10F  PV-4A10F  PV-6A10F  PV-10A10F  PV-15A10F
For bolt-on tabs, replace ‘F’ with ‘-T’
For PCB mounting, replace ‘F’ with ‘-1P’ or ‘-2P’

Time-Current Characteristic Curves—Average Melt
Low Voltage Supplementary Fuses

13⁄32” x 1 ½” Time-delay Fuses

FNM
Specifications
Class: Supplemental
Description: Time-delay supplementary fuse.
Dimensions: 13⁄32” x 1 ½” (10.3 x 38.1mm).

Ratings:
Volts — 250Vac (or less)
Amps — ¼–30A
IR — 35A (¼–1A @ 250Vac)
— 100A (1–3½A @ 250Vac)
— 200A (4–10A @ 250Vac)
— 10kA (¼–10A @ 125Vac)
— 10kA (12–30A @ 250Vac)


Features and Benefits
• Low cost supplemental protection of 125V and 250V inductive circuits.

Typical Applications
• General Purpose Circuits
• Lighting Circuit Protection
• Meter Circuits
• Upgrading to LP-CC product will reduce SKU investment and minimize potential for misapplying fuse.

Catalog Numbers (Amps)

<table>
<thead>
<tr>
<th>FNM-⅛</th>
<th>FNM-¼</th>
<th>FNM-½</th>
<th>FNM-1-¼</th>
<th>FNM-1-½</th>
<th>FNM-3</th>
<th>FNM-6</th>
<th>FNM-15</th>
</tr>
</thead>
<tbody>
<tr>
<td>FNM-⅛</td>
<td>FNM-¼</td>
<td>FNM-½</td>
<td>FNM-1-¼</td>
<td>FNM-1-½</td>
<td>FNM-3</td>
<td>FNM-6</td>
<td>FNM-15</td>
</tr>
<tr>
<td>FNM-¼</td>
<td>FNM-½</td>
<td>FNM-1-¼</td>
<td>FNM-1-½</td>
<td>FNM-3</td>
<td>FNM-6</td>
<td>FNM-15</td>
<td></td>
</tr>
<tr>
<td>FNM-½</td>
<td>FNM-1-¼</td>
<td>FNM-1-½</td>
<td>FNM-3</td>
<td>FNM-6</td>
<td>FNM-15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FNM-⅛</td>
<td>FNM-1-½</td>
<td>FNM-3</td>
<td>FNM-6</td>
<td>FNM-15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FNM-¼</td>
<td>FNM-1-½</td>
<td>FNM-3</td>
<td>FNM-6</td>
<td>FNM-15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FNM-½</td>
<td>FNM-3</td>
<td>FNM-6</td>
<td>FNM-15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Data Sheet: 2028

For superior electrical protection, Cooper Bussmann recommends upgrading FNM and FNQ fuse applications to Low-Peak LP-CC fuses See page 17.

Recommended fuse blocks and fuse holders for 13⁄32” x 1 ½” fuses
• See page 44

Data Sheet: 1012
Low Voltage Supplementary Fuses

13⁄32” x 1 ¾” Fast-acting Fuses

**BBS**

**Specifications**
- **Class:** Supplemental
- **Description:** Fast-acting supplementary fuse.
- **Dimensions:** 13⁄32” x 1 ¾” (10.3 x 34.9mm).
- **Construction:** Fiber cartridge.

**Ratings:**
- Volts — 600Vac (½-5A)
  - 250Vac (6-10A)
  - 48Vac (12-30A)
- Amps — ½-30A
- IR — 10kA RMS Sym.

**Agency Information:** CE, Std. 248-14, UL Listed, 0-5A/600V, Guide JDYX, File E19180, CSA Certified, 0-5A/600V, Class 1422-01, File 53787.

**Features and Benefits**
- Low cost supplemental protection of non-inductive circuits
- Reduced interchangeability with other supplemental fuses minimizes misapplication

**Typical Applications**
- Control Circuits
- Lighting Ballasts
- Meter Circuits

**Catalog Numbers (Amps)**

<table>
<thead>
<tr>
<th>Amps</th>
<th>BBS-½</th>
<th>BBS-¾</th>
<th>BBS-1</th>
<th>BBS-5</th>
<th>BBS-10</th>
<th>BBS-15</th>
</tr>
</thead>
<tbody>
<tr>
<td>KTQ-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KTQ-3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KTQ-6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KTQ-½</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KTQ-4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KTQ-2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KTQ-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Recommended fuse blocks/fuse holders for 13⁄32” x 1 ¾” fuses**
- Page 45

**KTQ**

**Specifications**
- **Class:** Supplemental
- **Description:** Fast-acting supplementary fuse.
- **Dimensions:** 13⁄32” x 1 ¾” (10.3 x 34.9mm).
- **Construction:** Fiber cartridge.

**Ratings:**
- Volts — 600Vac
- Amps — 1-6A
- IR — 10kA RMS Sym.

**Agency Information:** CE, Std. 248-14, UL Recognized, 4-6A, Guide JDYX2, File E19180.

**Features and Benefits**
- Low cost supplemental protection of non-inductive circuits
- Rated for application in circuits at 600V or less.
- Reduced interchangeability with other supplemental fuses minimizes misapplication

**Typical Applications**
- Control Circuits
- Lighting Ballasts
- Meter Circuits

For product data sheets, visit www.cooperbussmann.com/datasheets/ulcsa

This document provided by Barr-Thorp Electric Co., Inc. 800-473-9123 www.barr-thorp.com
## Pin Indication Fuses

### GBA

**Specifications**
- **Class:** Supplementary
- **Description:** Fast-acting, pin indication fuse.

**Dimensions:** ⅜" x ⅛" (6.6 x 31.7mm) 3AG.

**Ratings:**
- Volts — See Agency Info below
- Amps — ½-15A

**Agency Information:** CE, Std. 248-14, UL Listed, 0-5A/125Vac, 10,000 AIC, Guide JDYX, File E19180, UL Recognized, 5A/125Vac, 1000AIC 6-15A/30Vac/dc, 300 AIC Guide JDYX2, File E19180, CSA Certified: 0-5A/125Vac, 10,000 AIC Class 1422-01, File 53787.

**Features and Benefits**
- Type GBA has a “red” pin indicator providing visual identification of failed circuits, resulting in faster troubleshooting (reduced circuit downtime).

**Typical Applications**
- Control Circuits
- Electronic Circuits

**GLD Catalog Numbers (Amps)**
- GLD-⅛
- GLD-⅜
- GLD-1
- GLD-1-⅛

**GBA Catalog Numbers (Amps)**
- GBA-⅛
- GBA-⅜
- GBA-1
- GBA-1-⅛

### MIC & MIN

**Specifications**
- **Class:** Supplementary
- **Description:** Fast-acting, pin indication fuse.

**Dimensions:** ⅜" x ⅛" (10.3 x 38.1mm) 5AG.

**Ratings:**
- Volts — 250Vac (1-15A)
- IR — 35A (1A @ 250Vac)

**Agency Information:** CE, Std. 248-14, MIC—0-15A UL Listed, 125Vac/10kA IR Guide JDYX, File E19180, MIN—1-5A CSA Certified, Class 1422-01, File 53787.

**Features and Benefits**
- Type MIC has a “red” pin indicator providing visual identification of failed circuits, resulting in faster trouble shooting (reduced circuit downtime).
- Type MIN has a plated pin to activate transmitting a electrical signal to indicate the location of opened circuits, resulting in reduced downtime.

**Typical Applications**
- Control Circuits
- Electronic Circuits

**MIC Catalog Numbers (Amps)**
- MIC-1
- MIC-2
- MIC-3

**MIN Catalog Numbers (Amps)**
- MIN-1
- MIN-2
- MIN-3

**Recommended signal block for ⅛" x ⅛" indicating fuses**
- Page 45

### FNA

**Specifications**
- **Class:** Supplementary
- **Description:** Time-delay, pin indication fuse.

**Dimensions:** ⅜" x ½" (10.3 x 38.1mm).

**Ratings:**
- Volts — 250Vac (½-30A)
- IR — 35A (½-30A @ 250Vac)

**Agency Information:** CE, Std. 248-14, UL Listed ½-30A, IR 35A @ 250Vac, IR 10kA @ 125Vac, 1-15A, IR 10kA @ 125Vac, Guide JDYX, File 19180, CSA Certified, 0-8A/250V, 1-10A/125V, Class 1422-01, File 53787.

**Features and Benefits**
- FNA has a pin indicator providing visual identification of failed circuits, resulting in reduced circuit downtime.
- Time-delay response allows close sizing on control transformers and relays

**Typical Applications**
- Control Circuits
- Electronic Circuits

**Catalog Numbers (Amps)**
- FNA-⅛
- FNA-⅜
- FNA-½
- FNA-1
- FNA-2
- FNA-3
- FNA-4
- FNA-5
- FNA-6
- FNA-7
- FNA-8
- FNA-9
- FNA-10
- FNA-12
- FNA-15
- FNA-20
- FNA-30

### GLD

**Specifications**
- **Class:** Supplemental
- **Description:** Fast-acting, pin indication fuse.

**Dimensions:** ⅜" x ⅛" (10.3 x 38.1mm) 5AG.

**Ratings:**
- Volts — 250Vac
- IR — 35A

**Agency Information:** CE, Std. 248-14, UL Listed ½-8A, IR 35A @ 250Vac, IR 10kA @ 125Vac, 1-15A, IR 10kA @ 125Vac, Guide JDYX, File 19180, CSA Certified, 0-8A/250V, 1-10A/125V, Class 1422-01, File 53787.

**Features and Benefits**
- Type GLD has a plated pin to activate transmitting a electrical signal to indicate the location of opened circuits, resulting in reduced downtime.

**Typical Applications**
- Control Circuits
- Electronic Circuits

**GLD Catalog Numbers (Amps)**
- GLD-⅛
- GLD-⅜
- GLD-1
- GLD-1-⅛

**Recommended signal block for ⅛" x ½" indicating fuses**
- Page 45

**Data Sheet:** 2029

---

For product data sheets, visit www.cooperbussmann.com/datasheets/ulcsa

---

This document provided by Barr-Thorp Electric Co., Inc. 800-473-9123   www.barr-thorp.com
ANN & ANL Limiters

Specifications
Description: Circuit limiters.
ANN: Very fast-acting limiter.
ANL: Time-delay limiter.
Dimensions: ¾” x 3 ¾” (22.2 x 81.0mm).
Ratings:
ANN:
• Volts — 125Vac
• Amps — 10-800A
• IR — 2500A @ 125Vac
• IR — 2700A @ 80Vdc
ANL:
• Volts — 80Vdc
• Amps — 35-750A
• IR — 2700A @ 80Vdc
• IR — 6000A @ 32Vdc
Agency Information:
ANN: 35-400A @ 125Vac, IR=2500A and 500A @ 80Vdc, IR=2700A: UL Recognized Guide JFHR2, File E56412; CSA Certified Class 1422-30, File 53787, CE for 35-400A.
Features and Benefits
• Fast-acting circuit protection (ANN).
• Time-delay sizing for inductive circuits (ANL).
• Small footprint saves space.
• Window shows limiter status.

Typical Applications
• Fork lifts, Marine, Aviation

ANN Catalog Numbers (Amps)
ANN-10 ANN-90 ANN-225 ANN-400
ANN-35 ANN-100 ANN-250 ANN-500
ANN-40 ANN-125 ANN-275 ANN-600
ANN-50 ANN-150 ANN-300 ANN-700
ANN-60 ANN-175 ANN-325 ANN-800
ANN-80 ANN-200 ANN-350

ANL Catalog Numbers (Amps)
ANL-35 ANL-125 ANL-250 ANL-500
ANL-40 ANL-130 ANL-275 ANL-600
ANL-50 ANL-150 ANL-300 ANL-675
ANL-60 ANL-175 ANL-325 ANL-750
ANL-80 ANL-200 ANL-350
ANL-100 ANL-225 ANL-400

MIS

Specifications
Class: Supplemental
Description: Non-time-delay pin indication fuse.
Dimensions: ¾” x 2” (10.3 x 50.8mm).
Ratings:
• Volts — 600Vac
• Amps — 1-12A
• IR — 200kA
Features and Benefits
• Type MIS has a pin indicator providing visual identification of failed circuits, resulting in faster troubleshooting (reduced circuit downtime).
• Type MIS can be used in circuits rated 600V or less.
• Type MIS has an interrupting rating of 200kA.

Typical Applications
• 480V Control Circuits
• PLC Circuits

Catalog Numbers (Amps)
MIS-1 MIS-4 MIS-10
MIS-2 MIS-5 MIS-12
MIS-3 MIS-8

Test Specifications
Fuse Load Opening Time
All 110% 0 4 hrs. (min.)
1-5A 150% 0 6 min. (max.)
6-12A 150% 12 min. (max.)

Recommended signal block for ¾” x 2” indicating fuses
• Page 45

KAZ

Specifications
Description: Non-Fuse actuator.
Dimensions: ¾” x 2” (10.3 x 50.8mm).
Ratings:
• Volts — 600Vac
• Amps — N/A
• IR — 200kA
Features and Benefits
• Bussmann signal blocks 2778, 2837 or 2838 with KAZ actuators mounted in parallel with fuses having a rating of 50A or larger to provide blown fuse dropout of shunt-trip fused switches.
• Type KAZ can be used in circuits rated 600V or less.
• Type KAZ has an interrupting rating of 200kA.

Typical Applications
• Large, Shunt-Trip Fused Switches
• Fuse Protected Circuits Rated 50A or Larger With Shunt-Trip Devices.

Catalog Number: KAZ

Recommended signal block for ¾” x 2” indicating fuses
• Page 45

4164 & 4164-FR Limiter Blocks

Specifications
Description: Limiter fuse blocks for ANL & ANN.
• 4164 furnished with nylon inserted locknuts
• 4164-FR furnished with standard hex nuts
Dimensions: Length: 3.38”
• Width: 0.95”
• Height: 1.62”
• Studs center to center: 2.43”

Ratings:
• Volts — 125Vac
• Amps — 80Vac
• IR — 10-800A
• Poles: 1 - stud terminal

Data Sheets: 2023 (ANN), 2024 (ANL)

For product data sheets, visit www.cooperbussmann.com/datasheets/ulcsa

This document provided by Barr-Thorp Electric Co., Inc. 800-473-9123 www.barr-thorp.com
In-line Size Rejecting Fuses and Fuse Holders

GLQ

Specifications
Class: Supplemental

Description: Fast-acting, size-rejecting in-line fuse.

Construction: Glass tube.

Ratings:
Volts — 300Vac (or less)
Amps — 1-10A
IR — 10kA

Agency Information: CE, Std. 248-14, UL Listed (Guide JDYX, File E19180), CSA Certified, (Class 1422-01, File 53787).

Features and Benefits
• In-Line, fast-acting circuit protection.
• Rejection feature prevents overfusing.

Typical Applications
• In-Line Lighting Ballast Protection

Catalog Numbers (Amps) and Rejection Holders

<table>
<thead>
<tr>
<th>Fuse</th>
<th>GLQ-1</th>
<th>GLQ-1-1⁄2</th>
<th>GLQ-2</th>
<th>GLQ-2-1⁄2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holder1</td>
<td>HLQ-1-1⁄2</td>
<td>HLQ-1-1⁄2</td>
<td>HLQ-3</td>
<td>HLQ-3-1⁄2</td>
</tr>
<tr>
<td>Holder2</td>
<td>HLQ-3</td>
<td>HLQ-5</td>
<td>HLQ-9</td>
<td>HLQ-10</td>
</tr>
</tbody>
</table>

1) Carter s UL Recognized, Guide IZLT2, File E14853 and CSA Certified, Class 6225-01, File 47235 10A, 300Vac.
2) Units can be panel-mounted either in a knockout hole with a separate steel clip (BK/A-104) or in a keyhole punch using separate mounting clip #6374 for panels of thickness 0.030” to 0.042”.
   • Do not put tension on line (rear) terminal of fuse holder.

Data Sheet: 2033

GMQ

Specifications
Class: Supplemental

Description: Time-delay, size-rejecting in-line fuse.

Construction: Ceramic tube.

Ratings:
Volts — 300Vac (or less)
Amps — ½-61⁄4A
IR — 10kA

Agency Information: CE, Std. 248-14, UL Listed (Guide JDYX, File E19180), CSA Certified, (Class 1422-01, File 53787)

Features and Benefits
• In-line, fast-acting circuit protection.
• Rejection feature prevents overfusing.

Typical Applications
• In-Line Lighting Ballast Protection

Catalog Numbers (Amps) and Rejection Holders

<table>
<thead>
<tr>
<th>Fuse</th>
<th>GMQ-½</th>
<th>GMQ-1⁄2</th>
<th>GMQ-1</th>
<th>GMQ-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holder1</td>
<td>HLQ-1-1⁄2</td>
<td>HLQ-1-1⁄2</td>
<td>HLQ-1</td>
<td>HLQ-2</td>
</tr>
<tr>
<td>Holder2</td>
<td>HLQ-3</td>
<td>HLQ-5</td>
<td>HLQ-9</td>
<td>HLQ-10</td>
</tr>
</tbody>
</table>

3) Carter s UL Recognized, Guide IZLT2, File E14853 and CSA Certified, Class 6225-01, File 47235 10A, 300Vac.
4) Units can be panel-mounted either in a knockout hole with a separate steel clip (BK/A-104) or in a keyhole punch using separate mounting clip #6374 for panels of thickness 0.030” to 0.042”.
   • Do not put tension on line (rear) terminal of fuse holder.

Data Sheet: 2030

For product data sheets, visit www.cooperbussmann.com/datasheets/ulcsa
## In-line Non-rejecting Fuses and Fuse Holders

### GLR

**Specifications**
- **Class:** Supplemental
- **Description:** Fast-acting, non-rejection, in-line fuse.
- **Construction:** Glass tube.

**Ratings:**
- **Volts:** 300Vac (or less)
- **Amps:** $\frac{3}{16}$-15A
- **IR:** 10kA

**Agency Information:** CE, Std. 248-14, UL Listed, 0-15A/300Vac (Guide JDYX, File E19180), CSA Certified, 0-10A/300V (Class 1422-01, File 53787).

**Features and Benefits**
- In-line, fast-acting circuit protection.

**Typical Applications**
- In-Line Lighting Ballast Protection

### GMF

**Specifications**
- **Class:** Supplemental
- **Description:** Time-delay, non-rejection, in-line fuse.
- **Construction:** Glass tube.

**Ratings:**
- **Volts:** 300Vac (or less)
- **Amps:** $\frac{3}{16}$-10A
- **IR:** 10kA

**Agency Information:** CE, Std. 248-14 0-10A, UL Listed (Guide JDYX, File E19180), CSA Certified, (Class 1422-01, File 53787).

**Features and Benefits**
- In-line, time-delay circuits protection.

**Typical Applications**
- In-Line Lighting Ballast Protection

### Catalog Numbers (Amps) and Non-Rejection Holders

<table>
<thead>
<tr>
<th>Fuse</th>
<th>GLR-1/2</th>
<th>GLR-1</th>
<th>GLR-1-1/2</th>
<th>GLR-2</th>
<th>GLR-3</th>
<th>GLR-4</th>
<th>GLR-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holder</td>
<td>HLR</td>
<td>HLR</td>
<td>HLR</td>
<td>HLR</td>
<td>HLR</td>
<td>HLR</td>
<td>HLR</td>
</tr>
</tbody>
</table>

* For two leads (one each for line and loadside) order HLR-2A, 15A, 300V

**Features and Benefits**
- An alternative to the GLR fuse holder is the A fuse holder. The A fuse holder comes WITH leads. The customer inserts #18 insulated solid copper wire into the line side receptacle as well as into the load side receptacle. It has the same body dimensions, utilizes the same mounting hole, and takes the same mounting clips as the HLR. The A fuse holder is UL Recognized, 10A, 300Vac, Guide IZLT2, File E14853 and CSA Certified, 10A, 300Vac, Class 6225-01, File 47235.

**Data Sheet:** 2032

### Catalog Numbers (-Amps) and Non-Rejection Holders

<table>
<thead>
<tr>
<th>Fuse</th>
<th>GMF-3/10</th>
<th>GMF-1/2</th>
<th>GMF-6/10</th>
<th>GMF-1</th>
<th>GMF-1-1/4</th>
<th>GMF-1-6/10</th>
<th>GMF-2</th>
<th>GMF-2-1/2</th>
<th>GMF-2-8/10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holder</td>
<td>HLR</td>
<td>HLR</td>
<td>HLR</td>
<td>HLR</td>
<td>HLR</td>
<td>HLR</td>
<td>HLR</td>
<td>HLR</td>
<td>HLR</td>
</tr>
</tbody>
</table>

* For two leads order HLR-2A, 15A, 300V

**Features and Benefits**
- An alternative to the GMF fuse holder is the A fuse holder. The A fuse holder comes WITH leads. The customer inserts #18 insulated solid copper wire into the line side receptacle as well as into the load side receptacle. It has the same body dimensions, utilizes the same mounting hole, and takes the same mounting clips as the HLR. The A fuse holder is UL Recognized, 10A, 300Vac, Guide IZLT2, File E14853 and CSA Certified, 10A, 300Vac, Class 6225-01, File 47235.

**Data Sheet:** 2031

---

For product data sheets, visit [www.cooperbussmann.com/datasheets/ulcsa](http://www.cooperbussmann.com/datasheets/ulcsa)
Low Voltage Supplementary Fuses

Automotive Blade-type Fuses

ATC® fuse

(Actual Size)

Available With Indication

Specifications
Description: Fast-acting blade fuse.
Construction: Colored plastic housing with zinc fuse element.

Ratings:
Volts — 32Vdc
Amps — 1-40A
IR — 1000A


Features and Benefits
• Color coded plastic housing for easy identification of fuse ratings

Typical Applications
• Automotive

Catalog Numbers (Amps)

<table>
<thead>
<tr>
<th>Part No. Non-Indicating</th>
<th>Indicating</th>
<th>Low-Profile</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATC-1</td>
<td>Black</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATC-2</td>
<td>Gray</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATC-3</td>
<td>ATC-3D</td>
<td>Violet</td>
<td></td>
</tr>
<tr>
<td>ATC-4</td>
<td>Pink</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATC-5</td>
<td>ATC-5D</td>
<td>Tan</td>
<td></td>
</tr>
<tr>
<td>ATC-7 1/2</td>
<td>ATC-7-1/2D</td>
<td>Brown</td>
<td></td>
</tr>
<tr>
<td>ATC-10</td>
<td>ATC-10D</td>
<td>Red</td>
<td></td>
</tr>
<tr>
<td>ATC-15</td>
<td>ATC-15D</td>
<td>Blue</td>
<td></td>
</tr>
<tr>
<td>ATC-20</td>
<td>ATC-20D</td>
<td>Yellow</td>
<td></td>
</tr>
<tr>
<td>ATC-25</td>
<td>ATC-25D</td>
<td>Clear</td>
<td></td>
</tr>
<tr>
<td>ATC-30</td>
<td>ATC-30D</td>
<td>Green</td>
<td></td>
</tr>
<tr>
<td>ATC-35</td>
<td>ATC-35D</td>
<td>Blue-Green</td>
<td></td>
</tr>
<tr>
<td>ATC-40</td>
<td>ATC-40D</td>
<td>Orange</td>
<td></td>
</tr>
</tbody>
</table>

Recommended in-line fuse holder for blade type fuses
• Page 56

Data Sheet: 2009

ATM Fuse

(Actual Size)

Available With Indication

Specifications
Description: Fast-acting blade fuse.
Construction: Colored plastic housing with zinc fuse element.

Ratings:
Volts — 32Vdc
Amps — 2-30A
IR — 1000A

Features and Benefits
• Color coded plastic housing for easy identification of fuse ratings

Typical Applications
• Automotive

Catalog Numbers (Amps)

<table>
<thead>
<tr>
<th>Part No. Non-Indicating</th>
<th>Indicating</th>
<th>Low-Profile</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATM-2</td>
<td>Gray</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATM-3</td>
<td>ATM-3D</td>
<td>Violet</td>
<td></td>
</tr>
<tr>
<td>ATM-4</td>
<td>Pink</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATM-5</td>
<td>ATM-5D</td>
<td>ATM-5LP</td>
<td>Tan</td>
</tr>
<tr>
<td>ATM-7 1/2</td>
<td>ATM-7-1/2D</td>
<td>ATM-7-1/2LP</td>
<td>Brown</td>
</tr>
<tr>
<td>ATM-10</td>
<td>ATM-10D</td>
<td>ATM-10LP</td>
<td>Red</td>
</tr>
<tr>
<td>ATM-15</td>
<td>ATM-15D</td>
<td>ATM-15LP</td>
<td>Blue</td>
</tr>
<tr>
<td>ATM-20</td>
<td>ATM-20D</td>
<td>ATM-20LP</td>
<td>Yellow</td>
</tr>
<tr>
<td>ATM-25</td>
<td>ATM-25D</td>
<td>ATM-25LP</td>
<td>Clear</td>
</tr>
<tr>
<td>ATM-30</td>
<td>ATM-30D</td>
<td>ATM-30LP</td>
<td>Green</td>
</tr>
</tbody>
</table>

Recommended in-line fuse holder for blade type fuses
• Page 56

Data Sheet: 2048

MAX Maxi-Fuse®

(Actual Size)

Available With Indication

Specifications
Description: Fast-acting blade fuse.
Construction: Colored plastic housing with zinc fuse element.

Ratings:
Volts — 32Vdc
Amps — 20-80A
IR — 1000A

Features and Benefits
• Color coded plastic housing for easy identification of fuse ratings

Typical Applications
• Automotive

Catalog Numbers (Amps)

<table>
<thead>
<tr>
<th>Catalog No. Non-Indicating</th>
<th>Indicating</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAX-20</td>
<td>MAX-20ID</td>
<td>Yellow</td>
</tr>
<tr>
<td>MAX-25</td>
<td>MAX-25D</td>
<td>Gray</td>
</tr>
<tr>
<td>MAX-30</td>
<td>MAX-30D</td>
<td>Green</td>
</tr>
<tr>
<td>MAX-35</td>
<td>MAX-35D</td>
<td>Brown</td>
</tr>
<tr>
<td>MAX-40</td>
<td>MAX-40D</td>
<td>Orange</td>
</tr>
<tr>
<td>MAX-50</td>
<td>MAX-50ID</td>
<td>Red</td>
</tr>
<tr>
<td>MAX-60</td>
<td>MAX-60ID</td>
<td>Blue</td>
</tr>
<tr>
<td>MAX-70</td>
<td>MAX-70D</td>
<td>Tan</td>
</tr>
<tr>
<td>MAX-80</td>
<td>MAX-80ID</td>
<td>Clear</td>
</tr>
<tr>
<td>MAX-100ID</td>
<td>MAX-100ID</td>
<td>Purple</td>
</tr>
</tbody>
</table>

Recommended in-line fuse holder for blade type fuses
• Page 56

Data Sheet: 2049

For product data sheets, visit www.cooperbussmann.com/products/datasheet.asp

This document provided by Barr-Thorp Electric Co., Inc. 800-473-9123 www.barr-thorp.com
Automotive Blade-type Fuse Holders

**HHC, HHD, HHF, HHG & ATC-FHID**

- **Specifications**
  - **Description:** In-line fuse holders for ATC® Blade-Type fuses.
  - **Dimensions:** See Dimensions illustration.
  - **Ratings:**
    - Volts: — 32Vdc
    - Amps: — 80% continuous of fuse rating. See Catalog Numbers table for individual fuses sizes.

- **Catalog Numbers**
  - **Catalog Fuse Numbers**
  - **Description:** In-line fuse holders for ATC® Blade-Type fuses.
  - **Dimensions:** See Dimensions illustration.
  - **Ratings:**
    - Volts: — 32Vdc
    - Amps: — 80% continuous of fuse rating. See Catalog Numbers table for individual fuses sizes.

- **Catalog Numbers**
  - **Catalog Numbers**
  - **Fuse Holder Description**
  - **Electrical Connection**
  - **HHC**
    - **Fuse Holder Description:** Yellow
    - **Amps:** 1-20
    - **Connection:** #16 black leadwire
  - **HHD**
    - **Fuse Holder Description:** Black
    - **Amps:** 1-30
    - **Connection:** #12 yellow leadwire
  - **HHF**
    - **Fuse Holder Description:** Black w/ cover
    - **Amps:** 1-20
    - **Connection:** #16 yellow leadwire
  - **HHG**
    - **Fuse Holder Description:** Black w/ cover
    - **Amps:** 1-30
    - **Connection:** #12 yellow leadwire
  - **ATC-FHID**
    - **Fuse Holder Description:** Indicating Holder
    - **Amps:** 1-20
    - **Connection:** #16 black leadwire

- **Bulk Products (Quantity - 1000 Pieces)**
  - **Catalog Numbers**
  - **Fuse Holder Description**
  - **Electrical Connection**
  - **BK/HHC-R**
    - **Fuse Holder Description:** Yellow
    - **Amps:** 1-20
    - **Connection:** #16 red leadwire
  - **BK/HHD-B**
    - **Fuse Holder Description:** Black w/ cover
    - **Amps:** 1-20
    - **Connection:** #16 black leadwire

A fuse must be properly and fully inserted into the holder to provide a solid connection. Poor or improper insertion of the fuse can result in failure of the fuse and holder, thus not protecting the device for which it was intended.

**HHL, HHM & ATM-FHID**

- **Specifications**
  - **Description:** In-line fuse holders for ATM Fuses.
  - **Ratings:**
    - Volts: — 32Vdc
    - Amps: — 80% continuous of fuse rating. See Catalog Numbers table for individual fuses sizes.

- **Catalog Numbers**
  - **Catalog Numbers**
  - **Fuse Holder Description**
  - **Electrical Connection**
  - **HHL**
    - **Fuse Holder Description:** Black w/ cover
    - **Amps:** 2-20
    - **Connection:** #16 black leadwire, 4" length stripped to 1/4"
  - **HHL-B**
    - **Fuse Holder Description:** Black - body only
    - **Amps:** 2-20
    - **Connection:** #16 black leadwire, 4" length stripped to 1/4"
  - **HHM**
    - **Fuse Holder Description:** Black w/ cover
    - **Amps:** 2-30
    - **Connection:** #12 red leadwire, 4" length stripped to 1/4"
  - **HHM-B**
    - **Fuse Holder Description:** Black - body only
    - **Amps:** 2-30
    - **Connection:** #12 red leadwire, 4" length stripped to 1/4"
  - **HHM-C**
    - **Fuse Holder Description:** Black - cover only
    - **Amps:** —
    - **Connection:** —
  - **ATM-FHID**
    - **Fuse Holder Description:** Indicating Holder
    - **Amps:** 1-20
    - **Connection:** #16 black leadwire

- **Bulk Products (Quantity - 1000 Pieces)**
  - **Catalog Numbers**
  - **Fuse Holder Description**
  - **Electrical Connection**
  - **BK/HHL-R**
    - **Fuse Holder Description:** Black - w/cover
    - **Amps:** 2-20
    - **Connection:** #16 red leadwire, 5" with blunt ends
  - **BK/HHL-B**
    - **Fuse Holder Description:** Black - body only
    - **Amps:** 2-20
    - **Connection:** #16 red leadwire, 5" with blunt ends
  - **BK/HHL-C**
    - **Fuse Holder Description:** Black cover only
    - **Amps:** —
    - **Connection:** —

A fuse must be properly and fully inserted into the holder to provide a solid connection. Poor or improper insertion of the fuse can result in failure of the fuse and holder, thus not protecting the device for which it was intended.

**HHX**

- **Specifications**
  - **Description:** In-line fuse holders for MAXI® Fuses.
  - **Ratings:**
    - Volts: — 32Vdc
    - Amps: — 80% continuous of fuse rating. See Catalog Numbers table for individual fuses sizes.

- **Catalog Numbers**
  - **Catalog Numbers**
  - **Fuse Holder Description**
  - **Electrical Connection**
  - **HHX**
    - **Fuse Holder Description:** Black w/ cover
    - **Amps:** 20-60
    - **Connection:** #6 red leadwire, 5" with blunt ends
  - **HHX-B**
    - **Fuse Holder Description:** Black - body only
    - **Amps:** 20-60
    - **Connection:** #6 red leadwire, 5" with blunt ends
  - **HHX-C**
    - **Fuse Holder Description:** Black cover only
    - **Amps:** —
    - **Connection:** —

A fuse must be properly and fully inserted into the holder to provide a solid connection. Poor or improper insertion of the fuse can result in failure of the fuse and holder, thus not protecting the device for which it was intended.

**Dimensions - in**

- **HHC, HHD, HHF, HHG & ATC-FHID**
  - **Dimensions - in**
  - **HHXHHL, HHM & ATM-FHID**
  - **Dimensions - in**

**Data Sheet: 2107**

**Data Sheet: 2128**

**Data Sheet: 2129**