# Low Voltage Supplementary Fuses

## Section Contents

<table>
<thead>
<tr>
<th>Fuse Holder &amp; Block Selection Guide</th>
<th>44-45</th>
</tr>
</thead>
<tbody>
<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>⅝” x 1 ½” Fast-acting supplementary fuses</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>½” x 1 ¾” Time-delay supplementary fuses</td>
<td></td>
</tr>
<tr>
<td>FNM</td>
<td>250V</td>
</tr>
<tr>
<td>FNQ</td>
<td>500V</td>
</tr>
<tr>
<td>½” x 1 ⅜” Fast-acting supplementary fuses</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>
## Low Voltage Supplementary Fuses

### 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

### 13⁄32" X 1 ½" 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)
Low Voltage Supplementary Fuses

Holders & 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>BBS</td>
<td>600V</td>
<td>50</td>
</tr>
<tr>
<td>KTQ</td>
<td>600V</td>
<td>50</td>
</tr>
</tbody>
</table>

 Holder
• HLQ Rejection holder ..................... 5 3

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

Pin Indicating Fuses

13/32" X 1 1/4" Fuse Catalog Numbers

<table>
<thead>
<tr>
<th>Catalog Numbers</th>
<th>Volts</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>BBS</td>
<td>600V</td>
<td>50</td>
</tr>
<tr>
<td>KTQ</td>
<td>600V</td>
<td>50</td>
</tr>
</tbody>
</table>

 Holder
• HPS-L Panel mount holder ..................... 286

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

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>

 Holder
• ATC: HHC, HHD, HHF & ATC-FHID In-line holders ..... 56
• ATM: HHL, HHM & ATC-FHID In-line holders .......... 56
• MAX: HHX In-line holders ........................... 56

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>

 Holder
• GLQ & GMQ: HLQ Rejection holder ..................... 53
• GLR, GMF & GRF: HLR & HLR-2A non-rejection holders ... 54

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

Cable Limiters & Welder Limiters

K Series

Specifications
Description: Cable limiters.

Ratings:
Volts — 600Vac
IR — 200,000A RMS Sym.
@ 600Vac

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
Copper Cable Limiter — 600 Volts

<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>KCF #3</td>
<td>KCH</td>
<td>250 MCM</td>
<td></td>
</tr>
<tr>
<td>KCA #2</td>
<td>KCM</td>
<td>250 MCM</td>
<td></td>
</tr>
<tr>
<td>KCB #1</td>
<td>KCM</td>
<td>300 MCM</td>
<td></td>
</tr>
<tr>
<td>KCC 1/0</td>
<td>KCV</td>
<td>600 MCM</td>
<td></td>
</tr>
<tr>
<td>KCD 2/0</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>
<tr>
<td>Tubular terminal and Offset Bolt-Type Terminal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KCV #4</td>
<td>KDD</td>
<td>4/0</td>
<td></td>
</tr>
<tr>
<td>KDF #3</td>
<td>KDE</td>
<td>350 MCM</td>
<td></td>
</tr>
<tr>
<td>KG #2</td>
<td>KDH</td>
<td>250 MCM</td>
<td></td>
</tr>
<tr>
<td>KDA #1</td>
<td>KDI</td>
<td>500 MCM</td>
<td></td>
</tr>
<tr>
<td>KDB 1/0</td>
<td>KDP</td>
<td>600 MCM</td>
<td></td>
</tr>
<tr>
<td>KDC 2/0</td>
<td>KDR</td>
<td>750 MCM</td>
<td></td>
</tr>
<tr>
<td>Compression Connector Rod and Tubular Terminals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KEX 4/0</td>
<td>KEO</td>
<td>350 MCM</td>
<td></td>
</tr>
<tr>
<td>KFO #2</td>
<td>KFR</td>
<td>500 MCM</td>
<td></td>
</tr>
<tr>
<td>*Center Bolt-Type Terminal and Off-Set Bolt-Type Terminal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KPF 4/0</td>
<td>KDF</td>
<td>500 MCM</td>
<td></td>
</tr>
<tr>
<td>KFT 250 MCM</td>
<td>KF</td>
<td>750 MCM</td>
<td></td>
</tr>
</tbody>
</table>

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

1UL Listed (File E90818).
2Available with shrink tube “V” suffix.
3Available with molded rubber boots. Add “-B” to end of part number.

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
• Dies: 15506 KDM/15515 KDR

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

Data Sheet: 1042

64000 & 68000 Series

Specifications
Description: Welder limiters.

Ratings:
Volts — 600Vac (or less)
IR — 200,000A RMS Sym.

Features and Benefits
• Current-limiting devices designed specially for use on welder circuits only
• Time-current characteristics are designed to hold on the intermittent overloading encountered in welder operation, while providing short-circuit protection to the circuit and equipment
• Welder limiters have excess current capacity in the operating range as needed for this type of service

Typical Applications
• Welder circuits
• Because welder limiters have special characteristics, they are not intended for application on general-use circuits

Catalog Numbers

<table>
<thead>
<tr>
<th>Catalog Numbers</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>

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

Data Sheet: 1045

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

**Specifications**
- **Class:** Supplemental
- **Description:** Fast-acting supplementary fuse.
- **Dimensions:** \( \frac{3}{32}'' \times 1 \frac{1}{2}'' \) (10.3 x 38.1mm).
- **Ratings:**
  - Volts — 250Vac (or less)
  - Amps — \( \frac{3}{4}-30A \)
  - IR — 10kA @ 125Vac (10A-30A)
  - IR — 100A @ 250Vac

**Agency Information:**
- CE, Std. 248-14, UL Listed, 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)**
- BAF-\( \frac{1}{10} \)
- BAF-1
- BAF-2
- BAF-2-\( \frac{1}{2} \)
- BAF-3
- BAF-4
- BAF-5
- BAF-6
- BAF-6-\( \frac{1}{2} \)
- BAF-7
- BAF-8
- BAF-10
- BAF-12
- BAF-15
- BAF-20
- BAF-25
- BAF-30

For superior electrical protection, Cooper Bussmann recommends upgrading BAF 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:** \( \frac{3}{32}'' \times 1 \frac{1}{2}'' \) (10.3 x 38.1mm).
- **Ratings:**
  - Volts — 600Vac (or less)
  - Amps — \( \frac{3}{4}-30A \)
  - 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)**
- KTK-\( \frac{1}{10} \)
- KTK-\( \frac{1}{8} \)
- KTK-\( \frac{1}{4} \)
- KTK-\( \frac{3}{10} \)
- KTK-\( \frac{1}{2} \)
- KTK-\( \frac{2}{10} \)
- KTK-\( \frac{3}{10} \)
- KTK-\( \frac{1}{4} \)
- KTK-\( \frac{1}{2} \)
- KTK-\( \frac{5}{10} \)
- KTK-\( \frac{1}{4} \)
- KTK-\( \frac{1}{2} \)
- KTK-\( \frac{5}{10} \)
- KTK-\( \frac{1}{4} \)
- KTK-\( \frac{1}{2} \)
- KTK-\( \frac{5}{10} \)
- KTK-\( \frac{1}{4} \)
- KTK-\( \frac{1}{2} \)
- KTK-\( \frac{5}{10} \)
- KTK-\( \frac{1}{4} \)
- KTK-\( \frac{1}{2} \)
- KTK-\( \frac{5}{10} \)

*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:** \( \frac{3}{32}'' \times 1 \frac{1}{2}'' \) (10.3 X 38.1mm).
- **Ratings:**
  - Volts — 600Vac/dc
  - Amps — \( \frac{3}{4}-30A \)
  - IR — 100kA AC
  - IR — 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-\( \frac{1}{10} \)
- DCM-\( \frac{1}{8} \)
- DCM-\( \frac{1}{4} \)
- DCM-\( \frac{1}{2} \)
- DCM-\( \frac{5}{10} \)
- DCM-\( \frac{1}{4} \)
- DCM-\( \frac{1}{2} \)
- DCM-\( \frac{5}{10} \)

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 \( \frac{3}{32}'' \times 1 \frac{1}{2}'' \) fuses**
- See page 44
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: 13/32" x 1 1/2" (10.3 x 38.1mm).

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

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)

<table>
<thead>
<tr>
<th>PV-1A10F</th>
<th>PV-3A10F</th>
<th>PV-5A10F</th>
<th>PV-8A10F</th>
<th>PV-12A10F</th>
</tr>
</thead>
<tbody>
<tr>
<td>PV-2A10F</td>
<td>PV-4A10F</td>
<td>PV-6A10F</td>
<td>PV-10A10F</td>
<td>PV-15A10F</td>
</tr>
</tbody>
</table>

For bolt-on tabs, replace ‘F’ with ‘-T’
For PCB mounting, replace ‘F’ with ‘-1P’ or ‘-2P’

Time-Current Characteristic Curves—Average Melt

Data Sheet: 720110

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


13/32” x 1 1/2” Time-delay Fuses

**Specifications**

**Class:** Supplemental

**Description:** Time-delay supplementary fuse.

**Dimensions:** 13/32” x 1 1/2” (10.3 x 38.1mm).

**Ratings:**

Volts — 250Vac (or less)

Amps — 1/10-30A

IR — 35A (1/10-1A @ 250Vac)

— 100A (1/10-3/4A @ 250Vac)

— 200A (4-10A @ 250Vac)

— 10kA (1/10-10A @ 125Vac)

— 10kA (1/10-30A @ 250Vac)

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

**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>Amps</th>
<th>FNQ-1/10</th>
<th>FNQ-3/10</th>
<th>FNQ-1-1/2</th>
<th>FNQ-3-1/2</th>
<th>FNQ-7</th>
<th>FNQ-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>FNQ-1/10</td>
<td>FNQ-3/10</td>
<td>FNQ-1-1/2</td>
<td>FNQ-3-1/2</td>
<td>FNQ-7</td>
<td>FNQ-20</td>
<td></td>
</tr>
<tr>
<td>FNQ-3/10</td>
<td>FNQ-1-1/2</td>
<td>FNQ-3-1/2</td>
<td>FNQ-7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FNQ-1-1/2</td>
<td>FNQ-3-1/2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FNQ-3-1/2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 1/2” fuses

- See page 44

Data Sheet: 2028
Low Voltage Supplementary Fuses

13⁄32” x 1 3⁄8” Fast-acting Fuses

BBS

Specifications
Class: Supplemental
Description: Fast-acting supplementary fuse.
Dimensions: 13⁄32” x 1 3⁄8” (10.3 x 34.9mm).
Construction: Fiber cartridge.
Ratings:
Volts — 600Vac
— 250Vac (6 - 10A)
— 48Vac (12-30A)
Amps — ¼-30A
IR — 10kA RMS Sym.

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>BBS-1⁄10</th>
<th>BBS-2⁄10</th>
<th>BBS-3⁄4</th>
<th>BBS-1⁄2</th>
<th>BBS-1</th>
<th>BBS-1-1⁄10</th>
<th>BBS-2</th>
<th>BBS-1-8⁄10</th>
<th>BBS-4</th>
<th>BBS-1-6⁄10</th>
<th>BBS-6</th>
<th>BBS-25</th>
<th>BBS-7</th>
<th>BBS-10</th>
<th>BBS-12</th>
<th>BBS-15</th>
</tr>
</thead>
</table>

KTQ

Specifications
Class: Supplemental
Description: Fast-acting supplementary fuse.
Dimensions: 13⁄32” x 1 3⁄8” (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

Catalog Numbers (Amps) (600Vac)

<table>
<thead>
<tr>
<th>KTQ-1</th>
<th>KTQ-2</th>
<th>KTQ-3</th>
<th>KTQ-4</th>
<th>KTQ-5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Recommended fuse blocks/fuse holders for 13⁄32” x 1 3⁄8” fuses
• Page 45

Data Sheet: 2010 (0-30A)
Pin Indication Fuses

### GBA

**Specifications**
- **Class:** Supplemental
- **Description:** Fast-acting, pin indication fuse.
- **Dimensions:** ¼” x 1 ¼” (6.6 x 31.7mm) 3AG.

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

### MIC & MIN

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

**Dimensions:** ½" x 1 ½" (10.3 x 38.1mm) 5AG.

**Ratings:**
- Vols — 250Vac (1-15A)
- — 32V (20-30A)
- Amps — 1-30A

**Agency Information:** CE, Std. 248-14, UL Listed, 0-5A/125Vac, 10,000 AIC, Guide JDYX, File E19180, UL Recognized, 6A/125Vac, 1000AIC 8-15A/50Vac/dc, 300 AIC Guide JDYX2, File E19180, CSA Certified: 0-5A/125Vac, 10,000 AIC Class 1422-01, File 53787.

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

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

### FNA

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

**Dimensions:** ½” x 1 ½” (10.3 x 38.1mm).

**Ratings:**
- Vols — 250Vac (¼-½A)
- — 125Vac (1-15A)
- — 32V (20-30A)
- Amps — ¼-30A

**Agency Information:** CE, Std. 248-14, UL Listed, 0-5A @ 250Vac, IR 35A@ 250Vac, IR 10kA@ 125Vac, 1-15A, IR 10kA@ 125Vac, Guide JDYX, File 19180, CSA Certified: 0-½A/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-¼ FNA-½ FNA-2-½ FNA-6-¼
- FNA-¼ FNA-1 FNA-2-½ FNA-6
- FNA-¼ FNA-1-¼ FNA-2-¼ FNA-6-¼
- FNA-¼ FNA-1-¼ FNA-3-¼ FNA-9
- FNA-¼ FNA-1 FNA-3 FNA-10
- FNA-¼ FNA-1 FNA-4 FNA-12* FNA-¼ FNA-1 FNA-4-½ FNA-15* FNA-½ FNA-1-½ FNA-5 FNA-20* FNA-¼ FNA-2 FNA-5-½ FNA-25* FNA-¼ FNA-2-¼ FNA-6 FNA-30

*12-30A versions are dual-tube construction

---

**Recommended fuse blocks/fuse holders for ¼” x 1 ¼” indicating fuses**
- Page 45

**Data Sheet:** 2012

---

**Recommended signal block for ½” x 1 ½” indicating fuses**
- Page 45

**Data Sheet:** 2029

---

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

Pin Indication Fuse and Actuator, and Limiters

ANN & ANL Limiters

**Specifications**

**Description:** Circuit limiters.

**ANN:** Very fast-acting limiter.

**ANL:** Time-delay limiter.

**Dimensions:** \( \frac{3}{4} \times 3 \frac{3}{16} \) (22.2 x 81.0mm).

**Ratings:**

**ANN:**
- Volts — 125Vac
- Volts — 80Vdc
- 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.

**ANL:** UL Recognized, CSA Certified, 35-750A @ 80Vdc, IR = 2700A, Guide JFHR2, File E56412, Class 1422-30, File 53787, SAE J1171.

**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)**

<table>
<thead>
<tr>
<th>ANN-10</th>
<th>ANN-90</th>
<th>ANN-225</th>
<th>ANN-400</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANN-15</td>
<td>ANN-100</td>
<td>ANN-250</td>
<td>ANN-500</td>
</tr>
<tr>
<td>ANN-40</td>
<td>ANN-125</td>
<td>ANN-275</td>
<td>ANN-600</td>
</tr>
<tr>
<td>ANN-50</td>
<td>ANN-150</td>
<td>ANN-300</td>
<td>ANN-700</td>
</tr>
<tr>
<td>ANN-60</td>
<td>ANN-175</td>
<td>ANN-325</td>
<td>ANN-800</td>
</tr>
<tr>
<td>ANN-80</td>
<td>ANN-200</td>
<td>ANN-350</td>
<td></td>
</tr>
</tbody>
</table>

**ANL Catalog Numbers (Amps)**

<table>
<thead>
<tr>
<th>ANL-15</th>
<th>ANL-250</th>
<th>ANL-500</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANL-125</td>
<td>ANL-275</td>
<td>ANL-600</td>
</tr>
<tr>
<td>ANL-150</td>
<td>ANL-300</td>
<td>ANL-675</td>
</tr>
<tr>
<td>ANL-175</td>
<td>ANL-325</td>
<td>ANL-750</td>
</tr>
<tr>
<td>ANL-200</td>
<td>ANL-350</td>
<td></td>
</tr>
<tr>
<td>ANL-100</td>
<td>ANL-225</td>
<td>ANL-400</td>
</tr>
</tbody>
</table>

MIS

**Specifications**

**Class:** Supplemental

**Description:** Non time-delay pin indication fuse.

**Dimensions:** \( \frac{3}{16} \times 2 \) (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)**

<table>
<thead>
<tr>
<th>MIS-1</th>
<th>MIS-4</th>
<th>MIS-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIS-2</td>
<td>MIS-5</td>
<td>MIS-12</td>
</tr>
<tr>
<td>MIS-3</td>
<td>MIS-8</td>
<td></td>
</tr>
</tbody>
</table>

**Test Specifications**

<table>
<thead>
<tr>
<th>Fuse</th>
<th>Load</th>
<th>Opening Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-5A</td>
<td>110%</td>
<td>0 4 hrs. (min.)</td>
</tr>
<tr>
<td>6-12A</td>
<td>150%</td>
<td>0 6 min. (max.)</td>
</tr>
</tbody>
</table>

**Recommended signal block for \( \frac{3}{16} \times 2 \) indicating fuses**

- Page 45

KAZ

**Specifications**

**Description:** Non-Fuse actuator.

**Dimensions:** \( \frac{3}{8} \times 2 \) (10.3 x 50.8mm).

**Ratings:**

- Volts — 600Vac
- Amps — N/A
- IR — 200kA

**Agency Information:** CE, UL Listed, Guide JDVS, File E58836.

**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

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
- Volts — 80Vdc
- Amps — 10-800A
- Poles: 1 - stud terminal

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

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

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>Holder1, 2</th>
<th>Fuse</th>
<th>Holder1, 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>GLQ-1</td>
<td>HLQ-2-6/10</td>
<td>GLQ-3</td>
<td>HLQ-3-6/10</td>
</tr>
<tr>
<td>GLQ-1-1/2</td>
<td>HLQ-1-1/2</td>
<td>GLQ-4</td>
<td>HLQ-5</td>
</tr>
<tr>
<td>GLQ-1-3/16</td>
<td>HLQ-1-3/16</td>
<td>GLQ-5</td>
<td>HLQ-5</td>
</tr>
<tr>
<td>GLQ-2</td>
<td>HLQ-3-3/16</td>
<td>GLQ-9</td>
<td>HLQ-10</td>
</tr>
<tr>
<td>GLQ-2-1/2</td>
<td>HLQ-3-1/2</td>
<td>GLQ-10</td>
<td>HLQ-10</td>
</tr>
</tbody>
</table>

1) Carrier is 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 0.003” to 0.032” or #4909 for thickness 0.033” 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 — 1/4-61/4A
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>Holders3, 4</th>
<th>Fuse</th>
<th>Holders3, 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>GMQ-1/2</td>
<td>HLQ-1/2</td>
<td>GMQ-2</td>
<td>HLQ-3-1/2</td>
</tr>
<tr>
<td>GMQ-3/4</td>
<td>HLQ-3/4</td>
<td>GMQ-3</td>
<td>HLQ-3-3/4</td>
</tr>
<tr>
<td>GMQ-1</td>
<td>HLQ-1</td>
<td>GMQ-3</td>
<td>HLQ-3-1/2</td>
</tr>
<tr>
<td>GMQ-1-1/2</td>
<td>HLQ-1-1/2</td>
<td>GMQ-4</td>
<td>HLQ-5</td>
</tr>
<tr>
<td>GMQ-2</td>
<td>HLQ-2</td>
<td>GMQ-6</td>
<td>HLQ-8</td>
</tr>
</tbody>
</table>

3) Carrier is 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 0.043” to 0.062” or #4909 for thickness 0.033” 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
## Low Voltage Supplementary Fuses

### GLR Specifications
- **Class:** Supplemental
- **Description:** Fast-acting, non-rejection, in-line fuse.
- **Construction:** Glass tube.
- **Ratings:**
  - Volts: 300Vac (or less)
  - Amps: 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.

### GLR Catalog Numbers and Non-Rejection Holders

<table>
<thead>
<tr>
<th>Fuse</th>
<th>Holder1, 2o</th>
<th>Fuse</th>
<th>Holder1, 2o</th>
</tr>
</thead>
<tbody>
<tr>
<td>GLR-1/2</td>
<td>HLR</td>
<td>GLR-8</td>
<td>HLR</td>
</tr>
<tr>
<td>GLR-1</td>
<td>HLR</td>
<td>GLR-7</td>
<td>HLR</td>
</tr>
<tr>
<td>GLR-1-1/2</td>
<td>HLR</td>
<td>GLR-6</td>
<td>HLR</td>
</tr>
<tr>
<td>GLR-2</td>
<td>HLR</td>
<td>GLR-5</td>
<td>HLR</td>
</tr>
<tr>
<td>GLR-3</td>
<td>HLR</td>
<td>GLR-10</td>
<td>HLR</td>
</tr>
<tr>
<td>GLR-4</td>
<td>HLR</td>
<td>GLR-12</td>
<td>HLR</td>
</tr>
<tr>
<td>GLR-5</td>
<td>HLR</td>
<td>GLR-15</td>
<td>HLR-2A</td>
</tr>
</tbody>
</table>

1) Carter is UL Recognized, Guide IZLT2, File E14853 and CSA Certified, Class 6225-01, File 47235 12A, 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 0.043” to 0.062” or #4909 for thickness 0.030” to 0.042”.

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

- An alternative to the HLR fuse holder is the A fuse holder. The A fuse holder comes WITHOUT 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.

- Do not put tension on line (rear) terminal of fuse holder.

### Data Sheet: 2032

### GMF Specifications
- **Class:** Supplemental
- **Description:** Time-delay, non-rejection, in-line fuse.
- **Construction:** Glass tube.
- **Ratings:**
  - Volts: 300Vac (or less)
  - Amps: 1/10-10A
  - 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.

### GMF Catalog Numbers and Non-Rejection Holders

<table>
<thead>
<tr>
<th>Fuse</th>
<th>Holder3, 4*</th>
<th>Fuse</th>
<th>Holder3, 4*</th>
</tr>
</thead>
<tbody>
<tr>
<td>GMF-1/10</td>
<td>HLR</td>
<td>GMF-3</td>
<td>HLR</td>
</tr>
<tr>
<td>GMF-1/2</td>
<td>HLR</td>
<td>GMF-3-1/2</td>
<td>HLR</td>
</tr>
<tr>
<td>GMF-1/3</td>
<td>HLR</td>
<td>GMF-4</td>
<td>HLR</td>
</tr>
<tr>
<td>GMF-1/5</td>
<td>HLR</td>
<td>GMF-5</td>
<td>HLR</td>
</tr>
<tr>
<td>GMF-1</td>
<td>HLR</td>
<td>GMF-6-1/4</td>
<td>HLR</td>
</tr>
<tr>
<td>GMF-1-1/4</td>
<td>HLR</td>
<td>GMF-10</td>
<td>HLR</td>
</tr>
<tr>
<td>GMF-1-3/4</td>
<td>HLR</td>
<td>GMF-7</td>
<td>HLR</td>
</tr>
<tr>
<td>GMF-2</td>
<td>HLR</td>
<td>GMF-8</td>
<td>HLR</td>
</tr>
<tr>
<td>GMF-2-1/4</td>
<td>HLR</td>
<td>GMF-10</td>
<td>HLR</td>
</tr>
<tr>
<td>GMF-2-3/4</td>
<td>HLR</td>
<td>GMF-10</td>
<td>HLR</td>
</tr>
</tbody>
</table>

3) Carter is UL Recognized, Guide IZLT2, File E14853 and CSA Certified, Class 6225-01, File 47235 12A, 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 0.043” to 0.062” or #4909 for thickness 0.030” to 0.042”.

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

- An alternative to the HLR fuse holder is the A fuse holder. The A fuse holder comes WITHOUT 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.

- Do not put tension on line (rear) terminal of fuse holder.

### Data Sheet: 2031
## Low Voltage Supplementary Fuses

### Automotive Blade-type Fuses

#### ATC® Fuse

- **Specifications**
  - **Description:** Fast-acting blade fuse.
  - **Construction:** Colored plastic housing with zinc fuse element.
  - **Ratings:**
    - Volts — 32Vdc
    - Amps — 1-40A
    - IR — 1000A
  - **Agency Information:** UL Recognized, (3-40A) (Guide JFHR2, File E56412), SAE Standard J1284.

- **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.</th>
<th>Non-Indicating Color</th>
<th>Indicating Color</th>
<th>Low-Profile Color</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATC-1</td>
<td>Black</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATC-2</td>
<td>Gray</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATC-3</td>
<td>ARC-3D</td>
<td>Violet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATC-4</td>
<td>Pink</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATC-5</td>
<td>ARC-5D</td>
<td>Tan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATC-7/2</td>
<td>ARC-7/2D</td>
<td>Brown</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATC-10</td>
<td>ARC-10D</td>
<td>Red</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATC-15</td>
<td>ARC-15D</td>
<td>Blue</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATC-20</td>
<td>ARC-20D</td>
<td>Yellow</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATC-25</td>
<td>ARC-25D</td>
<td>Clear</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATC-30</td>
<td>ARC-30D</td>
<td>Green</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATC-35</td>
<td>ARC-35D</td>
<td>Blue-Green</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATC-40</td>
<td>ARC-40D</td>
<td>Orange</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

- **Data Sheet:** 2009

#### ATM Fuse

- **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.</th>
<th>Indicating Color</th>
<th>Low-Profile Color</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</td>
<td>ATM-7/1D</td>
<td>ATM-7/1LP</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®

- **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.</th>
<th>Indicating Color</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAX-20</td>
<td>MAX-20D</td>
<td>Yellow</td>
</tr>
<tr>
<td>MAX-25</td>
<td>Gray</td>
<td></td>
</tr>
<tr>
<td>MAX-30</td>
<td>MAX-30D</td>
<td>Green</td>
</tr>
<tr>
<td>MAX-35</td>
<td>Purple</td>
<td></td>
</tr>
<tr>
<td>MAX-40</td>
<td>MAX-40D</td>
<td>Orange</td>
</tr>
<tr>
<td>MAX-50</td>
<td>MAX-50D</td>
<td>Brown</td>
</tr>
<tr>
<td>MAX-60</td>
<td>MAX-60D</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-80D</td>
<td>Clear</td>
</tr>
<tr>
<td>MAX-100</td>
<td>MAX-100D</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](http://www.cooperbussmann.com/products/datasheet.asp)
Low Voltage Supplementary Fuses

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

<table>
<thead>
<tr>
<th>Catalog Numbers</th>
<th>Fuse Holder Description</th>
<th>Fuse Amps</th>
<th>Electrical Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>HHC Yellow</td>
<td>1-20 #16 black leadwire</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>HHD Black</td>
<td>1-30 #12 yellow leadwire</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>HHD-C HHD Cover only</td>
<td>— Clear polycarbonate</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>HHF Black w/ cover</td>
<td>1-20 #16 yellow leadwire</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>HHG Black w/ cover</td>
<td>1-30 #12 yellow leadwire</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>ATC-FHID Indicating Holder</td>
<td>Black w/ cover</td>
<td>1-20 #16 black leadwire</td>
<td>—</td>
</tr>
</tbody>
</table>

Catalog Numbers (Quantity - 1000 Pieces)

<table>
<thead>
<tr>
<th>Catalog Numbers</th>
<th>Fuse Holder Description</th>
<th>Fuse Amps</th>
<th>Electrical Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>BK/HHC-R Yellow</td>
<td>1-20 #16 red leadwire</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>BK/HHL-B Black</td>
<td>1-20 #16 black leadwire</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

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.

HHC & HHD Dimensions - in

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

<table>
<thead>
<tr>
<th>Catalog Numbers</th>
<th>Fuse Holder Description</th>
<th>Fuse Amps</th>
<th>Electrical Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>HHL Black w/ cover</td>
<td>2-20 #16 black leadwire, 4” length stripped to 1/8”</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>HHL-B Black – body only</td>
<td>2-20 #16 black leadwire, 4” length stripped to 1/8”</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>HHM Black w/ cover</td>
<td>2-30 #12 red leadwire, 4” length stripped to 1/8”</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>HHM-B Black – body only</td>
<td>2-30 #12 red leadwire, 4” length stripped to 1/8”</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>HHM-C Black - cover only</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

Catalog Numbers (Quantity - 1000 Pieces)

<table>
<thead>
<tr>
<th>Catalog Numbers</th>
<th>Fuse Holder Description</th>
<th>Fuse Amps</th>
<th>Electrical Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>BK/HHL-R Black</td>
<td>2-20 #16 red leadwire, 4” length stripped to 1/8”</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>BK/HHL-B Black</td>
<td>2-20 #16 black leadwire, 4” length stripped to 1/8”</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

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 Dimensions - in

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

<table>
<thead>
<tr>
<th>Catalog Numbers</th>
<th>Fuse Holder Description</th>
<th>Fuse Amps</th>
<th>Electrical Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>HHX Black w/ cover</td>
<td>20-60 #6 red leadwire, 5” with blunt ends</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>HHX-B Black – body only</td>
<td>20-60 #6 red leadwire, 5” with blunt ends</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>HHX-C Black cover only</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

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

Data Sheet: 2107

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