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# Low Voltage Supplementary Fuses

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## Low Voltage Supplementary Fuses

# Holders & blocks for low voltage supplementary fuses

### Limiters

Catalog Number	Volts	Page
K Series	600V	42
68000 Series	600V	42
64000 Series	600V	42
ANN Fast acting limiter	125Vac/80Vdc	48
ANL Time-delay limiter	80Vdc	48

### 64000 Series Holders

- CH Series Class J modular 1 to 3-pole, panel/DIN rail mount . . .236
- Safety J™ Series modular holders, panel/DIN rail mount . . . . .237

### 68000 Series Blocks

- Modular Type Fuse Blocks 250/600V, panel mount . . . . .257
- H250 Series 1 to 3-pole 250V, panel mount . . . . .242
- H600 Series 1 to 3-pole 600V, panel mount . . . . .245

### 64000 Series Blocks

- Modular Type Fuse Blocks 600V, panel mount . . . . .257
- J600 Series, panel mount . . . . .248
- JP Series pyramid blocks, panel mount . . . . .250
- BH Series modular-style open blocks, panel mount . . . . .257

### ANN & ANL Blocks

- 4164 & 4164-FR (not shown in catalog)\*
- \*Call our customer satisfaction team at 636-527-3877 for more information.



CH Series



Safety J™ Series



Modular Type



H250 Series



H600 Series



J600 Series



JP Series



BH Series

### 1 3/32" X 1 1/2" Fuses

Catalog Number	Volts	Page
BAF	250V	43
BAN	250V	43
KTK	600V	43
KLM	500Vac/600Vdc	43
DCM	600Vac/dc	44
FNM	250V	45
FNQ	500V	45

### Holders

- OPM-NG-SC3 3-pole, panel/DIN rail mount . . . . .234
- OPM-1038R 3-pole, panel/DIN rail mount . . . . .233
- OPM-1038RSW 3-pole w/ switch, panel/DIN rail mount . . . . .232
- CH Series Global 1 to 3-pole, DIN rail mount . . . . .239
- HPG Panel mount fuse holder . . . . .268
- HPC-D Panel mount fuse holder . . . . .269
- HPM Panel mount fuse holder . . . . .269
- HPS Series Panel mount fuse holder . . . . .268
- HPF Series Panel mount fuse holder . . . . .268
- HEB Series 1-Pole in-line fuse holder . . . . .261
- HEX & HEY Series 2-Pole in-line fuse holders . . . . .261
- NDNF1-WH Rail mount fuse holder . . . . .273

### Blocks

- BM Series, panel/DIN rail with adapters . . . . .256
- 3723, 3742 and 3743 multi-pole Add-on fuse blocks . . . . .272



OPM-NG-SC3



OPM-1038R & OPM-1038RSW



CH Series



HPG



HPC-D



HPM



HPS



HPF



HEB Series



HEX & HEY Series



NDNF1-WH



BM Series

## Low Voltage Supplementary Fuses

# Holders & blocks for low voltage supplementary fuses

### $1\frac{3}{32}$ " X 1 $\frac{3}{8}$ " Fuses

Catalog Numbers	Volts	Page
BBS .....	600V .....	46
KTQ .....	600V .....	46

#### Holder

- HPS-L Panel mount holder ..... 268

#### Blocks

- BM Series, panel/DIN rail with adapters ..... 256
- 3723, 3742 and 3743 multi-pole Add-on fuse blocks ..... 272



HPS-L



BM Series

Low Voltage  
Supplementary  
Fuses

### Pin Indicating Fuses

$\frac{1}{4}$ " X 1 $\frac{1}{4}$ " Fuse Catalog Numbers	Volts	Page
GBA $\frac{1}{4}$ " X 1 $\frac{1}{4}$ " .....	125V .....	47
GLD $\frac{1}{4}$ " X 1 $\frac{1}{4}$ " .....	125V .....	47
MIC $\frac{1}{32}$ " X 1 $\frac{1}{2}$ " .....	250V .....	47
MIN $\frac{1}{32}$ " X 1 $\frac{1}{2}$ " .....	250V .....	47
FNA $\frac{1}{32}$ " X 1 $\frac{1}{2}$ " .....	250V .....	47
MIS $\frac{1}{32}$ " X 2" .....	600V .....	48
KAZ $\frac{1}{32}$ " X 2" .....	600V .....	48

#### Holders

- $\frac{1}{4}$ " X 1  $\frac{1}{4}$ ": HLD Panel mount visual indication ..... 267
- $\frac{1}{4}$ " X 1  $\frac{1}{4}$ ": HK Series Panel mount lamp indicating ..... 267

#### Blocks

- $\frac{1}{4}$ " X 1  $\frac{1}{4}$ ": Series 8000 For visual indication ..... 270
- $\frac{1}{32}$ " X 1  $\frac{1}{2}$ ": 1-Pole signal block cat. # 3839 (not shown in catalog)\*
- $\frac{1}{32}$ " X 2": 1-Pole signal block cat. # 2778 (not shown in catalog)\*
- $\frac{1}{32}$ " X 2": 2-Pole signal block cat. # 2837 (not shown in catalog)\*
- $\frac{1}{32}$ " X 2": 3-Pole signal block cat. # 2838 (not shown in catalog)\*

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



HLD



HK Series



Series 8000

### Automotive Blade-type Fuses

Catalog Numbers	Volts	Page
ATC .....	32Vdc .....	49
ATM .....	32Vdc .....	49
MAX .....	32Vdc .....	49

#### Holders

- ATC: HHC, HHD, HHF & HHG In-line holders ..... 50
- ATM: HHL & HHM In-line holders ..... 50
- MAX: HHX In-line holders ..... 50



HHC, HHD, HHF & HHG



HHL & HHM



HHX

### In-Line Rejecting and Non-Rejecting Fuses

Catalog Number	Volts	Page
GLQ rejecting fuse .....	300V .....	51
GMQ rejecting fuse .....	300V .....	51
GLR non-rejecting fuse .....	300V .....	52
GMF non-rejecting fuse .....	300V .....	52
GRF non-rejecting fuse .....	300V .....	52

#### Holders

- GLQ & GMQ: HLQ Rejection holder ..... 51
- GLR, GMF & GRF: HLR Non-rejection holder ..... 52



HLQ<sup>3</sup> Fuse Holders



HLR Fuse Holder

## 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

Catalog Number	Cable Size	Catalog Number	Cable Size
<b>Tubular Terminals</b>			
KCY	#4	KCF	4/0
KCZ	#3	KCH	250 MCM
KCA	#2	KCJ <sup>1,2</sup>	350 MCM
KCB	#1	<sup>2,3</sup> KCM <sup>1</sup> , KCM-B <sup>1</sup>	500 MCM
KCC	1/0	KCV	600 MCM
KCD <sup>1,2</sup>	2/0	KCR <sup>1,2</sup>	750 MCM
KCE	3/0	KCS	1000 MCM
<b>Tubular Terminal and Offset Bolt-Type Terminal</b>			
KQV	#12	KDD <sup>1</sup>	2/0
KQT	#10	KDE	3/0
KFZ	#8	KDF	4/0
KIG	#6	KDH	250 MCM
KDY	#4	KDJ <sup>1,2</sup>	350 MCM
KDA	#2	KDM <sup>1,2,3</sup>	500 MCM
KDB	#1	KDU	600 MCM
KDC	1/0	KDR <sup>1,2</sup>	750 MCM
<b>Compression Connector Rod and Tubular Terminals</b>			
KEX	4/0	KQO	350 MCM
KFH-A	250 MCM	KDT <sup>2</sup>	500 MCM

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

KPF	4/0	KDP <sup>1</sup>	500 MCM
KFT <sup>1</sup>	250 MCM	KFM <sup>1</sup>	750 MCM
KEW <sup>1</sup>	350 MCM		

<sup>2</sup>Copper or aluminum cable; sizes of all other limiters pertain to copper only.  
<sup>1</sup>UL Listed (File E90818).

<sup>2</sup>Available with shrink tube “\_V” suffix.

<sup>3</sup>Available with molded rubber boots. Add “-B” to end of part number.

##### Accessories

Boots can be purchased separately.

• KCM: Catalog # - \_\_\_\_\_ Boot-KCM      • KDM: Catalog # - \_\_\_\_\_ Boot-KDM

Installation tools can be purchased separately from Thomas and Betts

• Crimp Tool: TBM-14M      • Die: 15506 KDM/15515 KDR

##### Recommended Fuse Blocks For K Series limiters

- See page 40

Data Sheet: 1042

#### 64000 & 68000 Series

##### Specifications

**Description:** Welder limiters.

**Construction:** Melamine tube with silver fuse element.

##### 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

Catalog Numbers	Fuse Holder Type	Nominal Amp Rating
68150	Class H	150
68200	Class H	200
68300	Class H	300
68400	Class H	400
68600	Class H	600
64200	Class J	200
64300	Class J	300
64400	Class J	400
64600	Class J	600



##### Recommended Fuse Blocks For 68000 & 64000 Series limiters

- See page 40

Data Sheet: 1045



## Low Voltage Supplementary Fuses

### 1 3/32" x 1 1/2" Fast-acting fuses

#### BAF

##### Specifications

**Class:** Supplemental

**Description:** Fast-acting supplementary fuse.

**Dimensions:** 1 3/32" x 1 1/2" (10.3 x 38.1mm).

**Construction:** Fibre cartridge; nickel plated brass endcaps.

##### Ratings:

Volts — 250Vac (1/10-15A)  
— 125Vac (20-30A)

Amps — 1-6A

IR — 10,000A @ 125Vac (1/10-30A)  
— 35A (1/10-1A @ 250Vac)  
— 100A (1 1/2-6A @ 250Vac)  
— 200A (6 1/4-10A @ 250Vac)  
— 750A (12A- 15A @ 250Vac)

**Agency Information:** CE, Std. 248-14, UL 0-15/250V, Guide JDYX, File E19180 CSA Certified, 0-15/250V, Class 1422-01, File 53787.

##### 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. (and minimize potential for misapplying fuse.)

##### Typical Applications

- General Purpose Circuits
- Lighting Circuit Protection
- Meter Circuits

##### Catalog Numbers (Amps)

BAF-1/10	BAF-2	BAF-8
BAF-1/4	BAF-2 1/2	BAF-9
BAF-1/2	BAF-3	BAF-10
BAF-3/10	BAF-4	BAF-12
BAF-1/2	BAF-5	BAF-15
BAF-1	BAF-6	BAF-20
BAF-1 1/2	BAF-6 1/4	BAF-25
BAF-1 3/10	BAF-7	BAF-30

\*All have interrupting rating of 10,000A at 125V.

**Data Sheet: 2011 (0-30)**



#### BAN

##### Specifications

**Class:** Supplemental

**Description:** Fast-acting supplementary fuse.

**Dimensions:** 1 3/32" x 1 1/2" (10.3 x 38.1mm).

**Construction:** Fibre tube.

##### Ratings:

Volts — 250Vac

Amps — 1-30A

IR — 35A (1.1-3.5A)  
— 100A (3.6-10A)  
— 200A (10.1-15A)  
— 750A (15.1-30A)

##### 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. (and minimize potential for misapplying fuse.)

##### Typical Applications

- General Purpose Circuits
- Lighting Circuit Protection
- Meter Circuits

##### Catalog Numbers (Amps)

BAN-1	BAN-5	BAN-12	BAN-30
BAN-2	BAN-6	BAN-15	
BAN-3	BAN-8	BAN-20	
BAN-4	BAN-10	BAN-25	

##### Recommended Fuse blocks 1/10 to 30A

##### Catalog Numbers

Terminal Type Screw with Quick Connect	Pressure Plate w/ Quick Connect	Box Lug	Poles
BM6031SQ	BM6031PQ	BM6031B	1
BM6032SQ	BM6032PQ	BM6032B	2
BM6033SQ	BM6033PQ	BM6033B	3

**Data Sheet: 2046 (0-30)**



#### KTK & KLM

##### Specifications

**Class:** Supplemental

**Description:** Fast-acting supplementary fuse.

**Dimensions:** 1 3/32" x 1 1/2" (10.3 x 38.1mm).

**Construction:** Melamine tube; nickel plated brass endcaps.

##### Ratings:

Volts — KTK: 600Vac (or less)

— KLM: 500Vac/600Vdc (1/10A to 1/2A)  
— 500Vac/dc (1/10-10A)  
— 500Vac/600Vdc (12-30A)

Amps — 1/10-30A

IR — KTK: 100,000A RMS Sym. (UL)  
— KLM: 10,000A RMS Sym. (UL)

**Agency Information:** CE, Std. 248-14, KTK-UL Listed, Guide JDYX, File E19180, KLM-UL Recognized, Guide JFHR2, File E56412, CSA Certified, File 53787, Class 1422-01, HRC-Misc.

##### 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)

600Vac - UL Listed and CSA

KTK-1/10	KTK-1/4	KTK-4	KTK-12	KTK-50
KTK-1/8	KTK-1	KTK-5	KTK-15	
KTK-3/10	KTK-1 1/4	KTK-6	KTK-20	
KTK-1/4	KTK-1 1/2	KTK-7	KTK-25	
KTK-3/10	KTK-2	KTK-7 1/2	KTK-30	
KTK-3/10	KTK-2 1/2	KTK-8	KTK-35	
KTK-1/2	KTK-3	KTK-9	KTK-40	
KTK-3/10	KTK-3 1/2	KTK-10	KTK-45	

\*500Vac/dc - UL Recognized and CSA.

KLM-1/10	KLM-1/4	KLM-5	KLM-20
KLM-1/8	KLM-1	KLM-6	KLM-25
KLM-3/10	KLM-1 1/2	KLM-8	KLM-30
KLM-1/4	KLM-2	KLM-10	
KLM-3/10	KLM-3	KLM-12	
KLM-1/2	KLM-4	KLM-15	

\*KLM-(1/10-1/2A & 12-30A): 500Vac/600Vdc.

**Data Sheets: KTK-1011 KLM-2020**



Low Voltage  
Supplementary  
Fuses

For superior electrical protection, Cooper Bussmann recommends upgrading BAF, BAN and KTK fuse applications to Low-Peak LP-CC fuses See page 19.

- Recommended fuse blocks/fuse holders for 1 3/32" x 1 1/2" fuses**
- See page 40

## Low Voltage Supplementary Fuses

### $1\frac{3}{32}$ " x $1\frac{1}{2}$ " Fast-acting fuses

#### DCM

##### Specifications

**Class:** Supplemental

**Description:** Full range, fast-acting, dc midjet fuse.

**Dimensions:**  $1\frac{3}{32}$ " x  $1\frac{1}{2}$ "  
(10.3 X 38.1mm).

**Construction:** Melamine tube with silver fuse element and nickel-plated brass endcaps.

##### Ratings:

- Volts — 600Vac/dc
- Amps —  $\frac{1}{10}$ -30A
- IR — 100,000A ac
- 50,000A 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 midjet fuse.
- Interrupting ratings of 100,000A, AC.
- Interrupting ratings of 50,000A, DC.
- Minimum interrupting rating or 200% rated current at 600Vdc.

##### Typical Applications

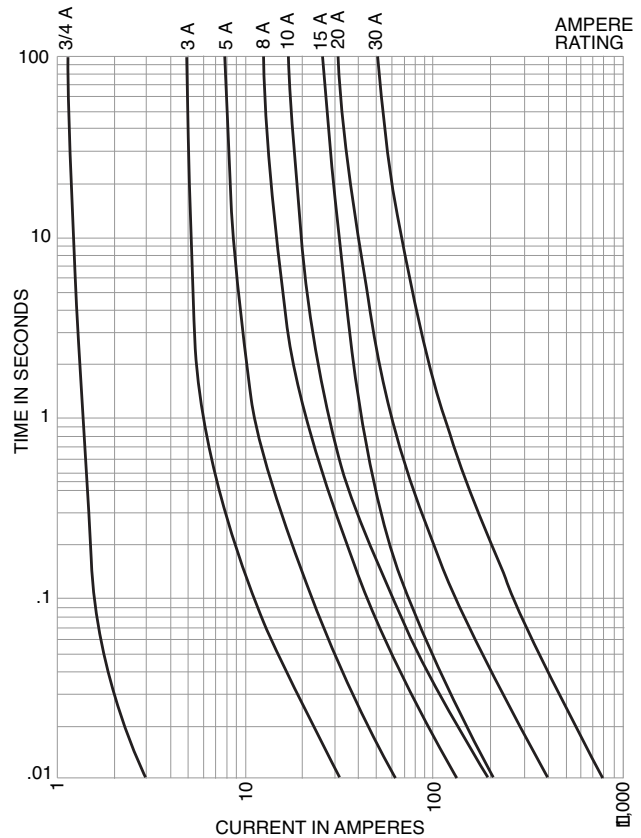
- DC Control Circuits Requiring Fast-Acting Fuses.

##### Catalog Numbers (Amps)

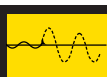
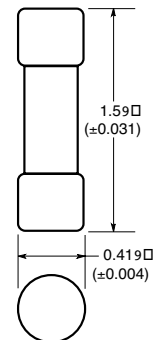
DCM- $\frac{1}{10}$	DCM- $\frac{1}{2}$	DCM-2	DCM-6	DCM-12
DCM- $\frac{1}{5}$	DCM- $\frac{3}{4}$	DCM-2 $\frac{1}{2}$	DCM-7	DCM-15
DCM- $\frac{1}{3}$	DCM-1	DCM-3	DCM-8	DCM-20
DCM- $\frac{1}{2}$	DCM-1 $\frac{1}{2}$	DCM-4	DCM-9	DCM-25
DCM- $\frac{2}{3}$	DCM-1 $\frac{1}{2}$	DCM-5	DCM-10	DCM-30



#### Time-Current Characteristic Curves—Total Clearing



#### Dimensions — in



#### Did You Know?



The power supply for the Plasma Fusion Center at MIT is protected by Cooper Bussmann high speed fuses, 2500V, 1200A.

#### Recommended fuse blocks and fuse holders for

$1\frac{3}{32}$ " x  $1\frac{1}{2}$ " fuses

- See page 40

## Low Voltage Supplementary Fuses

### 1 3/32" x 1 1/2" Time-delay fuses

#### FNM

##### Specifications

**Class:** Supplemental

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

**Dimensions:** 1 3/32" x 1 1/2"  
(10.3 x 38.1mm).

**Construction:** Fiber tube.

##### Ratings:

Volts — 250Vac (or less)

Amps — 1/10-30A

IR — 35A (1/10-1A @ 250Vac)

— 100A (1 1/2-3 1/2A @ 250Vac)

— 200A (4-10A @ 250Vac)

— 10,000A (1/10-15A @ 125Vac)

— N/A (20-30A @ 32Vac)

**NOTE:** For 250V applications from 12-30A use FNW.

**Agency Information:** CE, Std. 248-14, UL Listed, 0-10/250V; 12-15/125V; File E19180, Guide JDYX, CSA Certified, 1-10/250V; Class 1422-01, 12-15/125V; 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)

FNM-1/10	FNM-1/2	FNM-1 1/2	FNM-3k	FNM-6	FNM-15
FNM-1/2	FNM-3/10	FNM-1 3/10	FNM-3 3/10	FNM-6 1/2	FNM-20
FNM-15/100	FNM-3/4	FNM-1 3/10	FNM-3 1/2	FNM-7	FNM-25
FNM-3/10	FNM-1	FNM-2	FNM-4	FNM-8	FNM-30
FNM-1/4	FNM-1 1/2	FNM-2 1/2	FNM-4 1/2	FNM-9	
FNM-3/10	FNM-1 1/4	FNM-2 1/2	FNM-5	FNM-10	
FNM-1/10	FNM-1 1/10	FNM-2 1/10	FNM-5 1/10	FNM-12	



#### FNQ

##### Specifications

**Class:** Supplemental

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

**Dimensions:** 1 3/32" x 1 1/2" (10.3 x 38.1mm).

**Construction:** Fiber tube.

##### Ratings:

Volts — 500Vac (or less)

Amps — 1/10-30A

IR — 10,000A RMS Sym.

**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 transformers and relays at 500V or less.

##### Typical Applications

- Control Transformer 480V Primary Protection
- Lighting Circuit Protection
- Meter Circuits

##### Catalog Numbers (Amps)

FNQ-1/10	FNQ-1/2	FNQ-1 1/2	FNQ-3 1/2	FNQ-7	FNQ-20
FNQ-1/2	FNQ-3/10	FNQ-1 3/10	FNQ-4	FNQ-8	FNQ-25
FNQ-15/100	FNQ-3/4	FNQ-2	FNQ-4 1/2	FNQ-9	FNQ-30
FNQ-3/10	FNQ-1	FNQ-2 1/2	FNQ-5	FNQ-10	
FNQ-1/4	FNQ-1 1/2	FNQ-3	FNQ-6	FNQ-14	
FNQ-3/10	FNQ-1 1/10	FNQ-3 1/10	FNQ-6 1/10	FNQ-15	



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http://www.szdahao.com

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Data Sheet: 2028

For superior electrical protection, Cooper Bussmann recommends upgrading FNM and FNQ fuse applications to Low-Peak LP-CC fuses See page 19.

##### Recommended fuse blocks and fuse holders for

1 3/32" x 1 1/2" fuses

- See page 40

Data Sheet: 1012

## Low Voltage Supplementary Fuses

### $1\frac{1}{32}$ " x $1\frac{1}{8}$ " Fast-acting fuses

#### BBS

##### Specifications

**Class:** Supplemental

**Description:** Fast-acting supplementary fuse.

**Dimensions:**  $1\frac{1}{32}$ " x  $1\frac{1}{8}$ "  
(10.3 x 34.9mm).

**Construction:** Fiber cartridge.

##### Ratings:

Volts — 600Vac ( $\frac{1}{2}$ -5A)  
— 250Vac (6 - 10A)  
— 48Vac (12-30A)

Amps —  $\frac{1}{2}$ -30A  
IR — 10,000A 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)

BBS- $\frac{1}{2}$	BBS- $\frac{3}{4}$	BBS-4	BBS-15
BBS- $\frac{3}{4}$	BBS-1	BBS-5	BBS-20
BBS- $1\frac{1}{2}$	BBS-1 $\frac{1}{2}$	BBS-6	BBS-25
BBS- $\frac{1}{2}$	BBS-1 $\frac{1}{4}$	BBS-7	BBS-30
BBS- $\frac{1}{2}$	BBS-1 $\frac{1}{2}$	BBS-8	
BBS- $\frac{3}{4}$	BBS-2	BBS-10	
BBS- $\frac{1}{2}$	BBS-3	BBS-12	



#### KTQ

##### Specifications

**Class:** Supplemental

**Description:** Fast-acting supplementary fuse.

**Dimensions:**  $1\frac{1}{32}$ " x  $1\frac{1}{8}$ "  
(10.3 x 34.9mm).

**Construction:** Fiber cartridge.

##### Ratings:

Volts — 600Vac  
Amps — 1-6A  
IR — 10,000A RMS Sym.

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

##### Features and Benefits

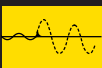
- Low cost supplemental protection of non-inductive circuits
- Rated for application in circuits at 600V or less.
- Reduced interchangeability with other supplemental fuses minimizes misapplication

##### Typical Applications

- Control Circuits
- Lighting Ballasts
- Meter Circuits

##### Catalog Numbers (Amps) (600Vac)

KTQ-1	KTQ-3	KTQ-6
KTQ-1 $\frac{1}{2}$	KTQ-4	
KTQ-2	KTQ-5	



### Did You Know?



Japan's Rada Koncar 3759 HP locomotive is protected by Cooper Bussmann® high speed fuses, 1000V, 800A.



**Recommended fuse blocks/fuse holders for  $1\frac{1}{32}$ " x  $1\frac{1}{8}$ " fuses**

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## Pin indication Fuses

### GBA

#### GLD

##### Specifications

**Class:** Supplemental

**Description:** Fast-acting, pin indication fuse.

**Dimensions:** ¼" x 1 ¼"  
(6.6 x 31.7mm) 3AG.

**Construction:** Fiber tube

##### Ratings:

Volts — See Agency Info below

Amps — ½-15A

IR — See Agency Info below

**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 GBA has a "red" pin indicator providing visual identification of failed circuits, resulting in faster troubleshooting (reduced circuit downtime).
- Type GLD has an 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-½	GLD-2	GLD-6
GLD-¾	GLD-3	GLD-10
GLD-1	GLD-4	GLD-12
GLD-1 ½	GLD-5	GLD-15

##### GBA Catalog Numbers (Amps)

GBA-½	GBA-2	GBA-8
GBA-¾	GBA-3	GBA-10
GBA-1	GBA-4	GBA-15
GBA-1 ½	GBA-5	

**Recommended fuse blocks/fuse holders for ¼" x 1 ¼" indicating fuses**

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**Data Sheet: 2012**

### MIC & MIN

##### Specifications

**Class:** Supplemental

**Description:** Fast-acting, pin indication fuse.

**Dimensions:** 1 ½/32" x 1 ½"  
(10.3 x 38.1mm) 5AG.

**Construction:**

Fiber tube

##### Ratings:

Volts — 250Vac (1-15A)

— 32V (20-30A)

Amps — 1-30A

IR — 35A (1A @250Vac)

— 100A (2-3A @250Vac)

— 200A (5-10A @250Vac)

— 750A (15A @250Vac)

— 10,000A (20-30A @32V)

— 35A (1A @250Vac)

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

##### Features and Benefits

- Type MIN has a "red" pin indicator providing visual identification of failed circuits, resulting in faster trouble shooting (reduced circuit downtime).
- Type MIC has silver-plated pin transmitting an electrical signal indicating location of a failed circuit, resulting in faster troubleshooting (reduced circuit downtime).

##### Typical Applications

- Control Circuits
- PLC Circuits
- Electronic Circuits

##### MIC Catalog Numbers (Amps)

MIC-1	MIC-5	MIC-20
MIC-2	MIC-10	MIC-25
MIC-3	MIC-15	MIC-30

MIC - (1-15)UL Listed 125Vac / IR = 10kA

##### MIN Catalog Numbers (Amps)

MIN-1	MIN-5	MIN-20
MIN-2	MIN-10	MIN-25N

##### Recommended signal block for

1 ½/32" x 1 ½" indicating fuses

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**Data Sheet: 2047**

### FNA

##### Specifications

**Class:** Supplemental

**Description:** Time-delay, pin indication fuse.

**Dimensions:** 1 ½/32" x 1 ½"  
(10.3 x 38.1mm).

**Construction:** Fiber tube

##### Ratings:

Volts — 250Vac (½-¾A)

— 125Vac (1-15A)

— 32V (20-30A)

Amps — ½-30A

IR — 35A (½-¾A @ 250Vac)

— 10,000A (½-15A @ 125Vac)

— 1000A (20-30A @ 32V)

**Agency Information:** CE, Std. 248-14, UL Listed ½-¾A, IR 35A @ 250V, IR 10kA @ 125V, 1-15A, IR 10kA @ 125V, Guide JDYX, File 19180, CSA Certified, 0-¾A/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-½	FNA-¾	FNA-2 ½	FNA-6 ¼
FNA-1	FNA-1	FNA-2 ¾	FNA-7
FNA-1 ½/100	FNA-1 ½	FNA-3	FNA-8
FNA-¾	FNA-1 ¼	FNA-3 ¾	FNA-9
FNA-1	FNA-1 ¾	FNA-3 ½	FNA-10
FNA-¾	FNA-1 ½	FNA-4	FNA-12*
FNA-¾	FNA-1 ¾	FNA-4 ½	FNA-15*
FNA-1 ½	FNA-1 ¾	FNA-5	FNA-20*
FNA-¾	FNA-2	FNA-5 ¾	FNA-25*
FNA-¾	FNA-2 ¼	FNA-6	FNA-30

\*12-30A versions are dual-tube construction

##### Recommended signal block for

1 ½/32" x 1 ½" indicating fuses

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**Data Sheet: 2029**

## Low Voltage Supplementary Fuses

# Pin indication fuse and actuator, and limiters

### MIS

#### Specifications

**Class:** Supplemental  
**Description:** Non time-delay pin indication fuse.  
**Dimensions:** 1 $\frac{3}{32}$ " x 2" (10.3 x 50.8mm).  
**Construction:** Melamine tube.

#### Ratings:

Volts — 600Vac  
 Amps — 1-12A  
 IR — 200,000A

#### 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 200,000A.

#### 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

1 $\frac{3}{32}$ " x 2" indicating fuses

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### KAZ

#### Specifications

**Description:** Non-Fuse actuator.  
**Dimensions:** 1 $\frac{3}{32}$ " x 2" (10.3 x 50.8mm).  
**Construction:** Melamine tube.

#### Ratings:

Volts — 600Vac  
 Amps — N/A  
 IR — 200,000A

**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 200,000A.

#### 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

1 $\frac{3}{32}$ " x 2" indicating fuses

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### ANN & ANL Limiters

#### Specifications

**Description:** Circuit limiters.  
**ANN:** Very fast-acting limiter.  
**ANL:** Time-delay limiter.  
**Dimensions:** 7/8" x 3 $\frac{3}{16}$ " (22.2 x 81.0mm).

#### Ratings:

**ANN:**  
 Volts — 125Vac  
 — 80Vdc  
 Amps — 10-800A  
 IR — 2500A @ 125Vac  
 — 2700A @ 80Vdc

#### ANL:

Volts — 80Vdc  
 Amps — 35-750A  
 IR — 2700A @ 80Vdc

#### 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)

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	

#### Recommended block for ANN/ANL Limiters

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



Data Sheet: 2021

## Automotive blade-type fuses

### ATC® Blade-type fuse



(Actual Size)

#### 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)

Catalog Numbers	Color
ATC-1	Black
ATC-2	Gray
ATC-3	Violet
ATC-4	Pink
ATC-5	Tan
ATC-7 ½	Brown
ATC-10	Red
ATC-15	Blue
ATC-20	Yellow
ATC-25	Clear
ATC-30	Green
ATC-40	Orange

#### Recommended in-line fuse holder for blade type fuses

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Data Sheet: 2009

### ATM Mini-Fuse®



(Actual Size)

#### 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)

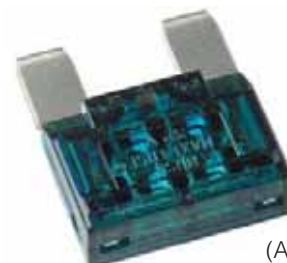
Catalog Numbers	Color
ATM-2	Gray
ATM-3	Violet
ATM-4	Pink
ATM-5	Tan
ATM-7 ½	Brown
ATM-10	Red
ATM-15	Blue
ATM-20	Yellow
ATM-25	Clear
ATM-30	Green

#### Recommended in-line fuse holder for blade type fuses

- Page 50

Data Sheet: 2048

### MAX Maxi-Fuse®



(Actual Size)

#### 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)

Catalog Numbers	Color
MAX-20	Yellow
MAX-30	Green
MAX-40	Orange
MAX-50	Red
MAX-60	Blue
MAX-70	Tan
MAX-80	Clear

#### Recommended in-line fuse holder for blade type fuses

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Data Sheet: 2049

## Low Voltage Supplementary Fuses

# Automotive blade-type fuse holders

### HHC, HHD, HHF and HHG



#### 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

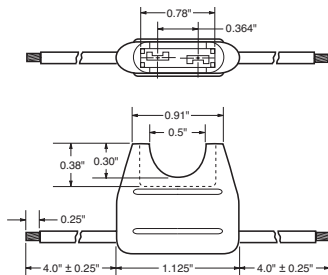
Catalog Numbers	Fuse Holder Description	Fuse Amps	Electrical Connection
HHC	Yellow	1-20	#16 black leadwire
HHD	Black	1-30	#12 yellow leadwire
HHD-C	HHD Cover only	—	Clear polycarbonate
HHF	Black w/ cover	1-20	#16 yellow leadwire
HHG	Black w/ cover	1-30	#12 yellow leadwire

#### Bulk Products (Quantity - 1000 Pieces)

Catalog Numbers	Fuse Holder Description	Fuse Amps	Electrical Connection
BK/HHC-R	Yellow	1-20	#16 red leadwire
BK/HHF-B	Black w/ cover	1-20	#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.

#### Dimensions



Data Sheet: 2107

### HHL and HHM



#### Specifications

**Description:** In-line fuse holders for ATM MINI-Fuses®.

#### Ratings:

Volts: — 32Vdc

Amps: — 80% continuous of fuse rating. See Catalog Numbers table for individual fuses sizes.

#### Catalog Numbers

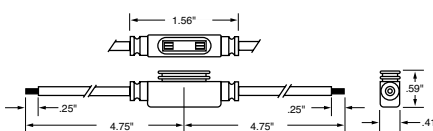
Catalog Numbers	Fuse Holder Description	Fuse Amps	Electrical Connection
HHL	Black w/ cover	2-20	#16 black leadwire, 4" length stripped to 1/2"
HHL-B	Black – body only	2-20	#16 black leadwire, 4" length stripped to 1/2"
HHM	Black w/ cover	2-30	#12 red leadwire, 4" length stripped to 1/2"
HHM-B	Black –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

#### Bulk Products (Quantity - 1000 Pieces)

Catalog Numbers	Fuse Holder Description	Fuse Amps	Electrical Connection
BK/HHL-R	Black – body only	2-20	#16 red leadwire, 4" length stripped to 1/2"

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



Data Sheet: 2128

### HHX



#### Specifications

**Description:** In-line fuse holders for MAXI-Fuses™.

#### Ratings:

Volts: — 32Vdc

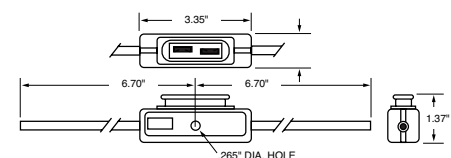
Amps: — 80% continuous of fuse rating. See Catalog Numbers table for individual fuses sizes.

#### Catalog Numbers

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

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



Data Sheet: 2129

## 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 — 10,000A

**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

Fuse	Holder <sup>3, 4</sup>	Fuse	Holder <sup>3, 4</sup>
GLQ-1	HLQ-1 $\frac{1}{10}$	GLQ-3	HLQ-3 $\frac{3}{10}$
GLQ-1 $\frac{1}{2}$	HLQ-1 $\frac{1}{10}$	GLQ-4	HLQ-5
GLQ-1 $\frac{1}{10}$	HLQ-1 $\frac{1}{10}$	GLQ-5	HLQ-5
GLQ-2	HLQ-3 $\frac{3}{10}$	GLQ-9	HLQ-10
GLQ-2 $\frac{1}{2}$	HLQ-3 $\frac{3}{10}$	GLQ-10	HLQ-10

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 0.030" to 0.042".

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



#### GMQ

##### Specifications

**Class:** Supplemental

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

**Construction:** Glass tube.

##### Ratings:

Volts — 300Vac (or less)  
Amps —  $\frac{1}{2}$ -6 $\frac{1}{4}$ A  
IR — 10,000A

**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

Fuse	Holders <sup>3, 4</sup>	Fuse	Holders <sup>3, 4</sup>
GMQ- $\frac{1}{2}$	HLQ- $\frac{1}{2}$	GMQ-2 $\frac{1}{2}$	HLQ-3 $\frac{3}{10}$
GMQ- $\frac{3}{10}$	HLQ-1 $\frac{1}{10}$	GMQ-3	HLQ-3 $\frac{3}{10}$
GMQ- $\frac{1}{10}$	HLQ-1 $\frac{1}{10}$	GMQ-3 $\frac{3}{10}$	HLQ-3 $\frac{3}{10}$
GMQ-1	HLQ-1 $\frac{1}{10}$	GMQ-4	HLQ-5
GMQ-1 $\frac{1}{2}$	HLQ-1 $\frac{1}{10}$	GMQ-6	HLQ-8
GMQ-1 $\frac{1}{10}$	HLQ-1 $\frac{1}{10}$	GMQ-6 $\frac{1}{4}$	
GMQ-2	HLQ-3 $\frac{3}{10}$		

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 0.030" to 0.042".

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



Low Voltage  
Supplementary  
Fuses



**HLQ<sup>3</sup> Fuse Holders**  
for both GLQ & GMQ fuses.

Data Sheet: 2033

Data Sheet: 2030

## Low Voltage Supplementary Fuses

# 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 — 10,000A

**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

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

Fuse	Holder <sup>1, 2</sup>	Fuse	Holder <sup>1, 2</sup>
GLR- $\frac{3}{16}$	HLR	GLR-5	HLR
GLR- $\frac{1}{2}$	HLR	GLR-6	HLR
GLR-1	HLR	GLR-7	HLR
GLR-1 $\frac{1}{2}$	HLR	GLR-8	HLR
GLR-1 $\frac{3}{4}$	HLR	GLR-9	HLR
GLR-2	HLR	GLR-10	HLR
GLR-3	HLR	GLR-12	HLR
GLR-4	HLR	GLR-15	HLR-2A

1) Carrier 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 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.



### GMF

### GRF

#### 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 — 10,000A

**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

Fuse	Holder <sup>1, 2</sup>	Fuse	Holder <sup>1, 2</sup>
GMF- $\frac{3}{16}$	HLR	GMF-3	HLR
GMF- $\frac{1}{2}$	HLR	GMF-3 $\frac{3}{16}$	HLR
GMF- $\frac{5}{16}$	HLR	GMF-4	HLR
GMF- $\frac{3}{8}$	HLR	GMF-5*	HLR
GMF-1	HLR	GMF-6 $\frac{1}{4}$	HLR
GMF-1 $\frac{1}{4}$	HLR	GMF-10	HLR
GMF-1 $\frac{3}{8}$	HLR	GRF-7	HLR
GMF-2	HLR	GRF-8	HLR
GMF-2 $\frac{1}{2}$	HLR	GRF-10	HLR
GMF-2 $\frac{3}{4}$	HLR		

1) Carrier 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 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.



**\*HLR Fuse Holder**  
for both GMF & GRF fuses.