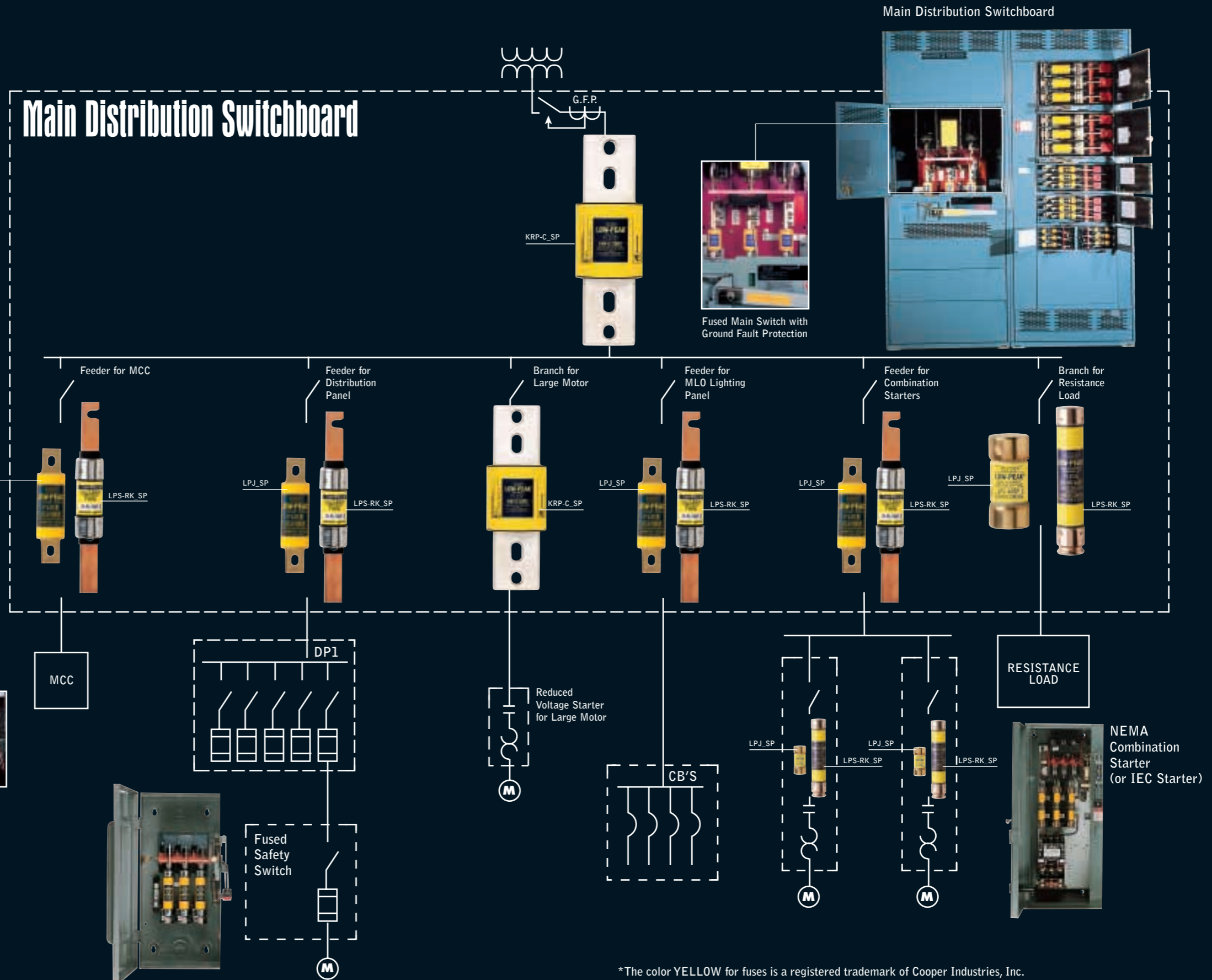


Bussmann® Introduces the Only Total System Fuse . . . LOW-PEAK® YELLOW™*

- System 300...Specification grade. The only total system fuse. 1/10 through 6000 amperes.
- Simplifies selection.
- 300,000 ampere interrupting rating (LP-CC has a 200,000 ampere interrupting rating).
- Meets future needs when available short-circuit current increases as a result of expansion of building system or utility.
- Provides maximum current limiting action. Keeps short-circuit currents low. Gives protection to NEMA and IEC motor starters.
- Low 2:1 coordination ratios for improved selective coordination.
- Color yellow. Easy visual confirmation of the "right" fuse installation.
- Rejection features.
- Cuts spare fuse inventories for substantial cost reduction.

The Complete Line —LOW-PEAK® YELLOW™

Symbol	Volts	Amperes	Dimension Class	Pg.
KRP-C_SP	600	601-6000	L	6
LPS-RK_SP	600	1/10 - 600	R	8
LPN-RK_SP	250			
LPJ_SP	600	1-600	J	12
LP_CC	600	1/2-30	CC	14



*The color YELLOW for fuses is a registered trademark of Cooper Industries, Inc.

Simplifies Design of Protective System

The Buss® LOW-PEAK® series of yellow fuses now gives the designer of low voltage power distribution systems a series of protective devices which simplify the task of selecting and specifying fusing for total system protection of circuit components against both overload and fault currents.

This system of LOW-PEAK® YELLOW™ fuses covers applications requiring fuses rated 1/10A through 6000A at 600 volts ac and interrupting ratings through 300,000 amperes. The LPS-RK (600V) and LPN-RK (250V) are available from 1/10A through 600A with a Class RK1 dimension. The LPJ (600V) is a Class J dimension fuse available from 1A through 600A. The LP-CC (600V) Class CC fuse is available from 1/2A through 30A. To round out the system the KRP-C (600V) is a Class L dimension fuse available from 601A through 6000A.

Inventory Savings

If your plant or building currently uses fuses, then there is a good chance that adoption of Bussmann's SYSTEM 300 series of fuses will provide a reduction in the number of fuses carried as spares. Over 47 different fuse types in the 0-600 ampere range alone can be replaced by LOW-PEAK fuses.

Safety

Even though many different fuses fall into common classifications (and the same physical sizes), they have many different performance characteristics. Even fuses that meet the requirements of a particular standard, but are manufactured by different fuse manufacturers, have different levels of performance.

Therefore, it is important that in any single application that all fuses meet the same standard and are supplied by one manufacturer. Bussmann's LOW-PEAK fuses provide the user with an easily identifiable (yellow) overcurrent protective device that will provide maximum protection (when properly applied) in their electrical system.

300,000 Ampere Interrupting Rating

A protective device must be able to withstand the destructive energy of short-circuit currents. If a fault occurs at a level beyond the capability of the protective device, the device may actually rupture, causing damage to surrounding components and unnecessary down time.

Several areas in North America have available short-circuit currents in excess of 200,000 amperes and as power requirements

grow, the trend is toward increasing available fault currents. The use of Bussmann's System 300 assures that the overcurrent protective devices not only meet today's requirements, but help insure that future growth will not obsolete your electrical system.

Improved Selective Coordination

The application of a multiplicity of various type fuses within the total distribution system, from main to feeders to branches, complicates formulation of positive selective coordination. In all circuits up through 6000 amperes, the use of only a single type fuse (specifically Bussmann LOW-PEAK YELLOW) simplifies selective coordination and eliminates needless blackouts of upstream circuits.

No Maintenance or Recalibration

The LOW-PEAK fuse is a static device. Its functional elements are enclosed within a highly protective casing. Operation remains reliable and consistent over many years.

Component Short-Circuit Protection

Per NEC® 110.10, protective devices shall clear a fault without "extensive damage" to the circuit components. Aside from the cost of equipment repair or replacement, the cost of downtime in a commercial or industrial complex can be considerable. By code standards, nominal or minimal protection of components is mandatory. The use of protective devices which reduce fault currents to or below the limits of "component withstand" ratings affords NEC® compliance. However, limiting damage or deterioration of a component to an absolute minimum by applying fuses with the greatest degree of current-limitation should be a prime objective. LOW-PEAK fuses are designed to provide this high degree of current-limitation.

Some of the major components found in distribution systems that have component withstand ratings established (maximum level of fault currents that will not seriously damage or destroy the component) include the following:

- Wire and Cable**
- Bus (all bus structures)**
- Transformers**
- Motor Starters—NEMA and IEC**
- Circuit Breakers**
- Switches**
- Contactors**
- Overload Heater Elements**
- Ballasts**

The withstand ratings can be expressed in terms of RMS current values, time inter-

vals of fault currents, and the maximum peak current to which they can be subjected. (Component withstand data is given in Bussmann technical publication, "Selecting Protective Devices Based on the National Electrical Code" bulletin SPD).

Knowing the withstand rating of a component, the proper selection of a protective fuse can be easily determined by reference to a Current-Limiting Graph or Table. Note: In most cases, fuse selection made in accordance with loads will provide proper protection.

Motor and Motor Starter Protection

When used in circuits with surge currents such as those caused by motors (or other inductive components, like transformers) the Buss LOW-PEAK YELLOW family of fuses can be sized close to full load current to give optimum overcurrent protection. Generally, two levels of overcurrent protection are required for motor branch circuits: short-circuit protection and overload protection. (For more detailed information about motor circuit protection see Buss publication bulletin SPD).

Motor Branch Circuit Protection (Short-Circuit Protection Only)

LOW-PEAK fuses help protect motor circuit components such as conductors, switches, overload relays, and motor starters against short-circuits or ground faults. Sizing must be in accordance with NEC® Table 430.52 and Section 430.52.

Motor Starter Protection

Motor starters are very susceptible to damage from short-circuits. Even for moderate or low-level faults, extensive damage may occur unless the short-circuit protective device is carefully selected. The most vulnerable components of the motor starter are the contacts and overload relays. Specific standards (UL 508 and IEC 60947-4-1) have test procedures which determine whether a motor starter can safely withstand specific levels of fault currents. However, the standards do not always define the level of protection provided and, in some cases, even significant damage is considered acceptable.

IEC Publication 60947-4-1 defines a level of protection called "Type 2", (no damage protection). IEC or NEMA devices can and should be tested to this level of protection to provide the maximum degree of motor starter protection. (Consult your local Bussmann Sales Engineer for more detailed information).

Motor Running Back-Up Protection

Many installations utilize overload heaters and relays with motor controllers to provide motor running overload protection. LOW-PEAK® fuses, sized one size larger than the overload relays, provide a good second line of overload protection as well as branch circuit protection. Normally, any overload condition is sensed and cleared by the overload heaters in conjunction with the controller. However, if for some reason the heaters or the controller fail to function, LOW-PEAK fuses sized for "back-up" protection help prevent the motor from burning out.

Large Motor Branch Circuit Protection

The application of time delay LOW-PEAK KRP-C fuses is recommended for the protection of large motors drawing more than 500 amperes. KRP-C LOW-PEAK fuses can pass normal inrush currents without nuisance openings. Sizing should be 175% of motor full-load current.

Guide to Proper Fuse Selection

For easy fuse sizing guidelines, refer to the motor protection tables of Buss publication bulletin SPD.

*Recommended Fuse Size for Motor Short-Circuit and Back-Up Overload Protection (LPN-RK_SP/LPS-RK_SP)

Fuse Size	Motor Amperes	Fuse Size	Motor Amperes
1/10	0.0000-0.0769	8	5.385-6.153
1/8	0.0770-0.0961	9	6.154-6.923
15/100	0.0962-0.1153	10	6.924-7.692
2/10	0.1154-0.1538	12	7.693-9.230
1/4	0.1539-0.1923	15	9.231-11.53
3/10	0.1924-0.2307	17 1/2	11.54-13.46
4/10	0.2308-0.3076	20	13.47-15.38
1/2	0.3077-0.3846	25	15.39-19.23
6/10	0.3847-0.4615	30	19.24-23.07
8/10	0.4616-0.6153	35	23.08-26.92
1	0.6154-0.7692	40	26.93-30.76
1 1/8	0.7693-0.8653	45	30.77-34.61
1 1/4	0.8654-0.9615	50	34.62-38.46
1 3/10	0.9616-1.076	60	38.47-46.15
1 1/2	1.077-1.153	70	46.16-53.84
1 6/10	1.154-1.230	80	53.85-61.53
1 8/10	1.231-1.384	90	61.54-69.23
2	1.385-1.538	100	69.24-76.92
2 1/4	1.539-1.730	110	76.93-84.61
2 1/2	1.731-1.923	125	84.62-96.15
2 8/10	1.924-2.153	150	96.16-115.3
3	2.154-2.307	175	115.4-134.6
3 3/10	2.308-2.461	200	134.7-153.8
3 1/2	2.462-2.692	225	153.9-173.0
4	2.693-3.076	250	173.1-192.3
4 1/2	3.077-3.461	300	192.4-230.7
5	3.462-3.846	350	230.8-269.2
5 5/10	3.847-4.307	400	269.3-307.6
6	4.308-4.615	450	307.7-346.1
6 1/4	4.616-4.807	500	346.2-384.6
7	4.808-5.384	600	384.7-461.5

- Determine "motor amperes" at normal full load (FLA) preferably with a meter. Use nameplate rating, or refer to NEC®.
- See Buss® Bulletin "SPD" for Special Operating Conditions.
- 1.15 or greater service factor motor.

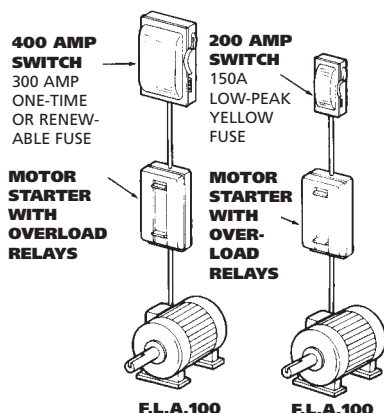
Bussmann World Wide Web ~ <http://www.bussmann.com>



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BIF is a simple to use automated fax response system. All you need is a touch-tone telephone and a fax machine to get complete product specifications when you want them. Data sheet numbers are located throughout this catalog. To get a detailed data sheet on the product of your choice, simply dial **636-527-1450** and request the document number listed. In a matter of minutes a data sheet will be faxed to you. It's that simple.

Data sheets can also be downloaded from the Internet. The Bussmann web site is continuously updated with our newest products and latest data on circuit protection solutions. Visit us often at <http://www.bussmann.com>



The time-delay of LOW-PEAK® fuses permits closer sizing of fuses...the use of smaller size fuses. As shown in this illustration, the use of smaller size fuses, in turn, affords the application of equipment with lower ampacity ratings.



LPN-RK & LPS-RK

1/10 – 600A

CATALOG SYMBOLS:

LPN-RK_SP
 250V AC 1/10-600A
 125V DC 1/10-60A
 250V DC 70-600A

LPS-RK_SP
 600V AC 1/10-600A
 300V DC 1/10-600A

DUAL-ELEMENT TIME-DELAY:

10 SECONDS (MINIMUM) (8 SEC. FOR 30A 250V CASE SIZE) AT 500% RATED CURRENT
 1/10 TO 600 AMPERES
 CURRENT-LIMITING
 250 AND 600 VOLTS AC (OR LESS)

INTERRUPTING RATING:

300,000 (AC)/100,000 (DC)

AGENCY INFORMATION:

UL LISTED-SPECIAL PURPOSE*
 (Guide #JFHR, File #E56412)
 CSA Class RK1 (200,000AIR) (Class #1422-02)
 (File #53787, 0 to 60A)

DATA SHEET NUMBERS:

LPN-RK (0-600)SP Data sheet #1003,1004
 LPS-RK (0-600)SP Data sheet #1001,1002



APPROPRIATE FUSEHOLDERS:

LPN-RK (0-600)SP Data sheet #1110
 LPS-RK (0-600)SP Data sheet #1111

The LOW-PEAK® YELLOW™ Dual-Element fuse is the first fuse to not only provide the long time-delay for temporary motor start-up and the transient surges associated with such components as transformers, but also the very fast speed-of-response (current-limitation) for maximum short-circuit protection. In this respect, the LOW-PEAK YELLOW fuse combines the time-delay characteristics of the Buss® FUSETRON® dual-element fuse with the very high current-limitation of the LIMITRON® fast-acting fuse. Now, one type fuse serves all fuse protection requirements through 600 amperes for most building systems and general purpose equipment. It permits compliance with NEC® Sections 110.9–*Interrupting Rating*, and 110.10–*Component Protection*. This single fuse type insures a degree of positive protection not previously possible.

Wire and Cable Protection

The currents let through by the fuses are generally below the 1/2 cycle withstand of most cable (cable is protected). Conductor withstand ratings are given in Buss bulletin SPD.

Lighting and Heating Loads

Fuses should be sized at 125% of the continuous load (the same as the general requirements for conductors and other components).

Motor Starter Protection

Motor starters are very susceptible to damage due to short-circuits. Even for moderate or low-level faults, extensive damage may occur if the short-circuit protective device is not judiciously selected. The most vulnerable parts are the starter contacts and overload relay. Fault currents can weld the contacts and cause the overload relay sensing element to be permanently altered.

Short-circuit testing in accordance with UL Standard 508 determines whether a motor starter can safely withstand specific levels of fault currents. However, the standard does not define

the level of protection provided and, in some cases, welding of contacts is considered acceptable. Traditionally, testing per UL 508 has been appropriate for NEMA devices which typically have higher withstand ratings and allow the user to replace damaged contacts and relays.

To obtain the highest degree of short-circuit protection for either NEMA or IEC motor starters, use short-circuit protective devices that are current-limiting and size them as close as practical. A LOW-PEAK dual-element, current-limiting fuse can be sized at 130% of the motor full-load current rather than 300% sizing for non-time delay fuses. A current-limiting fuse can cut off the short-circuit current before it reaches damaging levels.

When using the IEC style of motor starter, the selection of the short-circuit protective device becomes more critical. The smaller IEC device has a much lower withstand rating and in many cases, contacts cannot be replaced. IEC Publication 60947-4-1 addresses the severity of damage to the motor starter. Protection is categorized from considerable damage allowed (would require replacement) to no damage.

Circuit Breaker Protection

Circuit breakers are mechanical overcurrent devices which generally have low interrupting ratings and usually are not current-limiting. Current-limiting LOW-PEAK YELLOW fuses will protect circuit breakers against short-circuit currents that exceed their interrupting rating; i.e., when there is 50,000 amperes available at a lighting panel with 10,000 ampere interrupting rating circuit breakers. A properly sized and tested feeder LOW-PEAK fuse can protect the breakers. For fuse selection, refer to tables published by circuit breaker manufacturers or fuse/circuit breaker series ratings can be found at www.bussmann.com.

* Meets all performance requirements of UL STD. 248-12 for Class RK1 fuses.

Overload Element

- Time-delay permits 130% FLA sizing for back-up, motor running protection.
- Can protect motors from burn-out due to single-phasing.
- Design of heat absorber reduces watts loss.

The overload or thermal cut-out element provides the very long time-delay which permits the fuse to be sized near the full-load rating of the motors which it protects (eliminates the need for the fuse oversizing which could reduce the degree of protection).

TRUE DUAL-ELEMENT CONSTRUCTION



Short-Circuit Element

- Current-limiting.
- 300,000 Amps Interrupting Rating.
- Type 2 protection for IEC and NEMA starters.

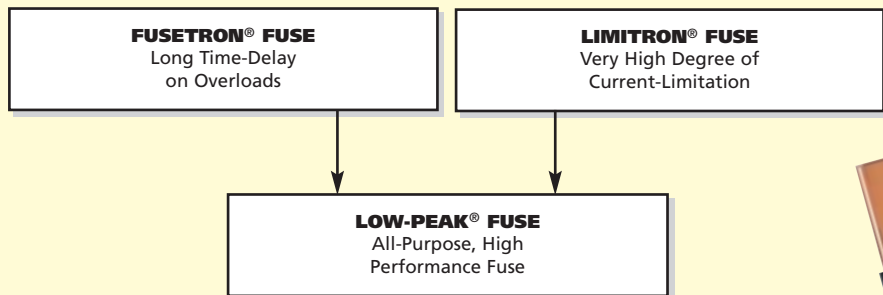
System Coordination

Simple 2:1 Coordination with other Buss LOW-PEAK fuses.

The short-circuit element provides the very high-speed-of-response and current-limitation of this fuse. Even though it is highly sensitive to and rapidly responds to fault currents, it remains insensitive to starting currents and transient surges. The use of links of a highly specialized design configuration gives the Buss® LOW-PEAK® fuse its unmatched characteristics.

Meets all performance requirements of UL Standard 248-12 for Class RK1 fuses.

LOW-PEAK® YELLOW™

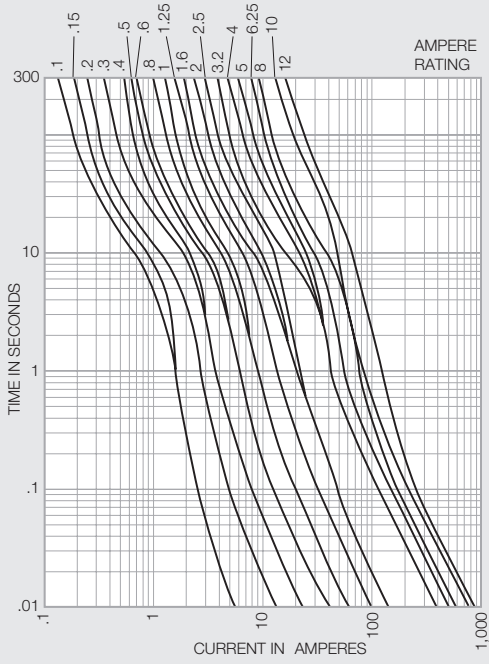


The **LOW-PEAK YELLOW** dual-element fuse combines the long time-delay of the FUSETRON dual-element fuse with the very high degree of current-limitation of the LIMITRON fast-acting fuse. It is thus a multi-purpose, easy to select electrical protective device. Its unique yellow color makes it easily distinguishable from poorer performing fuses (maximizes plant and personnel safety).



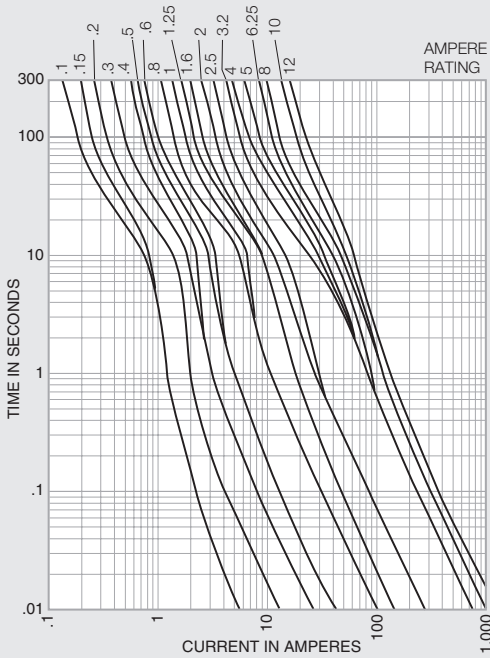
Time-Current Curves

LPN-RK

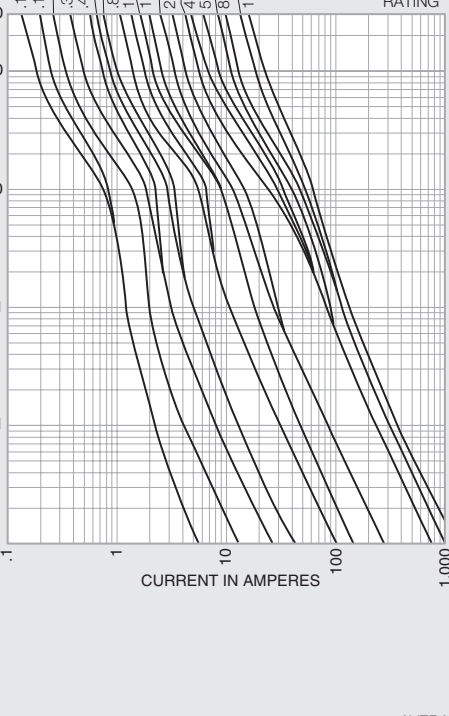
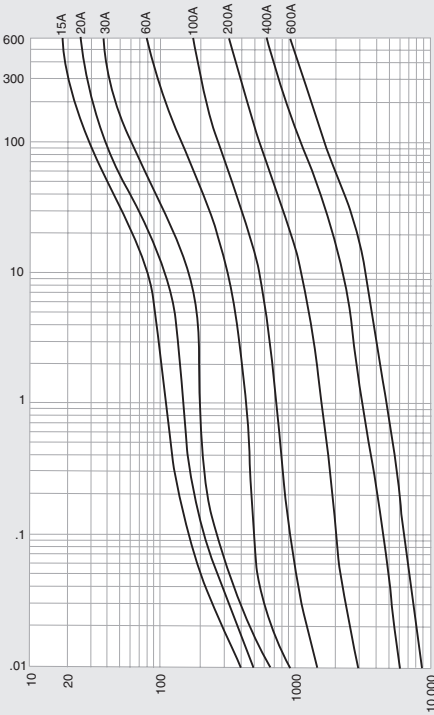


AVERAGE MELT

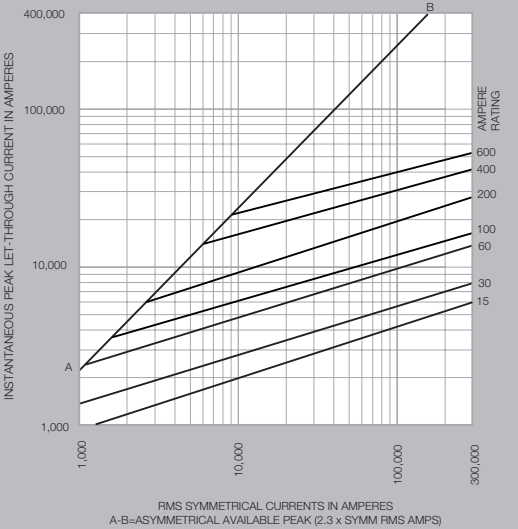
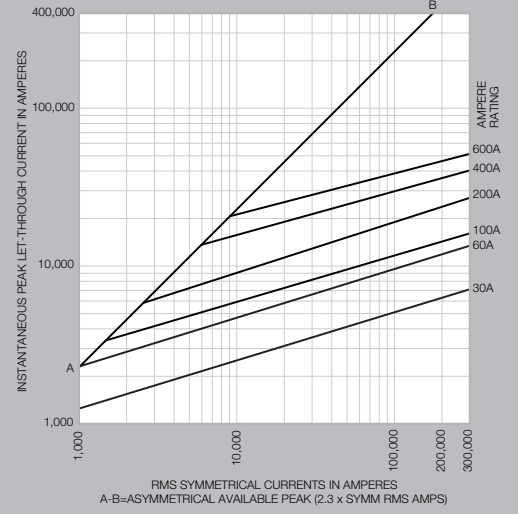
LPS-RK



AVERAGE MELT



Current-Limitation Curves



Ordering Information

Catalog Numbers LPN-RK

LPN-RK-1/10SP	LPN-RK-3 1/2SP	LPN-RK-60SP
LPN-RK-15/100SP	LPN-RK-4SP	LPN-RK-70SP
LPN-RK-2/10SP	LPN-RK-4 1/2SP	LPN-RK-80SP
LPN-RK-3/10SP	LPN-RK-5SP	LPN-RK-90SP
LPN-RK-4/10SP	LPN-RK-5 5/10SP	LPN-RK-100SP
LPN-RK-1/2SP	LPN-RK-6SP	LPN-RK-110SP
LPN-RK-5/10SP	LPN-RK-6 1/4SP	LPN-RK-125SP
LPN-RK-8/10SP	LPN-RK-8SP	LPN-RK-150SP
LPN-RK-1SP	LPN-RK-9SP	LPN-RK-175SP
LPN-RK-1 1/8SP	LPN-RK-10SP	LPN-RK-200SP
LPN-RK-1 1/4SP	LPN-RK-12SP	LPN-RK-225SP
LPN-RK-1 1/10SP	LPN-RK-15SP	LPN-RK-250SP
LPN-RK-1 3/10SP	LPN-RK-17 1/2SP	LPN-RK-300SP
LPN-RK-1 5/10SP	LPN-RK-20SP	LPN-RK-350SP
LPN-RK-2SP	LPN-RK-25SP	LPN-RK-400SP
LPN-RK-2 1/4SP	LPN-RK-30SP	LPN-RK-450SP
LPN-RK-2 1/2SP	LPN-RK-35SP	LPN-RK-500SP
LPN-RK-2 5/10SP	LPN-RK-40SP	LPN-RK-600SP
LPN-RK-3SP	LPN-RK-45SP	—
LPN-RK-3 3/10SP	LPN-RK-50SP	—

- 0-60 Amp fuses available with Albaloy plate option.
- 70-600 Amp fuses available with Tin plate option.

Catalog Numbers LPS-RK

LPS-RK-1/10SP	LPS-RK-2 1/2SP	LPS-RK-12SP	LPS-RK-110SP
LPS-RK-2/10SP	LPS-RK-2 5/10SP	LPS-RK-15SP	LPS-RK-125SP
LPS-RK-3/10SP	LPS-RK-3SP	LPS-RK-17 1/2SP	LPS-RK-150SP
LPS-RK-4/10SP	LPS-RK-3 5/10SP	LPS-RK-20SP	LPS-RK-175SP
LPS-RK-1/2SP	LPS-RK-3 1/2SP	LPS-RK-25SP	LPS-RK-200SP
LPS-RK-5/10SP	LPS-RK-4SP	LPS-RK-30SP	LPS-RK-225SP
LPS-RK-8/10SP	LPS-RK-4 1/2SP	LPS-RK-35SP	LPS-RK-250SP
LPS-RK-1SP	LPS-RK-5SP	LPS-RK-40SP	LPS-RK-300SP
LPS-RK-1 1/8SP	LPS-RK-5 5/10SP	LPS-RK-45SP	LPS-RK-350SP
LPS-RK-1 1/4SP	LPS-RK-6SP	LPS-RK-50SP	LPS-RK-400SP
LPS-RK-1 1/10SP	LPS-RK-6 1/4SP	LPS-RK-60SP	LPS-RK-450SP
LPS-RK-1 1/2SP	LPS-RK-7SP	LPS-RK-70SP	LPS-RK-500SP
LPS-RK-1 3/10SP	LPS-RK-8SP	LPS-RK-80SP	LPS-RK-600SP
LPS-RK-1 5/10SP	LPS-RK-9SP	LPS-RK-90SP	—
LPS-RK-2 1/4SP	LPS-RK-10SP	LPS-RK-100SP	—

Carton Quantity and Weight

Ampere Ratings	LPN-RK (250 Volts AC)		LPS-RK (600 Volts AC)			
	Carton Qty.	Weight*		Carton Qty.	Weight*	
		Lbs.	Kg		Lbs.	Kg
0-30	10	0.5	0.227	10	1.6	0.725
35-60	10	1.2	0.544	10	2.6	1.178
70-100	5	1.9	0.9	5	2.20	1.0
110-200	1	0.9	0.4	1	1.10	0.5
225-400	1	2.0	0.9	1	2.36	1.1
450-600	1	3.0	1.4	1	3.44	1.5

* Weight per carton.

Current-Limiting Effects

*Prosp. Let-Through Current (Apparent RMS Symmetrical)
S.C.C. LPN-RK_SP (250V) Fuse Ratings

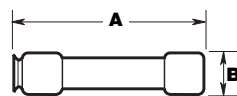
	30A	60A	100A	200A	400A	600A
5,000	900	1,600	2,100	3,150	5,000	5,000
10,000	1,100	1,950	2,600	3,950	6,900	9,250
15,000	1,200	2,150	2,950	4,500	7,650	10,250
20,000	1,350	2,400	3,200	4,900	8,350	11,050
25,000	1,400	2,550	3,350	5,300	8,850	11,750
30,000	1,500	2,700	3,550	5,600	9,300	12,250
35,000	1,600	2,850	3,750	5,850	9,700	12,800
40,000	1,650	2,950	3,900	6,150	10,050	13,250
50,000	1,750	3,150	4,150	6,600	10,700	14,050
60,000	1,850	3,300	4,400	7,000	11,250	14,750
80,000	2,000	3,650	4,750	7,650	12,200	15,850
100,000	2,150	3,900	5,050	8,250	12,950	16,800
150,000	2,450	4,350	5,700	9,400	14,500	18,650
200,000	2,650	4,800	6,200	10,300	15,700	20,100
250,000	3,250	5,000	6,600	11,050	16,700	21,250
300,000	3,600	5,600	7,000	11,750	17,550	22,350

*Prosp. Let-Through Current (Apparent RMS Symmetrical)
S.C.C. LPS-RK_SP (600V) Fuse Ratings

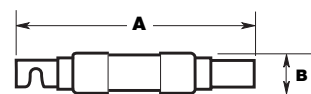
	30A	60A	100A	200A	400A	600A
5,000	980	1,600	2,200	3,250	5,000	5,000
10,000	1,200	2,000	2,700	4,100	7,150	9,600
15,000	1,400	2,300	3,050	4,650	7,950	10,650
20,000	1,500	2,500	3,300	5,100	8,650	11,500
25,000	1,600	2,650	3,500	5,500	9,200	12,200
30,000	1,650	2,850	3,700	5,800	9,650	12,750
35,000	1,750	2,950	3,900	6,100	10,100	13,300
40,000	1,850	3,100	4,050	6,400	10,450	13,750
50,000	1,950	3,300	4,300	6,850	11,100	14,600
60,000	2,050	3,500	4,550	7,250	11,700	15,300
80,000	2,250	3,850	4,950	7,950	12,650	16,450
100,000	2,450	4,050	5,250	8,550	13,450	17,450
150,000	2,750	4,800	5,900	9,750	15,050	19,400
200,000	3,000	5,200	6,450	10,700	16,300	20,900
250,000	2,900	5,500	6,850	11,500	17,350	22,100
300,000	3,100	5,700	7,250	12,200	18,250	23,200

* RMS symmetrical amperes short-circuit current.
Note: Data derived from current-limiting curves.

Dimensional Data



Ampere	250V		600V	
	A	B	A	B
1/10-30	2"	.56"	5"	.81"
35-60	3"	.81"	5.5"	1.06"



Ampere	250V		600V	
	A	B	A	B
70-100	5.88"	1.16"	7.88"	1.16"
110-200	7.13"	1.66"	9.63"	1.66"
225-400	8.63"	2.38"	11.63"	2.38"
450-600	10.38"	2.88"	13.38"	2.88"