Shepherd
electric supply

Job:
Contractor: Rommel Electric

Bill of Material

Littelfuse Fuses

Qty – 15 – ~~PART # FLSR125ID~~
125A 600V RK5 ~~FUSES.~~

Qty – 6 – PART # FLSR150ID
150A 600V RK5 FUSES.

Qty – 3 – PART # FLSR090ID
90A 600V RK5 FUSES.

Qty – 6 – PART # FLSR015ID
15A 600V RK5 FUSES.

Qty – 3 – PART # FLSR030ID
30A 600V RK5 FUSES.

Qty – 3 – PART # FLSR035ID
35A 600V RK5 FUSES.

Qty – 4 – PART # FLNR020
20A 250V RK5 FUSES.

Qty – 16 – PART # FLNR040ID
40A 250V RK5 FUSES.

Qty – 10 – PART # FLNR025
25A 250V RK5 FUSES.

Qty – 2 – PART # FLNR015
15A 250V RK5 FUSES.

SSOE Comment: Quantities not reviewed, coordinate quantities with Contractor.

7401 Pulaski Hwy., Balto., Md 21237-2529 **Ph.: 410-866-6600 / Fax: 410-866-9038**

CLASS RK5 – FLNR_ID • FLSR_ID SERIES INDICATOR® FUSES

250/600 VAC • Dual Element • Time Delay • 1/10-600 A

SSOE comment: Coordinate size and quantity with Contractor and equipment.

Ordering Information

AMPERE RATINGS							
1/10	6/10	1 8/10	4	8	30	80	225
1/8*	8/10	2	4 1/2	9	35	90	250
15/100	1	2 1/4	5	10	40	100	300
2/10	1 1/8	2 1/2	5 6/10	12	45	110	350
1/4	1 1/4	2 8/10	6	15	50	125	400
3/10†	1 4/10	3	6 1/4	17 1/2	60	150	450
4/10	1 1/2	3 2/10	7	20	70	175	500
1/2	1 6/10	3 1/2	7 1/2	25	75**	200	600

*FLNR only. †FLNR, FLSR, FLSR_ID only. **FLNR, FLSR, FLSR_ID only
Note: For 1/10 – 30A 250 volt fuses, order non-indicating FLNR series fuses.

TYPE	VOLTAGE	SERIES	AMP	CATALOG NUMBER	ORDERING NUMBER
NON-INDICATING	600 V	FLSR	15	FLSR015	FLSR015.T
INDICATING	600 V	FLSR_ID	15	FLSR015ID	FLSR015.TXID
NON-INDICATING	250 V	FLNR	60	FLNR060	FLNR060.T
INDICATING	250 V	FLNR_ID	60	FLNR060ID	FLNR060.TXID

Description

Available in both Indicating and Non-Indicating versions, the FLNR/FLSR series of fuses set the standard for general purpose fuses. The dual-element design provides advanced short circuit and overload protection. FLSR series fuses provide excellent protection for all types of circuits especially those containing motors.

Applications

- Service entrance switches
- Switchboard mains and feeders
- Motor control central mains and motor branch circuits
- All general purpose circuits

Features/Benefits

- Indication
- Dual-element design
- Available without indication
- Current limiting

Specifications

Voltage Ratings — AC: 250 V (FLNR_ID); 600 V (FLSR_ID)
DC: 125 V (FLNR 1/10 – 30 A);
125 V (FLNR_ID 35 – 600 A);
300 V (FLSR_ID)

Interrupting Ratings — AC: 200 kA rms symmetrical
300 kA rms symmetrical
(Littelfuse self-certified)
DC: 20 kA

Ampere Range — 1/10 – 600 A

Approvals — Standard 248-12, Class RK5
UL Listed (File: E81895)
CSA Certified (File: LR29862)
Federal Specification WF-1814
(QPL- W-F-1814)

Dimensions

Please refer to the Class R dimensions page 2.

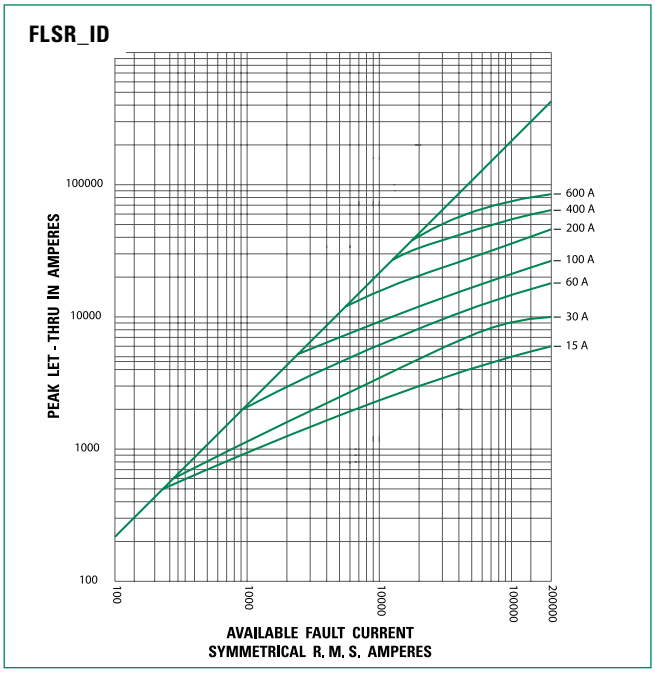
Web Resources

TC Curves, downloadable CAD drawings and other technical information: **Littelfuse.com/flsr**
Littelfuse.com/flnr

Recommended Fuse Holders

LFR60 Series • LFR25 Series

Peak Let-Thru Curve (600 V)



Note: For more information, see Peak Let-Thru Table

CLASS RK5 – FLNR_ID • FLSR_ID SERIES INDICATOR® FUSES

Current-Limiting Effects of FLSR and FLSR_ID (600 V) Fuses

SHORT-CIRCUIT CURRENT*	APPARENT RMS SYMMETRICAL CURRENT FOR VARIOUS FUSE RATINGS					
	30 A	60 A	100 A	200 A	400 A	600 A
5,000	1,250	2,100	3,200	5,000	5,000	5,000
10,000	1,600	2,850	4,300	7,250	10,000	10,000
15,000	1,800	3,400	5,000	8,500	13,500	15,000
20,000	2,250	3,800	5,500	9,500	15,750	19,000
25,000	2,450	4,100	5,700	10,250	17,000	21,000
30,000	2,700	4,500	6,400	10,750	18,000	23,000
35,000	2,900	4,800	6,700	11,500	19,000	24,250
40,000	3,000	5,000	7,250	12,000	19,500	27,000
50,000	3,400	5,250	7,750	13,000	21,000	29,000
60,000	3,600	5,750	8,100	14,000	22,000	30,500
80,000	3,900	6,250	9,000	15,000	24,000	33,000
100,000	4,300	6,750	9,750	16,500	26,000	35,000
150,000	4,500	7,600	11,100	19,000	28,000	38,000
200,000	4,600	8,400	12,250	21,500	30,000	40,000

Current-Limiting Effects of FLNR and FLNR_ID (250V) Fuses

SHORT-CIRCUIT CURRENT*	APPARENT RMS SYMMETRICAL CURRENT FOR VARIOUS FUSE RATINGS					
	30 A	60 A	100 A	200 A	400 A	600 A
5,000	1,400	2,100	3,100	5,000	5,000	5,000
10,000	1,550	2,500	3,900	6,500	9,500	10,000
15,000	2,000	3,150	4,400	7,250	10,500	14,000
20,000	2,250	3,400	5,000	8,250	12,000	16,000
25,000	2,400	3,750	5,250	9,000	12,500	16,500
30,000	2,550	4,100	5,600	9,500	13,500	18,000
35,000	2,650	4,300	5,800	9,750	14,000	19,000
40,000	2,800	4,400	6,250	10,250	15,000	20,000
50,000	3,000	5,000	6,500	10,500	16,000	21,000
60,000	3,200	5,250	7,000	11,500	17,000	23,000
80,000	3,400	5,750	7,500	12,500	19,000	25,500
100,000	3,850	6,000	8,000	13,500	21,000	27,500
150,000	4,100	7,000	9,000	15,200	24,000	31,500
200,000	4,300	7,500	9,750	16,500	26,000	34,000

*Prospective RMS Symmetrical Amperes Short-Circuit Current
Note: Data Derived from Peak Let-Thru Curves

Dimensions

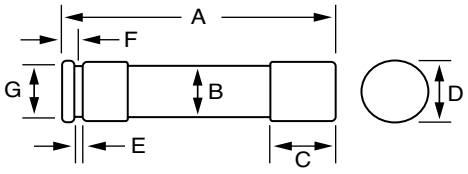
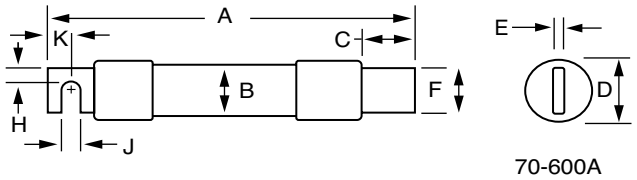


FIG. 1



70-600A

FIG. 2

AMPS	FIGURE NUMBER	SERIES	DIMENSIONS INCHES (mm)									
			A	B	C	D	E	F	G	H	J	K
1/10–30	1	FLNR	2 (50.8)	½ (12.7)	½ (12.7)	9/16 (14.3)	5/64 (2.0)	5/32 (4.0)	3/8 (9.5)	—	—	—
		FLSR	5 (127.0)	¾ (19.1)	5/8 (15.9)	13/16 (20.6)	3/32 (2.4)	3/16 (4.8)	5/8 (15.9)	—	—	—
35–60	1	FLNR	3 (76.2)	¾ (19.1)	5/8 (15.9)	13/16 (20.6)	3/32 (2.4)	3/16 (4.8)	5/8 (15.9)	—	—	—
		FLSR	5½ (139.7)	1 (25.4)	5/8 (15.9)	1 1/16 (27.0)	3/32 (2.4)	¼ (6.4)	7/8 (22.2)	—	—	—
70–100	2	FLNR	5 7/8 (149.2)	1 (25.4)	1 1/16 (27.0)	1 1/16 (27.0)	1/8 (3.2)	¾ (19.1)	—	¼ (6.4)	9/32 (7.1)	½ (12.7)
		FLSR	7 7/8 (200.0)	1¼ (31.8)	1 1/16 (27.0)	1 5/16 (33.3)	1/8 (3.2)	¾ (19.1)	—	¼ (6.4)	9/32 (7.1)	½ (12.7)
110–200	2	FLNR	7 1/8 (181.0)	1½ (38.1)	1 15/32 (37.3)	1 19/32 (40.5)	3/16 (4.8)	1 1/8 (28.6)	—	7/16 (11.1)	9/32 (7.1)	11/16 (17.5)
		FLSR	9 5/8 (244.5)	1¾ (44.5)	1 15/32 (37.3)	1 27/32 (46.8)	3/16 (4.8)	1 1/8 (28.6)	—	7/16 (11.1)	9/32 (7.1)	11/16 (17.5)
225–400	2	FLNR	8 5/8 (219.1)	2 (50.8)	1 15/16 (49.2)	2 3/32 (53.2)	¼ (6.4)	1 5/8 (41.3)	—	5/8 (15.9)	13/32 (10.3)	15/16 (23.8)
		FLSR	11 5/8 (295.3)	2½ (63.5)	2 (50.8)	2 19/32 (65.9)	¼ (6.4)	1 5/8 (41.3)	—	5/8 (15.9)	13/32 (10.3)	15/16 (23.8)
450–600	2	FLNR	10 3/8 (263.5)	2½ (63.5)	2 3/8 (60.3)	2 19/32 (65.9)	¼ (6.4)	2 (50.8)	—	¾ (19.1)	17/32 (13.5)	1 1/8 (28.6)
		FLSR	13 3/8 (339.7)	3 (76.2)	2 13/32 (61.1)	3 3/32 (78.6)	¼ (6.4)	2 (50.8)	—	¾ (19.1)	17/32 (13.5)	1 1/8 (28.6)

Cooper Bussmann

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LPJ-200SP

Class J, Dual-Element, Time Delay

The Bussmann LPJ-200SP fuses are provided by Manufacturer for RTU's 1 thru 5. the units come with integral Fused disconnects and these are the fuses that came with the units. No Added disconnects needed for RTU 1-5.

NOTE: OAU-1 Came with Integral MCB Disconnect by manufacture this unit will not require any added disconnects.

Product Information	
Product Type:	Fuse
Product Family:	Electrical Power
Brand:	Cooper Bussmann
Sub-brand:	Low-Peak
Class:	J

Recommended Products	
Rec. Fuse Block:	J60200 Series
Rec. Disconnect Switch:	FD200J Series

Certifications
UL Listed
CSA Certified

Physical Properties	
Dimensions:	5.75in.(L) × 1.63in.(W) × 0in.(H)

Electrical Properties	
Maximum AC Voltage:	600
Maximum DC Voltage:	300
Amperage Rating:	200
AC Interrupting Ratings:	• 300000 at 600V
DC Interrupting Ratings:	• 100000 at 300V
Fuse Class:	Class J
Time Delay:	Yes

LOW-PEAK®

Dual-Element, Time-Delay Fuses
Class J – 600 Volt

LPJ

70 to 600A

Catalog Symbol: LPJ-_SP
Dual-Element, Time-Delay – 10 seconds (minimum) at 500% rated current
Current-Limiting
Ampere Rating: 70 to 600A
Voltage Rating: 600Vac (or less)*
Interrupting Rating: 300,000A RMS Sym.
Agency Information:
UL Listed – Special Purpose†, Guide JFHR, File E56412
CSA Certified, Class J per CSA C22.2 No. 248.8, Class 1422-02, File 53787

*0-600A rated 300Vdc and 20 KAIC.
†Meets all performance requirements of UL Standard 248-8 for Class J fuses.

Catalog Symbol and Ampere Ratings

LPJ-70SP	LPJ-125SP	LPJ-250SP	LPJ-500SP
LPJ-80SP	LPJ-150SP	LPJ-300SP	LPJ-600SP
LPJ-90SP	LPJ-175SP	LPJ-350SP	—
LPJ-100SP	LPJ-200SP	LPJ-400SP	—
LPJ-110SP	LPJ-225SP	LPJ-450SP	—

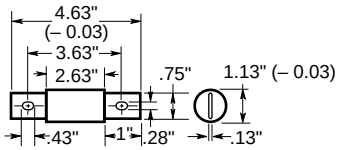
Carton Quantity and Weight

Ampere Ratings	Carton Qty.	Weight* Lbs.	Weight* Kg.
70–100	5	1.69	0.767
110–200	5	4.21	1.910
225–400	1	1.67	0.758
450–600	1	2.80	1.270

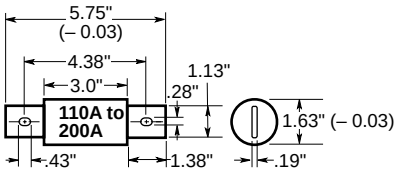
*Weight per carton.

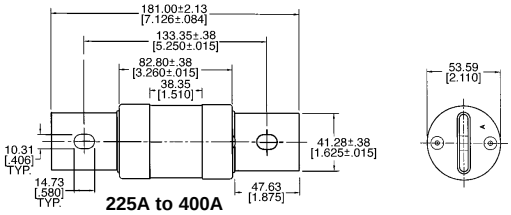
CE

Dimensional Data

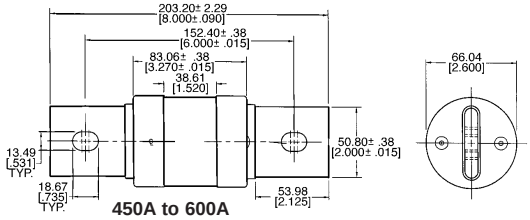


70A to 100A





225A to 400A



450A to 600A

General Information:

- True dual-element fuses with a minimum 10 second time-delay at 500% overload.
- Long time-delay minimizes needless fuse openings due to temporary overloads and transient surges.
- Can often be sized for back-up protection against motor burnout from overload or single-phasing if other overload protective devices fail.
- High interrupting rating to safely interrupt overcurrents up to 300,000A.
- High degree of current-limitation due to the fast speed-of-response to short-circuits.
- Faster response to damaging short-circuit currents than mechanical overcurrent protective devices.
- Reduces let-through thermal and magnetic forces in order to protect low withstand rated components.
- Proper sizing provides “no damage” Type “2” coordinated protection for NEMA and IEC motor control in accordance with IEC Standard 947-4-1.
- Dual-element fuses have lower resistance than ordinary fuses, hence they run cooler.
- Lower watts loss reduces power consumption.
- Unique dimensions assure that another class of fuse with a lesser voltage rating, interrupting rating or current-limiting ability cannot be substituted.
- Space-saving package for equipment down sizing.