

# Fusetron™ 600V Class RK5

FRS-R — 600 Vac/300 Vdc, 65-600 A, dual element, time-delay fuses



**Catalog symbol:**

- FRS-R-(amp)

**Description:**

Advanced protection, energy efficient Class RK5 dual element, current-limiting, time-delay fuses. Time-delay – 10 seconds (minimum) at 500% of rated current.

**Specifications:**

**Ratings**

- Volts — 600Vac, 300Vdc
- Amps — 65-600A
- Interrupting rating
  - 200 kA Vac RMS Sym
  - 20 kA Vdc

**Agency information**

- UL® Listed, Std. 248-12, Class RK5, Guide JDDZ, File E4273
- CSA® Certified, C22.2 No. 248.12, Class 1422-02, File 53787
- CE

| Catalog numbers (amps) |           |           |
|------------------------|-----------|-----------|
| FRS-R-65               | FRS-R-125 | FRS-R-350 |
| FRS-R-70               | FRS-R-150 | FRS-R-400 |
| FRS-R-75               | FRS-R-175 | FRS-R-450 |
| FRS-R-80               | FRS-R-200 | FRS-R-500 |
| FRS-R-90               | FRS-R-225 | FRS-R-600 |
| FRS-R-100              | FRS-R-250 |           |
| FRS-R-110              | FRS-R-300 |           |

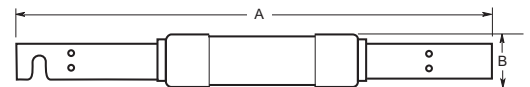
**Carton quantity**

| Amp ratings | Carton Qty. |
|-------------|-------------|
| 65-100      | 1           |
| 101-200     | 1           |
| 201-400     | 1           |
| 401-600     | 1           |

**Features:**

- Provides motor overload, ground fault and short-circuit protection. When used in circuits subject to surge currents such as those caused by motors, transformers and other inductive components, these fuses can be sized close to full-load amps to give maximum overcurrent protection
- The time-delay feature makes it possible to use fuse amp ratings which are much smaller than those of non-time delay fuses. Considerable cost saving occurs by permitting the use of smaller size switches, panels and fuses themselves
- Provides a good degree of short-circuit protection (greater current-limitation) to help protect downstream components from high fault currents
- Gives motor running back-up protection to motors without extra cost
- Helps protect motors against burnout from overloads and single-phasing when sized properly
- Simplifies and improves blackout prevention (selective coordination ratios)
- Dual-element fuses can be applied in circuits subject to temporary motor overloads and surge currents to provide both high-performance, short-circuit and overload protection

**Dimensions - in:**



| Amp ratings | A     | B    |
|-------------|-------|------|
| 65-100      | 7.88  | 1.11 |
| 110-200     | 9.63  | 1.61 |
| 225-400     | 11.63 | 2.34 |
| 450-600     | 13.38 | 2.88 |

**Recommended fuse blocks**

| Fuse amps | 1-Pole      | 2-Pole      | 3-Pole      |
|-----------|-------------|-------------|-------------|
| 70-100    | RM60100-1CR | RM60100-2CR | RM60100-3CR |
| 110-200   | RM60200-1CR | RM60200-2CR | RM60200-3CR |
| 225-400   | RM60400-1CR | RM60400-2CR | RM60400-3CR |
| 450-600   | RM60600-1CR | RM60600-2CR | RM60100-3CR |

For additional information on the RM600 volt fuse blocks, see data sheet No. 10489.

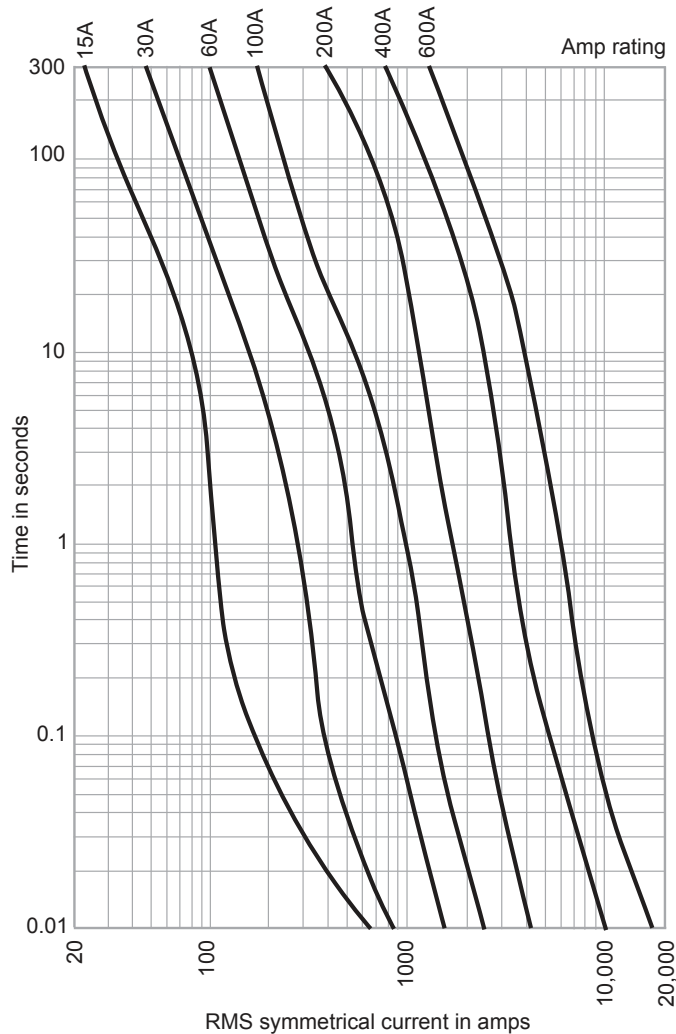
**Fuse reducers for class R fuses**

| Equipment fuse clips | Desired fuse (case) size | Catalog numbers (pairs) 600 V |
|----------------------|--------------------------|-------------------------------|
| 200 A                | 100 A                    | NO.2621-R                     |
| 400 A                | 100 A                    | NO.2641-R                     |
|                      | 200 A                    | NO.642-R                      |
| 600 A                | 100 A                    | NO.2661-R                     |
|                      | 200 A                    | NO.2662-R                     |
|                      | 400 A                    | NO.2664-R†                    |

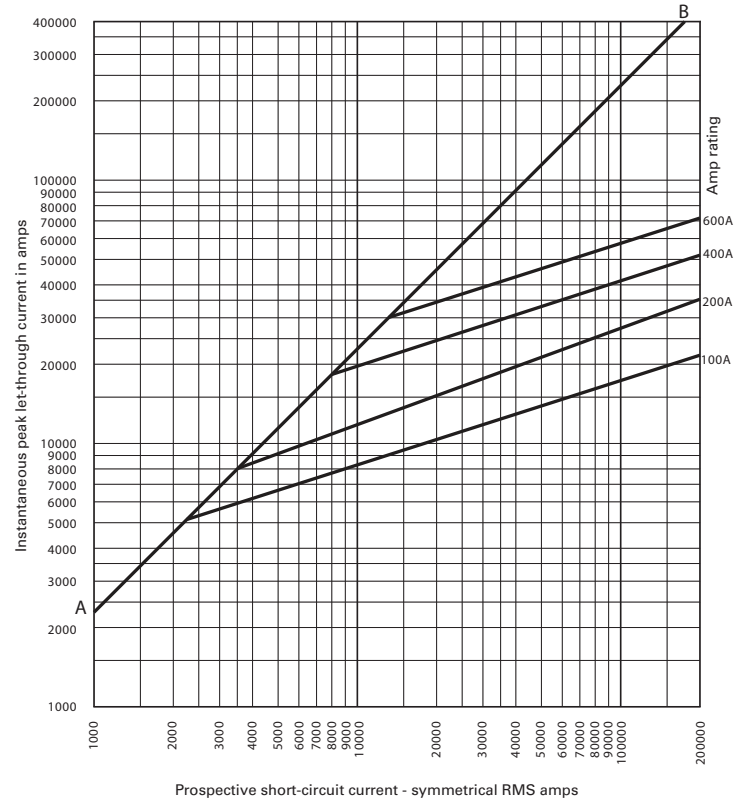
† Single reducer only (pair not required).

For additional information on Class R fuse reducers, see data sheet No. 1118.

**Time-current curves - average melt**



**Current-Limitation curves**



**Current-limiting effects**

| Prop. S.C.C. | Let-through current (apparent RMS symmetrical vs. fuse rating) |        |        |        |
|--------------|--|--------|--------|--------|
|              | 100A   | 200A   | 400A   | 600A   |
| 5000         | 3000   | 4000   | 5000   | 5000   |
| 10,000       | 4000   | 5000   | 9000   | 10,000 |
| 15,000       | 4000   | 6000   | 10,000 | 14,000 |
| 20,000       | 5000   | 7000   | 11,000 | 15,000 |
| 25,000       | 5000   | 7000   | 12,000 | 17,000 |
| 30,000       | 5000   | 8000   | 13,000 | 18,000 |
| 35,000       | 5000   | 8000   | 13,000 | 18,000 |
| 40,000       | 6000   | 9000   | 14,000 | 19,000 |
| 50,000       | 6000   | 9000   | 14,000 | 20,000 |
| 60,000       | 6000   | 10,000 | 15,000 | 22,000 |
| 70,000       | 7000   | 11,000 | 17,000 | 23,000 |
| 80,000       | 7000   | 12,000 | 17,000 | 23,000 |
| 90,000       | 7000   | 12,000 | 17,000 | 24,000 |
| 100,000      | 8000   | 13,000 | 18,000 | 25,000 |
| 150,000      | 9000   | 14,000 | 21,000 | 27,000 |
| 200,000      | 9000   | 16,000 | 23,000 | 32,000 |

The only controlled copy of this Data Sheet is the electronic read-only version located on the Eaton Network Drive. All other copies of this document are by definition uncontrolled. This bulletin is intended to clearly present comprehensive product data and provide technical information that will help the end user with design applications. Eaton reserves the right, without notice, to change design or construction of any products and to discontinue or limit distribution of any products. Eaton also reserves the right to change or update, without notice, any technical information contained in this bulletin. Once a product has been selected, it should be tested by the user in all possible applications.

**Eaton**  
1000 Eaton Boulevard  
Cleveland, OH 44122  
United States  
Eaton.com

Bussmann Division  
114 Old State Road  
Ellisville, MO 63021  
United States  
Eaton.com/bussmannseries

© 2016 Eaton  
All Rights Reserved  
Printed in USA  
Publication No. 1018 – SB13729 / APT  
May 2016

Eaton, Bussmann and Fusetron are valuable trademarks of Eaton in the US and other countries. You are not permitted to use the Eaton trademarks without prior written consent of Eaton.

CSA is a registered trademark of the Canadian Standards Group.  
UL is a registered trademark of the Underwriters Laboratories, Inc.

For Eaton's Bussmann series product information, call **1-855-287-7626** or visit: **Eaton.com/bussmannseries**

# Fusetron™ 600V Class RK5

FRS-R — 600 Vac/300 Vdc, 65-600 A, dual element, time-delay fuses



### Catalog symbol:

- FRS-R-(amp)

### Description:

Advanced protection, energy efficient Class RK5 dual element, current-limiting, time-delay fuses. Time-delay – 10 seconds (minimum) at 500% of rated current.

### Specifications:

#### Ratings

- Volts — 600Vac, 300Vdc
- Amps — 65-600A
- Interrupting rating
  - 200 kA Vac RMS Sym
  - 20 kA Vdc

#### Agency information

- UL® Listed, Std. 248-12, Class RK5, Guide JDDZ, File E4273
- CSA® Certified, C22.2 No. 248.12, Class 1422-02, File 53787
- CE

| Catalog numbers (amps) |           |           |
|------------------------|-----------|-----------|
| FRS-R-65               | FRS-R-125 | FRS-R-350 |
| FRS-R-70               | FRS-R-150 | FRS-R-400 |
| FRS-R-75               | FRS-R-175 | FRS-R-450 |
| FRS-R-80               | FRS-R-200 | FRS-R-500 |
| FRS-R-90               | FRS-R-225 | FRS-R-600 |
| FRS-R-100              | FRS-R-250 |           |
| FRS-R-110              | FRS-R-300 |           |

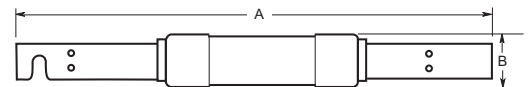
#### Carton quantity

| Amp ratings | Carton Qty. |
|-------------|-------------|
| 65-100      | 1           |
| 101-200     | 1           |
| 201-400     | 1           |
| 401-600     | 1           |

### Features:

- Provides motor overload, ground fault and short-circuit protection. When used in circuits subject to surge currents such as those caused by motors, transformers and other inductive components, these fuses can be sized close to full-load amps to give maximum overcurrent protection
- The time-delay feature makes it possible to use fuse amp ratings which are much smaller than those of non-time delay fuses. Considerable cost saving occurs by permitting the use of smaller size switches, panels and fuses themselves
- Provides a good degree of short-circuit protection (greater current-limitation) to help protect downstream components from high fault currents
- Gives motor running back-up protection to motors without extra cost
- Helps protect motors against burnout from overloads and single-phasing when sized properly
- Simplifies and improves blackout prevention (selective coordination ratios)
- Dual-element fuses can be applied in circuits subject to temporary motor overloads and surge currents to provide both high-performance, short-circuit and overload protection

### Dimensions - in:



| Amp ratings | A     | B    |
|-------------|-------|------|
| 65-100      | 7.88  | 1.11 |
| 110-200     | 9.63  | 1.61 |
| 225-400     | 11.63 | 2.34 |
| 450-600     | 13.38 | 2.88 |

**Recommended fuse blocks**

| Fuse amps | 1-Pole      | 2-Pole      | 3-Pole      |
|-----------|-------------|-------------|-------------|
| 70-100    | RM60100-1CR | RM60100-2CR | RM60100-3CR |
| 110-200   | RM60200-1CR | RM60200-2CR | RM60200-3CR |
| 225-400   | RM60400-1CR | RM60400-2CR | RM60400-3CR |
| 450-600   | RM60600-1CR | RM60600-2CR | RM60100-3CR |

For additional information on the RM600 volt fuse blocks, see data sheet No. 10489.

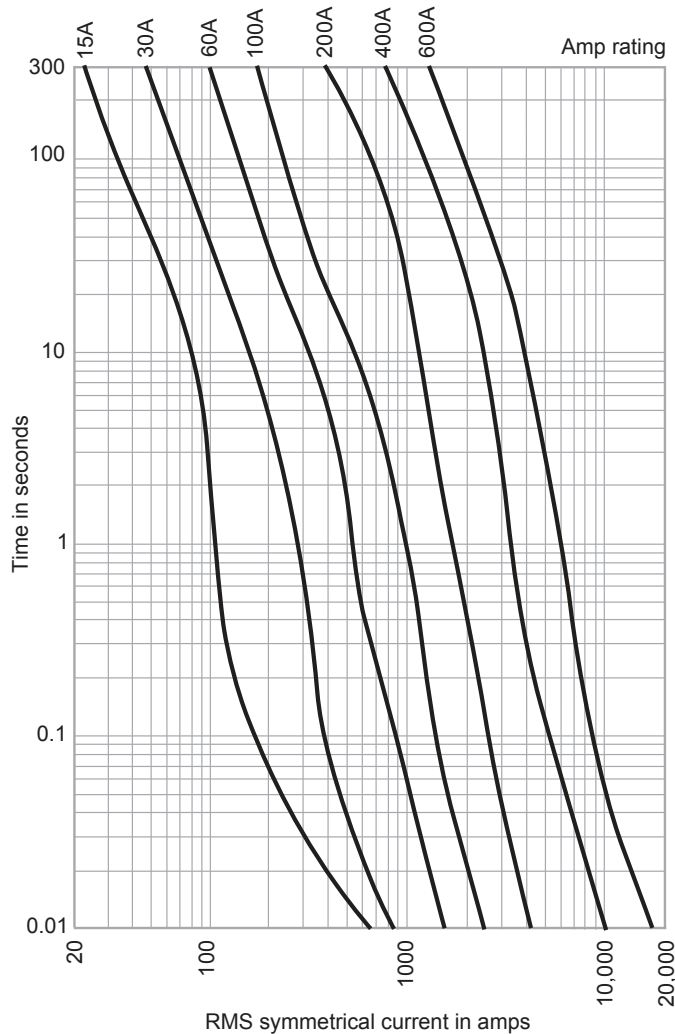
**Fuse reducers for class R fuses**

| Equipment fuse clips | Desired fuse (case) size | Catalog numbers (pairs) 600 V |
|----------------------|--------------------------|-------------------------------|
| 200 A                | 100 A                    | NO.2621-R                     |
| 400 A                | 100 A                    | NO.2641-R                     |
|                      | 200 A                    | NO.642-R                      |
| 600 A                | 100 A                    | NO.2661-R                     |
|                      | 200 A                    | NO.2662-R                     |
|                      | 400 A                    | NO.2664-R†                    |

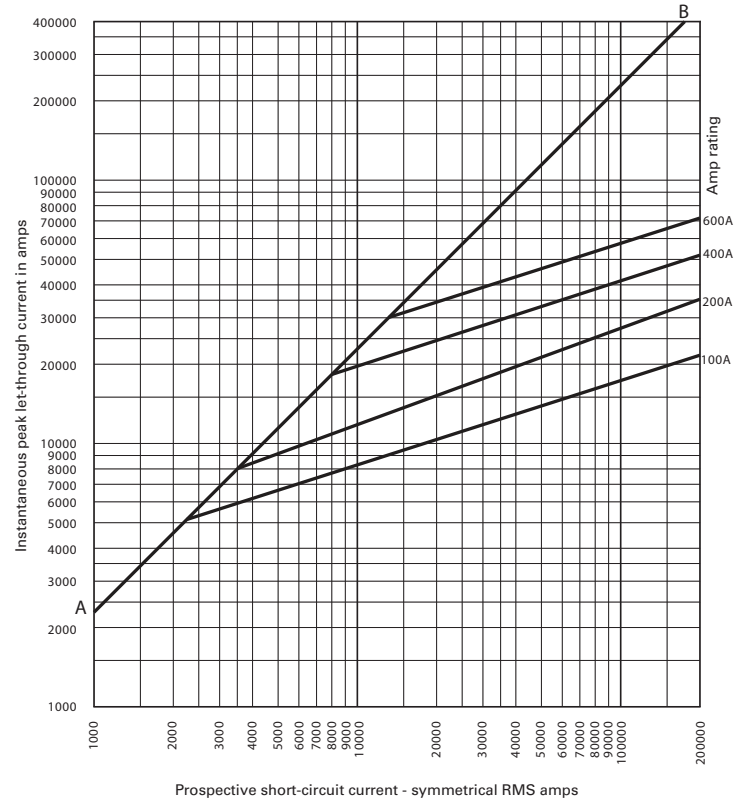
† Single reducer only (pair not required).

For additional information on Class R fuse reducers, see data sheet No. 1118.

**Time-current curves - average melt**



**Current-Limitation curves**



**Current-limiting effects**

| Prop. S.C.C. | Let-through current (apparent RMS symmetrical vs. fuse rating) |        |        |        |
|--------------|--|--------|--------|--------|
|              | 100A   | 200A   | 400A   | 600A   |
| 5000         | 3000   | 4000   | 5000   | 5000   |
| 10,000       | 4000   | 5000   | 9000   | 10,000 |
| 15,000       | 4000   | 6000   | 10,000 | 14,000 |
| 20,000       | 5000   | 7000   | 11,000 | 15,000 |
| 25,000       | 5000   | 7000   | 12,000 | 17,000 |
| 30,000       | 5000   | 8000   | 13,000 | 18,000 |
| 35,000       | 5000   | 8000   | 13,000 | 18,000 |
| 40,000       | 6000   | 9000   | 14,000 | 19,000 |
| 50,000       | 6000   | 9000   | 14,000 | 20,000 |
| 60,000       | 6000   | 10,000 | 15,000 | 22,000 |
| 70,000       | 7000   | 11,000 | 17,000 | 23,000 |
| 80,000       | 7000   | 12,000 | 17,000 | 23,000 |
| 90,000       | 7000   | 12,000 | 17,000 | 24,000 |
| 100,000      | 8000   | 13,000 | 18,000 | 25,000 |
| 150,000      | 9000   | 14,000 | 21,000 | 27,000 |
| 200,000      | 9000   | 16,000 | 23,000 | 32,000 |

The only controlled copy of this Data Sheet is the electronic read-only version located on the Eaton Network Drive. All other copies of this document are by definition uncontrolled. This bulletin is intended to clearly present comprehensive product data and provide technical information that will help the end user with design applications. Eaton reserves the right, without notice, to change design or construction of any products and to discontinue or limit distribution of any products. Eaton also reserves the right to change or update, without notice, any technical information contained in this bulletin. Once a product has been selected, it should be tested by the user in all possible applications.

**Eaton**  
1000 Eaton Boulevard  
Cleveland, OH 44122  
United States  
Eaton.com

Bussmann Division  
114 Old State Road  
Ellisville, MO 63021  
United States  
Eaton.com/bussmannseries

© 2016 Eaton  
All Rights Reserved  
Printed in USA  
Publication No. 1018 – SB13729 / APT  
May 2016

Eaton, Bussmann and Fusetron are valuable trademarks of Eaton in the US and other countries. You are not permitted to use the Eaton trademarks without prior written consent of Eaton.

CSA is a registered trademark of the Canadian Standards Group.  
UL is a registered trademark of the Underwriters Laboratories, Inc.

For Eaton's Bussmann series product information, call **1-855-287-7626** or visit: **Eaton.com/bussmannseries**