

SWITCH DISCONNECTOR FUSE 160A, FRAME SIZE 2, 4-POLE FOR LV HRC FUSE SIZE 000 AND 00 SIDE OPERATING RIGHT BASIC UNIT WITHOUT HANDLE FLAT TERMINAL WITHOUT FUSES



| Model   |                                    |
|---|------------------------------------|
| Product brand name  | SENTRON                            |
| Product designation   | Switching device                   |
| Design of the product   | 3KF switch disconnecter with fuses |
| Design of the operating mechanism   | without                            |
| Design of handle  | Without                            |
| Direction of actuation  | from right                         |
| Type of the driving mechanism / motor drive                               | No                                 |
| Number of poles   | 4                                  |
| Size of disconnecting link  | 00 and 000                         |
| Size of switch disconnecter   | 2                                  |
| Size of fuse link   | NH000, NH00                        |
| Electrical endurance (switching cycles)                                   |                                    |
| • at AC-23 A / at 440 V / at 50/60 Hz                                     | 8 000                              |
| • at AC-23 A / at 690 V / at 50/60 Hz                                     | 5 000                              |
| • at DC-23 A / at 440 V   | 1 000                              |
| I <sup>2</sup> t value  |                                    |
| • with closed switch / for combination switch + fuse / at 500 V / maximum | 150 600 A <sup>2</sup> ·s          |

|  |                           |
|--|---------------------------|
| <ul style="list-style-type: none"> <li>• with closed switch / for combination switch + fuse / at 400 V / maximum</li> </ul>    | 150 600 A <sup>2</sup> ·s |
| <ul style="list-style-type: none"> <li>• with closed switch / at 690 V / for combination switch + gG fuse / maximum</li> </ul> | 89 640 A <sup>2</sup> ·s  |
| <ul style="list-style-type: none"> <li>• with closed switch / at 690 V / for combination switch + aM fuse / maximum</li> </ul> | 89 640 A <sup>2</sup> ·s  |
| <ul style="list-style-type: none"> <li>• of the fuse / at 500 V / maximum permissible</li> </ul>                               | 223 000 A <sup>2</sup> ·s |
| <ul style="list-style-type: none"> <li>• of the gG fuse / at 690 V / maximum permissible</li> </ul>                            | 360 000 A <sup>2</sup> ·s |
| <ul style="list-style-type: none"> <li>• of the aM fuse / at 690 V / maximum permissible</li> </ul>                            | 375 000 A <sup>2</sup> ·s |
| <b>Mechanical service life (switching cycles) / typical</b>  | 12 000                    |
| <b>Position / of the switch operating mechanism</b>  | at the right end          |
| <b>Fuse system</b>   | LV HRC fuse               |
| <b>Overvoltage category</b>  | IV                        |
| <b>Operating voltage / with current paths in series</b>  |                           |
| <ul style="list-style-type: none"> <li>• with degree of pollution 2 / at DC / rated value / Note</li> </ul>                    | 440 / 3                   |
| <ul style="list-style-type: none"> <li>• with degree of pollution 3 / at DC / rated value / Note</li> </ul>                    | 440 / 3                   |
| Insulation voltage / rated value   | 1 000 V                   |
| Surge voltage resistance / rated value   | 12 kV                     |
| <b>Overvoltage in percent / relative to the operating voltage / at AC / at 50/60 Hz</b>  | 10 %                      |

|  |      |
|--|------|
| <b>Protection class</b>  |      |
| <b>Protection class IP</b>   | IP00 |
| <b>Protection class IP</b>   |      |
| <ul style="list-style-type: none"> <li>• with closed switch / with cover or cable lug cover</li> </ul> | IP20 |
| <ul style="list-style-type: none"> <li>• on the front</li> </ul>                                       | IP00 |

|   |        |
|---|--------|
| <b>Dissipation</b>  |        |
| <b>Power loss [W]</b>   |        |
| <ul style="list-style-type: none"> <li>• with conventional rated thermal current / per pole</li> </ul>                  | 7.2 W  |
| <ul style="list-style-type: none"> <li>• with conventional rated thermal current / per device</li> </ul>                | 21.6 W |
| <ul style="list-style-type: none"> <li>• with conventional rated thermal current / without fuse / per pole</li> </ul>   | 7.2 W  |
| <ul style="list-style-type: none"> <li>• with conventional rated thermal current / without fuse / per device</li> </ul> | 21.6 W |
| <ul style="list-style-type: none"> <li>• of the fuse / per fuse / maximum</li> </ul>                                    | 12 W   |
| <ul style="list-style-type: none"> <li>• maximum</li> </ul>   | 57.6 W |
| <b>Operating current</b>  |        |

|  |          |
|--|----------|
| • at AC-21 A / at 400 V / maximum  | 160 A    |
| • at AC-21 A / at 500 V / maximum  | 160 A    |
| • at AC-21 A / at 690 V / maximum  | 160 A    |
| • at AC-23 A / at 500 V / at 50/60 Hz / rated value / maximum                | 160 A    |
| • at AC-22 A / at 500 V / at 50/60 Hz / rated value / maximum                | 160 A    |
| • at AC-22 A / at 400 V / at 50/60 Hz / rated value / maximum                | 160 A    |
| • at AC-22 A / at 690 V / at 50/60 Hz / rated value / maximum                | 160 A    |
| • at AC-23 A / at 400 V / at 50/60 Hz / rated value / maximum                | 160 A    |
| • at AC-23 A / at 690 V / at 50/60 Hz / rated value / maximum                | 160 A    |
| • at DC-23 A / at 440 V / rated value / maximum                              | 160 A    |
| • at DC-23 A / at 220 V / rated value / maximum                              | 160 A    |
| • at DC-22 A / at 440 V / rated value / maximum                              | 160 A    |
| • at DC-22 A / at 220 V / rated value / maximum                              | 160 A    |
| • at DC-21 A / at 440 V / rated value / maximum                              | 160 A    |
| • at DC-21 A / at 220 V / maximum  | 160 A    |
| <b>Continuous current</b>  |          |
| • rated value  | 160 A    |
| • at 40 °C / rated value   | 160 A    |
| • at 45 °C / rated value   | 160 A    |
| • at 50 °C / rated value   | 160 A    |
| • at 55 °C / rated value   | 160 A    |
| • at 60 °C / rated value   | 160 A    |
| • at 65 °C / rated value   | 160 A    |
| • at 70 °C / rated value   | 160 A    |
| Continuous current / at DC / rated value                                     | 160 A    |
| <b>Let-through current / of the fuse / at 500 V / maximum permissible</b>    | 18 000 A |
| <b>Let-through current / of the gG fuse / at 690 V / maximum permissible</b> | 25 500 A |
| <b>Let-through current / of the aM fuse / at 690 V / maximum permissible</b> | 28 100 A |
| <b>Let-through current / with closed switch</b>                              |          |
| • at 690 V / for combination switch + aM fuse / maximum permissible          | 16 870 A |
| • at 690 V / for combination switch + gG fuse / maximum permissible          | 16 870 A |
| • for combination switch + fuse / at 400 V / maximum permissible             | 18 200 A |

|  |          |
|--|----------|
| <ul style="list-style-type: none"> <li>• for combination switch + fuse / at 500 V / maximum permissible</li> </ul> | 18 200 A |
| Short-time current resistance (I <sub>cw</sub> ) / at 690 V AC/440 V DC / limited to 1 s / rated value             | 5 kA     |

### Main circuit

|  |        |
|--|--------|
| <b>Operating power / at AC-23 A</b>  |        |
| <ul style="list-style-type: none"> <li>• at 400 V / at 50/60 Hz / rated value</li> </ul> | 90 kW  |
| <ul style="list-style-type: none"> <li>• at 500 V / at 50/60 Hz / rated value</li> </ul> | 110 kW |
| <ul style="list-style-type: none"> <li>• at 690 V / at 50/60 Hz / rated value</li> </ul> | 132 kW |
| <b>Operating voltage</b>   |        |
| <ul style="list-style-type: none"> <li>• at AC / at 50/60 Hz / rated value</li> </ul>    | 690 V  |
| <ul style="list-style-type: none"> <li>• at AC / rated value / maximum</li> </ul>        | 690 V  |

### Auxiliary circuit

|   |     |
|---|-----|
| Number of connected NC contacts / for auxiliary contacts                                      | 0   |
| Number of connected NO contacts / for auxiliary contacts                                      | 0   |
| Number of connected CO contacts / for auxiliary contacts                                      | 0   |
| <b>Suitability for use</b>  |     |
| <ul style="list-style-type: none"> <li>• Main switch</li> </ul>                               | Yes |
| <ul style="list-style-type: none"> <li>• switch disconnecter</li> </ul>                       | Yes |
| <ul style="list-style-type: none"> <li>• EMERGENCY OFF switch</li> </ul>                      | Yes |
| <ul style="list-style-type: none"> <li>• safety switch</li> </ul>                             | Yes |
| <ul style="list-style-type: none"> <li>• maintenance/repair switch</li> </ul>                 | Yes |
| Product feature / interlock   | No  |
| <b>Product component</b>  |     |
| <ul style="list-style-type: none"> <li>• Voltage trigger</li> </ul>                           | No  |
| <ul style="list-style-type: none"> <li>• undervoltage release</li> </ul>                      | No  |
| <ul style="list-style-type: none"> <li>• undervoltage release with leading contact</li> </ul> | No  |
| Product feature / sealable  | Yes |
| <b>Product extension</b>  |     |
| <ul style="list-style-type: none"> <li>• Auxiliary switch</li> </ul>                          | Yes |
| <ul style="list-style-type: none"> <li>• optional</li> </ul>                                  |     |
| <ul style="list-style-type: none"> <li>— locking capability</li> </ul>                        | Yes |
| <ul style="list-style-type: none"> <li>— motor drive</li> </ul>                               | No  |
| <ul style="list-style-type: none"> <li>— fuse monitoring</li> </ul>                           | Yes |
| <b>Product function</b>   |     |
| <ul style="list-style-type: none"> <li>• fuse monitoring</li> </ul>                           | No  |

### Short circuit

|   |         |
|---|---------|
| Short-circuit current making capacity (I <sub>cm</sub> ) / for switch disconnecter / at 690 V AC/440 V DC / without fuse link / rated value / minimum | 7.65 kA |
| <b>Conditional short-circuit current / with line-side fuse protection</b>   |         |
| <ul style="list-style-type: none"> <li>• at 500 V / by gG fuse / rated value</li> </ul>   | 100 kA  |
| <ul style="list-style-type: none"> <li>• at 690 V / by gG fuse / rated value</li> </ul>   | 100 kA  |

### Connections

|   |  |
|---|--|
| Arrangement of electrical connectors / for main current circuit   | Top and bottom   |
| <b>Tightening torque / with screw-type terminals</b>  |  |
| <ul style="list-style-type: none"> <li>• minimum</li> </ul>   | 15 N·m   |
| <ul style="list-style-type: none"> <li>• maximum</li> </ul>   | 22 N·m   |
| <ul style="list-style-type: none"> <li>• Type of connectable conductor cross-sections / for copper busbar</li> </ul>  | 1x (20x3 mm)   |
| <ul style="list-style-type: none"> <li>• Type of connectable conductor cross-sections / for aluminum conductor / stranded / with lug</li> </ul>                   | 1x (2.5 ... 95 mm <sup>2</sup> ), 2x (2.5 ... 50 mm <sup>2</sup> ) |
| <ul style="list-style-type: none"> <li>• Type of connectable conductor cross-sections / for copper conductor / stranded / with lug / acc. to DIN 46234</li> </ul> | 1x (2.5 ... 95 mm <sup>2</sup> ), 2x (2.5 ... 50 mm <sup>2</sup> ) |
| <ul style="list-style-type: none"> <li>• Type of connectable conductor cross-sections / for copper conductor / stranded / with lug / acc. to DIN 46235</li> </ul> | 1x (25 ... 70 mm <sup>2</sup> ), 2x (25 ... 50 mm <sup>2</sup> )   |
| <b>Type of electrical connection</b>  |  |
| <ul style="list-style-type: none"> <li>• for main current circuit</li> </ul>  | flat connector   |

### Mechanical Design

|  |                |
|--|----------------|
| <b>Height</b>  | 150 mm         |
| <b>Width</b>   | 249.7 mm       |
| <b>Depth</b>   | 161.5 mm       |
| <b>Mounting position</b>   | any            |
| <b>Mounting type</b>   | floor mounting |
| <b>Mounting type</b>   |                |
| <ul style="list-style-type: none"> <li>• front mounting with 4-hole attachment</li> </ul>  | No             |
| <ul style="list-style-type: none"> <li>• front mounting with central attachment</li> </ul> | No             |
| <ul style="list-style-type: none"> <li>• rail mounting</li> </ul>                          | No             |
| <b>Net weight</b>  | 2 800 g        |

### Environmental conditions

|  |        |
|--|--------|
| <b>Degree of pollution</b>   | 3      |
| <b>Ambient temperature</b>   |        |
| <ul style="list-style-type: none"> <li>• during operation / minimum</li> </ul> | -25 °C |
| <ul style="list-style-type: none"> <li>• during operation / maximum</li> </ul> | 70 °C  |
| <ul style="list-style-type: none"> <li>• during storage / minimum</li> </ul>   | -50 °C |
| <ul style="list-style-type: none"> <li>• during storage / maximum</li> </ul>   | 80 °C  |

## Certificates

Equipment marking / acc. to DIN EN 61346-2

Q

General Product Approval

other



CCC



VDE

[Miscellaneous](#)

## Further information

**Information- and Downloadcenter (Catalogs, Brochures,...)**

<http://www.siemens.com/lowvoltage/catalogs>

**Industry Mall (Online ordering system)**

<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3KF2416-4RF11>

**Service&Support (Manuals, Certificates, Characteristics, FAQs,...)**

<https://support.industry.siemens.com/cs/ww/en/ps/3KF2416-4RF11>

**Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, ...)**

[http://www.automation.siemens.com/bilddb/cax\\_en.aspx?mlfb=3KF2416-4RF11](http://www.automation.siemens.com/bilddb/cax_en.aspx?mlfb=3KF2416-4RF11)

**CAX-Online-Generator**

<http://www.siemens.com/cax>

**Tender specifications**

<http://www.siemens.com/specifications>



