Fast Bus Busbar System

5/1

Fast Bus busbar adapter system

60 mm system

Selection and ordering data
- Busbar holders
- Fast Bus adapter shoes
- Incoming supply terminals
- Copper busbar
- Busbar covers
- Other accessories

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Introduction
Technical Data
Dimension drawings

Fast Bus circuit breakers

FBCB Fast Bus main and feeder circuit breakers

Selection and ordering data
- Fast Bus circuit breakers assemblies and kits
- Fast Bus adapter shoes for VL breakers

Fast Bus combination starters

3RA2 Fast Bus combinations starters
3RA6 Fast Bus compact starters

Selection and ordering data
- See Section 4
Busbar adapter systems

with busbar centerline spacing of 60 mm

60 mm busbar system

<table>
<thead>
<tr>
<th>Component</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Busbar holder</td>
<td>5/6</td>
</tr>
<tr>
<td>End and intermediate holders for flat copper profiles</td>
<td></td>
</tr>
<tr>
<td>Fast Bus main circuit breakers</td>
<td>5/6</td>
</tr>
<tr>
<td>from 15 to 500A</td>
<td></td>
</tr>
<tr>
<td>Fast Bus circuit breakers</td>
<td>5/7</td>
</tr>
<tr>
<td>from 15 to 500A</td>
<td></td>
</tr>
<tr>
<td>3RAZ Combination Starters</td>
<td>see section 4</td>
</tr>
<tr>
<td>Incoming supply terminals</td>
<td>5/6</td>
</tr>
</tbody>
</table>
General
The Fast Bus Multi-Motor Control system is a 3-phase insulated busbar system and is ideal for space saving in panel designs. The system saves considerable line side wiring and space for multi-motor panels. It is also ideal for panels where several feeder breakers are used and will save significant wiring space and wiring labor. The system is also ideal for future expansion planning, when building control panels. SIRIUS 3RV/3RT starter combinations and Siemens circuit breakers are all adaptable to Fast Bus for convenient mounting and faster replacement times.

Fast Bus is ideal for industrial applications where system availability is important.

How to Select Fast Bus
1) Determine the required load.
2) Select method to power Fastbus.
   —Main lug up to 800A using a single set of lugs or up to 1400A using a double set of lugs.
   —Circuit breakers, 15A to 500A
If load exceeds 500A, the CB must be separately panel mounted and fed to a main lug infeed module.
3) Select 3RV MSP & 3RT contactor components and appropriate adapter shoe or select preassembled 3RA starters. See section 4.
4) Select appropriate length busbar, busbar holders, insulation covers and any other required components.

General Ratings of Fastbus System

<table>
<thead>
<tr>
<th></th>
<th>IEC</th>
<th>Domestic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated operating voltage</td>
<td>690V</td>
<td>600V</td>
</tr>
<tr>
<td>Rated insulation voltage, IEC VDE</td>
<td>AC 1000V</td>
<td>N/A</td>
</tr>
<tr>
<td>Temperature stability</td>
<td>Up to 105 degrees C</td>
<td>N/A</td>
</tr>
<tr>
<td>Busbar support and adapter shoe material</td>
<td>Glass-reinforced polyamide</td>
<td>Same</td>
</tr>
<tr>
<td>Color</td>
<td>RAL 7035, light gray</td>
<td>Same</td>
</tr>
</tbody>
</table>

Ampacity

<table>
<thead>
<tr>
<th>Busbar thickness and width</th>
<th>362A</th>
<th>432A</th>
<th>500A</th>
<th>564A</th>
<th>660A</th>
<th>756A</th>
<th>1400A</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 x 20 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 x 25 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 x 30 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 x 20 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 x 25 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 x 30 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>720mm²</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For technical information on E and F frame circuit breakers used as main and feeder breakers, see section 17.

Thermal busbar currents, E-Cu, bare, at 35 °C ambient temperature in accordance with DIN 43671

<table>
<thead>
<tr>
<th>Busbar dimensions</th>
<th>20 x 5</th>
<th>25 x 5</th>
<th>30 x 5</th>
<th>20 x 10</th>
<th>30 x 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>274</td>
<td>327</td>
<td>379</td>
<td>427</td>
<td>573</td>
</tr>
<tr>
<td>562</td>
<td>362</td>
<td>432</td>
<td>500</td>
<td>564</td>
<td>756</td>
</tr>
<tr>
<td>430</td>
<td>513</td>
<td>595</td>
<td>670</td>
<td>900</td>
<td></td>
</tr>
</tbody>
</table>
**Fast Bus set-up**

The Fast Bus system is designed to be easy to use and to save set up time.

**8US Busbar holders**

The 8US busbar holders are designed to accommodate ampacities up to 1400A. In some cases, the busbar holder will accept busbars in either 5mm or 10mm widths. Refer to page 5/6 for selection details.

**High quality material**

Busbar supports and fuse bases are manufactured from glassfiber reinforced, thermoplastic polyester with the color RAL 7035, light gray. The material ensures excellent mechanical, chemical and electrical properties. Furthermore, the material has an extremely low flammability and meets the requirements of UL 94 V0.

**8WC Busbar and busbar systems**

The most common size busbar for applications in the US is the 8WC5053 (20 mm x 5 mm), however there are other styles available depending on your application.

Busbar systems with 60 mm busbar center-to-center clearance have now become firmly established in the US market.

The permissible busbar temperature is a decisive factor when dimensioning the busbars. The busbar temperature is dependent on the current, the current distribution, the busbar cross-section, the busbar surface, the position of the busbar, the convection and the ambient temperature. The values stated in the table on page 5/3 can only be considered as reference values because the conditions vary with each location. The values are based on constant current over the whole busbar length.

For the assemblies of a busbar system in the feeder circuit the UL directives specify components with large clearance in air and creepage distances (see the table below). Components of the 8US1 busbar system which meet this requirement can be found in this chapter.

Note:

The design of an 8US1 busbar system for use in the feeder circuit always presumes the use of the UL base plate (8US19 22-2UA01) so that the clearance in air and creepage distance requirements are met.

**Feeder/branch circuit according to UL 508A**

The feeder circuit is that part of a circuit which comes in front of the last short circuit protection device (SCPD). The branch circuit is that part of the circuit which follows after the last short circuit protection device. When the 8US1 busbar system is used in a switchgear which must comply with UL directives, it is important to establish whether it is to be used in the feeder circuit or the branch circuit. Components used in the feeder circuit require larger clearance in air and creepage distances than in the branch circuit.

**Simple Fast Bus system**

The two illustrations above show the very basic items needed when setting up a Fastbus system.

1. 8US1 Busbar holder (5/6)
2. 8US1 Ground busbar support (shown attached however can be mounted separately 5/6)
3. Ground busbar available in 5 x 20 mm to 10 x 30 mm
4. 8WC Busbar (8WC5053 shown) FBB36 Busbar (5/6)

**Short-circuit strength**

The short-circuit strength of the busbar system is dependent on the spacing of the busbar holders and on the busbar cross-section.

The short-circuit strength of the whole system is dependent on the short-circuit strength of the busbar system and the components that are mounted to the system.

**Applications**

The 8US Fast Bus distribution system is ideal for control panel builders with multiple motor applications. These applications are most common in the material handling, automotive, food processing, pharmaceutical and paper processing industries.

---

<table>
<thead>
<tr>
<th>Clearance in air</th>
<th>Creepage distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between live parts</td>
<td>25.4 mm (1 inch)</td>
</tr>
<tr>
<td>Between live parts and grounded, non-insulated metal parts</td>
<td>25.4 mm (1 inch)</td>
</tr>
</tbody>
</table>
### Fast Bus combination starters and group installation assemblies

#### Ratings for Group Installations per NEC 430-53

Group installation is an approach to building multiple motor control systems in accordance with Section 430-53 of the National Electrical Code. In group installation, multiple motor starters can be grouped under one short-circuit protective device. The 3RV MSPs have been UL listed for use in group installations both with and without 3RT contactors when mounted on the Fast Bus system. A 3RT contactor is added when remote operation of the motor is required.

#### Standard Installation, NEC 430-52

<table>
<thead>
<tr>
<th>Branch Circuit Protective Device</th>
<th>Type</th>
<th>FLA Amp Range</th>
<th>Short Circuit Current Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>240V</td>
<td>480V</td>
</tr>
<tr>
<td>Fuse</td>
<td></td>
<td>65kA</td>
<td>65kA</td>
</tr>
<tr>
<td>Circuit Breaker</td>
<td></td>
<td>65kA</td>
<td>65kA</td>
</tr>
</tbody>
</table>

#### Group Installation, NEC 430-53

![Diagram of Group Installation](image)

The selection of components for Group Installation is a simple process of the following three steps:

1. Selection of the Branch Circuit Protective Device, fuse or circuit breaker.
2. Selection of the 3RA Motor Starter based on the motor Full Load Amps.

### Circuit Breaker Selection

Select a circuit breaker (CB) between:

- Minimum CB size (per NEC430-110): Sum of all motor FLC (per NEC table 430-150) x 115%.
- Maximum CB size (per NEC430-53c): 250% x FLC of the largest motor + FLC of all other motors.

### Fuse Selection

Calculate the maximum fuse size per NEC430-53c.

Max Fuse Size = 175% x FLC of largest motor + FLC of all other motors (FLC’s from NEC table 430-150).

#### Ratings for Group Installations per NEC 430-53

<table>
<thead>
<tr>
<th>Assembled Starter Type</th>
<th>Frame Size</th>
<th>FLA Amp Range</th>
<th>Short Circuit Current Ratings (Type E)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3RA201</td>
<td>S00</td>
<td>0.11-12.5</td>
<td>—</td>
</tr>
<tr>
<td>3RA201</td>
<td>S00</td>
<td>0.11-16</td>
<td>65kA</td>
</tr>
<tr>
<td>3RA202</td>
<td>S0</td>
<td>0.45-12.5</td>
<td>65kA</td>
</tr>
<tr>
<td>3RA202</td>
<td>S0</td>
<td>0.45-25</td>
<td>65kA</td>
</tr>
<tr>
<td>3RA202</td>
<td>S0</td>
<td>28-32</td>
<td>65kA</td>
</tr>
<tr>
<td>3RA203</td>
<td>S2</td>
<td>11-50</td>
<td>65kA</td>
</tr>
<tr>
<td>3RA203</td>
<td>S2</td>
<td>28-75</td>
<td>65kA</td>
</tr>
<tr>
<td>3RA204</td>
<td>S3</td>
<td>28-100</td>
<td>65kA</td>
</tr>
</tbody>
</table>

1) Branch Circuit Protective Device for 480V-Ratings: The appropriate BCPD need to be determined in accordance with the National Electrical Code, Article 430-53 and the application. The following devices are permitted:

- Fuses: Classes RK1, RK5, J, G, T, CC or Circuit breakers: Listed Siemens type, with a marked short-circuit rating equal or larger than the available short-circuit current rating. These devices were tested for group installation use at the above levels without any upstream branch circuit device.

2) 3RA2 used as Manual Motor Controller; Branch Circuit Protective Device for 600V-Ratings: Max. Class J 50A

3) Starter sizes S00,S0 and S3 require additional type E line side terminal adaptors on the MSP for type F applications. See section 1 accessories.
### Selection and ordering data

<table>
<thead>
<tr>
<th>Description</th>
<th>UL Current rating</th>
<th>UL508A Compliance</th>
<th>Order No.</th>
<th>Pack Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Base plate</strong></td>
<td></td>
<td></td>
<td>8US19 22-2UA01</td>
<td></td>
</tr>
<tr>
<td>3-pole system flat</td>
<td>230 mm x 1100 mm</td>
<td>—</td>
<td>required</td>
<td></td>
</tr>
<tr>
<td><strong>Copper Busbar with tin plating</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 mm x 5 mm x 914 mm (36&quot;)</td>
<td>for 60 mm systems</td>
<td>362A</td>
<td>yes</td>
<td>8US19 23-3UA01</td>
</tr>
<tr>
<td>20 mm x 5 mm x 1524 mm (60&quot;)</td>
<td>for 60 mm systems</td>
<td>362A</td>
<td>yes</td>
<td>8US19 23-3AA00</td>
</tr>
<tr>
<td>20 mm x 5 mm x 2000 mm (78.74&quot;)</td>
<td>for 60 mm systems</td>
<td>362A</td>
<td>yes</td>
<td>8US19 23-3AA00</td>
</tr>
<tr>
<td>25 mm x 5 mm x 2000 mm (78.74&quot;)</td>
<td>for 60 mm systems</td>
<td>362A</td>
<td>yes</td>
<td>8US19 23-3AA00</td>
</tr>
<tr>
<td>30 mm x 5 mm x 2000 mm (78.74&quot;)</td>
<td>for 60 mm systems</td>
<td>500A</td>
<td>yes</td>
<td>8US19 23-3AA00</td>
</tr>
<tr>
<td>20 mm x 10 mm x 2000 mm (78.74&quot;)</td>
<td>for 60 mm systems</td>
<td>564A</td>
<td>yes</td>
<td>8US19 23-3AA00</td>
</tr>
<tr>
<td>30 mm x 10 mm x 2000 mm (78.74&quot;)</td>
<td>for 60 mm systems</td>
<td>756A</td>
<td>yes</td>
<td>8US19 23-3AA00</td>
</tr>
<tr>
<td>720 mm x 2400 mm (94.49&quot;)</td>
<td>for 60 mm systems</td>
<td>1400A</td>
<td>yes</td>
<td>8US19 48-2AA00</td>
</tr>
<tr>
<td><strong>Busbar holder (end and intermediate)</strong></td>
<td></td>
<td></td>
<td>8US19 23-1AA01</td>
<td></td>
</tr>
<tr>
<td>3-pole with inside mounting</td>
<td>for 20 mm and 30 mm x 5 mm or 10 mm</td>
<td>—</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>3-pole with inside mounting</td>
<td>for 25mm x 5mm or 10mm</td>
<td>—</td>
<td>—</td>
<td>8US19 23-3AA00</td>
</tr>
<tr>
<td>3-pole with inside mounting</td>
<td>for Twin T (TT) w/ end cover</td>
<td>—</td>
<td>—</td>
<td>8US19 43-3AA00</td>
</tr>
<tr>
<td><strong>Busbar holder end cover</strong></td>
<td></td>
<td></td>
<td>8US19 22-1AC00</td>
<td></td>
</tr>
<tr>
<td>3-pole end cover</td>
<td>fits 8US19 23-3UA01 and 8US1923-3AA01</td>
<td>required</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td><strong>Ground Busbar holder</strong></td>
<td></td>
<td></td>
<td>8US19 23-3AA00</td>
<td></td>
</tr>
<tr>
<td>1-pole with inside mounting</td>
<td>for 20 mm - 30 mm x 5 mm or 10 mm</td>
<td>n/a</td>
<td>—</td>
<td>8US19 23-3AA00</td>
</tr>
<tr>
<td><strong>Cover profiles for Busbars</strong></td>
<td></td>
<td></td>
<td>8US19 22-2AA00</td>
<td></td>
</tr>
<tr>
<td>for 5 mm busbars up to 30 mm wide</td>
<td>1000 mm length</td>
<td>—</td>
<td>required</td>
<td></td>
</tr>
<tr>
<td>for 10 mm busbars up to 30 mm</td>
<td>1000 mm length</td>
<td>—</td>
<td>required</td>
<td></td>
</tr>
<tr>
<td>for Twin T (TT) busbar</td>
<td>1000 mm length</td>
<td>—</td>
<td>required</td>
<td></td>
</tr>
<tr>
<td><strong>Reserve Space Cover (for covering round terminals placed on 3-phase busbar)</strong></td>
<td></td>
<td></td>
<td>8US1922-2EA00</td>
<td>4 pcs</td>
</tr>
<tr>
<td>Holder for reserve space cover</td>
<td>32mm height</td>
<td>—</td>
<td>required</td>
<td>8US1922-2EA01</td>
</tr>
<tr>
<td>Reserve space cover</td>
<td>107 mm length</td>
<td>—</td>
<td>required</td>
<td>8US1922-2EA01</td>
</tr>
<tr>
<td><strong>Feeder Lugs (mounts to all busbar sizes on this page)</strong></td>
<td></td>
<td></td>
<td>8US1922-2EB00</td>
<td>8 pcs</td>
</tr>
<tr>
<td>3-pole terminal plate with cover</td>
<td>20 mm x 200 mm 16-4 AWG</td>
<td>80A</td>
<td>yes</td>
<td>5SH3538</td>
</tr>
<tr>
<td>3-pole terminal plate with cover</td>
<td>54 mm x 200 mm 10-20 AWG</td>
<td>175A</td>
<td>yes</td>
<td>8US19 21-1BA00</td>
</tr>
<tr>
<td>3-pole terminal plate with cover</td>
<td>81 mm x 200 mm 2 AWG-250 MCM</td>
<td>440A</td>
<td>yes</td>
<td>8US19 21-1AA00</td>
</tr>
<tr>
<td>3-pole terminal plate with cover</td>
<td>180 mm x 200 mm 250-600 MCM</td>
<td>560A</td>
<td>yes</td>
<td>FBT600F</td>
</tr>
<tr>
<td>3-pole terminal plate</td>
<td>154 mm x 184 mm 300-600 MCM</td>
<td>560A</td>
<td>yes</td>
<td>8US19 41-2AA03</td>
</tr>
<tr>
<td>3-pole terminal plate</td>
<td>160 mm x 184 mm 400-600 MCM</td>
<td>800A</td>
<td>yes</td>
<td>8US19 41-2AA04</td>
</tr>
</tbody>
</table>

1) UL 508A labeled panels require the use of components that meet the creepage and air distances of 1” air clearance and 2” creepage distance. N/A = not applicable for given item.
2) Current rating dependent on size of busbar used. Refer to busbar selection data.

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Smart Infrastructure, Industrial Control Catalog 2021

Product Category IEC
Selection and ordering data

**FBCB Fast Bus circuit breakers**
Offer a full range of feeder circuit breakers from 15A to 500A. All Sentron kits 125A and under are pre-assembled on 60 mm Fast Bus adaptor shoes and ready to place on the busbar. All other circuit breaker kits are pre-packaged for fast user assembly and must be torqued down to the busbar prior to assembly. For VL breakers, adaptors are available for up to 500A breakers (both main and feeder orientation). See page 5/8.

### 3VA and GG Feeder Circuit Breakers

Busbar system for 3VA circuit breakers are available from 15A up to 500A.

- **Busbar system with 60 mm busbar center-to-center spacing, 3-pole**
  - 15A: 8US1211-4SS00
  - 20A: 8US1213-4AP03
  - 25A: 8US1213-4AH04

### 3VA and GG Main Circuit Breakers

Busbar adapter system with 60 mm busbar center-to-center spacing, 15A to 500A 3-pole

- 8US1215-4SS00
- 8US1213-4AP03
- 8US1213-4AH04

<table>
<thead>
<tr>
<th>Design</th>
<th>UL Current Rating</th>
<th>Breaker Frame (SCCR Rating)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sentron and GG Feeder Circuit Breakers</strong></td>
<td>ED (25kA)</td>
<td>HHED (65kA)</td>
</tr>
<tr>
<td>3 pole/600V fully assembled breakers and adaptors that quickly snap onto the Busbar.</td>
<td>15A</td>
<td>FBCB015</td>
</tr>
<tr>
<td>20A</td>
<td>FBCB020</td>
<td>FBCB020H</td>
</tr>
<tr>
<td>25A</td>
<td>FBCB025</td>
<td>FBCB025H</td>
</tr>
<tr>
<td>30A</td>
<td>FBCB030</td>
<td>FBCB030H</td>
</tr>
<tr>
<td>35A</td>
<td>FBCB035</td>
<td>FBCB035H</td>
</tr>
<tr>
<td>40A</td>
<td>FBCB040</td>
<td>FBCB040H</td>
</tr>
<tr>
<td>45A</td>
<td>FBCB045</td>
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<tr>
<td>50A</td>
<td>FBCB050</td>
<td>FBCB050H</td>
</tr>
<tr>
<td>60A</td>
<td>FBCB060</td>
<td>—</td>
</tr>
<tr>
<td>70A</td>
<td>FBCB070</td>
<td>—</td>
</tr>
<tr>
<td>75A</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>90A</td>
<td>FBCB090</td>
<td>—</td>
</tr>
<tr>
<td>100A</td>
<td>FBCB100</td>
<td>—</td>
</tr>
<tr>
<td>110A</td>
<td>FBCB110</td>
<td>—</td>
</tr>
<tr>
<td>125A</td>
<td>FBCB125</td>
<td>—</td>
</tr>
</tbody>
</table>

### Design | UL Current Rating | Breaker Frame (SCCR Rating)

| **Sentron Main Circuit Breakers** | FXD (25kA) | HFXD (65kA) |
| 3 pole/600V kitted components for customer assembly that require the adaptor to be torqued down to the Busbars prior to assembly. | 100A | FBCB100M | FBCB100M-HB | — |
| 125A | FBCB125M | FBCB125M-HB | — | — |
| 150A | FBCB150M | FBCB150M-HB | — | — |
| 175A | FBCB175M | FBCB175M-HB | — | — |
| 200A | FBCB200M | FBCB200M-HB | — | — |
| 225A | FBCB225M | FBCB225M-HB | — | — |
| 250A | FBCB250M | FBCB250M-HB | — | — |

1) UL Short Circuit Current ratings are based on 480V. Contact Siemens for 600 V ratings.
2) FBCB100M - 125M SCCR = 25kA @ 480V
   FBCB150M - 250M SCCR = 65kA @ 480V

---

**Product Category IEC**
Smart Infrastructure, Industrial Control Catalog 2021
## Selection and ordering data

<table>
<thead>
<tr>
<th>Busbar device adapters</th>
<th>Number of mounting rails (35 mm)</th>
<th>Rated current A</th>
<th>Connecting cables AWG mm</th>
<th>Adapter length mm</th>
<th>Adapter width mm</th>
<th>Rated voltage UL V</th>
<th>UL508A compliance</th>
<th>Order No.</th>
<th>Pack units</th>
<th>Weight per PU approx. kg</th>
</tr>
</thead>
</table>
| **For SIRIUS**
| Size S00/S0            |                                   |                 |                          |                   |                  |                   |                  | 8US12 51-SDM07 | 0.183      |
| MSPs                   | 1                                 | 25              | 12                       | 182               | 45               | 600               | yes               | 8US12 51-SDM07 | 0.183      |
| + Overload relays      |                                   |                 |                          |                   |                  |                   |                  | 8US12 51-SDM07 | 0.183      |
| Direct start load feeders |                               |                 |                          |                   |                  |                   |                  | 8US12 51-SDM07 | 0.183      |
| + Device holders       | 1                                 | --              | --                       | 182               | 45               | 600               | yes               | 8US12 50-5AM00 | 0.158      |
| + Connecting plates    | --                                | --              | --                       | --                | --               | --                | yes               | 8US19 98-1AA00 | 0.100      |
| **Size S00/S0 Cage Clamp** |                           |                 |                          |                   |                  |                   |                  | 8US12 51-SCM47 | 0.190      |
| Direct start load feeders |                               |                 |                          |                   |                  |                   |                  | 8US12 51-SCM47 | 0.190      |
| **Size S2**            |                                   |                 |                          |                   |                  |                   |                  | 8US12 64-5FM08 | 0.263      |
| MSPs                   | 1                                 | 50              | 8                        | 182               | 55               | 600               | yes               | 8US12 64-5FM08 | 0.263      |
| + Overload relays      |                                   |                 |                          |                   |                  |                   |                  | 8US12 64-5FM08 | 0.263      |
| Direct start load feeders |                               |                 |                          |                   |                  |                   |                  | 8US12 61-5FP08 | 0.292      |
| + Device holders       | 1                                 | --              | --                       | 182               | 55               | 600               | yes               | 8US12 60-5AM00 | 0.202      |
| + Connecting plates    | --                                | --              | --                       | --                | --               | --                | yes               | 8US12 60-5AP00 | 0.243      |
| **Size S3**            |                                   |                 |                          |                   |                  |                   |                  | 8US12 11-4TR00 | 0.659      |
| 80                     | 1                                | 100             | --                       | 200               | 72               | 600               | yes               | FBS100723R   | 0.590      |
| 100                    | --                               | --              | --                       | 200               | 72               | 600               | yes               | FBS100722   | 0.610      |
| **For VL UL circuit breakers** |                      |                 |                          |                   |                  |                   |                  | 8US12 13-4AQ03 | 1.020      |
| VL150 UL, DG frame     | --                               | 150             | Tubular contacts         | 190               | 105              | 600               | yes               | 8US12 13-4AQ03 | 1.020      |
| VL250 UL, FG frame     | --                               | 250             | Tubular contacts         | 190               | 105              | 600               | yes               | 8US12 13-4AH00 | 1.900      |
| VL400 UL, LG frame     | --                               | 400             | Tubular contacts         | 296               | 140              | 600               | yes               | 8US12 13-4AH00 | 1.900      |
| VL400X UL, LG frame    | --                               | 540             | Tubular contacts         | 296               | 140              | 600               | yes               | 8US12 13-4AH00 | 1.900      |

1) UL 508A labeled panels require the use of components that meet the creepage and air distances of 1” air clearance and 2” creepage distance.

N/A = not applicable for given item.

2) For use with 10mm x 30mm and twin T (TT) busbars only. Adaptors can be configured for main or feeder breakers applications.

3) For use with maximum 500A circuit breaker. Circuit breakers greater than 500A must be panel mounted off the busbar system and fed to the busbars via an infeed module. See page 5/6.

4) Rated 100A @ 480V. Rated 100A @ 600V with Class J Fuses.
### Selection and ordering data

<table>
<thead>
<tr>
<th>Description</th>
<th>Max Amps</th>
<th>Width</th>
<th>UL508A Compliance</th>
<th>Order No.</th>
<th>List Price $</th>
<th>Pack Units</th>
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<td>15 mm x 5 mm</td>
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<td>270</td>
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<td>300 - 600 MCM</td>
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<tr>
<td>For terminals up to 250 MCM</td>
<td>200 mm long, 84 mm wide</td>
<td>8US19 22-1GA00</td>
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<tr>
<td>For terminals up to 600 MCM</td>
<td>200 mm long, 270 mm wide</td>
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<tr>
<td>For terminals up to 600 MCM</td>
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<td><strong>Accessories for busbar adapters and device holders</strong></td>
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<tr>
<td>Mounting rail (35 mm) - plastic</td>
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<td>r/a</td>
<td>8US1998-7CA15</td>
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<td>complete with mounting screws</td>
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<td>110 mm</td>
<td>r/a</td>
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<td>Connection holder (for vertical busbar assembly)</td>
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<td>8US1998-1DA00</td>
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<td>Screw holder (for supplementary screw fixing of the feeder) (for SIRIUS sizes S00/S0)</td>
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<td>r/a</td>
<td>8US1998-1CA00</td>
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<tr>
<td>Spacer (for SIRIUS sizes S00/S0)</td>
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<td>r/a</td>
<td>8US1998-1BA00</td>
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<tr>
<td>Spacer (for vertical busbar assembly) (2 units required per combination)</td>
<td>-</td>
<td>r/a</td>
<td>FBC20</td>
<td>20</td>
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<tr>
<td><strong>Outgoing terminal rail for busbar adapters</strong></td>
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<tr>
<td>Plug-type terminal</td>
<td>3 x 14 AWG (400 V) and 4 x 16 AWG (250 V)</td>
<td>91 mm</td>
<td>45 mm</td>
<td>r/a</td>
<td>8US1998-8AM07</td>
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<td></td>
<td>7 x 14 AWG (400 V)</td>
<td>91 mm</td>
<td>54 mm</td>
<td>r/a</td>
<td>8US1998-8AA10</td>
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<tr>
<td><strong>Accessories for busbar adapters and device holders</strong></td>
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<tr>
<td>Side module for busbar adapter expansion</td>
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<td>10 mm</td>
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<td>20 mm x 5 mm</td>
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<td>9 mm</td>
<td>n/a</td>
<td>8US1998-2BJ10</td>
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</table>

1) UL508A labeled panels require the use of components that meet the creepage and air distances of 1” air clearance and 2” creepage distance. N/A = not applicable for given item.
2) Terminals must be manually spaced on the busbar to comply with UL508A distances of 1” air clearance and 2” creepage distance.
3) Cannot be used on Twin T (TT) profile up to 1400 A.
Fast Bus

Fast Bus Busbar Adapter System

60 mm system

Dimension drawings

<table>
<thead>
<tr>
<th>Dimension</th>
<th>A</th>
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<tbody>
<tr>
<td>FBB36</td>
<td>36 (914)</td>
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<tr>
<td>FBB60</td>
<td>60 (1524)</td>
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Copper Busbar/TT profile, 8US19 48-2AA00

Support for blanking covers, 8US1922-2EA00

Blanking cover, 8US1922-2EB00

8US19 23-3UA01

8US19 43-3AA00

8US19 22-1AC00 with 8US19 23-3UA01

8US19 22-1AC00 with 8US19 23-3AA01

Copper Busbar/TT profile, 8US19 48-2AA00

Support for blanking covers, 8US1922-2EA00
Dimension drawings

**Infeed, 8US19 21-1BA00**

**Infeed, 8US19 21-1AA00**

**Infeed, 8US19 41-2AA03**

**Infeed, 8US19 41-2AA04**

**Infeed 5SH3538**

**FBT600F (supplied with cover)**

**FBT600F Cover**
Fast Bus

Fast Bus Busbar Adapter System

60 mm system

Dimension drawings

Busbar device adapter, 8US12 51-5CM47

Busbar device adapter, 8US12 13-4AQ01

Busbar device adapter, 8US12 13-4AQ03

Busbar device adapter, 8US12 13-4AH00

Fast Bus Busbar Adapter System

60 mm system

Busbar device adapter, 8US12 51-5CM47

Busbar device adapter, 8US12 13-4AQ01

Busbar device adapter, 8US12 13-4AQ03

Busbar device adapter, 8US12 13-4AH00

Fast Bus Busbar Adapter System

60 mm system

Busbar device adapter, 8US12 51-5CM47

Busbar device adapter, 8US12 13-4AQ01

Busbar device adapter, 8US12 13-4AQ03

Busbar device adapter, 8US12 13-4AH00
Fast Bus
Fast Bus Busbar Adapter System

60 mm system

### Dimension drawings

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<th>Type</th>
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<th>8US1921-2AB0.</th>
<th>8US1921-2AC0.</th>
<th>8US1921-2AD0.</th>
<th>Max tightening torque</th>
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<td>10.5</td>
<td>17</td>
<td>14.5</td>
<td>4 Nm</td>
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<td>11.5</td>
<td>15.5</td>
<td>23.5</td>
<td>20.5</td>
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<td>15 Nm</td>
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<td>10 Nm</td>
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8US1921-2A / -2B

FBC135

8US1922-1GA00

8US1922-1GA02

8US1941-2AA01

8US1941-2AA02
Fast Bus

Fast Bus Busbar Adapter System

60 mm system

Dimension drawings

8US19 98-1CA00
8US19 98-1DA00
8US19 98-4AA00
8US19 98-7CA08

8US19 98-7CA10
8US19 98-7CA15
8US19 98-7CA16
8US19 98-1BA00

8US19 98-8AM07
8US19 98-8AA10

8US19 98-1CA00
8US19 98-1DA00
Fast Bus

SIRIUS 3RA Fast Bus Combination Starters and Group Installation Assemblies

General data

**Order No. scheme**

<table>
<thead>
<tr>
<th>Digit of the Order No.</th>
<th>1st - 3rd</th>
<th>4th</th>
<th>5th</th>
<th>6th</th>
<th>7th</th>
<th>8th</th>
<th>9th</th>
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<th>11th</th>
<th>12th</th>
<th>13th</th>
<th>14th</th>
<th>15th</th>
<th>16th</th>
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<tr>
<td>SIRIUS starters</td>
<td>3 R A</td>
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</table>

- **Type of starter** (direct-on-line starter = 1, reversing starter = 2)
- **Size** (S00 = 1, S0 = 2)
- **Setting range for overload release**
- **Design type and connection method**
- **Rated power at 460 V AC**
- **Integrated auxiliary switches of the contactor**
- **Operating range / solenoid coil circuit (contactor)**
- **Rated control supply voltage (contactor)**

**Example**

```
3 R A  2  1  1  0  –  0  B  A  1  5  –  1  A  K  6
```

**Note:**
The Order No. scheme is presented here merely for information purposes and for better understanding of the logic behind the order numbers. For your orders, please use the order numbers quote in the catalog in the Selection and ordering data.

**Technical specifications**

<table>
<thead>
<tr>
<th>Direct-on-line starters/reversing starters</th>
<th>Size</th>
<th>Connection methods</th>
<th>Mounting</th>
<th>Control voltage</th>
<th>Width W</th>
<th>Height H</th>
<th>Depth D</th>
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<td>AC/DC</td>
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<td>170</td>
<td>97</td>
</tr>
<tr>
<td></td>
<td>3RA22.1</td>
<td>Busbar adapters</td>
<td>AC/DC</td>
<td>90</td>
<td>200</td>
<td>155</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3RA22.2</td>
<td>Spring-type terminals</td>
<td>Standard mounting rails</td>
<td>AC/DC</td>
<td>90</td>
<td>204</td>
<td>97</td>
</tr>
<tr>
<td></td>
<td>3RA22.2</td>
<td>Busbar adapters</td>
<td>AC/DC</td>
<td>90</td>
<td>260</td>
<td>155</td>
<td></td>
</tr>
</tbody>
</table>

**Type**

<table>
<thead>
<tr>
<th>Size</th>
<th>Number of poles</th>
</tr>
</thead>
<tbody>
<tr>
<td>S00</td>
<td>3</td>
</tr>
<tr>
<td>S0</td>
<td>3</td>
</tr>
</tbody>
</table>

**Mechanics and environment**

- **Permissible ambient temperature**
  - During operation: °C -20 ... +60
  - Storage and transport: °C -55 ... +80
- **Weight**
  - kg 0.6 ... 1.5
  - 0.8 ... 2.3

**Permissible mounting positions**

- **Shock resistance** (sine-wave pulse) **Acc. to IEC 60086 Part 2-27**
  - g Up to 6
- **Degree of protection** **Acc. to IEC 60947-1**
  - IP20

Important: Acc. to DIN 43602 start command “I” at the right or top
**Direct-on-line starting • For 60 mm busbar systems • Sizes S00 and S0**

**60 mm busbar adapter for screw terminals**
- 8US12 51-5DS10 for S00
- 8US12 51-5NT10 for S0

**Motor starter protector**
- Size S00/S0
- Screw terminals

**Link module**
- 3RA19 21-1DA00 for S00
- 3RA29 21-1AA00 for S0, AC contactor
- 3RA29 21-1BA00 for S0, DC contactor

**Contactor**
- Size S00/S0
- Screw terminals

Left: 3RA21 motor starter for direct-on-line starting with busbar adapters with screw connection

**60 mm busbar adapter for spring-type terminals**
- 8US12 51-5DT11 for S00
- 8US12 51-5NT11 for S0

**Motor starter protector**
- Size S00/S0
- Spring-type terminals

**Link module**
- 3RA29 11-2AA00 for S00
- 3RA29 21-2AA00 for S0

**Contactor**
- Size S00/S0
- Spring-type terminals

1) Additional 3RA29 11-1CA00 spacer for height compensation on AC contactors size S0 with spring-type terminals.

Right: 3RA21 motor starter for direct-on-line starting with busbar adapters with spring-type connection
**Reversing duty • For 60 mm busbar systems • Sizes S00 and S0**

**RS assembly kit for reversing duty and busbar mounting**
Screw connection:
- 3RA29 13-1DB1 for S00
- 3RA29 23-1DB1 for S0
For spring-type connection:
- 3RA29 13-1DB2 for S00
- 3RA29 23-1DB2 for S0

Comprising:
- 1 wiring kit
- 1 busbar adapter
- 1 device holder
- 2 connecting wedges

1) Also includes 3RA29 11-1CA00 spacer for height compensation on AC contactors size S0 with spring-type terminals.

**Motor starter protector**
Size S00/S0
Screw terminals/
spring-type terminals

**Link module**
For screw terminals:
- 3RA19 21-1DA00 for S00
- 3RA29 21-1AA00 for S0, AC contactor
- 3RA29 21-1BA00 for S0, DC contactor
For spring-type terminals:
- 3RA29 11-2AA00 for S00
- 3RA29 21-2AA00 for S0

**60 mm busbar adapter**
For screw terminals:
- 8US12 51-5DS10 for S00
- 8US12 51-5NT10 for S0
For spring-type terminals:
- 8US12 51-5DT11 for S00
- 8US12 51-5NT11 for S0

**Wiring kit**
Screw connection:
- 3RA29 13-2AA1 for S00
- 3RA29 23-2AA1 for S0
Spring-type connection:
- 3RA29 13-2AA2 for S00
- 3RA29 23-2AA2 for S0

- 1) Upper wiring module
- 2) Lower wiring module
- 3) 2 connecting clips
- 4) Mechanical interlock (can be removed if necessary)

**60 mm device holder**
8US12 51-5AS10

**2 connecting wedges**
8US19 98-1AA00

**2 contactors**
Size S00/S0
Screw terminals/
spring-type terminals

**Fast Bus**
SIRIUS 3RA Fast Bus Combination Starters and Group Installation Assemblies

**Selection**

3RA22 motor starter for reversing duty and 60 mm standard mounting rail in size S00/S0
(the version with screw connection is shown in the picture)
Fast Bus

SIRIUS 3RA Fast Bus Combination Starters and Group Installation Assemblies

Required Components for Fast Bus Mounting

- **Link Module**
  - 3RA2931-1A AC/DC
- **Mechanical Interlock**
  - 3RA2934-2B
- **Fast Clips**
  - FBC20

**3RV203 with Reversing 3RT203**

- **MSP**
  - 3RV203
- **Contactor Support**
  - 8US1260-5AP00 (without DIN rail) and with 8US1998-2BM00
- **Adapter Shoe**
  - 8US1261-5FP0B

2 Contactors 3RT203

**3RV204 with Reversing 3RT204**

- **Link Module**
  - 3RA1941-1A AC/DC
- **Mechanical Interlock**
  - 3RA2934-2B
- **Fast Clips**
  - FBC20

**MSP**
- 3RV204

**3RA2933-2AA2**
- Wiring Kit
- **3 RV203 with Reversing 3RT203**
- **Adapter Shoe**
  - 8US1211-4TR00

2 Contactors 3RT204

**3RA2934-2AA1**
- Wiring Kit
- **Upper Wiring Module**
- **Lower Wiring Module**

**2 Brackets**
- FBS0070B
Fast Bus
SIRIUS 3RA Fast Bus Combination Starters and Group Installation Assemblies

Dimensions, 3RV201 with 3RT201

1) Lockable in OFF position. Padlock diameter 5 mm.
2) When a front auxiliary is installed on the contactor, add 44 mm to the depth of the contactor.

Dimensions, 3RV202 with 3RT201

1) Lockable in OFF position. Padlock diameter 5 mm.
2) When a front auxiliary is installed on the contactor, add 44 mm to the depth of the contactor.

All dimensions shown in millimeters. For reference purposes only. Not to be used for design or construction purposes.
Lateral clearance to grounded components minimum 6 mm.
1) Arcing space
2) Lockable in OFF position with padlock diameter 5 mm.
3) When a front mount auxiliary is installed on the contactor, add 49 mm to the depth of the contactor.

All dimensions shown in millimeters. For reference purposes only. Not to be used for design or construction purposes.
Lateral clearance to grounded components minimum 6 mm.
1) Arcing space
2) Lockable in OFF position with padlock diameter 5 mm.
3) When a front mount auxiliary is installed on the contactor, add 48 mm to the depth of the contactor.

All dimensions shown in millimeters. For reference purposes only. Not to be used for design or construction purposes.