The Fastbus Multi-Motor Control system is a 3-phase insulated busbar system used to reduce wire connections and hole drilling when building control panels. SIRIUS 3RV/3RT starter combinations built from components and Siemens circuit breakers use Fastbus for convenient mounting.

Fastbus is not new to Siemens. However, due to the narrower SIRIUS starter components, more starters will fit on the same run of Fastbus.

**Features**
- Simple economical installation
- Compact design
- Requires fewer mounting holes
- Domestic and International approvals
- Touch safe
- Modular design
- Provision for system expansion
- Clip-on shoes provide mechanical and electrical connections to panel mounted busbar
- Main and Feeder breakers mount to busbars

**Benefits**
- Saves installation time
- Reduces space requirements
- Minimizes layout time
- Allows flexibility for domestic and export business
- Protection for maintenance personnel
- Improves equipment mounting density
- Reduces time and costs associated with system expansion
- Reduces mounting and wiring time and provides trouble free connections
- Allows for quick retrofitting of breakers

**How to Select Fastbus**
1. Determine the required load.
2. Select method to power Fastbus.
   - Main lug up to 600A
   - Circuit breakers, 15A to 250A
3. Select 3RV MSP & 3RT contactor components and appropriate adapter shoe or select 3RA factory assemblies.
4. Select appropriate length busbar, busbar support kit, 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 AC 1000V</td>
<td>600V N/A</td>
</tr>
<tr>
<td>Rated insulation voltage, IEC VDE</td>
<td>Up to 105 degrees C</td>
<td>N/A</td>
</tr>
<tr>
<td>Temperature stability</td>
<td>Glass-reinforced polyamide</td>
<td>Same</td>
</tr>
<tr>
<td>Busbar support and adapter shoe material</td>
<td>RAL 7035, light gray</td>
<td>Same</td>
</tr>
</tbody>
</table>

**Ampacity**

<table>
<thead>
<tr>
<th></th>
<th>Domestic</th>
<th>IEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 single busbars</td>
<td>362A</td>
<td>362A</td>
</tr>
<tr>
<td>.19” x .75”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 X 20 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 double-stacked busbars</td>
<td>564A</td>
<td></td>
</tr>
<tr>
<td>.37” x .75”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 x 20 mm</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 11.

**Thermal busbar currents, E-Cu, bare, at 35 °C ambient temperature in accordance with DIN 43 6711**

<table>
<thead>
<tr>
<th>Busbar dimensions</th>
<th>System</th>
<th>Thermal current at 65 °C</th>
<th>85 °C</th>
<th>105 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm</td>
<td>mm</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>12 x 6</td>
<td>40 x 60</td>
<td>188</td>
<td>246</td>
<td>293</td>
</tr>
<tr>
<td>15 x 5</td>
<td>40 x 60</td>
<td>222</td>
<td>293</td>
<td>349</td>
</tr>
<tr>
<td>20 x 5</td>
<td>60</td>
<td>274</td>
<td>362</td>
<td>430</td>
</tr>
<tr>
<td>25 x 5</td>
<td>60</td>
<td>307</td>
<td>402</td>
<td>513</td>
</tr>
<tr>
<td>30 x 5</td>
<td>60</td>
<td>379</td>
<td>500</td>
<td>635</td>
</tr>
<tr>
<td>12 x 10</td>
<td>40 x 60</td>
<td>302</td>
<td>392</td>
<td>474</td>
</tr>
<tr>
<td>20 x 10</td>
<td>60</td>
<td>427</td>
<td>564</td>
<td>670</td>
</tr>
<tr>
<td>30 x 10</td>
<td>60</td>
<td>573</td>
<td>756</td>
<td>930</td>
</tr>
</tbody>
</table>
**Fastbus**

**8US1 Busbar Adapter Systems**

**Introduction**

**Fastbus set-up**

The Fastbus system is designed to be easy to use and to save set-up time.

**8US Busbar holders**

Because the 8US Busbar holders are adjustable, they can be used with a variety of busbar sizes allowing you to standardize on one style of busbar holder for busbars with a width and thickness of 12mm x 4mm up to 30mm x 10mm thus providing a wide range of current carrying capability.

**High quality material**

Busbar supports and fuse bases are manufactured from glass-fiber 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 8WC5026 (30mm x 5mm); however there are other styles available depending on your application.

Busbar systems with 40mm and 60mm busbar center-to-center clearance have now become firmly established on the world market. In the US market the 60mm busbar center-to-center clearance is the more commonly used system.

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 conductor and the ambient temperature. The values stated in the table may 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.

**Simple Fastbus system**

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

1. 8US1 Busbar holder (13/10)
2. 5SH3 Ground busbar support (shown attached however can be mounted separately 13/10)
3. Ground busbar 6mm x 6mm (13/10)

**Short-circuit strength**

The short-circuit strength of the busbar system is dependent on the clearance 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 busbars and of the adapters with circuit protection.

**Applications**

The BUS Fastbus 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.
### Fastbus 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 MSP’s have been UL listed for use in Group Installations both with and without 3RT contactors when mounted on the Fastbus system. A 3RT contactor is added when remote operation of the motor is required.

#### Standard Installation, NEC 430-52

<table>
<thead>
<tr>
<th>MSP Type</th>
<th>Through FLA range Amps</th>
<th>Maximum rating of Group Branch Circuit Protective Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>3RV101</td>
<td>0.11-12</td>
<td>The main fuse should be selected based on the FUSE selection procedure listed below.</td>
</tr>
<tr>
<td>3RV102</td>
<td>0.11-22</td>
<td>The main CB should be selected based on the CIRCUIT BREAKER selection procedure listed below.</td>
</tr>
<tr>
<td>3RV103</td>
<td>11-50</td>
<td>65kA (up to 30kA)</td>
</tr>
<tr>
<td>3RV104</td>
<td>28-100</td>
<td>65kA (up to 30kA)</td>
</tr>
</tbody>
</table>

#### Group Installation, NEC 430-53

<table>
<thead>
<tr>
<th>MSP Type</th>
<th>Through FLA range Amps</th>
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<tr>
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<td>3RV104</td>
<td>28-100</td>
<td>65kA (up to 30kA)</td>
</tr>
</tbody>
</table>

#### 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 Motor Starter protector based on the motor Full Load Amps.
3. Selection of the 3RT contactor based on the HP and voltage rating of the motor.

#### 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).

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1) MSP sizes S0 and S3 require additional terminal kits for type E applications. See section 2