Multipole connector
SEM
Powerline | Industrial Connectors
SEM Connectors

The SEM connector is used to connect direct-current circuits as well as for 3-phase cable connections. The variable pole number (2-pole, expandable to 3-pole) can adjust to the individual requirements of the application. The connector can also be fitted with 4 pilot contacts for signal transfer.

A locking device secures the connector against accidental disconnection in the event of vibrations.

Coding pins enable individual coding of the connector to prevent incorrect connection if multiple systems are operated in parallel. 6 different codings are possible.

The flat elastomer casing contributes to the compact design of the system. The casing material reliably absorbs vibrations and impacts. With increased resistance to mineral oils, gasoline, and the conventional lubricants and detergents used by the automotive industry, as well as its self-extinguishing properties, the connector is an excellent option for use in tough conditions and in the transport industry. The IP2X contact protection, when unmated, considerably improves user safety.

The SEM connector is used in electric vehicles, trains and underground trains for connections between batteries, inverters, and motors. Other potential applications include infrastructure applications, for example maintenance work at airports (connection of mobile batteries, lifting equipment), or logistics applications such as connecting a battery for a forklift truck.

<table>
<thead>
<tr>
<th>Technical data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated current:</td>
</tr>
<tr>
<td>Power contacts</td>
</tr>
<tr>
<td>Pilot contacts</td>
</tr>
<tr>
<td>Rated voltage:</td>
</tr>
<tr>
<td>Power contacts</td>
</tr>
<tr>
<td>Pilot contacts</td>
</tr>
<tr>
<td>Insulation coordination</td>
</tr>
<tr>
<td>Test voltage</td>
</tr>
<tr>
<td>Insulation resistance</td>
</tr>
<tr>
<td>Temperature range</td>
</tr>
<tr>
<td>Contacts:</td>
</tr>
<tr>
<td>Pins/sockets, power contacts</td>
</tr>
<tr>
<td>Pilot contacts</td>
</tr>
<tr>
<td>Type of connection</td>
</tr>
<tr>
<td>Conductor cross-section:</td>
</tr>
<tr>
<td>Power contacts</td>
</tr>
<tr>
<td>Pilot contacts</td>
</tr>
<tr>
<td>Plugging cycles</td>
</tr>
<tr>
<td>Degree of protection, mated</td>
</tr>
<tr>
<td>unmated</td>
</tr>
<tr>
<td>IP2X</td>
</tr>
<tr>
<td>Further specifications</td>
</tr>
</tbody>
</table>

RoHS ready

Directive 2002/95/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment
Multipole connector SEM

SEM... 3-pole

SEM-KPT
Grommet for pilot contacts

SEM2S14/...
Male connector, 2-pole

SEM2B14/...
Female connector, 2-pole

SEM1S14/...
Male connector, 1-pole

SEM1B14/...
Female connector, 1-pole

3rd pole can be joined

Housing for pilot contacts

Locking device
Multipole connector SEM

Female connector, 2-pole

Male connector, 2-pole

Female connector, 1-pole

Male connector, 1-pole
<table>
<thead>
<tr>
<th>Order No.</th>
<th>Type</th>
<th>Designation</th>
<th>Rated current</th>
<th>Rated voltage</th>
<th>Norm-Ø Pin/Socket</th>
<th>Conductor cross-section</th>
</tr>
</thead>
<tbody>
<tr>
<td>31.0000</td>
<td>SEM2B14/25</td>
<td>Female connector, 2-pole*</td>
<td>135</td>
<td>630</td>
<td>14 25</td>
<td></td>
</tr>
<tr>
<td>31.0001</td>
<td>SEM2B14/35</td>
<td></td>
<td>160</td>
<td>630</td>
<td>14 35</td>
<td></td>
</tr>
<tr>
<td>31.0002</td>
<td>SEM2B14/50</td>
<td></td>
<td>220</td>
<td>630</td>
<td>14 50</td>
<td></td>
</tr>
<tr>
<td>31.0003</td>
<td>SEM2B14/70</td>
<td></td>
<td>260</td>
<td>630</td>
<td>14 70</td>
<td></td>
</tr>
<tr>
<td>31.0004</td>
<td>SEM2B14/95</td>
<td></td>
<td>330</td>
<td>630</td>
<td>14 95</td>
<td></td>
</tr>
<tr>
<td>31.0020</td>
<td>SEM2S14/25</td>
<td>Male connector, 2-pole*</td>
<td>135</td>
<td>630</td>
<td>14 25</td>
<td></td>
</tr>
<tr>
<td>31.0021</td>
<td>SEM2S14/35</td>
<td></td>
<td>160</td>
<td>630</td>
<td>14 35</td>
<td></td>
</tr>
<tr>
<td>31.0022</td>
<td>SEM2S14/50</td>
<td></td>
<td>220</td>
<td>630</td>
<td>14 50</td>
<td></td>
</tr>
<tr>
<td>31.0023</td>
<td>SEM2S14/70</td>
<td></td>
<td>260</td>
<td>630</td>
<td>14 70</td>
<td></td>
</tr>
<tr>
<td>31.0024</td>
<td>SEM2S14/95</td>
<td></td>
<td>330</td>
<td>630</td>
<td>14 95</td>
<td></td>
</tr>
<tr>
<td>31.0010</td>
<td>SEM1B14/25</td>
<td>Female connector, 1-pole*</td>
<td>630</td>
<td>14 25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31.0011</td>
<td>SEM1B14/35</td>
<td></td>
<td>630</td>
<td>14 35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31.0012</td>
<td>SEM1B14/50</td>
<td></td>
<td>630</td>
<td>14 50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31.0013</td>
<td>SEM1B14/70</td>
<td></td>
<td>630</td>
<td>14 70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31.0014</td>
<td>SEM1B14/95</td>
<td></td>
<td>630</td>
<td>14 95</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31.0030</td>
<td>SEM1S14/25</td>
<td>Male connector, 1-pole*</td>
<td>630</td>
<td>14 25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31.0031</td>
<td>SEM1S14/35</td>
<td></td>
<td>630</td>
<td>14 35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31.0032</td>
<td>SEM1S14/50</td>
<td></td>
<td>630</td>
<td>14 50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31.0033</td>
<td>SEM1S14/70</td>
<td></td>
<td>630</td>
<td>14 70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31.0034</td>
<td>SEM1S14/95</td>
<td></td>
<td>630</td>
<td>14 95</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Includes power contacts, signal contacts not included
(for signal contacts see page 7)

Assembly instructions MA206
www.staubli.com/electrical
### Individual parts

**Pins/Sockets SEM...P14/...**

<table>
<thead>
<tr>
<th>Order No.</th>
<th>Type</th>
<th>Plating</th>
<th>Norm.-Ø pin / socket</th>
<th>Dimensions (mm)</th>
<th>Fits pin or socket carriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>31.0500</td>
<td>SEMSP14/25</td>
<td>Ag</td>
<td>14</td>
<td>A ØC ØD</td>
<td>SEM2S14/25, SEM1S14/25</td>
</tr>
<tr>
<td>31.0100</td>
<td>SEMBP14/25</td>
<td>Ag</td>
<td>14</td>
<td>64 8 11</td>
<td>SEM2B14/25, SEM1B14/25</td>
</tr>
<tr>
<td>31.0501</td>
<td>SEMSP14/35</td>
<td>Ag</td>
<td>14</td>
<td>69 9 13</td>
<td>SEM2S14/35, SEM1S14/35</td>
</tr>
<tr>
<td>31.0101</td>
<td>SEMBP14/35</td>
<td>Ag</td>
<td>14</td>
<td>64 9 13</td>
<td>SEM2B14/35, SEM1B14/35</td>
</tr>
<tr>
<td>31.0502</td>
<td>SEMSP14/50</td>
<td>Ag</td>
<td>14</td>
<td>76 11 14.5</td>
<td>SEM2S14/50, SEM1S14/50</td>
</tr>
<tr>
<td>31.0102</td>
<td>SEMBP14/50</td>
<td>Ag</td>
<td>14</td>
<td>71 11 14.5</td>
<td>SEM2B14/50, SEM1B14/50</td>
</tr>
<tr>
<td>31.0503</td>
<td>SEMSP14/70</td>
<td>Ag</td>
<td>14</td>
<td>76 13 17</td>
<td>SEM2S14/70, SEM1S14/70</td>
</tr>
<tr>
<td>31.0103</td>
<td>SEMBP14/70</td>
<td>Ag</td>
<td>14</td>
<td>71 13 17</td>
<td>SEM2B14/70, SEM1B14/70</td>
</tr>
<tr>
<td>31.0504</td>
<td>SEMSP14/95</td>
<td>Ag</td>
<td>14</td>
<td>78 15 20</td>
<td>SEM2S14/95, SEM1S14/95</td>
</tr>
<tr>
<td>31.0104</td>
<td>SEMBP14/95</td>
<td>Ag</td>
<td>14</td>
<td>73 15 20</td>
<td>SEM2B14/95, SEM1B14/95</td>
</tr>
</tbody>
</table>

#### Derating diagrams

The current capacity of a connection is limited by the thermal capacity of its contact, connecting and insulating materials. The derating diagram shows the continuous current (not intermittent) that flows through all the contact elements of a connector at one time, whereby the max. temperature limit is not exceeded. Calibration and test method according to DIN 41640/Part 3.

The derating diagram values are valid for the connection. The max. permissible current load of the cable can be found in DIN VDE 0298/Part 4, DIN VDE 0100/Part 523 and DIN VDE0113/Part 1. See also EN 60204.
**Accessories**

**Pilot contacts**

BP2/2,5    SP2/2,5

<table>
<thead>
<tr>
<th>Order No.</th>
<th>Type</th>
<th>Plating</th>
<th>Rated current</th>
<th>Rated voltage</th>
<th>Norm-Ø Pin / Socket</th>
<th>Conductor cross-section</th>
</tr>
</thead>
<tbody>
<tr>
<td>31.0505</td>
<td>SP2/2,5</td>
<td>Ag</td>
<td>16</td>
<td>250</td>
<td>2</td>
<td>2.5</td>
</tr>
<tr>
<td>31.0506</td>
<td>SP2/2,5AU</td>
<td>Au</td>
<td>16</td>
<td>250</td>
<td>2</td>
<td>2.5</td>
</tr>
<tr>
<td>18.8010</td>
<td>BP2/2,5</td>
<td>Ag</td>
<td>16</td>
<td>250</td>
<td>2</td>
<td>2.5</td>
</tr>
<tr>
<td>18.8011</td>
<td>BP2/2,5AU</td>
<td>Au</td>
<td>16</td>
<td>250</td>
<td>2</td>
<td>2.5</td>
</tr>
</tbody>
</table>

**Order No.**

<table>
<thead>
<tr>
<th>Order No.</th>
<th>Type</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>31.5002</td>
<td>SEM-KTP</td>
<td>Grommet for pilot contacts</td>
</tr>
<tr>
<td>18.5500</td>
<td>MVS1,5/2</td>
<td>Blind plug for pilot contacts</td>
</tr>
<tr>
<td>31.5005</td>
<td>SEM-HG</td>
<td>Grip (incl. fastening material)</td>
</tr>
</tbody>
</table>

**Tools**

The tools needed for assembly can be seen in the assembly instructions MA206.
Global presence of the Stäubli Group

www.staubli.com