Enabling the connection

ABB static frequency converters are an economic and efficient solution to convert the grid electricity to the appropriate load frequency.

ABB static frequency converters utilize ABB’s modular converter design providing highly reliable, clean and efficient power conversion. ABB static frequency converters are internally configured as an arrangement of modular rectifiers and inverters controlled by a power electronic controller. The converters produce sine wave voltage to supply the output load.

Shore-to-ship power

Shore-to-ship power helps to reduce emissions in ports by connecting ships to the port electricity grid. Shore-to-ship power permits ships to shut down the onboard power generation unit while at berth. Most ships operate with 60 Hz electricity whereas local grid in most parts of the world is 50 Hz.

ABB static frequency converters help to adjust the grid electricity to the appropriate ship frequency and are a viable solution in replacing motor generator sets.

Features

- Scalable solutions ranging from 0.1 up to 120 MVA
- High efficiency also under partial-load conditions
- Small footprint (high power density permits compact design)
- High availability (high reliability, low maintenance, proven service concept with 24/365 support, remote diagnosis)
- Generator emulation and load sharing

User benefits

Enabled connection of ships to port grids regardless of their respective frequencies (supports ships and grids at both 50 and 60 Hz)
PCS 100 SFC [0.1 – 2 MVA]

PCS 100 converters utilize the latest high performance Insulated Gate Bipolar Transistor (IGBT) power switching devices controlled by a micro controller.

PCS 100 SFC comes with an advanced redundancy feature.

### Model ratings and dimensions

<table>
<thead>
<tr>
<th>Model</th>
<th>Nominal power [kVA]</th>
<th>Current rating [A]</th>
<th>Converter Dimensions HWD [m] a</th>
<th>Weight [kg]</th>
<th>Transformer Dimensions HWD [m] b</th>
<th>Weight [kg]</th>
<th>Number of module pairs</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCS 100 SFC-0125</td>
<td>125</td>
<td>150</td>
<td>2.2 x 0.8 x 0.8</td>
<td>860</td>
<td>included in converter cabinet</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>PCS 100 SFC-0250</td>
<td>250</td>
<td>300</td>
<td>2.2 x 0.8 x 0.8</td>
<td>601</td>
<td>2.2 x 0.8 x 0.8</td>
<td>908</td>
<td>2</td>
</tr>
<tr>
<td>PCS 100 SFC-0375</td>
<td>375</td>
<td>450</td>
<td>2.2 x 0.8 x 0.8</td>
<td>761</td>
<td>2.2 x 1.2 x 0.8</td>
<td>1510</td>
<td>3</td>
</tr>
<tr>
<td>PCS 100 SFC-0500</td>
<td>500</td>
<td>600</td>
<td>2.3 x 1.6 x 0.8</td>
<td>1503</td>
<td>2.3 x 1.2 x 0.8</td>
<td>1910</td>
<td>4</td>
</tr>
<tr>
<td>PCS 100 SFC-0625</td>
<td>625</td>
<td>750</td>
<td>2.3 x 2.0 x 0.8</td>
<td>1772</td>
<td>2.3 x 1.2 x 0.8</td>
<td>2310</td>
<td>5</td>
</tr>
<tr>
<td>PCS 100 SFC-0750</td>
<td>750</td>
<td>900</td>
<td>2.3 x 2.4 x 0.8</td>
<td>1932</td>
<td>2.2 x 2.3 x 1.6</td>
<td>2800</td>
<td>6</td>
</tr>
<tr>
<td>PCS 100 SFC-0875</td>
<td>875</td>
<td>1050</td>
<td>2.3 x 2.4 x 0.8</td>
<td>2308</td>
<td>2.2 x 2.3 x 1.6</td>
<td>3000</td>
<td>7</td>
</tr>
<tr>
<td>PCS 100 SFC-1000</td>
<td>1000</td>
<td>1200</td>
<td>2.3 x 2.4 x 0.8</td>
<td>2586</td>
<td>2.2 x 2.3 x 1.6</td>
<td>3200</td>
<td>8</td>
</tr>
<tr>
<td>PCS 100 SFC-1125</td>
<td>1125</td>
<td>1350</td>
<td>2.3 x 4.4 x 0.8</td>
<td>2746</td>
<td>2.2 x 2.3 x 1.6</td>
<td>3400</td>
<td>9</td>
</tr>
<tr>
<td>PCS 100 SFC-1250</td>
<td>1250</td>
<td>1500</td>
<td>2.3 x 4.4 x 0.8</td>
<td>3407</td>
<td>2.4 x 2.3 x 1.6</td>
<td>3700</td>
<td>10</td>
</tr>
<tr>
<td>PCS 100 SFC-1375</td>
<td>1375</td>
<td>1650</td>
<td>2.3 x 4.4 x 0.8</td>
<td>3700</td>
<td>2.4 x 2.3 x 1.6</td>
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<tr>
<td>PCS 100 SFC-1500</td>
<td>1500</td>
<td>1800</td>
<td>2.3 x 4.4 x 0.8</td>
<td>3860</td>
<td>2.4 x 2.3 x 1.6</td>
<td>4000</td>
<td>12</td>
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<tr>
<td>PCS 100 SFC-1625</td>
<td>1625</td>
<td>1950</td>
<td>2.3 x 5.2 x 0.8</td>
<td>4248</td>
<td>2.4 x 2.3 x 1.6</td>
<td>4100</td>
<td>13</td>
</tr>
<tr>
<td>PCS 100 SFC-1750</td>
<td>1750</td>
<td>2100</td>
<td>2.3 x 5.2 x 0.8</td>
<td>4550</td>
<td>2.4 x 2.3 x 1.6</td>
<td>4250</td>
<td>14</td>
</tr>
<tr>
<td>PCS 100 SFC-1875</td>
<td>1875</td>
<td>2250</td>
<td>2.3 x 5.2 x 0.8</td>
<td>4710</td>
<td>2.4 x 2.3 x 1.6</td>
<td>4400</td>
<td>15</td>
</tr>
<tr>
<td>PCS 100 SFC-2000</td>
<td>2000</td>
<td>2400</td>
<td>2.3 x 6.0 x 0.8</td>
<td>5102</td>
<td>2.4 x 2.3 x 1.6</td>
<td>4600</td>
<td>16</td>
</tr>
</tbody>
</table>

Parallel load sharing allows operation of multiple PCS 100 SFC.

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4 Dimensions are for side-by-side configuration. Back to back configuration dimensions will vary. For IP 23 add 0.1 m depth
5 Weights are for LV transformers. For MV, transformers add 25% approximately
PCS 6000 SFC [4 – 7 MVA]

PCS 6000 converters utilize the proven high performance IGCT (Integrated Gate Commutated Thyristor) power switching devices. PCS 6000 SFC converters work very efficient even at partial load while requiring only a small footprint. Parallel load sharing allows operation of multiple PCS 6000 permits higher power range.

### Input
- **Model**: PCS 6000 SFC-4000
  - **Nominal power [MVA]**: 4
  - **Dimensions HWD [m]**: 2.5 x 4.9 x 1.2
  - **Weight [kg]**: 5200
- **Model**: PCS 6000 SFC-5000
  - **Nominal power [MVA]**: 5
  - **Dimensions HWD [m]**: 2.5 x 4.9 x 1.2
  - **Weight [kg]**: 5200
- **Model**: PCS 6000 SFC-6000
  - **Nominal power [MVA]**: 6
  - **Dimensions HWD [m]**: 2.5 x 4.9 x 1.2
  - **Weight [kg]**: 5200
- **Model**: PCS 6000 SFC-7000
  - **Nominal power [MVA]**: 7
  - **Dimensions HWD [m]**: 2.5 x 4.9 x 1.2
  - **Weight [kg]**: 5200

### Model ratings and dimensions

- **Typical grid voltage**: 11 .. 132 kV
- **Frequency**: 50 / 60 Hz
- **Input section**: 12 pulse diode bridge
- **Converter voltage**: 1.725 kVAC
- **Total harmonics distortion**: < 4 %

### Output
- **Typical ship voltage**: 6.6 kV / 11 kV
- **Frequency**: 60 / 50 Hz
- **Output section**: IGCT voltage source converter
- **Converter voltage**: 2.3 kVAC
- **Total harmonics distortion**: < 2 %
- **Efficiency**: 98.0 % typical
- **Short circuit limit**: 0.6 seconds 110 %

### Mechanical
- **Enclosure**: IP 54 indoor cabinet / outdoor container
- **Cooling**: Closed loop liquid cooling
- **Standard color**: RAL 7035

### Interface
- **Control interface**: Hardwired, Modbus-TCP, Anybus S

### Environmental
- **Operation temperature**: 5°C .. 40°C / 41°F .. 104°F
  - 25°C .. 55°C / -13°F .. 131°F with derating
- **Humidity**: < 95% non-condensing
- **EMC emissions**: IEC 61000-2-2, IEC 61000-2-4, IEC 61000-6-2

### Standards and norms compliance
- Designed to CE mark requirements

### Service
- 24/365 service support expert, remote access and diagnosis optional
- Worldwide service and spare parts network
For more information please contact:

www.abb.com/ports
www.abb.com/converters-inverters