DC/AC Inverters with single phase output  

**Series CI**

is a combination of a switch mode **Converter** and **Inverter** (internal circuit see page 97). The converter provides the isolation between input and output and transforms the voltage to the level needed by the inverter for supplying the specified AC output voltage.

**Series IT**

is a combination of a switch mode **Inverter** (internal circuit see page 97) and a **Transformer** at the output. The transformer provides the isolation between input and output and transforms the voltage to the required level.

For lower input voltages the CI version is more compact than the IT version.

DC/AC Inverters with 3-phase output

**Series IV**

is a combination of 3 individual switch mode inverters with output transformers synchronized for a symmetrical 3-phase output. The transformers provide the isolation between input and output and transform the voltages to the required levels.

Frequency Converters with single phase output

**Series CI**

is a combination of a switch mode **Converter** and **Inverter** (internal circuit see page 97). The converter provides the isolation between input and output and transforms the voltage to the level needed by the inverter for supplying the specified AC output voltage.

**Series IT**

is a combination of a switch mode **Inverter** (internal circuit see page 97) with a **Rectifier** at the input and a **Transformer** at the output. The transformer provides the isolation between input and output and transforms the voltage to the required level.

Frequency Converters with 3-phase output

**Series IV**

is a combination of 3 individual switch mode inverters, each with input rectifier and output transformer, synchronized for a symmetrical 3-phase output. The transformers provide the isolation between input and output and transform the voltages to the required levels.

Static Switches

**Series SS**

provides uninterrupted AC power to a critical load by connecting the load to AC supply 1 which can be the inverter output or to AC supply 2 which can be the mains.
Series CI, IT and IV

Specifications

Input
- Voltage range: see tables, unit switches off at under- and overvoltage
- No-load input power: 10 – 30 W
- Inrush current: AC input: limited by thermistor
- Hold-up time: AC input: 10 ms typical

Immunity
- ESD: acc. to DIN / EN 61000-4-2 level 3
- Fast transients: acc. to DIN / EN 61000-4-4 level 3
- Surges: acc. to DIN / EN 61000-4-5 level 3

Output
- Line regulation (±10 %): 0.1 % for series CI, 2 % for series IT and IV
- Load regulation (10 – 90 %): 1 % typical, 3 % max.
- Frequency: 40 – 400 Hz: adjustable / programmable or any fixed frequency (crystal stabilized)
- Distortion: sine wave or any wave shape programmable by external signal
- Overload protection (steady state): current limited to approx. 1.05 x I_{nom}
- Surge power: 2 x P_{nom} for 1 s
- Crest factor: approx. 3
- Power factor: cos φ ≥ 0.7 inductive / capacitive

General
- Efficiency: 75 – 94 %
- Operating temperature: –20 to +75 °C
- Load derating: 2.5 % / °C from +55 °C
- Storage temperature: –40 to +85 °C
- Humidity: up to 95 % RH, non-condensing

Options (details see page 90 – 92)

Input
- Inrush current limiting for DC input
- Reverse polarity protection for DC input
- Autoranging for 115 / 230 VAC input
- Special circuit for 16.6 Hz AC input

Output
- Inhibit (remote on / off)
- Static Switch (details see page 88)

Signals
- via relay contacts
  - Power ok (input)
  - AC ok (output)

Programming
- Output voltage, current or frequency via
  - Potentiometer
  - Analog signal
  - Interface card RS232 or IEEE488

Monitoring
- Input / output voltage, current or frequency via
  - Analog signal
  - Interface card RS232 or IEEE488

Mechanics / environment:
- 19” sub-rack for eurocassette, refer to page 93
- Wall mount
- Increased mechanical strength
- Tropical protection
- Extended temperature range to –40°C
- Temperature controlled fans for 19” units

Connector (details see page 103)

<table>
<thead>
<tr>
<th>Mechanics</th>
<th>Series CI</th>
<th>Series IT</th>
<th>Series IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eurocassette</td>
<td>H15 and high current connector for I &gt; 50 A</td>
<td>H15, high current connector for I &gt; 50 A and F24H7</td>
<td>--</td>
</tr>
<tr>
<td>Wall mount</td>
<td>Terminals</td>
<td>Terminals</td>
<td>Terminals</td>
</tr>
<tr>
<td>19” plug-in module</td>
<td>Terminals</td>
<td>Terminals</td>
<td>Terminals</td>
</tr>
<tr>
<td>19” sub-rack</td>
<td>Terminals</td>
<td>Terminals</td>
<td>Terminals</td>
</tr>
</tbody>
</table>
Frequency Converters (AC / AC Inverters) with 3-phase output

Features
- AC input: 1 or 3-phase, 47 – 400 Hz
- AC output: 200 / 400 / 480 V, 3-phase
- 40 – 400 Hz or fixed frequency (crystal stabilized)
- Sine wave
- Continuous short circuit protection
- Thermal shutdown with auto restart for inverter systems > 2 kVA
- Industrial grade components
- Suitable for complex load
- Surge power capability
- Unsymmetrical load permissible
- Modular system with interchangeable inverters

Series IV  Switch mode inverters with output transformers for isolation and voltage transformation

<table>
<thead>
<tr>
<th>Input VAC 1-Phase</th>
<th>Output kVA</th>
<th>Size</th>
<th>Input VAC 1-Phase</th>
<th>Input VAC 3-Phase</th>
<th>Output kVA</th>
<th>Size</th>
<th>Output VAC line-to-line</th>
</tr>
</thead>
<tbody>
<tr>
<td>115 ± 20%</td>
<td></td>
<td></td>
<td>230 ± 15% ± 15%</td>
<td>± 15% ± 15% ± 15%</td>
<td>± 15% ± 15% ± 15%</td>
<td>± 15% ± 15% ± 15%</td>
<td>± 15% ± 15% ± 15%</td>
</tr>
<tr>
<td>IV 5566</td>
<td>1.5</td>
<td>A</td>
<td>IV 5586</td>
<td>IV 5566 V</td>
<td>1.8</td>
<td>A</td>
<td>3 x 200</td>
</tr>
<tr>
<td>IV 5566</td>
<td>3</td>
<td>C</td>
<td>IV 5688</td>
<td>IV 5686 V</td>
<td>3.6</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>IV 5666</td>
<td>3</td>
<td>D+T1</td>
<td>IV 5786</td>
<td>IV 5786 V</td>
<td>5.4</td>
<td>D+T2</td>
<td></td>
</tr>
<tr>
<td>IV 5866</td>
<td>6</td>
<td>E+T2</td>
<td>IV 5886</td>
<td>IV 5886 V</td>
<td>7.5</td>
<td>E+T3</td>
<td></td>
</tr>
<tr>
<td>IV 6466</td>
<td>9</td>
<td>G+T3</td>
<td>IV 6386</td>
<td>IV 6386 V</td>
<td>10</td>
<td>F+T4</td>
<td></td>
</tr>
<tr>
<td>IV 6466</td>
<td>15</td>
<td>G+T5</td>
<td>IV 6486</td>
<td>IV 6486 V</td>
<td>15</td>
<td>G+T5</td>
<td></td>
</tr>
</tbody>
</table>

- = natural convection  = temperature controlled fans

Frequency Designation (output)

<table>
<thead>
<tr>
<th>Assistance in table use:</th>
<th>For example:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 40 - 400 Hz adjustable / programmable</td>
<td>1 input voltage = 3 x 200 VAC, 60 Hz</td>
</tr>
<tr>
<td>2 45 - 65 Hz adjustable / programmable</td>
<td>2 output voltage = 3 x 400 VAC, 400 Hz @ 6 kVA</td>
</tr>
<tr>
<td>3 any fixed frequency between 40 - 400 Hz</td>
<td>3 results in a IV 5868 V</td>
</tr>
<tr>
<td>.4 400 Hz</td>
<td>4 for 400 Hz add .4, i.e. IV 5868 V.4</td>
</tr>
<tr>
<td>.5 50 Hz</td>
<td></td>
</tr>
<tr>
<td>.6 synchronized with 50 Hz mains</td>
<td></td>
</tr>
<tr>
<td>.7 60 Hz</td>
<td></td>
</tr>
<tr>
<td>.8 synchronized with 60 Hz mains</td>
<td></td>
</tr>
<tr>
<td>.9 50/60 Hz switchable</td>
<td></td>
</tr>
</tbody>
</table>

Schaefer, Inc.  ·  45 South Street, Hopkinton, MA 01748, USA  ·  Tel: 508-435-6400  ·  Fax: 508-435-6401  ·  sales@schaeferpower.com  ·  www.schaeferpower.com
Frequency Converters (AC / AC Inverters) with 3-phase output

19" sub-rack including pluggable inverters and transformers, approx. 27 kg
with wall plate (optional) approx. 31 kg

19" sub-rack including pluggable inverters and transformers, approx. 24 kg
(transformers external)
with wall plate (optional) approx. 35/65 kg

19" sub-rack including pluggable inverters, approx. 23 kg / 3.4 kVA
(transformers external)

19" sub-rack including pluggable inverters, approx. 27 kg (transformers external)

19" sub-rack including pluggable inverters and transformers (T2/T3), approx. 70/80 kg
with wall plate (optional)

19" sub-rack including pluggable inverters, approx. 28 kg
(transformers external)
with wall plate (optional) and transformers, approx. 104 kg

19" Plug-in module / approx. 32 kg
with wall plate (optional) approx. 36 kg

Attention: For 3-phase system 3 modules are required.

<table>
<thead>
<tr>
<th>Size T1 - T3</th>
<th>Transformer</th>
<th>Ø in mm</th>
<th>H in mm</th>
<th>Weight in kg</th>
<th>Power in kVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>190</td>
<td>75</td>
<td>8.6</td>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td>T2</td>
<td>205</td>
<td>85</td>
<td>12</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>T3</td>
<td>243</td>
<td>85</td>
<td>15</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Transformers refer to 50/60 Hz at the output. Other frequencies or tropical insulation may change size and weight.
Attention: For 3-phase system 3 transformers are required.

<table>
<thead>
<tr>
<th>Size T4</th>
<th>Transformer</th>
<th>H in mm</th>
<th>W in mm</th>
<th>D in mm</th>
<th>Weight in kg</th>
<th>Power in kVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>T5</td>
<td>335</td>
<td>230</td>
<td>210</td>
<td>33</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>T6</td>
<td>390</td>
<td>260</td>
<td>240</td>
<td>50</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>T7</td>
<td>390</td>
<td>260</td>
<td>270</td>
<td>66</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

Transformer refers to 50/60 Hz at the output. Other frequencies or tropical insulation may change size and weight.
Attention: For 3-phase system 3 transformers are required.

<table>
<thead>
<tr>
<th>Size T5 - T7</th>
<th>Transformer</th>
<th>H in mm</th>
<th>W in mm</th>
<th>D in mm</th>
<th>Weight in kg</th>
<th>Power in kVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>T5</td>
<td>335</td>
<td>230</td>
<td>210</td>
<td>33</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>T6</td>
<td>390</td>
<td>260</td>
<td>240</td>
<td>50</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>T7</td>
<td>390</td>
<td>260</td>
<td>270</td>
<td>66</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

Transformers refer to 50/60 Hz at the output. Other frequencies or tropical insulation may change size and weight.
Attention: For 3-phase system 3 transformers are required.

Standing version

Wall mount version

Transformers refer to 50/60 Hz at the output. Other frequencies or tropical insulation may change size and weight.
Attention: For 3-phase system 3 transformers are required.

More detailed drawings see www.schaeferpower.com