

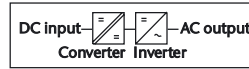
DC/AC Inverters with single phase output

▶ from 200 VA to 10 kVA

Page 80

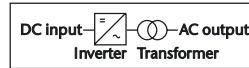
Series CI

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.

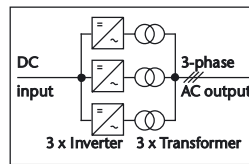
DC/AC Inverters with 3-phase output

▶ from 600 VA to 30 kVA

Page 82

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.



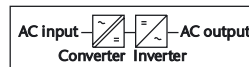
Frequency Converters with single phase output

▶ from 500 VA to 12 kVA

Page 84

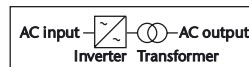
Series CI

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.



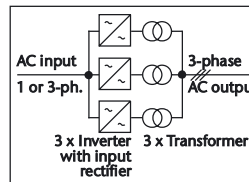
Frequency Converters with 3-phase output

▶ from 1.5 to 36 kVA

Page 86

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.



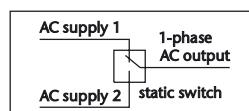
Static Switches

▶ from 800 VA to 10 kVA

Page 88

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 ($\pm 10\%$) 0.1 % for series CI,
 2 % for series IT and IV
 Load regulation (10 – 90 %) ... 1 % typical, 3 % max.
 (400 Hz: 3 % typical, 5 % max.)
 Turn-on rise time Soft-start, 100 ms typical
 Waveform..... sine wave or any wave shape
 programmable by external signal
 Frequency 40 – 400 Hz: adjustable / programmable
 or any fixed frequency (crystal stabilized)
 Distortion..... 3 % typical, 5 % @ 400 Hz,
 7 % @ 40 – 400 Hz
 Overload protection
 (steady state)..... current limited to approx. $1.05 \times I_{nom}$
 Surge power $2 \times P_{nom}$ for 1 s
 Short circuit protection electronically limited to $3 \times I_{nomV}$ unit
 switches off after 1 s
 Crest factor..... approx. 3
 Power factor..... $\cos \varphi \geq 0.7$ 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
 Safety / Construction..... acc. to DIN / EN 60950-1: 2003
 Protection category..... IP 20, others or NEMA upon request
 EMI..... acc. to EN 55022, class A,
 optionally class B
 Marking CE

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

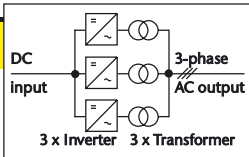
Connector (details see page 103)

Mechanics	Series CI	Series IT	Series IV
Eurocassette	H15 and high current connector for $I > 50$ A	H15, high current connector for $I > 50$ A and F24H7	--
Wall mount	Terminals	Terminals	Terminals
19" plug-in module	Terminals	Terminals	Terminals
19" sub-rack	Terminals	Terminals	Terminals

DC / AC Inverters with 3-phase output

Features

- DC input: 20 – 800 V
- 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 > 2kVA
- 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

Input VDC																Cooling	Output VAC line-to-line
20–32 VDC	Output kVA	Size	40–64 VDC	50–80 VDC	Output kVA	Size	80–160 VDC	Output kVA	Size	160–320 VDC	340–400 ¹⁾ VDC	340–640 VDC	450–800 VDC	Output kVA	Size		
IV 5526	0.6	A	IV 5536	IV 5546	1.2	A	IV 5556	1.5	A	IV 5576	IV 5586 Z			1.8	A	3 x 200	
			IV 5636	IV 5646	1.5	B	IV 5656	3	C	IV 5676	IV 5686 Z	IV 5676 G		3.6	C		
			IV 5836	IV 5846	3.6	E+T1	IV 5856	6	E+T2	IV 5876	IV 5886 Z	IV 5876 G	IV 5776 K	5.4	D+T2		
			IV 6236	IV 6246	6	G+T2	IV 6256	9	G+T3	IV 5876 F ²⁾	IV 5886 ZF	IV 5876 G	IV 5876 K	7.5	E+T3		
			IV 6436	IV 6446	9	G+T3	IV 6456	15	G+T5	IV 5876 GF ²⁾	IV 5886 ZF	IV 5876 G	IV 5876 K	10	F+T4		
IV 5528	0.6	A	IV 5538	IV 5548	1.2	A	IV 5558	1.5	A	IV 5578	IV 5588 Z			1.8	A	3 x 400	
IV 5638	IV 5648	1.5	B	IV 5658	3	C	IV 5678	IV 5688 Z	IV 5678 G		3.6	C					
IV 5838	IV 5848	3.6	E+T1	IV 5858	6	E+T2	IV 5778	IV 5788 Z	IV 5778 G	IV 5778 K	5.4	D+T2					
IV 6238	IV 6248	6	G+T2	IV 6258	9	G+T3	IV 5878	IV 5888 Z	IV 5878 G	IV 5878 K	7.5	E+T3					
IV 6438	IV 6448	9	G+T3	IV 6458	15	G+T5	IV 5878 F ²⁾	IV 5888 ZF	IV 5878 GF ²⁾	IV 5878 K	10	F+T4					
IV 5529	0.6	A	IV 5539	IV 5549	1.2	A	IV 5559	1.5	A	IV 5579	IV 5589 Z			1.8	A	3 x 480	
IV 5639	IV 5649	1.5	B	IV 5659	3	C	IV 5679	IV 5689 Z	IV 5679 G		3.6	C					
IV 5839	IV 5849	3.6	E+T1	IV 5859	6	E+T2	IV 5779	IV 5789 Z	IV 5779 G	IV 5779 K	5.4	D+T2					
IV 6239	IV 6249	6	G+T2	IV 6259	9	G+T3	IV 5879	IV 5889 Z	IV 5879 G	IV 5879 K	7.5	E+T3					
IV 6439	IV 6449	9	G+T3	IV 6459	15	G+T5	IV 5879 F ²⁾	IV 5889 ZF	IV 5879 GF ²⁾	IV 5879 K	10	F+T4					
										IV 6279	IV 6289 Z	IV 6279 G	IV 6279 K	15	G+T5		
										IV 6479	IV 6489 Z	IV 6479 G	IV 6479 K	24	G+T6		
										IV 6679	IV 6689 Z	IV 6679 G	IV 6679 K	30	G+T7		

= natural convection = temperature controlled fans

Frequency Designation

.1	40 - 400 Hz adjustable / programmable
.2	45 - 65 Hz adjustable / programmable
.3	any fixed frequency between 40 - 400 Hz
.4	400 Hz
.5	50 Hz
.51	synchronized with 50 Hz mains
.6	60 Hz
.61	synchronized with 60 Hz mains
.7	50/60 Hz switchable

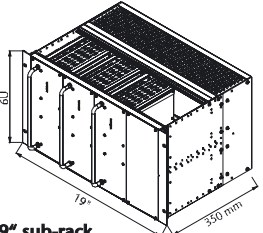
Assistance in table use:

- Select the column for input voltage range.
- Select the row for the appropriate output voltage and power.
- The intersection of both results in the module required.
- Add the required frequency designation to the part number.

For example:

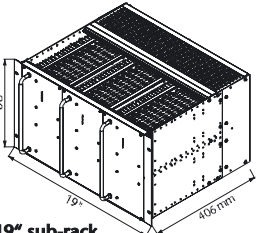
- input voltage = 220 VDC
- output voltage = 3 x 400 VAC, 50 Hz @ 7.5 kVA
- results in a IV 5878
- for 50 Hz add .5, i.e. IV 5878.5

- ¹⁾ input supply from PFC also suitable
²⁾ input voltage range to be narrowed



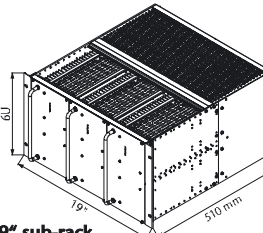
Size A

19" sub-rack including pluggable inverters and transformers, approx. 22-27 kg



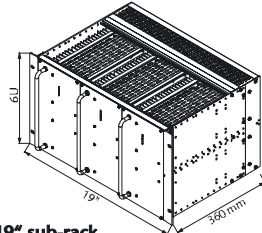
Size B

19" sub-rack including pluggable inverters and transformers, approx. 33 kg



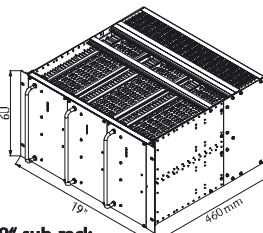
Size C

19" sub-rack including pluggable inverters and transformers, approx. 40 kg



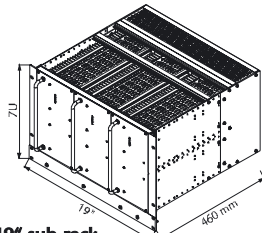
Size D

19" sub-rack including pluggable inverters, approx. 24 kg (transformers external)



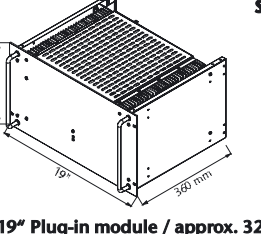
Size E

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



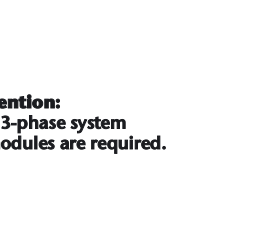
Size F

19" sub-rack including pluggable inverters, approx. 28 kg (transformers external)



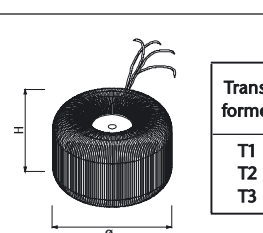
Size G

19" Plug-in module / approx. 32 kg



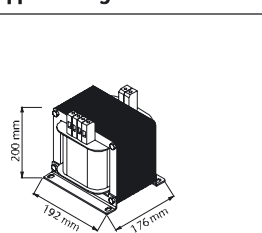
Size H

with wall plate (optional) and transformers, approx. 65 kg



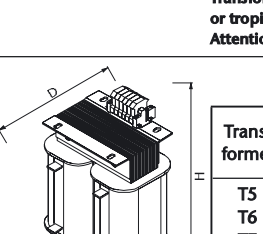
Size I

with wall plate (optional) and transformers (T1/T2/T3), approx. 58/70/80 kg



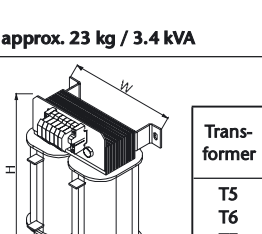
Size J

with wall plate (optional) and transformers, approx. 104 kg



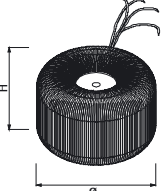
Size K

with wall plate (optional) approx. 45 kg



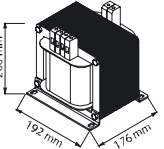
Size L

with wall plate (optional) approx. 36 kg



Size T1 - T3				
Transformer	Ø	H	Weight	Power
	in mm		in kg	in kVA
T1	190	75	8.6	1.4
T2	205	85	12	2
T3	243	85	15	3

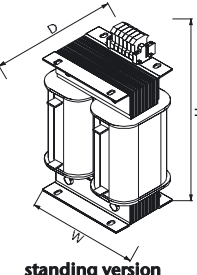
Transformers refer to 50/60 Hz at the output. Other frequencies or tropical insulation may change size and weight.
Attention: For 3-phase system 3 transformers are required.



Size T4

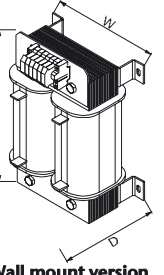
approx. 23 kg / 3.4 kVA

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.



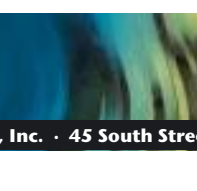
Size T5 - T7					
Transformer	H	W	D	Weight	Power
	in mm			in kg	in kVA
T5	390	240	233	33	5
T6	450	280	253	50	8
T7	450	280	283	66	12

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.




Size T5 - T7					
Transformer	H	W	D	Weight	Power
	in mm			in kg	in kVA
T5	335	230	210	33	5
T6	390	260	240	50	8
T7	390	260	270	66	12

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