

# POWERGEN

UNINTERRUPTIBLE POWER SUPPLY (UPS) from 500VA up to 800kVA  
RECTIFIERS FOR TELECOMMUNICATIONS  
PHOTOVOLTAIC INVERTERS AND PANELS  
TRANSMISSION AND DISTRIBUTION APPARATUS  
SWITCHGEARS

## PWR 3TSI Serie (from 1 to 10 Kva)



### Key Features

- Automatical fan speed adjustment
- Complete protection function
- Network/fax/modem surge protection
- LCD/LED display option
- EMI/RFI noise filter
- Smart Rs232 port with free monitoring software
- PFC technology
- On line double conversion output p.f. 0.9
- Wide input voltage range from 110 to 288 Vac
- Cold Start
- Advance battery management
- Automatic battery charging on/off mode
- Lighting and surge protection

model	3TSI 100010	3TSI 100010-L	3TSI 100020	3TSI 100020-L	3TSI 100030	3TSI 100030-L	3TSI 100060	3TSI 100060-L	3TSI 100100	3TSI 100100-L
<b>Input</b>										
capacity	1KVA/0,9 KW		2KVA/1,8 KW		3KVA/2,7 KW		6KVA/5,4 KW		10KVA/9 KW	
cold Start	yes, default frequency=50 Hz or settable									
acceptable input voltage	110VAC-288VAC									
	100% load @>176VAC									
	90% load @>154VAC									
	70% load @>132VAC									
	50% load @>110VAC									
phase	single phase in, single phase out									
input power factor	≥0,99									
input current	4,8A		9,6A		14,4A		27,5A		47A	
input frequency range	40-70Hz									
frequency adaptable	settable									
<b>output</b>										
output PF	0,9									
nominal voltage	220/230/240VAC									
waveform	pure sine wave									
voltage regulation	± 1%									
	THD									
	≥ 1% THD, linear load									
	≥ 3% THD, non linear load									
frequency online	± 5Hz									
frequency battery mode	+ 0,1Hz									
efficiency (line mode)	92,00 %									
eco mode	98,00%									
transfer time	0 ms (line mode to battery mode), 2ms (inverter to bypass)									
charger	1A	8A	1A	8A	1A	8A	1A	8A	1A	8A
overload capability (line mode)	105%-130%: transfer to bypass after 1 min									
	150%: transfer to bypass after 30 secs									
crest ratio	3 : 1									
<b>battery</b>										
battery type	sealed lead acid maintenance free battery									
battery voltage Vdc	36		72		96		192		192	
<b>indicator &amp; alarm</b>										
display	led+lcd									
<b>interface</b>										
communication	DB9 port, dry contact, USB port (optional), RS232 port, SNMP (optional)									
<b>mechanical</b>										
noise	<47db		<50db		<50db		<55db			
W*L*H* (mm)	144x353x222		190x374x336		190x426x336		250x526x640	250x526x480	250x526x640	250x526x480
net weight (kg)	12	6	21	11	26	12	57	18	65	20
all information contained in this brochure is purely indicative and cannot be used to form any contractual obligations. Specification or design can be changed at anytime without notice										



Security and an environmental close-up  
(Global warming, CO2 reduction)



Conformità alle direttive 89/336/CEE e 72/23/CEE e marcatura C E.  
Conformity to the directives 89/336/CEE and 72/23/CEE C E marking.

The company reserves the right to change the specifications of its products without prior notice and such change would render the publications inaccurate.



### Key Features



- On line double conversion - Wide input voltage range
- Sizes available from 1 to 10 kVA single phase
- All technical parameters as IST3, except dimensions
- Cold start and advanced battery management
- Automatic battery charging on/off mode
- Lighting and surge protection
- Automatic fan speed adjustment
- Complete protection function
- Network/fax/modem surge protection
- LCD/LED display option
- EMI/RFI noise filter
- Smart Rs232 port with monitoring software
- PFC technology

## 4TSI Serie (from 10 to 20 Kva)



- On line double conversion
- Wide input voltage range
- Cold Start
- Advance battery management
- Automatic battery charging on/off mode
- Lighting and surge protection
- Automatic fan speed adjustment
- Complete protection function
- Network/fax/modem surge protection
- LCD/LED display option
- EMI/RFI noise filter
- Smart Rs232 port with monitoring software
- PFC technology

model	4TSI100100	4TSI100150	4TSI100200
<b>input</b>			
capacity	10KVA/9Kw	15KVA/13,5Kw	20KVA/18Kw
cold start	yes, default frequency=50 Hz or settable		
acceptable input voltage	380 - 400 - 415 Vac		
	100% load @ -20% + 25%		
	90% load @ -30% + 25%		
	80% load @ -40% + 25%		
phase	65% load @ -50% + 25%		
	three phase in, single phase out		
input power factor	≥ 0,95		
input current	17A	25,5A	34A
input frequency range	40-70Hz		
frequency adaptable	settable		
<b>output</b>			
output PF	0,9		
nominal voltage	220/230/240VAC		
waveform	pure sine wave		
voltage regulation	± 1%		
	THD		
	≥ 1% THD, linear load		
	≥ 3% THD, non linear load		
frequency online	± 5Hz		
frequency battery mode	± 0,1Hz		
efficiency (line mode)	93,00%		
eco mode	99,00%		
transfer time	0ms (line mode to battery mode), 2ms (inverter to bypass)		
charger	5A		
overload capability (line mode)	110%:transfer to bypass after 1 min		
	130%:transfer to bypass after 30 secs		
	150%:transfer to bypass after 30 secs shutdown after 1 min		
crest ratio	3 : 1		
<b>battery</b>			
battery type	sealed lead acid maintenance free battery		
battery voltage Vdc	240		
<b>Indicator &amp; alarm</b>			
display	led+lcd		
<b>Interface</b>			
communication	DB9 port, dry contact, USB port (optional), RS232 port, SNMP (optional)		
<b>mechanical</b>			
noise	<50dB		
W*L*H* (mm)	526x250x640	544x250x750	
net weight (kg)	23	33	

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## Key Features

- Latest digital transformerless true double conversion on line IGBT technology
- Input power factor > 0.99
- Parallel up to 6 units
- Excellent performance and maximum reliability designed for best equipment protection
- Advanced microprocessor control technology, enhancing UPS performance
- Self protection and self diagnostic electronic components
- Protection against lightning and HF interference
- EMI/RFI filters
- PFC technology for low input harmonic
- Modularized design of subsystem, convenient field maintenance
- Intelligent battery management, extending battery lifetime
- Large LDC display

model	6TSI5010	6TSI5016	6TSI5020	6TSI5030	6TSI5040	6TSI5060	6TSI5080	6TSI50100	6TSI50120
capacity	10KVA	15KVA	20KVA	30KVA	40KVA	60KVA	80KVA	100KVA	120KVA
<b>input</b>									
input voltage	380V/400V/415V (line to line), 50/60 Hz								
input connection	3Ph+N+PE								
input power factor	≥ 0,99								
input current THD	<3%								
input voltage window	-20% -+25% full load								
frequency window	-40 -20 % power derating between 70% to 100%								
<b>bypass input</b>									
bypass voltage	380V/400V/415V (line to line)								
bypass voltage window	-20% -+15% full load								
frequency window	+5Hz								
<b>battery</b>									
battery voltage	+ 240Vdc								
charger power	20% power								
charger voltage precision	1,00%								
<b>output</b>									
output voltage	380V/400V/415V (line to line)								
voltage precision	± 0,5% (balance load), 1% (unbalance load)								
output voltage transient	5% (0-100% load step)								
voltage THD	THD <1% (linear load), THD <5% (non linear load)								
power factor	0,8 - 0,9 (optional)								
frequency tracking range	50/60 Hz ± 3Hz, adjustable								
frequency precision (free running)	± 0,02%								
phase tolerance	120° ± 0,5° (balance and unbalance load)								
voltage unbalance degree (100% unbalance load)	± 1,00%								
frequency tracking speed	0,5 Hz/s to 5Hz/s adjustable								
crest factor	3 : 1								
overload capability	102% long time operation 110% transfer to bypass after 1 hour 125% transfer to bypass after 10 minutes 150% transfer to bypass after 1 minute < 150% transfer to bypass after 200 ms								
bypass overload capability	125% long time operation 125% <load<130% last for more than 1 hour 130% <load<150% last for more than 6 minutes >1000% <load<130% last for more than 100 ms								
<b>system</b>									
system efficiency	normal mode 95%								
battery mode efficiency	eco mode 99%								
battery configuration	12V 40pcs (36-44 pcs acceptable)								
display	led+lcd, keyword				led+lcd touch screen keyboard				
EMI	IEC62040-2								
EMS	IEC61000-4-2(ESD), IEC61000-4-3(RS), IEC6100-4-4(EFT), IEC6100-4-5(surge)								
insulation resistance	> 2m (500Vdc)								
dielectric strength	Input, output to PE 2820Vdc, leakage current lower than 3,5mA, no flashover in 1 minute								
surge protection	comply with IEC60664-1 class IV, endure surge of 1,2/50us + 8/20us higher than 6kVA/3kVA								
IP class	IP20								
interface (communication ports)	RS232, RS485, dry contacts, SNMP card, EP0, generator interface								
Installation/connection	top or bottom cable connection								
operation temperature	0-40° C								
relative humidity	0-90% (non condensing)								
noise (dB)	<55dB								
weight (kg)	46		60		182	204	226	270	292
dimension (w*d*h*) mm	68 (internal battery)		75 (int batt)						
	280x730x668		320x781x788		600x855x1350			600x855x1600	
	540x690x1100 (internal battery)								

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## Key Features



- Latest digital transformerless true double conversion on line IGBT technology
- Input power factor 1
- Parallel up to 8 units
- Excellent performance and maximum reliability designed for best equipment protection
- Advanced microprocessor control technology, enhancing UPS performance
- Self protection and self diagnostic electronic components
- Protection against lightning and HF interference
- EMI/RFI filters
- PFC technology for low input harmonic
- Modularized design of subsystem, convenient field maintenance
- Intelligent battery management, extending battery lifetime
- Large LDC display
- Special and innovative cooling system "climasystem" with refrigerant liquid

model	UA5TSI		
capacity	120KVA	160KVA	200KVA
<b>main input</b>			
input voltage	380V/400V/415V (line to line), 50/60 Hz		
input connection	3Ph+N+PE		
power factor	1		
input current THD	<3%		
input voltage window	330-480 Vac		
frequency window	-40 -20 % power derating between 70% to 100% 40-70Hz		
<b>bypass input</b>			
bypass voltage	380V/400V/415V (line to line)		
bypass voltage window	-20% -+15% full load		
frequency window	±5Hz		
<b>battery</b>			
battery voltage	720 Vdc		
charger power	20% power		
charger voltage precision	1,00%		
<b>output</b>			
output voltage	380V/400V/415V (line to line)		
voltage precision	± 1,00%		
output voltage transient	5% (0-100% load step)		
voltage THD	THD <1% (linear load), THD <5% (non linear load)		
power factor	0,8		
frequency tracking range	50/60 Hz ± 3Hz, adjustable		
frequency precision (free running)	± 0,02%		
phase tolerance	120° ± 0,5° (balance and unbalance load)		
voltage unbalance degree (100% unbalance load)	± 1,00%		
frequency tracking speed	0,5 Hz/s to 5Hz/s adjustable		
crest factor	3 : 1		
<b>system</b>			
system efficiency	normal mode 95%		
battery mode efficiency	eco mode 99%		
battery configuration	12V 60pcs		
display	led+lcd, keyword		
EMI	IEC62040-2		
EMS	IEC61000-4-2(ESD), IEC61000-4-3(RS), IEC6100-4-4(EFT), IEC6100-4-5(surge)		
insulation resistance	> 2m (500Vdc)		
dielectric strength	Input, output to PE 2820Vdc, leakage current lower than 3,5mA, no flashover in 1 minute		
surge protection	comply with IEC60664-1 class IV, endure surge of 1,2/50us + 8/20us higher than 6kVA/3kVA		
IP class	IP20		
interface (communication ports)	RS232, RS485, dry contacts, SNMP card, EP0, generator interface		
operation temperature	0-40° C		
relative humidity	0-95% (non condensing)		
noise (dB)	64dB		
dimension (w*d*h*) mm	800x840x1800		

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