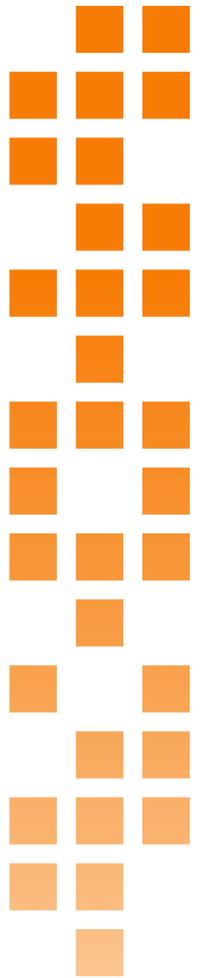
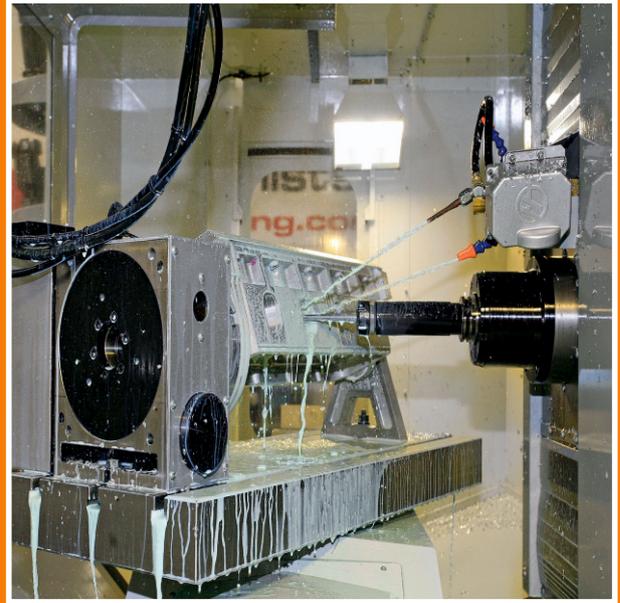




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## *About Us*

Our manufacturing lines consist of following product ranges;

Singlephase AC Servo Voltage Stabilizers 500 VA - 50 kVA

Triphase AC Servo Voltage Stabilizers 3 kVA - 4000 kVA

Singlephase AC Static/Solid state Voltage Stabilizers: 1000VA - 50 kVA

Triphase AC Static/Solid state Voltage Stabilizers: 30 kVA - 2000 kVA

Uninterruptible Power Supplies ( T based, IGBT,DSP) (1:1ph, 3:1ph, 3:3ph)  
1000 VA - 1200 kVA

Special production lines:

STS, Frequency converters, Isolation transformers, Toroidal Variacs, Dry and Gel type SLA Batteries, DC Power supplies, Battery chargers

In order to provide better and reliable solutions, and increase product quality; we obtained TSEK, ISO9001, CE quality certifications. The quality management principles and unconditional customer satisfaction; compose the base of our production philosophy.

Our manufactured products have been exported worldwide, in 65 countries such as Portugal, UK, France, Poland, Ukraine, Kosovo, Serbia, Albania, Macedonia, Georgia, UAE, Pakistan, Afghanistan, Nigeria, Ghana, Cameroon, Senegal, Libya, Irak, Iran, Tajikistan, Turkmenistan, Kazakhstan, Lebanon, Jordan, South Africa, Malaysia, Bangladesh, Peru, Venezuela, Kenya, Tanzania, Uganda, Ethiopia, Angola etc..

Signal Inc. offers complete power protection solutions  
Continuous energy, Uninterruptible life...

Signal UPS Uninterruptible Power Supply Systems solutions provide power protection for uninterruptible power supply solutions of your mission critical applications for complete back up power systems.

# CRYSTAL SERIE

## UNINTERRUPTIBLE POWER SUPPLY 1-10 kVA

CL Crystal series HF online  
UPS Singlephase for Centralized  
server center, mainframe,  
network control center,  
computing center



## True On-line 1 Phase in 1 Phase out 1-10 kVA

### Technical Specifications

- High frequency and dual conversion on-line technology
- Wide input voltage range
- Advanced PFC technology
- True sine wave output with less than 3% THD
- Self-diagnosis at UPS startup
- Advanced battery management (ABM)
- Cold start feature (DC power on)
- Automatically charging batteries in UPS off mode
- Lightning and surge protections (surge energy rating 1050 Joules)
- Short circuit and overload protections
- Fan speed automatically changes as load varies
- Optional external battery pack
- EMI / RFI noise filter
- RS232(SNMP Optional)
- Shutdown & restart schedule



## Specifications

Model	CL1000	CL2000	CL3000	CL6000	CL10000
Capacity	1KVA	2KVA	3KVA	6KVA	10KVA
<b>Input</b>					
Rated input voltage	220VAC or 120VAC			220VAC	
Rated input frequency	50Hz/60Hz (self-adaption)				
Input voltage Range	110 ~ 295 ± 5VAC (50% load); 140 ~ 295 ± 5VAC (100% load) or 50/60/70/80 ~ 150 ± 5VAC (60%/70%/80%/100% load)			110 ~ 295 ± 5VAC (50% load); 140 ~ 295 ± 5VAC (100% load)	
Input frequency Range	45~55Hz +/-0.5%		50Hz; 55~65Hz +/-0.5%	60Hz	
Phase	single phase+N+GND				
Power factor	≥0.98			≥0.99	
Input current (liner full load)	4.0A or 10A	8.1A or 20A	12.1A or 30A	24.2A	40.4A
THD	< 6%			< 5%	
ByPass voltage range	186VAC~252VAC or 90VAC~140VAC			186VAC~252VAC	
<b>Output</b>					
Rated voltage	208VAC/220VAC/230VAC/240VAC or 100/110/115/120/127VAC can be set on LCD			208VAC/220VAC/230VAC/240VAC can be set on LCD	
Power factor	0.8				
Voltage distortion	± 1%				
DC component voltage	≤200mv				
Output current crest factor	3:1				
<b>Rated frequency</b>					
AC mode	same as input frequency				
Battery mode	50/60 ± 0.2Hz				
Phase lock speed	≤1Hz/s				
Wave distortion	100% linear load <3%; 100% nonlinear load <5%				
<b>Transfer time</b>					
From Mains mode to battery mode				0ms	
From battery mode to Mains mode				0ms	
From Mains mode to bypass mode	< 4ms			< 0ms	
From bypass mode to Mains mode	< 4ms			< 0ms	
From normal mode to ECO mode	< 10ms			< 10ms	
System Efficiency	Full load	≥90%			≥94%
	ECO mode				≥92%
Inverter overload capacity	105% ~ 150% 30s transfer to bypass mode giving alarm; > 150% 300ms transfer to bypass mode giving alarm;			105% ~ 125% 10min transfer to bypass mode giving alarm 125% ~ 150% 30s transfer to bypass mode giving alarm >150% 100ms transfer to bypass mode giving alarm;	
<b>Battery</b>					
Battery type	Lead Acid maintenance free battery				
DC voltage	24V DC	48V DC	72V DC	168V DC	168V DC
Inbuilt battery	9AH/12V	9AH/12V	9AH/12V	9AH/12V	9AH/12V
Battery quantity	2	4	6	14	14
Charge					
Output voltage	27.5 ± 0.4V	55 ± 0.6V	82.5 ± 0.9V	193.7 ± 0.9V	193.7 ± 0.9V
<b>Charge method</b>					
Input voltage range	80VAC~300VAC or 40VAC~150VAC			150VAC~300VAC	
Charge current	Standard model:1A; Long time model: 6A(Optional12A)			Standard model:1A; Long time model: 8	
Protection	Over-temp protection; Fan testing protection ; AC L and N connect wrong protection; Output short circuit protection				
Control	Silence; cold start; AC restart; Auto restart.				
Communication	RS232, SNMP card , USB				
Display	Software function; Statue analyze: Switch on/off UPS system, Monitor UPS working state ,store histor LCD/LED				
<b>System Operating Environment</b>					
Operating environment	Operation tem.	0 ~ 40°C			
	Store tem.	-25°C ~ 55°C			
	Humidity	20 ~ 90% ( non-condensing )			
	Altitude	0m < altitude < 1500m, over 1500m, used with power derated			
Noise	< 50db		< 55db		
UPS Dimension ( W*D*H ) mm	144x357x215	191x452x341		262x514x455(Long time mode) 262x514x735(Standard model)	
Packing Dimension ( W*D*H ) mm	(Long time mode) (Standard model)	230x445x315	320x564x462		360x650x540 360x650x795
Net/Gross Weight ( Kg )	(Long time mode)	6.0/7.0	12.0/13.3	12.5/13.8	26.0/28.0
	(Standard model)	10.0/11.1	20.0/21.3	24.0/25.3	62.0/70.0

◆ All specifications subject to change without notice.  
◆ Custom-made specifications are acceptable.

## Continuous Power, Uninterruptible Life

# **SGL 100 SERIE**

**Transformer  
Based  
Technology**

## **UNINTERRUPTIBLE POWER SUPPLY 2-15 kVA**

SGL 100 Series UPS's are, PWM (Plus Width Modulation) and IGBT technology, microcontroller controlled, sinus waveform output, ONLINE, parallel configurable UPS group.



## **True On-line 1 Phase Input 1 Phase Output 2-15 kVA**

### **Technical Specifications**

- Output isolation transformer
- 91% efficiency
- Static by-pass
- LCD front panel
- 64 events memory
- RS232 port provides remote monitoring, remote shutdown
- Custom input and output voltage ranges
- International quality certificates
- 2 years warranty
- 10 years spare parts support
- CE, GOST, TUV, ISO9001, ISO14001 certificates



## Specifications

MODEL	SGL 102	SGL 103	SGL 105	SGL 107	SGL 110	SGL 115
<b>Power</b>	2 kVA	3 kVA	5 kVA	7 kVA	10 kVA	15 kVA
<b>INPUT</b>						
<b>Voltage</b>	220/230 Vac Phase+Neutral + Earth, +/-15%					
<b>By-pass Voltage</b>	220/230 Vac, +/- 10%					
<b>Frequency</b>	50Hz/60 Hz, +/- 5%					
<b>EMI</b>	EN62040-2					
<b>Current</b>	13 A	19 A	30 A	44 A	58 A	87 A
<b>Input Frequency</b>	50 Hz(60Hz special product), +/- %5					
<b>Input Voltage Protection</b>	electronic input voltage out of tolerant protection					
<b>OUTPUT</b>						
<b>Power (kW)</b>	1.4	2.1	3.5	4.9	7	10.5
<b>Power Factor</b>	0.7					
<b>Voltage</b>	220/230 Vac ,Phase+Neutral					
<b>Voltage Tolerance</b>	+- 1 %					
<b>Frequency</b>	50 Hz (60 Hz special product)					
<b>Frequency Tolerant</b>	+/-2% (synchron) +/- 0,2% (free running)					
<b>Efficiency 100% Load</b>	85-87%				86-90%	
<b>THD (Total Harmonic Distortion)</b>	<3% (linear load) <5% (non linear load)					
<b>Crest Factor</b>	3:1					
<b>Overload Protection</b>	100%125% load :10 mins. 126%150% load :1 min >150% load : by-pass					
<b>Short Circuit Protection</b>	electronic short circuit protection					
<b>Output Voltage Protection</b>	electronic output voltage out of tolerant protection					
<b>BATTERY</b>						
<b>Type</b>	Maintenance free sealed lead acid					
<b>Batteries</b>	14	14	16	18	20	20
<b>Charge Voltage</b>	189VDC	189VDC	216VDC	243VDC	270VDC	270VDC
<b>Discharge End Voltage</b>	140VDC	140VDC	160VDC	180VDC	200VDC	200VDC
<b>Battery Cabinet</b>	internal					external
<b>Ambient Temperature</b>	25 C					
<b>Battery Protection</b>	Battery fuse , battery voltage low and high protection (3 levels)					
<b>Battery Test</b>	Available as option					
<b>Temperature Compansiation</b>	Available as option					
<b>GENERAL</b>						
<b>Operating Temperature</b>	0 C - 40 C					
<b>Noise Level</b>	< 42 dBA		< 45 dBA		< 55 dBA	
<b>Protection</b>	IP20					
<b>Operating Height</b>	< 2000 m					
<b>Humidity (Non Condensed)</b>	< 90%					
<b>Weight (Without Batteries) (Kg)</b>	50	55	60	75	85	112
<b>Dimensions (mm) WxDxH</b>	265x585x505		265x600x590	265x660x640	265x740x720	300x810x720
<b>Interface</b>	Alphanumeric LCD panel, mimic lamps and control buttons					
<b>Communication</b>	RS232+dry contact					
<b>Software</b>	T-Mon UPS software(3 clients)					
<b>Overttemperature Protection</b>	Electronic overtemperature protection					

**Continuous Power, Uninterruptible Life**

# **SGL CYCLONE**

## **100D SERIE**

**DSP + IGBT Rectifier**

### **UNINTERRUPTIBLE POWER SUPPLY 6-15 kVA**

SGL Cyclone SGL CL-100D  
Uninterruptible Power Supplies are  
single phase transformerless  
with IGBT rectifier  
advanced technology  
designed UPS.



### **True On-line 1 Phase Input 1 Phase Output 6-15 kVA**

#### **Technical Specifications**

- Rack and tower case options
- Power factor corrected input
- REPO input (NO or NC programmable)
- Static bypass system, VAT transfer system
- Output voltage regulation, low output THD
- Optional battery temperature compensation
- Online technology, advanced self diagnostics
- Battery options for longer battery backup time
- Fully digital DSP controlled system, PID control
- User selectable easy voltage, frequency and setting
- Cold start from batteries, Rack and Tower case options
- 128 log event records (5000 alarms) with date and time
- LCD alphanumeric display, mimic lamps, 5 control buttons
- Output short circuit protection (isolated from bypass input)
- Output overload protection, 150% overload capacity
- Automatic battery test, Front panel lamp test system
- Deep battery discharge protection, Boost charge
- Battery capacity and battery remaining time indicator
- Maintenance bypass switch, Cabinet inside temperature sensor
- RS232 communication interface, management software, SNMP, MODBUS
- Dry contact outputs (NO or NC programmable) 3 relays standard 2 option
- IPM power module, Output current limit, Operation mode selection (Online or Offline)

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## Specifications

MODEL	SGL-CL 106 D	SGL-CL 106 DR	SGL-CL 110 D	SGL-CL 110 DR
Type	Tower	Rack -5U	Tower	Rack -5U
<b>INPUT</b>				
Power Factor	>0.99 (full load)			
Input Voltage Range	220-230 volts AC (+/- 25%) selectable(1phase+neutral)			
Input THD	<5% at full load			
Input Frequency	50Hz (40-65Hz operation)			
RFI Level	EN62040			
Indicators	Voltage ,Current ,Frequency			
Protection	Input fuse ,input high and line failure alarm			
Bypass Voltage	220-230 volts AC (+/- 10%) selectable			
Bypass Frequency	50Hz (Adjustable from +/-1 to 3 Hz)			
Manual Bypass	Standard			
Maintenance Bypass	Optional			
Split Bypass	input Optional			
Transfer System	VAT Transfer (voltage adaptive transfer) built in			
<b>OUTPUT</b>				
Power	6 kVA / 4.2 kW	6 kVA / 4.2 kW	10 kVA / 7 kW	10 kVA / 7 kW
Power / Crest factor	0.7 - 3:1			
Voltage	220-230 volts AC (+/- 1%) selectable(1phase+neutral)			
Current (100%load)	19 Amps	19 Amps	32 Amps	32 Amps
Frequency	50 Hz			
Frequency Tolerant	Free running:0.01% ,synchron lock adjustable(+/- 1 to 3Hz)			
Indicators	Voltage , Load , Current , Frequency			
Overload Protection	100%-125% 10 mins,126%-150% 1 min			
Protections	Voltage low ,high ,short circuit,waveform error,DC leakage			
THD	<3% (at 100% Load)			
Output connections	Hardwired+2xIEC sockets on the rear side			
<b>BATTERY</b>				
Type	Sealed Lead Acid			
Battery number	20x4.5Ah	20x4.5Ah	20x7Ah	20x7Ah
Cabinet	internal	internal	external	external
Battery test	Available (automatic or manual)			
Boost charge	Available adjustable(288V for 20x12V batteries)			
Protection	Battery low shutdown ,low warning ,high alarm Average battery high alarm , fuse protection			
Charge current	Limited (adjustable from 1 to 3 amps.)			
End of discharge	Adjustable(192V for 20 batteries)Deep discharge protection			
Float charge voltage	Adjustable(272V for 20x12V batteries at 25C)			
<b>GENERAL</b>				
Communication	REPO input, 3 relays and RS232 standard, SNMP and MODBUS optional			
Options	2 relay outputs, 1 automation input,remote panel,RS232 port multiplexer			
Front panel	2x16 LCD panel, 3 Leds and 5 buttons			
Dimensions (WxDxH)	215x595x435	425x595x215	215x595x435	425x595x215
Weight	25kgs	25kgs	28kgs	28kgs
Noise Level	<50dB			
Temperature range	0 C - 40 C			
Relative humidity	<90% (non condensed)			
Vantilation	Forced air cooling			
Altitude	2000 m. At nominal power			
Protection degree	IP20			

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# **SGL 200 SERIE**

**Transformer  
Based  
Technology**

## **3:1 PHASE UNINTERRUPTIBLE POWER SUPPLY 6-30 kVA**

SGL 200 Series UPS's are, PWM (Plus width modulation) and IGBT technology, microcontroller controlled, sinus waveform output, ONLINE, parallel configurable UPS group.



## **True On-line 3 Phase Input 1 Phase Output 6-30 kVA**

### **Technical Specifications**

- Output isolation transformer
- 91% efficiency
- Static by-pass
- LCD front panel
- 128 events memory with RTC
- RS232 port provides remote monitoring, remote shutdown
- Custom input and output voltage ranges
- International quality certificates
- 2 years warranty
- 10 years spare parts support
- CE, GOST, TUV, ISO9001, ISO14001 certificates



## Specifications

MODEL	SGL 206	SGL 207	SGL 210	SGL 215	SGL 220	SGL 230
<b>Power</b>	6 kVA	7.5 kVA	10 kVA	15 kVA	20 kVA	30 kVA
<b>INPUT</b>						
<b>Voltage</b>	220/380 Vac (230/400 Vac) 3 phase + Neutral + Earth ,+/-15%					
<b>By-pass Voltage</b>	220 Vac, +/- 10%					
<b>Frequency</b>	50 Hz/60 Hz +/- 5%					
<b>EMI</b>	EN62040-2					
<b>Current</b>	3 x 13A	3 X 16A	3 X 21A	3 X 31A	3 X 42A	3 X 62A
<b>Input Voltage Protection</b>	electronic input voltage out of tolerant protection					
<b>OUTPUT</b>						
<b>Power (kW)</b>	4.2	5.3	7	10.5	14	21
<b>Power Factor</b>	0.7					
<b>Voltage</b>	220 Vac (230 Vac) ,Phase + Neutral					
<b>Voltage Tolerance</b>	+- 1%					
<b>Frequency</b>	50 Hz (60 Hz special product)					
<b>Frequency Tolerance</b>	+/-2% (synchron) +/- 0,2% (free running)					
<b>Efficiency 100% Load</b>	86% (full load)					
<b>THD (Total Harmonic Distortion)</b>	< 3% (linear load) < 5% (non linear load)					
<b>Crest Factor</b>	3:1					
<b>Overload Protection</b>	100%125% load :10 dk 126%150% load :1 dk >;150% load : by-pass					
<b>Short Circuit Protection</b>	electronic protection					
<b>Output Voltage Protection</b>	electronic output voltage out of tolerant protection					
<b>BATTERY</b>						
<b>Type</b>	Maintenance free sealed lead acid					
<b>Batteries</b>	20			30		
<b>Charge Voltage</b>	270 VDC			405 VDC		
<b>Discharge End Voltage</b>	200 VDC			300 VDC		
<b>Battery Cabinet</b>	Standard backup time internal (others external)					
<b>Ambient Temperature</b>	25 C					
<b>Battery Protection</b>	Battery fuse , battery voltage low and high alarm (3 levels)					
<b>Battery Test</b>	Optional			standard automatic every 72 hours		
<b>GENERAL</b>						
<b>Operating Temperature</b>	0 C - 40 C					
<b>Noise Level</b>	< 45 dBA			< 55 dBA		
<b>Protection</b>	IP20					
<b>Operating Height</b>	< 2000 m					
<b>Humidity (Non Condensed)</b>	< 90%					
<b>Weight (Without Batteries) (Kg)</b>	106	110	125	130	195	217
<b>Dimensions (mm) WxDxH</b>	775x265x950			660x510x1260		
<b>Interface</b>	Alphanumeric LCD panel, mimic lamps and control buttons					
<b>Communication</b>	RS232+dry contact					
<b>Software</b>	T-Mon UPS Software(3 clients)					
<b>Overtemperature Protection</b>	Electronic overtemperature protection					

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# SGL 300 LO SERIE

Transformer  
Based  
Technology

## UNINTERRUPTIBLE POWER SUPPLY 10-80 kVA

SGL 300 Lo series UPS,  
PWM controlled,  
IGBT technology,  
Microcontroller controlled,  
Sinusoidal waveform,  
ONLINE topology and parallel  
configurable devices.  
Advanced communication  
system supports many  
communication protocols and  
brings remote control advantage of the UPS.



## True On-line 3 Phase Input 3 Phase Output 10-80 kVA

### Technical Specifications

- 3 phase in / 3 phase out
- Output 10-80 kVA
- Output isolation transformer
- Up to 91% efficiency
- Static by-pass
- External REPO switch input
- 5 control buttons iLCD alphanumeric display brings detailed monitoring of measured parameters.
- 3 mikrocontrollers for rectifier ,main control system, parallel management
- 128 events alarm memory (4000 alarms)
- Clock and calender (battery supported)
- Advanced battery management controls charge system battery test
- High performance at nonlinear loads
- Dry contact simulation function
- Dial-up modem connection and setup
- Custom input voltage and frequency ranges
- International standarts compatibility
- SNMP(Simple Network Management Protocol) communication
- 2 years warranty
- 10 years spare parts support
- ISO9001, ISO14001, CE ,GOST certification
- Optional MODBUS adaptor.

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## Specification

MODEL	SGL 310	SGL 315	SGL 320	SGL 330	SGL 340	SGL 360	SGL 380
Power	10 kVA	15 kVA	20 kVA	30 kVA	40 kVA	60 kVA	80 kVA
<b>INPUT</b>							
Voltage	220/380 Vac (230/400 Vac) 3 phase + neutral + earth ,+/-15%						
By-pass voltage	220/380 Vac (230/400 Vac) 3 phase + neutral +/- 10%						
Frequency	50 Hz (60 Hz optional), +/- 5%						
MAX RFI	EN62040-2						
Input voltage protection	Electronic Input out of tolerant protection						
<b>OUTPUT</b>							
Power (kW)	8	12	16	24	32	48	64
Power factor	0,8						
Voltage	220/380 Vac (230/400 Vac) 3 phase, + Neutral						
Voltage tolerance	+/- 1%						
Voltage regulation time	max 25 msec						
Frequency	50Hz / 60Hz						
Frequency tolerant	synchron:+/-2% free running:+/-0,2%						
Efficiency (100% load)	88-90%			90%			
Crest faktor	3:1						
Overload protection	100%-125% load :10 mins 126%-150% load :1 min >150% load :by pass						
Short circuit protection	electronic protection						
THD (Total harmonic distortion)	Linear load: < 3% Non linear load: < 5%						
Output voltage protection	Electronic out of tolerant protection						
<b>MODEL</b>							
Type	Maintenance free ,sealed lead acid						
Batteries	30						
Charge voltage	405 VDC						
Discharge end voltage	300 VDC						
Ambient temperature	25 C						
Battery protection	Battery fuse ,battery voltage low and high alarm (3 levels)						
Battery test	standard automatic every 72 hours or manual						
Temperature Compansiation	Available as option						
<b>GENERAL</b>							
Human interface	Alphanumeric LCD panel, mimic lamps and control buttons						
Communication	Dry contact and RS232						
Software	T-Mon UPS Software (3 clients)						
Operating temperature	0 C - 55 C						
Cooling	air cooling						
Humidity (non condensed)	< 90%						
Protection	IP20						
Operating height	< 2000 m						
Noise level	< 56dBA				< 60 dBA		
Weight without batteries (kg)	220	260	260	290	415	465	595
Dimensions (mm) WxDxH	505x655x1150				575x820x1390		720x820x1850
Overtemperature protection	electronic protection						

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# SGL 300 HI SERIE

**Transformer  
Based  
Technology**

## **UNINTERRUPTIBLE POWER SUPPLY 100-300 kVA**

SGL 300 Hi series  
UPS, PWM controlled,  
IGBT technology,  
microcontroller controlled,  
sinusoidal waveform,  
ONLINE topology and parallel  
configurable devices.  
Advanced communication  
system supports many  
communication protocols and  
brings remote control  
advantage of the UPS.



## **True On-line 3 Phase Input 3 Phase Output 100-300 kVA**

### **Technical Specifications**

- 3 phase in / 3 phase out
- Output 100-300 kVA
- Output isolation transformer
- Up to 91% efficiency
- Static by-pass
- External REPO switch input
- 5 control buttons iLCD alphanumeric display brings detailed monitoring of measured parameters.
- 3 microcontrollers for rectifier ,main control system, parallel management
- 128 events alarm memory (4000 alarms)
- Clock and calender (battery supported)
- Advanced battery management controls charge system battery test
- High performance at nonlinear loads
- Dry contact simulation function
- Dial-up modem connection and setup
- Custom input voltage and frequency ranges
- International standarts compatibility
- SNMP(Simple Network Management Protocol) communication
- 2 years warranty
- 10 years spare parts support
- ISO9001, ISO14001, CE ,GOST certification
- Optional MODBUS adaptor.

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## Specifications

MODEL	SGL 3100	SGL 3120	SGL 3160	SGL 3200	SGL 3250	SGL 3300
<b>Power</b>	100 kVA	120 kVA	160 kVA	200 kVA	250 kVA	300 kVA
<b>INPUT</b>						
<b>Voltage</b>	220 / 400 Vac 3 Phase +N, +/-% 15					
<b>By-Pass Voltage</b>	220 / 400 Vac 3 Phase +N, +/-% 10					
<b>Input Frequency</b>	50 Hz, +/- %5					
<b>EMI</b>	EN50091-2 Class A					
<b>Input out of Tolerant Protection</b>	Electronic input out of tolerant protection					
<b>OUTPUT</b>						
<b>Power (kW)</b>	80	96	128	160	200	240
<b>Power Factor</b>	0,8					
<b>Voltage</b>	220 / 400 Vac 3 Phase +N					
<b>Frequency</b>	50 Hz. (60Hz On Request )					
<b>Frequency Tolerance</b>	+/-2% (Line Synchronized)		+/-0,2% (Free Running)			
<b>Efficiency at 100% Load</b>	%90-92					
<b>Crest Factor</b>	3:1					
<b>Overload Protection</b>	100 % 125% Load : 10 min	• 125 % 150% Load : 1 min		• < 150 % Load : By-Pass		
<b>Short Circuit Protection</b>	Electroinc short circuit protection					
<b>Voltage out of Tolerant Protection</b>	Electronic out of tolerant protection					
<b>Total Harmonic Distortion</b>	< 3 %					
<b>THD</b>	Non Linear Load <%5					
<b>BATTERIES</b>						
<b>Battery Type</b>	Sealed Lead Acid - Maintenance Free					
<b>Number of Batteries</b>	30			32		
<b>Float Charging Voltage</b>	405 VDC			432 VDC		
<b>End of Discharge Voltage</b>	300 VDC			320 VDC		
<b>Ambient Temperature C</b>	25 C°					
<b>Battery Voltage Protection</b>	Electronic Battery out of tolerant protection					
<b>Battery Protection</b>	Automatic circuit breaker					
<b>Battery Test</b>	Automatic every 72 hours					
<b>GENERAL</b>						
<b>Communication</b>	RS232 + Dry Contacts					
<b>Temperature Range</b>	0 C° - 40 C°					
<b>Humidity (Non Condensed)</b>	90 % (Non condensed)					
<b>Protection Degree</b>	IP20					
<b>Altitude</b>	< 1000 m. above sea level					
<b>Noise level</b>	< 65 dBA			< 70 dBA		
<b>Weight without batteries (kg)</b>	770	810	960	1150	1285	1416
<b>Dimensions (mm) HxWxD</b>	1650x1100x800		1730x1195x870		1880x1565x925	
<b>Ventilation</b>	Forced air cooling					
<b>OPTIONS</b>			<b>ACCESSORIES</b>			
<b>Input Transformers</b>	Galvanic isolation transformer at the input (in the external cabinet)		<b>Monitoring and Control Software</b>		T-MON 3 client standart	
<b>Input THD</b>	<10%(with 18 Pulse Rectifier ,according to UPS range		<b>Multiserver Shutdown Unit</b>		Available as option	
	5% (with 18 Pulse rectifier, + filter) upto 80 kVA		<b>SNMP Communication Adaptor</b>		Available as option	
<b>Parallel Operation</b>	1+3 Systems (N+1 redundant, redundant, symetric parallel)		<b>Serial Port Enhancer</b>		Available as option	
<b>MBS</b>	Maintenance by-pass switch for complete isolation (For 206,207 & 210)		<b>ModBus Communication Adaptor</b>		Available as option (over RS485 or over TCP/IP)	

**Continuous Power, Uninterruptible Life**

# DS-300 LO SERIE

DSP+IGBT Rectifier

## UNINTERRUPTIBLE POWER SUPPLY 10-400 kVA

Cold Start  
High Input Power Factor  
High efficiency up to 94%  
External REPO switch input  
10 years spare parts support  
IGBT / Transformerless Technology  
DSP Control



## Pf: 0,9 True On-line 3:3 Phase UPS 10-160 kVA

### Technical Specifications

- Low input current total harmonic distortion (THD)
- Static and maintenance bypass switch
- Output and by-pass short circuit and overload protection
- 192 events memory (192 events 4500 alarms)
- Clock and calendar (battery supported)
- Automatic battery test, remaining battery time indicator
- Temperature compensated charge system
- Regenerative backfeed function
- 2 RS232 serial port and 12 dry contact outputs
- 3 DSP controlled modular structure
- Optional Graphical and touch panel
- CE ,ISO9001, ISO14001, GOST certification
- 2 years warranty



## Specifications

MODEL	DS310	DS315	DS320	DS330	DS340	DS360	DS380	DS3100	DS3120	DS3160
Power(kVA)	10	15	20	30	40	60	80	100	120	160
<b>INPUT</b>										
Power factor	> 0.98									
Voltage	380-400 VAC 3F, 4N+Earth, +/-%20 (240/415 VAC + %15 -%25 optional)									
Input THD	< 5%									
Input frequency	50Hz / 60Hz +/- 5% selectable									
Input frequency protection	2 levels protection (minimum and maximum)									
Regenerative backfeed	Standard									
Input power limiting	Standard									
EMI	EN62040-2									
Input voltage protection	2 levels protection									
Power walk in	Standard Adjustable									
Startup delay	Standard Adjustable									
Control system	seperate DSP controller for PFC rectifier module									
Rectifier input fuses	Standard									
Rectifier input switch	Standard									
Rectifier input CB	Standard									
<b>OUTPUT</b>										
Power (kW)	9	13,5	18	27	36	54	72	90	108	144
Power factor	0,9									
Voltage	380-400 VAC 3F, 4N+Earth, +/-%1(240/415 optional)									
Frequency	50Hz / 60Hz selectable									
Frequency tolerant	+/- 2% (synchron) +/- 0,2% (free running)									
Frequency stability (free running)	0,005%									
Efficiency	up to 94%									
Crest factor	3:1									
Overload protection	100% - 125% load: 10 min.125% - 150% load: 1 min..> 150% load: by-pass									
Output current limiting	Standard									
Short circuit protection	Direct IGBT saturation protection and advanced short circuit protection									
Output voltage protection	2 levels electronic protection									
THD (%100 linear load)	< 3%									
Control system	seperate DSP controller for Inverter module									
<b>BATTERY</b>										
Type	Maintenance free ,sealed lead acid									
Batteries	2X30=60 batteries									
Charge voltage	2x405 Vdc									
Discharge end voltage	2x300 Vdc									
Battery cabinet	Internal					External				
Ambient temperature	25 °C									
Battery protection	Fuses ,charging current limiting									
Battery voltage protection	electronic 3 level alarms									
Battery test system	automatic every 72 hours									
Temperature compansiation	Standard									
Battery remaining time indicator	Standard									
Battery fuses	Standard									
Deep discharge protection	Standard									
<b>FRONT PANEL</b>										
Front panel control	Seperate DSP controller for panel and communication functions									
Human interface	Alphanumeric LCD panel, mimic lamps and control buttons standard									
Alarm log memory	192 events (4500 alarms)									
Communication	Dry contact and 2 RS232 serial ports									
Phase to phase measurements	Rectifier input ,By-pass input ,Inverter output and UPS output voltages									
Phase to neutral measurements	Rectifier input ,By-pass input ,Inverter output and UPS output voltages									
Power measurements	Output Watts ,output VA ,Load crest factor ,output power factor ,load percentage									
Current measurements	Rectifier input currents ,battery charge and discharge currents ,output load currents									
Frequency measurements	Rectifier input frequency ,by-pass input frequency ,output frequency									
Temperature measurements	Cabinet inside ,battery ambient temperature and optional sensors									
Maintenance indicators	Seperate Operating ,General ,battery ,Fan maintenance and optional hourmeters and warnings									
Overtemperature protection	2 electronic temperature sensors and thermal contacts									
Failure memory	Standard (records all measured parametres during failures)									
Factory settings memory	Standard (settings backup memory)									
Module communication	CAN interface									
Free software	T-Mon UPS Software (3 clients)									
Operating temperature	0 C - 40° C									
Protection	IP20									
Humidity (non condensed)	90% max									
Operating height	< 1000 m below sea level									
Noise level	<50 dBA									
Calibration over RS232	Available (Device calibrator software)									
Log download over RS232	Available (DLOG software)									
Weight without batteries (kgs)	87	87	91	100	173	180	185	236	236	270
Dimensions (HxWxD)	1040x400x810					1440x515x850				

**Continuous Power, Uninterruptible Life**

# DS-300 POWER SERIE

DSP+IGBT Rectifier



## UNINTERRUPTIBLE POWER SUPPLY 200-500 kVA

Cold Start  
High Input Power Factor  
High efficiency up to 94%  
External REPO switch input  
10 years spare parts support  
IGBT / Transformerless Technology  
DSP Control



## Pf: 0,9 True On-line 3:3 Phase UPS 200-500 kVA

### Technical Specifications

- Low input current total harmonic distortion (THD)
- Static and maintenance bypass switch
- Output and by-pass short circuit and overload protection
- 192 events memory (192 events 4500 alarms)
- Clock and calender (battery supported)
- Automatic battery test, remaining battery time indicator
- Temperature compansiated charge system
- Regenerative backfeed function
- 2 RS232 serial port and 12 dry contact outputs
- 3 DSP controlled modular structure
- Optional Graphical and touch panel
- CE ,ISO9001, ISO14001, GOST certification
- 2 years warranty



## Specifications

MODEL	DS3200	DS3250	DS3300	DS3400	DS3500
Power (kVA)	200	250	300	400	500
<b>INPUT</b>					
Voltage	380/400 VAC 3 phase+N+E -/+20% (415 VAC -25/+15% optional)				
Frequency	50/60 Hz selectable -/+5%				
Power Factor	>0,99				
Harmonic current distortion (THDI) (*)	<4%				
By-pass voltage	380/400 VAC 3 phase+N, 4 wires, -/+10%				
Voltage distortion	<10%				
Protection	Fuses, Voltage&Frequency tolerance, Input power limits, Phase sequency indicator				
<b>OUTPUT</b>					
Power (kW)	180	225	270	360	400
Power Factor	0,9				
Voltage	380/400 VAC 3 phase+N, -/+1% (optional)				
Frequency	50/60Hz selectable				
Tolerance of frequency	Line synchronized: -/+2% / Free running:-/+0,1% (adjustable)				
Efficiency	up to 95%				
Crest Factor	3:1				
Overload protection	100-125% load: 10 min. / 125-150% load: 1 min. / >150%load: by pass				
Other type of protections	Advanced short circuit, Voltage Tolerance, DC balance, Regenerative load, Current limiting				
THD (100% linear load)	<3%				
<b>BATTERIES</b>					
Type	VRLA AGM / GEL /NiCd				
Nominal Voltage	-/+ 360 VDC				
Float/End of discharge voltage	-/+ 405 VDC / -/+ 300 VDC				
Battery cabinet	External				
Temperature of Battery ambient	25C				
Protections	3 level alarms, Battery fuses, Charging current limit, Temperature compensation (optional)				
Automatic testing	Standard every 72 hours (adjustable)				
<b>GENERAL</b>					
Standards	EN 62040-1, EN 62040-2				
User Interface	TFT panel, 5 vector buttons, Buzzer				
Indicators	P-N voltage, P-P voltage, Current Power, Crest Factor, Frequency, PF, Service Time				
Advanced	Self Diagnostics, 3 maintenance time indicators, Calibration over RS 232, operating hourmeter				
Communication	2xRS232 serial ports 4 standard and 8 optional DRY contact alarm relays				
Type of inputs	EPO input interactive battery panel input Genset input				
Genset kit	Standard (programmable)				
Software	Standard T-Mon UPS Management software (3 clients + 1 server management)				
Alarm logging	Standard: With time & date 512 events				
Protections	Power module over-temperature, Overcurrent, High temperature alarm				
Temperature range	0 °C - 40°				
Protection degree	IP20				
Relative humidity	90 % max. (noncondensed)				
Altitude	< 1000m. above sea level				
Noise level	< 68 dBA		< 72 dBA		
Weight without batteries (kgs)	482	550	638	737	780
Dimensions (HxWxD)	1900 x 880 x 775		1900 x 1250 x 775		2020 x 1250 x 775
<b>OPTIONS</b>					
Different type of input/output voltage	Please ask				
Transformer	Galvanic isolation transformer at the input & output				
Software	T-Mon Admin Multi UPS monitoring 10-50-100-200 clients, T-Mon Server 50-100-200 clients				
Adaptors	SNMP, RS485, Remote monitoring panel, MODBUS (RS485 or TCP/IP) USB Alarm Logger, TCP/IP, GSM/GPRS Modem, Comport multiplexer				
Redundancy/Parallel operation	up to 8				

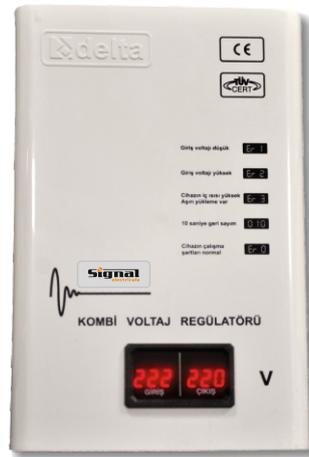
(\*) Depending on input line conditions and power

## Continuous Power, Uninterruptible Life

# MCU 8 SERIE

## MINI SMART STABILIZERS 0,5-20 kVA WITH RELAY

Relay Type SGL MCU 8 Series Single Phase Digital Stabilizers (0,5-20kVA) protect your home devices against voltage fluctuations, lengthens their life. They can be used for wall hung water boilers, DVD players, music centres, LCD & Plazma TV, Satellite receivers etc. to obtain much better efficiency.



## For small home Appliances 0,5-20 kVA

### Technical Specifications

- Type: MCU-8 relay
- Single phase
- Power: 0.5 - 20 KVA
- Input: 130 VAC / 260 VAC, 100 VAC / 240 VAC
- Output: 220 VAC  $\pm$ 2%
- Efficiency: %96
- Regulation speed: 500 V/s
- Working conditions: -40°C / +60°C
- Protection: Overvoltage, low and high voltage protection, temperature
- Smart Cooling Fan



Specifications							
MODEL	MCU 8-500	MCU 8-1000	MCU 8-2000	MCU 8-3500	MCU 8-5000	MCU 8-10000	MCU 8-20000
Power kVA	0,5	1	2	3,5	5	10	20
<b>REGULATOR INPUT</b>							
In.Vol.Operating.Interval	130 - 260 Volt						
Operation Frequency	47...65 Hz						
Line Input Protection	Overcurrent,Low,High Voltage Protection						
<b>REGULATOR OUTPUT</b>							
Output Voltage	220 VAC RMS $\pm$ 2 %						
Overloading	10 Seconds 150 % Load						
Correction Speed	500 Volt/Second						
Upturn Period	500 Volt/Second						
Output Protection	Protects load by opening the circuit when overload, short circuit occurs						
<b>WORKING PRINCIPLE</b>							
	Relay type						
<b>GENERAL</b>							
Cooling	Smart Fan System						
Measured Value Monitor	Input and Output Voltage Display Screen						
Total Harmonic Distortion	-						
Total Efficiency	> 96 %						
Mechanical By-Pass	Manually Controlled Line						
Protection Level	IP 20 // IP 25						
<b>ENVIRONMENTAL</b>							
Operation Temperature	-10 °C / 50 °C						
Storage Temperature	-25 °C / 60 °C						
Relative Humidity	< 90 %, DIN ( 40040 )						
Operation Altitude	< 2000 m.						
Acoustic Level	< 50 dB (1 metersquare)						
<b>BOYUTLAR</b>							
HxWxD (cm)	30 x 17 x 9		37 x 30 x 21			44 x 33 x 24	51 x 39 x 39
Weight (kg)	2,8	3,6	11	12,6	15	28	51

**Continuous Power, Uninterruptible Life**

# MCU AVR SERIE

## AUTOMATIC VOLTAGE STABILIZERS 5-45 kVA

Singlephase, 5 - 7,5 - 10 - 15 kVA  
Triphase, 15 - 22,5 - 30 - 45 kVA



**Developed  
with Support  
from TUBITAK  
High Efficiency,  
Compact Design**

### Technical Specifications

- Overburden /over voltage&over current protection
- Low voltage protection
- Phase protection
- Wide power and voltage interval
- Fast regulation
- Microprocessor control,smart driver and highest reliability
- High efficiency
- Non linear charges drive ability
- Load transfer to bypass by polar switch
- Offers economical solutions for it's application areas
- Input&output voltages digitally displayed
- Monophase types can be wall mounted



Specifications								
	Singlephase				Triphase			
MODEL	AVR 5000	AVR 7500	AVR 10000	AVR 15000	AVR 15000	AVR 22500	AVR 30000	AVR 45000
Power kVA	5	7,5	10	15	15	22,5	30	45
<b>REGULATOR INPUT</b>								
In.Vol.Correct.Interval	160 - 260 VAC				275 - 450 VAC			
Operation Frequency	47...65 Hz							
Line Input Protection	Phase sequence, Overcurrent, Low and High voltage protection							
<b>REGULATOR OUTPUT</b>								
Output Voltage	220 / 230 / 240 VAC RMS $\pm$ %2				380 / 400 / 415 VAC RMS $\pm$ %2			
Overloading	10 Sec. % 200 Load							
Correction Speed	~ 90 Volt / Sec.							
Upturn Period	~ 90 Volt / Sec. ( 160 VAC - 260 VAC )				~ 90 Volt / Sec. ( 275 VAC - 450 VAC )			
Output Protection	Protects load by opening the circuit when overload, short circuit occurs.							
<b>WORKING PRINCIPLE</b>								
	Servo Motor, Microprocessor Controlled, Full Automatic							
<b>GENERAL</b>								
Cooling	Smart Fan System							
Measured Value Monitor.	DELTA TRUE RMS Panel Voltmeter (74x74 mm) output voltage and line voltage monitoring							
Total Harmonic Distortion	-							
Total Efficiency	> % 96							
Mechanical By-Pass	"Manually Controlled Line - Rotary Switch Selects Voltage Regulator" Switch Turn On / Off							
Protection Level	IP 21 (Standard)							
<b>ENVIRONMENTAL</b>								
Operating Temperature	-10 °C / 50 °C							
Storage Temperature	- 25 °C / +60 °C							
Relative Humidity	< % 90, DIN ( 40040 )							
Operating Altitude	< 2000 m.							
Acoustic Level	< 50 dB ( 1 metersquare )							
<b>DIMENSIONS (cm)</b>								
HxWxD (cm)	38 x 26 x 43	38 x 26 x 43	38 x 26 x 43	41 x 28 x 45	116 x 50 x 46	116 x 50 x 46	212 x 60 x 44	212 x 60 x 44
Weight (kg)	26	28	30	34	105	110	120	125

**Continuous Power, Uninterruptible Life**

# **SGL SRV II SERIE**

## **FULL AUTOMATIC AC SERVO VOLTAGE STABILIZERS 1-50 kVA**

SGL Voltage regulators are servo drive structure, microcontroller controlled heavy duty devices which regulates mains voltage for critical loads.



## **Full Automatic Monophase 1-50 kVA**

### **Technical Specifications**

- SGL SRV11 series 1 phase in / 1 phase out (1-50 kVA)
- SGL SRV11 series are Single Phase phase voltage stabilizers regulate mains voltage and bring many advantages.
- Non-linear charges drive
- 1 phase input 1 phase output
- Wide power and voltage interval
- Fast Regulation
- High reliability thanks to Microprocessor and Smart Driver
- High efficiency
- Load transfer to Bypass via pole charge switch
- Safe and economic usage
- Overcurrent and overload protection (Optional)
- Digitally displayed status, input & output measurements
- 2 years warranty
- 10 years spare parts support.



<b>Specifications</b>															
<b>MODEL</b>	<b>1101</b>	<b>1102</b>	<b>1103</b>	<b>1105</b>	<b>1107</b>	<b>1110</b>	<b>1115</b>	<b>1120</b>	<b>1125</b>	<b>1130</b>	<b>1140</b>	<b>1150</b>			
<b>Power kVA</b>	1	2	3.5	5	7.5	10	15	20	25	30	40	50			
<b>REGULATOR INPUT</b>															
<b>In.Vol.Correct.Interval</b>	110 - 240 / 160 - 260 / 180 - 260 VAC														
<b>In.Vol.Working Interval</b>	90 - 285 VAC														
<b>Operation Frequency</b>	47..65 Hz														
<b>Line Input Protection</b>	Overcurrent, Low and High voltage protection														
<b>REGULATOR OUTPUT</b>															
<b>Output Voltage</b>	220 / 230 / 240 VAC RMS ± %1														
<b>Overloading</b>	10 Sec. % 200 Load														
<b>Correction Speed</b>	~ 90 Volt / Sec.														
<b>Upturn Period</b>	~ 90 Volt / Sec. ( 160 VAC - 260 VAC )														
<b>Output Protection</b>	Protects load by opening the circuit when overburden, short circuit occurs.														
<b>WORKING PRINCIPLE</b>															
	Servo Motor, Microprocessor Controlled, Full Automatic														
<b>GENERAL</b>															
<b>Cooling</b>	Smart Fan System														
<b>Measured Value Monitor.</b>	DELTA TRUE RMS Panel Voltmeter (74x74 mm) output voltage and line voltage monitorization														
<b>Total Harmonic Distortion</b>	-														
<b>Total Efficiency</b>	> % 96														
<b>Mechanical By-Pass</b>	"Manually Controlled Line - PAKO SWITCH Selects Voltage Regulator" Switch Turn On / Off														
<b>Protection Level</b>	IP 20 // IP 25														
<b>ENVIRONMENTAL</b>															
<b>Working Temperature</b>	-10 °C / 50 °C														
<b>Storage Temperature</b>	-25 °C / +60 °C														
<b>Relative Humidity</b>	< % 90, DIN ( 40040 )														
<b>Working Altitude</b>	< 3000 m.														
<b>Acoustic Level</b>	< 50 dB ( 1 metersquare )														
<b>Documents</b>	CE // TÜV Austria Hellas (ISO 9001)														
<b>DIMENSIONS (cm)</b>															
<b>HxWxD (cm)</b>	27 x 45 x 35			27 x 55 x 35			32 x 60 x 40			85 x 50 x 50			85 x 50 x 60		
<b>Weight (kg)</b>	15	18	29	41	48	55	75	125	136	163	180	200			

**Continuous Power, Uninterruptible Life**

# **SGL SRV**

## **33 SERIE**

### **FULL AUTOMATIC AC SERVO VOLTAGE STABILIZERS 3-150 kVA**

SGL Voltage regulators are servo drive structure, microcontroller controlled heavy duty devices which regulates mains voltage for critical loads.



### **Full Automatic Triphase 3-150 kVA**

SINGLE PHASE 100-110-115-120  
127-200-220-230-240-265-277 Volt  
TRIPHASE 208-220-230  
240-380-400-415-440-460  
480-500 Volt  
IP20, IP21, IP31, IP44, IP54,  
Versions Available

### **Technical Specifications**

- SGL SRV33 Series 3 phase in / 3 phase out (3-150 kVA)
- SGL SRV33 series are three phase voltage stabilizers regulates mains voltage and brings many advantages.
- Non-linear charges drive
- 3 phase input 3 phase output
- Wide power and voltage interval
- Fast Regulation
- High reliability thanks to Microprocessor and Smart Driver
- High efficiency
- Load transfer to Bypass via pole change switch
- Safe and economic usage
- Overcurrent and overload protection (Optional)
- Digitally displayed status, input & output measurements
- 2 years warranty
- 10 years spare parts support.



Specifications												
MODEL	33003	33006	33010	33015	33020	33030	33045	33060	33075	330100	330120	330150
Power kVA	3	6	10,5	15	22,5	30	45	60	75	100	120	150
<b>REGULATOR INPUT</b>												
In.Vol.Correct.Interval	190 - 485 VAC / 275 - 450 VAC / 310 - 450 VAC											
In.Vol.Working Interval	155 - 490 VAC											
Operation Frequency	47...65 Hz											
Line Input Protection	Overcurrent, Low and High voltage protection											
<b>REGULATOR OUTPUT</b>												
Output Voltage	380 / 400 / 415 VAC RMS $\pm$ %1											
Overloading	10 Sec. % 200 Load											
Correction Speed	~ 90 Volt / Sec.											
Upturn Period	~ 90 Volt / Sec. ( 160 VAC - 250 VAC )											
Output Protection	Protects load by opening the circuit when overburden, short circuit occurs.											
<b>WORKING PRINCIPLE</b>												
	Servo Motor, Microprocessor Controlled, Full Automatic											
<b>GENERAL</b>												
Cooling	Smart Fan System											
Measured Value Monitor.	DELTA TRUE RMS Panel Voltmeter (74x74 mm) output voltage and line voltage monitorization											
Total Harmonic Distortion	-											
Total Efficiency	> % 96											
Mechanical By-Pass	"Manually Controlled Line - PAKO SWITCH Selects Voltage Regulator" Switch Turn On / Off											
Protection Level	IP 20 // IP 25											
<b>ENVIRONMENTAL</b>												
Working Temperature	-10 °C / 50 °C											
Storage Temperature	- 25 °C / +60 °C											
Relative Humidity	< % 90, DIN ( 40040 )											
Working Altitude	< 3000 m.											
Acoustic Level	< 50 dB ( 1 metersquare )											
Documents	CE // TÜV Austria Hellas (ISO 9001)											
<b>DIMENSIONS (cm)</b>												
HxWxD (cm)	110 x 50 x 44				119 x 60 x 44			140 x 85 x 64			163 x 90 x 69	
Weight (kg)	75	90	125	135	154	181	227	330	356	456	520	600

**Continuous Power, Uninterruptible Life**

# **SGL SRV**

## **33 HI SERIE**

### **FULL AUTOMATIC AC SERVO VOLTAGE STABILIZERS 200-3000 kVA**

SGL Voltage regulators are servo drive structure, microcontroller controlled heavy duty devices which regulates mains voltage for critical loads.



### **Full Automatic Triphase 200-3000 kVA**

SINGLE PHASE 100-110-115-120  
127-200-220-230-240-265-277 Volt  
TRIPHASE 208-220-230  
240-380-400-415-440-460  
480-500 Volt  
IP20, IP21, IP31, IP44, IP54,  
Versions Available

#### **Technical Specifications**

- SGL SRV33 Series 3 phase in / 3 phase out (200-3000 kVA)
- SGL SRV33 series are three phase voltage stabilizers regulates mains voltage and brings many advantages.
- Non-linear charges drive
- 3 phase input 3 phase output
- Wide power and voltage interval
- Fast Regulation
- High reliability thanks to Microprocessor and Smart Driver
- High efficiency
- Load transfer to Bypass via pole charge switch
- Safe and economic usage
- Overcurrent and overload protection (Optional)
- Digitally displayed status, input & output measurements
- 2 years warranty
- 10 years spare parts support.



## Specifications

MODEL	330200	330250	330300	330400	330500	330600	330800	331000	331250	331600	332000	332500	333000	
Power kVA	200	250	300	400	500	600	800	1000	1250	1600	2000	2500	3000	
<b>REGULATOR INPUT</b>														
In.Vol.Correct.Interval	190 - 485 VAC / 275 - 450 VAC / 310 - 450 VAC													
In.Vol.Working Interval	155 - 490 VAC													
Operation Frequency	47...65 Hz													
Line Input Protection	Overcurrent, Low and High voltage protection													
<b>REGULATOR OUTPUT</b>														
Output Voltage	380 / 400 / 415 VAC RMS $\pm$ %1													
Overloading	10 Sec. % 200 Load													
Correction Speed	~ 90 Volt / Sec.													
Upturn Period	~ 90 Volt / Sec. ( 160 VAC - 250 VAC )													
Output Protection	Protects load by opening the circuit when overburden, short circuit occurs.													
<b>WORKING PRINCIPLE</b>														
	Servo Motor, Microprocessor Controlled, Full Automatic													
<b>GENERAL</b>														
Cooling	Smart Fan System													
Measured Value Monitor.	DELTA TRUE RMS Panel Voltmeter (74x74 mm) output voltage and line voltage monitorization													
Total Harmonic Distortion	-													
Total Efficiency	> % 97													
Mechanical By-Pass	"Manually Controlled Line - PAKO SWITCH Selects Voltage Regulator" Switch Turn On / Off													
Protection Level	IP 20 // IP 25 (Standart)													
<b>ENVIRONMENTAL</b>														
Working Temperature	-10 °C / 50 °C													
Storage Temperature	- 25 °C / +60 °C													
Relative Humidity	< % 90, DIN ( 40040 )													
Working Altitude	< 3000 m.													
Acoustic Level	< 50 dB ( 1 metersquare )													
Documents	CE // TÜV Austria Hellas (ISO 9001)													
<b>DIMENSIONS (cm)</b>														
HxWxD (cm)	172 x 60 x 70 (3 Pieces)			170 x 60 x 117 (3 Pieces)			185 x 70 x 80 (6 Pieces)			195 x 80 x 100 (6 Pieces)			205x140x100 (6 Pieces)	
Weight (kg)	1050	1150	1250	1600	2000	2500	2750	3500	3750	4750	6000	7500	8500	

**Continuous Power, Uninterruptible Life**

# **SGL STK II SERIE**

## **STATIC VOLTAGE STABILIZERS 10-50 kVA**

SGL - Monophase  
Static Voltage Regulators;  
are complete electronical voltage  
regulators which contain  
no any moving piece inside



## **Static Voltage Stabilizers Monophase 10-50 kVA**

### **Technical Specifications**

- 1000 Volt / Second
- RISC Microprocessor Control,
- Excellent Dynamic, Static Regulation,
- Large Input Voltage Working Range, 130-270 VAC
- Electronic Protection against overload and short circuit,
- 220 VAC  $\pm$  % 2 Regulation,
- Load level, Output ve Input Display
- Excessive voltage protection up-down limits.
- SGL Static stabiliser is used when the speed of operation represents a critical issue (for example, computers, laboratory equipment, measuring benches and medical instrumentation).
- The voltage stabilizer does not provide galvanic separation between input and output.
- The equipment is usually housed in a metal enclosure with RAL7035 finish and IP21 protection degree, suitably sized according to the power rating.
- High Efficiency



Specifications									
MODEL	1105	117,5	1110	1115	1120	1125	1130	1140	1150
Power kVA	5	7,5	10	15	20	25	30	40	50
<b>REGULATOR INPUT</b>									
In.Vol.Correct.Interval	160 - 250 VAC								
In.Vol.Working Interval	90 - 285 VAC								
Operation Frequency	47...65 Hz								
Line Input Protection	Overcurrent thermic fuse and sudden overburden protection								
<b>REGULATOR OUTPUT</b>									
Output Voltage	220 VAC RMS $\pm$ % 2								
Overloading	10 Sec. % 200 Load				% 500 Load 20 ms				
Correction Speed	~ 1000 Volt / Sec.								
Upturn Period	20 ms								
Output Protection	Short circuit, overburden, overcurrent electronic protection, protects load via opening control								
<b>WORKING PRINCIPLE</b>									
Microprocessor controlled, full automatic, static, semi conductor electronic structure maintenance free									
<b>CONTROL PANEL</b>									
Display and Buttons	Display Screen								
Alert Message	Input Low / Hi, Output Low / Hi, Over temperature (Smart Fan System)								
Meas.Value Monitorization	Output Voltage, Network Voltage								
Out. Up. Protect.limit	Standart								
Out. Sub Protect.limit	Standart								
Regulation Voltage	Standart								
<b>GENERAL</b>									
Total Efficiency	> % 97 ( Full Load )								
Mechanical ByBass	"Manually Controlled Line - PAKO SWITCH Selects Voltage Regulator" Switch Turn On / Off								
Protection Level	IP 20 // IP 25								
<b>ENVIRONMENTAL</b>									
Working Temperature	-10 °C / 50 °C								
Storage Temperature	- 25 °C / +60 °C								
Relative Humidity	< % 90, DIN ( 40040 )								
Working Altitude	< 3000 m.								
Noise Level	< 50 dB ( 1 squaremeter )								
Documents	ISO 9001 // Ce // TÜV Austria Hellas								
Dimensions	42 x 46 x 22 cm			48 x 50 x 27 cm		32 x 60 x 40 cm		127 x 41 x 62 cm	
Weight	30	33	38	40	48	75	80	160	165

**Continuous Power, Uninterruptible Life**

# SGL STK 33 SERIE

## STATIC VOLTAGE STABILIZERS 30-2000 kVA

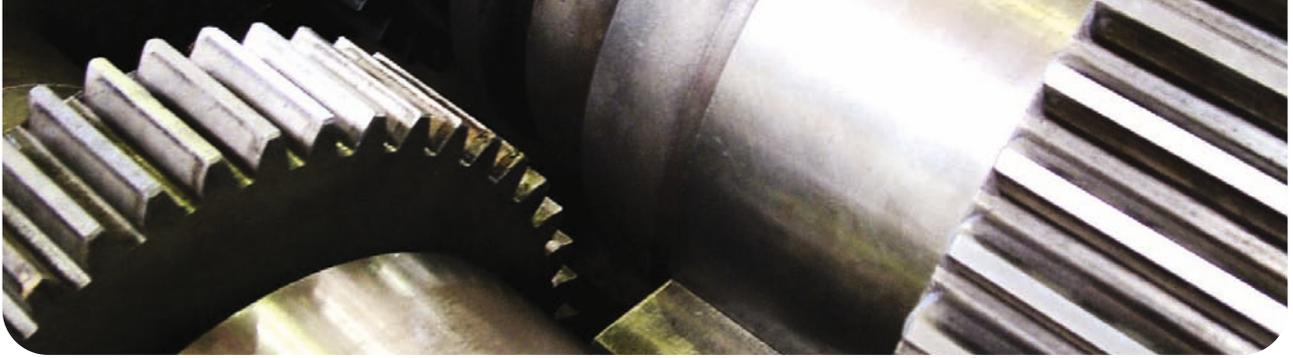
SGL Threephase Static Voltage Stabilizers are:  
Multi-tap autotransformer;  
Microprocessor control system.



## Static Voltage Stabilizers Triphase 30-2000 kVA

### Technical Specifications

- Power 30 - 2000 kVA
- Input Voltage 155 - 490 VAC 3 Phase
- Input Frequency 50 Hz
- Output Voltage 380 VAC  $\pm$  % 2 3 F+ N
- Regulation Rate 1000 V / Sec.
- Efficiency >% 97
- Operating Temperature 0 °C - 40 °C
- Overload 20 ms for % 500 over load
- Relative Humidity up to % 0 - % 95
- Acoustic Noise < 50 dBA
- Basic Advantages:
  - Sensitive and fast TRUE RMS reading modul
  - in 20 mil second reading
  - Fast regulation modul
  - 200 V x 50Hz = 10.000 V / Sec.
  - Improvable output regulation structure
  - Reading power parameters
  - Modular card structure
  - No need maintenance. It is completely static.
  - Ability to work under whatever with  $\cos \mu$  load
  - Ability to discriminate Non-Linear load and short circuit.
  - In the case of short circuit It prevents blowing of fuse
  - Reoperating from short circuit.
  - In the case short circuit none of static switch is to spoil



Specifications																
MODEL	330030	330045	330060	330100	330120	330150	330200	330250	330300	330400	330500	330800	331000	331600	332000	
Power kVA	30	45	60	100	120	150	200	250	300	400	500	800	1000	1600	2000	
<b>REGULATOR INPUT</b>																
In.Vol.Correct.Interval	275 - 440 VAC															
In.Vol.Working Interval	155 - 490 VAC															
Operation Frequency	47...65 Hz															
Line Input Protection	Overcurrent thermic fuse and sudden overburden protection															
<b>REGULATOR OUTPUT</b>																
Output Voltage	380 / 400 / 415 VAC RMS $\pm$ %2															
Overloading	10 Sec. % 200 Load							% 500 Load 20 ms								
Correction Speed	~ 1000 Volt / Sec.															
Upturn Period	20 ms															
Output Protection	Short circuit, overburden, overcurrent electronic protection, protects load via opening control															
<b>WORKING PRINCIPLE</b>																
Microprocessor controlled, full automatic, static, semi conductor electronic structure maintenance free																
<b>CONTROL PANEL</b>																
Display and Buttons	Display Screen															
Alert Message	Input Low / Hi, Output Low / Hi, Over temperature (Smart Fan System)															
Meas.Value Monitorization	Output Voltage, Network Voltage															
Out. Up. Protect.limit	Standart															
Out. Sub Protect.limit	Standart															
Regulation Voltage	Standart															
<b>GENERAL</b>																
Total Efficiency	> % 97 ( Full Load )															
Mechanical ByBass	"Manually Controlled Line - PAKO SWITCH Selects Voltage Regulator" Switch Turn On / Off															
Protection Level	IP20															
<b>ENVIRONMENTAL</b>																
Working Temperature	-10 °C / 50 °C															
Storage Temperature	- 25 °C / +60 °C															
Relative Humidity	< % 90, DIN ( 40040 )															
Working Altitude	< 2000 m.															
Noise Level	< 50 dB ( 1 metersquare )															
Documents	ISO 9001 // Ce // TÜV Austria Hellas															
Dimensions (HxWxD)	140 x 40 x 60			160 x 55 x 70			160 x 120 x 95			165 x 140 x 120			200 x 210 x 125			
Weight	130	170	220	250	290	400	800	900	1000	1100	1250	1600	2000	2400	3000	

**Continuous Power, Uninterruptible Life**

# SGL FC 300 SERIE

## FREQUENCY CONVERTER 10-200 kVA

The device may also change the voltage, but if it does, that is incidental to its principal purpose.



### Specifications

SGL FC300 Series, 3 phase frequency converters PWM controlled, IGBT technology and system is controlled from a microprocessor.

Frequency changer or frequency converter refers to an electronic device that converts alternating current (AC) of one frequency to alternating current of another frequency. The device may also change the voltage, but if it does, that is incidental to its principal purpose.

#### Why We Need to Use An Frequency Converter ?

Your national electricity voltage and frequency is not suitable for your equipment in this case you need a frequency and voltage changer device, transformers can change only voltage not the frequency.

Common frequency ranges are 50 Hertz, 60 Hertz and 400 Hertz values

MODEL SELECTION TABLE

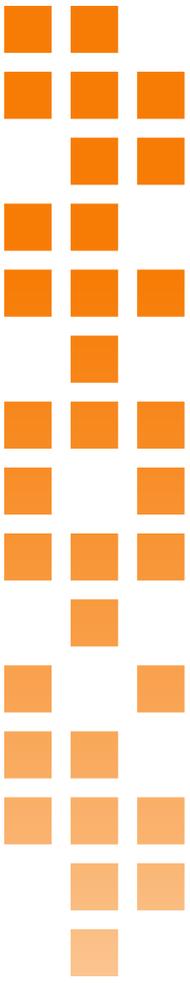
Model	Output power	Input frequency	Output frequency
FC310	10 kVA	50/60 Hz	50/60/400 Hz
FC315	15 kVA	50/60 Hz	50/60/400 Hz
FC320	20 kVA	50/60 Hz	50/60/400 Hz
FC330	30 kVA	50/60 Hz	50/60/400 Hz
FC340	40 kVA	50/60 Hz	50/60/400 Hz
FC360	60 kVA	50/60 Hz	50/60/400 Hz
FC380	80 kVA	50/60 Hz	50/60/400 Hz
FC3100	100 kVA	50/60 Hz	50/60/400 Hz
FC3120	120 kVA	50/60 Hz	50/60 Hz
FC3160	160 kVA	50/60 Hz	50/60 Hz
FC3200	200 kVA	50/60 Hz	50/60 Hz

## 3 Phase Frequency Converters PWM Controlled

Voltage	230/400 VAC 3 phase, 4 cable, +/-20%
Frequency	See model selection table
Voltage THD	<10%
EMI	EN50091-2 Class A
Protections	Input fuse, voltage low and high alarm
OUTPUT	
Power (Kw)	10-200 kVA range
Power factor	Standard 0,8 or special product
Voltage / frequency	See model selection table
Frequency tolerant	+/- 0,2%
Protections	Overload, short circuit, voltage low and high alarm
Crest factor	3:1
Overload	100-125% load 10 mins, 125-150% 1 min, >150% output inhibit
THD (full load)	<3%
GENERAL	
Human interface	Alphanumeric LCD panel, mimic lamps, control buttons
Parallel	Available as option
Alarm memor	128 events, 4000 alarms with time and date
Clock and calendar	Standard
Communication	RS232 serial port
Protections	Overtemperature and overload protection
Ambient temperature	0-40 C
Protection degree	IP20
Humidity / altitude	%90 (non condensed) / <1000 m below sea level



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