

DT-200 Serie

3:1 Phase Uninterruptible
Power Supply 6-30kVa



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

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
- 2 years warranty
- 10 years spare parts support
- CE, TUV, ISO9001, ISO14001 certificates

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

Specifications

MODEL	D T 206	D T 207	D T 210	D T 215	D T 220	D T 230
Power	6 kVA	7.5 kVA	10 kVA	15 kVA	20 kVA	30 kVA
INPUT						
Voltage	220/380 Vac (230/400 Vac) 3 phase + Neutral + Earth ,+/-15%					
By-pass Voltage	220 Vac, +/- 10%					
Frequency	50 Hz/60 Hz +/- 5%					
EMI	EN62040-2					
Current	3 x 13A	3 X 16A	3 X 21A	3 X 31A	3 X 42A	3 X 62A
Input Voltage Protection	electronic input voltage out of tolerant protection					
OUTPUT						
Power (kW)	4.2	5.25	7	10.5	14	21
Power Factor	0.7					
Voltage	220 Vac (230 Vac) ,Phase + Neutral					
Voltage Tolerance	+- 1%					
Frequency	50 Hz (60 Hz special product)					
Frequency Tolerance	+/-2% (synchron) +/- 0,2% (free running)					
Efficiency 100% Load	86% (full load)					
THD (Total Harmonic Distortion)	< 3% (linear load) < 5% (non linear load)					
Crest Factor	3:1					
Overload Protection	100%125% load :10 dk 126%150% load :1 dk >,150% load : by-pass					
Short Circuit Protection	electronic protection					
Output Voltage Protection	electronic output voltage out of tolerant protection					
BATTERY						
Type	Maintenance free sealed lead acid					
Batteries	20			30		
Charge Voltage	270 VDC			405 VDC		
Discharge End Voltage	200 VDC			300 VDC		
Battery Cabinet	Standard backup time internal (others external)					
Ambient Temperature	25 C					
Battery Protection	Battery fuse , battery voltage low and high alarm (3 levels)					
Battery Test	Optional			standard automatic every 72 hours		
GENERAL						
Operating Temperature	0 C - 40 C					
Noise Level	< 45 dBA			< 55 dBA		
Protection	IP20					
Altitude	< 2000 m					
Humidity (Non Condensed)	< 90%					
Weight (Without Batteries) (Kg)	106	110	125	130	195	217
Dimensions (mm) HxWxD	950x265x740			1220x500x 650		
Interface	Alphanumeric LCD panel, mimic lamps and control buttons					
Communication	RS232+dry contact					
Software	T-Mon UPS Software(3 clients)					
Overtemperature Protection	Electronic overtemperature protection					

Crystal Serie

Uninterruptible Power Supply
1-10kVA



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

1-2-3 kVA

6-10 kVA
3 Level Technology
PF: 1

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.
- 6 & 10 kVA 3 Level Technology and PF: 1.
- 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 J).
- Short circuit and overload protections.
- Fan speed automatically changes as load varies.
- Optional external battery pack.
- EMI / RFI noise filter.
- R5232 (SNMP Optional).
- Shutdown & Restart schedule.

Specifications

Specifications

Model	CL1000	CL2000	CL3000	CL6000	CL10000
Capacity	1KVA	2KVA	3KVA	6KVA	10KVA
Input					
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	
Output					
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	0.9			1	
Voltage distortion	± 1%				
DC component voltage	≤200mv				
Output current crest factor	3:1				
Rated frequency					
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%				
Transfer time					
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%			≥92%
	ECO mode	≥94%			
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;	
Battery					
Battery type	Lead Acid maintenance free battery				
DC voltage	24V DC	48V DC	72V DC	192V DC	192V DC
Inbuilt battery	9AH/12V	9AH/12V	9AH/12V	9AH/12V	9AH/12V
Battery quantity	2	4	6	16	16
Charge					
Output voltage	27.5 ± 0.4V	55 ± 0.6V	82.5 ± 0.9V	193.7 ± 0.9V	193.7 ± 0.9V
Charge method Three-stage charging					
Input voltage range	80VAC~300VAC or 40VAC~150VAC			150VAC~300VAC	
Charge current	Standard model: 1A; Long time model: 6A(Optional 12A)			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				
System Operating Environment					
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

100 Serie

Uninterruptible Power Supply
2-15kVA



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

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
- 2 years warranty
- 10 years spare parts support
- CE, TUV, ISO9001, ISO14001 certificates

True On-line
1 Phase in
1 Phase out
2-15 kVA

Specifications

MODEL	LT 102	LT 103	LT 105	LT 107	LT 110	LT 115
Power	2 kVA	3 kVA	5 kVA	7 kVA	10 kVA	15 kVA
INPUT						
Voltage	220/230 VAC Phase+Neutral + Earth,+/-15%					
By-pass Voltage	220/230 VAC, +/- 10%					
Frequency	50Hz/60 Hz, +/- 5%					
EMI	EN62040-2					
Current	13 A	19 A	30 A	44 A	58 A	87 A
Input Frequency	50 Hz(60Hz special product), +/- %5					
Input Voltage Protection	electronic input voltage out of tolerant protection					
OUTPUT						
Power (kW)	1.3	1.95	3.25	4.55	7	10.5
Power Factor	0.65			0.7		
Voltage	220/230 VAC ,Phase+Neutral					
Voltage Tolerance	+- 1 %					
Frequency	50 Hz (60 Hz special product)					
Frequency Tolerance	+/-2% (synchron) +/- 0,2% (free running)					
Efficiency 100% Load	85-87%			86-90%		
THD (Total Harmonic Distortion)	<3% (linear load) <5% (non linear load)					
Crest Factor	3:1					
Overload Protection	100%125% load :10 mins. 126%150% load :1 min >150% load : by-pass					
Short Circuit Protection	electronic short circuit protection					
Output Voltage Protection	electronic output voltage out of tolerant protection					
BATTERY						
Type	Maintenance free sealed lead acid					
Batteries	14	14	16	18	20	20
Charge Voltage	189VDC	189VDC	216VDC	243VDC	270VDC	270VDC
Discharge End Voltage	140VDC	140VDC	160VDC	180VDC	200VDC	200VDC
Battery Cabinet	internal					external
Ambient Temperature	25 C					
Battery Protection	Battery fuse, battery voltage low and high protection (3 levels)					
Battery Test	Available as option					
Temperature Compansation	Available as option					
GENERAL						
Operating Temperature	0 C - 40 C					
Noise Level	< 42 dBA		< 45 dBA		< 55 dBA	
Protection	IP20					
Operating Altitude	< 2000 m					
Humidity (Non Condensed)	< 90%					
Weight (Without Batteries) (Kg)	50	55	60	75	85	112
Dimensions (mm) WxDxH	265x585x505		265x600x590		265x660x640	
					265x740x720	
					300x810x720	
Interface	Alphanumeric LCD panel, mimic lamps and control buttons					
Communication	RS232+dry contact					
Software	T-Mon UPS software(3 clients)					
Overtemperature Protection	Electronic overtemperature protection					

CYCLONE 100D Serie

Uninterruptible Power Supply
6-15kVA



SERVOTEKNIK Cyclone 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
- 128 log event records (5000 alarms)
- 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
- 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)

Specifications

MODEL	CL 106 D	CL 110 D	-CL 115 D
Type	Tower	Tower	Tower
INPUT			
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		
OUTPUT			
Power	6 kVA /4.2kW	10 kVA / 7kW	15 kVA /10,5 kW
Power / Crest factor	0.7 - 3:1		
Voltage	220-230 volts AC (+/- 1%) selectable(1phase+neutral)		
Current (100%load)	19 Amps	32 Amps	47 Amps
Frequency	50 Hz		
Frequency Tolerance	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		
BATTERY			
Type	Sealed Lead Acid		
Battery number	20x12V Standard		
Cabinet	internal		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)		
GENERAL			
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	430x215x600	590x215x780	
Weight	23kgs	39kgs	40kgs
Acoustic noise	<50dB		
Temperature range	0 C - 40 C		
Relative humidity	<90% (non condensed)		
Ventilation	Forced air cooling		
Altitude	2000 m. At nominal power		
Protection degree	IP20		

LT 300 LO Serie

Uninterruptible Power Supply
10-80kVA



SERVOTEKNIK 300 Lo series UPS, PWM controlled, IGBT technology, Microcontroller controlled, Sinusoidal wavetorm, 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 isolation transformer
- Up to 91% efficiency
- Static by-pass
- External REPO switch input
- 5 control buttons LCD alphanumeric display brings detailed monitoring of measured parameters.
- 128 events alarm memory (4000 alarms)
- Clock and calender (battery supported)
- Advanced battery management controls charge system battery test
- High performance at non-linear loads
- Dry contact simulation function
- Dial-up modem connection and setup
- Custom input voltage and frequency ranges
- Parallel operation up to 4 devices
- According to EC Directive; EN62040
- SNMP communication
- 2 years warranty
- 10 years spare parts support
- ISO9001, ISO14001, CE certification
- Optional MODBUS adaptor

Specifications

MODEL	LT 310	LT 315	LT 320	LT 330	LT 340	LT 360	LT 380
Power	10 kVA	15 kVA	20 kVA	30 kVA	40 kVA	60 kVA	80 kVA
INPUT							
Voltage	380/400 VAC 3 phase + neutral + earth , +/-15%						
By-pass voltage	380/400 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						
OUTPUT							
Power (kW)	8	12	16	24	32	48	64
Power factor	0,8						
Voltage	380/400 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 factor	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						
MODEL							
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 Compansation	Available as option						
GENERAL							
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						
Altitude	< 2000 m						
Noise level	< 56dBA			< 60 dBA			
Weight without batteries (kg)	220	260	260	290	415	465	595
Dimensions (mm) HxWxD	1150x505x655			1390x575x820		1450x720x820	
Overtemperature protection	electronic protection						

DL 300 HI Serie

Uninterruptible Power Supply
100-300kVA



SERVOTEKNIK 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 isolation transformer
- Up to 91% efficiency
- Static by-pass
- External REPO switch input
- 5 control buttons LCD alphanumeric display brings detailed monitoring of measured parameters.
- 128 events alarm memory (4000 alarms)
- Clock and calendar (battery supported)
- Advanced battery management controls charge system battery test
- High performance at non-linear loads
- Dry contact simulation function
- Dial-up modem connection and setup
- Custom input voltage and frequency ranges
- Parallel operation up to 4 devices
- According to EC Directive; EN62040
- SNMP communication
- 2 years warranty
- 10 years spare parts support
- ISO9001, ISO14001, CE certification
- Optional MODBUS adaptor

Specifications

MODEL	DL 3100	DL 3120	DL 3160	DL 3200	DL 3250	DL 3300
Power	100 kVA	120 kVA	160 kVA	200 kVA	250 kVA	300 kVA
INPUT						
Voltage	220 / 400 Vac 3 Phase +N, +/-% 15					
By-Pass Voltage	220 / 400 Vac 3 Phase +N, +/-% 10					
Input Frequency	50 Hz, +/- %5					
EMI	EN50091-2 Class A					
Input out of Tolerant Protection	Electronic input out of tolerant protection					
OUTPUT						
Power (kW)	80	96	128	160	200	240
Power Factor	0,8					
Voltage	220 / 400 Vac 3 Phase +N					
Frequency	50 Hz. (60Hz On Request)					
Frequency Tolerance	+/-2% (Line Synchronized) • +/-0,2% (Free Running)					
Efficiency at 100% Load	%90-92					
Crest Factor	3:1					
Overload Protection	100 % 125% Load : 10 min		• 125 % 150% Load : 1 min		• < 150 % Load : By-Pass	
Short Circuit Protection	Electroinc short circuit protection					
Voltage out of Tolerant Protection	Electronic out of tolerant protection					
Total Harmonic Distortion	< 3 %					
THD	Non Linear Load <%5					
BATTERIES						
Battery Type	Sealed Lead Acid - Maintenance Free					
Number of Batteries	30			32		
Float Charging Voltage	405 VDC			432 VDC		
End of Discharge Voltage	300 VDC			320 VDC		
Ambient Temperature C	25 C°					
Battery Voltage Protection	Electronic Battery out of tolerant protection					
Battery Protection	Automatic circuit breaker					
Battery Test	Automatic every 72 hours					
GENERAL						
Communication	RS232 + Dry Contacts					
Temperature Range	0 C° - 40 C°					
Humidity (Non Condensed)	90 % (Non condensed)					
Protection Degree	IP20					
Altitude	< 1000 m. above sea level					
Noise level	< 65 dBA			< 70 dBA		
Weight without batteries (kg)	750	765	810	970	1330	1370
Dimensions (mm) HxWxD	1650x1100x800		1730x1195x870		1880x1565x925	
Ventilation	Forced air cooling					
OPTIONS			ACCESSORIES			
Input Transformers	Galvanic isolation transformer at the input (in the external cabinet)		Monitoring and Control Software		T-MON 3 client standart	
Input THD	<10%(with 18 Pulse Rectifier ,according to UPS range		Multiserver Shutdown Unit		Available as option	
	5% (with 18 Pulse rectifier, + filter) upto 80 kVA		SNMP Communication Adaptor		Available as option	
Parallel Operation	1+3 Systems (N+1 redundant, redundant, symetric parallel)		Serial Port Enhancer		Available as option	
MBS	Maintenance by-pass switch for complete isolation (For 206,207 & 210)		ModBus Communication Adaptor		Available as option (over RS485 or over TCP/IP)	

SUPERIORplus

Uninterruptible Power Supply
10-120kVA



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.

Technical Specifications

- High efficiency (96%) with IGBT rectifier and 3L Inverter
- High efficiency operation with Eco mode (98%)
- Active input power factor correction (Pf 1)
- Active input current harmonics correction (TH DI <4%)
- Low output voltage THD (<2%)
- Smart charger can increase battery life by 40%
- Parallel operation
- Temperature compensated battery charging system
- Generator-compatible operation, external by-pass feature (Optional)
- Easily synchronized with external sources
- Remote monitoring and management software, programmable dry contacts
- Output by-pass overload and short-circuit protection
- Standard non-maintenance by-pass
- Small footprint with compact dimensions
- Low installation and operating costs
- Smart fan control (depending on temperature and load)
- Wide input voltage range
- Real-time status memory

On-line
3 Phase Input
3 Phase Output

Power Factor: 1
kVA=kWatt

Specifications

	SP 10 kVA	SP 15 kVA	SP 20 kVA	SP 30 kVA	SP 40 kVA	SP 60 kVA
Model (3 Ph/ 3 Ph)						
Nominal Active Power (Watt)	10.000	15.000	20.000	30.000	40.000	60.000
RECTIFIER INPUT						
Nominal Voltage	380/400/415 V (Ph-Ph) 3Ph+N					
Input Voltage Range (VAC) (at 50% Load)	Min. -35% / Max +25%					
Input Voltage Range (VAC) (at full Load, with battery charging)	Min. -18% / Max +18%					
Frequency (Hz)	50 /60 ± % 5					
Input Current Distortion Rate	< 5%					
Power Factor	> 0.99					
BYPASS						
Nominal Voltage	380/400/415 V (Ph-Ph) 3Ph+N					
Voltage Tolerance	± 10%					
Frequency Tolerance (Hz)	± 10%					
Transfer Time (ms)	< 0.01					
OUTPUT						
Nominal Voltage (VAC) (Ph-Ph)	380/400/415 V (Ph-Ph - Adjustable)					
Power Factor	1					
Efficiency	Up to 96% (*)					
Wave Form	Sinusoidal					
Frequency (Hz)	50 or 60 (Adjustable)					
Frequency Tolerance (Battery Operation)	0.01%					
Voltage Regulation (Static)	±1%					
Output Voltage Change at unbalance load	< % 0.5					
Maximum phase angle variation	< 0.1°					
Crest Factor	3:1					
Overload Protection (sec)	60 sec (at 100-125% Load) / 10 sec (at 126-150% Load)					
Total Harmonic Distortion	Linear load < %3 / Non linear load <% 5					
BATTERY						
Battery Type	Maintenance-Free Lead Acid Batteries					
Battery String (Blocks)	20-30	30			40	
Protections	Overload Protection, High Temperature, Input Over Voltage, Input & Output Over Current, Back-Feed Protection, Intelligent Charging Algorithm – Deep Charge Protection – Battery Test (Automatic/ Manual), Short- Circuit Protection					
COMMUNICATION						
Standard Interface	RS232 – EPO – External cabinet temperature					
Options	Modbus - 4 Programmable Relay-Contacts - SNMP					
ENVIRONMENT						
Operating Temperature Range (°C)	0 - 40 °C					
Battery Temperature Range (°C)	20 C - 25 °C (Recommended For Longer Battery Life)					
Maximum Altitude without Derating (m)	1000					
Relative Humidity Range	% 20-95 (Non-Condensing)					
Acoustic Noise (dBA)	< 55 (at 1m)					
PHYSICAL						
Dimensions (HxWxD) (mm)	855 x 300 x 715		990x 300 x 865		1200x430x960	1000X450X900
Weight (kg) (without battery)	53 Kg Pallet 44 Kg net		70 Kg Pallet 62 Kg net	75 Kg Pallet 67 Kg net	90 Kg Pallet 80 Kg Net	105 Kg Pallet 95 Kg net
Paint	RAL 9005					
STANDARDS						
Safety	IEC/EN 62040-1					
EMC	IEC/EN 62040-2					
Performance	IEC/EN 62040-3					
Design	ISO 9001:2008 - ISO 14001:2004					
Protection Class	IP 20 (other IP as option)					

**SERVOTEKNIK reserves the right to change the Technical Specifications and design without notice.

DS-300 Serie

Uninterruptible Power Supply
10-160kVA



Cold Start High Input Power Factor High efficiency up to 94% External REPO switch input
IGBT Transformerless Technology DSP Control.

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 certification
- 2 years warranty
- 10 years spare parts support

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

Specifications

MODEL	DS310	DS315	DS320	DS330	DS340	DS360	DS380	DS3100	DS3120	DS3160
Power(kVA)	10	15	20	30	40	60	80	100	120	160
INPUT										
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									
OUTPUT										
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									
BATTERY										
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									
FRONT PANEL										
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 (kgs) (without batteries)	87	87	91	100	173	197	209	220	232	265
Dimensions (HxWxD)	1040x400x810					1440x515x850				

DS-300 Power Serie

Uninterruptible Power Supply
200-500kVA



Cold Start **High Input Power Factor** High efficiency up to 94% **External REPO switch input**
IGBT Transformerless Technology DSP Control.

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 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 certification
- 2 years warranty
- 10 years spare parts support

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

Specifications

MODEL	DS3200	DS3250	DS3300	DS3400	DS3500
Power(kVA)	200	250	300	400	500
INPUT					
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				
Protection	Fuses, Voltage & Frequency tolerance, Input power limit, Phase sequency indicator				
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				
OUTPUT					
Power (kW)	180	225	270	360	400
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				
BATTERY					
Type	Maintenance free ,sealed lead acid				
Batteries	2X30=60 batteries				
Charge voltage	2x405 Vdc				
Discharge end voltage	2x300 Vdc				
Battery cabinet	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 compansation	Standard				
Battery remaining time indicator	Standard				
Battery fuses	Standard				
Deep discharge protection	Standard				
FRONT PANEL					
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	512 events				
Communication	2xRS232 serial ports, 4 standard and 8 optional DRY contact alarm relays				
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	< 68 dBA		< 72 dBA		
Calibration over RS232	Available (Device calibrator software)				
Log download over RS232	Available (DLOG software)				
Weight (kgs) (without batteries)	482	550	638	737	780
Dimensions (HxWxD)	1900 x 880 x 775		1900 x 1250 x 775		2020 x 1250 x 840

DL 300 HI Serie

Uninterruptible Power Supply
100-300kVA



SERVOTEKNIK 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 isolation transformer
- Up to 91% efficiency
- Static by-pass
- External REPO switch input
- 5 control buttons LCD alphanumeric display brings detailed monitoring of measured parameters.
- 128 events alarm memory (4000 alarms)
- Clock and calendar (battery supported)
- Advanced battery management controls charge system battery test
- High performance at non-linear loads
- Dry contact simulation function
- Dial-up modem connection and setup
- Custom input voltage and frequency ranges
- Parallel operation up to 4 devices
- According to EC Directive; EN62040
- SNMP communication
- 2 years warranty
- 10 years spare parts support
- ISO9001, ISO14001, CE certification
- Optional MODBUS adaptor

Specifications

MODEL	DL 3100	DL 3120	DL 3160	DL 3200	DL 3250	DL 3300
Power	100 kVA	120 kVA	160 kVA	200 kVA	250 kVA	300 kVA
INPUT						
Voltage	220 / 400 Vac 3 Phase +N, +/-% 15					
By-Pass Voltage	220 / 400 Vac 3 Phase +N, +/-% 10					
Input Frequency	50 Hz, +/- %5					
EMI	EN50091-2 Class A					
Input out of Tolerant Protection	Electronic input out of tolerant protection					
OUTPUT						
Power (kW)	80	96	128	160	200	240
Power Factor	0,8					
Voltage	220 / 400 Vac 3 Phase +N					
Frequency	50 Hz. (60Hz On Request)					
Frequency Tolerance	+/-2% (Line Synchronized) • +/-0,2% (Free Running)					
Efficiency at 100% Load	%90-92					
Crest Factor	3:1					
Overload Protection	100 % 125% Load : 10 min		125 % 150% Load : 1 min		< 150 % Load : By-Pass	
Short Circuit Protection	Electroinc short circuit protection					
Voltage out of Tolerant Protection	Electronic out of tolerant protection					
Total Harmonic Distortion	< 3 %					
THD	Non Linear Load <%5					
BATTERIES						
Battery Type	Sealed Lead Acid - Maintenance Free					
Number of Batteries	30			32		
Float Charging Voltage	405 VDC			432 VDC		
End of Discharge Voltage	300 VDC			320 VDC		
Ambient Temperature C	25 C°					
Battery Voltage Protection	Electronic Battery out of tolerant protection					
Battery Protection	Automatic circuit breaker					
Battery Test	Automatic every 72 hours					
GENERAL						
Communication	RS232 + Dry Contacts					
Temperature Range	0 C° - 40 C°					
Humidity (Non Condensed)	90 % (Non condensed)					
Protection Degree	IP20					
Altitude	< 1000 m. above sea level					
Noise level	< 65 dBA			< 70 dBA		
Weight without batteries (kg)	750	765	810	970	1330	1370
Dimensions (mm) HxWxD	1650x1100x800		1730x1195x870		1880x1565x925	
Ventilation	Forced air cooling					
OPTIONS			ACCESSORIES			
Input Transformers	Galvanic isolation transformer at the input (in the external cabinet)		Monitoring and Control Software		T-MON 3 client standart	
Input THD	<10%(with 18 Pulse Rectifier ,according to UPS range		Multiserver Shutdown Unit		Available as option	
	5% (with 18 Pulse rectifier, + filter) upto 80 kVA		SNMP Communication Adaptor		Available as option	
Parallel Operation	1+3 Systems (N+1 redundant, redundant, symetric parallel)		Serial Port Enhancer		Available as option	
MBS	Maintenance by-pass switch for complete isolation (For 206,207 & 210)		ModBus Communication Adaptor		Available as option (over RS485 or over TCP/IP)	