

ELECTROSOLAR



Inverter ORVALDI Solar Infini  
(see pages 4-5)

**HIT**



DC line

AC line

DC line



GRID

AC line

AC line

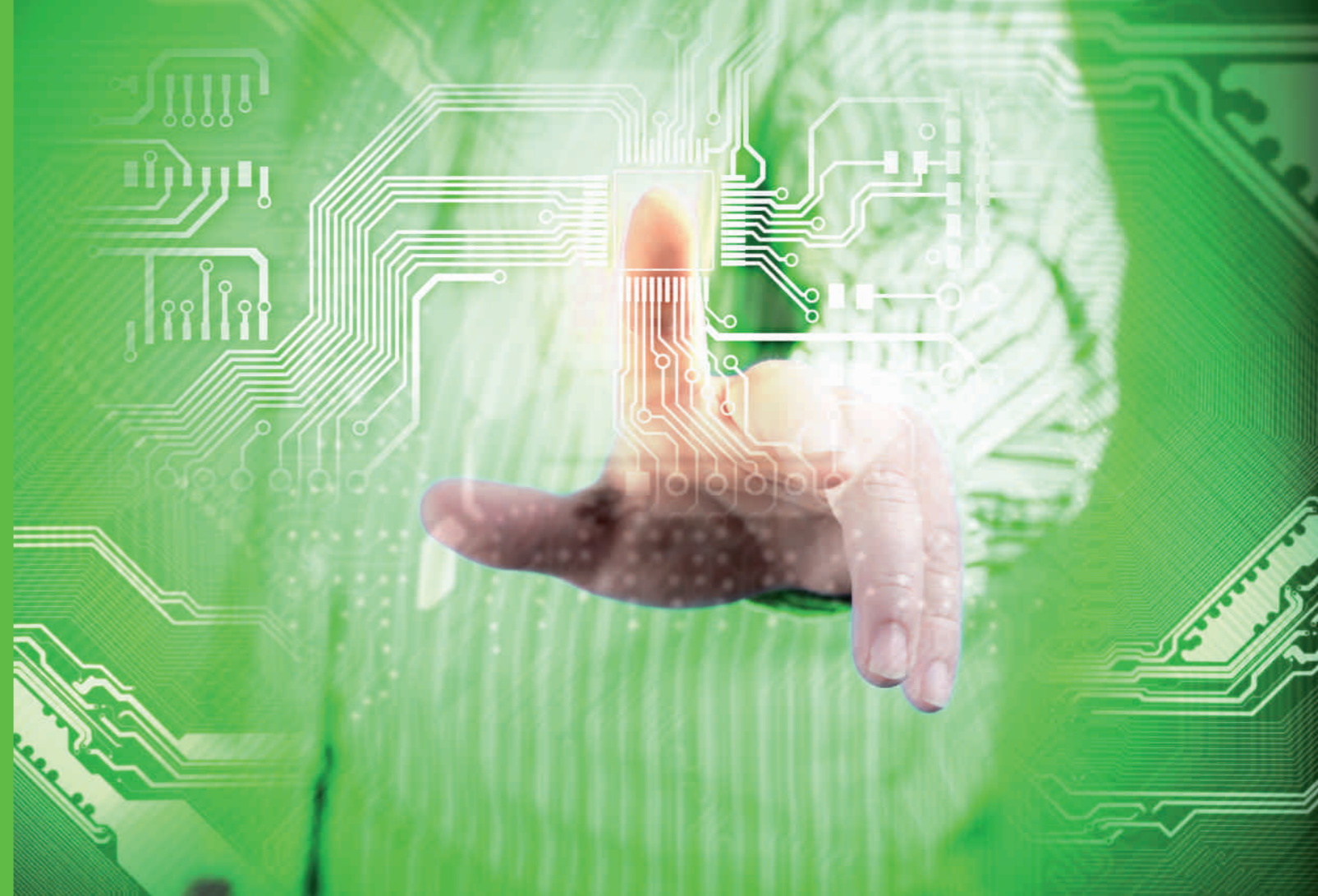


ENERGY METER



BATTERY

# SAVE ENVIRONMENT SAVE MONEY



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UPS - Power Protection Company

# CATALOGUE 2014/2015

# ORVALDI

## INVERTER MKS / KS to 4kW

**NEW**



- Pure sine wave inverter
- Selectable input voltage range for home appliances and personal computers
- Selectable charging current based on applications
- Configurable AC/Solar input priority via LCD setting
- Compatible to mains voltage or generator power
- Auto restart while AC is recovering
- Overload and short circuit protection
- Smart battery charger design for optimized battery performance
- Cold start function

This is a multi-function inverter/charger, combining functions of inverter, solar charger and battery charger to offer uninterruptible power support with portable size. Its comprehensive LCD display offers user-configurable and easy-accessible button operation such as battery charging current, AC/solar charger priority, and acceptable input voltage based on different applications.



MODEL	Orvaldi KS 1K	Orvaldi KS 3K	Orvaldi KS 4K	Orvaldi MKS 2K	Orvaldi MKS 3K	Orvaldi MKS 4K	Orvaldi MKS 5K
RATED POWER	1000VA/800W	3000VA/2400W	4000VA/3200W	2000VA/1600W	3000VA/2400W	4000VA/3200W	5000VA/4000W
INPUT							
Voltage	230 VAC	120 VAC or 230 VAC	230 VAC	230 VAC	230 VAC	230 VAC	230 VAC
Selectable Voltage Range	95-140 VAC (1K-24, 1K-48) or 170-280 VAC (For Personal Computers), 65-140 VAC (1K-24, 1K-48) or 90-280 VAC (For Home Appliances)						
Frequency Range	50 Hz/60 Hz (Auto sensing)						
OUTPUT							
AC Voltage Regulation (Batt. Mode)	110/120 VAC ± 5% or 230VAC ± 5%		230VAC ± 5%	230VAC ± 5%	230VAC ± 5%	230VAC ± 5%	230VAC ± 5%
Surge Power	2000VA	6000VA	8000VA	4000VA	6000VA	8000VA	10000VA
Efficiency (Peak)	90%	93%	93%	93%	93%	93%	93%
Transfer Time	10 ms (For Personal Computers); 20 ms (For Home Appliances)						
Waveform	Pure sine wave						
BATTERY & AC CHARGER							
Battery Voltage	12 VDC	24 VDC	48 VDC	24 VDC	24 VDC	48 VDC	48 VDC
Floating Charge Voltage	13.5 VDC	27 VDC	54 VDC	27 VDC	27 VDC	54 VDC	54 VDC
Overcharge Protection	15 VDC	30 VDC	60 VDC	30 VDC	30 VDC	60 VDC	60 VDC
Maximum Charge Current	10 A or 20 A	20 A or 30 A	20 A or 30 A	20 A or 30 A	20 A or 30 A	20 A or 30 A	20 A or 30 A
SOLAR CHARGER							
Operating Voltage Range	15~18VDC	30~32VDC	60~72VDC	30~66VDC	30~66VDC	60~115VDC	60~115VDC
Maximum PV Array Open Circuit Voltage	30VDC	60VDC	90VDC	75VDC	75VDC	145VDC	145VDC
Charging Current (PWM)	50A	50A	50A	20/30 A	20/30 A	2/10 A, 20/30 A	2/10 A, 20/30 A
Maximum Efficiency	98%	98%	98%	98%	98%	98%	98%
Standby Power Consumption	1 W	2 W	2 W	2 W	2 W	2 W	2 W
PHYSICAL							
Dimension, D x W x H (mm)	95 x 240 x 316	100 x 272 x 355	120 x 295 x 468	128 x 272 x 355	128 x 272 x 355	140 x 295 x 540	140 x 295 x 540
Net Weight (kgs)	5.0	6.9	9.8	7.6	8.0	12.5	13.5
OPERATING ENVIRONMENT							
Humidity	5% to 95% Relative Humidity(Non-condensing)						
Operating Temperature	0°C - 55°C						
Storage Temperature	-15°C - 60°C						

\* Product specifications are subject to change without further notice.

# ORVALDI Solar Infini

## HYBRID INVERTER to 3kW

**NEW**



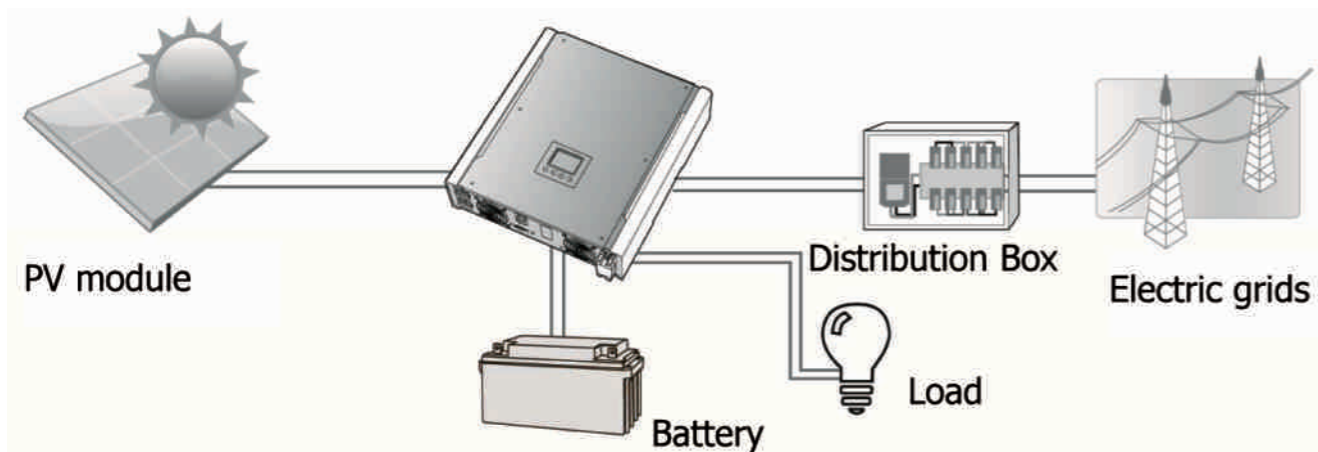
ORVALDI Solar Infini is a hybrid inverter which combines solar system, AC utility, and battery power source to supply continuous power. It is suitable for the remote areas where the cost of utility is too high or emergency usage when utility is not stable.

- 2KW/3KW/5KW on-grid inverter with energy storage
- Pure sine wave output
- Microprocessor controlled to guarantee stable charging system
- Multiple operations: Grid tie, Off grid, and grid-tie with backup
- Built-in MPPT solar charger
- LCD display panel for comprehensive information
- Multiple communication
- Green substitution for generators
- User-adjustable battery charging current

### Hybrid Solar Inverter ORVALDI Infini can provide power to connected load using energy from solar PV, professional network or the energy stored in the batteries.

Optimal performance of the solar module in this model is provided by function MPPT (maximum power point tracking).

The most efficient operating point of the solar module is subject to change as a result of various factors, such as the module temperature, radiation, module type, etc. This point is regularly monitored by the microcontroller, and if necessary, adjusted in such a way that the solar module has achieved the highest possible performance and the batteries were charged at maximum power. Controller with MPPT automatically adjusts the output voltage to the battery status, searching for the ideal voltage to charge the battery maximum current. The greatest gains can be observed in the winter, when the panels do not heat up and produce a higher voltage! Only the MPPT controller can make use of additional voltage current flowing from the panels.



MODEL	HIOS Infini 3KW
Power	3000 W
PV INPUT (DC)	
Nominal DC Voltage	360 VDC
Maximum DC Voltage	500 VDC
Start-up Voltage / Initial Feeding Voltage	116 VDC / 150 VDC
MPPT Voltage Range	250 VDC ~ 450 VDC
Maximum Input Current	13 A
GRID/UTILITY OUTPUT (AC)	
Nominal Output Voltage	230 VAC
Output Voltage Range	184 - 265 VAC
Output Frequency Range	47.5 ~ 50.2 Hz
Nominal Output Current	13.6 A
Power Factor	> 0.99
AC INPUT	
AC Start-up Voltage	120-140 VAC
Auto Restart Voltage	194 VAC
Acceptable Input Voltage Range	184 - 265 VAC
Maximum AC Input Current	20 A
BATTERY MODE OUTPUT (AC)	
Nominal Output Voltage	208/220/230/240 VAC
Output Frequency	50 Hz / 60 Hz (auto sensing)
Output Waveform	Pure sine wave
Efficiency (DC to AC)	92%
BATTERY & CHARGER	
Nominal DC Voltage	48 VDC
Maximum Charging Current	25 A
PHYSICAL	
Dimension, D X W X H (mm)	480 x 438 x 117
Net Weight (kgs)	15.57
INTERACE	
Communication Port	RS-232/USB
Intelligent Slot	Optional SNMP, Modbus and AS-400 cards available
ENVIRONMENT	
Humidity	0 ~ 90% RH (No condensing)
Operating Temperature	0 to 40°C
Altitude	0 ~ 1000 m*

\* Product specifications are subject to change without further notice.



# ORVALDI SOLIVIA TL Series - three-phase

INVERTER to 12kW

**NEW**



The TL transformerless series has been extended by three new power classes: from 6.0 kW to 30 kW. All new models are three-phase inverters. They have the same wide input voltage range of 250 ... 1000 V and 2 MPP trackers that support symmetrical and asymmetrical loading (33/67 %). That provides maximum flexibility in system design and maximum yield. Asymmetrical loading is important especially for commercial rooftop systems where modules are orientated in different directions.

### Intelligent 2-MPP-tracker solution

The two MPP trackers support symmetrical (50/50 %) and asymmetrical loading (33/67 %) at the DC inputs. The option to use asymmetric loads is a big advantage in installations that contain both east and west roofs.

### Outstanding Technical Properties

A high peak efficiency of 98.2 % and a wide input voltage range of 250 V to 1000 V characterize this inverter. Full power MPP tracking is available at an input voltage from 315 V to 850 V (for symmetrical loads at the DC inputs). The extended operating temperature range (-20 °C to +60 °C) and the IP65 protection degree of the electronic compartment allow installation in harsh environments.

### Easy Installation

The inverter contains an integrated DC disconnecter. A mounting plate and IP65 AC plug are included in the scope of delivery. Via the RS485 communication interface, a monitoring system can be connected, e.g. the Delta SOLIVIA Monitor 2.0.



MODEL	SOLIVIA 6.0 TL	SOLIVIA 8.0 TL	SOLIVIA 10 TL	SOLIVIA 12 TL	SOLIVIA 15 TL	SOLIVIA 20 TL	SOLIVIA 30 TL
<b>INPUT</b>							
Max. recommended PV power	7.8 kW	10.0 kW	13.2 kW	15.6 kW	19 kW	25 kW	38 kW
Nominal power	6.3 kW	8.1 kW	10.5 kW	12.2 kW	15.3 kW	20.4 kW	31 kW
Voltage range	250 ... 1000 V						
Full power MPP range	315 ... 850 V	280 ... 850 V	350 ... 850 V	420 ... 850 V	350 ... 800 V	350 ... 800 V	480 ... 800 V
Max. current	20 A (10 A per MPP)	30 A (17 A per MPP)	30 A (20 A per MPP)	30 A (20 A per MPP)	48 A (24 A per MPP)	60 A (30 A per MPP)	68 A (34 A per MPP)
Max. number of MPP trackers							
<b>Input load</b>							
<b>OUTPUT</b>							
Nominal apparent power	6.0 kVA	8.0 kVA	10.0 kVA	12.0 kVA	15.0 kVA	20.0 kVA	30.0 kVA
Voltage range	3 x 230 / 400 V (± 20 %) + N + PE 3)						
Nominal current (per phase)	8.7 A	11.6 A	14.5 A	17.4 A	22 A	29 A	43 A
Nominal frequency	50 / 60 Hz						
Frequency range	50 / 60 Hz ± 5 Hz 3)						
Power factor adjustable	0.8 cap ... 0.8 ind						
Total harmonic distortion (THD)	< 3 % at nominal apparent power						
<b>GENERAL SPECIFICATION</b>							
Max. efficiency	98.2 %						
Efficiency EU	97.2 %						
Operating temperature	-25 ... +60 °C						
Full power without derating	-25 ... +40 °C						
Storage temperature	-25 ... +70 °C						
Humidity	5 ... 95 % (non-condensing)						
Max. operating altitude	2000 m (above sea level)						
<b>SAFETY</b>							
Protection degree	IP65 / IP55						
Configurable trip parameters	Yes						
Insulation monitoring	Yes						
Overload behavior	Current limitation; power limitation						
Grid regulation	VDE-AR-N 4105: VFR 2013; VFR 2014						
EMC	EN61000-6-2; EN61000-6-3						
Safety	IEC62109-1; IEC62109-2; CE compliance						
<b>DIMENSIONS</b>							
Size (H x W x D)	620 x 625 x 275 mm	620 x 625 x 275 mm	620 x 625 x 275 mm	620 x 625 x 275 mm	952 x 625 x 275 mm	952 x 625 x 275 mm	952 x 625 x 275 mm
Weight	38 kg	41 kg	41 kg	41 kg	67.2 kg	67.2 kg	72.2 kg
Cooling	Convection with fans						
AC connector	Amphenol C16/3						
DC connector	4 pairs of MultiContact MC4						
Communication interfaces	RS485						
DC disconnecter	Integrated						
Display	5" monochrome graphical LCD						

\* Product specifications are subject to change without further notice.

# ORVALDI

## INVERTER to 5kW



**Low-voltage inverters ORVALDI models (12, 24, 48V DC)**  
 INV-solar inverters with sine wave voltage 230V AC in case of lack of DC voltage automatically switches power supply from the BYPASS to grid.  
 Back of the DC voltage will also be automatically returned to work with the basic inverter INV - DC -> AC.

- Application:**
- Small, low-voltage kits electrosolar.
  - Low-power generators, wind and water
  - All types of low voltage DC systems
  - Supported by battery



Also available with a function of the UPS (basic is grid and backup is battery) power supply equipped with an automatic charger for battery charging up to 5A models and INV12-300W INV12-0, 5kW, the model INV24 20A-30A, 1kW and 2kW in-INV48. Versions 4 and 5kW available on request.



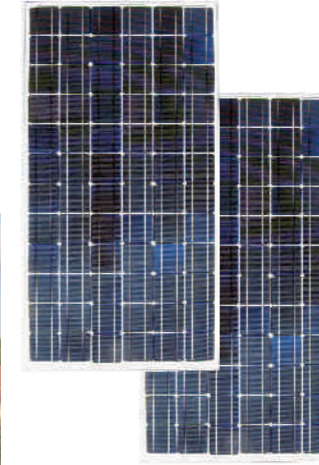
MODEL	INV12-0,3kW	INV12-0,5kW	INV24-1kW	INV48-2kW
Power [W]	300	500	1000	2000
Indicator	LCD			
Input AC [V]	180 – 260			
Input frequency [Hz]	45-64			
	depends on frequency of a grid			
Output Voltage [V]	230 +/- 10%			
Output frequency [Hz]	50			
Input DC voltage	12	12	24	48
Output	Pure sinewave, THD less than 4% at full power			
Transfer time	<10 ms			
Recommended battery capacity [Ah]	20 - 120	20 - 120	2x 20 - 200	4x 20 - 200
	Protection - surge, low/high voltage, low battery, short circuit			
Overload	100-120% 30 s, >120% 100 ms			
Ambient temp	0 – 40			
Humidity	20 – 90 %			
Dims WxDxH	115x380x165	115x380x165	145x410x215	195x460x330
Weight	9	9	14,5	28



# ORVALDI Solar

## KV160/24-M

- Anodized frame
- Special hardened glass of panel
- Guarantee of durability 5 years
- Guarantee of output 15 years and 80% power
- Output tolerance ±5%
- Certification: EN61215



# ORVALDI Solar Power

**Orvaldi Solar Power** is the most advanced solar inverter for grid connected PV-plants. With 3 different input voltage ranges allow customer to have flexible choice for different applications. 96,5% high converting efficiency and up to 99% high MPPT efficiency are both above average market standard.



Model	KV-160/24M	KV-165/24M	KV-170/24M	KV-175/24M	KV-180/24M
Nominal power [Wp]	160	165	170	175	180
Sorting limits [W]	2,5	2,5	2,5	2,5	2,5
Open circuit voltage Voc [V]	43,6	44,1	44,3	44,5	44,9
Short circuit current Isc [A]	5,17	5,24	5,36	5,4	5,52
Voltage at maximum power Vmpp [V]	34,6	35	35,25	35,5	36
Current at maximum power Imp [A]	4,63	4,72	4,82	4,93	5
Tolerance of power [%]	± 3	± 3	± 3	± 3	± 3
Performance at MPP approx. Pmax [Wp]	118	121,9	125,6	129,5	132,9
Open circuit voltage Voc [V]	39,85	40,3	40,5	40,68	41,05
Short circuit current Isc [A]	4,18	4,24	4,33	4,37	4,46
Voltage Vmpp [V]	31,63	32	32,22	32,45	32,9
Current Imp [A]	3,74	3,81	3,9	3,99	4,04

Model	SLK-1500	SLK-2000	SLK-4000
<b>Input data</b>			
Nominal DC voltage	360V		
Max input voltage	500VDC depends on customer requirements		
MPPT voltage range	150-500V +/-5%		
System start up voltage	100 +/-5%		
Working voltage range	100V +/-5% ~ 500V +0%/-5%		
Initial feeding voltage	150V +/-5%		
Fill rating working range	250 to 500V		
Max input current	7,5ADC	10ADC	20ADC
Shutdown voltage	80V typical		
DC voltage ripple	< 3%		
DC insulation resistance	> 8Ohm		
<b>Output data</b>			
Nominal output power	1500W	2000W	4000W
Max output power (10 minutes @ 50°C)	1650W	2200W	4400W
Operational voltage range	230V -15%/+10%		
Operational frequency range	50Hz (47.5-50.2Hz)		
Nominal output current	6,6A	8,7A	17,4A
Output current distortion	<3%		
Power factor	>0.99		
<b>General data</b>			
Power consumption	<7W		
Standby power (night)	< 0.1W		
Min conversion efficiency DC/AC	> 90%		
Max conversion efficiency DC/AC	>94%	>96%	>96%
European efficiency	>92%	>94%	>94%
Ground current detection range	0~500mA		
Ground current detection frequency	0~700Hz		
Ground current detection requirement	>2MOhm		
Protection degree	IP65		
Operation temperature	-25 +50C		
Humidity	0-95% no condensation		
Heat dissipation	Convection		
Acoustic noise level	<40dB(A)		
Attitude	Up to 3000m		
Dims	550x300x133		
weight	21.5		



# ORVALDI DPH series

Three phase 25-200 kW

**NEW**

The Modulon DPH supports ultimate availability for datacenter operations and provides the benefit of "pay as you go" without over-sizing the UPS. While achieving ultimate availability, the Modulon DPH does not compromise on power efficiency performance. When availability, efficiency and expanding according to business needs are essential, the Modulon DPH is the ideal UPS system to provide power protection and total cost of ownership (TCO) savings.



Model	25	50	75	100	125	150	175	200
<b>Power Rating (kVA)</b>	25	50	75	100	125	150	175	200
<b>Power Rating (kW)</b>	25	50	75	100	125	150	175	200
<b>Input</b>	Nominal Voltage	380/220V, 400/230V, 415/240V (3 phase, 4-wire +G)						
	Voltage Range	176~276 / 305~477 Vac *						
	Current Harmonic Distortion	<3% **						
	Power Factor	> 0.99						
	Frequency	50/60 Hz						
<b>Output</b>	Voltage	380/220V, 400/230V, 415/240V (3 phase, 4-wire +G)						
	Output Power Factor	1 (kVA = kW)						
	Voltage Harmonic Distortion	≤ 2% (linear load)						
	Voltage Regulation	±1% (static)						
	Frequency	50 or 60 Hz						
	Frequency Regulation	±0.05 Hz						
<b>Interface</b>	Standard	Parallel port x 2, Smart slot x 2, Dry contact output x 6, Dry contact input x 6, SNMP card x 2, Battery dry contact x 6, SNMP card IPv6, ModBus card, Relay I/O control card,						
	Optional	EnviroProbe, Battery cabinet temperature sensor, Battery cabinet status cable						
<b>Conformance</b>	Safety & EMC	CE, EN62040-1						
<b>Other Features</b>	Parallel Redundancy and Expansion	Module and system redundancy; Maximum 4 units up to 800 kW						
	Emergency Power Off	Local and remote						
	Battery start	Yes						
	Event Log	3000 records						
	External Battery Cabinet	Optional						
<b>Efficiency</b>	AC-AC	96%						
	ECO Mode	99%						
<b>Environment</b>	Operating Temperature	0 ~ 40 °C						
	Relative Humidity	0 ~ 90% (non-condensing)						
	Audible Noise (at one meter)	< 62 dBA						
<b>Physical</b>	Dimensions (WxDxH)	600 x 1090 x 2000 mm						
	Weight	382 kg	414 kg	446 kg	478 kg	510 kg	542 kg	574 kg

\* When input voltage is 140/242~176/305 Vac, the sustainable loading is from 60% to 100% of the UPS capacity.

\*\* When input harmonic distortion is less than 1%.

All specifications are subject to change without prior notice.

# ORVALDI NH Plus 3phase series

Three phase 20-120kVA

Model	NHP20	NHP40	NHP60	NHP80	NHP100	NHP120
Power Rating - kVA	20	40	60	80	100	120
Power Rating - kW	16	32	48	64	80	96
<b>INPUT</b>						
Rating Voltage	2380/220 , 400/230 , 415/240 (3 phase, 4-wire plus ground)					
Voltage Range	208~477(line-line) / 120~276 (line-neutral) *					
Input Current Harmonic	< 3 (full load)					
Power Factor	> 0.99					
Frequency	50 or 60 ± 5					
<b>OUTPUT</b>						
Voltage	380/220 , 400/230 , 415/240 (3phase, 4-wire plus ground)					
Voltage Harmonic	< 3 (linear load)					
Voltage Regulation	± 1 (static)					
Frequency	50 or 60					
Frequency Regulation	± 0.05 (interior oscillator) ± 5 (synchronized, adjustable in steps of 0.1Hz)					
Overload	≤ 125% : 10minutes ; ≤ 150% : 1minute					
<b>DISPLAY</b>						
LED	UPS status : Normal, Bypass, Backup, Fault					
LCD (Multi-Language)	Input/Output, Bypass, Inverter, Frequency, Loading and battery voltage, Current, UPS abnormal message and intelligent self diagnosis					
<b>INTERFACE</b>						
Standard	RS232 x 1, Smart Slot x 2, Dry contact output x 6, Contact input x 2, Parallel port x 1, Battery cabinet temperature x 4					
Optional Accessories	SNMP card, Modbus card, Relay I/O control card, EnviroProbe, SNMP+ 5 ports hub, Battery cabinet temperature sensor, Battery cabinet temperature kit (For Delta battery cabinet), Battery cabinet status cable					
<b>CONFORMANCE</b>						
Safety & EMC	CE, EN62040-1-1, EN62040-2(Class A)					
<b>OTHERS</b>						
Parallel Redundancy And Expansion	Module and system redundancy;					
Emergency Power Off	Maximum 4 cabinets in parallel up to 480kVA					
SRAM Event Log	Local and remote					
Battery-Start & AC-Start	500 Records					
<b>OVERALL</b>						
Efficiency	Yes					
Normal	94					
ECO Mode	97					
Temperature	0 ~ 40					
Relative Humidity	90 (non-condensing)					
Noise (at one meter)	65	68	70	71	72	73
<b>DIMENSIONS (WxDxH)</b>						
UPS	520x910x1165				520x975x1695	
EBC**	520x850x1165 (26Ahx40pcs)				520x975x1695 (40Ahx40pcs)	
Weight	170	200	230	260	350	380

\* Lower range 208~300 / 120~173Vac is acceptable under 70~100% loading condition.

\*\* EBC: External battery cabinet.

All specifications are subject to change without prior notice.

# ORVALDI V6-10kVA on-line

6-12-18-24 kVA



- True double-conversion on line UPS
- DSP technology guarantees high performance
- Output power factor 0.8
- Standard backup UPS and long backup UPS in one integrated unit
- Adjustable battery number from 16 pcs to 20 pcs
- Adjustable charging current can be changed via LCD or software (1A~6A)
- Wide input voltage range (110-300 VAC)
- Active input power factor correction 0.99
- 50Hz/60Hz frequency converter mode
- Emergency power off function (EPO)
- 3-stage extendable charging design for optimized battery performance
- Maintenance bypass available
- SNMP/USB/RS-232 communications

Model	Orvaldi 6K(L)	Orvaldi 6KR	Orvaldi 10K(L)	Orvaldi 10KR
Phase	1 phase in / 1 phase out			
Capacity	6000 VA / 4800 W		10000 VA / 8000 W	
<b>INPUT</b>				
Frequency Range	46Hz ~ 54 Hz @ 50Hz system ; 56Hz ~ 64 Hz @ 60Hz system			
Power Factor	≥ 0.99 @ 100% load			
<b>VOLTAGE RANGE</b>				
Low Line Transfer	110 VAC ± 1% at 50% Load ; 176 VAC ± 1% at 100% Load			
Low Line Comeback	120 VAC ± 1% at 50% Load ; 186 VAC ± 1% at 100% Load			
High Line Transfer	300 VAC ± 3%			
High Line Comeback	290 VAC ± 3%			

\*Derate capacity to 60% of capacity in CVCF mode and to 90% when the output voltage is adjusted to 208VAC.

\*\*Power capacity will be derated while reducing battery number less than 20

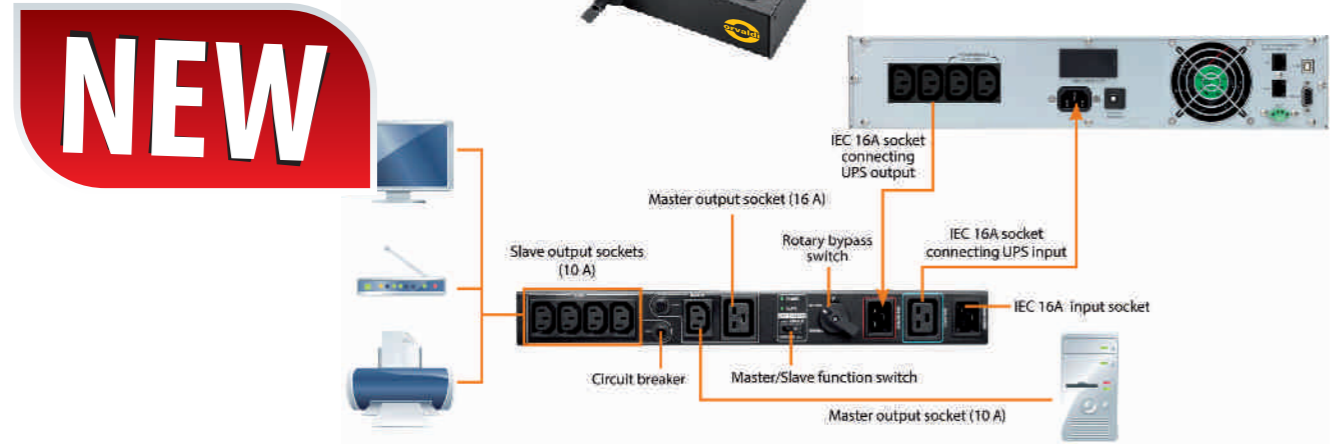
\*\*\*If the UPS is installed or used in a place where the altitude is above than 1000m, the output power must be derated one percent per 100m.

Product specifications are subject to change without further notice

Model	Orvaldi 6K(L)	Orvaldi 6KR	Orvaldi 10K(L)	Orvaldi 10KR
<b>OUTPUT</b>				
Nominal Voltage	208/220/230/240VAC			
AC Voltage Regulation	± 1%			
Frequency Range (Synchronized Range)	46Hz ~ 54 Hz @ 50Hz system ; 56Hz ~ 64 Hz @ 60Hz system			
Frequency Range (Batt. Mode)	50 Hz ± 0.1 Hz or 60 Hz ± 0.1 Hz			
Current Crest Ratio	3:1 (max.)			
Waveform (Batt. Mode)	Pure Sinewave			
Harmonic Distortion	≤ 3 % THD (Linear Load), ≤ 6 % THD (Non-linear Load)			
<b>TRANSFER TIME</b>				
Bypass to Inverter (Line mode)	0ms			
Bypass to Inverter (ECO mode)	0ms			
<b>EFFICIENCY</b>				
Battery Mode	89%			
Line Mode	90%			
<b>BATTERY</b>				
<b>Standard Model</b>				
Battery Type	12 V / 9 AH	12 V / 9 AH	12 V / 9 AH	12 V / 9 AH
Numbers	16	16	20** (16-20 adjustable)	20** (16-20 adjustable)
Float Charging Voltage	218.4 VDC ± 1%		273 V DC ± 1% (based on 20 pcs batteries)	
Charging Current (max.)	1A ~ 6A ± 10%	1 A ± 10%	1A ~ 6A ± 10%	1.0 A ± 10%
Typical Recharge Time	9 hours recover to 90% capacity			
<b>Long-run Model</b>				
Battery Type	Depending on applications			
Numbers	16-20** (adjustable)			
Charging Current (max.)	6.0 A ± 10%	2.0 A ± 10%	6.0 A ± 10%	2.0 A ± 10%
Float Charging Voltage	273 VDC ± 1% (based on 20 pcs batteries)			
<b>INDICATORS</b>				
LCD Display	UPS status, Load level, Battery level, Input/Output voltage, Discharge timer, and Fault conditions			
<b>ALARM</b>				
Battery Mode	Sounding every 4 seconds			
Low Battery	Sounding every second			
Overload	Sounding twice every second			
Fault	Continuously sounding			
<b>PHYSICAL</b>				
<b>Standard Model</b>				
Dimension, D x W x H (mm)	369 x 190 x 688	UPS Unit: 580x438x88 [2U] Battery Pack: 580x438x133 [3U]	442 x 190 x 688	UPS Unit: 668x438x88[2U] Battery Pack:580x438x133[3U]
Net Weight (kgs)	60	UPS: 15 ; Battery: 48	75	UPS: 18 ; Battery: 63
<b>Long-run Model</b>				
Dimension, D x W x H (mm)	369 x 190 x 318	580 x 438 x 88 [2U]	442 x 190 x 318	668 x 438 x 88[2U]
Net Weight (kgs)	21	15	23	18
<b>ENVIRONMENT</b>				
Noise Level	Less than 55dBA @ 1 Meter		Less than 58dBA @ 1 Meter	
Operating Temperature	0-95 % RH @ 0- 40°C (non-condensing)			
<b>MANAGEMENT</b>				
Optional SNMP	Power management from SNMP manager and web browser			
Smart RS-232/USB	Supports Windows® 2000/2003/XP/Vista/2008, Windows® 7, Linux, Unix, and MAC			



- 16A for 208/220/230/240 VAC, 20A for 110/115/120/127 VAC
- Provides continuous power to connected equipment during UPS maintenance via simple rotary switch
- Master-slave function for energy saving
- Provides a large number of sockets for extended usage
- Provides rack and tower designs to fit into a diverse working environment
- Simple installation with Plug-and-play socket type
- Suitable for all UPSs up to 3KVA



Model	MBS-Rack	MBS-Tower
Current Rating	16 A max. for 208/220/230/240 VAC 20 A max. for 110/115/120/127 VAC	
Voltage Rating	208/220/230/240 VAC or 110/115/120/127 VAC	
Master/Slave Function	Yes. When power consumption in Master outlet is lower than 20W (± 5W), it will shut off the power for slave outlets.	N/A
CONNECTION		
INPUT		
AC Power	1 x IEC (16 A) connector and 1x plug cable	
UPS Input	1 x IEC (16 A) connector (16A - 10A IEC cable for 1K/2K, 16A - 16A IEC cable for 3K*)	
UPS Output	1 x IEC (16 A) connector (16A - 10A IEC cable for 1K/2K, 16A - 16A IEC cable for 3K*)	
OUTPUT		
IEC	5 x IEC 10A sockets + 1 x IEC 16A socket (with 2 circuit breakers)	8 x IEC 10A sockets + 1 x IEC 16A socket (with 2 circuit breakers)
Schuko	4 x Schuko 16A sockets	4 x Schuko 16A sockets
UK	4 x UK 13A sockets	4 x UK 13A sockets
NEMA	5 x NEMA 20A sockets	8 x NEMA 20A sockets
PHYSICAL		
Dimension, D x W x H(mm)		
IEC	80 x 438 x 50	180 x 160 x 50
Schuko	80 x 438 x 60	180 x 200 x 50
UK	80 x 438 x 60	180 x 200 x 50
NEMA	80 x 438 x 50	180 x 160 x 50
Net Weight (kgs)	1.5	1.3
ENVIRONMENT		
Operating Temperature	20-90 % RH @ 0- 45°C (Non-condensing)	

\*) UPS input and UPS output cables are not supplied into package. Product specifications are subject to change without further notice



- Isolation design
- Input power factor correction
- Microprocessor controlled to guarantee stable charging system
- User-adjustable charging current based on applications
- Three-stage smart charging
- Output short circuit protection
- Maximum current restriction
- Over-voltage protection
- Thermal control protection and reversal polarity protection
- Parallel operation



Model	Synergy-240	Synergy-120	Synergy-96	Synergy-72	Synergy-48	Synergy-36	Synergy-24
INPUT							
Acceptable Input Voltage	165-285 VAC						
Acceptable Input Frequency	40-70 Hz						
Current	8A (max.) @ full load						
OUTPUT							
Maximum Output Current	4 A ± 0.4 A	8 A ± 0.8 A	10 A ± 1.0 A	12 A ± 1.2 A	15 A ± 1.5 A	15 A ± 1.5 A	20 A ± 2 A
Power Efficiency	≥ 80%						
Output Voltage	240 V	120 V	96 V	72 V	48 V	36 V	24 V
Maximum Output	960 W	960 W	960 W	960 W	720 W	550 W	480 W
Charging Power							
Floating Charging Voltage	273.6 Vdc ± 2.7 Vdc	136.8 Vdc ± 1.4 Vdc	109.6 Vdc ± 1.2 Vdc	82.2 Vdc ± 0.9 Vdc	54.8 Vdc ± 0.6 Vdc	41.1 Vdc ± 0.45 Vdc	27.3 Vdc ± 0.3 Vdc
Boost Charging Voltage	283.2 Vdc ± 2.8 Vdc	141.0 Vdc ± 1.4 Vdc	112.8 Vdc ± 1.2 Vdc	84.6 Vdc ± 0.9 Vdc	56.4 Vdc ± 0.6 Vdc	42.3 Vdc ± 0.45 Vdc	28.2 Vdc ± 0.3 Vdc
Selectable Charging Current @ Constant Current Mode	1A ~ 4 A	1 A ~ 8 A	2 A ~ 10 A	2 A ~ 12 A	3 A ~ 15 A	3 A ~ 15 A	2 A ~ 20 A
PROTECTION							
Full Protection	Over-voltage protection, thermal control protection, maximum output current protection, short circuit protection, and reversal polarity protection						
INDICATOR							
Charger On	Green LED lighting						
Boost Charging Status	Yellow LED lighting						
Floating Charging Status	Green LED lighting						
High Battery Voltage @ Charging	Green LED lighting						
Normal Battery Voltage @ Charging	Yellow LED lighting						
Low Battery Voltage @ Charging	Red LED lighting						
PHYSICAL							
Dimension, D X W X H (mm)							
Net Weight (kgs)	3.6	3.6	3.1	3.1	3.1	3.1	3.1
ENVIRONMENT							
Humidity	5-95 % RH (non-condensing)						
Operating Temperature	0°C to 40°C						
Noise Level	< 50 dBA @ CC mode & full load						
Cooling System	Auto adjustable speed depending on load level						

\* Product specifications are subject to change without further notice.

# ORVALDI 1000/1500/2000LED USB

1000/1500/2000 VA

- Built-in super smart charger, shorten 50% of charging time
- Excellent microprocessor control guarantees high reliability
- Boost and buck AVR for voltage stabilization
- Auto restart while AC is recovering
- Simulated sine wave
- Off-mode charging
- Cold start function
- USB communication port and RJ-45 protection



ORVALDI LED Series offers longer backup time for business workstation. It provides comprehensive LED display for users to monitor the power status. With powerful protection, it secures your data loss from power failure, surge, and sags.

Model	ORVALDI 1000LED USB	ORVALDI 1500LED USB	ORVALDI 2000LED USB
CAPACITY	1000 VA / 600 W	1500 VA / 900 W	2000 VA / 1200 W
<b>INPUT</b>			
Voltage	220/230/240 VAC		
Voltage Range	162-290 VAC		
Frequency Range	50 Hz		
<b>OUTPUT</b>			
Output Voltage	220/230/240 VAC		
AC Voltage Regulation (Batt. Mode)	±10%		
Frequency Range (Batt. Mode)	50 Hz ±1 Hz		
Transfer Time	Typical 2-6 ms, 10ms max.		
Waveform (Batt. Mode)	Simulated Sinewave		
<b>BATTERY</b>			
Battery Type & Number	12 V/7 Ah x 2	12 V/9 Ah x 2	12 V/9 Ah x 2
Typical Recharge Time	4-6 hours recover to 90% capacity		
<b>PROTECTION</b>			
Full Protection	Overload, discharge, and overcharge protection		
<b>INDICATORS</b>			
LCD Display	AC Mode, Battery Mode, Load Level, Battery Level, Input Voltage, Output Voltage, Overload, Fault, and Low Battery		
LED Display	AC Mode	Green lighting	The right green LED lighting & the 2nd to 5th green LEDs gradually lighting indicating load level
	Battery Mode	Yellow flashing	The right green LED flashing & the 2nd to 5th green gradually lighting indicating battery capacity
	Fault	Red lighting	Red lighting
<b>ALARM</b>			
Battery Mode	Sounding every 10 seconds		
Low Battery	Sounding every second		
Overload	Sounding every 0.5 second		
Battery Replacement Alarm	Sounding every 2 seconds		
Fault	Continuously sounding		
<b>PHYSICAL</b>			
Dimension, D x W x H (mm)	350 x 146 x 160	397 x 146 x 205	397 x 146 x 205
Net Weight (kgs)	8.0	11.5	11.5
<b>ENVIRONMENT</b>			
Humidity	0-90 % RH @ 0- 40°C (non-condensing)		
Noise Level	Less than 40dB		
<b>MANAGEMENT</b>			
Optional USB/RS-232 Port	Supports Windows 2000/2003/XP/Vista/2008, Windows 7, Linux, Unix, and MAC		

\* Product specifications are subject to change without further notice

# ORVALDI 600/800 LCD sinus

600/800 VA

- Digitalized PWM-based controller provides pure sinewave output
- Perfect power protection for min servers, gaming PCs, and any loads with active PFC power supply
- Excellent microprocessor control guarantees high reliability
- Boost and buck AVR for voltage stabilization
- Three-stage charging optimizes battery performance
- Auto restart while AC is recovering
- Built-in USB communication port and RJ-45 phone protection
- Offering LED and LCD panels for selection

With new invented digitalized PWM-based controller, ORVALDI sinus UPS simplifies traditional circuit structure to digital controlled pure output sine wave. The new system is specifically designed to protect mini servers, gaming PC, critical data loaded computer and point of sale (POS) systems against damaging power disturbances, especially for the servers with active PFC power supply. Besides, we offer free management software to remotely manage and monitor the UPS through a web browser easily. It makes ORVALDI sinus UPS a feature-rich and web-enabled line interactive UPS.



Model	ORVALDI sinus 600 LCD	ORVALDI sinus 800 LCD
Capacity	600 VA / 360 W	800 VA / 480 W
<b>INPUT</b>		
Voltage	220/230/240 VAC	
Voltage Range	162-290 V AC	
Frequency Range	60/50 Hz (auto sensing)	
<b>OUTPUT</b>		
AC Voltage Regulation (Batt. Mode)	±10%	
Frequency Range (Batt. Mode)	50 Hz or 60 Hz ± 1 Hz	
Waveform (Batt. Mode)	Typical 2-6 ms, 10ms max.	
Transfer Time	Pure Sinewave	
<b>BATTERY</b>		
Battery Type & Number	12 V / 7Ah x 1	12 V / 9Ah x 1
Typical Recharge Time	4 hours recover to 90% capacity	
<b>PROTECTION</b>		
Full Protection	Overload, discharge, and overcharge protection	
<b>INDICATORS</b>		
LCD Panel	AC Mode, Battery Mode, Load Level, Battery Level, Input Voltage, Output Voltage, Overload, Fault, and Low Battery	
<b>ALARM</b>		
Battery Mode	Sounding every 10 seconds	
Low Battery (Batt. Mode)	Sounding every second	
Overload	Sounding every 0.5 second	
Battery Replacement Alarm	Sounding every 2 seconds	
Fault	Continuously sounding	
<b>PHYSICAL</b>		
Dimension, D x W x H (mm)	328 x 100 x 145	328 x 100 x 145
Net Weight (kgs)	5.2	6.0
<b>ENVIRONMENT</b>		
Humidity	0-90 % RH @ 0- 40°C (non-condensing)	
Noise Level	Less than 40dB	
<b>MANAGEMENT</b>		
USB & RS-232 Port	Supports Windows® 2000/2003/XP/Vista/2008, Windows® 7, Linux, Unix, and MAC	

# ORVALDI 650/850 LCD

650/850 VA

- Green topology, saving 50% energy than others at AC mode
- Built-in super smart charger, 90% fully charged in 4 hours
- Charging ability at low input voltage, 2 times more powerful than others
- Excellent microprocessor control guarantees high reliability
- Boost and Buck AVR for voltage stabilization
- Off-mode auto charging
- Auto-restart while AC is recovering
- Simulated sine wave
- Cold start function
- Built-in USB communication port and RJ-11 phone protection
- LCD panel for comprehensive display



# ORVALDI 450LED

450 VA

The ORVALDI LED series is a Line Interactive UPS for home and small office. In addition to the features of ORVALDI 450LED series, it provides comprehensive LED panel for eco-friendly display. It provides comprehensive display including input voltage, output voltage, load level, battery level, and UPS status.



Model	Orvaldi 650 LCD USB	Orvaldi 850 LCD USB	ORVALDI 450 LED
Capacity	650 VA / 360 W	850 VA / 480 W	450 VA / 240 W
<b>INPUT</b>			
Voltage	110/120 VAC or 220/230/240 VAC		220/230/240 VAC
Voltage Range	81-145 VAC / 162-290 VAC		162-290 VAC
Frequency Range	60/50 Hz (auto sensing)		60/50 Hz (auto sensing)
<b>OUTPUT</b>			
AC Voltage Regulation (Batt. Mode)	±10%		±10%
Frequency Range (Batt. Mode)	60 Hz or 50 Hz ±1 Hz		60 Hz or 50 Hz ±1 Hz
Waveform (Batt. Mode)	Simulated Sine Wave		Simulated Sine Wave
Transfer Time	Typical 2-6 ms, 10ms max.		Typical 2-6 ms, 10ms max.
<b>BATTERY</b>			
Battery Type & Number	12 V/7 Ah x 1	12 V/9 Ah x 1	12 V/4,5 Ah x 1
Typical Recharge Time	4-6 hours recover to 90% capacity		4-6 hours recover to 90% capacity
<b>PROTECTION</b>			
Full Protection	Overload, discharge, and overcharge protection		Overload, discharge, and overcharge protection
<b>INDICATORS</b>			
LCD Display (LED Display - ORVALDI 450 LED)	AC Mode, Battery Mode, Load Level, Battery Level, Input Voltage, Output Voltage, Overload, Fault, and Low Battery		AC Mode, Battery Mode, Load Level, Fault, and Low Battery
<b>ALARM</b>			
Battery Mode	Sounding every 10 seconds		Sounding every 10 seconds
Low Battery	Sounding every second		Sounding every second
Overload	Sounding every 0.5 second		Sounding every 0.5 second
Battery Replacement Alarm	Sounding every 2 seconds		Sounding every 2 seconds
Fault	Continuously sounding		Continuously sounding
<b>PHYSICAL</b>			
Dimension, D x W x H (mm)	287 x 100 x 142		287 x 100 x 142
Net Weight (kgs)	4.25	4.9	3.55
<b>ENVIRONMENT</b>			
Humidity	0-90 % RH @ 0- 40°C (non-condensing)		0-90 % RH @ 0- 40°C (non-condensing)
Noise Level	Less than 40dB		Less than 40dB
<b>MANAGEMENT</b>			
Optional USB/RS-232 Port	Supports Windows® 2000/2003/XP/Vista/2008, Windows® 7, Linux, Unix, and MAC		

\* Product specifications are subject to change without further notice

# ORVALDI 650/750SP

500/600 VA

This UPS is specially designed for low power loads with multi-functions; WiFi Access Points, Routers, Switches, home applications.

Its light weight, compact design perfect fits to the limited working environment.

The line of UPS is equipped with boost and buck AVR to stabilize input voltage range.

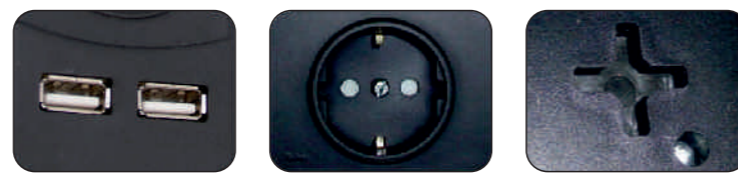
It is also built-in with DC start function. This function enables the UPS to be started up without AC power supplied.

Although it's a small UPS, it's equipped with Ethernet protection to offer users more benefits.



Model	1065SP	1075SP
<b>Input</b>		
Voltage Window	220/230/240VAC Nominal -25%+25%	
Frequency	50Hz or 60Hz	
<b>Inv. Output</b>		
Waveform	PWM Simulated Sine wave	
Frequency	50Hz or 60Hz +/-1Hz	
Capacity	650VA	750VA
Regulation	+/-3%	
Transfer Time	2ms typical; 5ms maximum	
<b>Battery</b>		
Types	Lead-Acid maintenance-free	
DC Bus	12V/7Ah	12V/9Ah
Number	1 PCE	1 PCE
Recharge Time	Typically 8 hours to 90% charged	
Run Time	6-20 minutes depending on load connected	
<b>Protection</b>		
Over/Under Volt.	Switch to Bat. O/P when Mains over regulation range	
Overload/Short	Fuse & current limited for both mains and Eatery modes	
Low Battery	Two stages; no battery drain after cut off	
Noise Filtering	EMI/RFI full time suppression	
<b>Mechanical</b>		
Socket Type	German or French	
Socket No. (pcs)	German/French : 6 PCS	
Dim (D*W*H)mm	260*170*80	260*170*80
Weight (kgs)	5.5	6
<b>Warning</b>		
LED on Front	AC Nomd: Green Steadily, Backup: Yellow intermittently	
<b>Signals</b>		
Beeping Alarm	On Battery, Battery Low and Overload	
Communication Port	N/A : USB	
Fax/Modem/Internet Protection	N/A : RJ45	
Cold Start	It enables to activate UPS without Utility Power	

## ORVALDI ORV5 USB charger **NEW**



2 USB Charger 5V/1A

Available with Schuko sockets

2 brackets for wall mounting

Model	ORV-5	ORV5 charger	ORV-5 INTERNET	ORV-6	ORV-6 INTERNET	ORV-8 INTERNET
210 Joules	5 gniazd					
210 Joules	5 gniazd wyjściowych					
420 Joules	5 gniazd wyjściowych					
210 Joules	6 gniazd wyjściowych					
420 Joules	6 gniazd wyjściowych					
420 Joules	8 gniazd wyjściowych					
<b>Dane techniczne:</b>						
Parametry wejścia	250V/10A	250V/16A	250V/10A	250V/16A	250V/16A	250V/16A
Max. Absorpcja energii	210 Joules	210 Joules	420 Joules	210 Joules	420 Joules	420 Joules
Max. impuls napięcia	6000V	6500V	6000V	6500V	6500V	6500V
Max. impuls prądu	4500A	4500A	4500A	4500A	4500A	4500A
Czas reakcji	poniżej 1 nanosekundy					
<b>Filtracja EMI/RFI:</b>						
Zakres redukcji szumów			0,1 - 100 M	100 kHz do 100 MHz		
Tłumienie			do 10 dB	do 50 dB		
<b>Zabezpieczenie linii Fax/Modem, CATV/Satellite:</b>						
Max. absorpcja energii			70 Joules	70 Joules	70 Joules	70 Joules
Max. napięcie			200V	200V	200V	200V
<b>USB:</b>						
Charger USB	2x5V/1A					
<b>Długość kabla:</b>						
1,5 m						
3,0 m						
5,0 m						

ORVALDI ORV5 USB charger - Surge Protector is a absolutely needed device for safeguarding your PC, notebook while on the charging, printers, household goods. It comes with a built-in USB charger that can power various electronic gadgets like MP3 players and many other electronic devices that can be charged with a USB interface.

ORVALDI ORV5 USB charger - Surge Protector with Built-In USB Charger provides three AC outlets and two USB outlets for flexibility. This USB outlet is not for transferring data. The surge protector also protects your device from power fluctuations that can cause serious damage to your equipment. .

### ORVALDI ORV5 USB charger - Surge Protector with Built-In USB Charger:

- ORVALDI ORV5 USB charger - Surge Protector with Built-In USB Charger has 5 AC outlets plug with grounding and child protection
- Provides complete surge protection through all outlets
- ORVALDI ORV5 USB charger - Surge Protector with USB Charger offers compact, ergonomic, efficient design
- ORVALDI ORV5 USB charger - Surge Protector comes with 2 years Product and 5,000euro Connected Equipment Warranties

### ORVALDI V3/1 10-30kVA 2U LCD on-line 10-15-20 kVA



- True double-conversion
- DSP technology guarantees high performance
- Output power factor 0.8
- Wide input voltage range (110-300 VAC)
- Built-in phase auto adapt function simplifies wire installation
- 50Hz/60Hz frequency converter mode
- Eco mode operation for energy saving (ECO)
- Programmable power management outlets
- Emergency power off function (EPO)
- Generator compatible
- Charger capacity expansion to 8A for long-run models
- SNMP+USB+RS-232 multiple communications
- 3-stage extendable charging design for optimized battery performance
- Adjustable battery numbers
- Maintenance bypass available
- Optional N+X parallel redundancy
- Optional isolation transformer available

### ORVALDI DELTA LCD on-line 1-2-3-5-6-10 kVA



- Double Conversion On-Line UPS
- Tower/Rack Convertible Design
- Unity Input Power Factor
- Double Conversion On-Line Technology
- Complete Protection Circuitry
- Easy Swappable Battery
- User Friendly Display
- Matching Battery Cabinet
- Smart Battery Management
- Customer Options Slot
- Optional Automatic & Manual Bypass

### ORVALDI V1000/V3000L 2U LCD on-line 1000-1500-2000-3000VA



- True double-conversion
- Output power factor 0.9
- User-friendly and easy-shift LCD display
- Rack/Tower design
- ECO and advanced ECO mode for energy saving
- Output voltage regulation < 1%
- Higher output crest ratio perfect for generator and compressor
- Programmable power management outlets
- Emergency power off function (EPO)
- Hot swappable battery design
- Long-run model available

### ORVALDI V1100-3000(L) 2U LCD sinus 1100/2000/3000 VA



- Pure sine wave output
- Output power factor 0.8
- User-friendly and easy-shift LCD design
- Rack/Tower design
- Microprocessor-based line interactive design
- Built-in boost and buck AVR
- Programmable power management outlets
- ECO operation for energy saving (Efficiency Corrective Optimizer)
- Emergency power off function (EPO)
- Hot-swappable battery design
- Multiple communication available
- Long-run models available

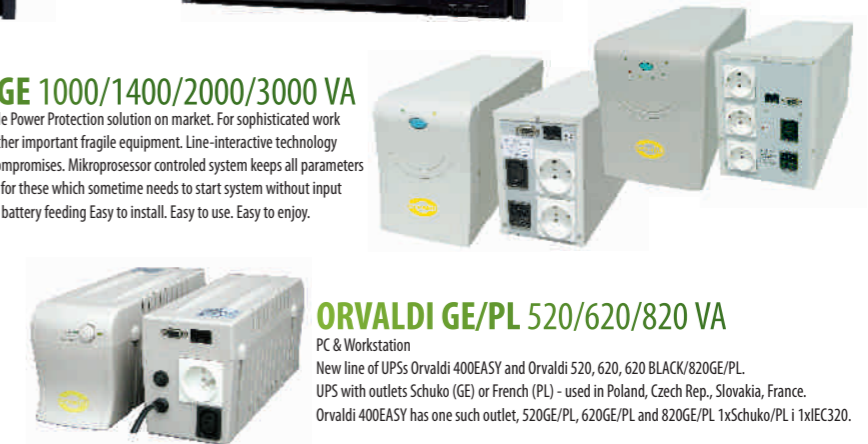
### ORVALDI REDUNDANT BACKUP SYSTEM

- 10A and 16A max input current
- Dual power supply for redundancy
- Simple solution guarantees power continuity for connected equipment
- Highly reliability 19" rack design to fit into a diverse working environment



### ORVALDI GE 1000/1400/2000/3000 VA

The best uninterruptable Power Protection solution on market. For sophisticated work stations, servers, and other important fragile equipment. Line-interactive technology saves money without compromises. Mikroprocessor controlled system keeps all parameters under control. DC start for these which sometime needs to start system without input power. Round the clock battery feeding Easy to install. Easy to use. Easy to enjoy.



### ORVALDI GE/PL 520/620/820 VA

PC & Workstation  
New line of UPSs Orvaldi 400EASY and Orvaldi 520, 620, 820 BLACK/820GE/PL. UPS with outlets Schuko (GE) or French (PL) - used in Poland, Czech Rep., Slovakia, France. Orvaldi 400EASY has one such outlet, 520GE/PL, 620GE/PL and 820GE/PL 1xSchuko/PL 1xIEC320.

### ORVALDI SURGE PROTECTORS

Lightning and other power disturbances can destroy your equipment and the valuable information it contains in an instant. Surges and spikes travel through AC and telephone lines and can damage.

- Surge protection up to 420J and Internet low voltage impulse up to 70J
- High frequency filter 50 dB EMI/RFI with range 100kHz - 100MHz
- Automatic breaker 16 A
- 3 meters cable
- Child protection



### ORVALDI ORV 8 HOME

Sophisticated home theatre and/or HiFi system needs best possible protection. Splitter ORV8 Home is surge protection for 8 receptacles. Hi end LC filter with discrete elements and non-linear resistance not only protect against spikes and surges. It also clean mains power from disturbances. Automatic breaker protect against overload and short circuits and can easy reactivated by pushing button. ORV8 Home can absorb up to 4800Joules surge energy. It also protect internet ADSL line, telephone/modem line and Coaxial line for cable TV or satellite receiver. Switch with light indicator shows working mode of ORV8 Home. Two LED indicators make you sure that Surge Prot is protecting your valuable equipment and you have properly connected grounding wires.



# ORVALDI

## POWER GENERATORS

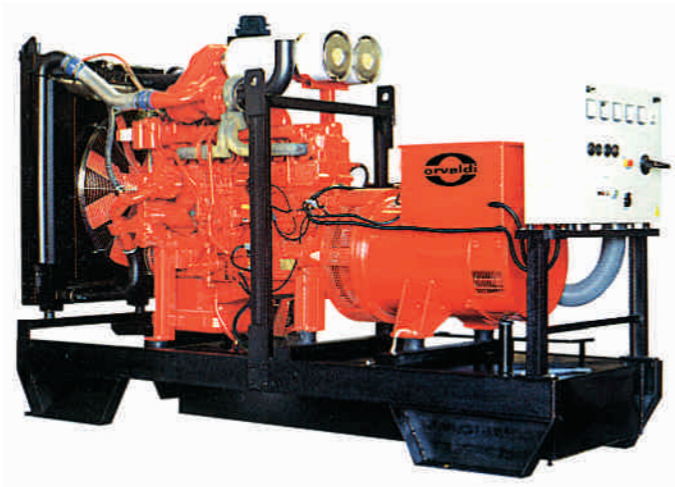
Is an autonomy power generators with synchronic alternator with stabile voltage which is runned by diesel or gas engine. Generating sets are mainly used in standby applications, i.e. to make up for problems due to current cut-off. However it can also be used in isolated places as the main source of current when the electrical network does not exist. In both applications highest energy quality is delivered. Stability of voltage parameters is achieved by electronic governor. The quality is good enough to supply fragile computer systems but also light, air conditioning, heating etc.

### ORVALDI 610-2000 kVA

- Engine DIESEL: Cummins/Volvo/Deutz/Perkins
- Cooling: liquid/air
- Automatic start
- Remote monitoring
- Sound proof canopy
- Integrated fuel tanker
- Stand-by and permanent applications
- Effective exhaust system

### ORVALDI 10-300 kVA

- Engine DIESEL: Cummins/Volvo/Deutz/Perkins
- Cooling: liquid/air
- Sound proof canopy
- Trailers 1 or 2 axe
- Long runtime with integrated and external tanker
- Automatic start even in low temperatures



### REFERENCE

National Banking System Bank of Poland, Raiffeisen Bank, KBS Group, industry, medic care

ATS  
automatic transfer swich

MAINS

GENSET



LOAD

