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DS300HB SERIES HYBRID UPS

Power Solar new generaion eco-friendly Hybrid-UPS!

The main feature of the Hybrid UPS systems are that they are capable of generating electricy from Solar, Batteries, Grid or Emergency Generator, in a controlled manner.

1) Uniterruptible power by solar energy, grid and battery
2) Return of investment
3) MPPT Algorithm
4) Solar energy storage
5) Intelligent controller
6) 100% stabilized output power
7) Emengency generator

FEATURES

- The new hybrid technology automatically chooses the most economical and ecological power solution to the customer.
- Primarily works from solar energy to return your investment.

- MPPT algorithm provides maximum energy available in the PV panels to the load connected the output of the solar converter. Solar Converter arranges power redundancy automatically.
- Battery bank stores the unused clean energy and protects you against power failure-blacout.
- The intelligent controller offers real time status information. The different energy flows can be setup according weather data and/or customer profiles.
- As a conventional on-line UPS, it always offers full protection against any kind of power problem without any internal switching.
- The hybrid system combines solar energy, grid, battery or emergency generator.

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THE PRINCIPLE

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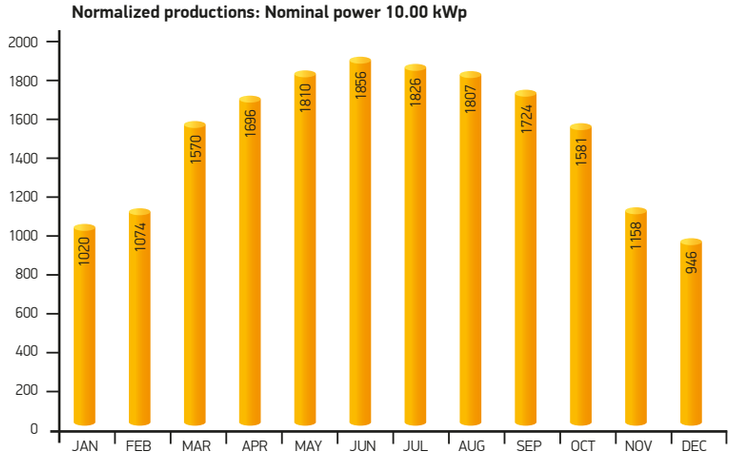
SOLAR SYSTEM APPLICATION

The following guidelines must be followed in orter to ensure the maximum benefit from solar system;

- The most important part of the solar system is the photovoltaic panel! Therefore a Tier-1 class polycrystalline solar panel would be a good choice for long term solar energy harvesting.
- Check the azimuth angle of the PV installation area. Azimuth angle should to be zero to maximize the solar energy gained from the sun.
- The tilt angle must be checked and that should to be set to local optimum tilt angle. That value is about 30 degree for Turkey and Europe.
- Installation and electrical works must be performed by expert teams.



The energy produced by months
Effective radiation by months

10 kW PV SYSTEM SIMULATION RESULTS

	GlobHor kWh/m²	T Amb °C	Globinc kWh/m²	GlobEff kWh/m²	Earray MWh	E Grid MWh	EffArrR %	EffSysR %
January	71.6	9.50	114.6	108.1	1.042	1.020	13.89	13.60
February	87.6	9.70	122.0	115.1	1.097	1.074	13.74	13.45
Marc	154.7	12.10	194.5	183.8	1.726	1.691	13.55	13.28
April	183.9	15.40	199.8	188.1	1.732	1.696	13.25	12.97
May	230.0	19.80	227.0	213.8	1.921	1.881	12.93	12.66
June	245.1	24.20	229.4	215.9	1.896	1.856	12.62	12.35
July	238.7	27.20	229.0	215.6	1.865	1.826	12.44	12.18
August	216.1	27.50	226.3	213.5	1.845	1.807	12.45	12.19
September	174.3	23.60	211.1	199.7	1.760	1.724	12.73	12.48
October	133.3	18.70	187.7	177.9	1.613	1.581	13.12	12.86
November	84.6	14.80	133.3	125.9	1.181	1.158	13.54	13.27
December	63.2	10.80	106.6	100.6	0.966	0.946	13.84	13.55
YEAR	1883.2	17.82	2181.3	2058.1	18.645	18.260	13.06	12.79

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THE REALITY

Hybrid UPS

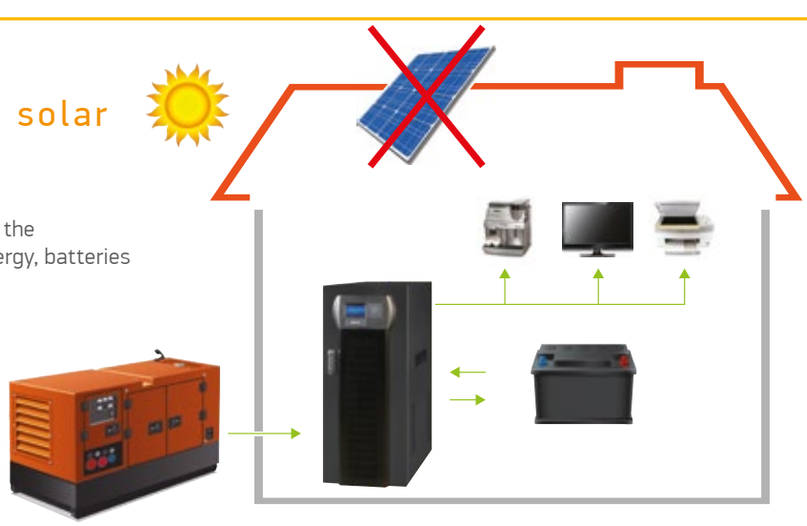
Grid unavailable

In case of power failure the requested energy is coming from the solar panels and/or batteries. The backup time vary with the connected load and the power of panels/batteries. The backup time vary with the connected load and the power of panels/batteries.

Without solar energy, the load is directly supplied by the batteries.

Unavailablity of grid, solar and battery group

Hybrid UPS system automatically starts the emergency generator when the solar energy, batteries and grid are unavailable.



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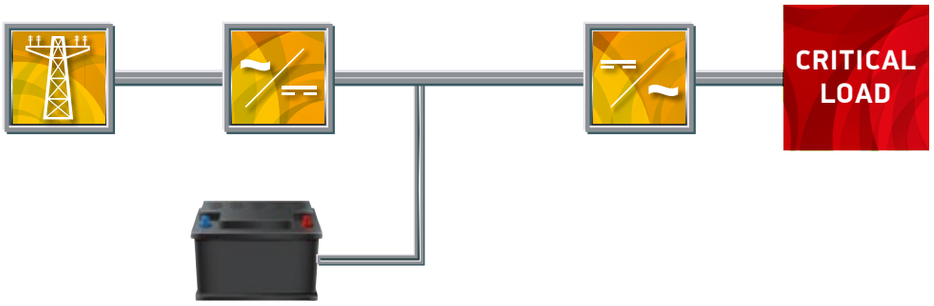
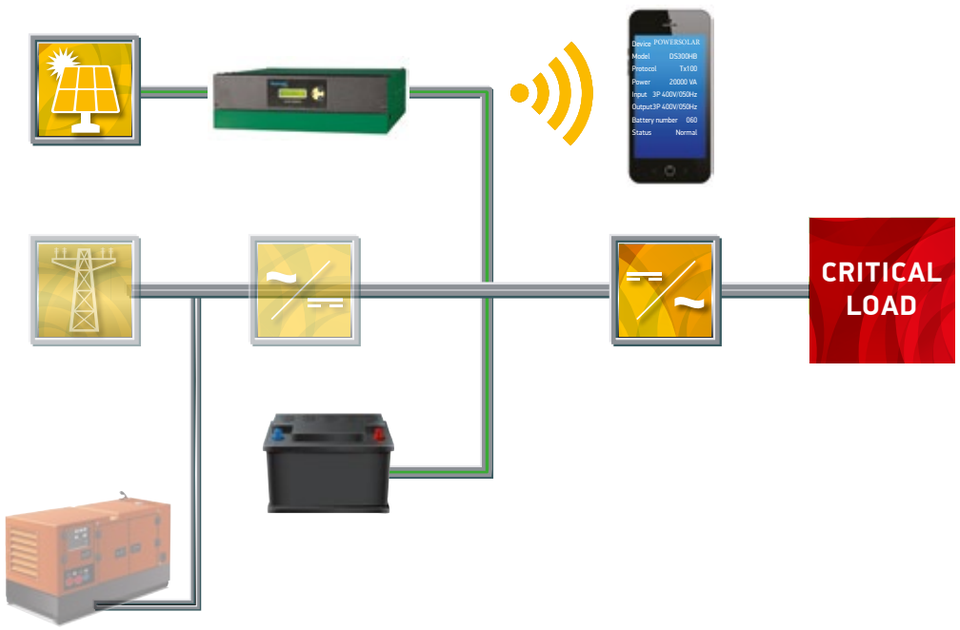
THE POSSIBILITIES

Traditional UPS (DS300 Series)



The connected load is powerded by our DS300 online double conversion UPS ith the latest tecnology. The energy comes from the grid or from the batteries in case of a power blackout.

HYBRID UPS (DS300HB Series)



Hybrid ups senses the avability of solar power, grid power and the battery power for supping the connected loads using tne most economical and ecological combination of these energy sources. TGc series solar converter is connected to the DC bus of the Hybrid UPS and solar group is set as the primary energy source.

Diesel generator stars automatically in case of solar energy, grid and battery group unavailability. This feature will greatly simplify your life where there is no electrical network.

In addition to the hybrid operation, intelligent controller provides you “real time monitoring”. That function is fully designed by Power Solar and avilable for smart phones. All you need is an internet connection.

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TECHNICAL SPECIFICATIONS

MODEL	DS310HB	DS315HB	DS320HB	DS330HB	DS340HB	DS360HB	DS380HB	DS3100HB	DS3120HB	DS3160HB
Power (kVA)	10	15	20	30	40	60	80	100	120	160
INPUT										
Voltage	380/400 VAC 3 Phase + N + G ± 20% (415 VAC (+15%, -25% optional)									
Frequency	50Hz / 60Hz selectable, ± 5%									
Power factor (at 100% load)	> 0.99									
THDI (*)	< 4%									
By-pass voltage	380/400 VAC 3 Phase + N, 4 Wires ± 10%									
Voltage distortion	> 10%									
Protection	Fuses, Voltage & Frequency tolerance, Input power limit, Phase sequency indicator									
OUTPUT										
Power (kW)	9	13,5	18	27	36	54	72	90	108	144
Power factor	0,9									
Voltage	380/400 VAC 3 Phase + N , ± 1% (415 VAC optional)									
Frequency	50Hz / 60Hz selectable									
Frquency tolerance	Line synchronized: ± 2% / Free running: ± 0,1% (adjustable)									
Efficiency (at 100% load)	up to 94%									
Crest factor	3:1									
Overload protection	100% - 125% load: 10 min, 125% - 150% load: 1 min, - >150% load: by pass									
Other protections	Advanced short circuit, Voltage tolerance, DC balance, Regenerative load, Current limiting									
THD	> 3% (at 100% linear load)									
BATTERIES										
Type	VRLA AGM / GEL / NiCd									
Nominal voltage	± 360 VDC									
Float/End of discharge voltage	± 405 VDC / ± 300 VDC									
Battery cabinet	Internal							External		
Battery ambient temparature	25°C									
Protections	3 level alarms, Battery fuses, Charging current limit, Temperature compensation (optional)									
Automatic testing	Standard every 72 hours (adjustable)									
GENERAL										
Standards	EN62040-1, EN62040-2, EN62040--3									
User interface	4 lines LCD panel, Mimic leds, 5 vector buttons, Buzzer, Optional TFT panel									
Indicators	P-N voltage, P-P voltage, Current, Power, Crest Factor, Frequency, PF, Service Time									
Advanced	Self diagnostics, 3 maintenance time indicators, Calibration over RS232,operating hour meter									
Communication	2xRS232 serial ports, 4 standard and 8 optional DRY contact alarm relays									
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 event									
Protections	Power module over-temperature, Over current, Temperature high alarm									
Temparature range	0ºC - 40ºC									
Protection degree	IP20									
Relative humiditiy	90% max. (non-condensing)									
Altitude	< 1000m above sea level									
Acoustic noise	< 57dBA		< 62 dBA			< 64 dBA		< 68 dBA		
Weight without batt. and converter (kg)	87	87	91	100	173	197	209	220	232	265
Boyutlar (mm) GxDxY	to be announced			1440x515x85				rack cabinet might be neede		
HYBRID CONTROLLER										
Power	5/10 Kw (up to 10 units in parallel)									
MPPT input	270-640 VDC									
Input min/maks Voc	200VDC / 750VDC									
Efficiency	≥ 97%									
Communication	RS232, 3 dry contacts, EPO, CAN bus, LCD graphic									
Dimension HxPxL/weight	120x500x440 mm, 13kg (5kW), 150x150x440 mm, 17kg (10kW)									
OPTIONS										
Different 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									
Paralel operation	up to 8									

(*) Depending on input line conditions and power