

# DIREKTRONIK

## FSP SOLAR POWERMANAGER HYBRID SERIES



Smart Energy for Smart Home

### 4KW-15KW

### FSP Solar PowerManager-Hybrid

Offers a more intelligent power solution for our customers to reduce the energy bill and make a contribution to our homeland, to our earth. Your energy can be used as efficiently, as smart as possible under current power consumption environment.

#### YOUR ENERGY, YOU DECIDE!

By the unique optimum technology of FSP Solar PowerManager-Hybrid Series you can control whether or how to use your energy, to store the generated power into battery or feed into the grid. Moreover, if grid power failed, by the brilliant ability of FSP Solar PowerManager-Hybrid Series, the load will be handled smartly by direct support from solar, by combining solar & storage energy or withdrawing storage power only. Multiple communication methods for different applications: FSP Solar PowerManager-Hybrid Series implements USB, RS232 ports and also fits with intelligent slot for SNMP card monitoring or Modbus Card for smart meter compensation applicable to keep your electricity meter at zero. to stay your electricity meter at zero.

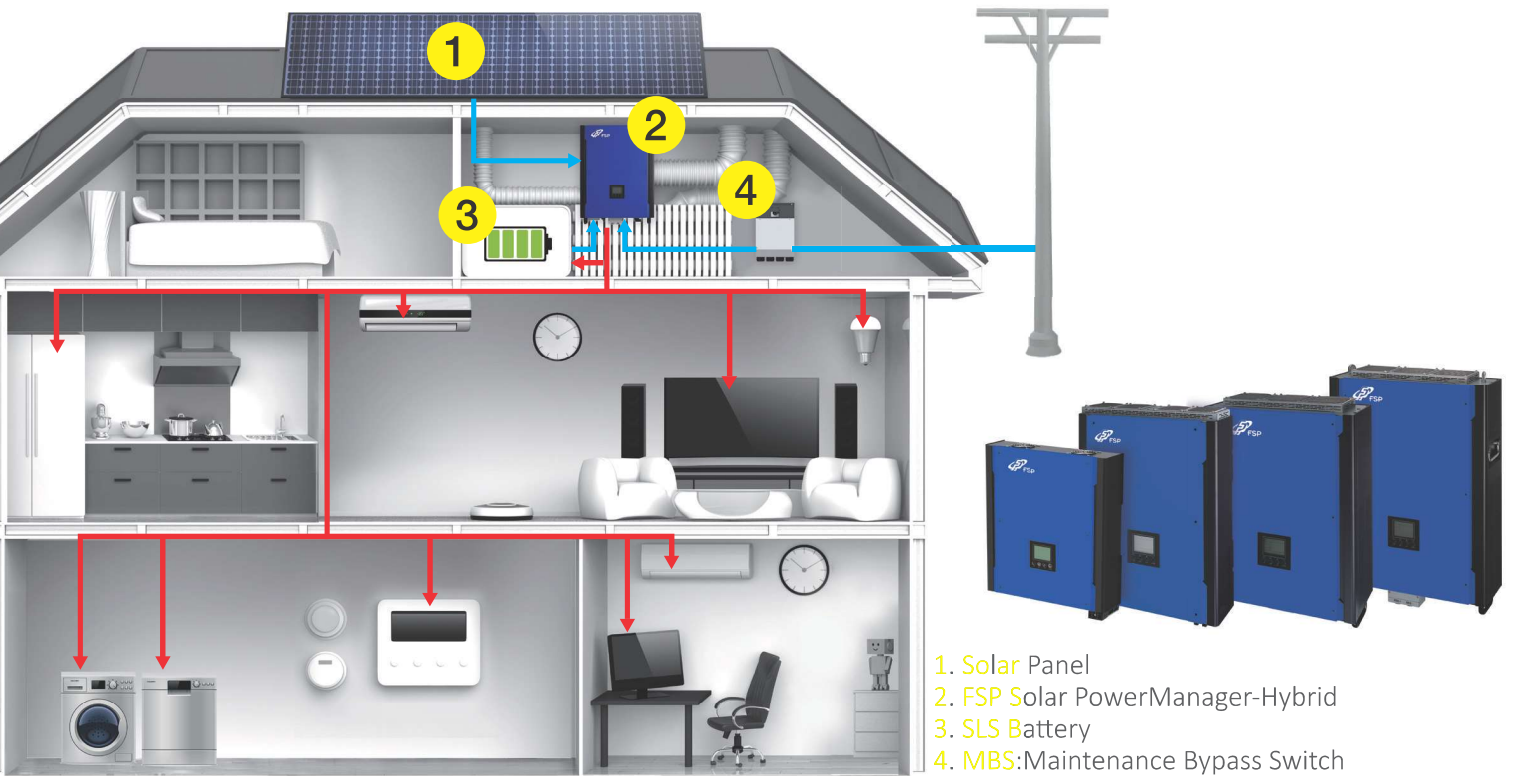
### GENERAL FEATURES

- Just ONE integrated design of Grid-tied & Off-Grid function
- Solar PowerManager-Hybrid implements AC I/P breaker and DC switch
- Solar Energy Storage
- Optimized Self-Consumption
- Load Dual-compensated: Solar & Storage Power or Grid & Storage Power
- Power securing during Grid Failure
- Back-up function
- Intuitive LCD Display
- SNMP, Modbus AS400 Support
- Certified VDE0126 & VDE4105
- 5kW&10kW Model Parallel function available, up to 6PC



**DIREKTRONIK**  
Dataprodukter utöver det vanliga





- 1. Solar Panel
- 2. FSP Solar PowerManager-Hybrid
- 3. SLS Battery
- 4. MBS: Maintenance Bypass Switch

## Multi-Operation Mode



### Solar Energy Multi-Use

Intelligent design adding more options to use Solar Energy: It is not just conventional PV inverter Feed-in function, the system with sufficient solar power will not only feed in grid, but also store energy and support loads.



### Self-Consumption

When Solar Energy is low e.g. at night, the FSP Solar PowerManager will automatically withdraw the power from Energy storage (Battery) without using power from utility; saving & reducing your energy bill.



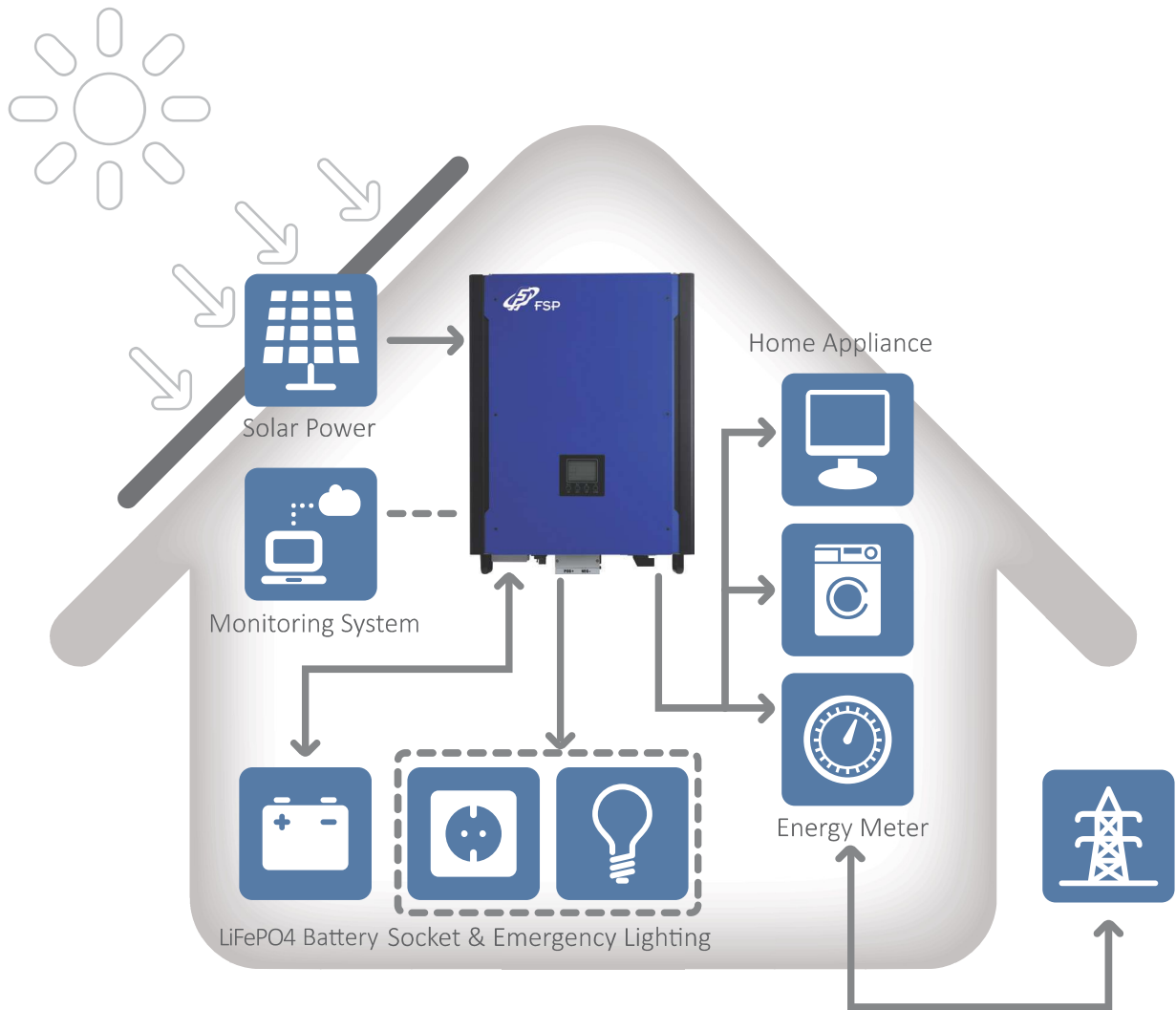
### Back-up Power when Grid Outage

FSP Solar PowerManager implements off-grid inverter function. If a utility failure or outage occurs, the system will switch to back-up mode and offer continuous power.

Dataprodukter utöver det vanliga

### Manage Your Own Power

FSP Solar PowerManger- Hybrid is an ingenious design unit. Product achieves tri-power source, Solar, Utility, and Battery Management.



### FSP Solar PowerManager-Hybrid Compensation Mode:

Modbus Card for smart meter compensation applicable to keep your electricity meter at zero. All the loads are connected with Grid FSP Solar PowerManager-Hybrid which is an auxiliary power. At daytime, Solar Power is sufficient to feed in grid and store energy at the same time. At nighttime, FSP Solar PowerManager-Hybrid will withdraw the power constantly from the battery providing energy to your home appliances in order to decrease your energy bill. If a utility outage occurs, FSP Solar PowerManager-Hybrid will generate the back-up power for emergency demand, e.g. lighting which is connected to the unit.

### Dataprodukter utöver det vanliga TECHNICAL SPECIFICATIONS

MODEL	PowerManager-Hybrid 4kW PIP40A0300	PowerManager-Hybrid 5kW PPF50A0200	PowerManager-Hybrid 10kW PPF10L0101	PowerManager-Hybrid 15kW PPF15L0101
<b>PHASE</b>	Single phase	Single phase	3-phase in / 3-phase out	3-phase in / 3-phase out
MAXIMUM PV INPUT POWER	5000W	10000W	14850W	22500W
RATED OUTPUT POWER	4000W	5000W	10000W	15000W
MAXIMUM CHARGING POWER	4000W	4800W	9600W	15000W
<b>MAXIMUM CHARGING POWER</b>				
<b>PV INPUT</b>				
Nominal DC Voltage / Maximum DC Voltage	360VDC / 580VDC	720VDC / 900VDC	720VDC / 900VDC	720VDC / 900VDC
Start-up Voltage / Initial Feeding Voltage	116VDC / 150VDC	225VDC / 250VDC	320VDC / 350VDC	320VDC / 350VDC
MPP Voltage Range	280VDC / 500VDC	250VDC / 850VDC	400VDC / 800VDC	400VDC / 800VDC
Number of MPP Trackers / Maximum Input Current	1 / 1 x 18A	2 / 2 x 10A	2 / 2 x 18.6A	2 / 1 x 37.6A 1 x 18.6A
<b>GRID OUTPUT</b>				
Nominal Output Voltage	202/208/220/230/240VAC	208/220/230/240VAC	230VAC(P-N) / 400VAC(P-P)	230VAC(P-N) / 400VAC(P-P)
Output Voltage Range	184- 265 VAC*	184- 265 VAC*	184-265 VAC* per phase	184-265 VAC* per phase
Nominal Output Current	17.5 A	21 A	14.5A per phase	21.7A per phase
Power Factor	> 0.99			
<b>EFFICIENCY</b>				
Maximum Conversion Efficiency (DC/AC)	93 %	96 %	96 %	96 %
European Efficiency@ Vnominal	95 %	95 %	95 %	95 %
<b>HYBRID / OFF-GRID OPERATION</b>				
<b>PV INPUT</b>				
Nominal DC Voltage /Maximum DC Voltage	360VDC / 580VDC	720VDC / 900VDC	720VDC / 900VDC	720VDC / 900VDC
Start-up Voltage / Initial Feeding Voltage	116VDC / 150VDC	225VDC / 250VDC	320VDC / 350VDC	320VDC / 350VDC
MPP Voltage Range	280VDC / 500VDC	250VDC / 850VDC	400VDC / 800VDC	350VDC / 850VDC
Number of MPP Trackers / Maximum Input Current	1/1 x 18A	2/2 x 10A	2/2 x 18.6A	2/1 x 37.6A 1 x 18.6A
<b>GRID OUTPUT</b>				
Nominal Output Voltage	202/208/220/230/240VAC	230VAC(P-N) / 400VAC(P-P)	230VAC(P-N) / 400VAC(P-P)	230VAC (P-N)/ 400VAC(P-P)
Output Voltage Range	184- 264.5 VAC*	184-264.5 VAC* per phase	184-264.5 VAC* per phase	180 VAC * per phase
Nominal Output Current	17.5 A	21 A	14.5A per phase	21.7A per phase
<b>AC INPUT</b>				
AC Start-up Voltage/Auto Restart Voltage	120- 140 VAC / 180 VAC	120-140VAC per phase / 180VAC per phase	120-140VAC per phase / 180VAC per phase	120-140VAC per phase / 180VAC per phase
Acceptable Input Voltage Range	170- 280 VAC	170-280 VAC per phase	170-280 VAC per phase	170-280VAC per phase
Maximum AC Input Current	40 A	40 A	40 A	40 A
<b>BATTERY MODE OUTPUT</b>				
Nominal Output Voltage	202/208/220/230/240VAC	230VAC(P-N) / 400VAC(P-P)	230VAC(P-N) / 400VAC(P-P)	230VAC(P-N) / 400VAC(P-P)
Efficiency (DC to AC)	92%	93%	91%	91%
<b>BATTERY &amp; CHARGER</b>				
Nominal DC Voltage	48 VDC			
Maximum Charging Current	80 A	Default 60A, 5A-100A (Adjustable)	Default 60A, 10A-200A (Adjustable)	Default 60A 5A-300A (adjustable)
<b>GENERAL</b>				
<b>PHYSICAL</b>				
Dimension, D x W x H (mm)	117 x 438 x 535	204.2 x 460 x 600	167.5 x 500 x 622	219 x 650 x 820
Net Weight (kgs)	16.2	29	45	62
<b>INTERFACE</b>				
Communication Port	RS-232/USB and CAN Interface			
Intelligent Slot	Optional SNMP, Modbus, and AS-400 cards available			
<b>ENVIRONMENT</b>				
Humidity	0% - 95% RH (No condensing)			
Ingress Protection Rating	IP20			
Cooling system	AirForce cooling			
Operating Temperature	0 to 40°C	-10 to 55°C	-10 to 55°C	-10 to 55°C
Altitude	0 ~ 1000 m** Max2000m			

These figures may vary depending on different AC voltage and country requirements.  
Power derating 1% every 100 m when altitude is over 1000m.  
The above efficiency are tested in laboratory facilities and environmental conditions  
Product specifications are subject to change without further notice