UPS·SOLAR INVERTER

STANDBY UPS
LINE INTERACTIVE UPS
ONLINE UPS
OFF-GRID INVERTER
ON-GRID INVERTER WITH ENERGY STORAGE
ACCESSORY

FSP
FSP POWER SOLUTION GMBH

About FSP Group

FSP Group is the leading switching power supplier in the world.
Since established in 1993, the company has drawn together its R&D expertise, sizeable production capacity and outstanding product quality to consistently excel in this competitive marketplace.

FSP Group produces large selections of products to serve its OEM / ODM customers in LCD TV, LED Lighting, Medical, Industrial / Desktop computers and Servers. FSP Group has more than 28 branch offices worldwide, 4 manufacturing facilities and about 8,500 people throughout the world.

With its broad range of products, FSP Group is uniquely positioned for strong growth on several long term trends and environment protection including green power products, higher energy-efficient conversion products, and highly electrical safety and reliable products.

FSP Group's global presence in Taiwan, Brazil, China, Germany, Sweden, France, India, Japan, Korea, Russia, Turkey, UK, USA also provide our OEM / ODM customers with integrated global logistic. This translates to "Door-to-Door" service and faster time-to-market for product deliveries. Please check with your highly trained professional account manager on how to take advantage of our global logistic service for your business.

Our current focus in FSP Group is to further enhance our green power products, expand market presence of FSP branded retail products, and extend our research and development effort on all our products. At FSP Group, we are not only focusing on building a bigger company, also a better one.

Quality

Quality assurance is one of our promises to customers. Along with extensive coverage of product environmental protection management , FSP began to participate in 2003 in system building and certification to comply to ISO standards, and,has continuously been certified with ISO 9001, ISO 14001, OHSAS 18001, QC 080000, ISO 14064-1, EICC & CSR standards .

FSP also promotes PDCA (Plan, Do, Check, Action) cycle steps to periodically audit and evaluate the investment of suitable resources in order to implement quality and environmental safety and health management system.

Production

Flexible Allocation of Production Capacities

Shortening delivery time is the most important service concept of FSP GROUP and it helps FSP receive its good reputation. Due to customer support and increasing demands, FSP GROUP has been actively expanding plants to satisfy customer needs. With the dramatically increasing annual production capacities, FSP GROUP has become one of the leading global power supply manufacturers.

Global Operating Management Concept

FSP's headquarter in Taiwan is in charge of business orders, product R&D, material procurement, and financial management. It also set up the manufacturing base in China.

Accumulation of Years of Professional Power Supply Manufacturing Strength

With flexible and mechanical integrated manufacturing process and comprehensive production equipment, FSP offers customers sufficient capacities and exceptional products that reach 99% and up yield rate to satisfy customers and develop competitive strength of the company.

Resource Management

With the promotion of harmonized industrial relationship; provision of fair and friendly work conditions and workplace; guarantee of work safety; and compliance to ISO 14001 required environmental management system, FSP has continuously made improvement, reduced waste and pollution, conserves water and saved electricity in order to effectively manage resources.

Our Vision

To be the global leading provider of green energy solutions, to touch people's life and to contribute a better environment.

Our Mission

Providing the best value to customers, employees and shareholders by our innovative service and high quality products.

Company Overview

Headquarters	Taiwan
Established	1993
Capital	US$64 Million
Equity	US$280 Million
Products	ODM or OEM Power Supply
	PC PSU
	Adapter
	Open Frame
	IPC PSU
	Medical PSU
	SSL
	TV PSU
	PV Inverter
	UPS
	Energy Storage System
Quality Certification	ISO 14001
	ISO 9001
	OHSAS 18001
	ISO 14064-1
	ISO 13485

TOPOLOGY

High Power (1200W~3000W)

- Phase Shift Full Bridge
- PFC with Soft–Switching
- Active Clamp

Medium Power (120W~1200W)

- Forward
- Double - Forward
- Half-Bridge
- AHB
- Active Clamp
- LLC Resonant

Low Power (5W~150W)

- Flyback
- Quasi–Flyback

UPS (400VA-800KVA)

- Standby UPS/ line interactive UPS/ OnlineUPS

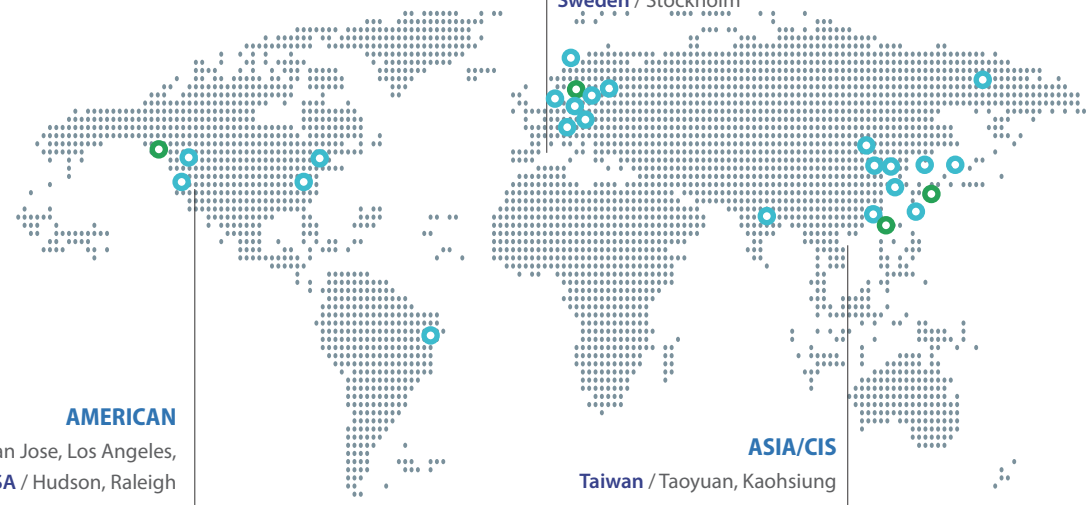
PV Inverter (1KVA-10KVA)

- Grid tied with energy storage / Off grid

GLOBAL SERVICE LOCATIONS

EUROPE

Germany / Willich, Mönchengladbach, Augsburg
UK / Albans
France / Villecresnes
Sweden / Stockholm



AMERICAN

USA / San Jose, Los Angeles,
USA / Hudson, Raleigh

Brazil / San Paulo

ASIA/CIS

Taiwan / Taoyuan, Kaohsiung
Russia / Moscow
China / Shenzhen, Shanghai, Wuxi
Nanjing, Bejjing
India / New-Delhi

Branch Office
RMA Service Centers

NanoFit SERIES

Standby UPS

400VA-800VA

Applications:

Router | Speaker | Game Console | Computer

Protec Your Electronic Devices

UPS & Surge Protector

FSP NanoFit series is a compact backup UPS providing reliable power protection for home appliances, computer and other electronics. It implements battery backup and surge-protected socket functions to meet demand for multiple device. It is a right choice to keep power connected and protect your data.

GENERAL FEATURES

Compact size can be desktop or walll-mounted

6 outlets

Simulated sine wave output

2 ports USB charger 5V / 1A (Max.)

RJ45 surge protection (NanoFit 800 only)

Touch LCD in AC & Battery mode (NanoFit 800 only)
(Output & input voltage / Load level / Battery capacity / Overload)

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TECHNICAL SPECIFICATIONS

MODEL	NanoFit 400	NanoFit 600	NanoFit 800
CAPACITY	400VA / 240W	600 VA / 360 W	800 VA / 480 W
INPUT			
Voltage		220/230/240 VAC	
Acceptable Voltage Range		180- 270 VAC	
Frequency Range		60 Hz / 50 Hz (Auto sensing)	
OUTPUT			
Voltage		220/230/240 VAC	
AC Voltage Regulation(Batt. Mode)		±10%	
Frequency Range(Batt. Mode)		60 Hz or 50 Hz ±1 Hz	
Transfer Time		Typical 2-6 ms, Max. 10ms	
Waveform (Batt. Mode)		Simulated Sinewave	
BATTERY			
Battery Type & Nnmber	12 V/4Ah x 1	12 V/4.5Ah x 1	12 V/5Ah x 1
Typical Recharge Time		8 hours recover to 90% capacity	
INDICATORS			
AC Mode		Green lighting	
Battery Mode		Yellow flashing	
Fault		Red lighting	
ALARM			
Battery Mode		Sounding every 10 seconds	
Low Battery		Sounding every second	
Overload		Sounding every 0.5 second	
Fault		Continuously sounding	
PROTECTION			
Full Protection		Overload, discharge, and overcharge protection	
PHYSICAL			
Dimension, D x W x H (mm)		305 x 158.5 x 95	
Net Weight (kgs)	2.5	2.6	2.9
ENVIRONMENT			
Humidity		0-90 % RH @ 0- 40°C (Non-condensing)	
Noise Level		Less than 40dB	

Product specifications are subject to change without further notice

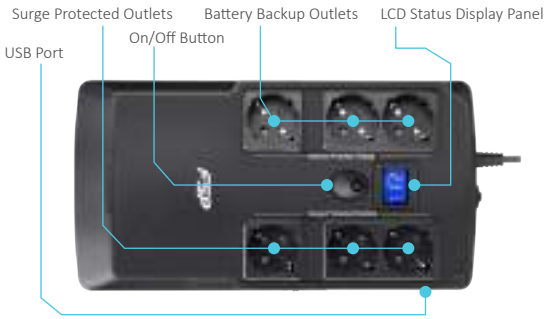
CE

Backup time table for NanoFit series

MODEL	Battery		Back Time (Min)	
	Type of Battery	Total Q'ty	50% Load	100% Load
NanoFit 400	12V 4.0Ah	1	8.0	2.0
NanoFit 600	12V 4.5Ah	1	5.0	0.5
NanoFit 800	12V 5.0Ah	1	5.0	0.5

NOTE : Data given are the average values, not the minimum values.

Product Overview



FP SERIES

Line Interactive UPS

400VA-2KVA

Applications:

Built-in AVR | Generator compatible | Game Console | Computer

Simple Solution for Home and Office Users

FP Series is a “Lite” UPS to protect your power issue on personal computers. It provides comprehensive protection in a small and economic package. Not only offering greater comprehensive power protection against surges and spikes, it also provides pure voltage with built-in AVR stabilizer. The UPS will continue providing clean and stable power to connected equipment while its embedded microprocessor controller guarantees high reliability, perfect for any home or small office application.

GENERAL FEATURES

Compact size

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

Generator compatible(option)

TECHNICAL SPECIFICATIONS

MODEL	FP 400	FP 600	FP 800	FP 1000	FP 1500	FP 2000
PHASE	1-phase in / 1-phase out					
CAPACITY	400 VA / 240 W	600 VA / 360 W	800 VA / 480 W	1000 VA / 600 W	1500 VA / 900 W	2000 VA / 1200 W
INPUT						
Voltage	220/230/240 VAC					
Voltage Range	162-290 VAC					
Frequency Range	60/50 Hz (Auto sensing)					
OUTPUT						
Output Voltage	220/230/240 VAC					
AC Voltage Regulation(Batt. Mode)	±10%					
Frequency Range(Batt. Mode)	50 Hz or 60 Hz ±1 Hz					
Transfer Time	Typical 2-6 ms					
Waveform(Batt. Mode)	Simulated Sine Wave					
BATTERY						
Battery Type	12V / 4.5 Ah	12V / 7 Ah	12V / 9 Ah	12V / 7 Ah	12V / 9 Ah	12V / 9 Ah
Numbers	1	1	1	2	2	2
Typical Recharge Time	4 hours recover to 90% capacity			4-6 hours recover to 90% capacity		
PROTECTION						
Full Protection	Overload, discharge, and overcharge protection					
INDICATORS						
AC Mode	Green lighting			Green lighting		
Battery Mode	Green flashing			Yellow flashing		
Fault	N/A			Red lighting		
ALARM						
Battery Mode	Sounding every 10 seconds					
Low Battery	Sounding every second					
Overload	Sounding every 0.5 second					
Fault	Continuously sounding					
PHYSICAL						
Dimension, D x W x H(mm)	279 (D) x 101 (W) x 142 (H)			320 (D) x 130 (W) x 182 (H)		
Net Weight (kgs)	3.55	4.2	4.9	8.2	10.4	10.6
ENVIRONMENT						
Operation Humidity	0-90% RH @ 0-40°C (non-condensing)					
Noise Level	Less than 40 dBA @ 1 Meter					

Product specifications are subject to change without further notice

CE

Backup time table for FP series

MODEL	Battery		Back Time (Min)			
	Type of Battery	Total Q'ty	25% Load	50% Load	75% Load	100% Load
FP 400	12V 4.5Ah	1	15.0	8.0	3.0	0.67
FP 600	12V 7.0Ah	1	19.0	6.0	0.5	0.08
FP 800	12V 9.0Ah	1	20.0	3.0	0.13	0.08
FP 1000	12V 7.0Ah	2	18.0	5.0	1.83	0.46
FP 1500	12V 9.0Ah	2	18.0	6.5	3.5	1.33
FP 2000	12V 9.0Ah	2	15.0	3.73	1.6	0.6

NOTE : Data given are the average values, not the minimum values.

EUFO SERIES

High-Level Line-Interactive UPS

1.1KVA-3KVA

Applications:

Work-Stations | Rack server | Network device | Multiple communication

Professional Line-Interactive UPS Solutions

Eufo series rating is from 1.1kVA to 3.0kVA and implemented protect functions for power failure,surge overvoltage and brownout. Rack/Tower with easy-shift LCD design is flexible for installation. moreover, this series built-in Efficiency corrective Optimizer(ECO) that the efficiency is up to 98% for more energy saving. The application is suitable for networking, telecom, server and mission-critical applications.

GENERAL FEATURES

Pure sine wave
Output power factor 0.9
Microprocessor control optimizes reliability
User-friendly and easy-shift LCD design
Rack/Tower 2 in 1 design
Built-in boost and buck AVR
Programmable power management outlets
ECO operation for energy saving
(Efficiency Corrective Optimizer)
Emergency power off function (EPO)
RJ45 Surge protector
Hot-swappable battery design
Built-in internal battery & extend battery function
Multiple communication available

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Microprocessor-based line interactive design

Eufo series UPS is designed with microprocessor controller for fast response to power disturbances.

Pure sine wave output

With pure sine wave output, Eufo series guarantees compatibility for all kinds of loads. It's perfect power protection for versatile applications such as networking, telecom and other mission-critical applications.

User-friendly and easy-shift LCD display

The front panel digital display can be easily shifted through LCD setting to suit the installation format, vertically stand or flat wall mount.

Rack / Tower design

Eufo series is designed in true universal-mount case. It can be easily installed as floor-standing tower or in 19-inch rackmount bracket.

19" rack-mounting

Floor-standing Tower

Built-in boost and buck AVR

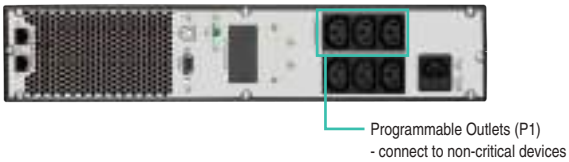
With built-in voltage regulator, the UPS will maintain regulated nominal output without using battery power during brownouts and overvoltages.

Output power factor 0.9

Eufo series is a high-density UPS with output power factor 0.9 to provide higher performance and efficiency to critical applications.

Programmable power management outlets

With programmable power management outlets, users can easily and independently control load segments. During power failure, this feature enables users to extend battery time to missioncritical devices by shutting down the non-critical devices.



ECO operation for energy saving (Efficiency Corrective Optimizer)

The ECO function allows cost-effective operation of UPS Systems as high as 98%. In this operation mode, load is supplied by the mains. When battery is fully charged, the fan will stop running for energy saving. In the event of a mains failure, the inverter takes over the load and provides supply continuity to the connected systems.

Emergency Power Off Function (EPO)

This feature can secure the personnel and equipment in case of fires or other emergencies.

Hot-swappable battery design

This design ensures clean and uninterruptible power to protected equipment during battery replacement.

Extend battery capacity Function

Eufo series offer extend battery capacity function for long back up time purpose.

RJ-45 Surge protector

Eufo Series implements RJ-45 Surge Protection ports to prevent Ethernet network damage caused by lightning or ground surges.

Multiple communication

- USB port
- RS-232 port
- Intelligent slot for SNMP or Relay Card (option)

Also offer free monitoring software, ViewPower, downloaded from the internet. This advanced and networking software supports various operating systems and multiple languages.

TECHNICAL SPECIFICATIONS

MODEL		EU-1101RS/TS	EU-1102RS/TS	EU-1103RS/TS
PHASE			Single phase with ground	
CAPACITY		1100 VA / 990 W	2000 VA/ 1800 W	3000 VA/ 2700 W
INPUT				
Voltage Range			208/220/230/240 VAC	
Acceptable Voltage Range			162-290 VAC	
Frequency Range			50Hz/60Hz (Auto sensing)	
OUTPUT				
Output Voltage			208/220/230/240VAC	
Voltage Regulation			± 1.5% (Before battery Alarm)	
Frequency Range(Batt. Mode)			50 Hz or 60 Hz ± 1 Hz	
Current Crest Ratio			3:1 (max.)	
Harmonic Distortion			2% max @ 100% linear Last ; 5% max @ 100% non linear load (Before low battery alarm)	
Transfer Time			2-6ms (typical), 10ms max.	
Waveform (Batt. Mode)			Pure Sinewave	
EFFICIENCY				
ECO Mode			97%	
Boost/Buck Mode			95%	
Battery Mode		89%	91%	92%
BATTERY				
Standard Model	Battery Type & Numbers	12 V/9 Ah x 2	12 V/9 Ah x 4	12 V/9 Ah x 6
	Charging Current (max.)		1.5 A	
	Charging Voltage	27.4 VDC ± 1%	54.8 VDC ± 1%	82.1 VDC ± 1%
	Typical Recharge Time		4 hours recover to 90% capacity	
Long-Run Model	Charging Current (max.)		1A/2A/4A/6A/8A	
	Charging Voltage	27.4 VDC ± 1%	54.8 VDC ± 1%	82.1 VDC ± 1%
ALARM				
Battery Mode			Sounding every 10 seconds	
Low Battery			SSounding twice every second	
Overload			Sounding every second	
Fault			Continuously sounding	
AC INPUT & OUTPUT CONNECTORS				
AC Input Connector		1 x IEC 320 C14	1 x IEC 320 C14	1 x IEC 320 C20
AC Output Connector		8 x IEC 320 C13	8 x IEC 320 C13	6 x IEC 320 C13 / 1 x IEC C19
STANDARDS				
Safety / EMC			IEC 62040-1 (safety) / IEC-62040-2 (EMC) / CE	
PHYSICAL				
Standard Model	Dimension, D x W x H(mm)	410 (D) x 438 (W) x 88 (H)	510 (D) x 438 (W) x 88 (H)	630 (D) x 438 (W) x 88 (H)
	Net Weight (kgs)	13.4	21.5	29.3
Long-Run Model	Dimension, D x W x H(mm)	410 (D) x 438 (W) x 88 (H)	410 (D) x 438 (W) x 88 (H)	410 (D) x 438 (W) x 88 (H)
	Net Weight (kgs)	9.0	10.8	11.9
ENVIRONMENT				
Operation Humidity			0-90% RH @ 0-40°C (Non-condensing)	
Noise Level			Less than 45 dBA @ 1 Meter	
MANAGEMENT				
Smart RS-232 / USB			Supports Windows 2000/2003/XP/Vista/2008/7/8/10, Linux and MAC	
Optional SNMP			Power management from SNMP manager and web browser	

Product specifications are subject to change without further notice

CE

Backup Time Table for Eufo Series

	Battery Bank	Backup Time with Load (Min) 25%	50%	75%	100 %
EU-1101	+ 1 BB-24/18RT (4 x 9Ah Batteries)	112	57	36	25
	+ 2 BB-24/18RT (8 x 9Ah Batteries)	256	139	86	60
	+ 3 BB-24/18RT (12 x 9Ah Batteries)	358	221	152	98
	+ 4 BB-24/18RT (16 x 9Ah Batteries)	512	280	218	153
EU-1102	+ 1 BB-48/18RT (8 x 9Ah Batteries)	60	28	17	10
	+ 2 BB-48/18RT (16 x 9Ah Batteries)	130	62	40	26
	+ 3 BB-48/18RT (24 x 9Ah Batteries)	230	100	60	44
	+ 4 BB-48/18RT (32 x 9Ah Batteries)	288	163	94	69
EU-1103	+ 1 BB-72/18RT (12 x 9Ah Batteries)	58	28	17	10
	+ 2 BB-72/18RT (24 x 9Ah Batteries)	131	66	41	26
	+ 3 BB-72/18RT (36 x 9Ah Batteries)	225	107	62	43
	+ 4 BB-72/18RT (48 x 9Ah Batteries)	270	167	92	68

KNIGHT SERIES

PF0.8 Online UPS

1KVA-10KVA

Applications:

Server POS ATM Computer

Reliable UPS Solution

Knight Series is specifically designed for operation in poor power areas. Built-in internal battery and extend battery connector in tower model, user can extend autonomy time via plug and play battery design. The Reliable design is ideal for Banking, ATM, and other business critical application.

GENERAL FEATURES

- True double-conversion
- Microprocessor control optimizes reliability
- Input power factor correction ≧ 0.99
- Output power factor 0.8
- Wide input voltage (110V–300V)
- Converter mode available
- ECO mode for energy saving
- Generator compatible
- SNMP Function operate with USB or RS-232 synchronizingly
- Comprehensive LCD Display for access & setting

TECHNICAL SPECIFICATIONS

MODEL		KN-1101-TS	KN-1102-TS	KN-1103-TS
PHASE			Single phase with ground	
CAPACITY		1000 VA / 800W	2000 VA / 1600W	3000 VA / 2400 W
INPUT				
Voltage Range	Low Line Transfer		160 VAC / 140 VAC / 120 VAC / 110 VAC ± 5 % (Based on load percentage 100%- 80 % / 80 %- 70 % / 70- 60 % / 60 %- 0)	
	Low Line Comeback		168 VAC / 148 VAC / 128VAC / 118 VAC ± 5 % (Based on load percentage 100%- 80 % / 80 %- 70 % / 70- 60 % / 60 %- 0)	
	High Line Transfer		300 VAC ± 5 % or 150 VAC ± 5 %	
	High Line Comeback		290 VAC ± 5 % or 145 VAC ± 5 %	
Frequency Range			40Hz ~ 70 Hz	
Power Factor			≧ 0.99 @ Nominal Voltage (100% Last)	
OUTPUT				
Nominal Voltage			200/208/220/230/240VAC	
AC Voltage Regulation			± 1%	
Frequency Range(Synchronized Range)			47~ 53 Hz or 57 ~ 63 Hz	
Frequency Range(Batt. Mode)			50 Hz ± 0.25 Hz or 60Hz ± 0.3 Hz	
Current Crest Ratio			3:1	
Harmonic Distortion			≦ 3 % THD (Linear Load), ≦6 % THD (Non-linear Load)	
Transfer Time	AC mode to Battery mode		Zero	
	Inverter to Bypass		4 ms (Typical)	
Waveform (Batt. Mode)			Pure Sinewave	
EFFICIENCY				
Line Mode		88%	90%	91%
Battery Mode		93%	85%	96%
ECO Mode		87%	88%	89%
BATTERY				
Battery Type		12V / 7 Ah	12V / 7 Ah	12 V / 9 AH
Numbers		3	6	6
Typical Recharge Time			4 hours recover to 90% capacity	
Charging Current (max.)		1.0 A	1.0 A	1.0 A
Charging Voltage		41.0 VDC ± 1%	82.1 VDC ± 1%	82.1 VDC ± 1%
INDICATORS				
LCD Display			Last level, Battery level, AC mode, Battery mode, Bypass mode, and Fault indicators	
ALARM				
Battery Mode			Sounding every 4 seconds	
Low Battery			Sounding every second	
Overload			Sounding twice every second	
Fault			Continously sounding	
AC INPUT & OUTPUT CONNECTORS				
AC Input Connector		1 x IEC 320 C14	1 x IEC 320 C14	1 x IEC 320 C20
AC Output Connector		4 x IEC 320 C13	8 x IEC 320 C13	6 x IEC 320 C13 / 1 x IEC C19
STANDARDS				
Safety / EMC			IEC 62040-1 (safety) / IEC-62040-2 (EMC) / CE	
PHYSICAL				
Dimension, D x W x H(mm)		UPS Unit: 397 (D) x 145 (W) x 220 (H) Battery Pack: 397 (D) x 145 (W) x 220 (H)	UPS Unit: 419 (D) x 190 (W) x 318 (H) Battery Pack: 535 (D) x 190 (W) x 318 (H)	UPS Unit: 419 (D) x 190 (W) x 318 (H) Battery Pack: 535 (D) x 190 (W) x 318 (H)
Net Weight (kgs)		UPS Unit:13 Battery Pack:18	UPS Unit:26 Battery Pack:49.4	UPS Unit:28 Battery Pack:67.5
ENVIRONMENT				
Operation Humidity			20-90% RH @ 0-40°C (non-condensing)	
Noise Level			Less than 50 dBA @ 1 Meter	
MANAGEMENT				
Smart RS-232 / USB			Supports Windows 2000/2003/XP/Vista/2008/7/8/10, Linux and MAC	
Optional SNMP			Power management from SNMP manager and web browser	

*Derate to 80% of capacity in Frequency converter mode and to 80% when the output voltage is adjusted to 100/200/208VAC
Product specifications are subject to change without further notice

CE

Backup Time Table for Knight Series

	Battery Bank	Backup Time with Load (Min) 25%	50%	75%	100 %
KN-1101TS	Internal Battery 36V / 7Ah	29.41	15.55	8.46	5.85
	+ 1 BB-36/14T - 36V / 14 Ah	97.66	49.80	27.83	18.20
	+ 2 BB-36/14T - 36V / 28 Ah	155.41	78.56	46.20	31.70
	+ 3 BB-36/14T - 36V / 42 Ah	249.08	125.16	63.40	45.36
KN-1102TS	Internal Battery 72V / 7Ah	35.08	18.18	12.08	6.76
	+ 1 BB-72/14T - 72V / 14 Ah	113.41	57.50	28.35	20.00
	+ 2 BB-72/14T - 72V / 28 Ah	190.41	95.53	66.35	34.21
	+ 3 BB-72/14T - 72V / 42 Ah	261.08	131.13	56.15	45.68
KN-1103TS	Internal Battery 72V / 9Ah	25.08	13.18	8.50	5.45
	+ 1 BB-72/18T - 72V / 18 Ah	97.75	49.80	28.26	17.33
	+ 2 BB-72/18T - 72V / 36 Ah	140.41	71.46	45.40	30.16
	+ 3 BB-72/18T - 72V / 54 Ah	201.25	101.30	59.16	44.76

TECHNICAL SPECIFICATIONS

MODEL	KN-1101RL	KN-1102RL	KN-1103RL	KN-1106RL	KN-1110RL
PHASE	Single phase with ground				
CAPACITY	1000 VA / 800W	2000 VA / 1600W	3000 VA / 2400 W	6000 VA / 4800 W	10000 VA / 8000 W
INPUT					
Nominal Voltage	200/208/220/230/240VAC				
Voltage Range	110-300 VAC ± 5%	110-300 VAC ± 5%	110-300 VAC ± 5%	110-300 VAC @50% Load 176-300 VAC @100% Load	
Frequency Range	40Hz ~ 70 Hz			46Hz ~ 54 Hz or 56Hz ~ 64 Hz	
Power Factor	≧ 0.99 @ Nominal Voltage (100% Last)				
OUTPUT					
Nominal Voltage	200/208/220/230/240VAC				
AC Voltage Regulation	± 3%			± 1%	
Frequency Range(Synchronized Range)	47~ 53Hz or 57 ~ 63Hz			46~ 54Hz or 56 ~ 64Hz	
Frequency Range(Batt. Mode)	50Hz ± 0.25Hz or 60Hz ± 0. Hz			50Hz ± 0.1Hz or 60Hz ± 0.1Hz	
Overload	100%~110%:audible warning , 110%~130%: UPS shut down in 30 seconds at battery mode or transfer to bypass when the utility is normal >130%:UPS shuts down immediately at battery mode or transfer to bypass mode when the utility is normal 3:1 (Max)			-	
Current Crest Ratio	3:1 (Max)				
Harmonic Distortion	≦3 % THD (Linear Load), ≦ 6 % THD (Non-linear Load)			≦3% THD (Linear Load), ≦ 5% THD (Non-linear Load)	
Transfer Time: AC mode to Battery mode	Zero				
Transfer Time: Inverter to Bypass	4 ms (Typical)			Zero	
Waveform (Batt. Mode)	Pure Sinewave				
EFFICIENCY					
Line Mode	88%	90%	91%	90.3%	90.7%
Battery Mode	93%	95%	96%	95.0%	96.0%
ECO Mode	87%	88%	89%	88.0%	89.0%
BATTERY					
Battery Type	12V / 9 Ah	12V / 9 Ah	12V / 9 Ah	12 V / 9 AH	12 V / 9 AH
Numbers	3	6	6	20 pcs (16-20 pcs adjustable)*	
Typical Recharge Time	Depending on the capacity of external battery bank				
Charging Current (max.)	1.0/2.0/4.0/6.0A ± 10%			Default:1.0 A ± 10%, Max.:2.0A ± 10%	
Charging Voltage	41 VDC ± 1%	82.1 VDC ± 1%	82.1 VDC ± 1%	273 VDC ± 1% (Based on 20 pcs batteries)	
INDICATORS					
LCD Display	Last level, Battery level, AC mode, Battery mode, Bypass mode, and Fault indicators				
ALARM					
Battery Mode	Sounding every 4 seconds				
Low Battery	Sounding every second				
Overload	Sounding twice every second				
Fault	Continuously sounding				
AC INPUT & OUTPUT CONNECTORS					
AC Input Connector	1 x IEC 320 C14			Terminal	
AC Output Connector	4 x IEC 320 C13			Terminal	
STANDARDS					
Safety / EMC	IEC 62040-1 (safety) / IEC-62040-2 (EMC) / CE				
PHYSICAL					
Dimension,D x W x H(mm)	Battery Pack: 410 (D) x 438 (W) x 88 (H)	UPS Unit: 410 (D) x 438 (W) x 88 (H) Battery Pack: 510 (D) x 438 (W) x 88 (H)	Battery Pack: 630 (D) x 438 (W) x 88 (H)	UPS Unit: 580 (D) x 438 (W) x 88 (H) Battery Pack: 580 (D) x 438 (W) x 131 (H)	UPS Unit: 668 (D) x 438 (W) x 88 (H)
Net Weight (kgs)	UPS unit: 13 Battery Pack: 21.3	UPS unit: 8.3 Battery Pack: 28.7	UPS unit: 10 Battery Pack: 40.8	UPS unit: 15 Battery Pack: 48	UPS unit: 18 Battery Pack: 63
ENVIRONMENT					
Operation Humidity	20-90% RH @ 0-40°C (non-condensing)				
Noise Level	Less than 50 dBA @ 1 Meter			Less than 55dBA@1 Meter	Less than 58dBA@1 Meter
MANAGEMENT					
Smart RS-232 / USB	Supports Windows 2000/2003/XP/Vista/2008/7/8/10, Linux and MAC				
Optional SNMP	Power management from SNMP manager and web browser				

*Derate to 80% of capacity in Frequency converter mode and to 80% when the output voltage is adjusted to 100/200/208VAC
Product specifications are subject to change without further notice

CE

Backup Time Table for Knight Series

	Battery Bank	Backup Time with Load (Min) 25 %	50 %	75%	100%
KN-1101RL	+1 BB-36/09RT	60	31.0	17.0	12
KN-1102RL	+1 BB-72/09RT	30.9	23.3	13.2	8.5
	+2 BB-72/09RT	70.0	47.0	27.0	18.0
KN-1103RL	+1 BB-72/09RT	27.0	13.2	8.5	5.3
	+2 BB-72/09RT	58.0	27.0	18.0	11.0
KN - 1106RL	+1 BB-240/09RT	57	40.0	23.0	9.0
	+2 BB-240/09RT	120	57.0	48.0	40.0
KN - 1110RL	+1 BB-240/09RT	29.0	12.0	7.0	4.0
	+2 BB-240/09RT	64.0	46.0	31.0	17.0

CHAMP SERIES

PF0.9 Online UPS

1KVA-10KVA

Applications:

ECO mode | Pure sinewave | Generator compatible | Computer

Compact & Small-Scale Online UPS Solutions

Champ Series is the high power density double-conversion online UPS with a output power factor 0.9. It's designed in small cabinet with microprocessor controller.
Champ Series also have USB and RS-232 communication ports as standard, with a built-in intelligent slot for additional adapters, protocol converters and relate contact cards.

GENERAL FEATURES

True double-conversion
Microprocessor control optimizes reliability
Input power factor correction >=0.99
Output power factor 0.9
Wide input voltage (130 V – 280 V)
Converter mode available
ECO mode for energy saving
Generator compatible
Smart SNMP works well with either USB or RS-232 together display allows easy monitoring and access of UPS status

FSP
FSP POWER SOLUTION GMBH

TECHNICAL SPECIFICATIONS

MODEL	CH-1101T	CH-1102T	CH-1103T	CH-1106T	CH-1110T
PHASE	Single phase with ground				
CAPACITY	1000 VA / 900W	2000 VA / 1800W	3000 VA / 2700 W	6000 VA / 5400 W	10000 VA / 9000 W
INPUT					
Nominal Voltage	200/208/220/230/240 VAC			208/220/230/240 VAC	
Voltage Range	120-300 VAC (Based on load at 50%) 180-280 VAC (Based on load at 100%)			110-300 VAC (Based on load at 50%) 176-300 VAC (Based on load at 100%)	
Frequency Range	40Hz ~ 70 Hz			46~54 Hz or 56~64 Hz	
Power Factor	≧ 0.99 @ Nominal Voltage (100% Last)				
OUTPUT					
Nominal Voltage	200/208/220/230/240 VAC			200/208/220/230/240 VAC	
AC Voltage Regulation	± 1%			± 1%	
Frequency Range(Synchronized Range)	47~ 53 Hz or 57 ~ 63 Hz			46~54 Hz or 56~64 Hz	
Frequency Range(Batt. Mode)	50 Hz or 60 Hz ± 0.5%			50 Hz or 60Hz ± 0.1 Hz	
Current Crest Ratio	3:1			3:1	
Harmonic Distortion	≦ 3 % THD (Linear Load), ≦6 % THD (Non-linear Load)			≦ 3 % THD (Linear Load), ≦5 % THD (Non-linear Load)	
Transfer Time: AC mode to Battery mode	Zero			Zero	
Transfer Time: Inverter to Bypass	4 ms (Typical)			Zero	
Waveform (Batt. Mode)	Pure Sinewave				
EFFICIENCY					
Line Mode	88%	89%	90%	92%	93%
Battery Mode	83%	85%	88%	90%	91%
BATTERY					
Battery Type	12V / 9 Ah	12V / 9 Ah	12 V / 9 AH	12 V / 9 AH	12 V / 9 AH
Numbers	2	4	6	16	16
Typical Recharge Time	4 hours recover to 90% capacity			9 hours recover to 90% capacity	
Charging Current (max.)	1.0 A	1.0 A	1.0 A	1A/2A (Adjustable)	
Charging Voltage	27.4 VDC ± 1%	54.7 VDC ± 1%	82.1 VDC ± 1%	218.4 VDC ± 1%	218.4 VDC ± 1%
INDICATORS					
LCD Display	Last level, Battery level, AC mode, Battery mode, Bypass mode, and Fault indicators				
ALARM					
Battery Mode	Sounding every 4 seconds				
Low Battery	Sounding every second				
Overload	Sounding twice every second				
Fault	Continously sounding				
AC INPUT & OUTPUT CONNECTORS					
AC Input Connector	1 x IEC 320 C14	1 x IEC 320 C14	1 x IEC 320 C20	Terminal block	
AC Output Connector	3 x CEE 7/4 (Schuko)	3 x CEE 7/4 (Schuko)	4 x CEE 7/4 (Schuko)		
STANDARDS					
Safety / EMC	IEC 62040-1 (safety) / IEC-62040-2 (EMC) / CE				
PHYSICAL					
Dimension, D x W x H(mm)	282 x 145 x 220	397 x 145 x 237	421 x 190 x 336	UPS Unit: 369 x 190 x 688 Battery Pack: 369 x 190 x 318	UPS Unit: 442 x 190 x 688 Battery Pack: 442 x 190 x 318
Net Weight (kgs)	9.8	17.0	17.6	UPS Unit: 61 Battery Pack:49	UPS Unit: 66 Battery Pack:49.5
ENVIRONMENT					
Operation Humidity	20-90% RH @ 0-40°C (non-condensing)			0-95% RH @ 0-50°C (non-condensing)	0-95% RH @ 0-40°C (non-condensing)
Noise Level	Less than 50 dBA @ 1 Meter			Less than 50 dBA @ 1 Meter	Less than 58 dBA @ 1 Meter
MANAGEMENT					
Smart RS-232 / USB	Supports Windows 2000/2003/XP/Vista/2008/7, Linux and MAC				
Optional SNMP	Power management from SNMP manager and web browser				

*1-3KVA: Derate to 80% of capacity in Frequency converter mode and to 80% when the output voltage is adjusted to 100/200/208VAC.
6-10KVA: Derate to 60% of capacity in Frequency converter mode and to 90% when the output voltage is adjusted to 208VAC.
Product specifications are subject to change without further notice.

CE

Backup Time Table for Champ Series

		Backup Time with Load (Min)			
	Battery Bank	**25%**	**50%**	**75%**	**100 %**
CH 1101TS	Internal battery only (24V:12V-9Ah x 2)	20	9.0	5.0	3.0
CH 1102TS	Internal battery only (48V:12V-9Ah x 4)	25	10	6.0	3.0
CH 1103TS	Internal battery only (72V:12V-9Ah x 6)	26	10	6.0	3.0
CH 1106TS	Internal battery (192V:12V-9Ah x 16)	42	12.7	7.0	4.2
	+1 external battery (384V:12V-9Ah x 32)	98	5.9	2.5	1.2
CH 1110TS	Internal battery (192V:12V-9Ah x 16)	22.3	17.8	10	6.8
	+1 external battery (384V:12V-9Ah x 32)	53	22	13	8.7

TECHNICAL SPECIFICATIONS

MODEL		CH-1101R	CH-1102R	CH-1103R	CH-1106R	CH-1110R
PHASE		Single phase with ground				
CAPACITY		1000 VA / 900W	2000 VA / 1800W	3000 VA / 2700 W	6000 VA / 5400 W	10000 VA / 9000 W
INPUT						
Nominal Voltage		200/208/220/230/240VAC			208/220/230/240VAC	
Voltage Range		120-300 VAC at 50% load 180-300 VAC at 100% load			110-300 VAC ± 3% at 50% Load 176-300 VAC ± 3% at 100% Load	
Frequency Range		40Hz ~ 70 Hz			46~54 Hz or 56~64 Hz	
Power Factor		≧ 0.99 @ Nominal Voltage (100% Last)				
OUTPUT						
Nominal Voltage		200/208/220/230/240VAC			208/220/230/240 VAC	
AC Voltage Regulation		± 1%			± 1%	
Frequency Range(Synchronized Range)		47~ 53 Hz or 57 ~ 63 Hz			46~54 Hz or 56~64 Hz	
Frequency Range(Batt. Mode)		50 Hz ± 0.25 Hz or 60Hz ± 0.3 Hz			50 Hz or 60Hz ± 0.1 Hz	
Current Crest Ratio		3:1			3:1	
Harmonic Distortion		≦ 3 % THD (Linear Load), ≦6 % THD (Non-linear Load)			≦ 3 % THD (Linear Load), ≦5 % THD (Non-linear Load)	
Transfer Time	AC mode to Battery mode	Zero			Zero	
	Inverter to Bypass	4 ms (Typical)			Zero	
Waveform (Batt. Mode)		Pure Sinewave				
EFFICIENCY						
Line Mode		88%	89%	90%	92%	93%
Battery Mode		83%	87%	88%	90%	91%
BATTERY						
Standard Model	Battery Type	12V / 9 Ah	12V / 9 Ah	12 V / 9 AH	N/A	
	Numbers	2	4	6		
	Typical Recharge Time	4 hours recover to 90% capacity				
	Charging Current (max.)	1.0 A	1.0 A	1.0 A		
	Charging Voltage	27.4 VDC ± 1%	54.7 VDC ± 1%	82.1 VDC ± 1%		
Long-run Model	Battery Type	N/A			Depending on the capacity of external batteries	
	Numbers in string				16-20pcs (Adjustable)	
	Charging Current (max.)				1A/2A/4A/6A (Adjustable, 6A is only available for 16pcs batteries)	
	Charging Voltage				218.4 VDC ± 1% (Based on 16pcs batteries)	
INDICATORS						
LCD Display		Last level, Battery level, AC mode, Battery mode, Bypass mode, and Fault indicators				
ALARM						
Battery Mode		Sounding every 4 seconds				
Low Battery		Sounding every second				
Overload		Sounding twice every second				
Fault		Continously sounding				
AC INPUT & OUTPUT CONNECTORS						
AC Input Connector		1 x IEC 320 C14	1 x IEC 320 C14	1 x IEC 320 C20	Terminal block	
AC Output Connector		3 x CEE 7/4 (Schuko)	3 x CEE 7/4 (Schuko)	4 x CEE 7/4 (Schuko)	Terminal block	
STANDARDS						
Safety / EMC		IEC 62040-1 (safety) / IEC-62040-2 (EMC) / CE				
PHYSICAL						
Standard Model	Dimension, D x W x H(mm)	310 x 438 x 88	410 x 438 x 88	630 x 438 x 88	N/A	N/A
	Net Weight (kgs)	12	19	29.3	N/A	N/A
Long-run Model	Dimension, D x W x H(mm)	N/A			UPS Unit: 530x438x88 [2U] Battery Pack: 668x438x88 [2U]	580 x 438 x 133[3U]
	Net Weight (kgs)				UPS Unit: 15 Battery Pack:48	18
ENVIRONMENT						
Operation Humidity		20-90% RH @ 0-40°C (non-condensing)			0-95% RH @ 0-40°C (non-condensing)	
Noise Level		Less than 50 dBA @ 1 Meter			Less than 50 dBA @ 1 Meter	Less than 58 dBA @ 1 Meter
MANAGEMENT						
Smart RS-232 / USB		Supports Windows 2000/2003/XP/Vista/2008/7, Linux and MAC				
Optional SNMP		Power management from SNMP manager and web browser				

*1K-3K: Derate to 80% of capacity in Frequency converter mode or when the output voltage is adjusted to 208VAC.
6K/10K: Derate to 60% of capacity in Frequency converter mode and to 80% when the output voltage is adjusted to 208VAC.
Product specifications are subject to change without further notice

CE

Backup Time Table for Champ Series

	Battery Bank	Backup Time with Load (Min) 25%	50%	75%	100 %
CH 1106RL	+1 external battery (384V:12V-9Ah x 32)	98	5.9	2.5	1.2
CH 1110RL	+1 external battery (384V:12V-9Ah x 32)	53	22	13	8.7

CUSTOS 9X+ SERIES

High-Level Online UPS

1KVA-10KVA

Applications:

Data Center | Telecom | Networking | Computer

Professional On-Line UPS Solutions

Ideal for medium-density power protection demand, Power guardian, FSP Custos 9X+ series provides Rack/ Tower to fit diverse environment. Despite its compact footprint, Custos 9X+ incorporates internal battery packs which can be accessed via the front panel for maintenance checks and replacement without removing the UPS from its rack mounting. The LCD display panel can be easily shifted by pressing buttons to suit the installation format, vertical stand or horizontal rack mount. Besides, IT personnel can manage equipment well from learning Intuitive information via LCD display.

GENERAL FEATURES

- True double-conversion online UPS
- Output power factor 0.9
- User-friendly and easy-shift LCD display
- Rack/Tower design
- Programmable power management outlets
- 50/60 Hz frequency converter mode
- ECO and advanced ECO mode for energy saving
- Emergency Power Off Function (EPO)
- Hot-swappable battery design
- Parallel option for 6K-10K models

True double-conversion online UPS

A true double conversion UPS will rectify input power to offer clean,pure, high level quality power with ±1% voltage output regulation to fully protect mission-critical devices such as sensitive networks, small computer centers servers, telecom applications, as well as for industrial applications.

Output power factor 0.9

Custos 9X+ series is a high-density UPS with output power factor 0.9 to provide higher performance and efficiency to critical applications.

User-friendly and easy-shift LCD display

The front panel digital display can be easily shifted through LCD setting to suit the installation format, vertically stand or flat wall mount.

Rack / Tower design

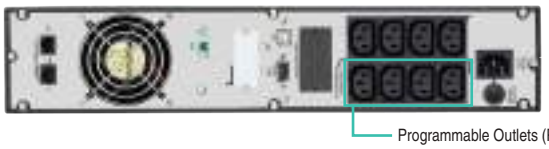
Custos 9X+ series is designed in true universal-mount case. It can be easily installed as floor-standing tower or in 19-inch rackmount bracket.

19" rack-mounting

Floor-standing Tower

Programmable power management

With programmable power management outlets, users can easily and independently control load segments. During power failure, this feature will extend battery time to mission critical devices by shutting down the non-critical devices.



Programmable Outlets (P1)
- connect to non-critical devices

50/60 Hz frequency converter mode

Lock output frequency at 50Hz or 60Hz to suit power sensitive equipments.

ECO and advanced ECO mode for energy saving

Thanks FSP Custos9X+ smart design, operation efficiency up to 97% ECO mode implemented. Furthermore, Custos 9X+ 1-3K even offers advanced ECO mode to allow UPS to operate at higher efficiency up to 98% for more energy saving.

In these operation modes, load is supplied by the utility. When utility failure, UPS inverter will assume control the load and provide clean power continuity to the connected devices.

Emergency Power Off function (EPO)

The safety function can guarantee & secure the emergency responders, fire fighters not exposed to dangerous voltage, electrical hazard from the device. This is important if equipment is emitting smoke, fire, or flood, or if person is being electrocuted.

Hot-swappable battery design

This design ensures clean and uninterruptible power to protected equipment during battery replacement.

RJ-45 Surge protector

Custos 1-3kVA implements RJ-45 Surge Protection ports to prevent Ethernet network damage caused by lightning or ground surges.

Intelligent slot for SNMP or Relay Card

Parallel Option N+X for 6K-10K models

Custos 9X+ 6K/10K can be parallel operated with up to 3 units to accommodate increses in power demand as well as to attain power redundancy with high system integrity.

TECHNICAL SPECIFICATIONS

MODEL	CU-1101	CU-1101L	CU-1102	CU-1102L	CU-1103	CU-1103L
PHASE	Single phase with ground					
CAPACITY	1000 VA / 900 W		2000 VA / 1800 W		3000 VA / 2700 W	
INPUT						
Nominal Voltage	200/208/220/230/240 VAC					
Voltage Range	110-300 VAC ± 5% @ 50% load ; 160-300 VAC ± 5% @ 100% load					
Frequency Range	40Hz ~ 70Hz					
Power Factor	≧ 0.99 @ Nominal Voltage (100% load)					
OUTPUT						
Output Voltage	200/208/220/230/240 VAC					
AC Voltage Regulation (Batt. Mode)	± 1%					
Frequency Range (Synchronized Range)	57 ~ 63 Hz or 47 ~ 53 Hz					
Frequency Range (Batt. Mode)	60Hz ± 0.1Hz or 50 Hz ± 0.1Hz					
Current Crest Ratio	5:1 (max.)					
Harmonic Distortion	≦ 2 % THD (Linear Load) ; ≦ 4 % THD (Non-linear Load)					
Transfer Time – Line mode to Battery mode	Zero					
Transfer Time – Inverter to Bypass	4 ms (Typical)					
Waveform (Batt. Mode)	Pure Sinewave					
EFFICIENCY						
AC Mode	90%		91%		91%	
ECO Mode	97%		97%		97%	
Battery Mode	88%	89%	88%	89%	90%	
BATTERY						
Battery Type	12 V / 9 AH	Depending on the capacity of external batteries	12 V / 9 AH	Depending on the capacity of external batteries	12 V / 9 AH	Depending on the capacity of external batteries
Numbers	2	2	4	4	6	6
Typical Recharge Time	4 hours recover to 90% capacity		4 hours recover to 90% capacity		4 hours recover to 90% capacity	
Charging Current (max.)	1.5 A**	1A/2A/4A/8A (Selectable via LCD setting)	1.5 A**	1A/2A/4A/8A (Selectable via LCD setting)	1.5 A**	1A/2A/4A/8A (Selectable via LCD setting)
Charging Voltage	27.4 VDC ± 1%	27.4 VDC ± 1%	54.8 VDC ±1%	54.8 VDC ±1%	82.1 VDC ±1%	82.1 VDC ±1%
INDICATORS						
LCD Display	Load level, Battery level, AC mode, Battery mode, Bypass mode, and Fault indicator					
ALARM						
Battery Mode	Sounding every 4 seconds					
Low Battery	Sounding every second					
Overload	Sounding twice every second					
Fault	Continuously sounding					
AC INPUT & OUTPUT CONNECTORS						
AC Input Connector	1 x IEC 320 C20		1 x IEC 320 C20		1 x IEC 320 C20	
AC Output Connector	8 x IEC 320 C13		8 x IEC 320 C13		1 x IEC 320 C19 / 6 x IEC 320 C13	
PHYSICAL						
Dimension, D x W x H (mm)	410 x 438 x 88 [2U]		510 x 438 x 88 [2U]		630 x 438 x 88 [2U]	
Net Weight (kgs)	Standard:11.6/ LongRun Model: 6.4		Standard:19.5/ LongRun Model:6.5		Standard:27.4 / LongRun Model: 10.5	
ENVIRONMENT						
Humidity	20-90 % RH @ 0- 40°C (non-condensing)					
Noise Level	Less than 50dBA @ 1 Meter					
MANAGEMENT						
Smart RS-232 / USB	Supports Windows 2000/2003/XP/Vista/2008, Windows7/8/10, Linux and MAC					
Optional SNMP	Power management from SNMP manager and web browser					

*Derate capacity to 95% when the output voltage is adjusted to 115VAC, derate capacity to 90% when the output voltage is adjusted to 110VAC and derate capacity to 80% when the output voltage is adjusted to 100VAC/200VAC/208VAC.
**If standard UPS is equipped with additional charger, the available setting options become 2A, 3A and 4A.
Product specifications are subject to change without further notice.

CE

Backup Time Table for Custos Series

	Battery Bank	Backup Time with Load (Min) 25%	50%	75%	100 %
CU-1101TS	internal battery(2x9Ah Batteries)	24.0	10.5	6.0	3.8
	+1 BB-24/18RT(6x9AH batteries)	168.0	78.0	52.0	37.0
CU-1102TS	internal battery(4x9AH batteries)	26.0	11.0	6.1	4.0
	+1 BB-48/18RT(12x9AH batteries)	98.0	47.0	29.0	20.0
	+2 BB-48/18RT(20x9AH batteries)	181.0	88.0	54.0	38.0
CU-1103TS	internal battery(6x9AH batteries)	28.0	11.5	6.3	4.0
	+1 BB-72/18RT(18x9AH batteries)	107.0	48.0	30.0	20.5
	+2 BB-72/18RT(30x9AH batteries)	197.0	91.0	55.0	39.0
CU-1101TL	+1 BB-24/18RT(4x9AH batteries)	129.0	65.0	40.0	28.0
	+2 BB-24/18RT(8x9AH batteries)	290.0	145.0	93.0	65.0
CU-1102TL	+1 BB-48/18RT(8x9AH batteries)	60.0	29.0	17.5	11.5
	+2 BB-48/18RT(16x9AH batteries)	139.0	67.0	41.0	29.0
	+3 BB-48/18RT(24x9AH batteries)	224.0	110.0	68.0	48.0
CU-1103TL	+1 BB-72/18RT(12x9AH batteries)	65.0	29.0	17.5	11.5
	+2 BB-72/18RT(24x9AH batteries)	151.0	68.0	42.0	29.0
	+3 BB-72/18RT(36x9AH batteries)	244.0	112.0	69.0	48.0

TECHNICAL SPECIFICATIONS

MODEL	CU-1106	CU-1106L	CU-1110	CU-1110L
PHASE	Single phase with ground			
CAPACITY	6000 VA / 5400 W	6000 VA / 5400 W	10000 VA / 9000 W	10000 VA / 9000 W
INPUT				
Nominal Voltage	200/208/220/230/240 VAC			
Voltage Range	110-300 VAC ± 3% at 50% load ; 176-300 VAC ± 3% at 100% load			
Frequency Range	46~54 Hz or 56~64 Hz			
Power Factor	≧ 0.99 @ Nominal Voltage (100% load)			
OUTPUT				
Nominal Voltage	200/208/220/230/240 VAC			
AC Voltage Regulation	± 1%			
Frequency Range(Synchronized Range)	46~54 Hz or 56~64 Hz			
Frequency Range(Batt. Mode)	50 Hz ± 0.1 Hz or 60 Hz ± 0.1 Hz			
Current Crest Ratio	3:1 (max.)			
Harmonic Distortion	≦ 2 % THD (Linear Load), ≦4 % THD (Non-linear Load)			
Transfer Time: AC mode to Battery mode	Zero			
Transfer Time: Battery mode to AC mode	Zero			
Transfer Time: Inverter to Bypass	Zero			
Transfer Time: Bypass to Inverter	Zero			
Waveform (Batt. Mode)	Pure Sinewave			
EFFICIENCY				
Line Mode	>90%		>86%	
ECO Mode	>96%		>92%	
Battery Mode	>88%		>84%	
BATTERY				
Battery Type	12 V / 7 AH	Depending on applications	12 V / 9 AH	Depending on applications
Numbers	20 (18-20 pcs adjustable)*		20 (18-20 pcs adjustable)*	
Typical Recharge Time	7 hours recover to 90% capacity		9 hours recover to 90% capacity	
Charging Current (max.)	1.0 A	4.0 A	1.0 A	4.0 A
Float Charging Voltage	273 VDC (based on battery numbers at 20 pcs)			
INDICATORS				
LCD Display	UPS status, Load level, Battery level, Input/Output voltage, Discharge timer, and Fault conditions			
ALARM				
Battery Mode	Sounding every 4 seconds			
Low Battery	Sounding every second			
Overload	Sounding twice every second			
Fault	Continuously sounding			
AC INPUT & OUTPUT CONNECTORS				
AC Input Connector	Terminal			
AC Output Connector	Terminal			
PHYSICAL				
Dimension, D x W x H(mm)	UPS unit: 606 x 438 x 133 [3U] Battery pack: 606 x 438 x133[3U]	606 x 438 x 133 [3U]	UPS unit: 686 x 438 x 133[3U] Battery pack: 606 x 438 x133[3U]	686 x 438 x 133 [3U]
Net Weight (kgs)	UPS unit: 20 Battery pack: 58	20	UPS unit: 23.5 Battery pack: 65	23.5
ENVIRONMENT				
Operation Humidity	0-95 % RH @ 0- 40°C (non-condensing)			
Noise Level	Less than 58 dBA @ 1 Meter		Less than 60 dBA @ 1 Meter	
MANAGEMENT				
Smart RS-232 / USB	Supports Windows 2000/2003/XP/Vista/2008, Windows7/8/10, Linux and MAC			
Optional SNMP	Power management from SNMP manager and web browser			

*When using internal batteries from 18-19, the unit will de-rate according to below formula: P=PRating x N/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.
* L means long-run model
Product specifications are subject to change without further notice

CE

Backup Time Table for Custos Series

	Battery Bank	Backup Time with Load (Min) 25%	50%	75%	100 %
CU-1106	+1 BB-240/9RT (20 x 9AH Batteries)	43.0	20.0	12.9	8.0
	+2 BB-240/9RT (40 x 9AH Batteries)	99.0	46.0	31.7	22.7
	+3 BB-240/9RT (60 x 9AH Batteries)	150.0	71.0	43.5	30.4
CU-1110	+1 BB-240/9RT (20 x 9AH Batteries)	22.0	9.0	6.0	3.0
	+2 BB-240/9RT (40 x 9AH Batteries)	54.0	23.0	16.9	12.0
	+3 BB-240/9RT (60 x 9AH Batteries)	88.0	38.0	23.0	16.0

PROLINE SERIES

3Phase in -3/Single Phase Out
Online UPS

10KVA-40KVA

Applications:

Data Center | Networking | Computer | Banking | Generator compatible

On-Line UPS Solutions

3 Phase Tower UPS Solutions FSP Proline 3P/3P, 3P/1P Online UPS series integrates true double conversion design, DSP technology, and active input power factor correction design to ensure output power quality and performance at all times. N+X redundancy function available reduce power failure or lost rick. Besides, easy-configurable program via LCD panel enhances the flexibility to meet ever-increasing power demand of IT and networked environment.

GENERAL FEATURES

True double-conversion
DSP technology guarantees high performance
Output power factor 0.8
Wide input voltage range (110-300 VAC)
Active power factor correction in all phases
50Hz/60Hz frequency converter mode
ECO mode operation for energy saving
Emergency power off function (EPO)
SNMP+USB+RS-232 multiple communications
3-stage extendable charging design for optimized battery performance
Accepts dual-mains inputs
Generator compatible
Battery number adjustable
Maintenance bypass available
Optional N+X parallel redundancy
Optional isolation transformer offers full isolation and complete common mode noise rejection

FSP
FSP POWER SOLUTION GMBH

TECHNICAL SPECIFICATIONS

MODEL		PR-3110TL	PR-3120TL	PR-3130TL
PHASE		3-phase in / 1-phase out		
CAPACITY		10.0 kVA / 8kW	20.0 kVA / 16kW	30.0 kVA / 24kW
INPUT				
Voltage Range		305-478 VAC (3-phase) @ 100% Last 190-520 VAC (3-phase) @ 50% Last		
Frequency Range		46Hz ~ 54Hz or 56Hz ~ 64Hz		
Power Factor		≧ 0.99 @ 100% Last		
OUTPUT				
Output Voltage		208/220/230/240 VAC (3Ph + N)		
Voltage Regulation		± 1%		
Frequency Range (Synchronized Range)		46Hz ~ 54Hz or 56Hz ~ 64Hz		
Frequency Range (Batt. Mode)		50Hz ± 0.1Hz or 60Hz ± 0.1Hz		
Current Crest Ratio		3:1 (max.)		
Harmonic Distortion		≦ 2% THD (Linear Last) ; ≦ 5% THD (Non-linear Last)		
Transfer Time	Bypass to Inverter	Zero		
	Inverter to Bypass	Zero		
Waveform (Batt. Mode)		Pure Sinewave		
EFFICIENCY				
AC Line Mode		89%	89%	91.3%
Battery Mode		86%	88%	88%
BATTERY				
Battery Type Numbers		Depending on the capacity of external batteries		
Charging Current (max.)		4.0 A	4.0 A	4.0 A
Charging Voltage		273 VDC ± 1% (based on 20 pcs batteries)		
ALARM				
Battery Mode		Sounding every 4 seconds		
Low Battery		Sounding every second		
Overload		Sounding twice every second		
Fault		Continuously sounding		
AC INPUT & OUTPUT CONNECTORS				
AC Input Connector		Terminal		
AC Output Connector		Terminal		
STANDARDS				
Safety / EMC		IEC 62040-1 (safety) / IEC-62040-2 (EMC) / CE		
PHYSICAL				
Dimension, D x W x H(mm)		592 (D) x 250 (W) x 826 (H)	592 (D) x 250 (W) x 826 (H)	815 (D) x 250 (W) x 826 (H)
Net Weight (kgs)		38	40	64
ENVIRONMENT				
Operation Humidity		0-90% RH @ 0-40°C (non-condensing)		
Noise Level		Less than 58dBa @ 1 Meter	Less than 60dBa @ 1 Meter	Less than 65dBa @ 1 Meter
MANAGEMENT				
Smart RS-232 / USB		Windows® 2000/2003/XP/Vista/2008 and Windows® 7/8 /Windows SBS 2011 and Windows server 2012		
Optional SNMP		Power management from SNMP manager and web browser		

*When using internal batteries from 18-19, the unit will de-rate according to the below formula: P = PRating x N/20.
Product specifications are subject to change without further notice

CE

Rackmount/Rack Tower Battery Pack	
Form Factor	3U
Model Name	BB-240/RT
Battery Type	12 V / 9 Ah
Battery Number	20 pcs
Dimension (DxWxH) mm	580 x 438 x 131 [3U]
Net Weight (kgs)	65

Tower Battery Pack		
Form Factor	Tower	
Model Name	BB-240/18T	BB-240/27T
Battery Type	12 V / 9 Ah	12 V / 9 Ah
Battery Number	40 pcs	60 pcs
Charger	x	4A
Dimension (DxWxH) mm	592 x 250 x 576	830 x 250 x 576
Net Weight (kgs)	125	190

TECHNICAL SPECIFICATIONS

MODEL	PR-3310TL	PR-3320TL	PR-3330TL	PR-3340TL
PHASE	3 phase in / 3 phase out			
CAPACITY	10.0 kVA / 8kW	20.0 kVA / 16kW	30.0 kVA / 24kW	40.0 kVA / 36kW
INPUT				
Voltage Range	305-478 VAC (3-phase) @ 100% Load 190-520 VAC (3-phase) @ 50% Load			
Frequency Range	46Hz ~ 54Hz or 56Hz ~ 64Hz			
Power Factor	≧ 0.99 @ 100% Load			
OUTPUT				
Output Voltage	3x400 VAC (3Ph + N)			
Voltage Regulation	± 1%			
Frequency Range (Synchronized Range)	46Hz ~ 54Hz or 56Hz ~ 64Hz			
Frequency Range (Batt. Mode)	50Hz ± 0.1Hz or 60Hz ± 0.1Hz			
Current Crest Ratio	3:1 (Max.)			
Harmonic Distortion	≦ 2% THD (Linear Load) ; ≦ 5% THD (Non-linear Load)			
Transfer Time – Bypass to Inverter	Zero			
Transfer Time – Inverter to Bypass	Zero			
Waveform (Batt. Mode)	Pure Sinewave			
EFFICIENCY				
AC Line Mode	89%	89%	89%	94%
Battery Mode	86%	88%	87%	93.5%
BATTERY				
Battery Type Numbers	Depending on the capacity of external batteries			32 ~40 pcs (Adjustable)
Charging Current (max.)	4.0 A	4.0 A	4.0 A	1.0A / 2.0A / 3.0A /4.0 A
Charging Voltage	273 VDC ± 1% (based on 20 pcs batteries)			+/- 13.65V x N (N=16~20)
ALARM				
Battery Mode	Sounding every 4 seconds			
Low Battery	Sounding every second			
Overload	Sounding twice every second			
Fault	Continuously sounding			
AC INPUT & OUTPUT CONNECTORS				
AC Input Connector	Terminal			
AC Output Connector	Terminal			
STANDARDS				
Safety / EMC	IEC 62040-1 (safety) / IEC-62040-2 (EMC) / CE			
PHYSICAL				
Dimension, D x W x H(mm)	592 (D) x 250 (W) x 826 (H)	592 (D) x 250 (W) x 826 (H)	815 (D) x 250 (W) x 826 (H)	592 (D) x 250 (W) x 576 (H)
Net Weight (kgs)	38	40	62	45
ENVIRONMENT				
Operation Humidity	0-90% RH @ 0-40°C (non-condensing)			< 95% RH @ 0-40°C (non-condensing)
Noise Level	Less than 58dBa @ 1 Meter		Less than 60dBa @ 1 Meter	Less than 70dBa @ 1 Meter
MANAGEMENT				
Smart RS-232 / USB	Windows® 2000/2003/XP/Vista/2008 and Windows® 7/8 /Windows SBS 2011 and Windows server 2012			
Optional SNMP	Power management from SNMP manager and web browser			

*When using internal batteries from 18-19, the unit will de-rate according to the below formula: P = PRating x N/20.
Product specifications are subject to change without further notice

CE

Backup Time Table for Proline Series

	Battery Bank	Backup Time with Load (Min) 25 %	50 %	75%	100 %
PR-3310TL PR-3110TL	+ 1 BB-240/9RT - 240V / 9 Ah	25	12.5	5.5	2.5
	+ 1 BB-240/18T - 240V / 18 Ah	61	26	15.5	12.5
	+ 2 BB-240/18T - 240V / 36 Ah	136	61	37	51
	+ 1 BB-240/27T - 240V / 27 Ah	98	43	26	18
	+ 2 BB-240/27T - 240V / 54 Ah	200	98.2	61	43
PR-3320TL PR-3120TL	+ 1 BB-240/18T- 240V / 18 Ah	25.9	10.6	6.0	7.1
	+ 2 BB-240/18T - 240V / 36 Ah	61	26	15.5	12.7
	+ 1 BB-240/27T - 240V / 27 Ah	43	18	10.6	7.1
	+ 2 BB-240/27T - 240V / 54 Ah	98	43	26	18
PR-3330TL PR-3130TL	+ 1 BB-240/27T - 240V / 27 Ah	26	11	6.0	4
	+ 2 BB-240/27T - 240V / 54 Ah	61	26	16	10.6
	+ 3 BB-240/27T - 240V / 81 Ah	98.2	43	26	18.0

EPOS SERIES

Online UPS

30KVA-200KVA

Applications:

Data Center | Networking | Computer | Banking | Generator compatible

On-Line UPS Solutions

3 Phase Tower UPS Solutions FSP EPOS 3P/3P, 3P/1P Online UPS series integrates true double conversion design, DSP technology, and active input power factor correction design to ensure output power quality and performance at all times. N+X redundancy function available reduce power failure or lost rick. Besides, easy-configurable program via LCD panel enhances the flexibility to meet ever-increasing power demand of IT and networked environment.

GENERAL FEATURES

True double conversion
DSP technology guarantees high reliability
Output power factor 0.9
Active power factor correction in all phases
50Hz/60Hz frequency converter mode
ECO mode operation for energy saving
Emergency power off function (EPO)
Optional parallel operation with common battery
Smart battery charger design to optimize battery performance
Maintenance bypass available
Adjustable battery design
Adjustable charging current only available for 100K and up models

MODEL		EPOS 30K (L)*	EPOS 40K (L)	EPOS 60KL	EPOS 80KL	EPOS 100KL	EPOS 120KL	EPOS 160KL	EPOS 200KL
PHASE		3-phase in / 3-phase out							
CAPACITY		30KVA/27KW	40KVA/36KW	60KVA/54KW	80KVA/72KW	100KVA/90KW	120KVA/108KW	160KVA/144KW	200KVA/180KW
PARALLEL CAPABILITY		up to 3 units in parallel	up to 3 units in parallel	up to 3 units in parallel	up to 3 units in parallel	up to 2 units in parallel	up to 2 units in parallel	up to 2 units in parallel	up to 2 units in parallel
INPUT									
Nominal Voltage		3 x 400 VAC (3Ph+N)							
Voltage Range		190-520 VAC (3-phase) @ 50% load ; 305-478 VAC (3-phase) @ 100% load				208-478 VAC (3-phase) @ 70% load 305-478 VAC (3-phase) @ 100% load			
Frequency Range		46~54 Hz or 56~64Hz				40~70Hz			
Power Factor		≧ 0.99 @ 100% Load							
OUTPUT									
Output Voltage		3 x 360*/380/400/415 VAC (3Ph+N)				3 x 380/400/415 VAC (3Ph+N)			
AC Voltage Regulation (Batt. Mode)		± 1%							
Frequency Range (Synchronized Range)		46~54Hz or 56~64Hz							
Frequency Range (Batt. Mode)		50 Hz ± 0.1 Hz or 60 Hz ± 0.1 Hz							
Current Crest Ratio		3:1 (max.)							
Harmonic Distortion		≦ 2 % THD (Linear Load) ; ≦ 4 % THD (Non-linear Load)				≦ 2 % THD (Linear Load) ; ≦ 4 % THD (Non-linear Load)			
Transfer Time	AC Mode to Batt. Mode	Zero							
	Inverter to Bypass	Zero							
Waveform (Batt. Mode)		Pure Sine wave							
Overload	AC Mode	100-110% for 10 min, 110-130% for 1 min, >130% for 1 second				105-110% for 1 hr, 111-125% for 10 min, 126-150% for 1 min, >150% for 200ms			
	Battery Mode	100-110% for 30 seconds, 110-130% for 10 seconds, >130% for 1 second				105-110% for 1 hr, 111-125% for 10 min, 126-150% for 1 min, >150% for 200ms			
EFFICIENCY									
AC Mode		95.5%	95.5%	95.5%	95.5%	94.0%	94.0%	94.0%	94.0%
ECO Mode		97.0%	97.0%	97.0%	97.0%	98.0%	98.0%	98.0%	98.0%
Battery Mode		93.5%	93.5%	93.5%	93.5%	93.0%	93.0%	93.0%	93.0%
BATTERY									
Standard Model	Battery Type	12 V / 7 Ah	12 V / 9 Ah	N/A					
	Numbers	(16+16) pcs x 2 strings	(16+16) pcs x 2 strings						
	Typical Recharge Time	9 hours recover to 90% capacity							
	Charging Current (max.)	1A/2A/3A/4A (Adjustable)							
	Charging Voltage	+/-218 VDC ± 10%							
Long-run Model	Battery Type	Depending on the capacity of external batteries							
	Numbers	32~40 pcs (Adjustable)							
	Charging Current (max.)	1A/2A/3A/4A (Adjustable) Parallelable up to 3 charger boards to reach 12A maximum		2A/4A/6A/8A (Adjustable) Parallelable up to 3 sets of dual charger boards to reach 24A maximum		24A	32A	40A	48A
	Charging Voltage	+/- 13.65V x N (N=16~20)				+/- 13.7V x N (N = 16~20)			
INDICATORS									
LCD Display		UPS status, Load level, Battery level, Input/Output voltage, Discharge timer, and Fault conditions				10" Touch Type color LCD			
PHYSICAL									
Standard Model	Dimension, D x W x H (mm)	815 x 300 x 1000		N/A					
	Net Weight (kgs)	225	250						
Long-run Model	Dimension, D x W x H (mm)	815 x 300 x 1000		790 x 360 x 1010		940 x 567 x 1015		1040 x 567 x 1452	
	Net Weight (kgs)	60	61	108	113	199	234	306	340
ENVIRONMENT									
Operation Temperture		0-40°C							
Operation Humidity		< 95% and non-condersing							
Noise Level		Less than 60dB@1 Meter	Less than 70dB @ 1 Meter		Less than 75dB@1 Meter	Less than 70dB @ 1 Meter		Less than 73dB @ 1 Meter	
MANAGEMENT									
Smart RS-232 / USB		Supports Windows® 2000/2003/XP/Vista/2008, Windows® 7/8/10, Linux and MAC							
Optional SNMP		Power management from SNMP manager and web browser							

*If output voltage is set as 3 x 360VAC, the output power of the unit will be de-rated to 90%.
Product specifications are subject to change without further notice.

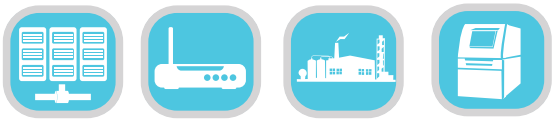
CE

MPLUS SERIES

Hot Swappable Modular UPS

30-210kVA / 20-200kVA

Applications:



Data Center | Networking | Industrial | Banking

PowerFactor 1 Modular UPS

Mplus series is a truly double converion online modular UPS with high scales from 20kW/30kW to 200kW/210kW. Modular design implemented in STS, Power module, and battery, it achieves low MTTR, technican will streamline and simplify their maintenance and replacement, furthermore end customer will be more flexable, more convenient to escalate their power demand in the future.

GENERAL FEATURES

Power Factor 1.0** (kVA = kW)
Efficiency up to 94.5%
20/30 kVA per module
Adjustable charging current
Adjustable Battery Voltage
Dual input function
Power modules are hot swappable
Redundancy ready
Easy maintenance in service
Emergency power off function (EPO)
Maintenance Bypass included
5,7" LCD Panel

High efficiency online double conversion technology

Mplus is applied online double conversion technology with high performance over 94.5% at 50% load. It significantly reduces overall Total Cost of Ownership (TCO).

High scalability

DSP control provides an improved solution with high performance. Integrated with modular design and parallel technology, Mplus simplifies future power expansion.

Unity output power factor

Mplus delivers unity output power (kVA=kW) providing the maximum power capacity to mission critical loads. It satisfies the requirements of the latest servers and optimizes IT investment with every penny.

Modular design lowers MTTR

Modular design is applied in power module, STS module and battery module. It will simplify maintenance and replacement with low MTTR (Mean Time To Repair).

N+1 or N+X parallel redundancy for power guarantee

Scalable architecture allows you to optimize cost expense to meet power demands by vertically expanding in a single rack enclosure from 30KVA to 210KVA and achieve N+1 or N+X redundancy in the same rack.

Optional 10" touch LCD panel

Ease of installation and maintenance

Built-in maintenance bypass assures continuous power to critical loads during UPS maintenance. Besides, to facilitate installation and maintenance, all panel control and connectors are front accessibility.

Flexible battery configuration adapts different applications

Battery numbers can be adjusted flexibly. It will adapt different power demands and shorten system downtime.
Battery voltage can be set from 32 to 40 pieces per string.

Graphic 5.7” LCD design for easy management

Designed for easy management, Mplus is equipped with 5.7” graphic LCD screen. Intuitive design enhances display information identified and advanced configuration.

High reliable operation with redundant power supply in STS

Mplus provides 2 power supplies in STS. It will ensure no shutdown risk for STS.

User-adjustable charging current

Mplus provides maximum 8A or 6A charging current for every power module and it's user-adjustable based on requirement.

High overload capability

Mplus supports, 110% overload for 60 minutes, 125% for 10 minutes, and 150% for 1 minute.

Standard Series

Mplus 30U-90

Mplus 42U-120

Extended Series

Mplus 30U-120

Mplus 30U-180

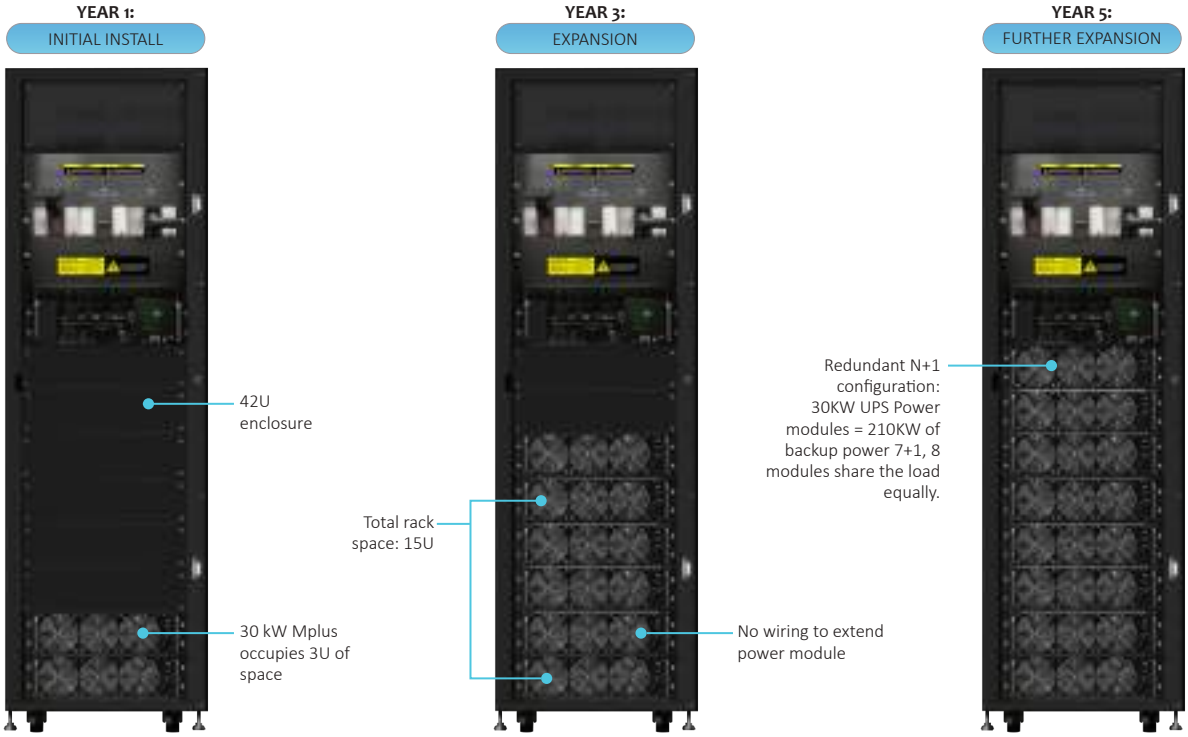
Mplus 42U-200

Mplus 42U-210

Expandability. Flexibility. Uninterruptibility. Via Modular architecture

Thanks MPLUS Modular design architecture, scalable and compact size 3U rackmount power module that supplies 30kW of backup power protection. Whole system can be easily expanded as your data center growth. Plug and play N+X,N+1 redundancy design optimizes customer's power demand and enhance the capital investment plan and deployment.

MPLUS smart intelligent load sharing system proportionates workload into each power module without linking any extra communication, paralleled, current share cables. Besides, system is no need to shutdown or interrupt, MPLUS can provide backup support during power module maintenance.



MPLUS Offers 20KVA and 30KVA power module, no matter which model, e.g, in 30U extend model, power module can be installed up to 6PC, 120KVA with 20KVA or 180KVA with 30kVA 6PC power modules. In addition, same cabinet reduces wiring, or human error operation issue and ensures backup power increased to cover new power demand in a right way.

MPLUS also offers 15U cabinet as economy purpose, full range power rating is not only suitablit for large IT room, Datacenter, but also adquate to infrastructures and different purposes.

MPLUS 30U/42U extremely flexible characteristic, One power module with 30KW unity power factor can be single or multi module operation. In 42U cabinet model can up to 7+1 modules 210kW, elastic design offers proper backup power protection with appropriate capital investment whenever needed.

15 U 90kW

TECHNICAL SPECIFICATIONS

MODEL	Mplus 15U-90	Mplus 30U-90	Mplus 42U-120	Mplus 30U-120	Mplus 30U-180	Mplus 42U-200	Mplus 42U-210
PHASE	3-phase in / 3-phase out						
CABINET CAPACITY*	90KW or 60KW	90KW	120KW	120KW or 80KW	180KW or 120KW	200 KW	210 KW
BATTERY TYPE	External Battery	Built-in Battery		External Battery			
ONE POWER MODULE CAPACITY	PM-20HV : 20KVA/20KW or PM-30HV : 30KVA/30KW	PM-30HV : 30KVA/30KW	PM-30HV : 30KVA/30KW	PM-20HV : 20KVA/20KW or PM-30HV : 30KVA/30KW		PM-20HV : 20KVA/20KW	PM-30HV : 30KVA/30KW
MAX. POWER MODULE NO.	3	3	4	4	6	10	8
MAX. BATTERY SET NO.**	3	3	5	-	-		-
INPUT							
Nominal Voltage	3 x 380VAC/400VAC/415VAC (3Ph+N)						
Voltage Range	305 ~ 478 VAC at 100% load; 208 ~ 304VAC at <70% load						
Nominal Frequency	50/60Hz (Auto Sensing)						
Frequency Range	40Hz ~70Hz						
Power Factor	> 0.99 @ 100% Load , >0.98 @ 50% Load						
Harmonic Distortion (THDi)	< 3% @ 100% load						
OUTPUT							
Nominal Voltage	3 x 380VAC/400VAC/415VAC (3Ph+N)						
Voltage Regulation (Steady state)	≦± 1% Typical (balanced load) ; ≦ ± 2% Typical (imbalanced load)						
Nominal Frequency	50/60Hz						
Frequency Range (Synchronized)	46Hz ~ 54Hz or 56Hz ~ 64Hz						
Overload Capability	1 hour for 110%, 10 mins for 125%,; 1 min for 150%, 200ms for >150%						
Harmonic Distortion	≦2% THD (Linear Load) ; ≦ 4% THD (Non-linear Load)						
Efficiency	Up to 94.5%						
ECO Mode	Max 99%						
BATTERY / CHARGER							
Nominal Voltage	+/- 216V (12V x 36 pcs)						
Maximum Voltage	+/- 240V (12V x 40 pcs)						
Minimum Voltage	+/- 192V (12V x 32 pcs)						
Float Charging Voltage	2.25V / Cell						
Boost Charging Voltage	2.35V / Cell						
Temperature Compensation	Yes						
Maximum Charging Current (Per Power Module)	8A			8A for 30KW power module 6A for 20KW power module		6A	8A
PHYSICAL							
Cabinet Dimension (D x W x H) mm	1100 x 514 x 763	1100 x 600 x 1475	1100 x 600 x 2010	1100 x 600 x 1475	1100 x 600 x 1475	1100 x 600 x 2010	
Net Weight (Kg)	182	675	932	335 or 333	437.5 or 434.5	625	549
ENVIRONMENT							
Operation Temperature	0 ~ 40°C						
Relative Humidity	0 ~ 95% non-condensing						
Altitude	<1000m for Nominal power						
IP Class	IP 20						
MANAGEMENT							
RS-232/USB	Supports Windows 2000/2003/XP/Vista/2008,Windows 7/8/10, Linux and MAC						
Optional SNMP	Power management from SNMP manager and web browser						
STANDARDS							
Safety	IEC/EN 60950-1; IEC/EN 62040-1						
EMC	IEC/EN 62040-2 Category C3						

*When temperature is above 30℃ , the output power factor will be de-rated, 0.9 at 31℃ ~35℃ and 0.8 at 36℃ ~40℃ .
** One battery module contains 10 pcs of 12V/7Ah or 12/9Ah sealed lead acid batteries in one tray. One complete battery set contains 4 battery modules.
***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	Description	Dimension DxWxH(mm)	Weight (kg)
PM-20HV	3P/3P 20KVA / 20KW power module	650 x 440 x 132 (3U)	34
PM-30HV	3P/3P 30KVA / 30KW power module	650 x 440 x 132 (3U)	34.5
Battery Module	10 pcs of 12V 9Ah batteries	735 x 107 x 155	26

FSP Compact Series

1U Lightweight Online UPS

1KVA

Applications:

Security equipement | monitoring & control system | Small IT rack system | Network, storage device

1U On-Line UPS Solution

As small rack limitation, FSP compact 1U UPS is the most reliable and trustworthy power guardian. With true double conversion technology(VFI), its avoid annoyed grid issue, e.g. voltage fluctuations, frequency variations, distortion. Easy front battery pack access will be helpful for maintenance check and replacement without removing it from rack mounting.

GENERAL FEATURES

True double conversion online topology

Microprocessor control optimizes reliability

Output power factor 0.8

1U compact size perfect fits for data processing and transmission such as servers, networking and IP telephone services.

Input power factor correction

Converter mode available via software setting

ECO mode for energy saving

Built-in serial communication port/Dry contact

Emergency Power off (EPO) function

FSP POWER SOLUTION GMBH

TECHNICAL SPECIFICATIONS

MODEL		CO-1101RS
CAPACITY		1000 VA / 800 W
INPUT		
Voltage		220/230/240 VAC
Acceptable Voltage Range		110-300 VAC @ 50% load 160-300 VAC @ 100% load
Frequency Range		40-70 Hz
Power Factor		≧0.99 @ Nominal voltage (full load)
OUTPUT		
Output Voltage		220/230/240 VAC
Voltage Regulation		± 1%
Frequency Range (Synchronized Range)		57 ~ 63 Hz or 47 ~ 53 Hz
Frequency Range (Batt. Mode)		60 Hz or 50 Hz ± 0.3 Hz
Current Crest Ratio		5:1 (110/120 VAC) 3:1 (220/230/240 VAC)
Harmonic Distortion		≧ 3 % THD (Linear Load) ≧ 5 % THD (Non-linear Load)
Transfer Time	AC Mode to Battery Mode	0ms
	Inverter to Bypass	4 ms (Typical)
Waveform (Batt. Mode)		Pure Sinewave
EFFICIENCY		
AC Mode		86%
ECO Mode		92%
Battery Mode		83%
BATTERY		
Battery Type		Sealed Lead-acid battery
Battery Spec & Numbers		6 V / 9 Ah x 4
Typical Recharge Time		9 Hours recover to 90% capacity
Charging Current		1A
INDICATORS		
LED		AC mode, Battery mode, and fault indicators
ALARM		
Battery Mode		Sounding every 4 seconds
Low Battery		Sounding every second
Overload		Sounding twice every second
Fault		Continously sounding
AC INPUT & OUTPUT CONNECTORS		
AC Input Connector		1 x IEC 320 C14
AC Output Connector		4 x IEC 320 C13
STANDARDS		
Safety / EMC		IEC 62040-1 (Safety) / IEC 62040-2 (EMC) / CE
PHYSICAL		
Dimension, (D x W x Hmm)		477 x 438 x 44
Net Weight (kgs)		12.6
ENVIRONMENT		
Humidity		20-90 % RH @ 0- 50°C (non-condensing)
Noise Level		Less than 50dB @ 1 Meter
MANAGEMENT		
USB or RS-232		Supports Windows® 2000/2003/XP/Vista/2008, Windows® 7/8/10, Linux and MAC
Dry Contact (Option)		Signal for AC Power Normal, Battery OK and Fault Alarm

Product specifications are subject to change without further notice

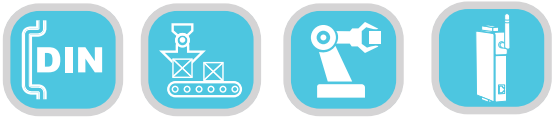
CE

DINRail SERIES

DINRail UPS

500VA/1000VA

Applications:



Eqpt. of Mfg | Material Packing Mgmt | Automation Control & Monitoring | Ind. IP-based Device

Control Panel Solution

FSP DINRail UPS offers a dependable ,cost effective solution to increase equipment stability and system reliability for control panels or different industrial segments. DINRail UPS series with Pure Sine Wave design protects connected devices and guarantees to get through utiliy grid issues, e.g. Under/OverVoltage, Surge, strike, lighting and outage, these problems will cause industrial processes and manufacturing issue to impact product quality, even safety. Moreover, as UPS Compact size and front access will allow layout-technican to have more space to design the control panel.

GENERAL FEATURES

Pure Sine Wave
High frequency inverter
Microprocessor controller
Line mode efficiency > 98%
Cold start function
Compact size
DIN rail mounting, Front access
Horizontal or vertical installation
RS485 communication available
Suitable for PLC, I/O controllers, IPC and control panel

FSP
FSP POWER SOLUTION GMBH

TECHNICAL SPECIFICATIONS

MODEL		DINRail 500	DINRail 1000
CAPACITY		500VA / 300W	1000VA / 600W
INPUT			
Nominal Voltage		220VAC/230VAC/240VAC	
Acceptable Voltage Range		170 ~ 270 VAC	
Frequency		50Hz / 60Hz Auto Sensing	
Frequency Range		63Hz ~ 40Hz	
Line Low Transfer		170Vac ± 5%	
Line Low Return		180Vac ± 5%	
Line High Transfer		270Vac ± 5%	
Line High Return		260Vac ± 5%	
OUTPUT			
Voltage		220VAC/230VAC/240VAC	
Waveform		Pure Sine wave	
Short Circuit Protection	Line Mode	Circuit Breaker	
	Battery Mode	Electronic Circuit	
DC Start			
Cold Start		Yes	
TRANSFER TIME			
Typical		2-6 ms (10ms max).	
BATTERY			
Battery Voltage		12VDC	12VDC
INDICATOR			
LED		AC Mode(Continuously), Inverter Mode(Flash)	
AUDIBLE ALARM			
Battery Mode		Sounding erery 7 seconds	
Low Battery		Sounding every second	
UPS Fault		Continuously Sounding	
INTERFACE			
Communication port		RS-485	
ENVIRONMENT			
Operation Temperature		0-40°C ; 32-104°F	
Relative Humidity		0-90% non-dondensing	
PHYSICAL			
Dimensions,(WxHxD)mm		250 x 135 x 115	
Net Weight(Kgs)		2.8Kg	3.2Kg

Product specifications are subject to change without further notice

CE

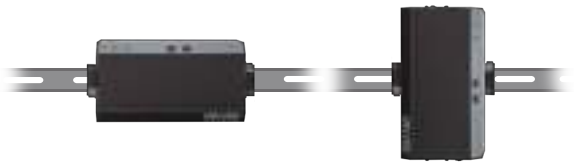
Dimension information

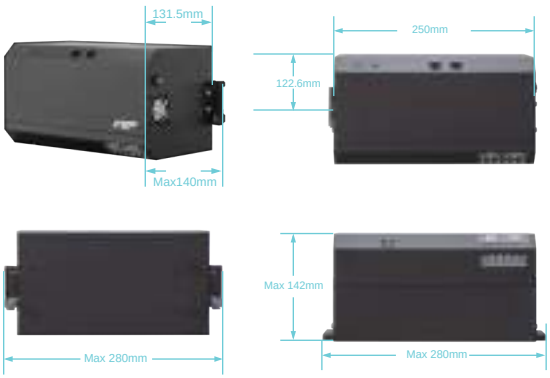
Simple & Easy your design

FSP DINRail UPS implements compact design to mount in control panel for more space saving.

The silent service guarantees power quality to protect, to enhance your system functionality and reliability.

Not like traditional UPS, DINRail UPS with front access function solves assembly wiring layout issue and engineer will more flexible to arrange the equipments.





Backup Time Table for DINRail Series

	Backup Time with Load (Min)			
	25 %	50 %	75%	100 %
500VA	50.25	12.0	7.50	4.52
1000VA	12.0	4.47	1.17	0.11

Grand SERIES

Industrial UPS

10KVA-400KVA

Applications:

Oil & Gas offshore and onshore | Refining and petrochemical | Conventional power generation | Industrial process

Reliable & Dependable Power Solution

FSP Grand industrial UPS designed true double conversion and galvanic isolation with static bypass switch which solves ultimately all types of input power disturbances, such as noise, lightning, and leakage current etc. Through advanced technology of PWM, DSP and IGBT designed, Grand UPS continually process control and become a high frequency and efficiency product, also choosed the high reliable components which can tolerent & endure extreme power problems to ensure, to offer the best power quality for the protection of industrial mission critical equipments. Product rating range is from 10kVA - 400kVA that can fullfill different industrial segments, heavy-duty, heavy reliability.

GENERAL FEATURES

True online double conversion with DSP control
Robust electrical performance to prevent damage from top and bottom connections
Screwless cabinet design and fully coating PCBAs to withstand harsh environment
Unique ventilation design for effective heat dissipation
Flexible battery configuration adapts different applications
Accepts dual-mains inputs
Front access makes maintenance and replacement easy
High short-circuit and overload
Easy integration into existing electrical networks or generator
Parallel capability up to 4 units

FSP
FSP POWER SOLUTION GMBH

True online double conversion with DSP control

Double conversion between input/output, battery and bypass are totally isolated power line noise, spikes and transients.
A Digital Signal Processor (DSP) control provides an improved solution with high performance.

Robust electrical performance to prevent damage from top and bottom connections

This UPS is designed to accept wide input voltage and frequency range to cope with the worst utility conditions. It can eliminates harmful distortion from utility power and withstand all kinds of severe impacts from various loads. It's capable to support heavy duty equipment, production equipment and DCS (Distributed Control System) system.

Screwless cabinet design and fully coating PCBAs to withstand harsh environment

The outside cabinet is designed only with locks without any screws and all PCBAs are coated for anti-moisture, anti-electric leakage, anti-dust and anti-corrosion.
Its robust design is suitable for harsh environment with high temperature, high humidity, dense dust, salt, or fierce vibration.

Unique ventilation design for effective heat dissipation

Unique ventilation design allows heat to rise by the process of convection.
Therefore, the UPS cabinets can be added in parallel side by side for space-saving.

Flexible battery configuration adapts different applications

The number of batteries can be adjusted flexibly according to different power demands.

Accepts dual-mains inputs

Grand iND series is allowed to connect two separate power inputs to increase operation reliability.

Front access makes maintenance and replacement easy

It's considerate to allow easy access to all of the electronic cards and power components in the unit through the front panel for further maintenance and replacement.

VHigh short-circuit and overload

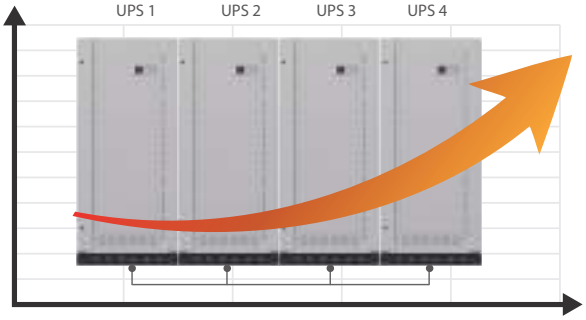
This UPS is built-in high short-circuit protection. Once short circuit occurs, this mechanism will be activated. The load will stay protected and the UPS will remain intact. High overload protection supports 110% for 60 minutes and 125% for 10 minutes.

Easy integration into existing electrical networks or generator

During wiring connection, Giant iND can be accessible either from top or from bottom under different environmental conditions. Besides, this UPS is fully compatible with generator.

Parallel capability up to 4 units

Up to 4 units in parallel can be operated without adding additional hardware, increasing system capacity as well as operation reliability for power redundancy.



TECHNICAL SPECIFICATIONS

MODEL	GRAND IND 3:1 10kVA	GRAND IND 3:1 15kVA	GRAND IND 3:1 20kVA	GRAND IND 3:1 30kVA	GRAND IND 3:1 40kVA	GRAND IND 3:1 60kVA	GRAND IND 3:1 80kVA	GRAND IND 3:1 100kVA	GRAND IND 3:1 120kVA
CAPACITY	10KVA / 8KW	15KVA / 12KW	20KVA / 16KW	30KVA / 24KW	40KVA / 32KW	60KVA / 48KW	80KVA / 64KW	100KVA / 80KW	120KVA / 96KW
INPUT									
Nominal Voltage	3 x 380VAC (3Ph + G or 3Ph + N + G)								
Acceptable Voltage Range	304VAC ~ 456VAC								
Frequency	50Hz ±5 Hz (±10%)								
OUTPUT									
Nominal Voltage	220VAC/230VAC/240VAC (Selectable)								
Connection Type	Hardwire 3-wire (1Ph+N+G)								
Waveform	Pure Sinewave								
Output Voltage Stability – Steady state	± 1%								
Output Voltage Stability – Transient state	± 5%								
Frequency	50 Hz								
Frequency Stability	± 1%								
Frequency Synchronisation Range	± 5Hz (Equal to bypass working range)								
Frequency Synchronisation Speed	1~2 Hz/s								
Power Factor	0.8								
Crest Factor	3:1								
Total Harmonic Distortion (THDv)	<2% (Linear Load) <4% (Non-linear Load)								
Dynamic in-rush Voltage Range	0%->100%->0% (R Load) <±5% : 20%->100%->20% (R Load) ±3%								
Dynamic Recovery Time (III Grade)	0%~100% RCD load : <60 ms recover to 90% of nominal voltage								
Phase Displacement	120º ±1% (balanced load) 120º ±2% (imbalances 50% of the load)								
Transfer Time	0 ms								
Overload Capability	0% ~ 110% continuous running; 110% ~ 150% for 10 min~1 min; >160% for 200ms								
Short-circuit Capability	60~100ms								
Transient Response Time	< 5ms								
BYPASS									
Connection Type	Hardwire 3-wire (1Ph+N+G)								
Input Voltage Range	220VAC ± 25%								
Overload / Short-circuit capability	1.5 In~1.8 In 1h~30s								
	1.8 In ~ >2.0 In 30s~200ms								
SYSTEM									
Efficiency (@ linear load)	≧ 90%								
ECO Mode (Non-parallel models)	Yes								
EPO Function	Yes								
Standard	IEC 61000-4-5 Surge Protection, IEC 62040-2 EMC/EMI, IEC62040-1 Safety								
BATTERY & RECTIFIER									
Rectifier – Type	6 pulse								
Rectifier – Rated output voltage	384 VDC								
Rectifier – Charger voltage	395VDC ~ 435VDC (Adjustable)								
Rectifier – Charging current(max)	Default 10A, Maximum=Capacity / Battery Voltage				Default 10A, Maximum 40A				
Battery – Type	Support VRLA Battery								
Battery – Numbers	32 Pcs (29 ~ 32 pcs adjustable)								
Battery – Reverse Diode	No								
Battery – Cold Start	Yes								
PHYSICAL									
IP Protection	IP20 (Default), IP21/IP31 (Option)								
Dimensions, D x W x H (mm)	800 x 800 x 1800							800 x 1200 x 1800	
Net Weight (Kgs)	360	386	400	430	490	610	680	900	920
ENVIRONMENT									
Operating Temperature	0~ 35°C continuous running, 40°C 8-hour running at nominal input voltage, recharging batteries and no overload, 45°C derating to 85% with linear load								
Operating Humidity	0~90% (non-condensing)								
Noise Level	Less than 70dB @ 1 Meter								
MANAGEMENT									
Modbus RS-232/RS485	Supports Windows® 2000/2003/XP/Vista/2008/7/8/10, Linux and MAC								
Dry Contacts	6 outputs and 2 inputs								
Optional SNMP	Power management from SNMP manager and web browser								

Product specifications are subject to change without further notice

CE

TECHNICAL SPECIFICATIONS

MODEL	GRAND IND 3:3 10kVA	GRAND IND 3:3 15kVA	GRAND IND 3:3 20kVA	GRAND IND 3:3 30kVA	GRAND IND 3:3 40kVA	GRAND IND 3:3 60kVA	GRAND IND 3:3 80kVA	GRAND IND 3:3 100kVA	GRAND IND 3:3 120kVA	GRAND IND 3:3 160kVA	GRAND IND 3:3 200kVA	GRAND IND 3:3 250kVA	GRAND IND 3:3 300kVA	GRAND IND 3:3 400kVA
CAPACITY	10KVA / 8KW	15KVA / 12KW	20KVA / 16KW	30KVA / 24KW	40KVA / 32KW	60KVA / 48KW	80KVA / 64KW	100KVA / 80KW	120KVA / 96KW	160KVA / 128KW	200KVA / 160KW	250KVA / 200KW	300KVA / 240KW	400KVA / 320KW
INPUT														
Nominal Voltage	3 x 380VAC/400VAC/415VAC (3Ph + N or 3Ph + N + G)													
Acceptable Voltage Range	304VAC ~ 456VAC													
Frequency	50Hz ±5 Hz (±10%)													
OUTPUT														
Nominal Voltage	3 x 380VAC/400VAC /415VAC(3Ph + N)													
Connection Type	Hardwire 5-wire (3Ph+N+G)													
Waveform	Pure Sinewave													
Output Voltage Stability – Steady state	±1%													
Output Voltage Stability – Transient state	±5%													
Frequency	50 Hz													
Frequency Stability	± 1%													
Frequency Synchronisation Range	± 5Hz (Equal to bypass working range)													
Frequency Synchronisation Speed	1~2 Hz/s													
Power Factor	0.8													
Crest Factor	3:1													
Total Harmonic Distortion (THDv)	< 2% (Linear Load) < 4% (Non-linear Load)													
Dynamic in-rush Voltage Range	0%->100%->0% (R Load) < ±5% ; 20%->100%->20% (R Load) ±3%													
Dynamic Recovery Time (III Grade)	0%~100% RCD load : < 60 ms recover to 90% of nominal voltage													
Phase Displacement	120º ±1% (balanced load) 120º ±2% (imbalances 50% of the load)													
Transfer Time	0 ms													
Overload Capability	0% ~ 110% continuous running; 110% ~ 150% for 10 min~1 min; >160% for 200ms													
Short-circuit Capability	60~100ms													
Transient Response Time	< 5ms													
BYPASS														
Connection Type	Hardwire 5-wire (3Ph+N+G)													
Input Voltage Range	3 x 380VAC/400VAC/415VAC(3Ph+N)													
Overload / Short-circuit capability	1.5 In~1.8 In 1h~30s													
	1.8 In ~ >2.0 In 30s~200ms													
SYSTEM														
Efficiency (At Linear Load)	90%			91%				92%					93%	
ECO Mode (Non-parallel models)	Yes													
EPO Function	Yes													
Standard	IEC 61000-4-5 Surge Protection, IEC 62040-2 EMC/EMI, IEC62040-1 Safety													
BATTERY & RECTIFIER														
Rectifier – Type	6 pulse							6 pulse or 12 pulse					12 pulse	
Rectifier – Rated output voltage	384 VDC													
Rectifier – Charger voltage	395VDC ~ 435VDC (Adjustable)													
Rectifier – Charging current(max)	Default 10A, Maximum=Capacity / Battery Voltage							Default 10A, Maximum 40A						
Battery – Type	Support VRLA Battery													
Battery – Numbers	32 Pcs (29 ~ 32 pcs adjustable)													
Battery – Reverse Diode	No													
Battery – Cold Start	Yes													
PHYSICAL														
IP Protection	IP20 (Default), IP21/IP31 (Option)													
Dimensions, D x W x H (mm)	800 x 800 x 1800							800 x 1200 x 1800		800 x 1600 x 1800			850x1630 x1900	900x1800 x1900
Net Weight (Kgs)	290	312	349	385	427	508	563	760	850	1120	1390	1750	2100	2500
ENVIRONMENT														
Operating Temperature	0~ 35°C continuous running, 40°C 8-hour running at nominal input voltage, recharging batteries and no overload, 45°C derating to 85% with linear load													
Humidity	0~90% (non-condensing)													
Noise Level	Less than 70dB @ 1 Meter												Less than 72dB @ 1 Meter	
MANAGEMENT														
Modbus RS-232/RS485	Supports Windows® 2000/2003/XP/Vista/2008/7/8/10, Linux and MAC													
Dry Contacts	6 outputs and 2 inputs													
Optional SNMP	Power management from SNMP manager and web browser													

Product specifications are subject to change without further notice

FSP SOLAR POWERMANAGER OFF-GRID SERIES

Power Solution for Unstable or without Utility Grid

1kVA-5kVA

FSP Solar PowerManager Off-Gird

An ideal Off-Grid inverter for households, FSP Solar PowerManager Off-Grid with specific AC and high efficiency MPPT Solar charger built-in, Dual charging sources (utility+solar) up to 140A current satisfying battery charging under different weather conditions and ensuring your power continuously.

Wide input range from 90-280Vac will overcome most of grid power instabilities.
Design as true sine wave off-grid inverter with 1kVA to 5kVA rating, 4/5kVA parallel function up to 45kVA (single phase) suitable for different applications and supporting 3-Phase power system in anymode. FSP Solar PowerManager Off-Grid with smart user-friendly control panel is an adjustable power source for optimal settings according to end users needs. The unit also offers USB Port for PC monitoring purpose.
As non-household application, FSP Solar PowerManager Off-Grid is able to provide power e.g. for a water pump.

GENERAL FEATURES

High frequency pure sine wave
Wide AC input range 90-280 Vac
Solar and AC Dual charger built in
Charging Ability up to 140A (AC+Solar)
Built-in dry-contact for Generator
Double surge capacity of rating
4/5kVA parallel function support single Phase up to 45kVA
3Phase AnyMode support
User friendly LCD Panel control & setting
Source Priority programmable
Remote Control Panel support
User defined Bulk/Float Charging voltage
Free monitoring software

FSP
FSP POWER SOLUTION GMBH

TECHNICAL SPECIFICATIONS

MODEL	PM-3MK24VM	PM-5MK48VM	PM-3MK24V	PM-3MK48V	PM-4MK48V	PM-5MK48V
RATED POWER	3000VA/3000W	5000VA/5000W	3000VA/3000W	3000VA/3000W	4000VA/4000W	5000VA/5000W
INPUT						
Voltage	230 VAC	230 VAC	230 VAC	230 VAC	230 VAC	230 VAC
Selectable Voltage Range	170-280 VAC (For Personal Computers)					
	90-280 VAC (For Home Appliances)					
Frequency Range	50 Hz/60 Hz (Auto sensing)					
OUTPUT						
AC Voltage Regulation (Batt. Mode)	230VAC ± 5%					
Surge Power	6000VA	10000VA	6000VA	6000VA	8000VA	10000VA
Efficiency (Peak)	90~93%		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	24 VDC	48 VDC	24 VDC	48 VDC	48 VDC	48 VDC
Floating Charge Voltage	27 VDC	54 VDC	27 VDC	54 VDC	54 VDC	64 VDC
Overcharge Protection	33 VDC	60 VDC	31 VDC	62 VDC	60 VDC	66 VDC
SOLAR CHARGER & AC CHARGER						
Maximum PV Array Power	1000 W	3000 W	600 W	900 W	4000 W	4000 W
MPPT Range @ Operating Voltage	30VDC~ 80VDC	60VDC~ 115VDC	30VDC~ 66VDC	60VDC~ 88VDC	60VDC~ 115VDC	60VDC~ 115VDC
Maximum PV Array Open Circuit Voltage	102VDC	145VDC	75VDC	102VDC	145VDC	145VDC
Maximum Solar Charge Current	40A	60A	25A	18A	80A	80A
Maximum AC Charge Current	25A	60A	30A	15A	60A	60A
Maximum Charge Current	60A	120A	55A	33A	140A	140A
Maximum Efficiency	98%					
Standby Power Consumption	2 W					
PHYSICAL						
Dimension, D x W x H (mm)	100 x 285 x 334	100 x 300 x 440	100 x 272 x 355		120 x 295 x 468	
Net Weight (kgs)	6.5	9.7	7.4	7.4	11	11
Ingress Protection Rating	IP20					
Cooling system	AirForce cooling					
OPERATING ENVIRONMENT						
Humidity	5% to 95% Relative Humidity(Non-condensing)					
Operating Temperature	-10°C- 50°C	-10°C- 50°C	-10°C- 50°C	0°C- 55°C	0°C- 55°C	0°C- 55°C
Storage Temperature	-15°C- 60°C	-15°C- 60°C	-15°C- 60°C	-15°C- 60°C	-15°C- 60°C	-15°C- 60°C

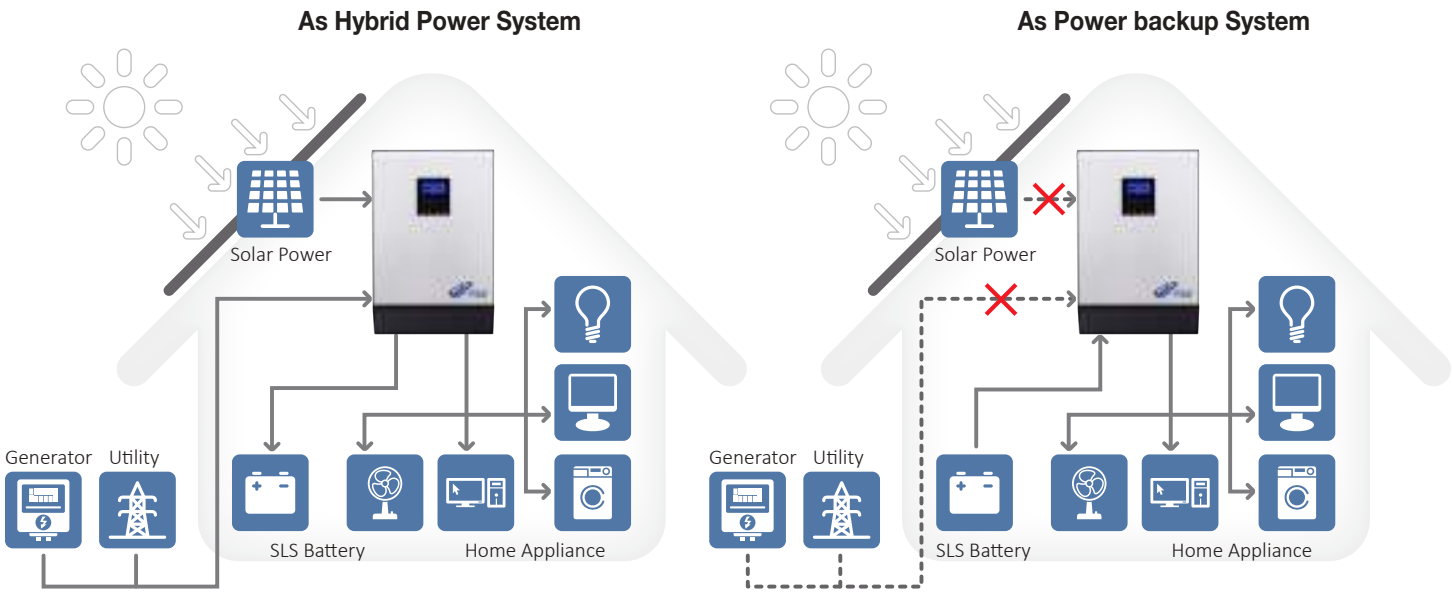
MODEL	PM-3MK24VMP	PM-3MK24XP	PM-3MK48XP
RATED POWER	3000VA/3000W	3000VA/3000W	3000VA/3000W
INPUT			
Voltage	230 VAC		
Selectable Voltage Range	170-280 VAC (For Personal Computers)		
	90-280 VAC (For Home Appliances)		
Frequency Range	50 Hz/60 Hz (Auto sensing)		
OUTPUT			
AC Voltage Regulation (Batt. Mode)	230VAC ± 5%		
Surge Power			6000VA
Efficiency (Peak)	90%-93%		
Transfer Time	10 ms (For Personal Computers); 20 ms (For Home Appliances)		
Waveform	Pure sine wave		
BATTERY & AC CHARGER			
Battery Voltage	24 VDC	24 VDC	48 VDC
Floating Charge Voltage	27 VDC	27 VDC	54 VDC
Overcharge Protection	33 VDC	31 VDC	62 VDC
SOLAR CHARGER & AC CHARGER			
Maximum PV Array Power	1500 W	1500 W	3000 W
MPPT Range @ Operating Voltage	30VDC~ 115VDC	60VDC~ 115VDC	60VDC~ 115VDC
Maximum PV Array Open Circuit Voltage	145VDC		
Maximum Solar Charge Current	60A		
Maximum Efficiency	98%		
Standby Power Consumption	2W		
PHYSICAL			
Dimension, D x W x H (mm)	100 x 300 x 440	140 x 295 x 479	140 x 295 x 479
Net Weight (kgs)	8.5	11.5	11.5
Ingress Protection Rating	IP20		
Cooling system	AirForce cooling		
OPERATING ENVIRONMENT			
Humidity	5% to 95% Relative Humidity(Non-condensing)		
Operating Temperature	-10°C- 50°C	0°C- 55°C	0°C- 55°C
Storage Temperature	-15°C- 60°C	-15°C- 60°C	-15°C- 60°C

Product specifications are subject to change without further notice

Ideal Off-Grid inverter

Programmable Power Source Priority function.
More Flexible, More Independent for energy usage and storage.

The Principle of FSP Solar PowerManager Off-Grid



FSP Solar PowerManager Off-Grid Smart Power Priority

Power and charging source priority of FSP Solar PowerManager Off-Grid smart design can be set up by the front LCD panel according to the power consumption environment, storing and withdrawal of energy are also user-defined.

O/P Source Priority 1 → 2 → 3 →

Output source Priority is Solar-> Bat-> Utility
Charging source priority is Solar Power Only

Solar energy is sufficient to charge the battery and carry the loads. Once solar power is low, system will switch to battery mode automatically until battery reaches low warning then system transfers to utility.

Output source is Utility first
Charging source priority is solar first

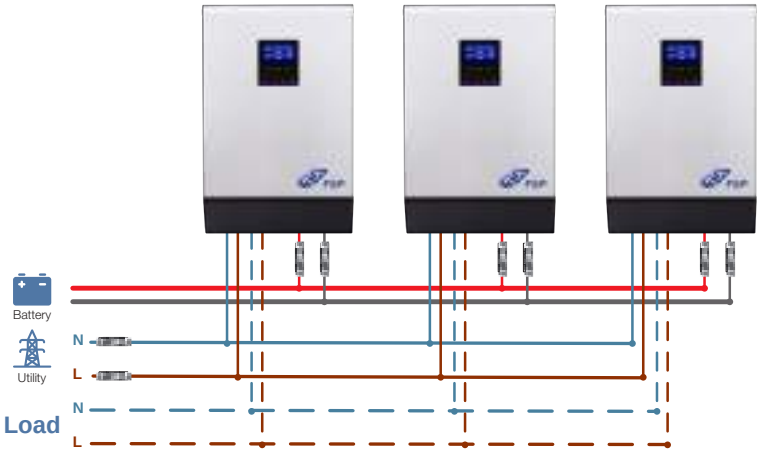
Utility will feed output loads, Solar power will charge the battery until solar power ceases. Solar and battery energy will be used when utility fails.
Power source priority is Utility-> Solar & Battery
Charging source priority is Solar-> Utility

Single Phase Parallel and 3-Phase AnyMode

High expansion ability: FSP Solar PowerManager Off-Grid 4kVA and 5kVA design can be expanded to 45kVA in parallel mode, single phase, and also specifically supports 3 Phase AnyMode. The Power capacity can satisfy most of household energy demand.

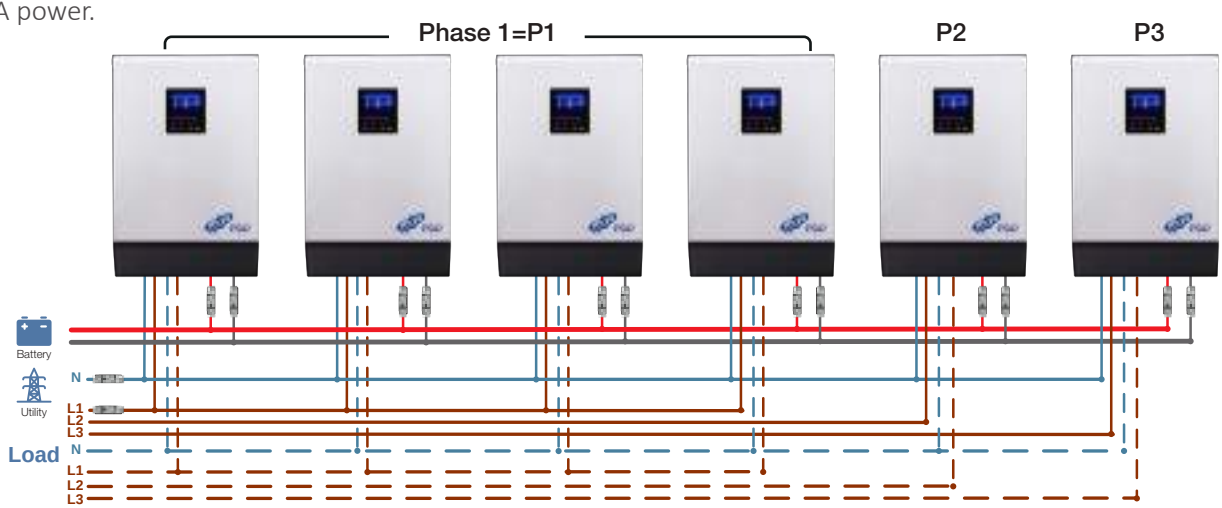
Parallel 3 units in Single Phase

Up to 45kVA parallel ability: FSP Solar PowerManager Off-Grid will achieve expansion function by parallel kits in order to get more power capacity. (The drawing presents 3 units in parallel mode, power capacity is 15kVA.)



Parallel 9 units in 3 Phase AnyMode

FSP Solar PowerManager Off-Grid supports 3 Phase AnyMode. By consulting and measurement, user can define which phase needs more power support, e.g. P1 = Phase 1 is consuming most of the power in the house, system can install Max 4 PC in L1 to get 20kVA power.



Output source & Charger source priority is solar first

When Solar energy is sufficient to charge the battery and feed the loads, utility will stand by until Solar power ceases or battery voltage drops to user's setting.
Power source priority is Solar-> Battery or Utility
Charging source priority is Solar-> Utility

Output source is Solar-Bat-Utility
Charging source priority is Solar & Utility (4/5k only)

System will adapt Solar and utility both source to charge battery at the same time. Once solar power is low, system will switch to battery mode automatically until reach low bat warning then transfer to utility.
Power source priority is Solar-> Battery-> Utility
Charge source priority is Solar & Utility

FSP SOLAR POWERMANAGER HYBRID SERIES

Smart Energy for Smart Home

3KW-10KW

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

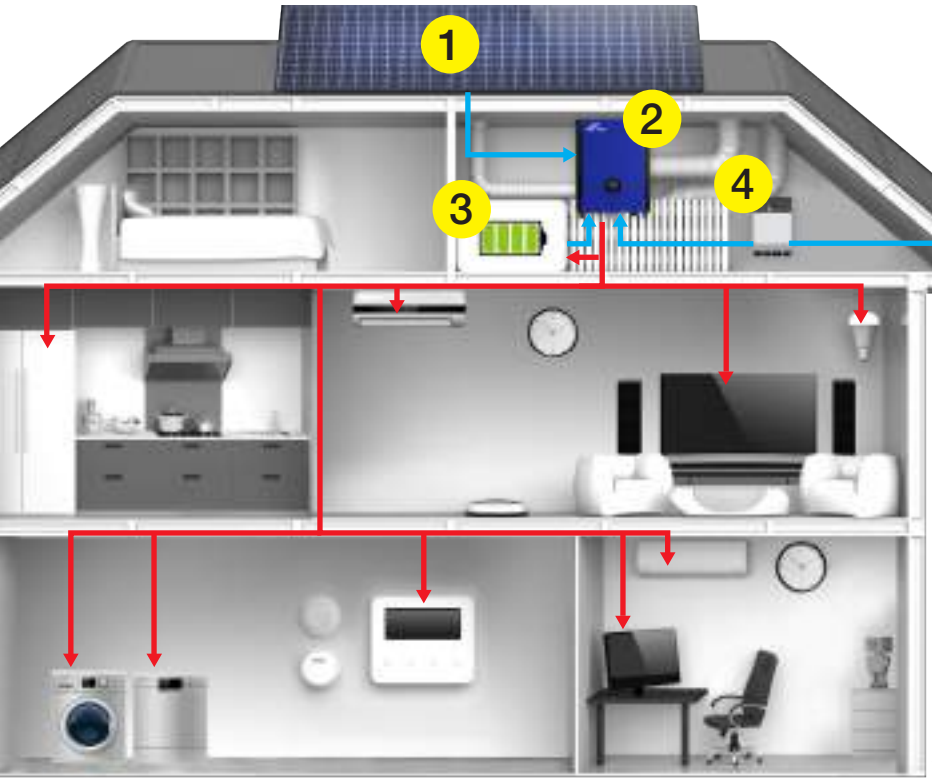
Intuitive LCD Display

SNMP, Modbus AS400 Support

Certified VDE0126 & VDE4105

5kW&10kW Model Parallel function available, up to 6PC

FSP
FSP POWER SOLUTION GMBH



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

Multi-Operation Mode

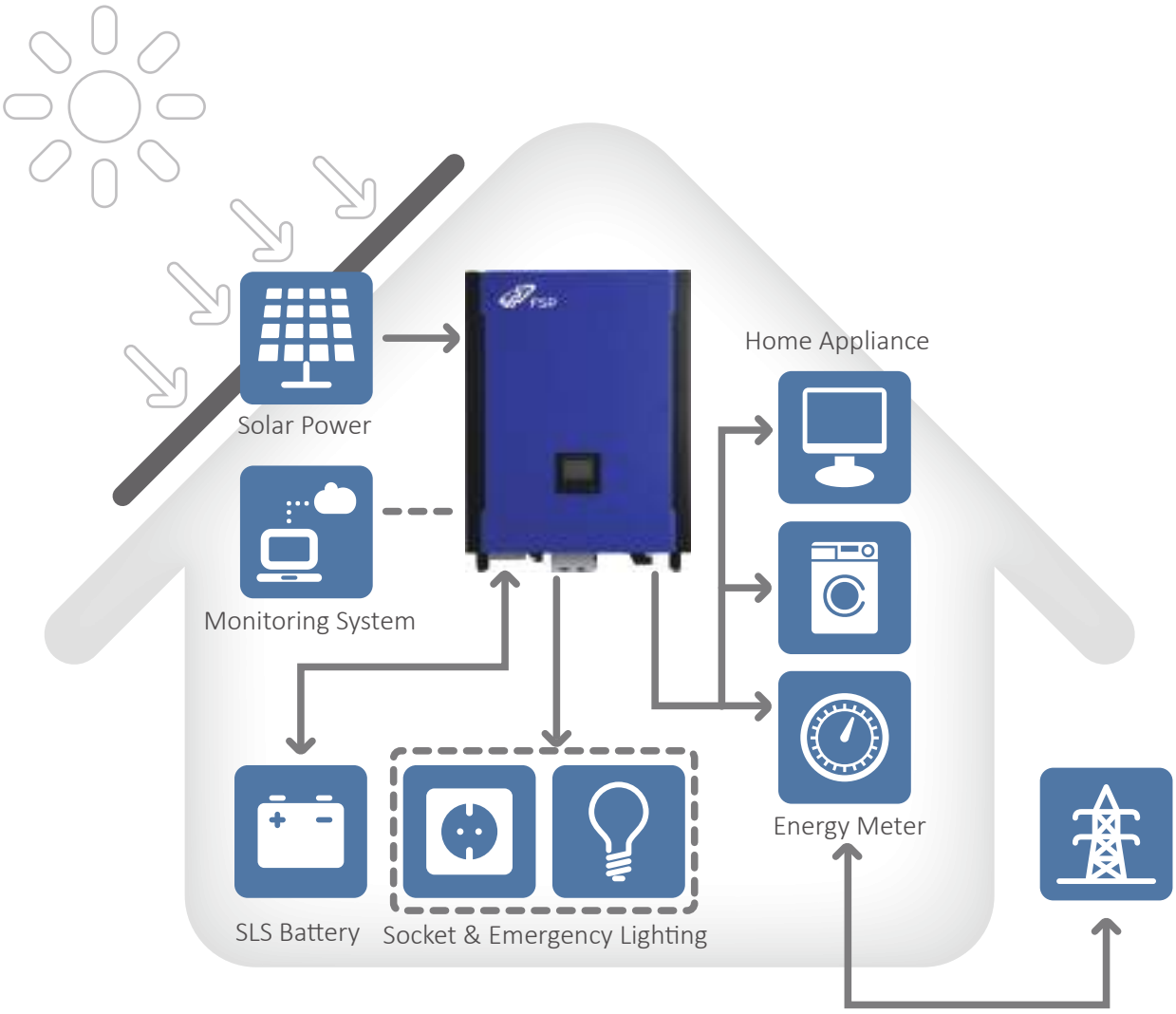
Solar Energy Multi-Use
Intelligent design adding more options to use Solar Energy: It is not just conventional PV inverter Feed-in function, the system with sufficient solar power will not only feed in grid, but also store energy and support loads.

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.

Manage Your Own Power

FSP Soalr 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.

TECHNICAL SPECIFICATIONS

MODEL	PowerManager-Hybrid 3kW	PowerManager-Hybrid 4kW	PowerManager-Hybrid 5kW	PowerManager-Hybrid 10kW
PHASE		Single phase		3-phase in / 3-phase out
MAXIMUM PV INPUT POWER	4500 W	5000 W	10000 W	14850 W
RATED OUTPUT POWER	3000 W	4000 W	5000 W	10000 W
MAXIMUM CHARGING POWER	1200 W	4000 W	4800 W	9600 W
MAXIMUM CHARGING POWER				
PV INPUT				
Nominal DC Voltage / Maximum DC Voltage	360VDC / 500VDC	360VDC / 580VDC	720VDC / 900VDC	720VDC / 900VDC
Start-up Voltage / Initial Feeding Voltage	116VDC / 150VDC	116VDC / 150VDC	225VDC / 250VDC	320VDC / 350VDC
MPP Voltage Range	250VDC / 450VDC	280VDC / 500VDC	250VDC / 850VDC	400VDC / 800VDC
Number of MPP Trackers / Maximum Input Current	1/1 x 18A	1/1 x 18A	2/2 x 10A	2/2 x 18.6A
GRID OUTPUT				
Nominal Output Voltage	208/220/230/240VAC	202/208/220/230/240VAC	208/220/230/240VAC	230VAC(P-N) /400VAC(P-P)
Output Voltage Range		184- 265 VAC*		184-265 VAC* per phase
Nominal Output Current	13 A	17.5 A	21 A	14.5A per phase
Power Factor	> 0.99	> 0.99		
EFFICIENCY				
Maximum Conversion Efficiency (DC/AC)	96 %	93 %	96 %	96 %
European Efficiency@ Vnominal	95 %	95 %	95 %	95 %
HYBRID / OFF-GRID OPERATION				
PV INPUT				
Nominal DC Voltage /Maximum DC Voltage	360VDC / 500VDC	360VDC / 580VDC	720VDC / 900VDC	720VDC / 900VDC
Start-up Voltage / Initial Feeding Voltage	116VDC / 150VDC	116VDC / 150VDC	225VDC / 250VDC	320VDC / 350VDC
MPP Voltage Range	250VDC / 450VDC	280VDC / 500VDC	250VDC / 850VDC	400VDC / 800VDC
Number of MPP Trackers / Maximum Input Current	1/1 x 18A	1/1 x 18A	2/2 x 10A	2/2 x 18.6A
GRID OUTPUT				
Nominal Output Voltage		202/208/220/230/240VAC		230VAC(P-N) /400VAC(P-P)
Output Voltage Range		184- 264.5 VAC*		184-264.5 VAC* per phase
Nominal Output Current	13 A	17.5 A	21 A	14.5A per phase
AC INPUT				
AC Start-up Voltage/Auto Restart Voltage		120- 140 VAC / 180 VAC		120-140VAC per phase / 180VAC per phase
Acceptable Input Voltage Range		170- 280 VAC		170-280 VAC per phase
Maximum AC Input Current	30 A	40 A	40 A	40 A
BATTERY MODE OUTPUT				
Nominal Output Voltage		202/208/220/230/240VAC		230VAC(P-N) /400VAC(P-P)
Efficiency (DC to AC)	93%	91%	93%	91%
BATTERY & CHARGER				
Nominal DC Voltage		48 VDC	48 VDC	
Maximum Charging Current	30 A	80 A	Default 60A, 5A-100A (Adjustable)	Default 60A, 10A-200A (Adjustable)
GENERAL				
PHYSICAL				
Dimension, D x W x H (mm)	107 x 438 x 480	117 x 438 x 535	204.2 x 460 x 600	167.5 x 500 x 622
Net Weight (kgs)	15.5	16.2	29	45
INTERFACE				
Communication Port	RS-232 / USB	RS-232/USB and CAN Interface		
Intelligent Slot	Optional SNMP, Modbus, and AS-400 cards available			
ENVIRONMENT				
Humidity	0%- 95% RH (No condensing)	0%- 90% RH (No condensing)	0%- 95% RH (No condensing)	
Ingress Protection Rating	IP20			
Cooling system	AirForce cooling			
Operating Temperature	0 to 40°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.
* Product specifications are subject to change without further notice

SCC-MPPT

Solar Charger Controller

3KW

Applications:

Solar Input | Flexible installation | Battery charger | CO^2 Free

98% Efficiency Solar Charger

SCC-MPPT Solar Charge Controller With advanced maximum-power-tracking technology, SCC-MPPT series ensures maximum performance from your solar array at all times and in all weather conditions.

GENERAL FEATURES

Intelligent Maximum Power Point Tracking technology
Built-in DSP controller with high performance
12/24/48V Automatic battery voltage detection when initial
Battery temperature compensation support
Three-stage charging optimizes battery performance
Multifunction LCD displays detailed information
Reverse polarity protection for solar panel and battery
Overcharge protection
Suitable for battery types of sealed lead acid, vented Gel, and NiCd

TECHNICAL SPECIFICATIONS

MODEL	SCC-MPPT 3KW		
INPUT			
MPPT Range @ Operating Voltage	60 VDC ~ 115 VDC		
Maximum PV Array Open Circuit Voltage	145VDC		
Maximum PV Array Power	800W	1600W	3200W
Maximum Current	50 A		
OUTPUT			
Nominal Battery Voltage	12 VDC	24 VDC	48 VDC
Connected Battery Type	Sealed lead acid, AGM or Gel		
Maximum Charging Current	60 A		
Maximum Efficiency	98%		
Charging Method	Three stages: bulk, absorption, and floating		
PROTECTION			
Overload Protection	> 110% : audible alarm		
Overcharge Protection	Yes		
Polarity Reversal Protection@Solar Cell & Battery	Yes		
INDICATORS			
LCD Panel	LCD panel indicating solar power, load level, battery voltage/capacity, charging current, and fault conditions		
LED Display	Three indicators for solar, charging, and load status		
PHYSICAL			
Dimension, D x W x H (mm)	315 x 165 x 128		
Net Weight (Kgs)	4.5		
Type of Mechanical Protection	IP 31		
ENVIRONMENT			
Humidity	5 ~ 95% RH (Non-condensing)		
Operating Temperature	0°C to 55°C		
Storage Temperature	-15°C to 60°C		
Altitude	0 ~ 3000 m		

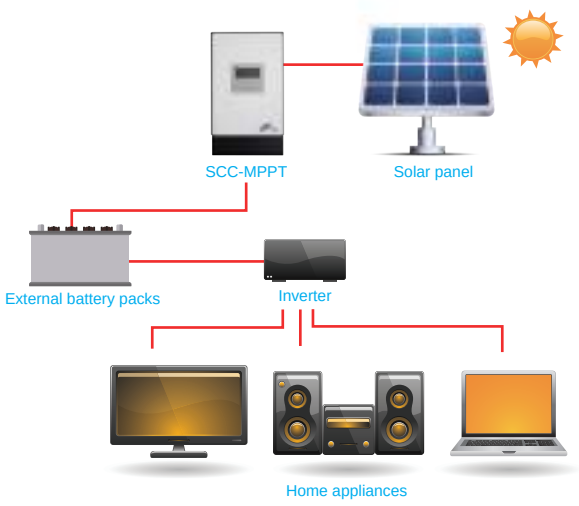
Product specifications are subject to change without further notice

CE

Standalone Solar Power System:

Combined MPPT technology and DSP controller, FSP Solar charger controller will convert best voltage and power to charge battery based on varied temperature. Compared to traditional solar charge controllers, it allows your solar panels to operate at their optimum power output voltage, providing higher efficiency up to 98% with lower power loss.

Integrated FSP Solar charger controller with inverter, solar panel, and external battery packs, it can become a standalone solar power system to generate green power for your home appliances.



Synergy Super Charger

- Isolation design for 24/36/48/72/240VDC System
- Input power factor correction
- Microprocessor guarantee smart & stable three-stage charging
- User-adjustable charging current based on applications
- Output short circuit protection
- Maximum current restriction
- Over-voltage protection
- Thermal control protection and reversal polarity protection
- Parallel operation

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

Power Distribution Unit

- Provides reliable power distribution to multiple devices
- 2U form factor for horizontal or vertical rack installation
- Easy operation
- Suitable for 6K/10K VA UPSs

PDU & Maintenance Bypass Switch

- 1-3 kVA Tower/Rack PDU & MBS
- 16A for 208/220/230/240 VAC
- Provides continuous power to connected equipment during UPS maintenance
- Easy operation with simple rotary switch and indicators
- Simple installation with plug-and-play socket type
  AC input 1x IEC C20 (16A) connector
  UPS I/P 1x IEC C19 (16A) connector
  UPS O/P 1x IEC C20 (16A) connector
  O/P Socket 5 x IEC C13 + 1x IEC C19, 2 breakers

External Maintenance Bypass Switch

- 6-10kVA Rack MBS
- 63A. max input current
- 100% make before break to provide continuous power to connected equipment during UPS maintenance
- Automatic UPS-protection design
- Easy operation with simple rotary switch
- Terminal block type

30kVA Wall-Mounted External Maintenance Bypass

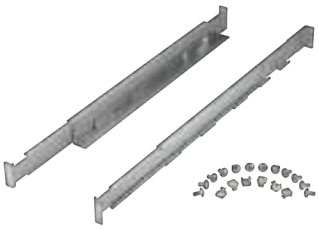
- 3-Phase design
- Nominal current 63A
- Isolation Voltage 660VAC
- EN90647-3:2009+A1 TUV certificated

IEC Cable 16A C19/C20 (180cm)

IEC Cable 16A C13/C14 (180cm)

IEC Cable 16A C14/C19 (150cm)

IEC Cable 16A C20/C13 (180cm)



Rackmount Slider
Simple installation for mounting Rack in your server rack enclosure.
RMS-001 for 1-3kVA Rack UPS
RMS-002 for 6-10kVA Rack UPS

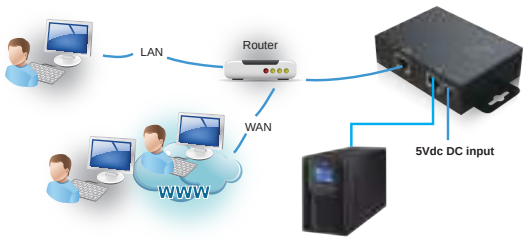
Software

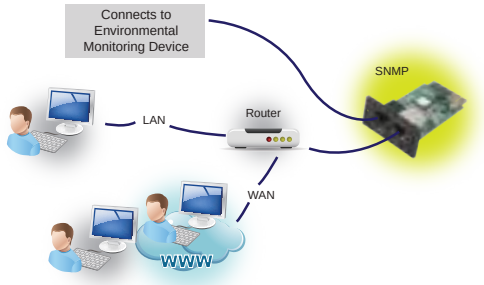
ViewPower - UPS Management Software

ViewPower Pro is UPS management software which is perfect for home users and enterprises. It can monitor and manage from one to multiple UPSs in a networked environment including LAN, INTERNET and Modbus networks. Integrated with Shutdown Wizard, it can not only prevent data loss from power outage and safely shutdown systems, but also store programming data and scheduled shut down UPSs. All UPS working data and event records can be kept in local database system.

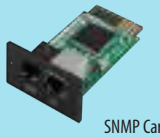
UPS Remote Monitoring and Connectivity

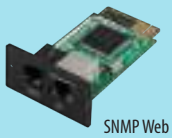
FSP provides complete connectivity solutions with comprehensive products and software package. These connectivity products ensure communication compatibility with a variety external devices through relay, SNMP and Modbus.





Connectivity Product


SNMP Card


SNMP Web Card


SNMP Web Card (DP801B)

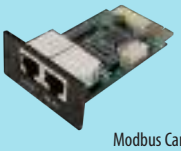

SNMP Web Box

SNMP Web Card/Box

- Allows control and monitoring of multiple inverters through RJ-45 network connection
- Real-time dynamic graphs of UPS / PowerManager data
- Warning notifications via audible alarm, broadcast, mobile messenger, e-mail and SNMP traps
- Historic data log stored in centralized PC database
- Simple firmware upgrade with one click
- Password security protection and remote access management
- Supports optional environmental monitoring detector for temperature, humidity and smoke

Modbus Card

- Real-time control and monitoring of multiple inverters via RS-485 communication port
- Supports Modbus RTU protocol
- Provides MODBUS functions including read Holding Registers and write Registers
- Provides surge protection

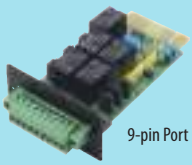

Modbus Card


Modbus Web Card

Modbus Web Box

- Supports to monitor off-grid inverter through modbus interface
- Implements MODBUS RTU protocol
- Integrated with WatchPower software
- Supports PowerManager Hybrid series


DB9 Port


9-pin Port

Relay Card

The AS400 communication card provides contact closures for remote monitoring UPS. To meet different application requirement, the AS400 card is capable of selection the status of the dry-contact signal (active close or active open) by setting jumper.


EMD


Energy meter

Environmental Monitoring Device (EMD)

- Plug & use for simple installation with SNMP manager
- Monitor temperature and humidity to protect your precious equipment
- Allow 4 contact closure signals for user-defined usage
- Management software to remote monitor temperature and humidity status via web browser
- Measure temperatures between 0 to 100°C with an accuracy of ±1.5°C
- Measure relative humidity between 10 to 90% RH with an accuracy of ±3%
- Optional smoke alarm available

Touch screen 3-phase multi-function meter

Measures and displays the parameter of voltage,frequency,current, active and reactive energy,imported or exported. Max Demand,THD of voltage and current can be meaured over present periods of up to 60 minute. Built-in interfaces provide pulse and RS485 Modbus RTU output

Software

SolarPower -Solar inverter Management Software

SolarPower is a solar inverter monitoring software. It can monitor multiple devices via USB and Serial port at the same time. The major functions of SolarPower monitoring software include data log for devices, power generation statistics, alarm messages, fault messages and parameter setting for devices.

FSP POWER SOLUTION GMBH

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