



FUHRER SERIES

ONLINE DOUBLE CONVERSION UPS

10KVA ~ 520KVA (1/1 - 3/1 - 3/3)

Modular Redundant Design

Ultimate Protection
Mission Critical &
I.T Grade UPS

MODULAR ON-LINE DOUBLE CONVERSION UPS (Fuhrer Series)



Fuhrer Series (1/1 - 3/1 - 3/3) 10KVA ~ 520KVA

UPS For Mission Critical & IT, Industrial Equipments

Fuhrer Series is a Multi-Standard Modular High frequency technology Parallel redundant UPS system. Fuhrer UPS set of today's most advanced technology application achievement, has the most advanced and sophisticated technology, with innovative excellence concept focusing on the development of the global power, in order to push UPS power fields of technological progress and the birth of high-end products.

This innovative state of the art scalable, redundant UPS system focuses on elevating the users' experience to new heights. With the highest efficiency rate of 96% and a significantly smaller footprint, the product offers a leading solution in the range of up to 500 KW/KVA.

Modular design

All units adopt modular design, including power module, bypass module, monitoring module, can be easily integrated in MDC or customized cabinet Power module, Bypass module, Monitoring module, ECU control module, all these modules are hot-swappable.



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Energy Saving

Compared with traditional UPS, which efficiency less than 90% about 10% is wasted. Fuhrer inverter efficiency is about 96%. It is designed for lower heat emission, less energy waste.

Application

Large mainframe oriented data centers Computer rooms
Small mainframe Mini computers Centralized or clustered servers Telecommunications applications Medical analysis equipment such as MRI and CAT scanners Laboratory instrumentation Mission critical customized applications.

Hot Swappable

Hot swappable module can be added or removed online. There is no need for technical personal to perform the job. It is safe and convenient for maintenance and repair as no need to bypass the UPS.

Parallel System

Fuhrer modular UPS has the characteristics that it has the independent power and control sections. Each module is an dependent UPS. It adopts the centralized multiple parallel N+X format. It's simple for system expansion with little fault points. It provides load with N+1 to N+X levels of protection. The maximum can be expanded to 100kva.

Easy Expansion

With the upgrade of customers' load requirement the original designed UPS may not be able to meet the demand. According to the traditional UPS system, we must replace with a new and higher capacity UPS system for customers. But for Fuhrer modular UPS there is no need to replace the whole UPS, but only adding the required number of modules for expansion, it saves customer's costs for initial equipment purchasing and future expansion.

LBS function

LBS function can realize 2 independent UPS system work in synchr onization, and it enhances the reliability of the systems.

Intelligent recharging system

Fuhrer UPS system applies a two step intelligent charging system. The first stage is a constant charging current that can recharge the battery capacity to 90% very quickly. The system then transfers to a constant voltage mode to guarantee the battery can stay fully charged all the time.

This intelligent charging system not only reduces the battery recharging time but also extends battery life, saving on battery replacement costs.

High capacity MTBF

System MTBF for two modules in parallel is more than 1,000,000 hours and power availability is above 99.999%. Each redundant configuration guarantees correct operation even in the event of the failure of one of the UPS modules. The module replacement procedure only takes 5 minutes for full system recovery. This solution allows you to: • Minimize downtime; • Reduce the number of stored spare parts; • Avoid the need for specialized technicians.

Standard

Safety: IEC / EN62040-1,

IEC / EN60950-1

EMC: IEC / EN62040-2,

IEC61000-4-2, IEC61000-4-3,

IEC61000-4-4, IEC61000-4-5,

IEC61000-4-6, IEC61000-4-8

Noise: EN62040-2



Multi-setting

According to input power condition, user can set up the UPS configuration with 4 kinds of working model (3 phase in & 3phase out, 3 phase in & 1 phase out, single phase in & out, single phase in & 3 phase out).

Bypass module

High reliability, overload capacity: 100% for one minute The switching time of less than 0ms Possess very strong post, interlock, protection, and other functions Equipped with USB, RS232, RS485, communication function Replacement does not affect the power supply to the load.

VRLA&Lithium battery supportable

VRLA batteriy number of each group can be selected from 30pcs to 50pcs (continuously adjustable).

Match with Deutsche Power lithium battery rack, providing higher power density, lower footprint and longer cycle life Configuration of VRLA or Lithium can be chose from LCD Two wire connection, simplify the construction on site and save the cost of battery neutral cable.

Intelligent management

- Standard colorful touch screen
- Support recording and exporting history logs and fault logs
- Support SNMP, RS232, RS485, BMS, Dr y contact interface
- Support upgrade of CAN of power module inside of c abinet

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TECHNICAL SPECIFICATION

Module Model		FS3300E-RM-10		
Cabinet Model		FS3300E-20	FS3300E-40	FS3300E-60
Cabinet capacity (VA)		10k~20k	10k~40k	10k~60k
Module capacity (VA)		10k		
Max. Number		2	4	6
Module Model		FS3300E-RM-15		
Cabinet Model		FS3300E-30	FS3300E-60	FS3300E-90
Cabinet capacity (VA)		15k~30k	15k~60k	15k~90k
Module capacity (VA)		15k		
Max. Number		2	4	6
Module Model		FS3300E-RM-20		
Cabinet Model		FS3300E-40	FS3300E-80	FS3300E-120
Cabinet capacity (VA)		20k~40k	20k~80k	20k~120k
Module capacity (VA)		20k		
Max. Number		2	4	6
Module Model		FS3300E-RM-30		
Cabinet Model		FS3300E-60	FS3300E-120	FS3300E-150
Cabinet capacity (VA)		30k~60k	30k~120k	30k~150k
Module capacity (VA)		30k		
Max. Number		2	4	5+1
Module Model		FS3300E-RM-40		
Cabinet Model		FS3300E-80	FS3300E-200	FS3300E-480
Cabinet capacity (VA)		40k~80k	40k~200k	40k~480k
Module capacity (VA)		40k		
Max. Number		2	5	12
INPUT				
Nominal voltage		380/400/415Vac, (3Ph+N+PE)		
Operating voltage range		138~305Vac for 40% Load; 305~485Vac for 100% Load;		
Operating frequency range		40Hz-70Hz		
Power factor		≥0.99		
Harmonic distortion (THDi)		≤3% (100% linear load)		
Bypass voltage range		Max. voltage:220V: +25% (optional+10%, +15%, +20%); 230V: +20% (optional		
		Min. voltage: -45% (optional-10%, -15%, -20%, -30%)		
Bypass frequency range		Frequency protection range: ±10%		
Power Walk In		Support		
Generator input		Support		
OUTPUT				
Rated voltage		380/400/415Vac, (3Ph+N+PE)		
Power factor		1		
Voltage regulation		±1%		
Output frequency	Line Mode	Synchronize with input, when the input frequency > ±10% (±1%/±2%/±3%/±4%/±5% optional), output 50/60 (±0.1Hz)		
	Bat. Mode	(50/60±0.1%)Hz		
Crest factor		3:01		

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TECHNICAL SPECIFICATION

Harmonic distortion (THDv)		≤1% with linear load; ≤3% with nonlinear load		
Efficiency		up to 95.8%		
BATTERY				
Battery voltage		Optional Voltage: ±180/192/204/216/228/240/252/264/276/288/300Vdc(30/32/34/36/38/40/42/44/46/48/50pcs optional);		
		360Vdc~600Vdc (30~50 pcs, 36 pcs default, 36~50 pcs no power derating; 32~34 pcs output power factor 0.9; 30 pcs output power factor 0.8)		
Power module charge current		18A (Max.)		
SYSTEM FEATURES				
Transfer time		Utility to Battery : 0ms; Utility to bypass: 0ms		
Overload	Line Mode	≤110%, 60min; ≤125%, 10min; ≤150%, 1min; to bypass. > 150% Shut down Immediately.		
	Bypass Mode	135% overload for long term; >1000% overload for 100 ms		
Overheat		Line Mode: Switch to Bypass; Backup Mode: Shut down UPS immediately		
Low battery voltage		Alarm and Switch off		
Self-diagnostics		Upon Power On and Software Control		
Backfeed		Support		
EPO		Shut down UPS immediately (turn to bypass optional)		
Battery		Advanced Battery Management		
Noise suppression		Complies with EN62040-3		
Audible & Visual alarms		Line Failure, Battery Low, Overload, System Fault		
Status LED & LCD display		Line Mode, Bypass Mode, Battery Low, Battery Fault, Overload & UPS Fault		
Reading on the LCD display		Input, Output, Battery, Command, Setting, Maintenance		
Communication interface		RS232, RS485, Parallel, LBS, BMS, Dry contact port, Relay card(optional), SNMP card(optional), Battery temperature sensor(optional)		
ENVIRONMENTAL				
Operating temperature		0°C ~ 40°C		
Storage temperature		-25°C ~ 55°C		
Humidity range		0 ~ 95% (non condensing)		
Altitude		<1500m, derating required when >1500m		
Noise level(from 1M distance)		<58dB	<60dB	<62dB
PHYSICAL				
Dimension W×D×H (mm)	UPS cabinet	485×850×353(8U)	485×850×575(13U)	485×850×752(17U)
	Power module	440×620×86(2U)		
Net weight (kg)	UPS cabinet	69	79	98
	Power module	10kVA: 19; 15~30kVA: 21		
STANDARDS				
Safety		IEC/EN62040-1, IEC/EN62477-1		
EMC		IEC/EN62040-2 (IEC61000-4-2, IEC61000-4-3, IEC61000-4-4, IEC61000-4-5, IEC61000-4-6, IEC61000-4-8)		
Specifications are subject to change without prior notice.				

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TECHNICAL SPECIFICATION

Model		FS-PLUS-501000						
Rack		FS50200	FS50300	FS50400	FS50500	FS50600	FS50800	FS501000
Module Capacity (VA)		50k						
Max No.		4	6	8	10	12	16	20
INPUT								
Nominal Voltage		380/400/415Vac, (3Ph+N+PE)						
Operating voltage range		138~305Vac for 40% Load; 305~485Vac for 100% Load;						
Operating frequency range		40Hz-70Hz						
Power factor		≥0.99						
Harmonic distortion (THDi)		≤3% (100% linear load)						
Bypass voltage range		Max. voltage : 220V : +25% (optional+10%, +15%, +20%); 230V : +20% (optional +10%, +15%); 240V : +15% (optional +10%) Min. voltage : -45% (optional-10%, -15%, -20%, -30%)						
Bypass frequency range		±10%						
Power walk in		SUPPORT						
Generator input		SUPPORT						
OUTPUT								
Rated voltage		380/400/415Vac, (3Ph+N+PE)						
Power factor		1.0						
Voltage regulation		±1%						
Output Frequency	Line mode	Synchronize with input, when the input frequency > ±10% (±1%/±2%/±4%/±5% optional), output 50/60 (±0.1Hz)						
	Bat. Mode							
Crest factor		3.1						
Harmonic distortion (THDv)		≤2% with linear load; ≤4% with nonlinear load						
Efficiency		up to 96%						
BATTERY								
Battery voltage	VRLA battery	60Vdc~600Vdc (30~50pcs continuously adjustable, 30pcs default, 36~50pcs no power derating; 32~35pcs output power factor 0.9; 30/31pcs output power factor 0.8)						
	Lithium battery	512Vdc						
Power module charge current		20A (Max.)						
SYSTEM FEATURES								
Transfer time		Utility to Battery : 0ms; Utility to bypass: 0ms						
Overload	Inverter mode	≤110% 60min, ≤125% 10min, ≤150% 1min, > 150% 1.2s shut down inverter						
	Bypass mode	30°C : 135% for long term; 40°C : 125% for long term; >1000%, 100ms						
Overheat		Line Mode : Switch to Bypass; Backup Mode : Shut down UPS immediately						
Low battery voltage		Alarm and Switch off						
Self-diagnostics		Upon Power On and Software Control						
Backfeed protection		Support						
EPO (optional)		Shut down UPS immediately (turn to bypass optional)						
Battery		Advanced Battery Management						
Noise suppression		Complies with EN62040-3						
Audible & visual alarms		Line Failure, Battery Low, Overload, System Fault						
Status LED & LCD display		Line Mode, Bypass Mode, Battery Low, Battery Fault, Overload & UPS Fault						
Reading on the LCD display		Input, Output, Battery, Command, Setting, Maintenance						
Communication interface		RS232, RS485, Parallel, LBS, BMS, Dry contact port, Relay card(optional), SNMP card(optional), Battery temperature sensor(optional)						
ENVIRONMENTAL								
Operating temperature		0°C~40°C						
Storage temperature		-25°C~55°C						
Humidity range		0~95% (non condensing)						
Altitude		<1500m, derating required when >1500m						
Noise level		<65dB	<66Db	<68dB	<70dB		<73dB	
PHYSICAL								
Dimension W×D×H (mm)	UPS cabinet (S)	600×850×2000		600×850×2000	1200×850×2000		2000×850×2000	
		Power Module	440×620×130					
Net weight (kg)	UPS cabinet	270	290	310/470	650	720	980	1080
	Power module							
STANDARDS								
Safety		IEC/EN62040-1, IEC/EN62477-1						
EMC		IEC/EN62040-2 (IEC61000-4-2, IEC61000-4-3, IEC61000-4-4, IEC61000-4-5, IEC61000-4-6, IEC61000-4-8)						

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