

Introduction to Electric Power Products

ZHONHEN 中恒

HANGZHOU ZHONGHENG ELECTRIC CO., LTD.

ZHTS series integrated intelligent power supply system

Station service AC power supply system, DC operating power supply system, UPS/INV system, communication power supply system are integrated into a complete power supply system that shares DC operating power supply battery pack and is monitored unifiedly. Integrated monitor is used to form a communication network of station-service power supply subsystems, share station-service power supply information. Integrated monitor may be connected with digital substation system easily via Ethernet interface (IEC61850 protocol), so as to meet online monitoring functional requirements of all system parameters, RS232/485 interface is also reserved to realize MODBUS and other standard protocol communications, may be used extensively in various substations.



Technical indexes of the system

AC Power Supply System Parameter List

No.	Item	Index	Remarks
1	AC input voltage	**Nominal value: 400V; allowable variation range: ±15%**	**Line voltage (three-phase four-wire system)**
2	Grid frequency	**Nominal value: 50Hz/60Hz; allowable variation range: 45~65Hz**	
3	Input overvoltage alarm	Settable (default 255Vac±2Vac)	Phase voltage
4	Input undervoltage alarm	Settable (default 185Vac±2Vac)	Phase voltage

DC Operating Power Supply System Parameter List

No.	Item	Index	Remarks
1	DC rated voltage	220Vdc or 125Vdc	
2	DC voltage range	198Vdc~286Vdc or 99Vdc~190Vdc	
3	Voltage regulation accuracy	≤±0.5%	
4	Current regulation accuracy	≤±0.5%	
5	Ripple factor (Vp-p)	≤1%	
6	Ripple factor (Vrms)	≤0.1%	
7	Output current limiting	(10%~110%)× rating	
8	Module current sharing imbalance	≤±3%	
9	Efficiency	≥94% (typical value)	
10	Noise	≤55dB	Air-cooled charging module
11	**Closing bus overvoltage/undervoltage alarm**	Settable	
12	**Control bus overvoltage/undervoltage alarm**	Settable	
13	DC feeding insulation monitoring	Up to 1320 ways	**Insulation monitoring module or insulation monitor must be provided**
14	Insulation ground resistance alarm	Settable, range: 1 KΩ~150KΩ	**Insulation monitoring module or insulation monitor must be provided**
15	Reliability redundancy backup	N+1	N+2 or N+3 is advised when N≥10

Communication Power Supply System Parameter List

No.	Item	Index	Remarks
1	Rated DC output voltage	48Vdc	
2	Voltage regulation accuracy	≤±0.5%	
3	Current regulation accuracy	≤±0.5%	
4	Efficiency	>91%	
5	Input voltage	220Vdc or 125Vdc	

UPS/INV System Parameter List

No.	Item	Index	Remarks
1	AC output voltage	Nominal value: 230Vac	

2	Output voltage frequency	50Hz/60Hz	
3	Input AC voltage	230Vac±25%	
4	Input AC frequency	50Hz/60Hz	
5	Input DC voltage	220Vdc or 125Vdc ±20%	

ZHDCS Series Intelligent Electric Operating Power Supply System

The product adopts intelligent high frequency switching power supply technology, modular design, has high accuracy of voltage stabilization and current regulation, low ripple factor, high reliability, easy maintenance and other advantages. The monitor system has complete functions, intelligent battery charge/discharge management, battery voltage monitoring, battery capacity and internal battery resistance test, online insulation ground detection of bus and feeding branch and other functions, could realize local and remote monitoring of all parameters of the power supply system, meet “four-remote” function, may be connected with digital substation system easily. The company is always dedicated to the development of export electric operation power supply project, general monitor allows interface switching in multiple foreign languages, including English, French, Russian, Spanish, Portuguese, and allows nickel chromium battery charge/discharge management.



Technical indexes of the system

AC Input Parameter List

No.	Item	Index	Remarks
1	AC input voltage	Nominal value: 400V Allowable variation range: －15%～+25%	Line voltage (three-phase four-wire system)
2	Grid frequency	Nominal value: 50Hz/60Hz Allowable variation range: 45Hz～65Hz	
3	Power factor	⩾0.94	Up to 0.99
4	Input overvoltage alarm	Settable (default 255Vac±2Vac)	Phase voltage
5	Input undervoltage alarm	Settable (default 185Vac±2Vac)	Phase voltage

Operating Power Supply Parameter List

No.	Item	Index	Remarks
1	DC rated voltage	220Vdc or 125Vdc	
2	DC voltage range	198Vdc～286Vdc or 99Vdc～190Vdc	
3	Voltage regulation accuracy	⩽±0.3%	
4	Current regulation accuracy	⩽±0.3%	
5	Ripple factor (Vp-p)	⩽1%	
6	Ripple factor (Vrms)	⩽0.1%	
7	Output current limiting	(10%～110%)× rating	
8	Module current sharing imbalance	⩽±3%	
9	Efficiency	⩾94% (typical value)	
10	Noise	⩽55dB	Air-cooled charging module
11	Closing bus overvoltage/undervoltage alarm	Settable	
12	Control bus overvoltage/undervoltage alarm	Settable	
13	DC feed insulation monitoring	Up to 1320 ways	Insulation monitoring module or insulation monitor must be provided
14	Insulation ground resistance alarm	Settable, range: 1 KΩ～150KΩ	Insulation monitoring module or insulation monitor must be provided
15	Reliability redundancy backup	N+1	N+2 or N+3 is advised when N⩾10

ZHDCS/T series thyristor rectified power supply system



ZHDCS/T series thyristor rectified power supply system is a power supply product designed for the high reliability of overseas power grid systems based on years of research and development and equipment operation experience. The power supply system using SCR as the rectifier device, the principle is that the AC input voltage is stepped down by a power frequency transformer, and then the SCR is used for rectification.

Technical indexes of the system

System parameters

Input parameter	
Input voltage(AC)	Nominal value: 400V/220V(Three-phase four-wire system)
Input voltage range	Allowed change scope:-15%～+25%
Input frequency	Nominal value: 50/60Hz
Input frequency range	Allowed change scope: ±5%
Power factor	0.8
Output parameter	
Output voltage (DC)	24/48/125/220V
Output voltage range	±20% nominal voltage (adjustable)
Output current specification	10A～350A
Output current limit	(10%～110%)×rated value
Voltage regulation accuracy	≤±1%
Current regulation accuracy	≤±1%
Output Voltage Ripple	≤1%
Output mode of operation	Constant voltage current limiting
Load dynamic response time	200μs
MTBF	300000h
Battery	
Battery type	Suitable for all kinds of lead-acid batteries and alkaline batteries(50Ah~800Ah)
Charging voltage scope	198Vdc～286Vdc/ 99Vdc～190Vdc/ 42Vdc～58Vdc
Floating charge voltage of battery group	2.25× number of batteries（48V power supply for 24 battery cells）

Equalizing charge voltage of battery group	2.35 × number of batteries（48V power supply for 24 battery cells）
Equalizing charge voltage of battery group	1.75 × number of batteries（48V power supply for 24 battery cells）
Lifespan in continuous float operation up to approx. 80% capacity	＞20Years
Equalizing charge time limit	Settable (default value 10 hours)
Delay equalizing charging	Settable (default value 3 hours)
Periodic equalizing charging	Settable (default value 2160 hours)
Battery temperature compensation	Settable (default value-3mV/℃/2V)
Battery overvoltage/undervoltage warning	Setup according to battery group voltage
Common parameter	
Operating temperature	0-55℃
Storage temperature	-20 to +70° C
Relative humidity	≤90% ，non-condensing
Height	＜3000m
Type of cooling	Temperature-controlled air cooling (low power self-cooling)
Efficiency	92% (Typical value)
Level of protection	IP30
Noise(dB)	＜55dB
Input voltage warning	Settable Phase voltage
Out put voltage warning	Settable bus voltage
Standard	
LVD	IEC 60146
EMC	IEC 61000-6

ZHINV series industrial standalone inverter

ZHINV series inverter is a converter that converts DC power into constant frequency and constant voltage or frequency and voltage regulation AC. It is composed of inverter bridge, control logic and filter circuit.



Technical indexes of the system

System parameters

Model	1000VA / 2000VA / 3000VA	4000VA / 5000VA / 6000VA
Electrical		
DC input	48Vdc：−17% ∽+25% 48Vdc	
AC Input		
AC input	Single phase AC120Vac ：−25% ∽+20% 220Vac (120Vac) (—25% ∽+20%)	
Frequency	50/60Hz±10%	
Power factor	0.99	
Output		
Output power	1 kVA, 2kVA, 3kVA	4kVA, 5kVA, 6kVA
Wave form	Pure sine wave	
Nominal output voltage	120Vac	120Vac
Voltage variation	Max ± 2%	
Output current:	Variable，adjustable to 105%.	
Output frequency	50/60Hz±10%	
Efficiency	Max 92%	
THD	<3% liner load	
	<5% non−liner load	
Overload	125% 10secs	
	110%10mins	
Transfer time	0ms	
Dynamic response time	< 30ms	
MTBF	300000h	
Display & Communication		
LED indicator	Working mode, Fault info, Battery capacity indicator, Load % indicator	
Communication Interface	RS232 and RS485 and RJ45	
	Dry contact：Line Fail、Low Battery、Inverter Fault、Overload、etc.	
Safety & Enviroment		
Operating Temp	Full load, −20° C − 40° C	
	Derating using, 40° C − 60° C	
Relative humidity	≤95%RH，non−condensing	
Cooling	forced fan with thermal control	
Height	3000m	
Standard		
LVD	EN60950−1	
EMC	EN55022	

DPJ series intelligent station-service power system

The product is a new generation intelligent low voltage (AC) power distribution system developed independently by the company. Intelligent station-service power system consists of AC incoming unit, AC feeder unit, electricity metering unit and monitoring unit. Monitoring unit adopts 7" color LCD screen, has electric energy acquisition, digital signal acquisition, automatic switching, ATS information acquisition and control, AC feed line current data acquisition, feeder opening/closing state acquisition, switch emergency trip signal acquisition and other functions. The monitor also has NET (61850), USB, CAN, RS485, TFTLCD, TS, IRIG-B and other functions, may be connected with background automation system conveniently to realize four-remote function.



Technical indexes of the system

Station Service Parameter List

No.	Item	Index	Remarks
1	AC input voltage	Nominal value: 400V; allowable variation range: ±15%	Line voltage (three-phase four-wire system)
2	Grid frequency	Nominal value: 50Hz/60Hz; allowable variation range: 45Hz～65Hz	
3	Input overvoltage alarm	Settable (default 255Vac±2Vac)	Phase voltage
4	Input undervoltage alarm	Settable (default 185Vac±2Vac)	Phase voltage
5	Incoming line switching mode	Single, dual, triple, quad, and other incoming modes	Customizable

IMPS/IPS series integrated electric power supply system

The product is an indoor communication power supply equipment developed independently by Zhongheng, applicable to power plants, various substations, centralized control center, as well as commercial buildings, guesthouse, conference center and other buildings, could provide stable, reliable AC power supply and 48V DC power supply for communication equipment. Monitor could realize data acquisition and processing, battery management, LVD control and input/output control of the whole communication system, interface operation is simple and convenient, output mode may be configured flexibly to meet precise user requirements for power supply. Monitor is provided with RS232/RS485 interface, supports YD/T and MODBUS communication protocols.





Technical indexes of the system

AC Input Parameter List

No.	Item	Index	Remarks
1	AC input voltage	150～300Vac	Single-phase three-wire system
2	Grid frequency	Nominal value: 50Hz/60Hz; allowable variation range: 45Hz～65Hz	
3	Power factor	⩾0.91	Up to 0.99
4	Input overvoltage undervoltage alarm	Settable	Phase voltage

DC Output Parameter list

No.	Item	Index	Remarks
1	DC rated voltage	48Vdc	
2	DC voltage range	43V～57.6V	
3	Voltage regulation accuracy	≤±0.5%	
4	Source effect (voltage regulation rate)	≤±0.03%	
5	Efficiency	≥91% (typical value)	
6	Noise	≤55dB	Air-cooled charging module
7	Bus overvoltage/undervoltage alarm	Settable	

ZHUPS series intelligent UPS

ZHUPS is an advanced industrial grade super isolation online sine wave UPS, adopts sinusoidal pulse Width Modulation (SPWM), outputs pure sine wave alternating current. The super isolation design could not only solve the problems caused by low quality AC power supply, eliminate the impact of earth leakage current effectively, and provide perfect protection for load and UPS, but also reduce harmonic the caused by rectification and inversion in a better way, so as to prevent pollution of power grid.



Technical indexes of the system

UPS Parameter List

Capacity		1~120kVA
Input	AC voltage	Ac230 1P2W/AC400 3P4W
	DC voltage	DC220V/DC125
	Frequency	50Hz/60Hz±10%
Output	Output voltage	AC230V±1%
	Frequency	50Hz/60Hz±10%
	Waveform	Sine wave, 100% linear load harmonic distortion rate <3%
	Overload capacity	120%-150% turn to bypass output after 60 s, ≥150% turn to bypass output after 1 s
	Power factor	0.7-1, lagging
	Peak factor	3:1
	Efficiency	≥91%
	Conversion time	0ms
Protection	Battery	Automatic shutdown at low battery voltage
	Overload	120%-150% turn to bypass power supply after 60 s, turn to mains supply automatically after load is reduced
	Short circuit	Protection, to bypass
	Fault	Turn to bypass, alarm
Communication Interface	RS-232 (optional)	Support upsilon 2000 monitoring software
	RS-485	Support upsilon 2000 monitoring software/MODBUS protocol (optional)
	Dry contact	5 groups of digital signal alarm

Powervortex/GEatom series energy storage INV

It is independently developed by Zhongheng, may store surplus photovoltaic power in battery pack, when sunshine is insufficient, the power stored in battery pack may be supplied to load, so as to utilize solar energy at all times and places. Zhonhen INV product may be used for new photovoltaic energy storage system, and for upgrading the existing photovoltaic system, the built-in energy management system may monitor battery state, photovoltaic power generation, standby power supply, generate power for own use, and other data in real time



PV/Storage Battery Hybrid INV Parameters

	Single-phase PV/storage battery hybrid INV			Three-phase PV/storage battery hybrid INV	
Technical parameters	**Powervortex 3700TL**	**Powervortex 5200TL**	**Powervortex 5200TL-H**	**Powervortex 305KTL-T2**	**Powervortex 309KTL**
DC input (battery side)					
Operating voltage scope [V]	40 - 60	40 - 60	125-550	120 - 700	200 - 800
DC input (PV side)					
Maximum input power [W]	3700	5200	5200	5200	9800
Maximum input voltage [V]	550	580	580	855	900
AC output (load/power grid)					
Rated power [W]	3600	5000	5000	5000	9800
Rated voltage [V]	1N - 230	1N - 230	1N - 230	3N ~ 400	3N ~ 400
AC output (standby power supply)					
Rated output power [W]	2000	3400	3000	5000	9600
Rated output voltage [V]	230	230	1N~230	3N ~ 400	3N ~ 400
Efficiency					
European efficiency	91.30%	91.30%	99.90%	99.90%	99.90%
Basic parameters					
Communication	CAN/RS485/WIFI	CAN/RS485/WIFI	CAN/RS485/WIFI	CAN / RS485 / WIFI	CAN / RS485 / WIFI

Battery INV Parameters

GEatom series	306KHF	306KTL	318KTL	320KTL
DC input				
Operating voltage scope [Vdc]	40-100	200-800	250-800	250-800
AC output				
Rated output power [W]	5700	5800	17800	20000
Rated output voltage [Vac]	400	400	400	400
Efficiency				
Maximum charge discharge efficiency	⩾93.5%	⩾96.5%	⩾97%	⩾97%
Battery				
Battery type	Lithium battery/lead-acid/FLA/nicd			
Basic parameters				
Topology type	High frequency isolation transformer	No transformer	No transformer	No transformer
Communication	USB / RS485			

GHESS series household energy storage system

This is a safe and reliable green energy solution provided by Zhongheng based on pain points of user power consumption. In this system, photovoltaic power is supplied to load with priority, surplus power is used to charge battery pack with priority, if there is still power surplus, it will be fed into power grid to acquire feed-in subsidy. During peak hours, battery pack supplies power to load, during off-peak hours, battery pack draws power from the grid, so as to realize peak load shaving, save electricity cost, and may relieve the pressure of power grid during peak hours effectively.



Household Energy Storage System Parameters

	Single-phase PV/storage battery hybrid system		Three-phase PV/storage battery hybrid system	
Technical parameters	GHESS 3.7-4.8-SL (scalable)	GHESS 5.2-7.2-SL(scalable)	GHESS 5.2-7.2-TH(scalable)	GHESS 9.8-14.4-TH(scalable)
System parameters				
Rated capacity [kWh]	4.8	7.2	7.2	14.4
Cycle times	6000 @80% DoD	6000 @80% DoD	6000 @80% DoD	6000 @80% DoD
DC input (battery side)				
Maximum charge discharge power [W]	2400 / 2400	2400 / 3840	2700 / 2700	6000 / 6000
Operating voltage scope [V]	40 - 60	40 - 60	143 - 160	285 - 320
DC input (PV side)				
Maximum input power [W]	3700	5200	5200	9800
MPPT voltage range [V]	125 - 530	125 - 550	150 - 800	200 - 800
Rated voltage [V]	360	360	670	670
AC output (load/power grid)				
Rated power [W]	3600	5000	5000	9600
Output voltage range [V]	180 - 276	180 - 264	3N - 400	3N - 400
AC output (standby power supply)				
Rated AC output [W]	2000	3400	2400	5600
Rated voltage output [V]	230	230	3N - 400	3N - 400
Efficiency				
Charge/discharge cycle efficiency (including battery)	91%	91%	93%	93%
Basic parameters				
Communication	CAN / RS485 / WIFI	CAN / RS485 / WIFI	CAN / RS485 / WIFI	CAN / RS485 / WIFI

Hangzhou Zhongheng Electric Co., Ltd.(stock code: 002364, “Zhongheng Electric” for short) was established in 1996 and moved to the beautiful Qiantang River in 2002. In Mar.2010, Zhongheng Electric was publically listed in Shenzhen Stock Exchange.

Zhongheng always adheres to the core values of “Absolutely Sincere,Pursuit of Excellence”, regards “smarter use of energy” as its mission, tries to become “a value creator trusted by customers, accepted by shareholder and respected by the society, to be the pride of staff.”

The product sales area covers 33 countries in 5 continents,

including China, Germany, Japan, Australia, Britain, Byelorussia,

Turkey, Pakistan, Mexico, Ethiopia, Kazakhstan, South Africa,

Cuba, Kenya, Laos, Vietnam, Malaysia and Indonesia

1. The company belongs to National High-Tech Enterprise, possesses key enterprise research institute at provincial level, high-tech R&D center at provincial level and other qualifications, an AAA enterprise for two decades.

2. With TUV-CE, IQNET and other certifications.

HANGZHOU ZHONGHENG ELECTRIC CO., LTD.

Add：No. 69 Dongxin road Binjiang District in Hangzhou City,China

Tel：+86-571-86698999

E-mail：+86-571-86698777

P.C：310053

Official website：www.hzzh.com

WeChat Public Number