

HTP48200 Y2A1

Outdoor wall mounted DC power supply

Product Specifications

Foreword

Manual instructions

This specification applies to HTP48200 Y2A1 outdoor wall mounted DC power supply. HTP48200 Y2A1 system is an outdoor wall mounted DC power supply with battery compartment, which provides power supply and backup function for -48 V communication equipment.

Target Audience

This book is intended for:

- Planning Engineers
- Maintenance engineer

Content Brief

The chapters of this book are as follows.

Chapter names/appendices	outline
Chapter 1 Product positioning and characteristics	Describe product positioning and product characteristics.
Chapter 2 Product structure	Describe the whole structure of HTP48200 Y2A1 system, describe the power distribution unit, rectifier and CSU.
Chapter 3 Technical specifications	Describes the technical specifications of the HTP48200 Y2A1 system, including environmental specifications, performance specifications, electrical specifications, physical specifications, and system component configuration specifications.

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1 Product positioning and features

1.1 Product positioning and features

HTP48200 Y2A1 is an outdoor wall mounted power supply with battery compartment for -48V series communication equipment.

- With single or three phase input, it is suitable for 220 V power grid.
 - HTP48200 Y2A1 200A system can be installed up to 4 3000W rectifiers to form a maximum output power of 12KW system.
 - HTP48200 Y2A1 with battery mounting bin, can install a maximum of 100AH battery, to achieve an integrated simple station construction function.
 - The rectifier module adopts active power factor compensation technology, and the power factor value is greater than 0.99.
 - Ac input voltage normal working range is wide to 90 ~ 300Vac.
 - The rectifier module adopts DSP technology, and the efficiency can reach more than 96%.
 - Intelligent monitoring and management function, to achieve temperature compensation, automatic floating charge control, automatic voltage regulation, battery management and other functions.
 - Rectifier module adopts non-damage hot swap technology, plug and play, easy to replace.
 - Network design, provide a variety of communication interfaces, such as: LAN (optional) RS485, dry contact, flexible networking, can be limited to local and remote monitoring, unattended.
 - Perfect AC, DC side lightning protection design, suitable for many thunderstorms area.
 - Complete fault protection, fault alarm function.
 - Full frontal operation and maintenance, can be installed against the wall, effectively save space.
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1.2 Working principle

Power system working principle:

The AC power enters the rectifier module through the AC distribution unit, and the rectifier module converts the AC into -48V direct current, which is supplied by the DC distribution unit to the multiple loads.

When the AC power supply is normal, the rectifier module provides charging current for the battery in addition to supplying power to the DC load.

When the AC power is cut off, the rectifier module stops working and the battery supplies power to the DC load.

After the AC power is restored, the rectifier module re-supplies power to the DC load, and charges the battery to replenish the consumed power.

- The monitoring unit monitors the running status of each component of the power system in real time, and carries out corresponding intelligent control. If any exception occurs, it reports an alarm signal in time
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2 Product Structure

2.1 Whole machine structure

2.1.1 Overall dimensions

Figure 2-1 shows the exterior and dimensions of a 200A wall mounted HTP48200 Y2A1 outdoor wall mounted DC cabinet.



Description:

The cabinet dimensions in Figure 2-1 do not include accessories such as mounting ears.

Figure 2-1 Exterior cabinet of an HTP48200 Y2A1 system



2.1.2 Internal Structure

The internal structure of the HTP48200 Y2A1 system cabinet is as follows:



1) Monitoring unit 2) Rectifier 3) Distribution 4) Battery



Description:

The internal structure of the actual product shall prevail.

For details about the components of the HTP48200 Y2A1 system, see Table 2-1.

Table 2-1 Components of the HTP48200 Y2A1 system

Serial Number	Components	Description
1	Monitoring unit	The detection box controls the operation of the system and provides information query, alarm and parameter setting functions.
2	Rectifier slot	Install the rectifier to achieve AC-DC conversion, converting alternating current to direct current output to the load.
3	Power distribution unit	Provides lightning protection and AC/DC power distribution.
4	Batteries	Energy storage and backup functions

2.2 Power Distribution Unit

2.2.1 Ac power distribution unit

The AC component of the power distribution unit realizes AC input distribution and AC lightning protection, and provides AC input interface and AC output interface.



Attention!

Avoid direct or indirect contact with the AC power distribution component, which may cause personal injury.

Table 2-2 describes the components of the AC power distribution unit.

Table 2-2 Components of an AC power distribution unit

Identification	Components	Instructions
AC SPD	Ac surge arrester	For AC lightning protection. Class C lightning protection is standard and Class B lightning protection is optional
AC Input	Ac input circuit breaker	It is used to control the on-off of the AC input power supply and connects the phase line and the neutral line (L1/L2/L3) in the AC input cable. 3 Phase/single phase optional
AC Output	Optional	Ac auxiliary output

2. 2. 2 Dc power distribution unit

Table 2-3 describes the components of the DC power distribution unit.

Table 2-3 Components of a power distribution unit

Identification	Components	Instructions
BLVD	Dc power distribution switch	Provides a DC output interface for controlling the on-off of the DC output branch. When the battery is low voltage, the output contactor is disconnected and the output is powered off.
DCSPD	Dc surge arrester	For DC lightning protection.
BATT1	Battery input 1 Switch on	A battery input interface is provided to control the on-off of battery shunt 1.
BATT2	Battery input 2 circuit breaker	A battery input interface is provided to control the on-off of battery shunt 2.

Dc cable specifications Optional

The DC power distribution unit is configured with load circuit breakers and battery circuit breakers with different load capacities. The load capacity of the circuit breaker determines the specifications for DC cables. Table 2-4 describes the relationship between the load capacity of the circuit breaker and the specifications of DC cables.

Table 2-4 Relationship between the load traffic on the circuit breaker and the cross-sectional area of cables

Traffic on the circuit breaker (A)	Adapter cable cross-sectional area (mm ²)	Remarks
>16 to ≤25	2.5	When the total length of positive and negative cables (more than 10 m), the selected cable cross-sectional area needs to be raised by one level. For example: the load circuit breaker load flow is 16 A, the cross-sectional area is 2.5mm ² , while the total length of positive and negative cables is too long (more than 10 m), you need to choose 4mm ² cable.
>25 ~ ≤32	4	
>32 ~ ≤40	6	
>40 to ≤63	10	
>63 ~ ≤80	16	
>80 ~ ≤100	25	
>100 to ≤125	35	
>125 ~ ≤160	50	

2.3 Rectifier

Features

3000W rectifier implements AC-DC conversion, converts AC to DC output to the load, and charges the battery pack.

Electrical Characteristics

3000W is a rectifier with constant power output characteristics.

- Rated AC input voltage: 200 V ~ 240 V
- Rated DC output voltage: 53.5V
- Dc output voltage range: 42 V ~ 58 V
- Maximum output power: 3000 W
- Rated output current: 50 A
- High efficiency and energy saving, using DSP technology, peak efficiency is greater than 96%
- Environmental protection and safety, in line with ROHS requirements

Efficiency	> 96% Max > 95% (30% to 100% with load) >94.5 (25% to 100% loaded)
Maximum power	3000W (176 to 300 V AC)
Input voltage	85 to 300 V AC
Operating temperature	-40 C to +75 C (no derating at 55 C)

Dimensions (W x D x H)	105 mm x 281 mm x 40.8 mm
Weight	≤ 2.0 kg
Temperature control method	Forced air cooling (built-in fan)
Power factor	≥ 0.99 (≥50% on load at 230VAC)
Unbalance of parallel flow	< 5A
THD	≤ 5% (at 230VAC, > 50% with load)
safety	UL60950-1 /IEC60950-1 /EN60950-1
EMC	EN55022 Class B /EN55024 /EN61000-3-2 /EN61000-3-3 /ETSI EN300 386
MTBF	500000 hours
Protection features	Input overvoltage protection, input undervoltage protection, output overvoltage protection, high temperature protection, long time short circuit is not damaged

2.4 Monitoring unit

The monitoring unit supports the following features:

- Support real-time detection of power system operating status
 - AC and DC information detection, fault alarm, voltage measurement error less than 2%, current measurement error less than 0.2A.
 - Rectifier module information detection and fault alarm
 - N/A Battery information detection and fault alarms
 - Detects and alarms the ambient temperature, humidity, battery temperature, door status sensor, smoke, and water.
 - High precision sensor, temperature error is less than 1%.
 - 6 input dry contact signal detection
 - Battery, load fuse detection, fault alarm
 - Supports real-time alarm detection and reporting
 - An alarm can be associated with an output dry contact. Eight output dry contacts are supported and the status can be set to normally open or normally closed
 - Alarm level can be set (critical/off)
 - Alert the user by indicator light, alarm sound (optional enable/disable)
 - Historical alarm records
 - Support for remote communication
 - LAN interface (optional), Web access (optional), SNMP protocol communication (optional)
 - Northbound RS485 interface for communication over modbus/electrical master protocol
 - Southbound RS485 port for managing downstream devices
 - Supports flexible rectifier module management
 - Can control the output voltage of the rectifier module
 - Can control the output current of the rectifier module
 - The opening and closing of the rectifier module can be controlled separately
 - Intelligent sleep management of the rectifier module
 - Input and output voltage alarm Settings
 - Support perfect battery management
 - Battery equalization and floating charge management, voltage setting
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- Battery temperature compensation
- Battery high and low temperature alarms
- Battery charge current limiting management
- Low voltage battery power-off protection
- Battery test management
- Battery remaining capacity detection



3. Technical specifications

3.1 Environmental Indicators

Projects	Indicators
Operating temperature	-20 °C ~ +75 °C (HTP48200 Y2A1 outdoor type), does not drop below 55°C environment.
Storage temperature	-45 °C ~ +75 °C.
Operating relative humidity	≤ 95%
Storage relative humidity	≤ 95%
Atmospheric pressure	70 kPa to 106 kPa.
Altitude requirements	<ul style="list-style-type: none">● 0 m to 3000 m: Full power output.● 3000 m or above: The load needs to be derated by 1% for every 100m increase in altitude.
Site requirements	<ul style="list-style-type: none">● Horizontal installation without vibration and turbulence.● Do not let liquid, conductive objects fall into the equipment.● There is no water vapor, no conductive dust, no corrosive gas, no strong electromagnetic field interference, and no explosion risk around the equipment.

3.2 Performance Specifications

Items	Indicators
System power	Standard 6KW, Max 12KW/ 4 3000W rectifiers
System peak efficiency	≥95.5%.
Machine noise	≤55 dB (A).
Cooling method	Fan forced air cooling
Networking mode	Provides networking functions such as RS485 serial port, dry contact, and LAN.
Mean time to failure (MTBF)	≥3.2 x 10 ⁵ hours.

Product design life	10 years.
Ac input range	85 to 300Vac, 175Vac to 300Vac do not derate
Operating temperature range	-40 °C ~+75°C, no derating below 55°C

3.3 Electrical Specifications

The electrical specifications of HTP48200 Y2A1 include AC electrical specifications and DC electrical specifications.

Ac Electrical specifications

Items		Indicators
Ac input characteristics	Input system	Single-phase 220VAC/230VAC
	Input voltage range	85V-300V
	Enter frequency	Rated frequency: 50 Hz/60 Hz: Frequency range 45 to 65HZ
Ac Power distribution	Ac input	1 x 63 A/2P MCB as standard, optional 1 x 63 A/4P MCB.
	Ac Output	Optional
	Ac Lightning protection	Class C, lightning protection circulation: $I_{max} = 40$ kA(8/20 μ s).
Protection characteristics	Ac overvoltage protection	When the input single-phase voltage is greater than the AC overvoltage protection point, the overvoltage protection action occurs.
	Ac undervoltage protection	When the input single-phase voltage is less than the AC undervoltage protection point, the undervoltage protection action occurs.

Dc electrical specifications

Items		Indicators
Dc output characteristics	Rated output voltage	- 53.5V.
	Output voltage range	-42V-58V
	Dc maximum output current	200A.
	Dc lightning protection	Lightning protection flux: $I_{\max} = 40\text{kA} (8/20\mu\text{s})$.
	Voltage stabilization accuracy	$\leq 0.5\%$.
	Ripple	$\leq 200\text{ mV}$.
	Counterweight noise voltage	$\leq 2\text{ mV}$.
Dc power distribution	Battery input	2 way, 2 x 63A MCBs.
	Dc load output	Standard: 6*16A/1P
	Battery holder	Max 100AH / 48AH lithium battery can be installed
Protective Features	Dc overvoltage protection	The overvoltage protection action occurs when the output voltage is higher than the DC overvoltage protection point.
	Dc undervoltage protection	When the output voltage is lower than the DC undervoltage protection point, the undervoltage protection action occurs.
	Battery undervoltage protection	When the battery voltage is lower than the power-off voltage protection point, the power-off protection action occurs.

3.4 Physical Specifications

Items	Indicators
Overall dimensions	700 mm x 546mm x 260 mm (H x W x D) (does not include accessories such as mounting ears).
Cabinet weight (not including battery)	Approx. 40 kg.
Wiring method	In and out of the wire, rubber gasket waterproof
Installation method	HTP48200 Y2A1 outdoor support wall-mounted installation, pole installation and floor installation.
Cooling mode	Fan fan heat
Level of protection	IP55
Corrosion resistant design	Frame and installation accessories are hot-dip galvanized and outdoor powder spray treatment, with good anti-oxidation, anti-corrosion function
Installation accessories	Holding pole (50-100mm pole) or wall mounting
Other accessories	Signal connection cables, connectors, power cables, and batteries in the cabinet are suitable for the load capacity
