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(YKGPE4860-1U-D) 220vdc /220Vac to 48Vdc 60A AC/DC To DC Converter/ Rectifier

PART1. Main features

1. Adoption of active power factor compensation technology with factor > 0.98
2. Wide operating range of AC input voltage: 90～285Vac
3. Operating temperature range:-25℃～+55℃
4. Zero current/voltage switching tech with high efficiency ≥90%
5. Perfect battery management, battery temperature compensation, LVLD and LVBD protection, battery capacity test
6. Hot-swappable
7. Input over/under voltage protection
8. Output over voltage protection
9. Output over current protection
10. Output short circuit protection
11. Auto current sharing, parallel operation
12. Embedded mounted
13. Multiple communication ports, easy for networking and remote management

PART 2: Application

- Small scale program controlled exchanges
- Access network
- Transmission equipment
- Mobile communication
- Satellite communication ground station
- Microwave communication

PART3. Customize range:

A Whole Rectifier System is composed of following item			
No.	QTY	Item name	Noted
1	1pc	Rack Mount	1U/2U/3U**11U or cabinet option
2	1pc	Monitor Module	With LCD or without LCD Display option
3	*pc	Rectifier Module	10A/20A/30A/50A option *mean different QTY. for Example 2/3/4/5/6…pc.
4	1pc	DC Distribution	Stand alone DC Distribution or build in the system option

PART4: Battery Configuration

Battery capacity (Ah) = ÷ load power/ DC voltage (60V) × supply time

PART5: Power Distribution unit

1. AC Power Distribution: AC input circuit (1-2 channels), AC output circuit (N- channels)
2. DC power distribution: Battery output circuit (1-2 channels), the load output circuit (N- channels)
3. LLVD： Load low voltage disconnection

- **LLVD： Load low voltage disconnection definition**

  In the daily operation of the communication device, when the mains power failure, the communication power of the battery is responsible for power supply. After a period of time the battery-powered electricity supply has not been restored, in order to extend the main power supply load, you need to disconnect power to the secondary load, this action is called LLVD--Load low voltage disconnection

4. BLVD: Battery low voltage disconnection

- **BLVD: Battery low voltage disconnection definition**

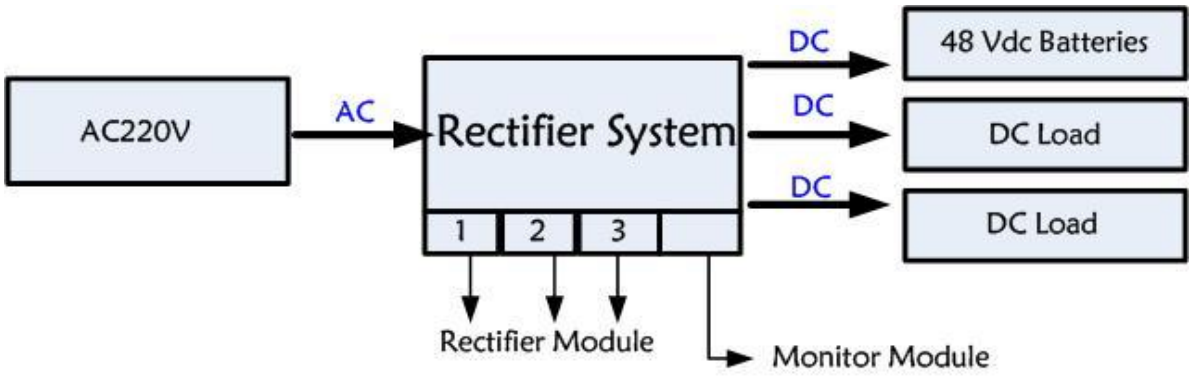
  In the daily operation of the communication device, when the mains power failure, the communication power of the battery is responsible for power supply. After a period of time the battery-powered electricity supply has not been restored, in order to extend the main power supply load, you need to disconnect power to the secondary load, this action is called a power down;

  When the battery continues to be discharged to a certain extent, in order to protect the battery is not damaged, disconnect the battery and the load among all, this action is called BLVD: Battery low voltage disconnection

Part 6. Technical Characteristics

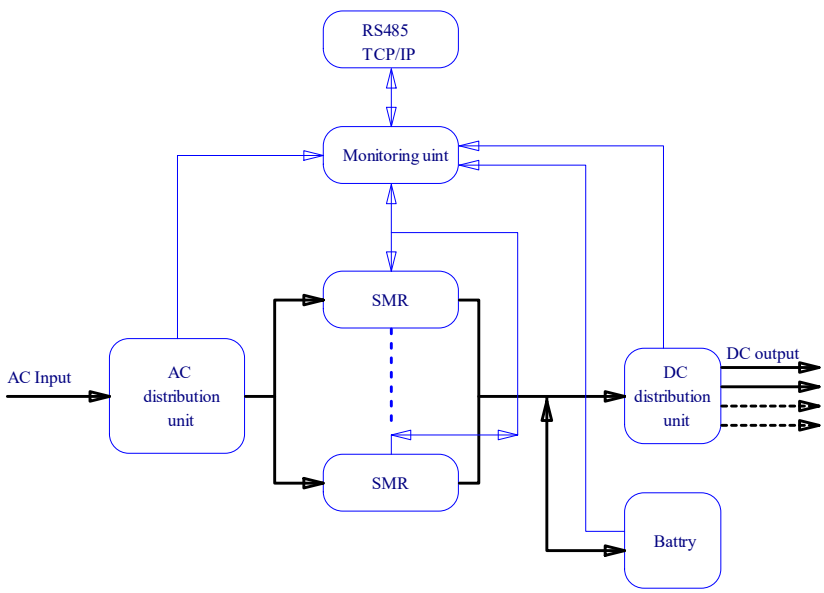
Embedded systems are designed to power a wide range of communication devices such as small SPC exchanges, access network and transmission equipment, mobile communication equipment, ground stations for satellite communication, and microwave communication equipment.

Part 7. Working schematic-



Part 8. Working Principles

Normally, the monitoring module controls parameters for the rectifier module and power distribution unit. The system operates according to preset parameters or user commands. If the mains supply fails, the system switches to the battery for power supply. When the battery discharges electricity until its voltage falls below the low-voltage alarm threshold of 46V (configurable) for the upper device, the monitoring module reports an alarm message and turns off output load. The system stops working. When the mains supply resumes, the system returns to normal (you can reconfigure the above default monitoring data). The system provides a reduced power rate when the operating temperature reaches 55℃ or above.



Part 9.Technical Specifications

AC Input					
Parameter	**Min.**	**Typical**	**Max.**	**Unit**	**Description**
Input voltage range	90	220	285	Vac	
Input frequency	45	50	65	Hz	
Power factor	0.98				
DC Input					
Parameter	**Min.**	**Typical**	**Max.**	**Unit**	**Description**
Input voltage range	130	220	400	Vdc	
Output					
Parameter	**Min.**	**Typical**	**Max.**	**Unit**	**Description**
Output voltage range	42	53.5	58	Vdc	
Output current range	0		60	A	176-280VAC
	0		30	A	90-175VAC
Ripple			200	mv	(peak-to-peak value)
Output efficiency	≥91			%	220Vac input
	≥87			%	110Vac input
Accuracy of voltage stabilization			≤±1	%	
Load regulation			≤±1	%	
Line regulation			≤±1	%	
Insulation Level					
Parameter	**Min.**				**Description**
Input-output	3000Vdc/10mA//1min				
Input-enclosure	2500Vdc/10mA//1min				
Output-enclosure	700Vdc/10mA//1min				
Insulation resistance	The insulation resistance between power input and output, input and ground, output and ground terminals must be no lower than 10MΩ with a leakage current of less than 3.5mA when the relative humidity is 90% and test voltage is 500Vac under normal atmospheric pressure.				
Environment					
Parameter	**Min.**	**Typical**	**Max.**	**Unit**	**Description**
Operating temperature	-25		55	°C	≥55°C: down rating
storage	-40		80	°C	

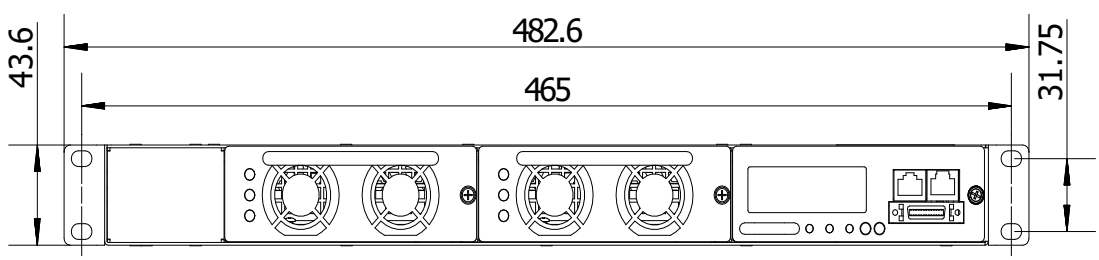
temperature					
Relative humidity (RH)	10		90	%	Relative humidity, non-condensing
Atmospheric pressure	70		106	KPa	
Altitude	0		3000	m	
Cooling mode	Forced air cooling				

Part 10.Different Technical Specifications

Input and Output				
Voltage / Model	AC input current (Max.)	DC output current		
		170-290VAC	151-175VAC	90-150VAC
1U-4860	20A	60A	33A	22A
2U-4890	29.7A	90A	50A	33A
3U-4890	29.7A	90A	50A	33A
3U-48150	49.5A	150A	83A	55A

Mechanical Characteristics								
Category / Model	Weight (KG)		Dimensions (mm)					
	With modules	Without modules	W	D	H	A	B	C
1U-4860	≤5	≤3	482.6	253	43.6	465	31.8	442
2U-4890	≤11	≤5.2	482.6	255	88.1	465	76.2	436
3U-4890	≤12	≤5.3	482.6	255	129	465	57.2	440
3U-48150	≤16	≤5.3	482.6	255	129	465	57.2	436

Part 11.Dimension:

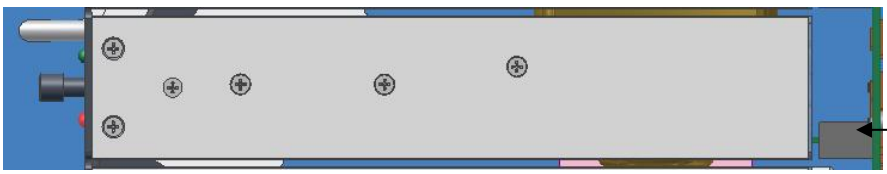


Part 12.System installation

When the system is packaged and transported, the monitoring module and all rectifier modules are installed on the system mainframe, as shown in the figure (the system configuration capacity is 60A, which consists of two 48V30A rectifier modules and one monitoring module).

Front view

Installing the Monitoring and Rectifier Modules



Module installation positions (side view)

Installing the monitoring module (front view)

Installing the rectifier module (front view)

13.Others

A. LED

Name	Color	Status	Description
Running	Green	Light or not	Fault or without input
		Flink	OK
Alarming	Yellow	Not light	Without alarm
		Light	Alarm
Fault	Red	Not light	Without Fault
		Light	Fault

B. Connector Definition- RJ45

Name	Definition	Description
Ethernet		
RS485	PIN2	A+
	PIN3	B-

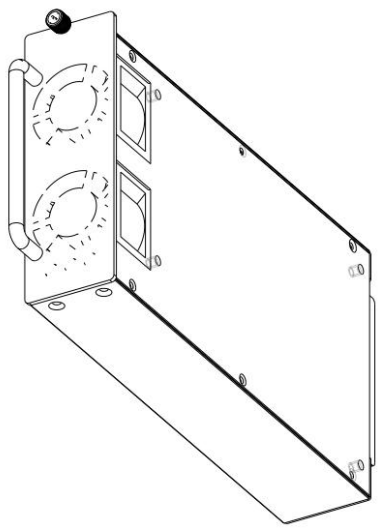
C. 4*6P Connector

PIN1	PIN2	PIN3	PIN4	PIN5	PIN6
WATER		VCC		SMOKE	
DOOR		BAT-TEM2		LJ-TEM1	
DO01		DO02		DO03	
DO04		DO05		DO06	

Part 14.Rectifier Modules

A. Appearance

Currently, we provide four rectifier modules for an embedded power system: 4830, and 48150.



Dimensions: 208mm*116.5mm*41.6mm, Weight: ≤1.5Kg

B. Technical Specifications

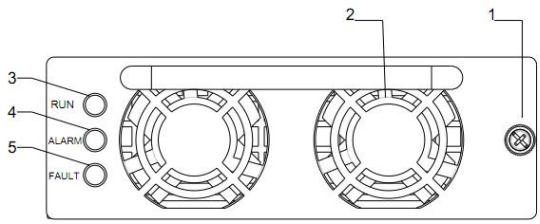
Input and Output				
Voltage / Specification	AC input voltage range	AC input current (Max.)	DC output current (Rated)	Max. Output Power
4830	90-280Vac	10A	30A	1800W

C. Operating Environment Requirements

- Operating temperature: -33℃-+55℃ (55℃: can work at full load; +55-+65℃: lineally down-rated by 2.0%/℃)
- Relative humidity: 5-95% (non-condensing)
- Storage temperature: -40℃-+70℃
- Altitude: 0-3000m
- Atmospheric pressure: 70-106 KPa
- Cooling mode: forced air cooling
- Operating voltage: 40-60Vdc

D. Description and Maintenance

Front panel



1. Front panel fixing screw 2. Fan 3. RUN indicator (green)
4. ALARM indicator (yellow) 5. FAULT indicator (red)

Alarm Indication

- The green indicator stays on when the power module works properly. The indicator turns off when the power module fails. (The green indicator turns off when the mains supply fails or the power module gives no output.)
- The yellow indicator remains off when the power module works properly. The indicator lights up when temperature, automatic down-rating, current limiting, and fan alarms are raised for the power module.
- The red indicator remains off when the power module works properly. The indicator lights up the power module fails as a result of the following faults: shutdown for output overvoltage, fan failure, shutdown for over-temperature, remote shutdown or no output for other reasons.

Reference Pictures