R4850N1 Rectifier User Manual V1.2

Efficiency	The peak point is ≥92.5% ≥91.5%(230V AC,35%–80% load)
Height x Width x Depth	88.9 mm **x** 103 mm **x** 243 mm
Weight	≤ 2.5 kg

Product Description

The R4850N1 is a digital-and-analog control rectifier converts the 85VAC ~300 VAC input to 53.5 VDC output that possesses the characters of high efficiency, high power density, soft start, parallel, complete protection, and low noise. Adopting the latest power topology and latest intelligence control technology to realize the high efficiency under widest load range.

Key Features

- Input voltage range: 85 VAC-300 VAC
- Operating temperature range: –40 °C to +75 °C (–40°F to +167°F)
- Total harmonic distortion (THD): ≤ 5%
- Hot plug
- Digital-and-analog control
- Intelligent electric meter
- Communication over RS485
- LED display
- Supports voltage adjustment,current adjustment,and current sharing
- RE , CE, Class B
- Active load sharing
- Passing the TUV, CE, CB,UL certifications
- Online update the embedded software for future need
- Meet Rohs requirement
- Disconnect above 320 VAC

Environmental Specifications

Item	Specification
Operating temperature	–40ºC to +75ºC (referring to Figure 3) (–40°F to +167°F)
Storage temperature	–40ºC to +75ºC (not packaged) (–40°F to +167°F)
Relative humidity	5%-95% (non-condensing)
Altitude range	≤ 3000 m

Electrical Specifications

Item	Specification
Input	
Operating voltage	85-300 V AC
Frequency	45–66 Hz Rated : 50 Hz and 60 Hz
Maximum input current	≤ 19.5 A
Power factor	≥ 0.99 (50% load or more)
THD	≤ 5% (50% load or more)
Output	
Output voltage	43.2–58 V DC Rated voltage: 53.5 V DC
Output power	2900 W (176–300 V AC) 1200 W (85–175 V AC)
Regulated voltage precision	≤ ±0.6% Vo
Ripple and noise	≤ 200 mVp-p （Bandwidth≤20M Hz）
Static voltage regulation	±0.5% (from no load to 100% load)
Dynamic regulation	Over shoot:≤ ±5%Vo Recovery time: ≤ 200us
Standby power	≤ 5 W
Turn-on output delay	3–8 s
Hold up time	> 10 ms
Psophometrically noise	≤ 2 mV (300 Hz to 3.4kHz)
Broad frequency noise	≤ 50 mV (3.4–150 kHz) ≤ 20 mV (0.15–30 MHz)

Other Features

Item	Specification
Protection	
Input overvoltage protection	Protection point:>300 VAC
	Recovery range:290-300 VAC
Input undervoltage protection	Protection point:<85 VAC
	Recovery range:85-90 VAC
Output overvoltage protection	58.5–60.5 VDC (can be set by monitoring unit) 1.If the overvoltage occurs inside the rectifier due to a fault, the rectifier will latch off. 2.If the output voltage is higher than 63 V and lasts for more than 500 ms, the rectifier will latch off.
Output current limiting protection	See Figure 1.
Output short circuit protection	A long term short circuit is allowed. After the fault is rectified, the rectifier is restored to a healthy state automatically.
Over-temperature protection	The module protects against overtemperature.
Safety/EMC/Lightening protection	
Safety certification	Passes TUV, CE, UL ,CB Complies with ; UL60950-1; IEC60950-1; EN60950-1; CAN/CSA C22.2 No. 60950 -1 ;
EMC	EN55022 Class B ; EN55024; EN61000-3-2; EN61000-3-3; ETSI EN300 386; ETSI EN301489; ITU-T K.20;
Lightning	5KA
Reliability	
MTBF	> 500,000 hours
Audible Noise	
Specification	≤ 50 dB (25 °C / 77 °F full load)

Output Feature

Figure 1 Output feature

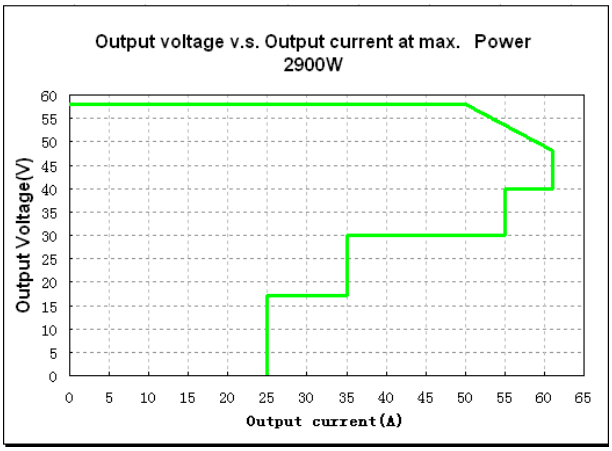


Figure 2 efficiency(Vin = 230 VAC,Ta:25 °C / 77 °F)

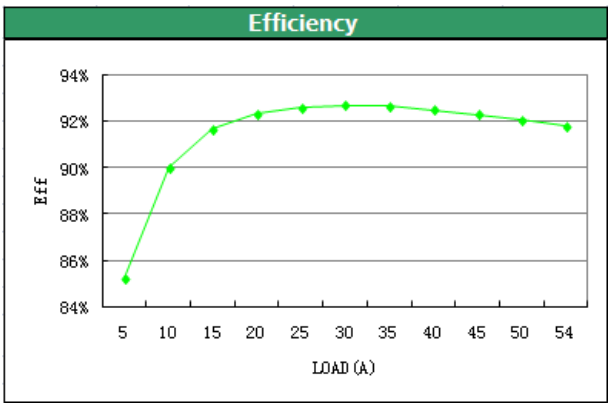
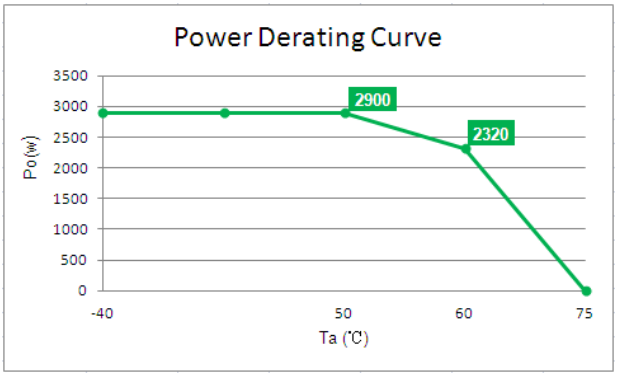


Figure 3 Power derating curve



Interface Description

The rear panel of the rectifier provides an AC input socket and a DC output socket. PIN1–PIN16 on the DC output socket function as a signal interface. For the location of the pins, see Figure 4. For the definitions of the pins, see Table 1..

Figure 4 Pins on the rear panel

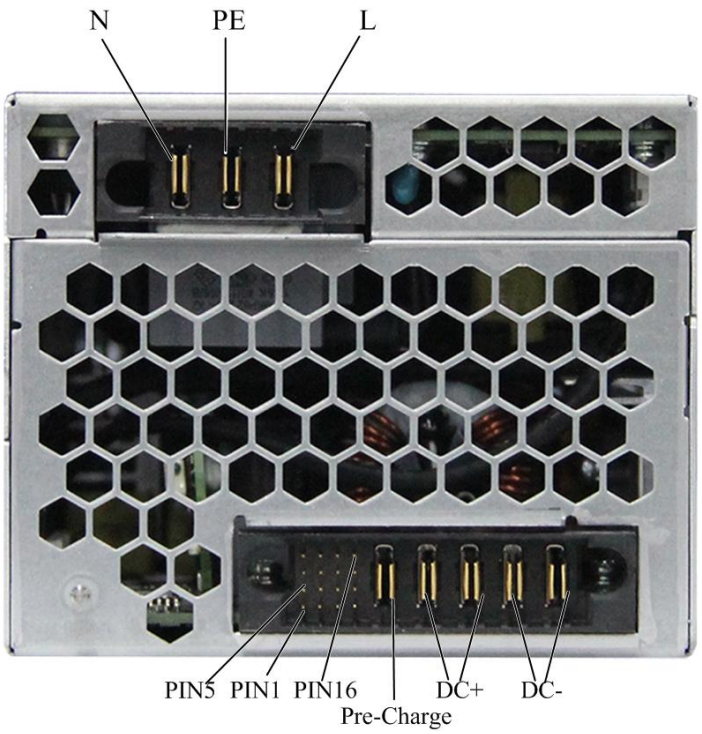


Table 1 Definitions of the pins on the rear panel

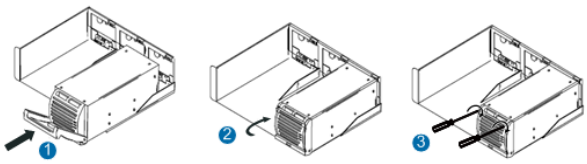
Pin	Definition	Function
AC input pins		
L	Live	Live line
PE	PE	Protect earth
N	N	Neutral line
Signal pins		
PIN1	ADDRESS0	Address
PIN2	ADDRESS1	Address
PIN3	LOADSHARE+	Current Share bus+
PIN4	NC	NC
PIN5	CURRENT LIMIT+	Output current limiting
PIN6	SEC_GND	Secondary signal GND
PIN7	ADDRESS2	Address
PIN8	ADDRESS3	Address
PIN9	NC	NC
PIN10	NC	NC
PIN11	NC	NC
PIN12	RS485-	RS485-
PIN13	ADDRESS4	Address
PIN14	NC	NC
PIN15	RS485+	RS485+
PIN16	DC-	Output 48V-
Pre-charge	Pre-charge	Pre-charge
DC output pins		
DC+	DC+	Output:48V+
DC-	DC-	Output:48V-

CAUTION

- Only trained and qualified personnel can be allowed to install or service the rectifier. To avoid electric shock or burning, Wear antistatic clothes, antistatic gloves, and ESD wrist straps before operating the rectifier.
- Each rectifier input is protected by two fuses, one for the live wire and the other for the neutral wire.

Installing the Rectifier

Figure 5 Procedure for installing the rectifier



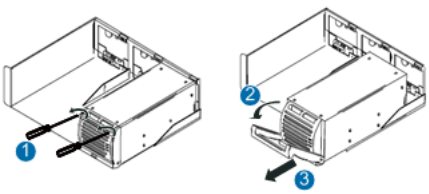
Step 1: Loosen the screws on the handle make sure the handle on the front panel is open and pull the handle and place the rectifier in the appropriate slot. Then push the rectifier make sure the pin and the subrack is connected well.

Step 2:Close the handle

Step 3: Hold the handle and fix the screws on the handle using screwdriver.

Removing the Rectifier

Figure 6 Procedure for removing the rectifier



Step 1: Loosen the screws on the handle using an screwdriver.

Step 2: Pull the handle to disengage the positioning pin on the front panel from the subrack.

Step 3: Pull the rectifier out.

Transport

The product must be packed with firmly packing box when transport. Out of the box the mark “prevent moisture ”,”lay down carefully” and other required mark must have. Any transport tools are permitted if the product in the packing box .When transport must avoid rain and snow attack directly and mechanical shock.

Storage

Product should be packaged in the packing box before use .The store room should be meet :-40 °C to +70 °C ambient temperature ,related humidity less than 80%,dry ,ventilation and hasn’t any corrosive gas.

Maintenance

DANGER

- The high -voltage power supply energize equipment. Contacting the high-voltage power supply directly or through a dampened object may cause you to death.
- Improper operations on the high-voltage power supply may cause accidents such as fire or electric shock.

Base on following suggestion, Simple fault can be dealt with .
Table 2 describes the states of LEDs and the causes for abnormal.

Indicator	Color	Status	Description	Measures
Run indicator 	Green	Steady on	The rectifier output is normal.	The rectifier runs properly, and no measure is required.
		Off	The rectifier has no output.	Replace the rectifier if the AC input is normal.
Alarm indicator 	Yellow	Off	No alarm is generated.	No measure is required.
		Steady on	The rectifier generates a prewarning for power limiting due to overtemperature. The rectifier generates an alarm for shutdown due to ambient overtemperature protection.	Check that the air vent is not blocked and the ambient temperature is within a normal range.
			The rectifier generates an alarm due to AC input overvoltage or undervoltage protection.	Check that the electrical grid voltage is within a normal range.
			The rectifier is hibernated.	No measure is required.
Fault indicator 	Red	Off	The rectifier is not faulty.	No measure is required.
		Steady on	The rectifier is locked due to output overvoltage.	Pull out the rectifier and reinsert it after 1 minute.
			There is no output because the rectifier is faulty.	Replace the rectifier.
		Blinking at 4 Hz	The rectifier is loading an application program.	The rectifier automatically recovers after loading, and no measure is required.

Suggestions

1. Rectify the faults by referring to Table 2.
2. If you cannot rectify the fault according to Table 2, replace the rectifier.
3. Return the faulty rectifier to Huawei for repairing.

Huawei Technologies Co., Ltd.
Huawei Industrial Base
Bantian, Longgang, Shenzhen
518129
www.huawei.com