Efficiency	The peak point is ≥ 94% ≥ 93% (230 V AC, 30%–100% load)
Height x Width x Depth	40.8 mm x 95.5 mm x 208 mm (1.61 in. x 3.76 in. x 8.19 in.)
Weight	About 1.1 kg
Cooling	Built-in fan (The rotation of fan depends on the internal temperature.)

Description

The R4815N1 is a digital rectifier with high efficiency and power density. It converts 85–300 V AC input voltage to 53.5 V DC output voltage. The output voltage can be adjusted by the host.

It performs comprehensive protection functions, supports soft start, and produces low noise. With the latest power monitoring technology, states of the rectifier and load are monitored in real time.

Multiple rectifiers can be paralleled.

Key Features

- Input voltage range: 85–300 V AC
- Operating temperature range: –40ºC to +75ºC
- Total harmonic distortion (THD): ≤ 3.5%
- Digital control mode
- Hot swap
- Supports intelligent electric meter
- Supports CAN communication
- Supports LED display
- Supports voltage adjustment,current adjustment,and current sharing
- Meet Rohs requirement
- Passes the TUV, CE, UL certifications and gets the CB certifIcate.
- Disconnect above 320 V AC

Environmental Specifications

Item	Specification
Operating temperature	–40ºC to +75 ºC (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	≤ 4000 m

Note: If the altitude is within the range of 3000 m to 4000 m, the maximum operating temperature decreases by 1°C (1.8°F) as the altitude increases by 200 m.

Electrical Specifications

Item	Specification
Input	
Operating voltage	85–300 V AC Rated: 200–240 V AC and 100–120 V AC
Frequency	45–66 Hz Rated: 50 Hz and 60 Hz
Maximum input current	≤ 6.4 A
Power factor	≥ 0.99 (100% load)
THD	≤ 3.5% (full load) ; ≤ 5% (load ≥ 50%)
Output	
Output voltage	42–58 V DC Rated voltage: 53.5 V DC
Output power	1000 W (176–300 V AC); 470 W (85–175 V AC decreased linearly)
Regulated voltage precision	≤ ±0.6%Vo
Ripple and noise	≤ 200 mVp-p (Bandwidth ≤ 20M Hz)
Dynamic response	• **25-50% or 50-75% load** −Over shoot:≤ ±5% −Recovery time: ≤ 200 us (±0.6%) • **10-90% load;** −Over shoot:≤ ±5%; −Recovery time: ≤ 1ms (±1%)
Standby power	≤ 5 W
Turn-on output delay	3–8s
Hold up time	> 10 ms
Psophometrically weighted noise	≤ 2 mV
Broad frequency noise voltage	≤ 50 mV (3.4–150 kHz) ≤ 20 mV (0.15–30 MHz)

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Other Features

Item	Specification
Protection	
Input overvoltage protection	Protection point: > 300 V AC
	Recovery range: 290-300 V AC
Input undervoltage protection	Protection point: < 80 V AC
	Recovery range: 70-85 V AC
Output overvoltage protection	56–60V DC (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 certifications. Catch the CB certificate. 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	5 kA
Reliability	
MTBF	> 500,000 hours
Audible Noise	
Specification	≤ 40 dB (25ºC/77°F, full load)

Output Feature

Figure 1 Output feature

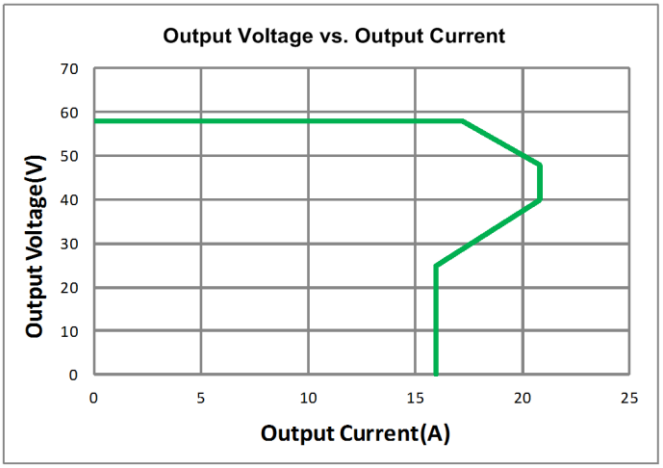


Figure 2 Efficiency
(Vin = 230 V AC, Vout = 53.5 V, Ta: 25ºC)

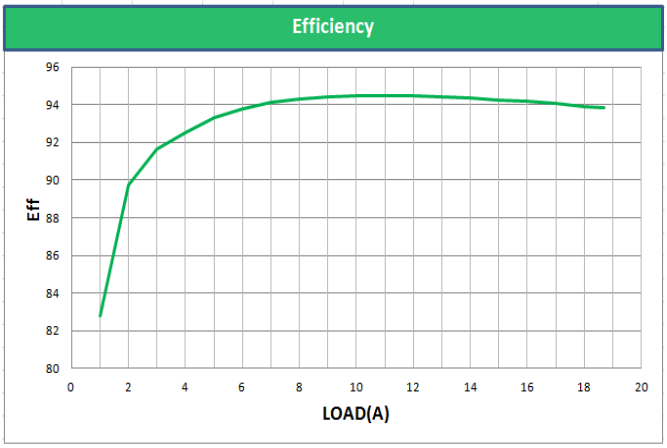
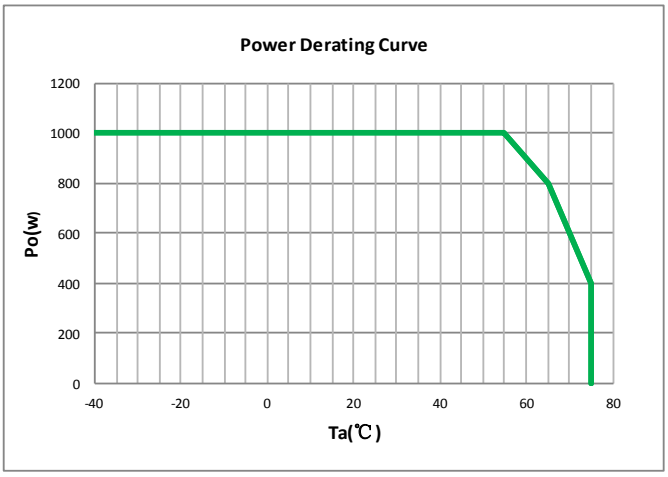


Figure 3 Power derating curve



Interface Description

The rear panel of the rectifier provides an golden finger connection which is used as AC input, DC output and signal connection.For the location of the pins, see Figure 3. For the definitions of the pins, see Table 1.

Figure 4 Pins on the rear panel

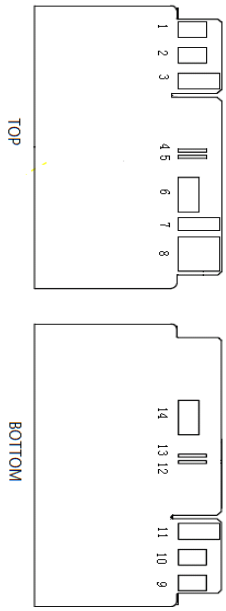


Table 1 Definitions of the pins on the rear panel

Pin	Definition	Function
1, 9	L	Live line
2, 10	N	Neutral line
3, 11	PE	Protect earth
4	CANL	CANL
13	ACD1	Slot detection signal 1
5	ACD2	Slot detection signal 2
12	CANH	CANH
6, 14	OUTPUT+	Output:48V+
8	OUTPUT-	Output:48V-
7	Pre-charge	Pre-charge

CAUTION

- Only trained and qualified personnel can be allowed to install or service the rectifier.
- Each rectifier input is protected by two fuses, one for the live wire and the other for the neutral wire.

CAUTION

- This product should be used in the environment that meets specifications described in the user manual.
- If the product is used with abnormal power grid input or exposed to salt mist, dust, or mist, the product may become faulty, and the resulting product exceptions or component damage are beyond the warranty scope.

Removing the Rectifier

Figure 5 Removing a PSU

Step 1: Push the locking latch left.

Step 2: Remove the PSU out of the PDU by externally drawing the handle, as shown in Figure 5.

Installing the Rectifier

Figure 6 Installing a PSU

Step 1: Push the locking latch left and pull out the handle.

Step 2: Push the PSU slowly into the subrack along the guide rail and push the locking latch right to fix the handle, as shown in Figure 6.

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: -40ºC to +70ºC 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
Power indicator	Green	Steady on	The rectifier is supplied with alternating current (AC) input power.	The rectifier runs properly, and no measure is required.
		Off	The rectifier is not supplied with AC input power.	Replace the rectifier if the AC input is normal.
			The rectifier is faulty.	Replace the rectifier.
		Blinking at 0.5 Hz	The rectifier is being queried.	No measure is required.
		Blinking at 4 Hz	The rectifier is loading an application program.	The rectifier automatically recovers after loading, and no measure is required.
Alarm indicator	Yellow	Off	No alarm is generated.	The rectifier runs properly, and 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.
		Blinking at 0.5 Hz	The rectifier communication is interrupted.	Replace the rectifier or monitoring module.
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.

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 technical support website:

http://support.huawei.com

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