



1600W Rack Mountable Front End Rectifier

RCP-1600 series



Dimension

L	*	W	*	H	
300	*	85	*	41 (1U)	mm
11.8	*	3.35	*	1.61 (1U)	inch



Features

- Universal AC input / Full range
(Withstand 300VAC surge input for 5 seconds)
- Built-in active PFC function
- High efficiency up to 93%
- Forced air cooling by built-in DC fan
- Output voltage and constant current level programmable
- Built-in OR-ing FET, support hot swap (hot plug)
- Active current sharing up to 8000W for one 19" rack shelf
- Built-in I²C interface, PMBus protocol
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Optional conformal coating
- 5 years warranty

Certificates

- Safety: UL/EN/IEC 60950-1
- EMC: EN 55022 / 55024

Applications

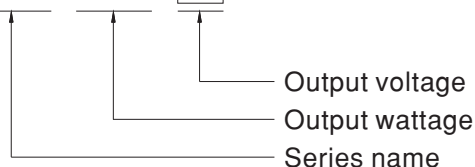
- Industrial automation
- Distributed power architecture system
- Wireless/telecommunication solution
- Redundant power system
- Electric vehicle charger system
- Constant current source system

Description

RCP-1600 is a 1.6KW single output rack mountable front end AC/DC power supply with a 1U low profile and a high power density up to 25W/inch³. This series operates for 90~264VAC input voltage and offers the models with the DC output mostly demanded from the industry. Each model is cooled by the built-in DC fan with fan speed control, working for the temperature up to 70°C. RCP-1600 provides vast design flexibility by equipping various built-in functions such as the PMBus communication protocol, output programming, active current sharing (up to 24000W via three 19" rack shelves, RHP-1U), remote control, auxiliary power, alarm signal, etc.

Model Encoding / Order Information

RCP - 1600 - 24



※ Note: 19" rack shelf, RHP-1U, available.

SPECIFICATION

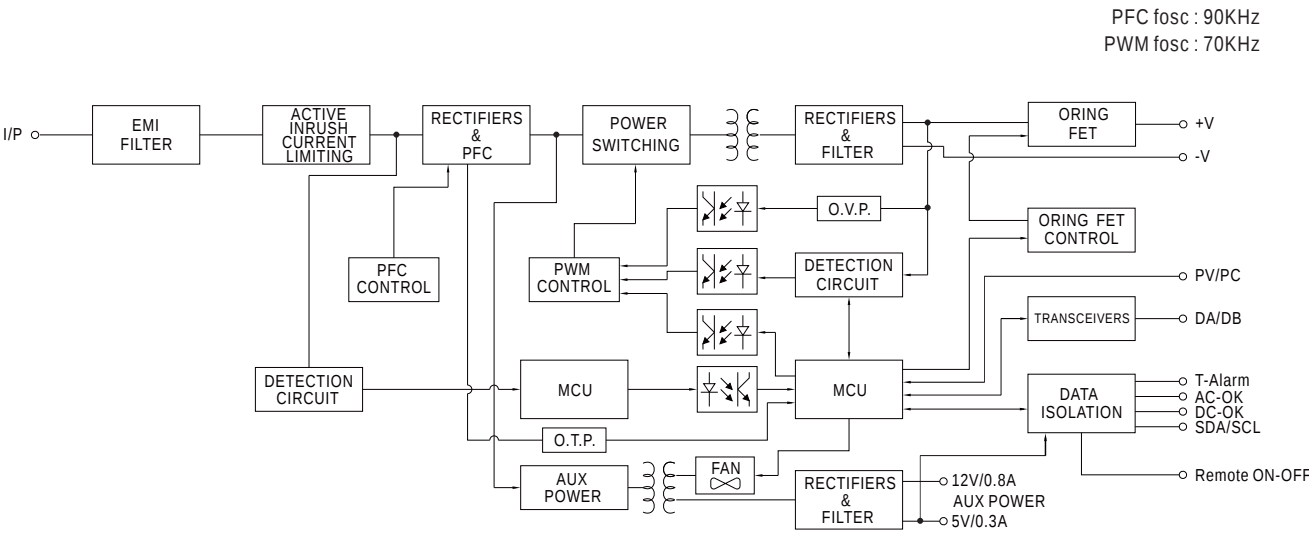
MODEL		RCP-1600-12		RCP-1600-24		RCP-1600-48		
OUTPUT	DC VOLTAGE	12V		24V		48V		
	RATED CURRENT	125A		67A		33.5A		
	CURRENT RANGE	0 ~ 125A		0 ~ 67A		0 ~ 33.5A		
	RATED POWER	1500W		1608W		1608W		
	RIPPLE & NOISE (max.) Note.2	150mVp-p		200mVp-p		300mVp-p		
	VOLTAGE ADJ. RANGE	11.5 ~ 15V		23.5 ~ 30V		47.5 ~ 58.8V		
	VOLTAGE TOLERANCE Note.4	±1.0%		±1.0%		±1.0%		
	LINE REGULATION	±0.5%		±0.5%		±0.5%		
	LOAD REGULATION	±0.5%		±0.5%		±0.5%		
	SETUP, RISE TIME	1500ms, 60ms/230VAC at full load						
	HOLD UP TIME (Typ.)	16ms / 230VAC @ 75% load		10ms / 230VAC at full load				
INPUT	VOLTAGE RANGE Note.5	90 ~ 264VAC 127 ~ 370VDC						
	FREQUENCY RANGE	47 ~ 63Hz						
	POWER FACTOR (Typ.)	0.97/230VAC at full load						
	EFFICIENCY (Typ.)	88.5%			91%		93%	
	AC CURRENT (Typ.) Note.5	14A/115VAC 8A/230VAC			15A/115VAC 8.5A/230VAC			
	INRUSH CURRENT (Typ.)	COLD START 35A/230VAC						
	LEAKAGE CURRENT	<1.5mA / 230VAC						
PROTECTION	OVERLOAD	105 ~ 115% rated output power Protection type : Constant current limiting, unit will shut down o/p voltage after 5 sec. re-power on to recover						
	OVER VOLTAGE	15.75 ~ 18.75V			31.5 ~ 37.5V		63 ~ 75V	
		Protection type : Shut down o/p voltage, re-power on to recover						
	OVER TEMPERATURE	Shut down o/p voltage, recovers automatically after temperature goes down						
FUNCTION	OUTPUT VOLTAGE PROGRAMMABLE(PV)	Adjustment of output voltage is allowable to 40 ~ 125% of nominal output voltage(60~125% for 12V). Please refer to the Function Manual in following pages.						
	CONSTANT CURRENT LEVEL PROGRAMMABLE(PC)	Adjustment of constant current level is allowable to 20 ~ 100% of rated current. Please refer to the Function Manual in following pages.						
	REMOTE ON-OFF CONTROL	By electrical signal or dry contact Power ON:short Power OFF:open. Please refer to the Function Manual in following pages.						
	REMOTE SENSE	Compensate voltage drop on the load wiring up to 0.5V. Please refer to the Function Manual in following pages.						
	AUXILIARY POWER	5V @ 0.3A, 12V @ 0.8A						
	ALARM SIGNAL	Isolated TTL signal output for T-Alarm, AC-OK and DC-OK						
ENVIRONMENT	WORKING TEMP.	-30 ~ +70℃ (Refer to "Derating Curve")						
	WORKING HUMIDITY	20 ~ 90% RH non-condensing						
	STORAGE TEMP., HUMIDITY	-40 ~ +85℃, 10 ~ 95% RH						
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 50℃)						
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes						
SAFETY & EMC (Note 6)	SAFETY STANDARDS	UL60950-1, TUV EN60950-1 approved						
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:1.5KVAC (0.5KVAC for 12V)						
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25℃ / 70% RH						
	EMC EMISSION	Parameter				Standard		Test Level / Note
		Conducted				EN55022 (CISPR22) / EN55011 (CISPR11)		Class B
		Radiated				EN55022 (CISPR22) / EN55011 (CISPR11)		Class A
		Harmonic Current				EN61000-3-2		-----
		Voltage Flicker				EN61000-3-3		-----
	EMC IMMUNITY	EN55024, EN61204-3, EN61000-6-2						
		Parameter				Standard		Test Level / Note
		ESD				EN61000-4-2		Level 3, 8KV air ; Level 2, 4KV contact
		Radiated				EN61000-4-3		Level 3
		EFT / Burst				EN61000-4-4		Level 3
		Surge				EN61000-4-5		Level 4, 1KV/Line-Line 2KV/Line-Earth
		Conducted				EN61000-4-6		Level 3
		Magnetic Field				EN61000-4-8		Level 4
		Voltage Dips and Interruptions				EN61000-4-11		>95% dip 0.5 periods, 30% dip 25 periods, >95% interruptions 250 periods
OTHERS	MTBF	162.2K hrs min. Telcordia SR-332 (Bellcore) ; 39.3K hrs min. MIL-HDBK-217F (25℃)						
	DIMENSION	300*85*41mm (L*W*H)						
	PACKING	1.87Kg; 6pcs/12.2Kg/1.16CUFT						
NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Under parallel operation ripple of the output voltage may be higher than the SPEC at light load condition. It will go back to normal ripple level once the output load is more than 5%. 4. Tolerance : includes set up tolerance, line regulation and load regulation. 5. Derating may be needed under low input voltages. Please check the derating curve for more details. 6. The power supply is considered a component which will be installed into a final equipment. All the EMC tests are been executed by mounting the unit on a 360mm*360mm metal plate with 1mm of thickness. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies." (as available on http://www.meanwell.com)							



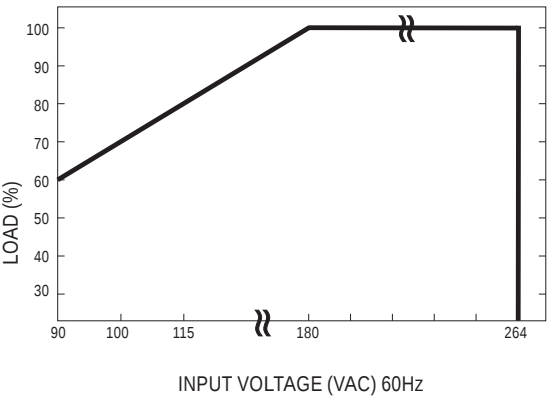
1600W Rack Mountable Front End Rectifier

RCP-1600 series

Block Diagram



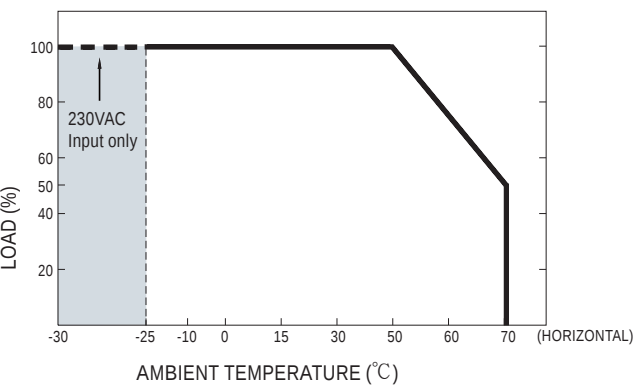
Static Characteristics



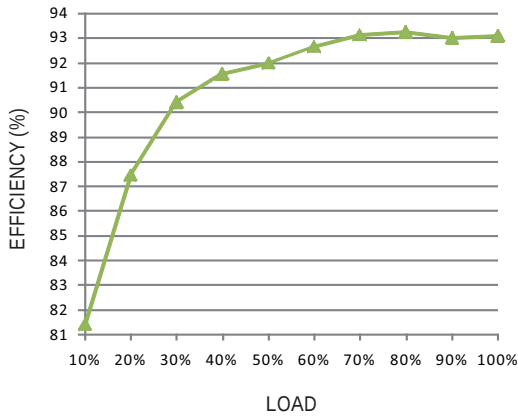
Derating Loads vs Input Voltage

INPUT	MODEL	12V	24V	48V
180~264VAC		1500W	1608W	1608W
		125A	67A	33.5A
115VAC		1200W	1286.4W	1286.4W
		100A	53.6A	26.8A
100VAC		1050W	1125.6W	1125.6W
		87.5A	46.9A	23.45A
90VAC		900W	964.8W	964.8W
		75A	40.2A	20.1A

Derating Curve



Efficiency vs Load (48V Model)



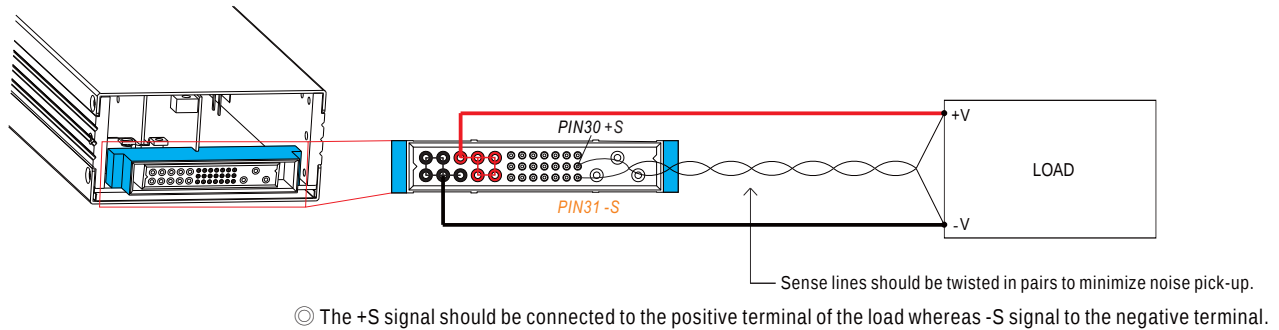
⦿ The curve above is measured at 230VAC.

Function Manual

1. Voltage Drop Compensation

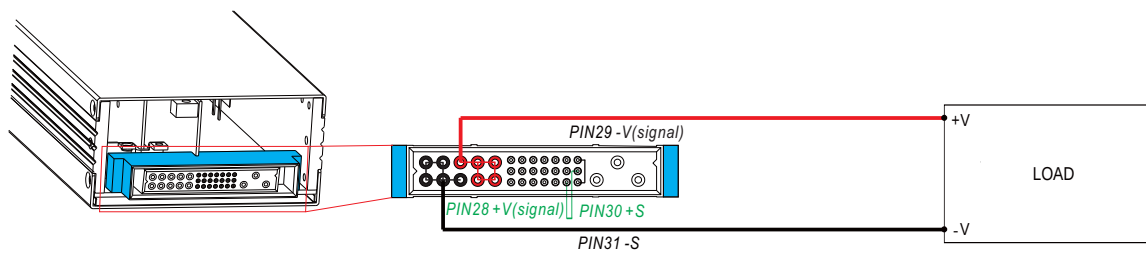
1.1 Remote Sense

- ※ The Remote Sense compensates voltage drop on the load wiring up to 0.5V



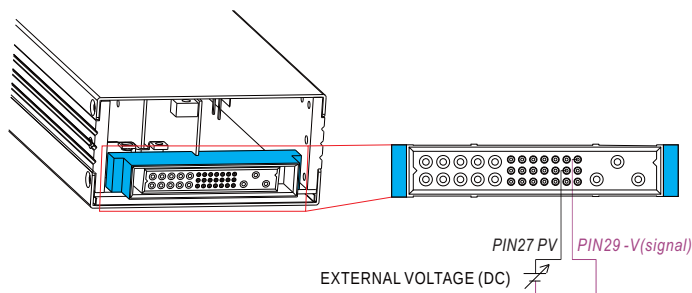
1.2 Local Sense

- ※ The +S,-S have to be connected to the +V(signal),-V(signal), respectively, as the following diagram, in order to get the correct output voltage if Remote Sense is not used.

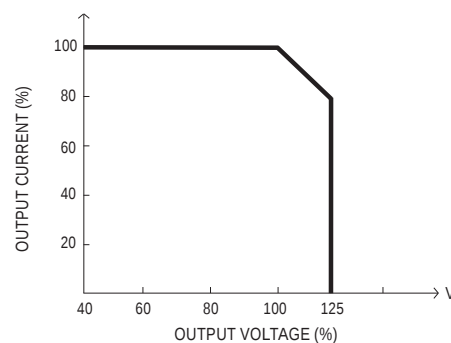
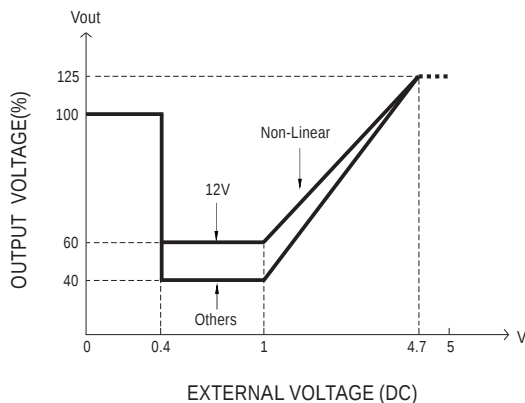


2. Output Voltage Programming (or, PV / remote voltage programming / remote adjust / margin programming / dynamic voltage trim)

- ※ In addition to the adjustment via the built-in potentiometer, the output voltage can be trimmed to 40~125% of the nominal voltage by applying EXTERNAL VOLTAGE.



- ◎ For Remote Sense / Local Sense, please refer to "Voltage Drop Compensation" section.



- The rated current should change with the Output Voltage Programming accordingly.

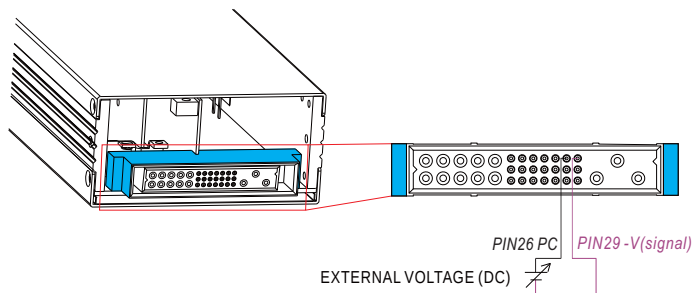


1600W Rack Mountable Front End Rectifier

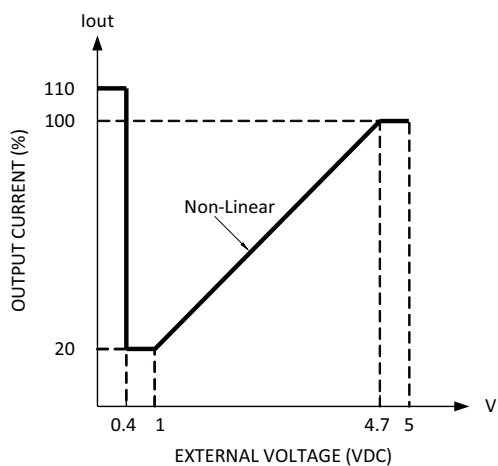
RCP-1600 series

3. Constant Current Level Programming (or, PC / remote current programming / dynamic current trim)

※ The constant current level can be trimmed to 20~100% of the rated current by applying EXTERNAL VOLTAGE.

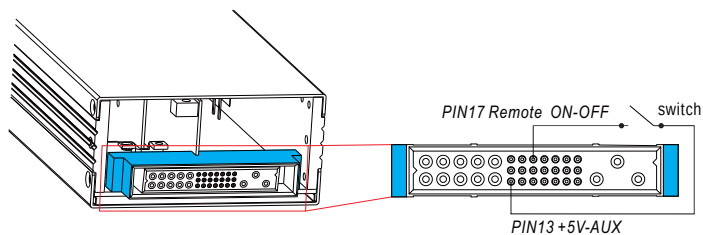


◎ For Remote Sense / Local Sense, please refer to "Voltage Drop Compensation" section.



4. Remote ON-OFF Control

The power supply can be turned ON/OFF individually or along with other units by using the "Remote ON-OFF" function.



Between Remote ON-OFF and +5V-AUX	Power Supply Status
Switch Short	ON
Switch Open	OFF

5. PMBus Communication Interface

RCP-1600 supports PMBus Rev. 1.1 with maximum 100KHz bus speed, allowing information reading, status monitoring, output trimming, etc. For details, please refer to the Function Manual.

