





#### Features

- · Universal AC input / Full range
- Built-in active PFC function, PF>0.95
- · High efficiency up to 94%
- Withstand 300VAC surge input for 5 seconds
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Built-in cooling fan ON-OFF control
- Current sharing up to 4000W (3+1)
- Built-in DC OK signal
- Built-in remote ON-OFF control
- · Standby 5V@0.3A
- Built-in remote sense function
- No load power consumption<0.75W (Note.6)</li>
- 5 years warranty

## Certificates

Safety: UL/EN62368-1

• EMC: EN55032

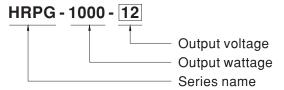
# Applications

- Factory control or automation apparatus
- · Test and measurement instrument
- · Laser related machine
- Aging equipment
- RF application

# ■ Description

HRPG-1000 is a single output enclosed type AC/DC power supply providing 1000 W output power for a wide range of industrial applications. This series operates for 90~264 VAC input voltage and offers models with different rated voltage ranging between 12 and 48 V that can satisfy the demands for all kinds of industrial equipments. Each model is cooled by the built-in fan with speed control, working for the temperature up to 70°C. Moreover, HRPG-1000 has various built-in functions such as auxiliary power, remote sense and remote on-off control, offering vast design flexibility for industrial application.

### ■ Model Encoding / Order Information





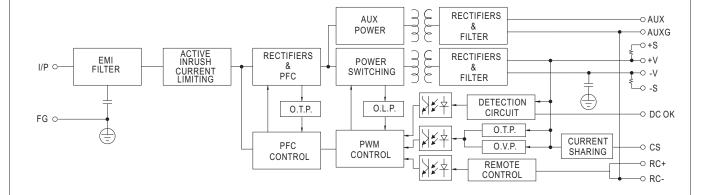
#### **SPECIFICATION**

MODEL		HRPG-1000-12	HRPG-1000-15	HRPG-1000-24	HRPG-1000-48			
	DC VOLTAGE	12V	15V	24V	48V			
	RATED CURRENT	80A	64A	42A	21A			
	CURRENT RANGE	0 ~ 80A	0 ~ 64A	0 ~ 42A	0 ~ 21A			
	RATED POWER	960W (max. 1000W for 3 sec.)	960W (max. 1000W for 3 sec.)	1008W	1008W			
	RIPPLE & NOISE (max.) Note.2	150mVp-p	150mVp-p	200mVp-p	250mVp-p			
OUTPUT	VOLTAGE ADJ. RANGE	11 ~ 14V	14 ~ 17V	22 ~ 28V	46 ~ 56V			
	VOLTAGE TOLERANCE Note.3	±2.0%	±1.5%	±1.0%	±1.0%			
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.5%			
	LOAD REGULATION	±2.0%	±1.5%	±0.5%	±0.5%			
	SETUP, RISE TIME	1000ms, 50ms/230VAC 2000ms, 50ms/115VAC at full load						
	HOLD UP TIME (Typ.)	16ms/230VAC 16ms/115VAC at full load						
	( ): /	90 ~ 264VAC(300VAC for 5 sec.)						
	FREQUENCY RANGE	47 ~ 63Hz						
	POWER FACTOR (Typ.)	PF>0.95/230VAC PF>0.99/115VAC at full load						
NPUT		91.5%	92%	93%	94%			
NFUI	EFFICIENCY (Typ.)		9270	93%	94%			
	AC CURRENT (Typ.)		<u> </u>					
	INRUSH CURRENT (Typ.)	25A/115VAC 40A/230VAC						
	LEAKAGE CURRENT		<1.2mA/240VAC					
	OVERLOAD	105 ~ 135% rated output power						
		,,	nt limiting, recovers automatically					
PROTECTION	OVER VOLTAGE	14.5 ~ 16.5V	18.2 ~ 20.6V	29 ~ 33V	58 ~ 65V			
	O VER VOLINGE	/'	voltage, re-power on to recove					
	OVER TEMPERATURE	Shut down o/p voltage, recover	Shut down o/p voltage, recovers automatically after temperature goes down					
	CURRENT SHARING	Up to 4000W or (3+1) units. Plea	ase refer to the Function Manual.					
	REMOTE ON-OFF CONTROL	Power ON: short; Power OFF:	open. Please refer to the Function	n Manual.				
LINCTION	REMOTE SENSE	Compensate voltage drop on the	e load wiring up to 0.5V. Please re	efer to the Function Ma	ınual.			
UNCTION	DC-OK SIGNAL	The TTL signal out, PSU turn on	= $3.3 \sim 5.6 \text{V}$ ; PSU turn off = $0 \sim$	1V. Please refer to the	Function Manual.			
	5V STANDBY	5VSB:5V@0.3A; tolerance±5	%, ripple : 50mVp-p(max.)					
	FAN CONTROL	Fan on/off by NTC(RT50) or 30	% load min.					
	WORKING TEMP.	-40 ~ +70°C (Refer to "Derating Curve")						
	WORKING HUMIDITY	20 ~ 90% RH non-condensing						
NVIRONMENT	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH non-condensing						
	TEMP. COEFFICIENT	±0.03%/°C (0~50°C)						
	VIBRATION	10 ~ 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes						
	SAFETY STANDARDS	UL62368-1, TUV EN62368-1, E						
	WITHSTAND VOLTAGE							
	ISOLATION RESISTANCE	I/P-O/P:3KVAC						
	ISOLATION RESISTANCE	_ '.		1	Test Level / Note			
		Parameter	Standard (CICDD22)	/ ENEE011 (CICDD11)				
	EMO EMICCION	Conducted	,	/ EN55011 (CISPR11)				
	EMC EMISSION	Radiated	` '	/ EN55011 (CISPR11)				
		Harmonic Current	EN61000-3-2		Class A			
		Voltage Flicker	EN61000-3-3					
SAFETY &		EN55024, EN61000-6-2						
EMC		Parameter	Standard		Test Level / Note			
Note 7)		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			
	EMC IMMUNITY	Surge	EN61000-4-5		Level 4, 2KV/Line-Line 4KV/Line-Earth			
		Conducted	EN61000-4-6		Level 3			
		Magnetic Field	EN61000-4-8		Level 4			
					>95% dip 0.5 periods, 30% dip 25 perio			
		Voltage Dips and Interruptions	EN61000-4-11		>95% interruptions 250 periods			
	MTBF	286.6K hrs min. Telcordia SF	R-332 (Bellcore) ; 105.8K hrs mi	n. MIL-HDBK-217F	(25°C)			
THERS	DIMENSION	218*105*63.5mm (L*W*H)						
	PACKING	1.53Kg;8pcs/13.3Kg/1.34CUFT						
NOTE	<ol> <li>All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</li> <li>Ripple &amp; noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf &amp; 47uf parallel capacitor.</li> <li>Tolerance: includes set up tolerance, line regulation and load regulation.</li> <li>Derating may be needed under low input voltages. Please check the derating curve for more details.</li> <li>Length of set up time is measured at first cold start. Turning ON/OFF the power supply may lead to increase of the set up time.</li> <li>No load power consumption&lt;0.75W when RC+ &amp; RC- (CN100 pin3,4) open.</li> <li>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*700mm 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)</li> </ol>							
	perform these EMC tests, p	lease refer to "EMI testing of co	mponent power supplies." (as a	ailable on http://www.				
					File Name: HRPG_1000_SPEC 20			



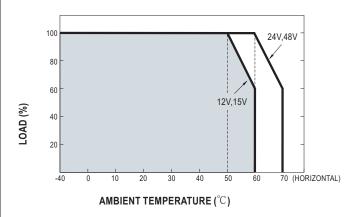
# ■ Block Diagram

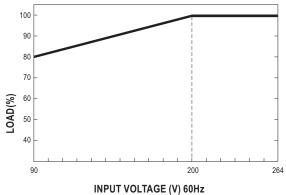
PFC: 65KHz PWM: 90KHz



# ■ Derating Curve

# ■ Output Derating VS Input Voltage







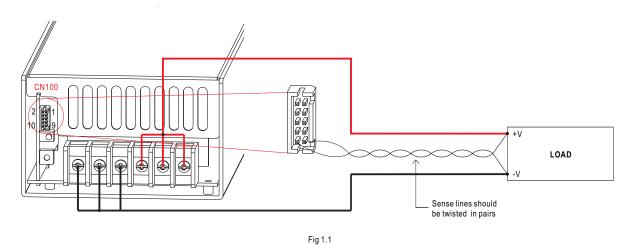
# **■** Function Description of CN100

Pin No.	Function	Description
1	AUXG	Auxiliary voltage output ground.
2	AUX	Auxiliary voltage output, 4.75~5.25V, referenced to pin 1(AUXG). The maximum load current is 0.3A. This output is not controlled by the "remote ON/OFF control".
3	RC+	Turns the output on and off by electrical or dry contact between pin 4 (RC-), Short: Power ON, Open: Power OFF.
4	RC-	Remote control ground.
5	cs	Current sharing signal. When units are connected in parallel, the CS pins of the units should be connected to allow current balance between units.
6,8	GND	This pin connects to the negative terminal(-V). Return for DC-OK signal output.
7	DC-OK	DC-OK signal is a TTL level signal, referenced to pin8(DC-OK GND). High when PSU turns on.
9		Positive sensing. The +S signal should be connected to the positive terminal of the load. The +S and -S leads should be twisted in pair to minimize noise pick-up effect. The maximum line drop compensation is 0.5V.
10		Negative sensing. The -S signal should be connected to the negative terminal of the load. The -S and +S leads should be twisted in pair to minimize noise pick-up effect. The maximum line drop compensation is 0.5V.

## **■** Function Manual

#### 1.Remote Sense

The remote sensing compensates voltage drop on the load wiring up to 0.5 V.



### 2.DC-OK Signal

 $\ensuremath{\mathsf{DC}\text{-}\mathsf{OK}}$  signal is a TTL level signal. High when PSU turns on.

Between DC-OK(pin7) and GND(pin6,8)	Output Status	
3.3 ~ 5.6V	ON	
0 ~ 1V	OFF	

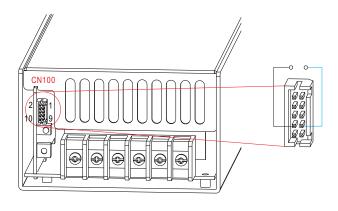


Fig 2.1

OFF



#### 3.Remote ON-OFF Control

SW OFF (Open)

The PSU can be turned ON/OFF by using the "Remote Control" function.

remote control fanotion.	
Between RC+(pin3) and RC-(pin4)	Output Status
SW ON (Short)	ON

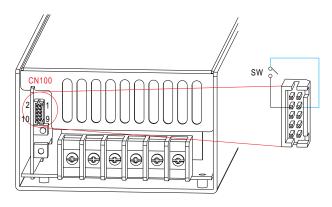


Fig 3.1

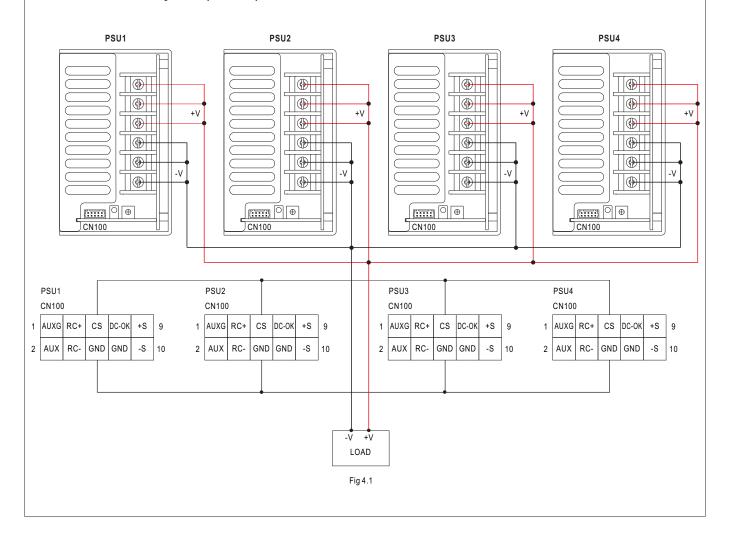
### 4. Current Sharing

HRPG-1000 has the built-in active current sharing function and can be connected in parallel, up to 4 units, to provide higher output power as exhibited below:

- XThe power supplies should be paralleled using short and large diameter wiring and then connected to the load.
- X Difference of output voltages among parallel units should be less than 0.2V.
- X The total output current must not exceed the value determined by the following equation: Maximum output current at parallel operation=(Rated current per unit) × (Number of unit) × 0.9
- ※ When the total output current is less than 5% of the total rated current, or say (5% of Rated current per unit) 

  × (Number of unit) 

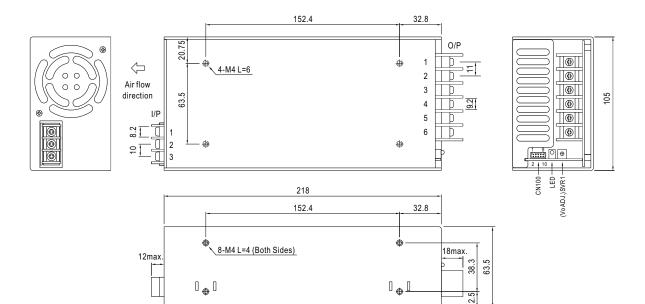
  the current shared among units may not be fully balanced.





# ■ Mechanical Specification

Case No. 977 Unit:mm



AC Input Terminal Pin No. Assignment

Pin No.	Assignment		
1	AC/L		
2	AC/N		
3	FG ±		

DC Output Terminal Pin No. Assignment

0			
Pin No.	Assignment		
1~3	+V		
4~6	-V		

Connector Pin No. Assignment(CN100): HRS DF11-10DP-2DS or equivalent

	Pin No.	Assignment	Pin No.	Assignment	Mating Housing	Terminal	
	1	AUXG	6,8	GND			
	2	AUX	7	DC-OK	UD0 DE44 40D0	UD0 DE44 **00	
	3	RC+	9	+S	HRS DF11-10DS HF or equivalent of	or equivalent	
	4	RC-	10	-S	or oquivaloni		
Ī	5	CS					

## **■** Installation Manual

Please refer to : http://www.meanwell.com/manual.html