600W Single Output with PFC Function

HRPG-600 series

Features :

- Universal AC input / Full range
- Built-in active PFC function, PF>0.95
- High efficiency up to 89%(typ.)
- Withstand 300VAC surge input for 5 seconds
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Built-in cooling fan ON-OFF control (by load)
- With DC OK signal output
- Built-in remote ON-OFF control
- Standby 5V@0.3A
- Built-in remote sense function
- No load power consumption<0.75W
- 5 years warranty

SPECIFICATION

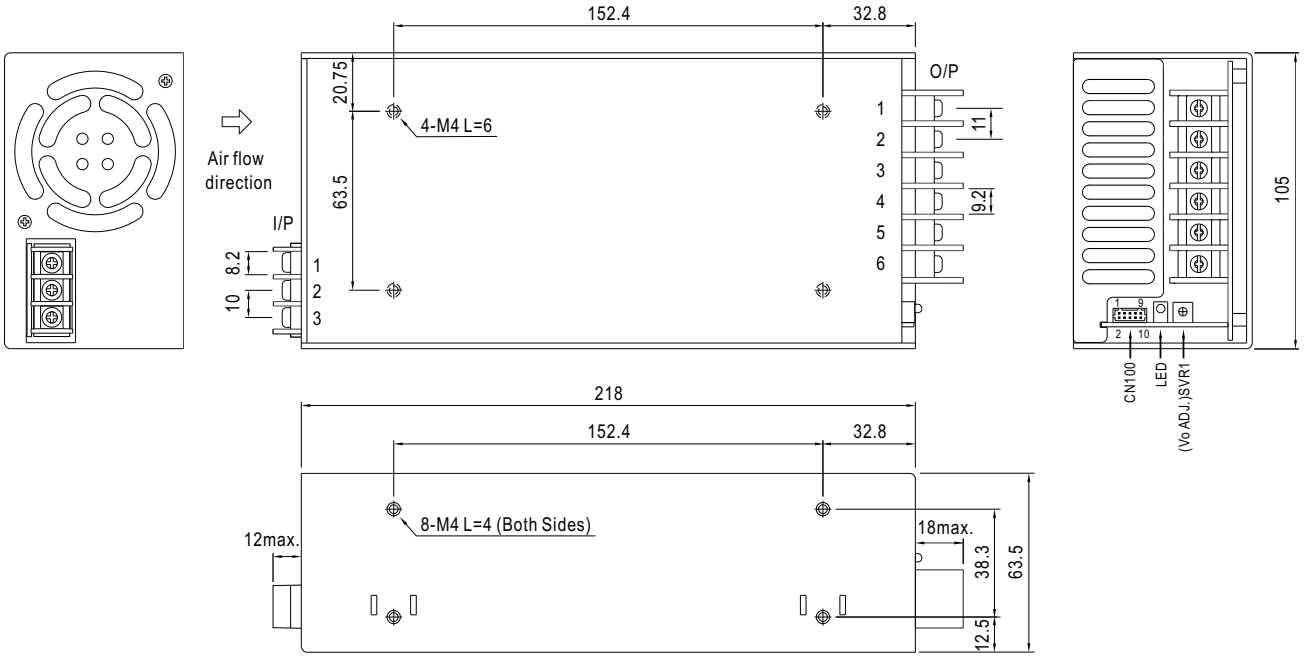
MODEL		HRPG-600-3.3	HRPG-600-5	HRPG-600-7.5	HRPG-600-12	HRPG-600-15	HRPG-600-24	HRPG-600-36	HRPG-600-48
OUTPUT	DC VOLTAGE	3.3V	5V	7.5V	12V	15V	24V	36V	48V
	RATED CURRENT	120A	120A	80A	53A	43A	27A	17.5A	13A
	CURRENT RANGE	0 ~ 120A	0 ~ 120A	0 ~ 80A	0 ~ 53A	0 ~ 43A	0 ~ 27A	0 ~ 17.5A	0 ~ 13A
	RATED POWER	396W	600W	600W	636W	645W	648W	630W	624W
	RIPPLE & NOISE (max.) Note.2	100mVp-p	100mVp-p	100mVp-p	120mVp-p	150mVp-p	150mVp-p	200mVp-p	240mVp-p
	VOLTAGE ADJ. RANGE	2.8 ~ 3.8V	4.3 ~ 5.8V	6.8 ~ 9V	10.2 ~ 13.8V	13.5 ~ 18V	21.6 ~ 28.8V	28.8 ~ 39.6V	40.8 ~ 55.2V
	VOLTAGE TOLERANCE Note.3	±2.0%	±2.0%	±2.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.3%	±0.3%	±0.2%	±0.2%	±0.2%
	LOAD REGULATION	±1.0%	±1.0%	±1.0%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	SETUP, RISE TIME	1000ms, 50ms/230VAC 2500ms, 50ms/115VAC at full load							
	HOLD UP TIME (Typ.)	16ms/230VAC 16ms/115VAC at full load 13ms/115VAC at full load for 5V,7.5V							
INPUT	VOLTAGE RANGE Note.5	85 ~ 264VAC 120 ~ 370VDC							
	FREQUENCY RANGE	47 ~ 63Hz							
	POWER FACTOR (Typ.)	PF>0.94/230VAC PF>0.99/115VAC at full load							
	EFFICIENCY (Typ.)	78.5%	82%	86%	88%	88%	88%	89%	89%
	AC CURRENT (Typ.)	8.5A/115VAC 5A/230VAC							
	INRUSH CURRENT (Typ.)	35A/115VAC 70A/230VAC							
	LEAKAGE CURRENT	<1mA / 240VAC							
PROTECTION	OVERLOAD	105 ~ 135% rated output power							
		Protection type : Constant current limiting, recovers automatically after fault condition is removed							
	OVER VOLTAGE	3.96 ~ 4.62V	6 ~ 7V	9.4 ~ 10.9V	14.4 ~ 16.8V	18.8 ~ 21.8V	30 ~ 34.8V	41.4 ~ 48.6V	57.6 ~ 67.2V
		Protection type : Shut down o/p voltage, re-power on to recover							
	OVER TEMPERATURE	80℃ ±5℃ (TSW1)detect on heatsink of power transistor							
		90℃ ±5℃ (TSW2) detect on heatsink of power doide for 3.3V,5V,7.5V ; 100℃ ±5℃ (TSW2) detect on main power output choke for others							
		Protection type : Shut down o/p voltage, recovers automatically after temperature goes down							
FUNCTION	5V STANDBY	5VSB : 5V@0.3A ; tolerance ± 5%, ripple : 50mVp-p(max.)							
	DC OK SIGNAL	PSU turn on : 3.3 ~ 5.6V ; PSU turn off : 0 ~ 1V							
	REMOTE CONTROL	RC+ / RC-: 4 ~ 10V or open = power on ; 0 ~ 0.8V or short = power off							
ENVIRONMENT	WORKING TEMP.	-30 ~ +70℃ (Refer to output load 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, 5G 10min./1cycle, 60min. each along X, Y, Z axes							
SAFETY & EMC (Note 4)	SAFETY STANDARDS	UL60950-1, TUV EN60950-1 approved							
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:1.5KVAC O/P-FG:0.5KVAC							
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25℃/ 70% RH							
	EMI CONDUCTION & RADIATION	Compliance to EN55022 (CISPR22) Class B							
	HARMONIC CURRENT	Compliance to EN61000-3-2,-3							
	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11, ENV50204, EN55024, EN61000-6-2, heavy industry level, criteria A							
OTHERS	MTBF	147.7K hrs min. MIL-HDBK-217F (25℃)							
	DIMENSION	218*105*63.5mm (L*W*H)							
	PACKING	1.58Kg;8pcs/13.6Kg/1.34CUFT							

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. Tolerance : includes set up tolerance, line regulation and load regulation.
4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.
5. Derating may be needed under low input voltages. Please check the derating curve for more details.
6. 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.

Mechanical Specification

Case No. 977A Unit:mm



AC Input Terminal Pin No. Assignment

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

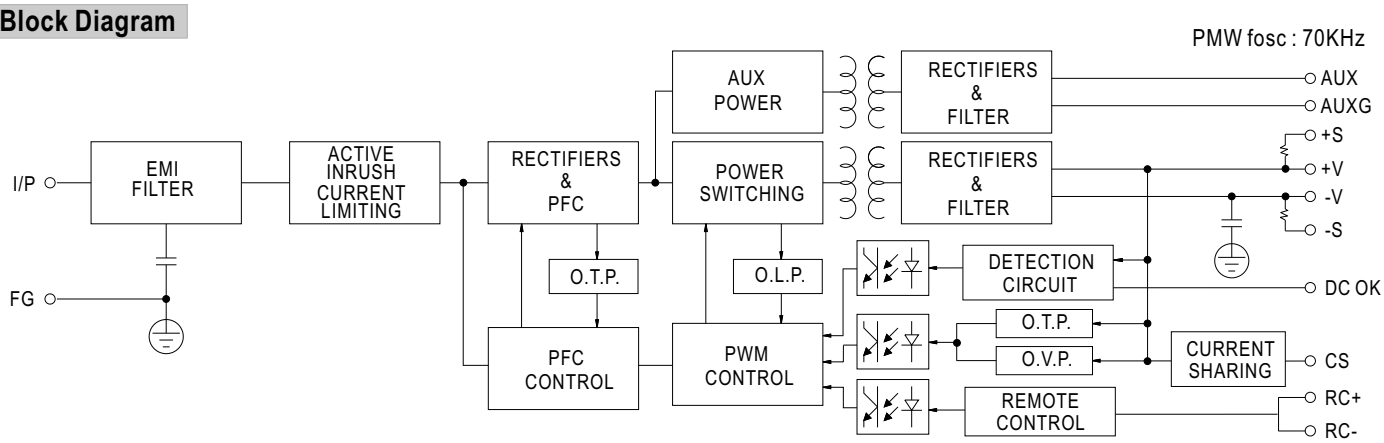
DC Output Terminal Pin No. Assignment

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

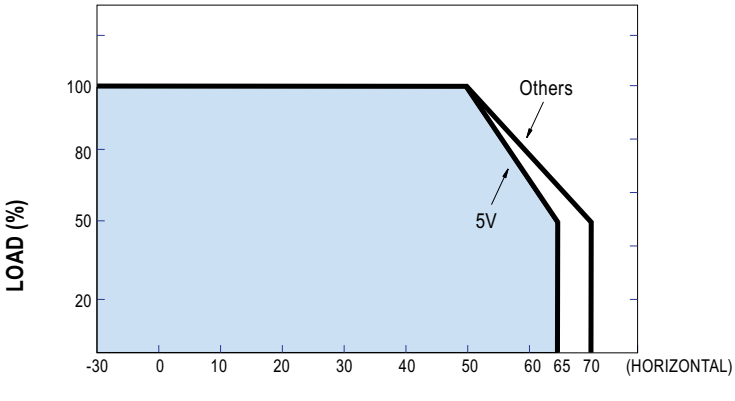
Connector Pin No. Assignment(CN100) : HRS DF11-10DP-2DS or equivalent

Pin No.	Assignment	Pin No.	Assignment	Mating Housing	Terminal
1	AUXG	6,8	GND	HRS DF11-10DS or equivalent	HRS DF11-**SC or equivalent
2	AUX	7	DC-OK		
3	RC+	9	+S		
4	RC-	10	-S		
5	CS				

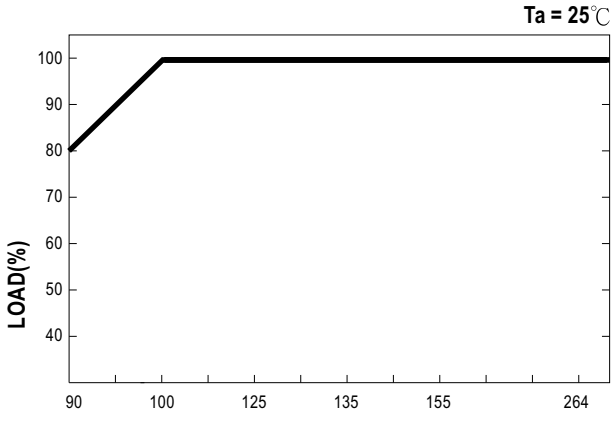
Block Diagram



Derating Curve



Output Derating VS Input Voltage



■ Function Description of CN100

Pin No.	Function	Description
1	AUXG	Auxiliary voltage output ground. The signal return is isolated from the output terminals (+V & -V).
2	AUX	Auxiliary voltage output, 4.6~5.25V, referenced to pin 1(AUXG). The maximum load current is 0.3A. This output has the built-in oring diodes and 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 OFF, Open: Power ON.
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	+S	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	-S	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 0.5V.

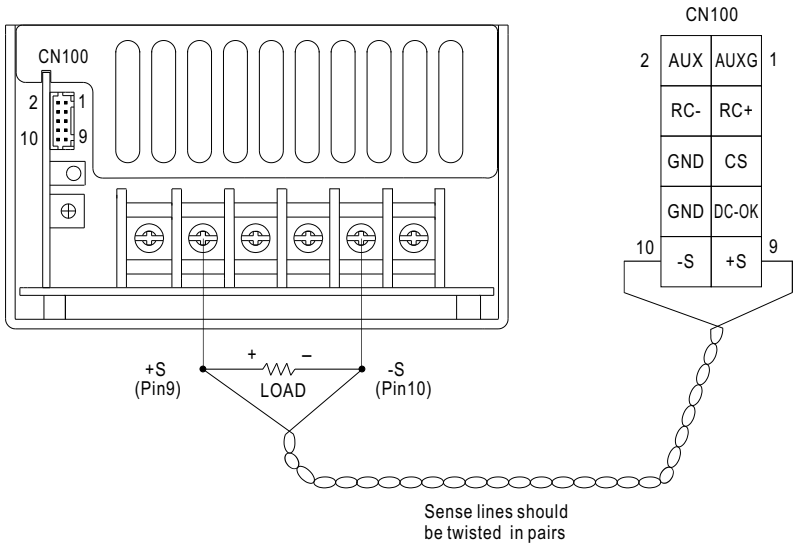


Fig 1.1

2.DC-OK Signal

DC-OK signal is a TTL level signal. High when PSU turns on.

Between DC-OK(pin4) and GND(pin3)	Output Status
3.3 ~ 5.6V	ON
0 ~ 1V	OFF

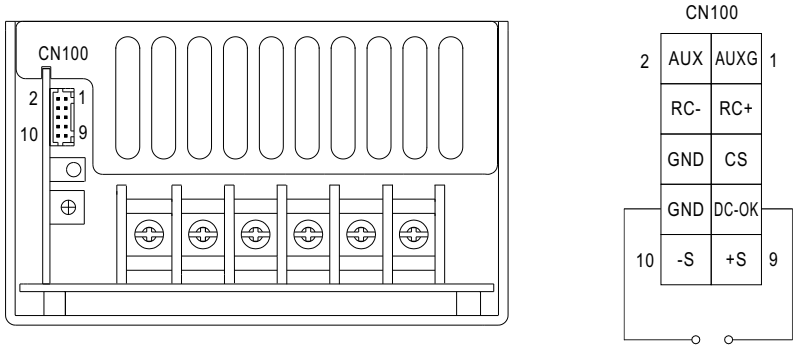
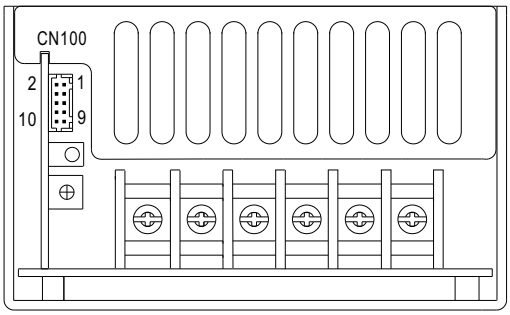


Fig 2.1

3.Remote Control

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

Between RC+(pin3) and RC-(pin4)	Output Status
SW ON (Short)	OFF
SW OFF (Open)	ON



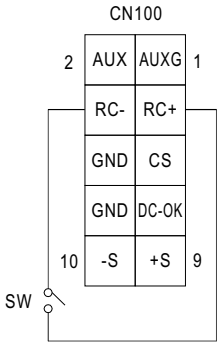


Fig 3.1