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Datasheet

RS 500W, 1 Output, Embedded Switch Mode Power Supply (SMPS), 5V dc, 100A

RS Stock number 770-4055

■ Features :

- Universal AC input / Full range
- AC input active surge current limiting
- High efficiency up to 92%
- Built-in 12V/0.1A auxiliary power
- Built-in active PFC function, PF>0.97
- Protections: Short circuit / Overload / Over voltage / Over temperature / Fan alarm
- Output voltage can be trimmed between 40 ~ 110% of the rated output voltage
- Output OLP can be trimmed between 40 ~ 110% of the rated output current
- Forced air cooling by built-in DC fan
- High power density 9.5w/inch^3
- 1U low profile 41mm
- DC OK Signal
- Built-in remote ON-OFF control
- Built-in remote sense function

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SPECIFICATION

MODEL		770-4055	770-4059	770-4068	770-4061	770-4065	770-4074
OUTPUT	DC VOLTAGE	5V	12V	15V	24V	27V	48V
	RATED CURRENT	100A	62.5A	50A	31.3A	27.8A	15.7A
	CURRENT RANGE	0 ~ 100A	0 ~ 62.5A	0 ~ 50A	0 ~ 31.3A	0 ~ 27.8A	0 ~ 15.7A
	RATED POWER	500W	750W	750W	751.2W	750.6W	753.6W
	RIPPLE & NOISE (max.) Note.2	150mVp-p	150mVp-p	150mVp-p	150mVp-p	150mVp-p	150mVp-p
	VOLTAGE ADJ. RANGE	4.75 ~ 5.5V	10 ~ 13.5V	13.5 ~ 16.5V	20 ~ 26.4V	24 ~ 30V	43 ~ 55V
	VOLTAGE TOLERANCE Note.3	±2.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	LOAD REGULATION	±2.0%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	SETUP, RISE TIME	1000ms, 50ms at full load					
	HOLD UP TIME (Typ.)	16ms/230VAC 16ms/115VAC at full load					
INPUT	VOLTAGE RANGE Note.5	90 ~ 264VAC 127 ~ 370VDC					
	FREQUENCY RANGE	47 ~ 63Hz					
	POWER FACTOR (Typ.)	0.97/230VAC 0.98/115VAC at full load					
	EFFICIENCY (Typ.)	82%	87%	89%	91%	91%	92%
	AC CURRENT (Typ.)	5V : 5.6A/115VAC 2.8A/230VAC		12V~48V : 8.2A/115VAC 3.9A/230VAC			
	INRUSH CURRENT (Typ.)	25A/115VAC 40A/230VAC					
	LEAKAGE CURRENT	<2.0mA / 240VAC					
PROTECTION	OVERLOAD	105 ~ 125% rated output power					
		Protection type : Constant current limiting, recovers automatically after fault condition is removed					
	OVER VOLTAGE	5.75 ~ 6.75V	13.8 ~ 16.8V	17 ~ 20.5V	27.6 ~ 32.4V	31 ~ 36.5V	56.6 ~ 66.2V
		Protection type : Shut down o/p voltage, re-power on to recover					
	OVER TEMPERATURE	85℃±5℃ (TSW2) detect on heatsink of O/P diode; 80℃±5℃ (TSW1) detect on heatsink of power transistor					
		Protection type : Shut down o/p voltage, recovers automatically after temperature goes down					
FUNCTION	AUXILIARY POWER(AUX)	12V @ 0.1A (±10%)					
	REMOTE ON/OFF CONTROL Note.6	Power on : short between on/off(pin13) & 12V-AUX(pin14) on CN50 Power off : open between on/off(pin13) & 12-AUX(pin14) on CN50					
	DC OK SIGNAL	The TTL signal out, PSU turn on = 0 ~ 1V ; PSU turn off = 3.3 ~ 5.6V					
	OUTPUT VOLTAGE TRIM Note.6	Adjustment of output voltage is possible between 40 ~ 110% of rated output					
	OUTPUT OLP TRIM	Adjustment of output OLP is possible between 40 ~ 110% of rated output					
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 4)	SAFETY STANDARDS	UL60950-1, TUV EN60950-1 approved					
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC					
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25℃ / 70% RH					
	EMC EMISSION	Compliance to EN55022 (CISPR22), EN61000-3-2,-3					
	EMC IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024, EN61000-6-2, EN61204-3, heavy industry level, criteria A					
OTHERS	MTBF	120.8Khrs min. MIL-HDBK-217F (25℃)					
	DIMENSION	250*127*41mm (L*W*H)					
	PACKING	1.64Kg; 6pcs/10.8Kg/1.1CUFT					

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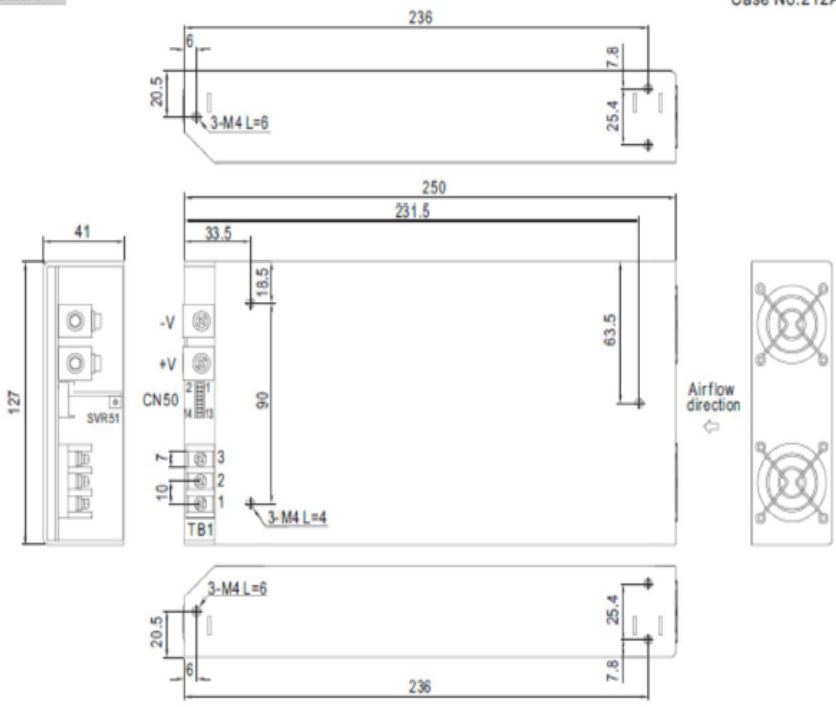
■ Mechanical Specification

Case No.212A Unit:mm



AC Input Terminal Pin No. Assignment

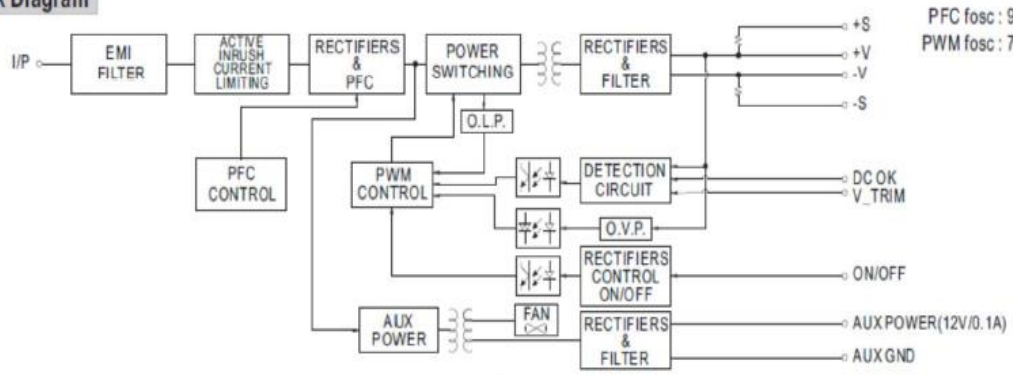
Pin No.	Assignment
1	AC/N
2	AC/L
3	FG ⏚

Control Pin No. Assignment (CN50) : HRS DF11-14DP-2DS or equivalent

Pin No.	Assignment	Pin No.	Assignment	Pin No.	Assignment	Mating Housing	Terminal
1	+S	6	PS	12	G-AUX	HRS DF11-14DS or equivalent	HRS DF11-**SC or equivalent
2	+VS	7	PC	13	ON/OFF		
3	-S	8	PO	14	12V-AUX		
4	-VS	9	DC-OK				
5	PV	10,11	GND				

■ Block Diagram

PFC fosc : 90KHz
PWM fosc : 70KHz



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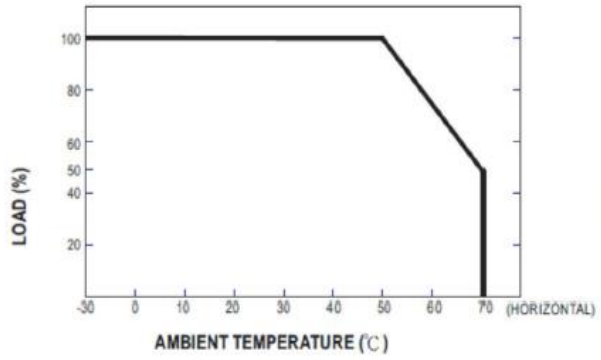
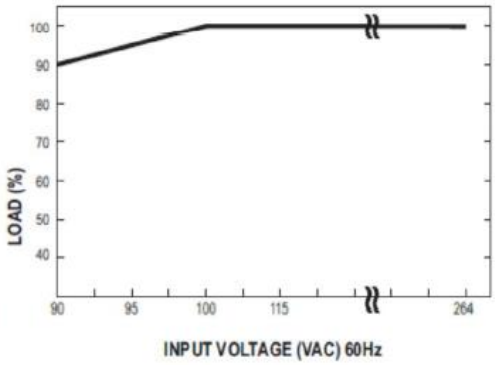
■ Derating Curve



■ Static Characteristics



■ Function Description of CN50

Pin No.	Function	Description
1	+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.
2	+VS	+V Signal
3	-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.
4	-VS	-V Signal
5	PV	Connect to external DC voltage source for output voltage triming, referenced to pin 10, 11 (GND). Output voltage can be trimmed between 40 ~ 110% of the rated output voltage.
6	PS	Short connecting between PV (pin5) and PS (pin6) if output voltage trim function is not used.
7	PC	Connect to external DC voltage source for output OLP triming, referenced output OLP can be trimmed between 40 ~ 110% of the rated output current. Please refer to function manual for details.
8	PO	Short connecting between PC (pin7) and PO (pin8) if output OLP trim function is not used.
9	DC_OK	Open collector signal, referenced to pin 10, 11(GND). Low when PSU turns on. The maximum sink current is 10mA and the maximum external voltage is 5.6V.
10,11	GND	These pins connect to the negative terminal (-V). Return for DC_OK Signal output.
12	G-AUX	Auxiliary voltage output ground. The signal return is isolated from the output terminals (+V & -V).
13	ON/OFF	Turns the output on and off by electrical or dry contact between pin 13 (ON/OFF) and pin 14 (12V-AUX). Short: Power ON, Open: Power OFF.
14	12V-AUX	Auxiliary voltage output, 10.8~13.2V, referenced to pin 12(G-AUX). The maximum load current is 0.1A. This output is not controlled by the "remote ON/OFF control".

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■ Function Manual

1."Remote ON/OFF" and "Output voltage trim" and "Output OLP trim" functions are not used.

The power supply unit will have no output if the shorting connector (accessory comes along with the PSU) is not assembled. It contains three shorting wires : one is from ON/OFF (pin13) to 12V-AUX (pin14), two is from PV(pin5) to PS (pin6) and the other is from PC (pin7) to PO (pin8).

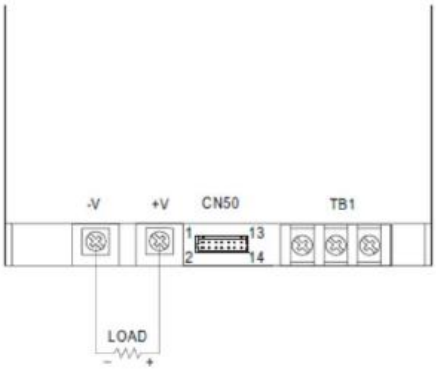
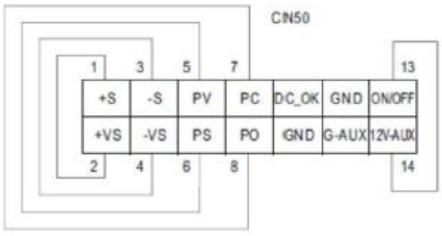


Fig 1.1

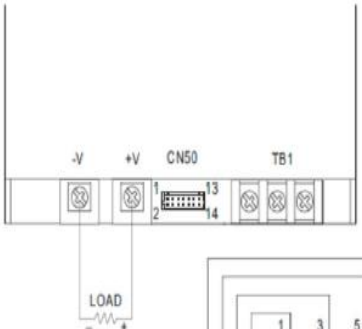


(Shorting connector)

2.Remote ON/OFF

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

Between ON/OFF (pin13) and 12V-AUX(pin14)	Output Status
SW ON (Short)	ON
SW OFF (Open)	OFF



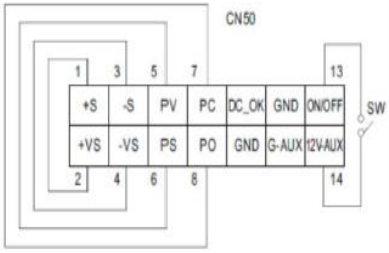


Fig 2.1

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3.DC_OK signal

"DC_OK" is an open collector signal.
It indicates the output status of the PSU. It can operate in two ways : One is sinking current from external TTL signal ; the other is sending out a TTL voltage signal.

3-1 Sink current :

The maximum sink current is 10mA and the maximum external voltage is 5.6V.

3-2 TTL voltage signal :

Between DC- OK(pin9) and GND(pin10&11)	Output Status
0 ~ 1V	ON
3.3 ~ 5.6V	OFF

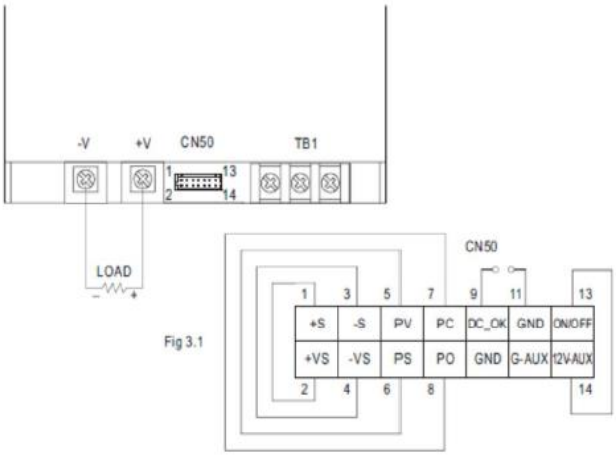

Fig 3.1

4.Remote Sense

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

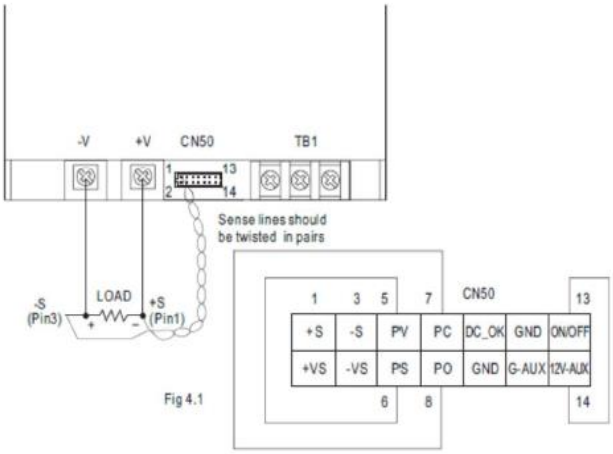

Fig 4.1

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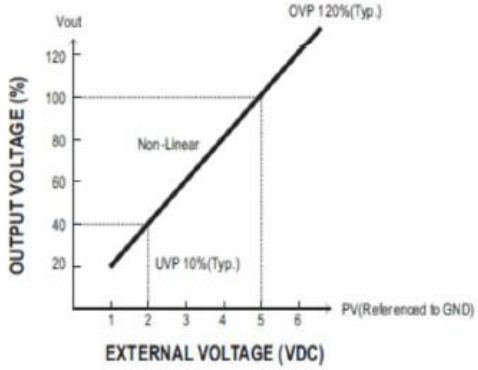
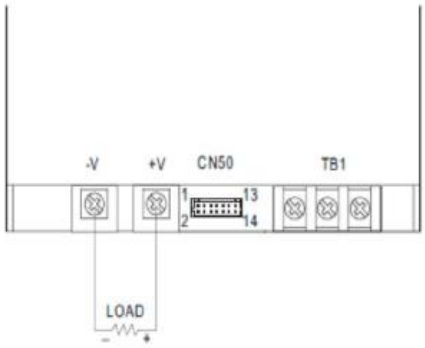
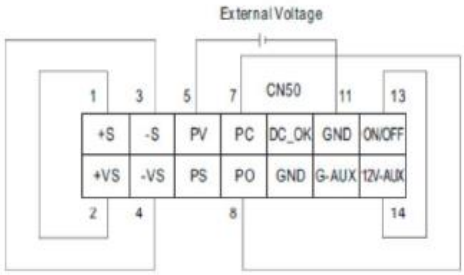
5.Output Voltage TRIM

Output voltage of RSP-750 can be trimmed between 40% ~ 110% of its rated value by the following methods :

(1)Using external voltage source between "PV"(pin5) and "GND"(pin10,11) that is shown in Fig5.1







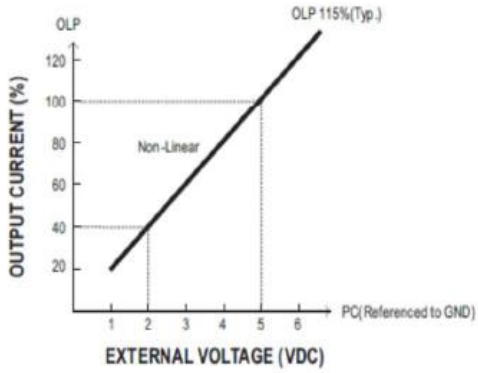
Note: External voltage<0.5V Vo may be the UVP need to restart.

Fig 5.1

6.Output OLP TRIM

Output OLP of RSP-750 can be trimmed between 40% ~ 110% of its rated value by the following methods :

(1)Using external voltage source between "PC"(pin7) and "GND"(pin10,11) that is shown in Fig6.1



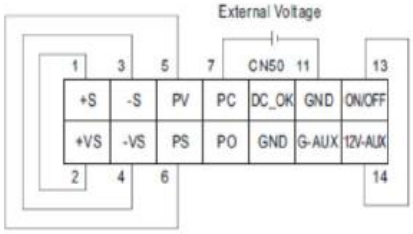


Fig 6.1