EverSale RSP-750-24

Mean Well RSP-750 Series Power Supply User Manual

Model: RSP-750-24

1. Product Overview

The Mean Well RSP-750 series is a 750W single output AC to DC power supply designed for various industrial applications. This series features a wide input voltage range of 90~264VAC and is equipped with Power Factor Correction (PFC) functionality. The RSP-750 models are air-cooled by an internal speed-controlled fan, allowing operation in environments up to 70 degrees Celsius. Key features include adjustable output voltage, remote on/off control, and an auxiliary power supply, providing flexibility for integration into diverse systems.

Figure 1.1: Front view of the Mean Well RSP-750-24 Power Supply, showing the enclosure and terminal connections.

2. Specifications

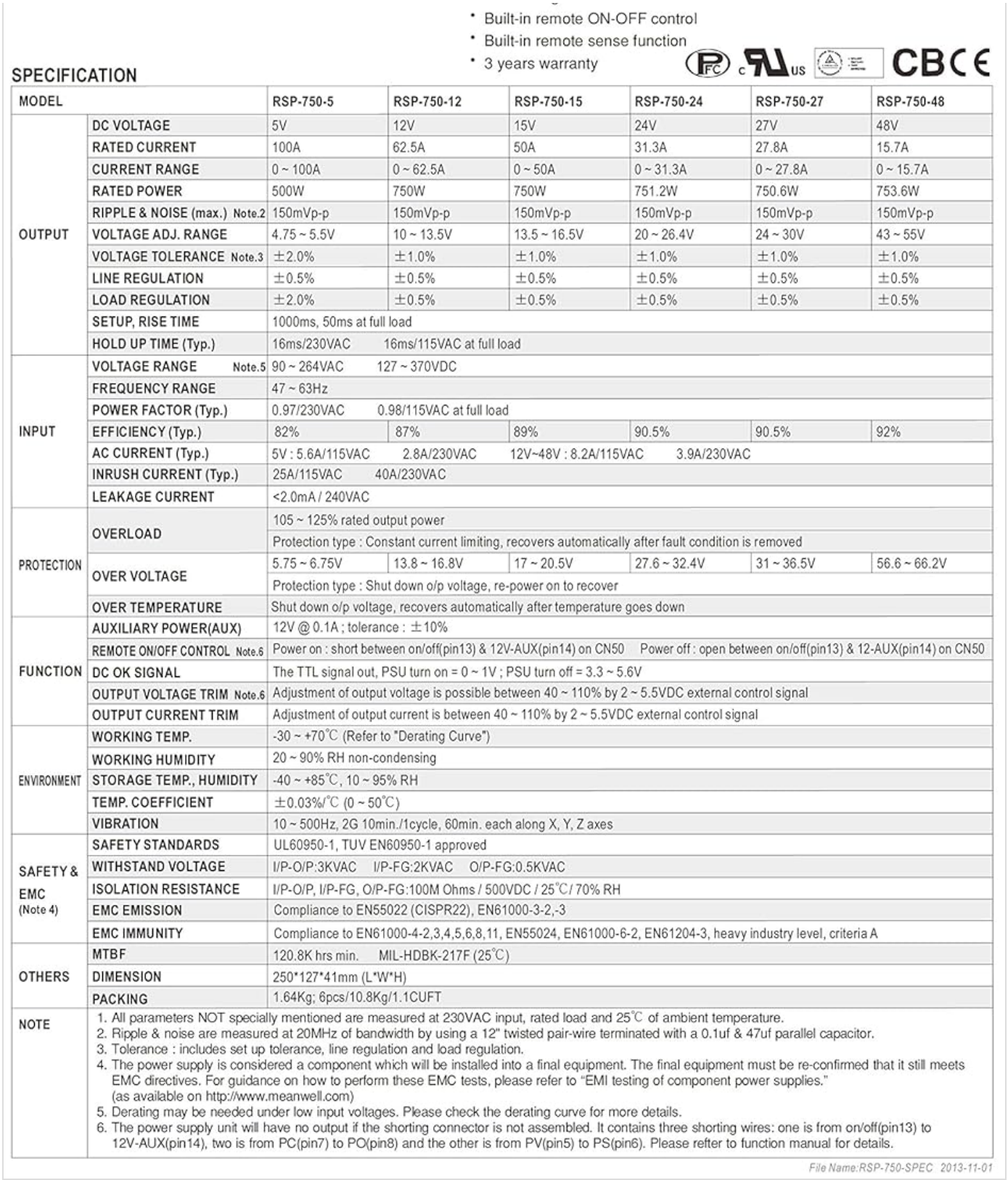
The following table outlines the general specifications for the RSP-750 series. For detailed model-specific data, refer to the full datasheet.

MEAN WELL

750W Single Output Power Supply **RSP-750 series**

■ 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% by 2 ~ 5.5VDC external control signal
- Output current can be trimmed between 40 ~ 110% by 2 ~ 5.5VDC external control signal
- Forced air cooling by built-in DC with fan speed control function
- High power density 9.44w/inch^3
- 1U low profile 41mm
- DC OK Signal



- Built-in remote ON-OFF control
- Built-in remote sense function
- 3 years warranty

SPECIFICATION

MODEL		RSP-750-5	RSP-750-12	RSP-750-15	RSP-750-24	RSP-750-27	RSP-750-48
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%	90.5%	90.5%	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	Shut down o/p voltage, recovers automatically after temperature goes down					
FUNCTION	AUXILIARY POWER(AUX)	12V @ 0.1A ; tolerance : ±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% by 2 ~ 5.5VDC external control signal					
	OUTPUT CURRENT TRIM	Adjustment of output current is between 40 ~ 110% by 2 ~ 5.5VDC external control signal					
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	120.8K hrs min. MIL-HDBK-217F (25℃)					
	DIMENSION	250*127*41mm (L*W*H)					
	PACKING	1.64Kg; 6pcs/10.8Kg/1.1CUFT					

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. 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)
5. Derating may be needed under low input voltages. Please check the derating curve for more details.
6. The power supply unit will have no output if the shorting connector is not assembled. It contains three shorting wires: one is from on/off(pin13) to 12V-AUX(pin14), two is from PC(pin7) to PO(pin8) and the other is from PV(pin5) to PS(pin6). Please refter to function manual for details.

File Name:RSP-750-SPEC 2013-11-01

Figure 2.1: Detailed electrical and environmental specifications for the RSP-750 series, including input/output ratings, protection features, and safety standards.

Key Specifications (RSP-750-24 Model):

- **Output Voltage:** 24V
- **Output Current:** 31.3A
- **Rated Power:** 751.2W
- **Input Voltage Range:** 90 ~ 264VAC
- **Efficiency:** Up to 90.5%
- **Operating Temperature:** -20 ~ +70°C (refer to derating curve)

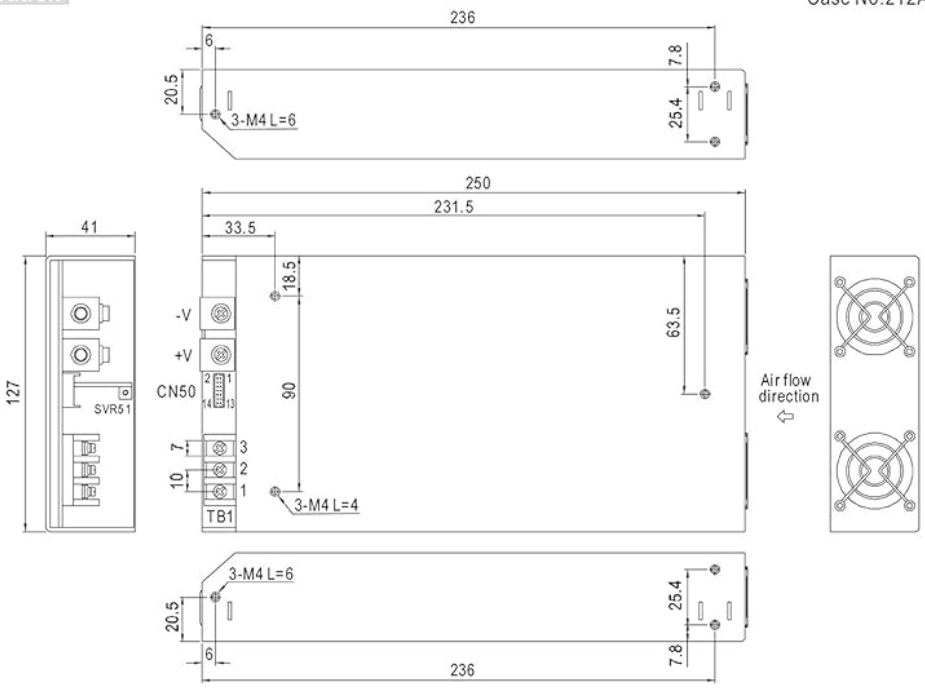
- **Dimensions (L x W x H):** 250 x 127 x 41 mm (9.84 x 5 x 1.61 inches)
- **Weight:** Approximately 1.6 kg (3.54 lbs)

3. Mechanical Installation

The RSP-750 power supply is designed for easy integration. Ensure proper ventilation and observe the specified mounting orientations.

■ Mechanical Specification

Case No.212A Unit:mm



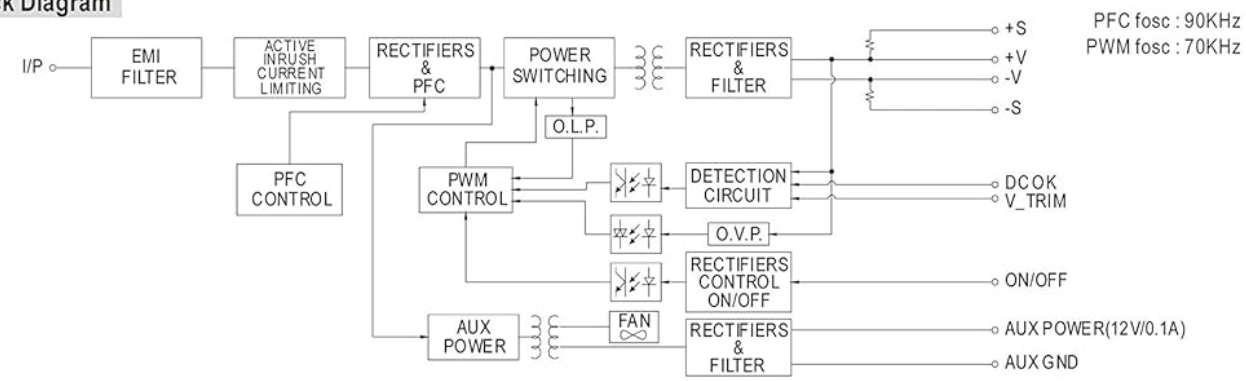
AC Input Terminal Pin No. Assignment

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

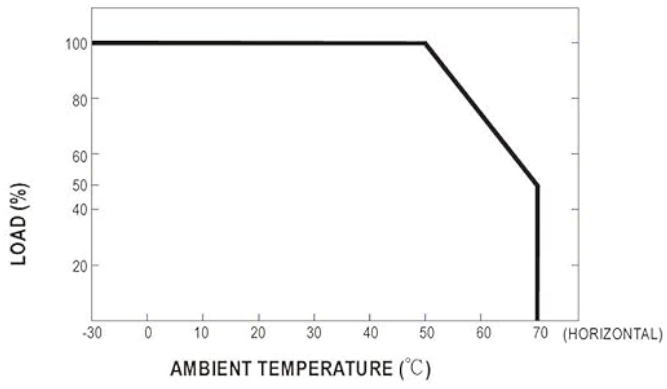
Control Pin No. Assignment (CN50) : HRS DF11-14DP-2DS or equivalent

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



■ Derating Curve



■ Static Characteristics

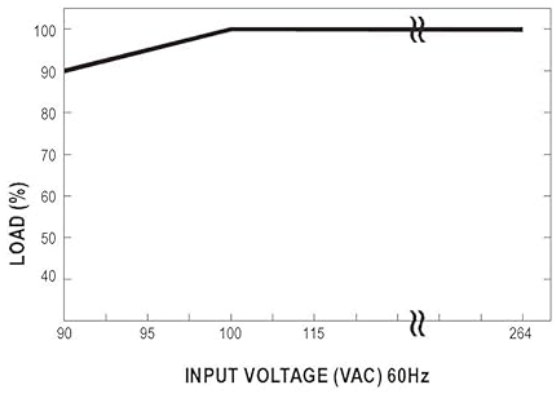


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Figure 3.1: Mechanical dimensions, mounting hole locations, and internal air flow direction for the RSP-750 series. Also includes a simplified block diagram of the power supply circuit.

3.1. Terminal Assignment

Refer to Figure 3.1 for the AC input terminal and control pin assignments. Ensure all connections are secure and correctly polarized.

- **AC Input Terminal:** L (Live), N (Neutral), FG (Frame Ground)
- **DC Output Terminal:** +V (Positive Output), -V (Negative Output)
- **Control Pin (CN50):** Various pins for remote functions and auxiliary power.

4. Function Description and Control

The RSP-750 series includes several advanced control features accessible via the CN50 connector.

■ Function Description of CN50

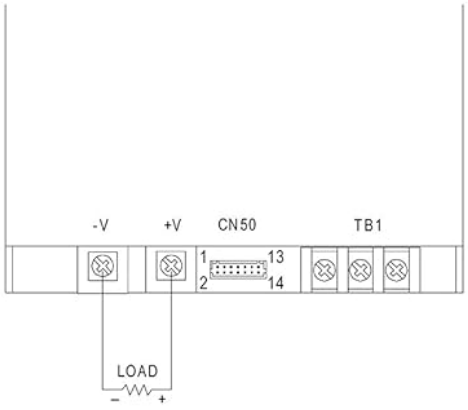
Pin No.	Function	Description
1	+S	Positive sensing. The +S signal should be connected to the positive terminal of the load. The +S and -S leads should be twisted in pair to minimize noise pick-up effect. The maximum line drop compensation is 0.5V.
2	+VS	+V Signal. The +VS should be connected to the +S to reduce the noise when "output voltage TRIM" function is in use.
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. The -VS should be connected to the -S to reduce the noise when "output voltage TRIM" function is in use.
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 current triming, referenced output current 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 current trim function is not used.
9	DC_OK	Open collector signal, referenced to pin10,11(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".

■ Function Manual

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

(1)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).

(2)Factory setting is shorted as Fig1.1



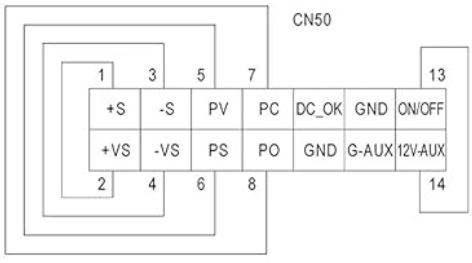


Fig 1.1 (Shorting connector)

Figure 4.1: Detailed description of each pin on the CN50 control connector, including functions like positive/negative sensing, output voltage trim, remote ON/OFF, DC OK signal, and auxiliary power.

4.1. Remote ON/OFF Control

The power supply unit (PSU) can be turned ON/OFF remotely using the designated pins on the CN50 connector. This feature allows for system-level power management.

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 close (Short)	PSU ON
SW open (Open)	PSU OFF

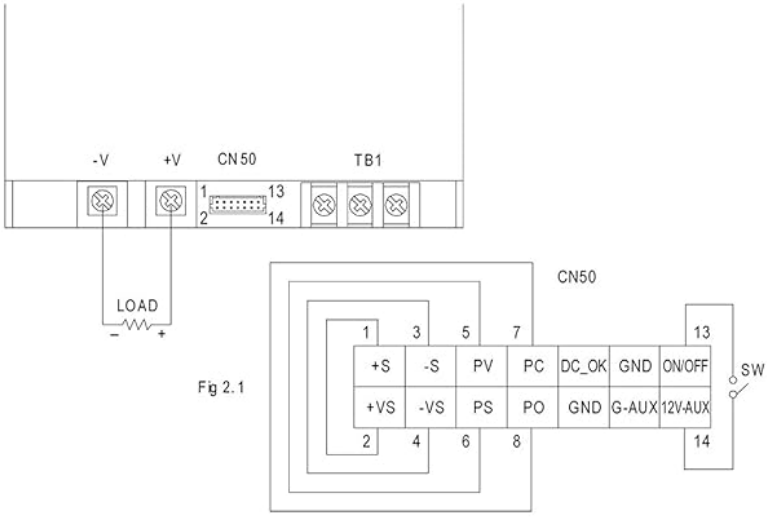


Fig 2.1

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	PSU ON
3.3 ~ 5.6V	PSU OFF

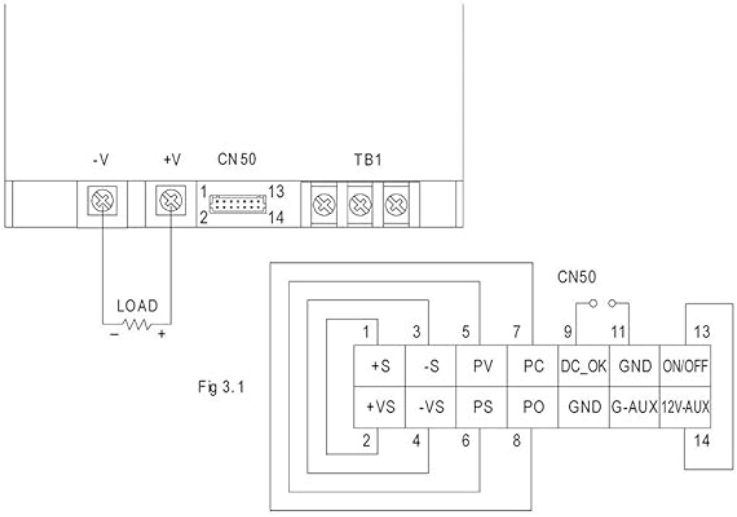


Fig 3.1

4.Remote Sense

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

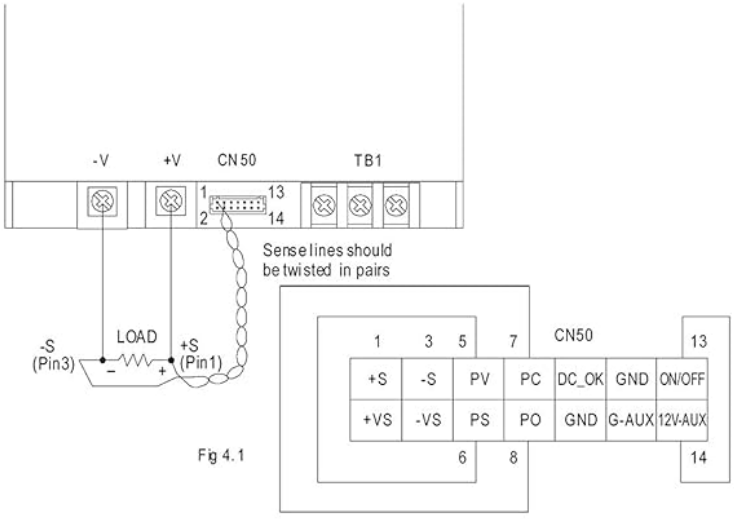


Fig 4.1

Figure 4.2: Diagrams illustrating the connections for remote ON/OFF control and the DC OK signal output. This includes shorting pins for ON/OFF and monitoring the DC OK signal status.

- **To turn PSU ON:** Short pin 13 (ON/OFF) and pin 14 (12V-AUX).
- **To turn PSU OFF:** Open connection between pin 13 (ON/OFF) and pin 14 (12V-AUX).

4.2. DC OK Signal

The DC OK signal indicates the output status of the PSU. It is an open collector signal and can be used to monitor the power supply's operational status.

- **Output Status ON:** 0 ~ 1V (low voltage)
- **Output Status OFF:** 3.3 ~ 5.6V (high voltage)
- Maximum sink current is 10mA.

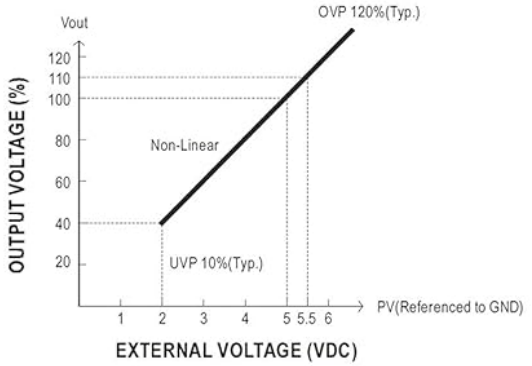
4.3. Output Voltage and Current Trim

The output voltage and current of the RSP-750 can be trimmed within a range of 40% to 110% of its rated value using external voltage signals connected to the CN50 connector.

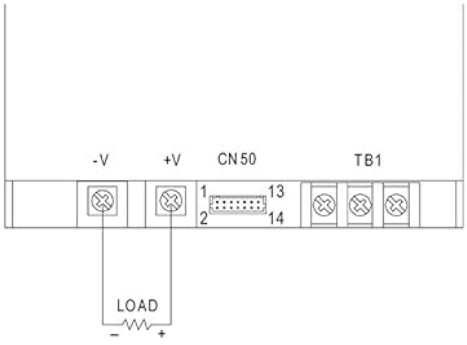
5.Output Voltage TRIM

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

(1)Using an external DC source (2~5.5VDC) 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.



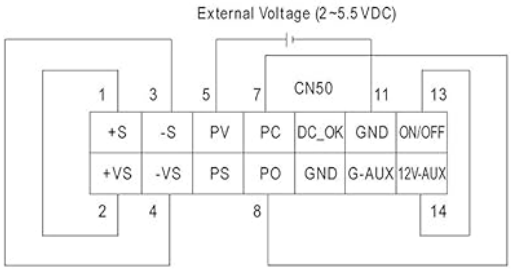
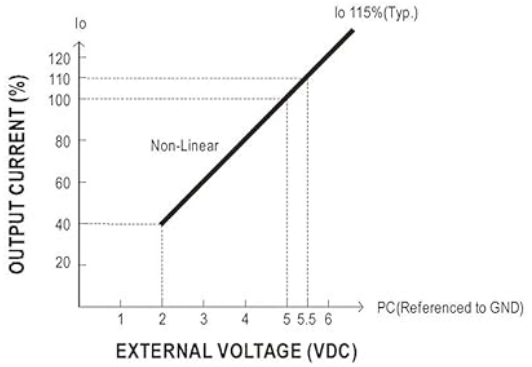


Fig 5.1

6.Output Current TRIM

Output current 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



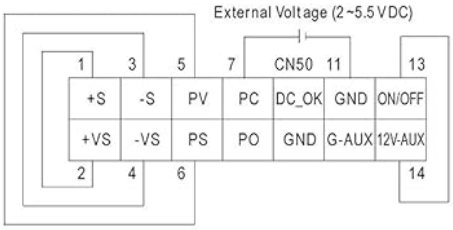


Fig 6.1

Figure 4.3: Graphs and diagrams illustrating how to adjust the output voltage and current using external DC voltage sources connected to the PV (pin 5) and PC (pin 7) pins on the CN50 connector, referenced to GND (pin 10, 11).

- **Output Voltage Trim:** Connect an external DC source (2~5.5VDC) between PV (pin 5) and GND (pin 10, 11).
- **Output Current Trim:** Connect an external DC source (2~5.5VDC) between PC (pin 7) and GND (pin 10, 11).

5. Safety and Protection

The RSP-750 series incorporates multiple protection mechanisms to ensure safe and reliable operation.

- **Overload Protection:** Constant current limiting, recovers automatically after fault condition is removed.
- **Over Voltage Protection:** Shut down O/P voltage, re-power on to recover.
- **Over Temperature Protection:** Shut down O/P voltage, recovers automatically after temperature goes down.
- **Short Circuit Protection:** The unit is protected against short circuits.

6. Maintenance and Troubleshooting

6.1. Maintenance

The RSP-750 power supply is designed for long-term reliability with minimal maintenance. Regular checks include:

- Ensure proper airflow around the unit and keep ventilation openings clear of obstructions.
- Periodically inspect wiring for any signs of damage or loose connections.
- Keep the unit clean and free from dust accumulation, especially around the fan and vents.

6.2. Troubleshooting

Problem	Possible Cause	Solution
No output voltage	No input power; Overload protection activated; Over voltage protection activated; Remote ON/OFF engaged.	Check AC input connections; Reduce load; Re-power unit; Check remote ON/OFF connections (short pin 13 and 14).
Output voltage fluctuates	Unstable input voltage; Load fluctuations; Remote sense not properly connected.	Ensure stable AC input; Verify load stability; Check remote sense connections (+S, -S).
Unit overheating	Insufficient ventilation; Excessive ambient temperature; Overload.	Ensure clear airflow; Operate within specified temperature range; Reduce load.

7. Warranty and Support

The Mean Well RSP-750 series power supply typically comes with a 3-year manufacturer's warranty. Please refer to your purchase documentation for specific warranty terms and conditions.
For technical support, product inquiries, or warranty claims, please contact your authorized Mean Well distributor or the seller from whom you purchased the product. Provide your model number (RSP-750-24) and serial number when seeking support.
Manufacturer: MEAN WELL
Model: RSP-750-24