



- Features :
- Universal AC input / Full range
- AC input active surge current limiting
- Built-in 5V/0.5A auxiliary power
- Built-in active PFC function, PF>0.95
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Output voltage can be trimmed between 40 ~ 110% of the rated output voltage
- Forced air cooling by built-in DC fan
- High power density 10.7w/inch³
- 1U low profile 41mm
- Active current sharing up to 4000W(3+1)
- DC OK Signal
- Built-in remote ON-OFF control
- Built-in remote sense function
- 5 years warranty



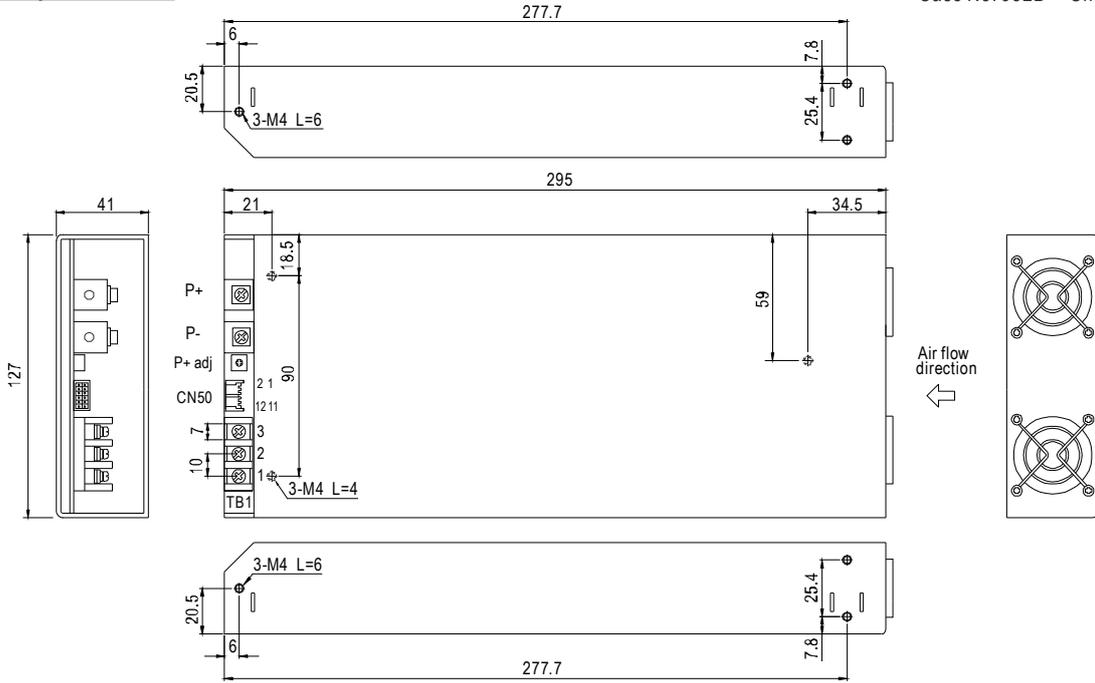
SPECIFICATION

MODEL		PSU24-1000-01	PSU48-1000-01
OUTPUT	DC VOLTAGE	24V	48V
	RATED CURRENT	40A	21A
	CURRENT RANGE	0 ~ 40A	0 ~ 21A
	RATED POWER	960W	1008W
	RIPPLE & NOISE (max.) Note.2	150mVp-p	150mVp-p
	VOLTAGE ADJ. RANGE	20 ~ 26.4V	43 ~ 55V
	VOLTAGE TOLERANCE Note.3	±1.0%	±1.0%
	LINE REGULATION	±0.5%	±0.5%
	LOAD REGULATION	±0.5%	±0.5%
	SETUP, RISE TIME	300ms, 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.)	0.95/230VAC	0.98/115VAC at full load
	EFFICIENCY (Typ.)	88%	
	AC CURRENT (Typ.)	12A/115VAC	6A/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	27.6 ~ 32.4V	56.6 ~ 66.2V
	OVER TEMPERATURE	Shut down o/p voltage, recovers automatically after temperature goes down	
FUNCTION	AUXILIARY POWER(AUX)	5V @ 0.5A (+5%, -8%)	
	REMOTE ON/OFF CONTROL Note.6	Power on : short between on/off(pin6) & S-(pin2) on CN50 Power off : open between on/off(pin6) & S-(pin2) 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	
	CURRENT SHARING(CS)Note.7	Please refer to function manual	
ENVIRONMENT	WORKING TEMP.	-20 ~ +60°C (Refer to "Derating Curve")	
	WORKING HUMIDITY	20 ~ 90% RH non-condensing	
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH	
	TEMP. COEFFICIENT	±0.02%/°C (0 ~ 50°C)	
	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°C / 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	116.75K hrs min. MIL-HDBK-217F (25°C)	
	DIMENSION	295*127*41mm (L*W*H)	
	PACKING	1.95Kg; 6pcs/12.7Kg/1.15CUFT	
NOTE	<ol style="list-style-type: none"> 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C 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. The power supply unit will have no output if the shorting connector is not assembled. It contains two shorting wires: one is from on/off(pin6) to s-(pin2) and the other is from Vco(pin8) to Vca(pin10). Please refer to function manual for details. 7. In parallel connection, maybe only one unit operate if the total output load is less than 5% of rated load condition. 		



Mechanical Specification

Case No. 952B Unit:mm



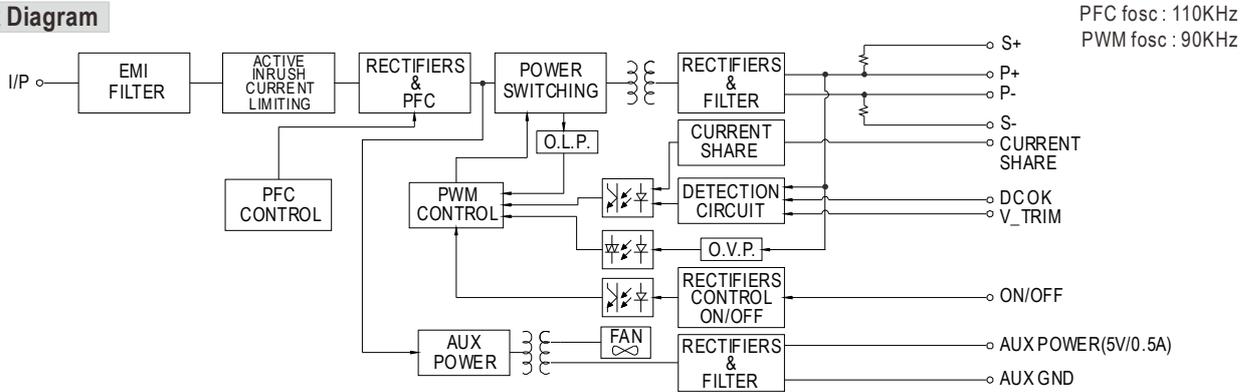
AC Input Terminal
Pin No. Assignment

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

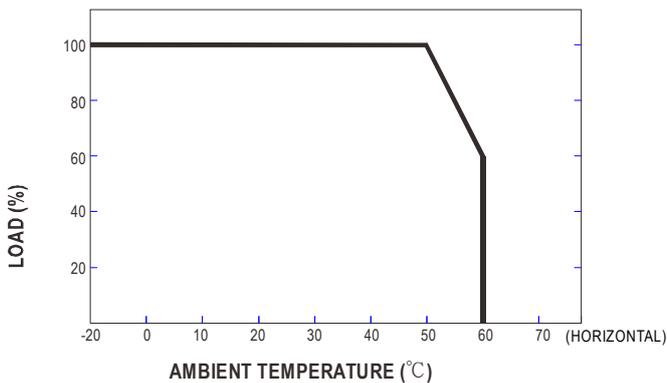
Control Pin No. Assignment (CN50) : HRS DF11-12DP-2DS or equivalent

Pin No.	Assignment	Pin No.	Assignment	Pin No.	Assignment	Mating Housing	Terminal
1	S+	5	DC-OK	9	Vci	HRS DF11-12DS or equivalent	HRS DF11-12DS or equivalent
2	S-	6	ON/OFF	10	Vca		
3	G-AUX	7	CS	11,12	GND		
4	5V-AUX	8	Vco				

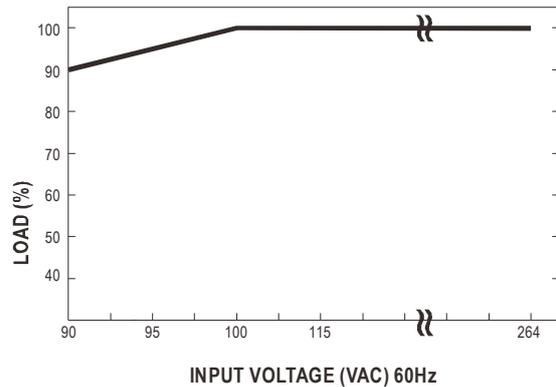
Block Diagram



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	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.
3	G-AUX	Auxiliary voltage output ground. The signal return is isolated from the output terminals (P+ & P-).
4	5V-AUX	Auxiliary voltage output, 4.6~5.25V, referenced to pin 3(G-AUX). The maximum load current is 0.5A. This output has the built-in oring diodes and is not controlled by the "remote ON/OFF control".
5	DC_OK	Open collector signal, referenced to pin11,12(GND). Low when PSU turns on. The maximum sink current is 10mA and the maximum external voltage is 5.6V.
6	ON/OFF	Turns the output on and off by electrical or dry contact between pin 6 (ON/OFF) and pin 2 (S-). Short: Power ON, Open: Power OFF.
7	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.
8	Vco	Short connecting between Vco (pin8) and Vca (pin10) if output voltage trim function is not used.
9	Vci	Connect to external DC voltage source for output voltage trimming, referenced to pin 2 (S-). Output voltage can be trimmed between 40 ~ 110% of the rated output voltage.
10	Vca	Connect to external resistor (1/8W) for output voltage trimming. Output voltage can be trimmed between 40 ~ 110% of the rated output voltage. Please refer to function manual for details.
11,12	GND	These pins connect to the negative terminal (P-). Return for DC_OK Signal output.

■ Function Manual

1. "Remote ON/OFF" and "Output voltage 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 two shorting wires : one is from ON/OFF (pin6) to S- (pin2) and the other is from Vco (pin8) to Vca (pin10).

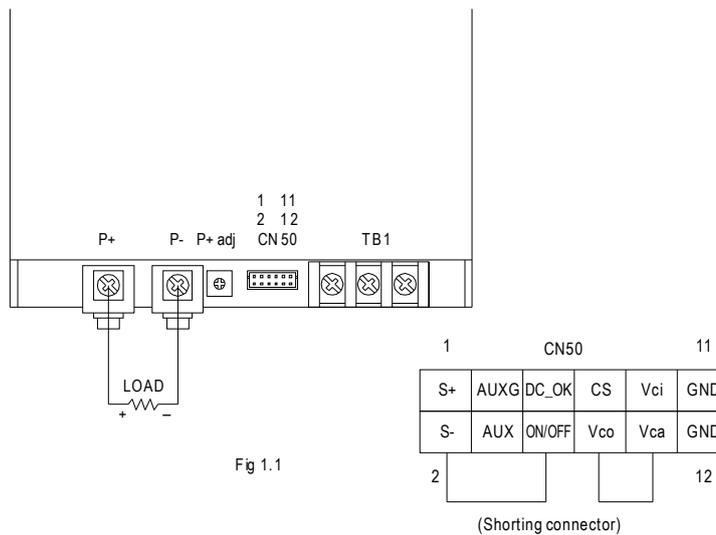


Fig 1.1



2.Remote ON/OFF

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

Between ON/OFF(pin6) and S-(pin2)	Output Status
SW ON (Short)	ON
SW OFF (Open)	OFF

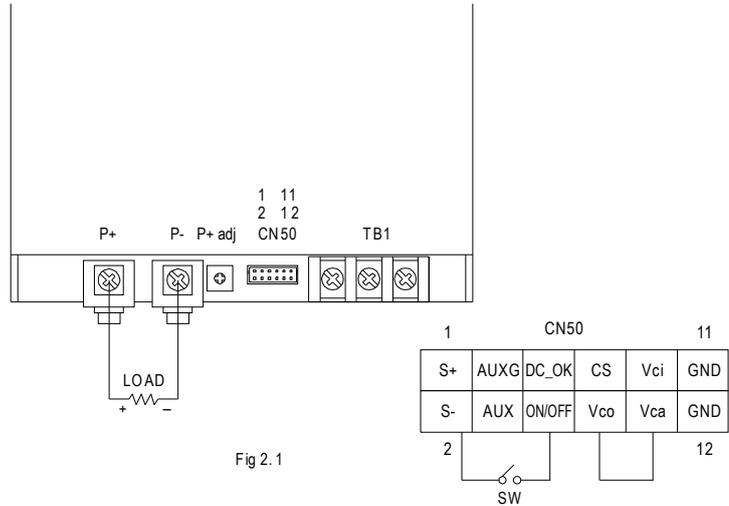


Fig 2.1

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(pin5) and GND(pin11&12)	Output Status
0 ~ 1V	ON
3.3 ~ 5.6V	OFF

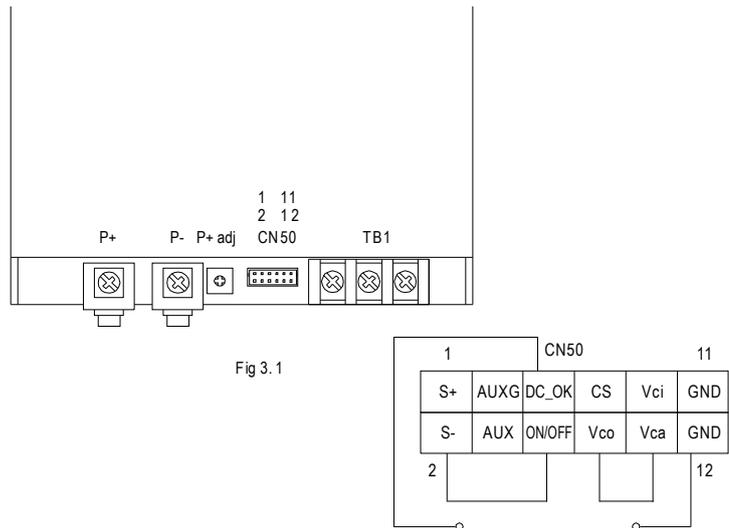


Fig 3.1

4.Remote Sense

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

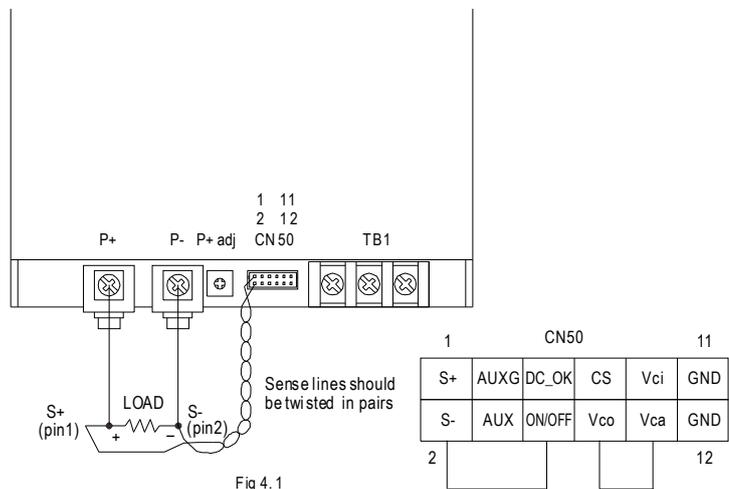


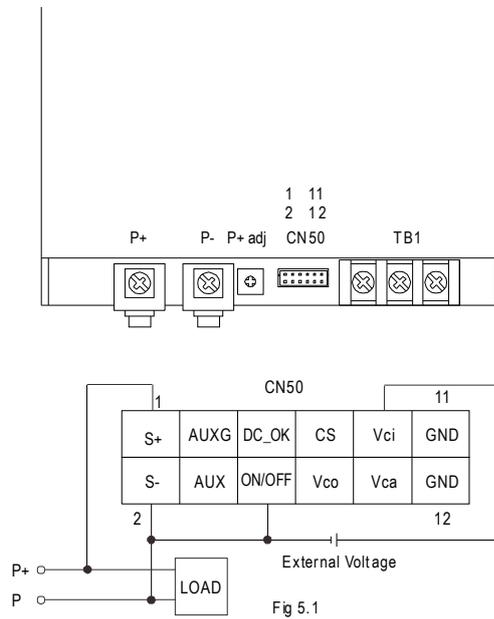
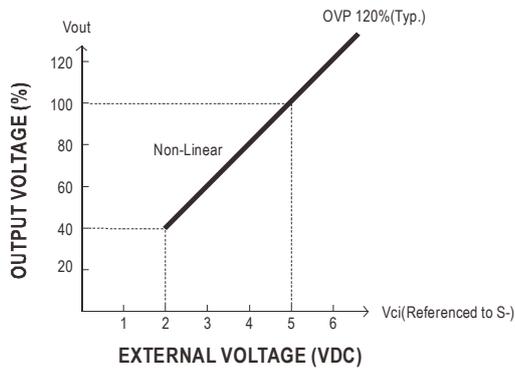
Fig 4.1



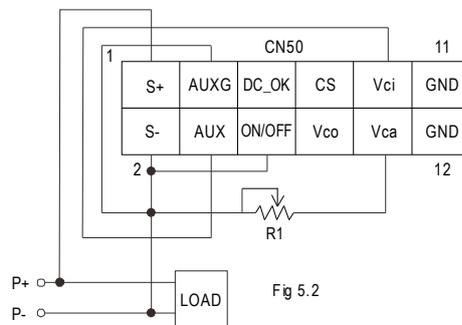
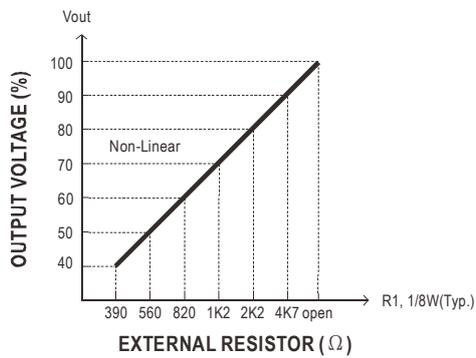
5. Output Voltage TRIM

Output voltage of PSU48-1000-01 can be trimmed between 40% ~ 110% of its rated value by the following methods and S+ & P+, S- & P- also need to be connected on CN50:

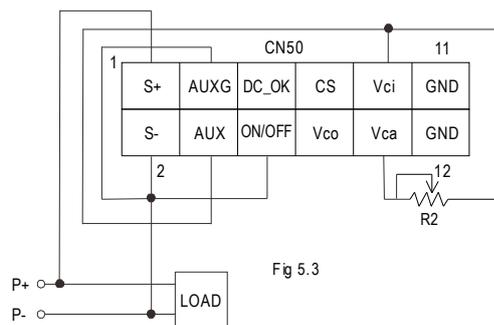
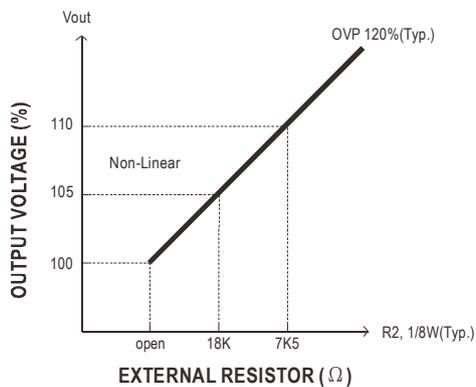
(1) Using external voltage source between "Vci"(pin9) and "S-"(pin2) that is shown in Fig5.1



(2) Connecting a resistor externally that in shown in Fig 5.2 & Fig 5.3
(A) O/P voltage goes down



(B) O/P voltage goes up





6. Current Sharing with Remote Sensing

PSU48-1000-01 has the built-in active current sharing function and can be connected in parallel to provide higher output power : (1)Parallel operation is available by connecting the units shown as below.

(S+,S- and CS are connected mutually in parallel).

(2)Difference of output voltages among parallel units should be less than 0.2V.

(3)The total output current must not exceed the value determined by the following equation.

$$(\text{output current at parallel operation}) = (\text{Rated current per unit}) \times (\text{Number of unit}) \times 0.9$$

(4)In parallel operation 4 units is the maximum, please consult the manufacturer for applications of more connecting in parallel.

(5)The power supplies should be paralleled using short and large diameter wiring and then connected to the load.

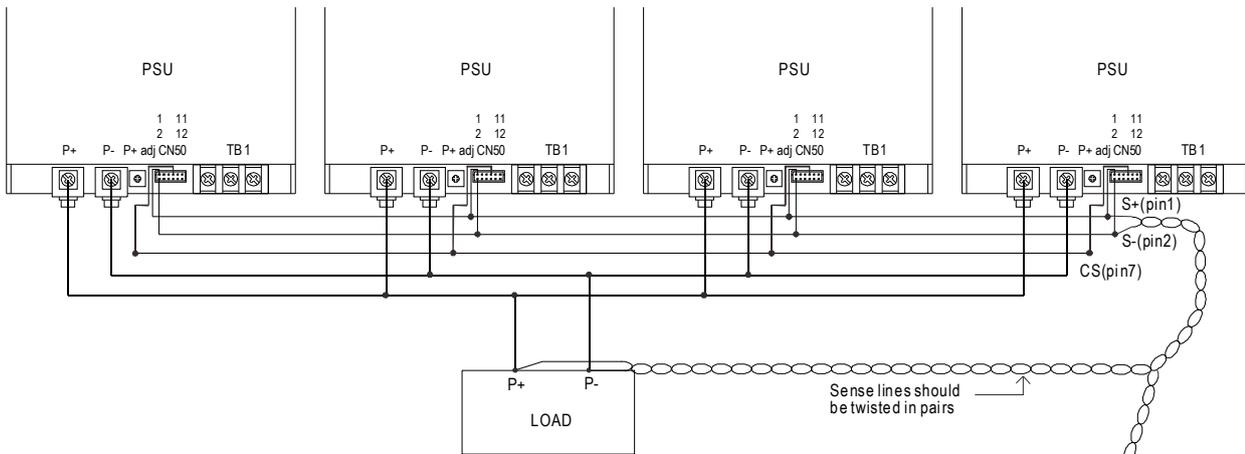
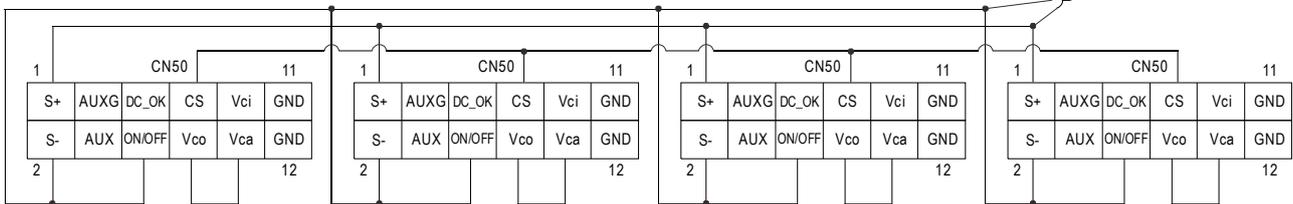


Fig 6.1



Note : In parallel connection, maybe only one unit (master) operate if the total output load is less than 5% of rated load condition. The other PSUs (slaves) may go into standby mode and their output LEDs will not turn on.



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