



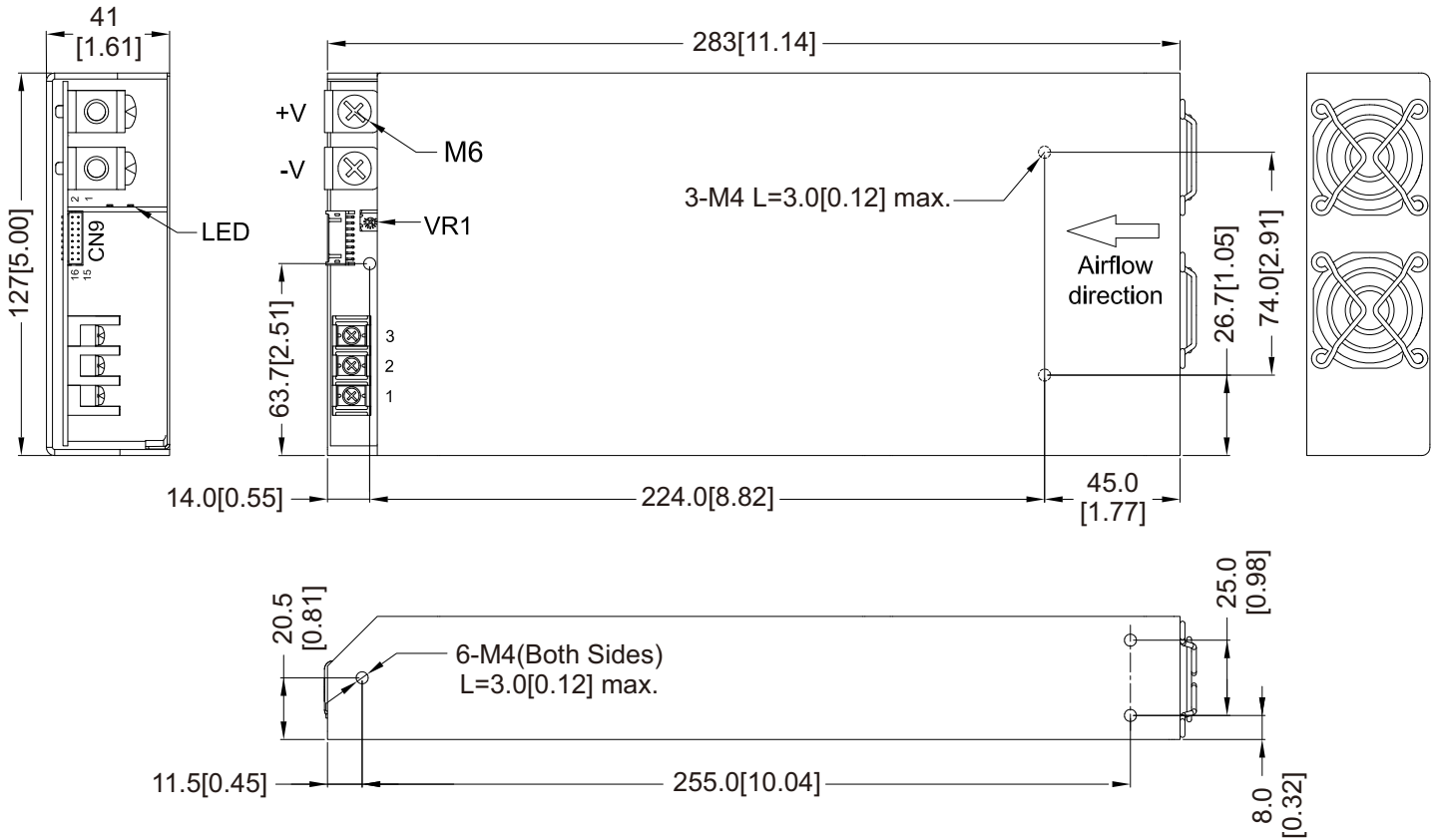
### Features:

- Universal AC input / Full range
- Programmable output Voltage (30% ~ 105%)
- Programmable output Current (40% ~ 105%)
- +5V / 0.5A auxiliary output
- 1U profile, High power density 11.1W / in<sup>3</sup>
- Forced current sharing at parallel operation
- Power OK signal
- Remote ON / OFF, Remote sense function
- Protection: OVP, OLP, OTP, SCP, Fan failure

MODEL		AK-1000-12	AK-1000-15	AK-1000-24	AK-1000-27	AK-1000-48
Output	DC Voltage Range	12V	15V	24V	27V	48V
	Rated Current	62A	50A	40A	37A	21A
	Current Range	0 ~ 62A	0 ~ 50A	0 ~ 40A	0 ~ 37A	0 ~ 21A
	Rated Power	744W	750W	1000W	1000W	1000W
	Ripple & Noise (Max.)	Note.2 150mVp-p	<1%(mVp-p), according to the rated output voltage			
	Voltage Adj. Range	±5.0% Typical adjustment by potentiometer. (VR1)				
	Voltage Tolerance	Note.3 ±1.0%				
	Line Regulation	±0.5%				
	Load Regulation	±0.5%				
	Setup, Rise Time	800ms, 60ms at full load				
Hold Up Time (Typ.)	16ms / 230VAC at full load					
Input	Voltage Range	Note.4 90 ~ 264VAC, 127 ~ 370VDC				
	Frequency Range	47 ~ 63Hz				
	Power Factor (Typ.)	0.98 / 230VAC, 0.99 / 115VAC at full load				
	Efficiency (Typ.)	87%	88%	89%	89%	90%
	AC Current (Typ.)	12A / 115VAC, 5A / 230VAC				
	Inrush Current (Typ.)	27A / 115VAC, 54A / 230VAC				
Leakage Current	< 1.0mA / 240VAC					
Protection	Over Load	105% rated output power Protection type: Total Power limit, Latch-style (Recovery after reset AC power ON or inhibit)				
	Over Voltage	Variable OVP, 125 ± 10% Vout. Protection type: Latch-style (Recovery after reset AC power ON or inhibit)				
	Over Temperature	By detecting primary and secondary heat sink. Protection type: Shut down o/p voltage (Recovers automatically after temperature goes down)				
Function	Auxiliary Power	5V / 0.5A (±3%)				
	Remote ON / OFF Control	External switch or NPN Transistor to turn ON / OFF				
	Power OK Signal	Open drain signal low when PSU turns on, Max. sink current: 20mA, Max. drain voltage: 40V.				
	Output Voltage Trim	Adjustment of output voltage is between 30 ~ 100% of rated output				
	Output Current Trim	Adjustment of output current is between 40 ~ 105% of rated output				
	Parallel (Current Sharing)	Note.5	Please refer to Function Manual			
Environment	Working Temp.	-25 ~ +60°C (Refer to de-rating 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, 5G 10min. / 1cycle, period for 60min. each along X, Y, Z axes Compliance to IEC 68-2-6, IEC 68-2-64				
Safety & EMC	Safety Standards	Certified UL 60950-1; EN 60950-1				
	Withstand Voltage	Note.7	I/P-O/P: 3KVAC (4242VDC), I/P-FG: 1.5KVAC (2121VDC), O/P-FG: 0.5KVAC (707VDC)			
	Isolation Resistance	I/P-O/P, I/P-FG, O/P-FG: 100M Ohms / 500VDC				
	EMI Conduction & Radiation	Certified EN 55022; EN 61000-6-3, -6-4				
	Power Harmonic & Voltage Fluctuation and Flicker	Certified EN 61000-3-2; EN 61000-3-3				
Note.6	EMS Immunity	Certified EN 55024; EN 61204-3, EN 61000-6-1, ENV 50204, IEC 61000-4-2, 3, 4, 5, 6, 8, 11				
Others	MTBF	142.8K HRS Certified MIL-HDBK-217F				
	Cooling	Load and temperature control fan				
	Dimension (WxHxD)	127x41x283 mm / 5.00x1.61x11.14 inch				
	Packing	2.1kg; 9pcs / 19.9kg / 1.86CUFT				
Note	<ol style="list-style-type: none"> <li>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</li> <li>2. 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>3. Tolerance: includes setup time tolerance, line regulation and load regulation.</li> <li>4. De-rating may apply in low input voltage. Please check the de-rating curve for more details.</li> <li>5. In parallel connection, only one unit will operate if the total output load is less than 5% of the rated load condition.</li> <li>6. 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.</li> <li>7. This test is done without enclosure: I/P-O/P 4242VDC. If with enclosure: I/P-O/P 2121VDC, I/P-FG: 2121VDC, O/P-FG: 707VDC</li> </ol>					

### Mechanical Drawings:

Unit:mm / inch



Recommended screw length is measured from the power supply surface

AC Input Terminal  
Pin No. Assignment

Control pin number assignment (CN9): JST S16B-PHDSS or equivalent

Pin No.	Assignment
1	ACL
2	ACN
3	⏏

Pin No.	Assignment	Pin No.	Assignment	Pin No.	Assignment	Pin No.	Assignment	Mating Housing	Terminal
1	VS+	5	AUX	9	EN-	13	VCI	PHDR-16VS	SPHD-002T-P05
2	VO+	6	AUX	10	GND	14	GND		
3	VS-	7	EN+	11	P.OK	15	PAR		
4	VO-	8	GND	12	GND	16	ACI		

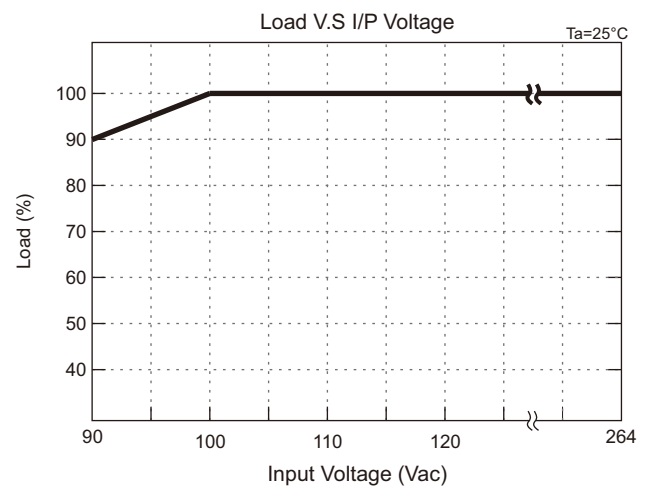
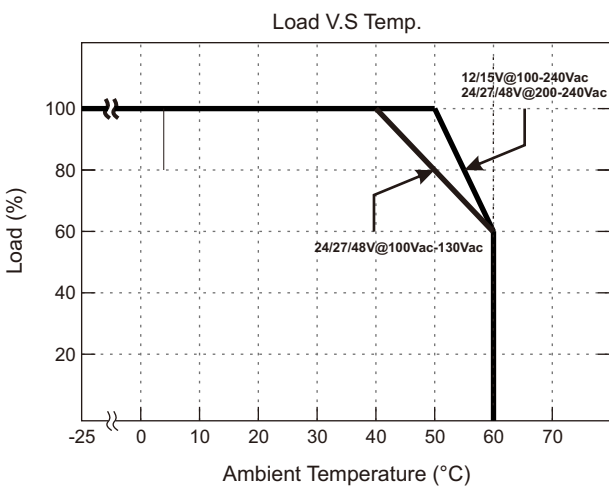
### Function Description of CN9:

Pin No.	Function	Description
1	VS+	Remote voltage sense (+)
2	VO+	Local output voltage sense (+)
3	VS-	Remote voltage sense (-)
4	VO-	Local output voltage sense (-)
5,6	AUX	+5V / 0.5A Auxiliary power
7	EN+	Remote ON/OFF (+)
8,10,12,14	GND	Ground
9	EN-	Remote ON/OFF (-)
11	P.OK	Power OK
13	VCI	V Program
15	PAR	Parallel operation current share
16	ACI	I Program

### LED Status:

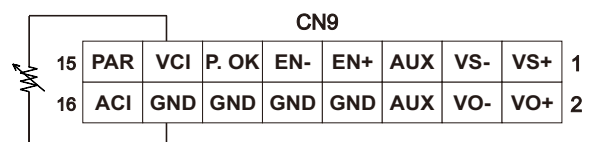
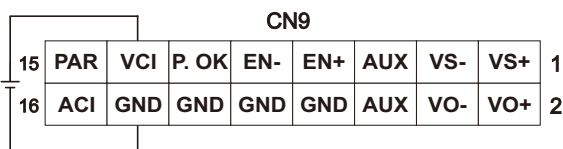
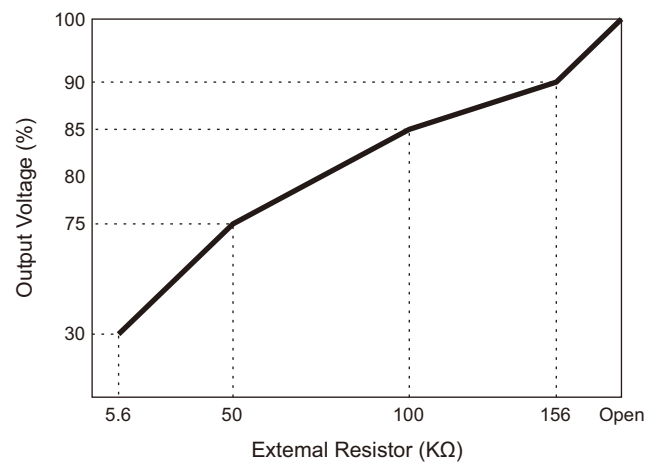
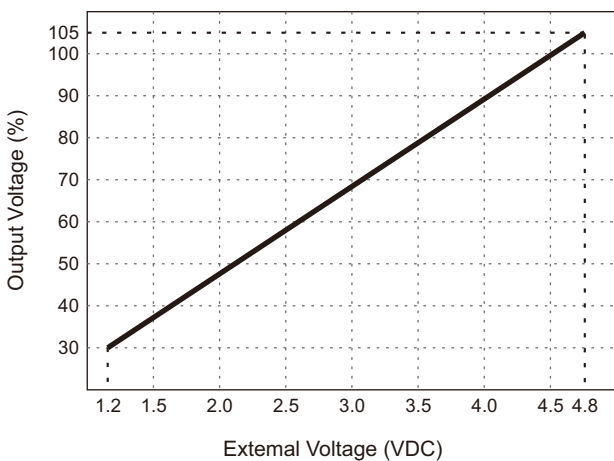
Green LED	LED Signal	Status
Solid		Power OK
Slow Blink		Power Standby
Red LED	LED Signal	Status
Fast Blink		Over Voltage Protection ( OVP )
Solid		Over Load Protection ( OLP )
		Output Short Circuit Protection ( SCP )
		Under Voltage Protection ( UVP )
		Over Temperature Protection ( OTP )
Slow Blink		Fan Failure
Intermittent Blink		Power Failure
Interlace Blink		

### De-rating Curve:

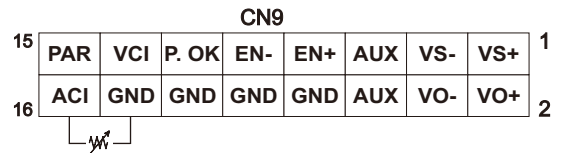
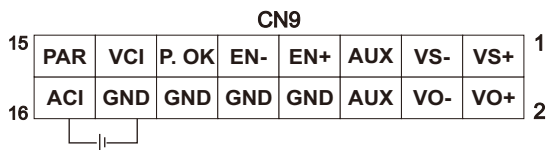
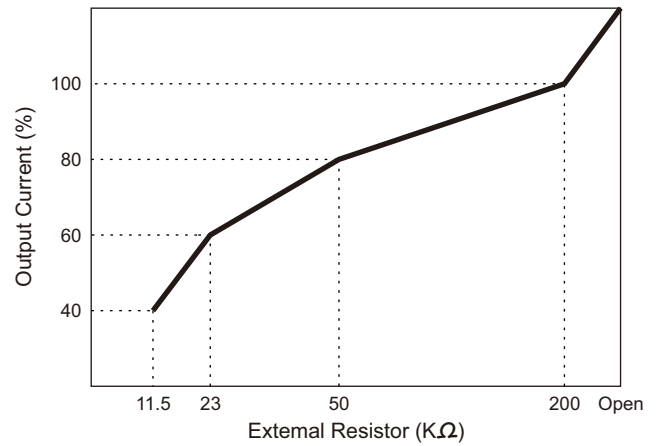
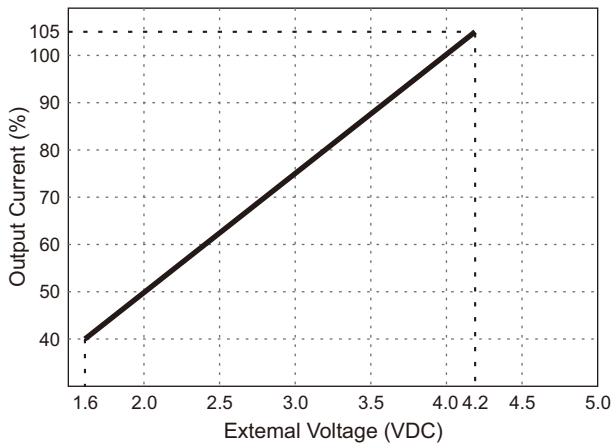


### Function Manual:

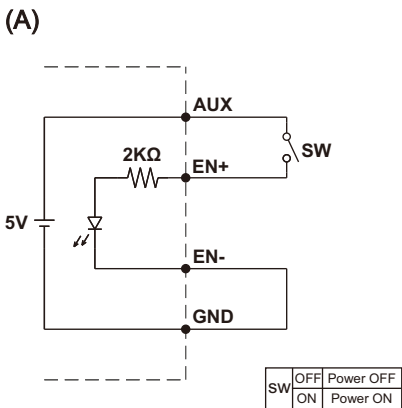
#### 1. Output Voltage Trim



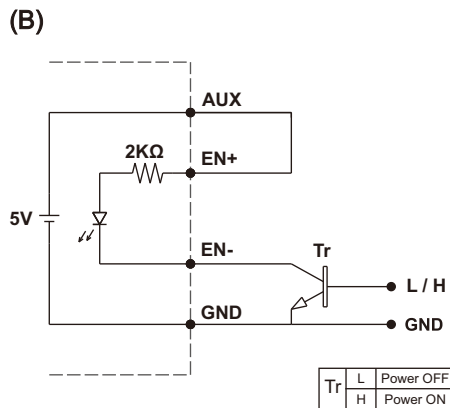
### 2. Output Current Trim (For Reference Only)



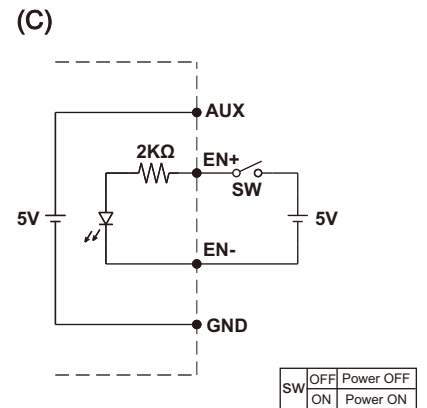
### 3. Remote ON/OFF



(A) Using internal 5V auxiliary source

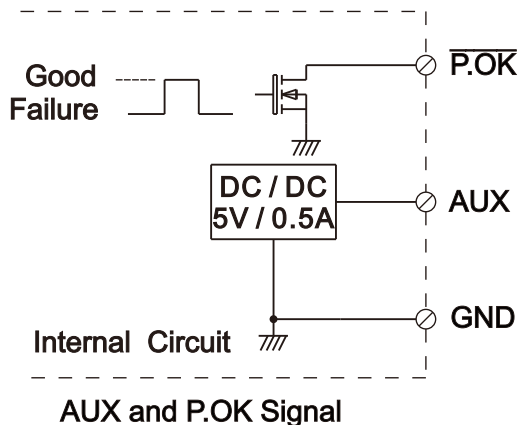


(B) ON / OFF Control by NPN transistor



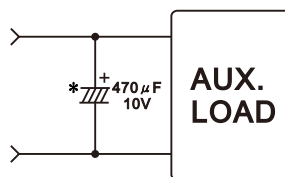
(C) Using external voltage source

### 4. Power OK Signal

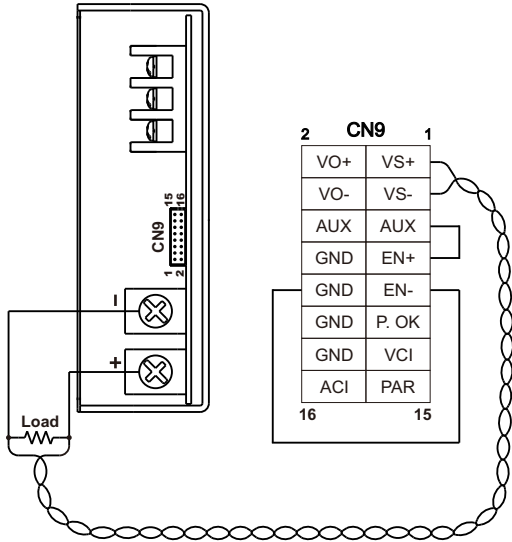


\*Place an additional capacitor to have a better performance of auxiliary power operation.

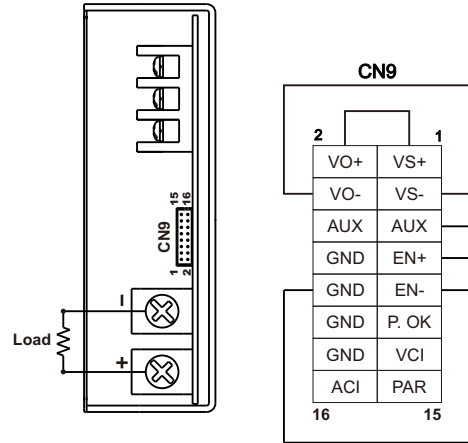
\*The grounding of "AUX" power should be connected to "GND" port. If "V-" is connected as Grounding, make sure to short the GND and V- ports.



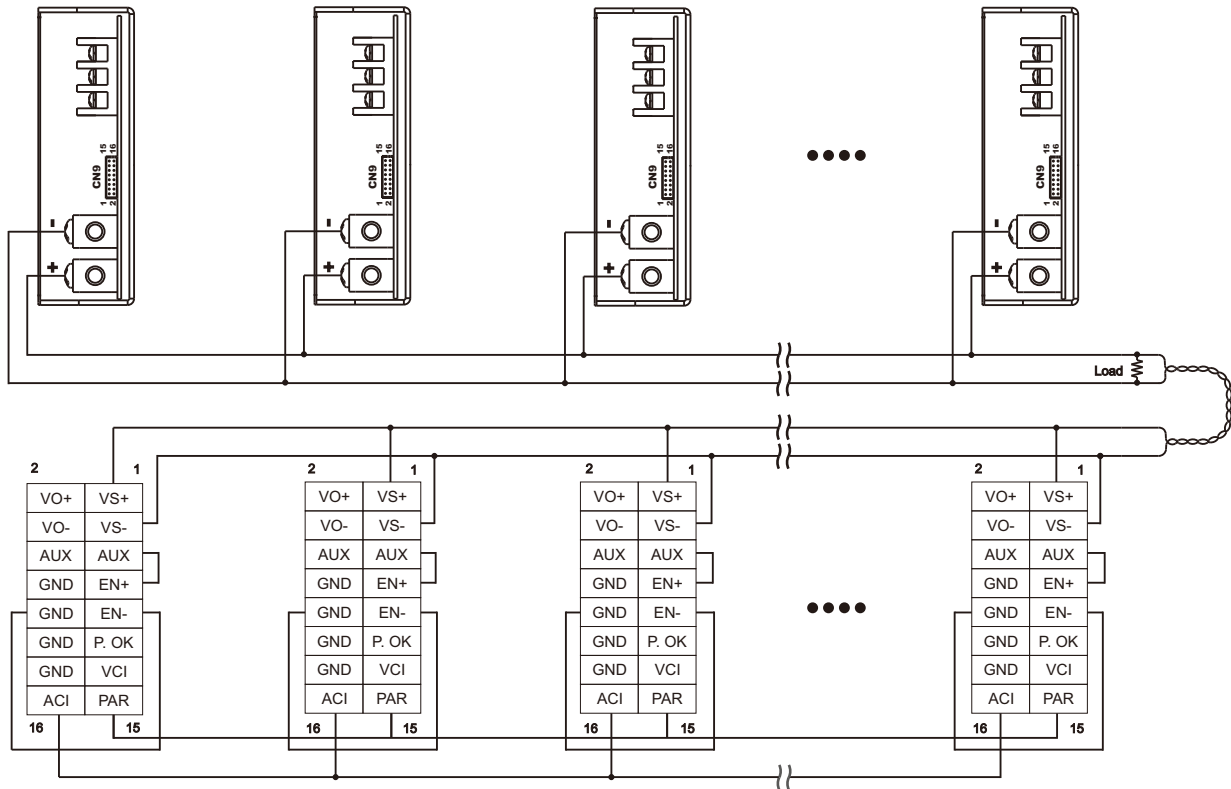
### 5. Remote Sense



### 6. Local Sense

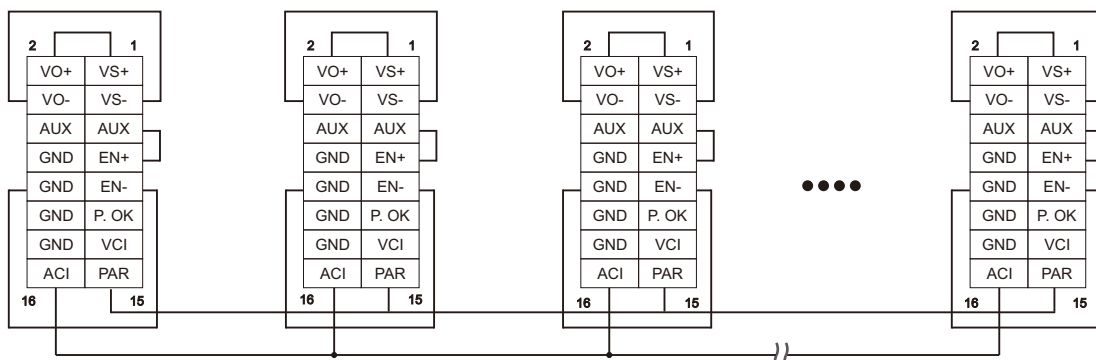


### 7. Current Sharing with Remote Sensing



Please connect PAR pins together for current sharing function

### 8. Current Sharing with Local Sensing

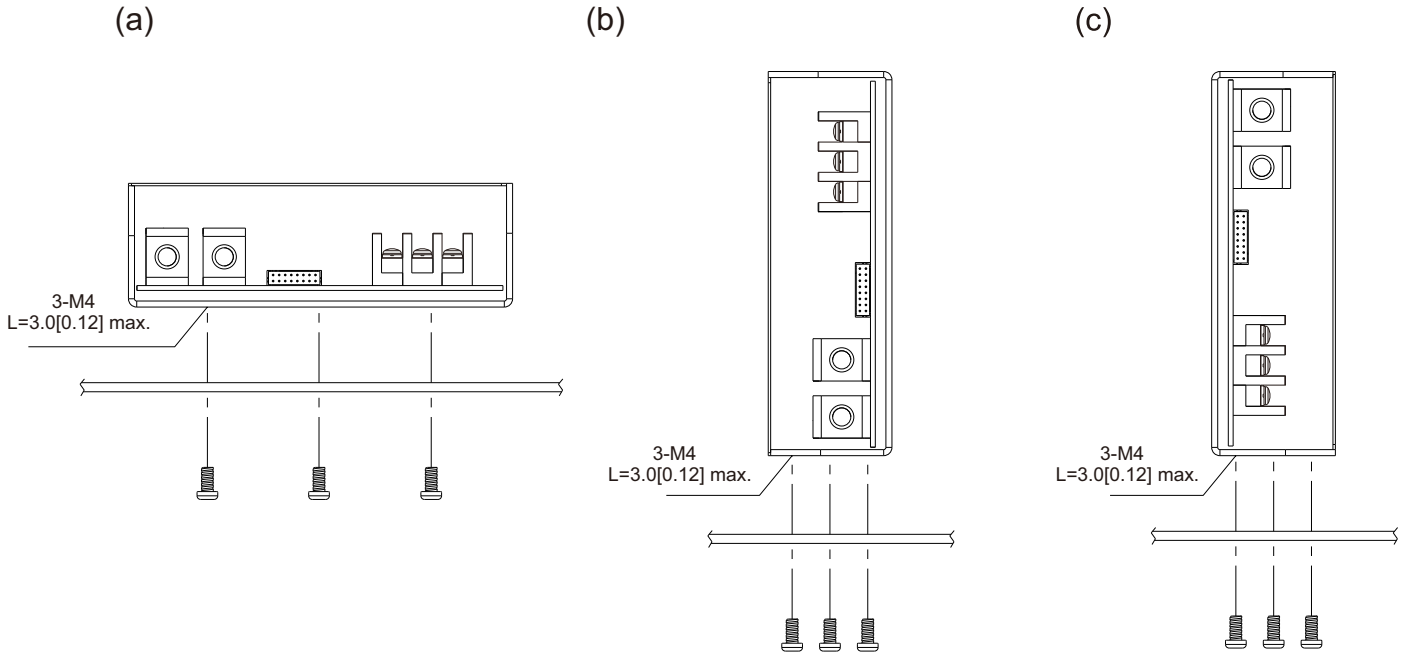


Please connect PAR pins together for current sharing function

### Installation Instruction:

#### 1. Mounting Directions

1-1 Recommended standard mounting methods:



Recommended screw length is measured from the power supply surface

#### 2. Mounting Method

2-1 There are ventilating holes on the front and back side panels, do not obstruct; allow 50mm at least for air flow.

2-2 The Maximum allowable penetration of screw is 4mm. Incomplete threading should not be penetrated.

2-3 Recommended the torque of mounting screw:  
M4 screw: 1.27N • m (13.0kgf • cm)

