

Features:

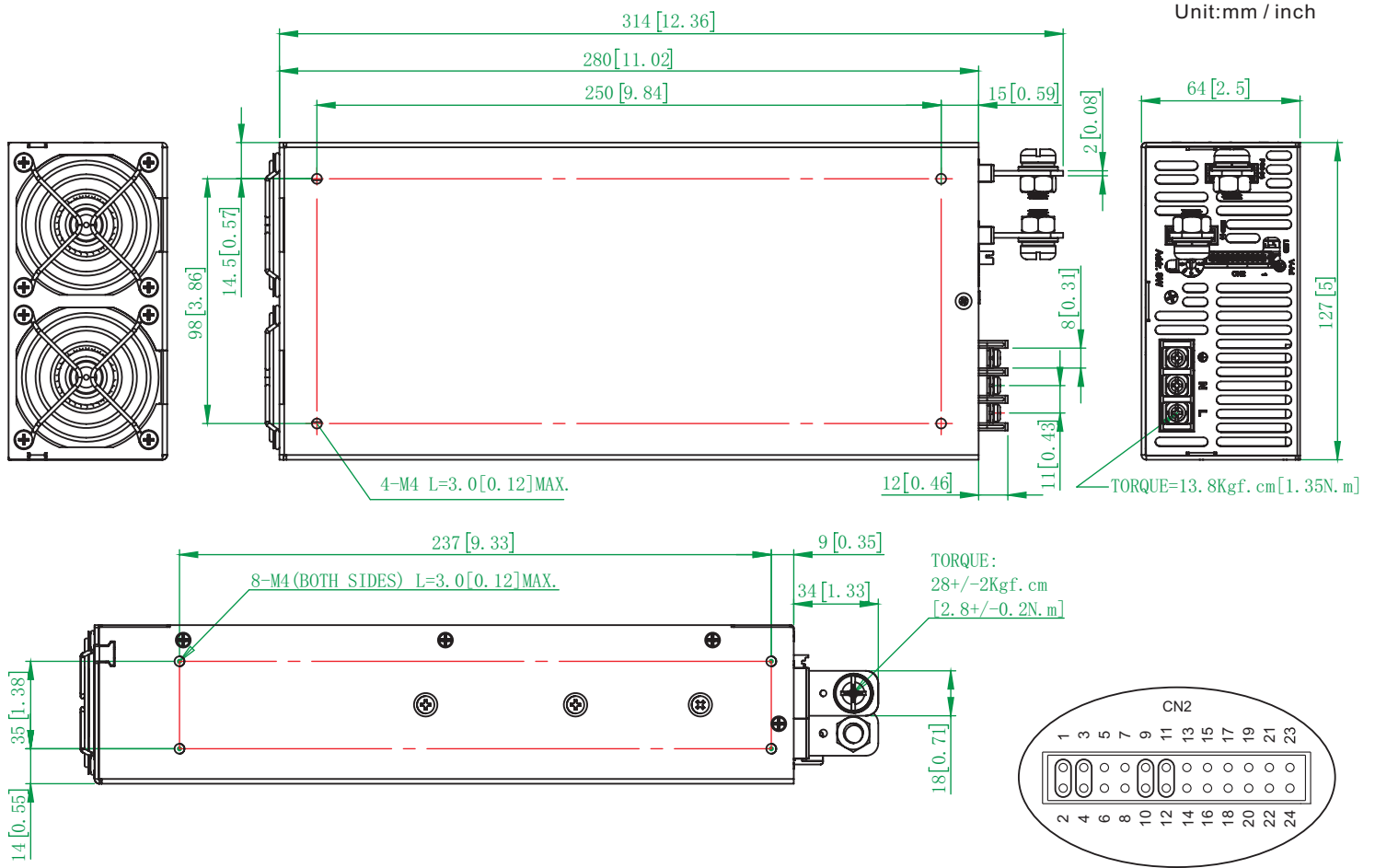
- Universal AC input / Full range
- Programmable output Voltage (0% ~ 105%)
- Programmable output Current (0% ~ 105%)
- Built-in ORingFET
- Built-in IC to isolate communication
- Forced current sharing at parallel operation (Refer to pg. 5 for connection diagram)
- Constant current limit
- Selectable +5V / 0.5A or +9V / 0.3A auxiliary output
- Global control via RS232
- Remote setting multiple PSU via RS232, RS485 & I²C
- Power OK signal
- Remote ON / OFF, Remote sense function
- Protection: OVP, OLP, OTP, Fan failure
- Built-in active PFC Function



MODEL		PAE1500-12 ORing	PAE1500-15 ORing	PAE1500-24 ORing	PAE1500-30 ORing	PAE1500-36 ORing	PAE-1500-48 ORing	PAE1500-60 ORing	
Output	DC Voltage Rated	12V	15V	24V	30V	36V	48V	60V	
	Rated Current	125A	100A	62.5A	50A	41.7A	31.3A	25A	
	Current Range	0 ~ 125A	0 ~ 100A	0 ~ 62.5A	0 ~ 50A	0 ~ 41.7A	0 ~ 31.3A	0 ~ 25A	
	Rated Power	1500W	1500W	1500W	1500W	1500W	1500W	1500W	
	Ripple & Noise (Max.)	Note.2 150mVp-p	150mVp-p	240mVp-p	300mVp-p	360mVp-p	480mVp-p	600mVp-p	
	Voltage Adj. Range	±5.0% Typical adjustment by potentiometer. (Via V-Adj from PSU front panel)							
	Voltage Tolerance	Note.3 ±2.0% (rated output voltage of single unit)							
	Current Tolerance	±3.0% (rated output current of single unit)							
	Line Regulation	±1.0%							
	Load Regulation	±1.0%							
Input	Setup, Rise Time	800ms, 100ms at full load							
	Hold Up Time (Typ.)	14ms / 230VAC at full load							
	Voltage Range	Note.4 90 ~ 264VAC, 127 ~ 370VDC (Refer to de-rating curve)							
	Frequency Range	47 ~ 63Hz							
	Power Factor (Typ.)	0.95 / 230VAC, 0.99 / 115VAC at full load							
	Efficiency (Max.)	88%	89%	91%	91%	91%	92%	92%	
Protection	AC Current (Max.)	18A / 115VAC, 9A / 230VAC							
	Inrush Current (Typ.)	30A / 115VAC, 45A / 230VAC							
	Leakage Current	< 3.5mA / 240VAC							
Function	Over Load	105% rated output power Protection type: Constant current limit							
	Over Voltage	Variable OVP Refer to VCI VS OVP curve.(OVP Tolerance 7%) Protection type: Latch-style (Recovery after reset AC power ON or inhibit)							
	Over Temperature	85 ±5°C detect on NTC, Protection type: Auto recovery after temperature goes down							
Environment	Auxiliary Power	Selectable +5V / 0.5A or +9V / 0.3A auxiliary output							
	Remote ON / OFF Control	By external switch							
	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 0 ~ 105% of rated output							
	Output Current Trim	Adjustment of output current is between 0 ~ 105% of rated output							
Safety & EMC	Parallel (Current Sharing)	Note.5 Please refer to page 5							
	Working Temp.	-25 ~ +60°C (Refer to load 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, 2G 10min. / 1cycle, period for 60min. each along X, Y, Z axes Compliance to IEC60068-2-6; IEC60068-2-64							
	Safety Standards	Certified UL 62368-1; EN 62368-1							
Others	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 (25°C / 70% RH)							
	EMI Conduction & Radiation	Certified EN 55032; EN 61204-3; EN 610000-6-3							
	Power Harmonic & Voltage Fluctuation and Flicker	Certified EN 61000-3-2; EN 61000-3-3							
Note	EMS Immunity	Certified EN 55035: 2017 / A11: 2020; IEC 61000-4-2,3,4,5,6,8,11							
	MTBF	90.7K HRS Certified MIL-HDBK-217F							
	Cooling	Load and temperature control fan							
	Dimension (WxHxD)	127x64x280 mm / 5.00x2.52x11.02 inch							
Packing	2.6kg; 6pcs / 16.6kg / 1.86CUFT								

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 setup time tolerance, line regulation and load regulation.
 4. De-rating may apply in low input voltage. Please check the de-rating curve for more details.
 5. In parallel connection only one unit will operate if the total output load is less than 5% of the rated power.
 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.
 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

Mechanical Drawings:



Recommended screw length is measured from the power supply surface

AC Input Terminal Pin No. Assignment

Pin No.	Assignment
L	ACL
N	CAN
⏏	⏏

CN2 Function Description:

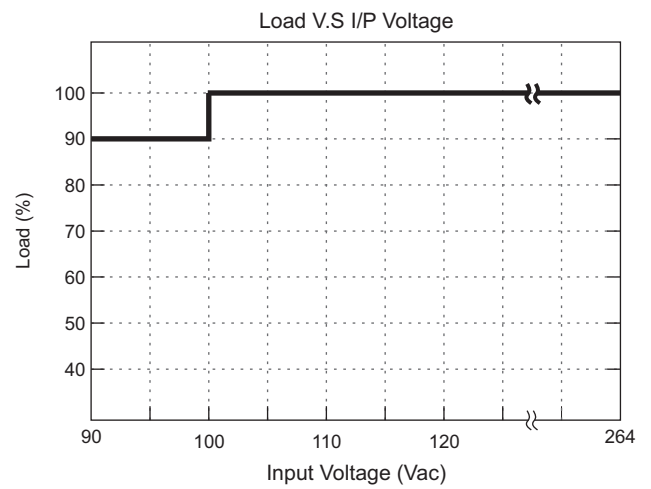
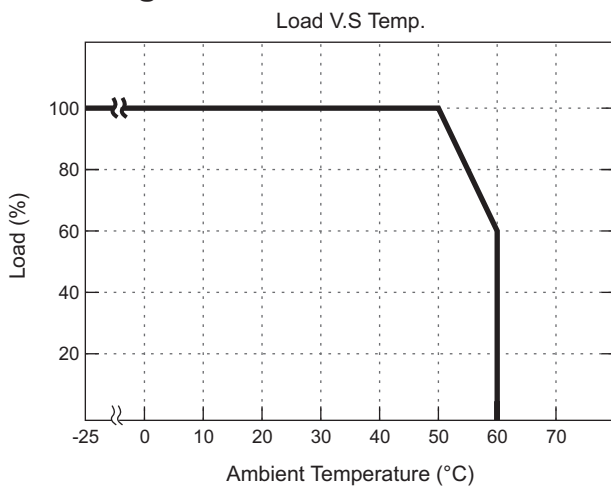
Pin No.	Function	Description	Pin No.	Function	Description	Mating Housing / Contact	
1	VS+	Remote sense (+)	13	ACI	I Program	JST PHDR-24VS or equivalent	JST SPHD-002T-P0.5 or equivalent
2	VO+	Positive output voltage	14	GND	Ground		
3	VS-	Remote sense (-)	15	VCI	V Program		
4	VO-	Negative output voltage	16	GND	Ground		
5	POK	Power OK	17	AUX	+5V / 0.5A or +9V / 0.3A Auxiliary power		
6	GND	Ground	18	GND	Ground		
7	PAR	Parallel operation current share	19	SCL	Serial Clock used in the I ² C interface		
8	VSET	Aux output setting	20	SDA	Serial Data used in the I ² C interface		
9	EN-	Inhibit ON/OFF (-)	21	+5VC	+5V power supply, needs to be used with GND1		
10	GND	Ground	22	GND1	Ground 1, needs to be used with +5VC		
11	EN+	Inhibit ON/OFF (+)	23	RX	For RS232 Receiver function		
12	AUX	+5V / 0.5A or +9V / 0.3A Auxiliary power	24	TX	For RS232 Transmission function		

LED Status:

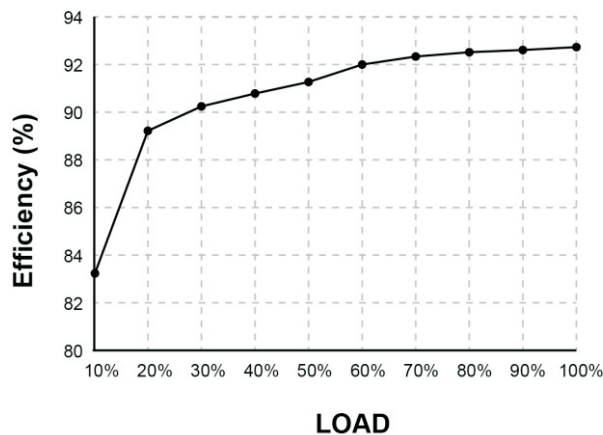
LED	LED Signal	Status
Solid(Green)		Power OK (Local mode)
Solid(Orange)		Power OK (Remote mode)
Slow Blink(Green)		Power Standby (Local mode)
Slow Blink(Orange)		Power Standby (Remote mode)
Fast Blink(Red)		Over Voltage Protection (OVP)
Solid(Red)		Over Load Protection (OLP)
Slow Blink(Red)		Over Temperature Protection (OTP)
Intermittent Blink(Red)		Fan Failure
Interface Blink(Red)		Power Failure

*Local mode : Use ACI/VCI to control output current and voltage.
 Remote mode : Use RS-232 or I²C command to control output current and voltage.

De-rating Curve:

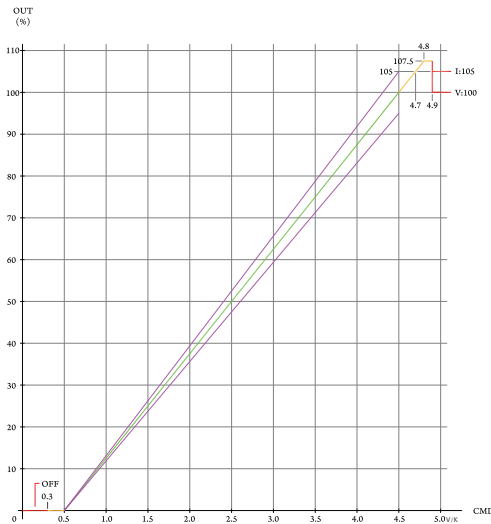


Efficiency Curve (60V Model):

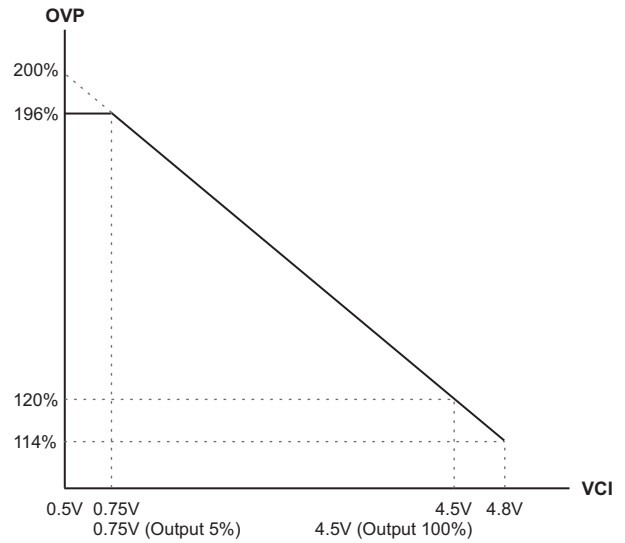


The curve above is measured at 230Vac
 (Ambient temperature @ 25°C)

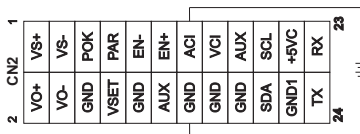
CMD VS Output Curve:



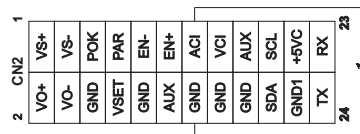
VCI VS OVP Curve:



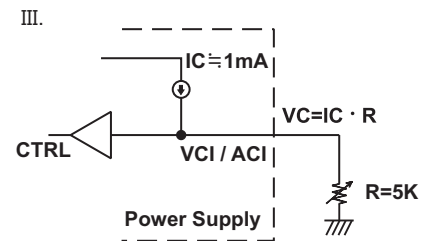
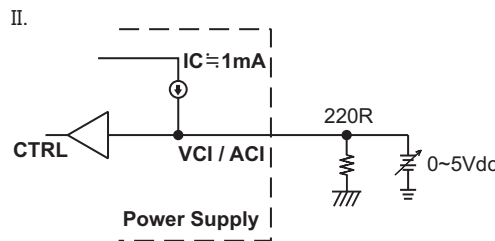
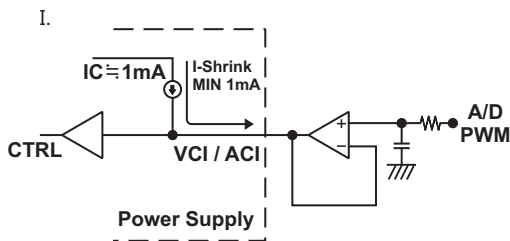
To ensure the power supply output voltage and current could be accurately adjusted, please make sure to adjust the output voltage and current > 10% vs. the rated voltage and current. (e.g. for a 24V unit, please adjust the DC output voltage above 2.4V to ensure accuracy; same applies to the output current)



External Voltage (VDC)

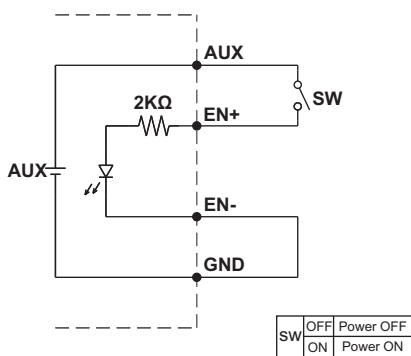


External Resistor (KΩ)



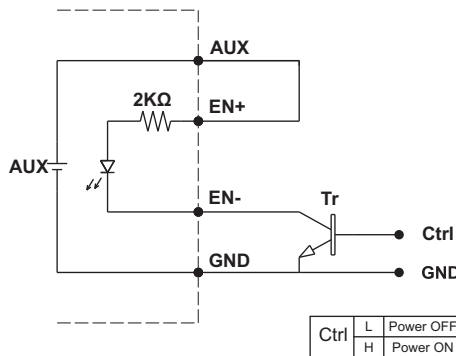
Remote ON/OFF:

(A) Default Setting



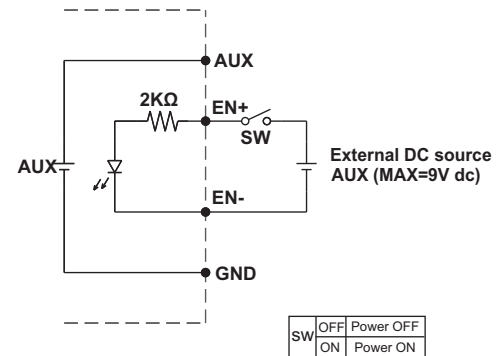
(A) Using internal 5V auxiliary source

(B)



(B) ON / OFF Control by NPN transistor

(C)



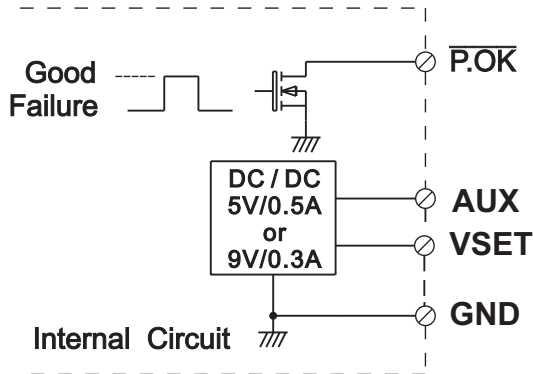
(C) Using external voltage source

GND shown in above diagram is referring to the GND of CN2, not the Grounding from main power(NEG-).

Power OK Signal & Auxiliary Power Setting:

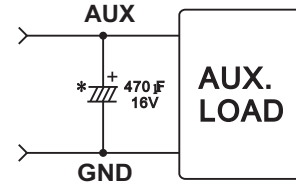
*The grounding of "AUX" power and P.OK signal should be connected to "GND" port. If "VO-" is connected as Grounding, make sure to short the GND and VO- ports.

Open drain signal low when PSU turns on, Max. P.OK sink current: 20mA, Max. drain voltage: 40V.



AUX and P.OK Signal

VSET	Open(Default Setting)	5V
	Short To GND	9V



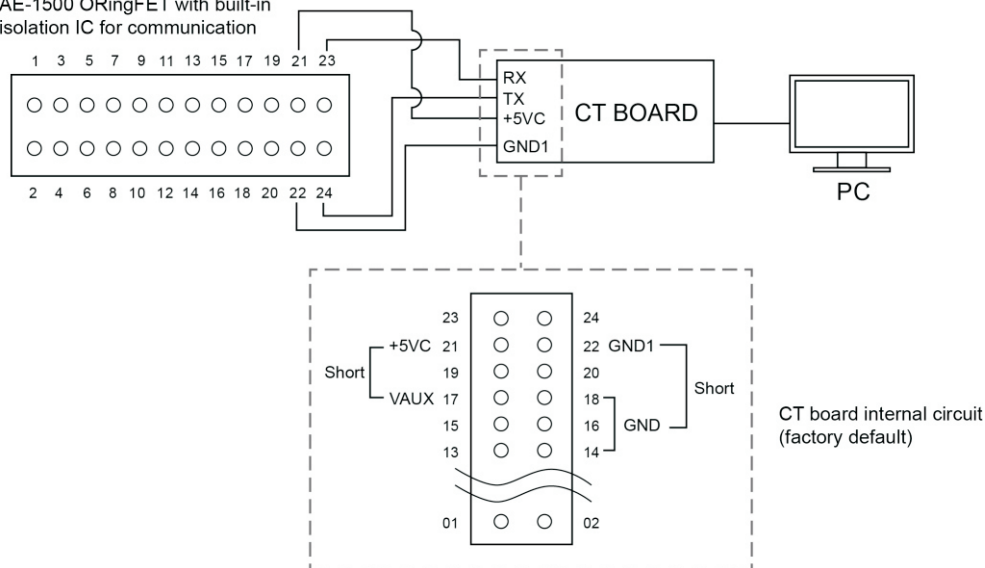
Do NOT exceed 5V/0.5A or 9V/0.3A

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

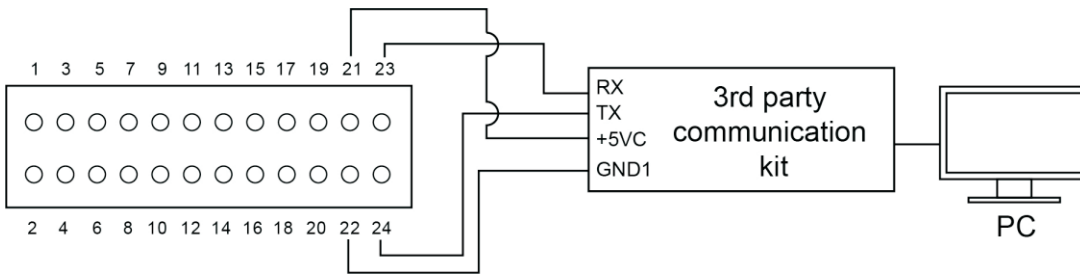
GND shown in above diagram is referring to the GND of CN2, not the Grounding from main power(NEG-).

RS232 communication diagram

AE-1500 ORingFET with built-in isolation IC for communication



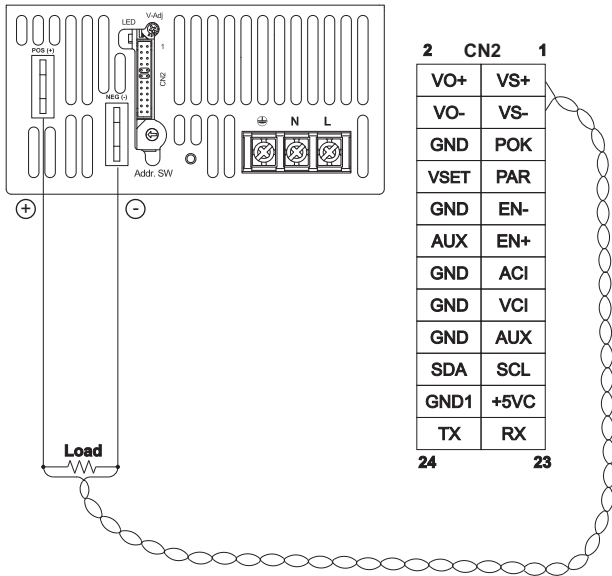
*CT board does have communication isolation IC, no need to isolate communication in this application



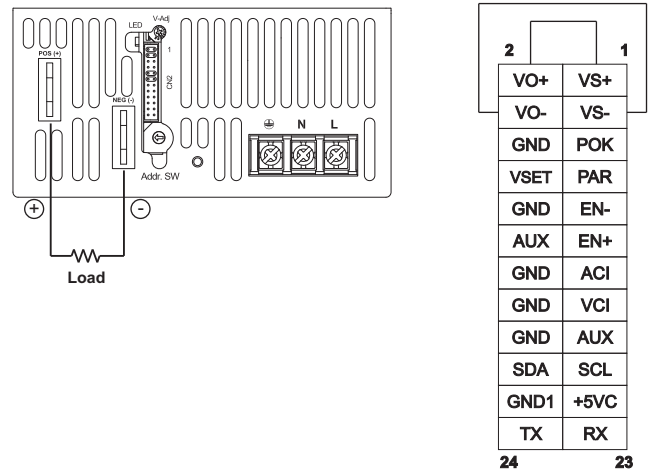
*As PAE-1500 ORing have built-in isolation IC, when select 3rd party communication kit, no need to use the communication kit with built-in isolation IC.

*Make sure to connect +5VC (pin21) and GND1 (pin 22) when using 3rd party communication kit

1. Remote Sense

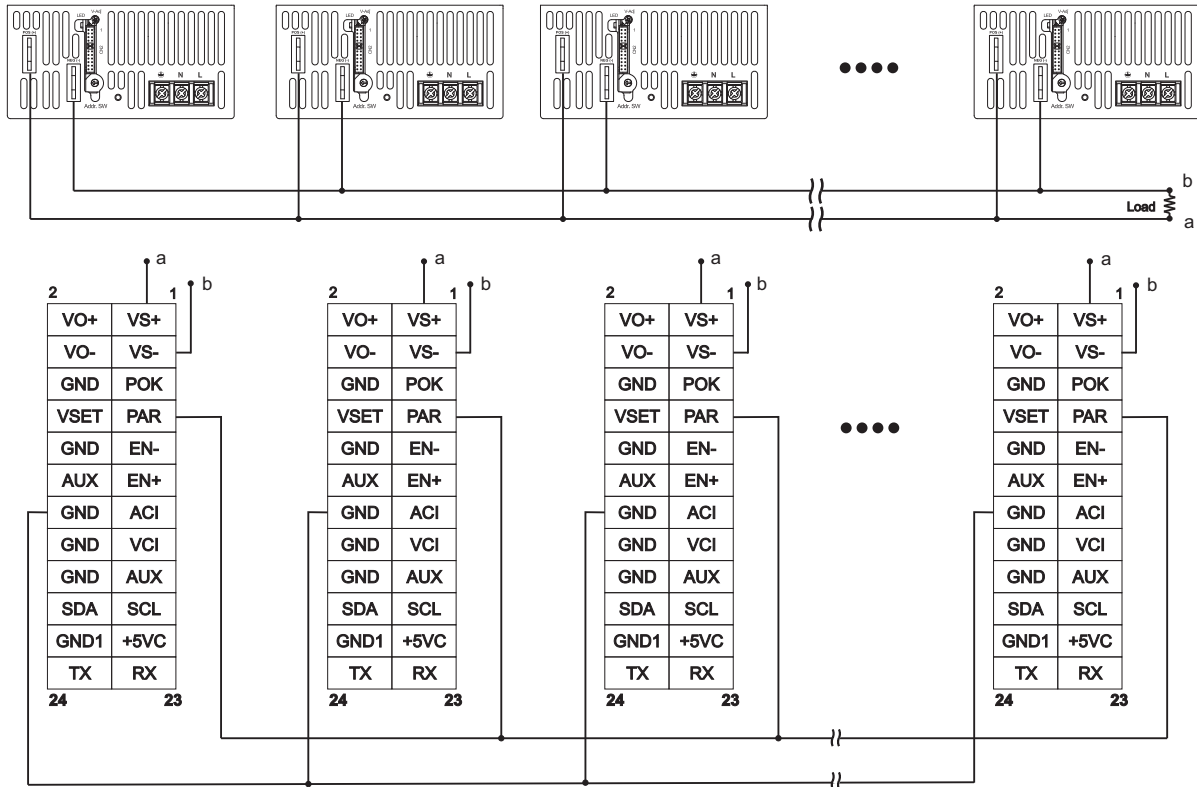


2. Local Sense (Default setting)



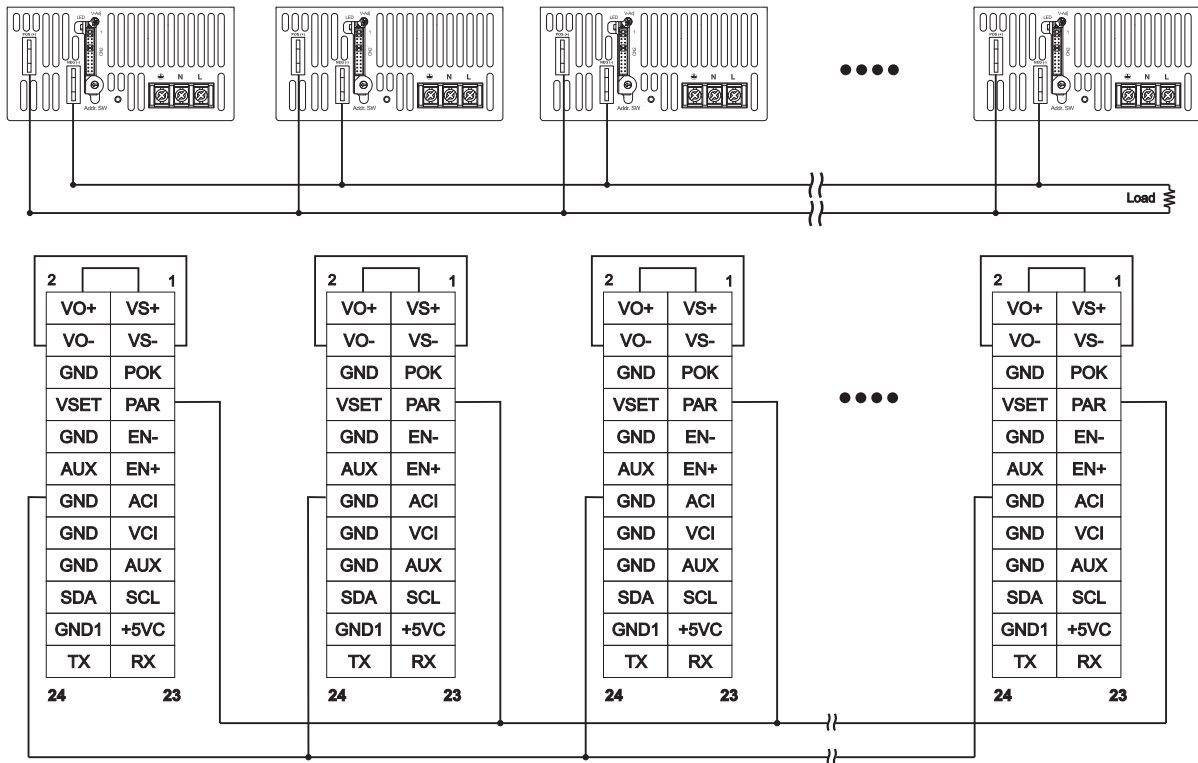
VS-,VS+ Compensation Voltage < 0.5V

3. Current Sharing with Remote Sensing(Parallel Connection)



Please connect PAR pins together for current sharing function
For Series connection, make sure to isolate CN2 control signals

4. Current Sharing with Local Sensing



Please connect PAR pins together for current sharing function

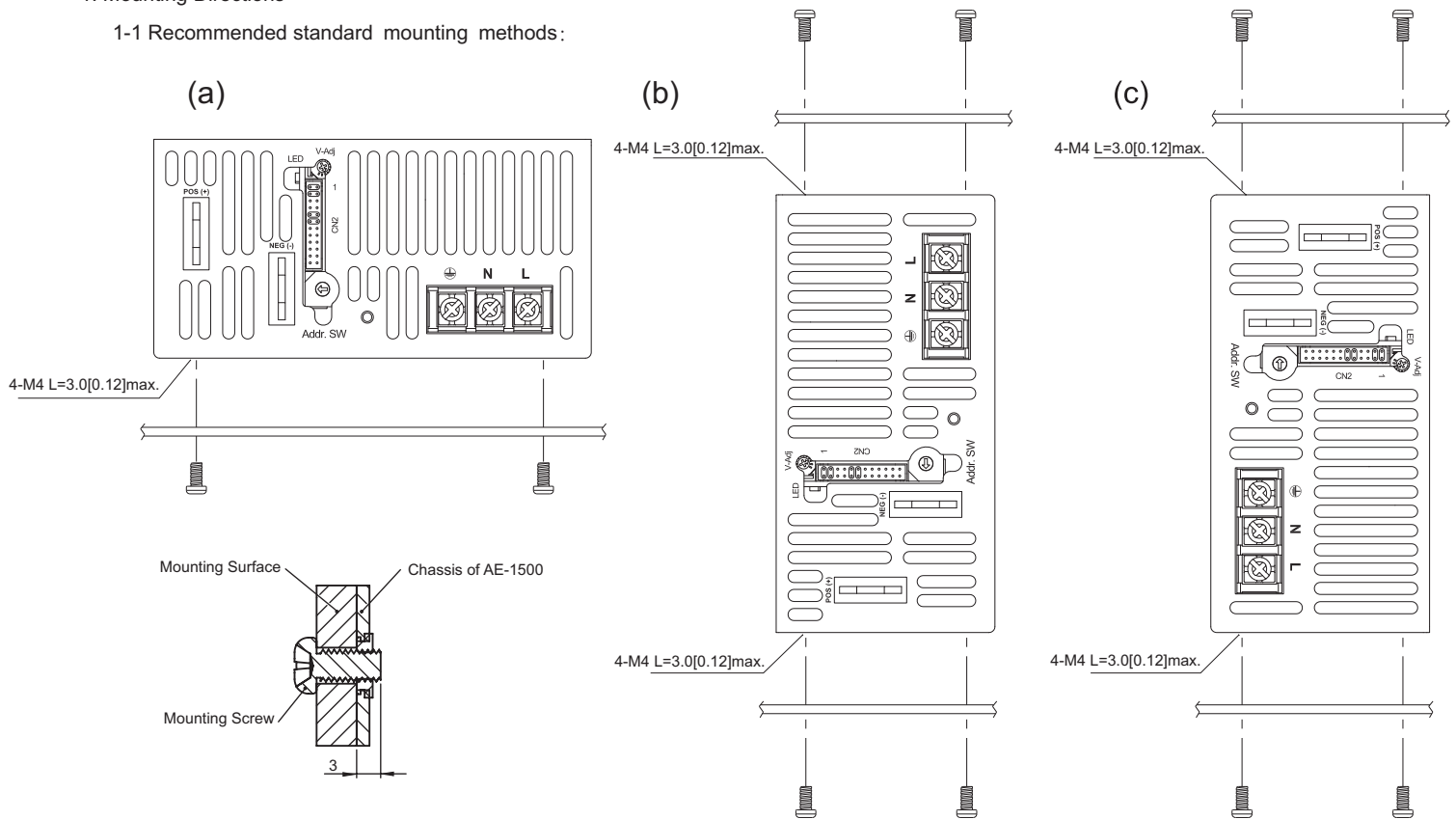
NOTE : PAE-1500 ORingFET has built-in active current sharing function to support max. of 8pcs connected in parallel condition to support higher output power. When performing parallel connection, make sure to note the followings:

- Please connect PAR pins together for current sharing function
- Among the parallel connection units, output voltage difference of each PSU should be <math>< 0.2\text{VDC}</math>
(This can be set via V-adj from the PSU front panel VR)
- Total output current must not exceed 90% of the rated power in parallel condition
Maximum output current at parallel condition = rated current per unit x number of unit x 0.9
- To ensure current share balance, output current of each unit must be >10% vs. the rated output current

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

