

FEATURES

- RoHS Compliant
- PFC > 0.95 at 230VAC
- Up to 1502 Watts Output Power
- High Efficiency up to 93%
- 3000VAC (4242VDC) I/O Isolation
- Constant Current Limiting
- Global Control via RS232
- Power OK Signal
- Protection: OLP, OVP, OTP, Fan Failure
- Remote Sensing Multiple PSU via RS232, RS485 & I²C
- Programmable Output Voltage (0~105%)
- Programmable Output Current (0~105%)
- Remote ON/OFF, Remote Sense Functions
- Universal Input Voltage Range: 90~264VAC (127~370VDC)
- Single Outputs Ranging from 12VDC to 60VDC
- Selectable +5V/0.5A or +9V/0.3A Auxiliary Output
- Forced Current Sharing at Parallel Operation
- UL 60950-1 and EN60950-1 Safety Approvals

Size:
11.02 x 5.00 x 2.50 inches
(280.0 x 127.0 x 63.5 mm)

Weight:
5.73 lbs (2.6kg)

DESCRIPTION

The PSAE1500 series of AC/DC switching power supplies provides up to 1502 Watts of output power in a 11.02" x 5.00" x 2.50" enclosed case. This series consists of single output models ranging from 12VDC to 60VDC with a universal input voltage range of 90~264VAC (127~370VDC). Standard features include high efficiency up to 93%, PFC > 0.95 at 230VAC, programmable output voltage and output current, remote on/off, remote sense, and power OK signal. This series also has over temperature, over voltage, and over load protection. All models are RoHS compliant and have UL 60950-1 and EN60950-1 safety approvals.

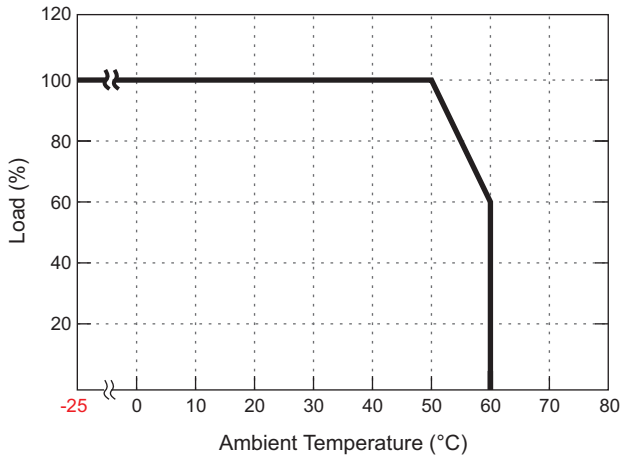
MODEL SELECTION TABLE

Model Number	Input Voltage [2]	Output Voltage	Output Current	Line Regulation	Load Regulation	Output Power	Ripple & Noise [1]	Efficiency
PSAE-1500-12	90~264 VAC (127~370 VDC)	12 VDC	125A	±1.0%	±1.0	1500W	120mVp-p	89%
PSAE-1500-15		15 VDC	100A	±1.0%	±1.0	1500W	150mVp-p	90%
PSAE-1500-24		24 VDC	62.5A	±1.0%	±1.0	1500W	240mVp-p	92%
PSAE-1500-30		30 VDC	50A	±1.0%	±1.0	1500W	300mVp-p	92%
PSAE-1500-36		36 VDC	41.7A	±1.0%	±1.0	1501W	360mVp-p	92%
PSAE-1500-48		48 VDC	31.3A	±1.0%	±1.0	1502W	480mVp-p	92%
PSAE-1500-60		60 VDC	25A	±1.0%	±1.0	1500W	600mVp-p	93%

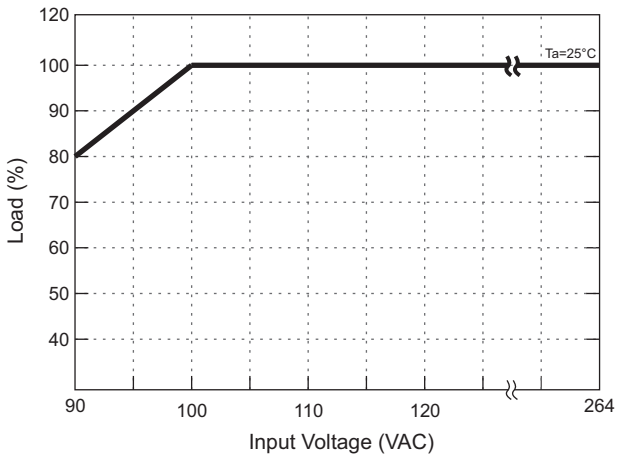
NOTES
1. Ripple & noise is measured at 20MHz limited bandwidth and using a 12" twisted pair-wire terminated with a 0.1µF & 47µF capacitors in parallel.
2. For voltages near the low end of the input voltage range, see the derating curve for the power supply output rating.
3. When in parallel operation only one unit might operate if the total output load is less than 5% of the rated load condition.
4. The power supply is considered a component which will be installed into final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

DERATING CURVES

Load vs Ambient Temperature



Load vs Input Voltage



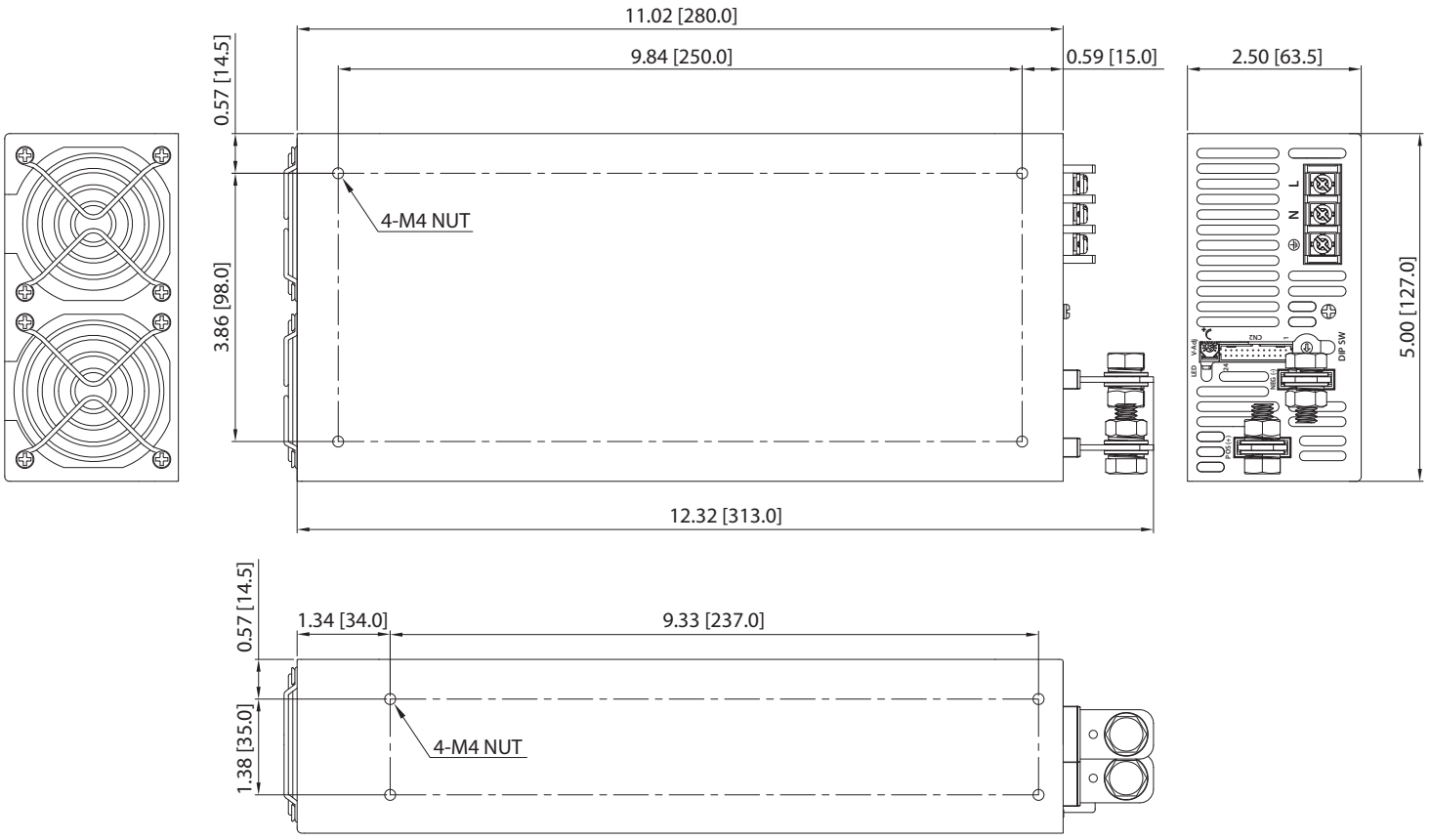
SPECIFICATIONS: PSAE1500 SERIES

All specifications are based on 25°C, Nominal Input Voltage, and Maximum Output Current unless otherwise noted.
We reserve the right to change specifications based on technological advances.

SPECIFICATION	TEST CONDITIONS	Min	Typ	Max	Unit
INPUT SPECIFICATIONS					
Input Voltage (See Note 2)	AC input voltage range	90		264	VAC
	DC input voltage range	127		370	VDC
Input Frequency		47		63	Hz
AC Current	At 115VAC and full load		18		A
	At 230VAC and full load		9		
Inrush Current	At 115VAC and cold start		30		A
	At 230VAC and cold start		45		
Power Factor	At 115VAC and full load		0.99		
	At 230VAC and full load		0.95		
OUTPUT SPECIFICATIONS					
Output Voltage		See Table			
Voltage Tolerance	Includes set-up tolerance, line regulation, and load regulation	-2.0		+2.0	%
Voltage Adjustability	Typical adjustment by potentiometer (VR1)	-5.0		+5.0	%
Line Regulation	Low Line to High Line	-1.0		+1.0	%
Load Regulation	0% to 100% full load	-1.0		+1.0	%
Output Power		See Table			
Output Current		See Table			
Ripple & Noise (20MHz BW)	Measured with 0.1µF and 47µF capacitors in parallel	-1		+1	%
Hold-up Time	At 230VAC and full load		14		ms
Setup Time	full load		800		ms
Rise Time	full load		100		ms
Temperature Coefficient	0~50°C	-0.02		+0.02	%/°C
PROTECTION					
Over Voltage Protection (see page 4)	Protection type: latch-style. Recovery after reset AC power ON or inhibit	Variable OVP, 120%±7% Vout			
Over Load Protection	Protection type: constant current limiting	105% rated output power			
Over Temperature Protection	Protection type: auto-recovery after temp. goes down	85°C±5°C detect on heatsink of sec. side			
GENERAL SPECIFICATIONS					
Efficiency		See Table			
Isolation Voltage	Input to Output	4242VDC (3000VAC)			
	Input to FG	2121VDC (1500VAC)			
	Output to FG	707VDC (500VAC)			
Isolation Resistance	Input to output, input to FG, output to FG; 500VDC	100			MΩ
Leakage Current	At 240VAC			2.5	mA
FUNCTIONS					
Auxiliary Power		Selectable +5V/0.5A or +9V/0.3A aux. output			
Remote ON/OFF Control		By external switch			
Power OK Signal	Sink Current: 20mA max.; Drain Voltage: 40V max.	Open drain signal low when PSU turns on			
Output Voltage Trim		0		105	%Vo
Output Current Trim		0		105	%Io
Parallel Operation (Current Sharing)		See page 6			
ENVIRONMENTAL SPECIFICATIONS					
Operating Temperature	See derating curve	-20		+60	°C
Storage Temperature		-40		+85	°C
Operating Humidity	Non-condensing	20		90	% RH
Storage Humidity		10		95	% RH
Cooling		Load and temperature control fan			
Vibration	10~500Hz, 2G 10 min./1 cycle, period for 60 min. each along X, Y, Z axes. Compliance to IEC 68-2-6, IEC 68-2-64				
PHYSICAL SPECIFICATIONS					
Weight		5.73 lbs (2.6kg)			
Dimensions (W x H x D)		11.02 x 5.00 x 2.50 in (280.0 x 127.0 x 63.5 mm)			
SAFETY & EMC (See Note 4)					
Safety Approvals		UL 60950-1; EN60950-1			
EMI (Conduction & Radiation)		EN55022; EN61204-3; EN61000-6-3			
Harmonic Current		EN61000-3-2; EN61000-3-3			
EMS Immunity	EN55024; EN61204-3; EN61000-6-1; IEC61000-4-2,3,4,5,6,8,11				

MECHANICAL DRAWING

Unit: inches [mm]



AC Input Terminal	
Pin	Function
1	ACL
2	ACN
3	⏚

Control Pin Number Assignment (CN2): JST S24B-PHDSS or Equivalent					
Pin	Function	Description	Pin	Function	Description
1	NC	For RS232 Receiver Function	13	EN+	Inhibit ON/OFF (+)
2	NC	For RS232 Transmission Function	14	AUX	+5V/0.5A or +9V/0.3A Auxiliary Power
3	AUX	+5V/0.5A or +9V/0.3A Auxiliary Power	15	EN-	Inhibit ON/OFF (-)
4	GND	Ground	16	GND	Ground
5	SCL	Serial Clock used in the I^2C Interface	17	PAR	Parallel Operation Current Sharing
6	SDA	Serial Data used in the I^2C Interface	18	VSET	AUX Output Set
7	AUX	+5V/0.5A or +9V/0.3A Auxiliary Power	19	POK	Power OK
8	GND	Ground	20	GND	Ground
9	VCI	V Program	21	VS-	Remote Sense (-)
10	GND	Ground	22	VO-	Negative Output Voltage
11	ACI	I Program	23	VS+	Resmote Sense (+)
12	GND	Ground	24	VO+	Positive Output Voltage

CN2 Connector Housing	
Mating Housing	Contact
JST PHDR-24VS or equivalent	JST SPHD-002T-P0.5 or equivalent

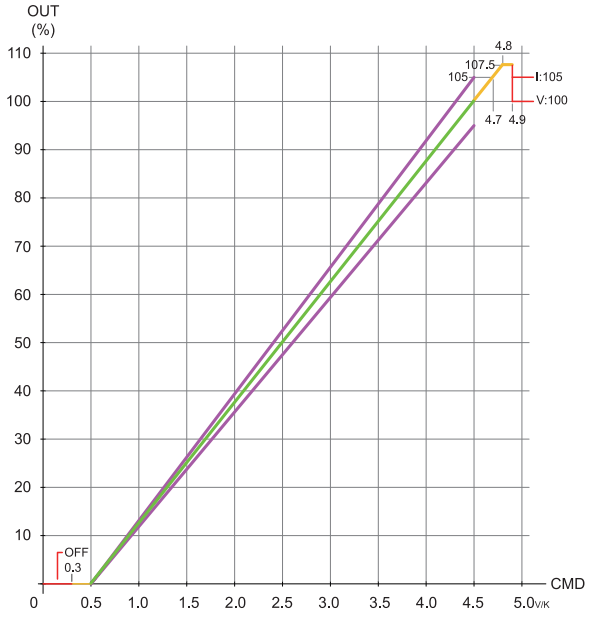
LED STATUS

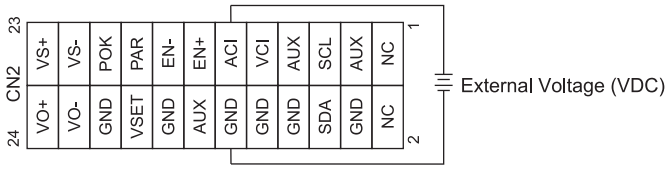
LED	LED Signal	Status
Solid (Green)		Power OK (Local Mode)
Solid (Orange)		Power OK (Remote Mode)
Slow Blink (Green)		Power Standby
Fast Blink (Red)		Over Voltage Protection (OVP)
Solid (Red)		Over Load Protection (OLP)
Slow Blink (Red)		Over Temperature Protection (OTP)
Intermittent Blink (Red)		Fan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

* Local mode: Use ACI/VCI to control output current and voltage
* Remote Mode: Use RS232 or I²C command to control output current and voltage

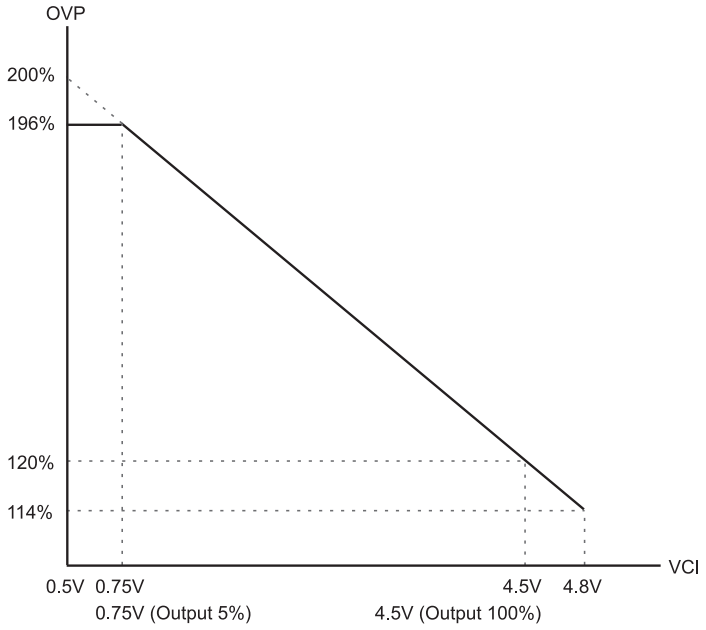
CURVES

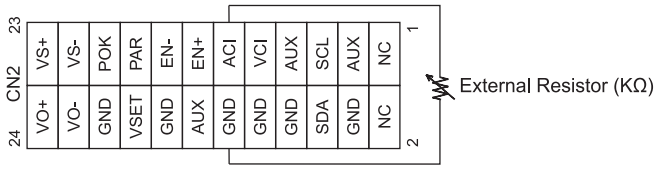
CMD vs Output Curve

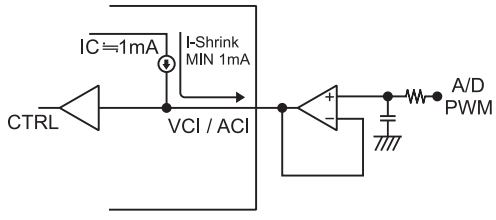


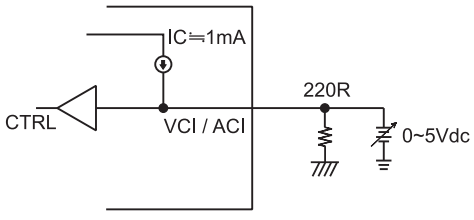


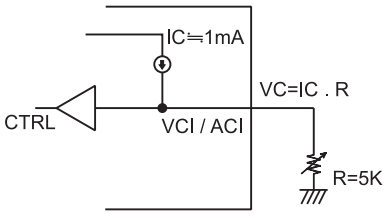
VCI vs OVP Curve





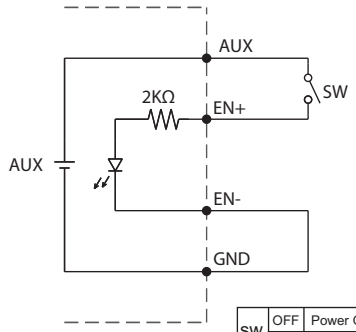






REMOTE ON/OFF

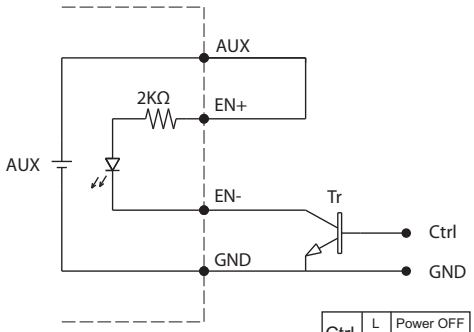
(1) Using Internal 5V Auxiliary Source



SW	OFF	Power OFF
	ON	Power ON

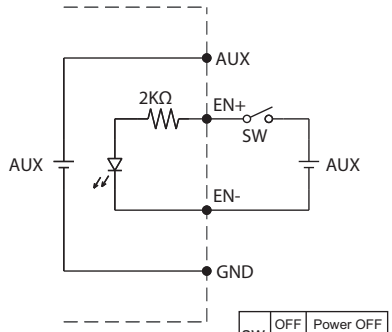
Default setting

(2) ON/OFF Control by NPN Transistor



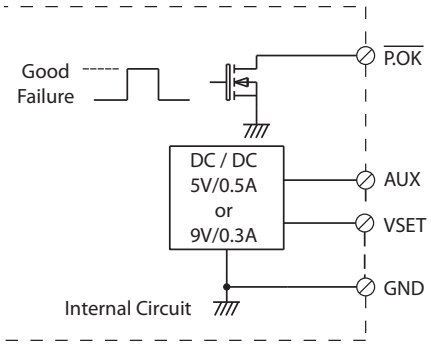
Ctrl	L	Power OFF
	H	Power ON

(3) Using External Voltage Source



SW	OFF	Power OFF
	ON	Power ON

POWER OK SIGNAL

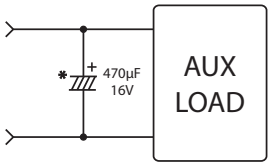


AUX and P.OK Signal

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

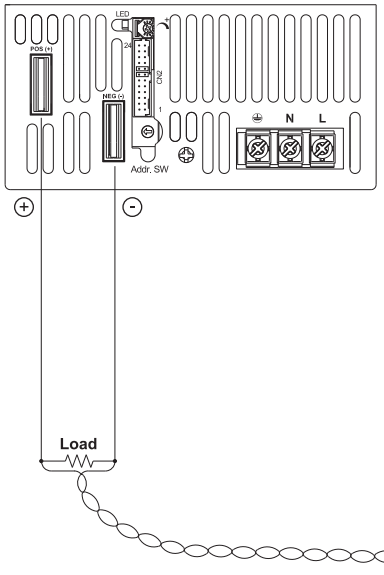
* The grounding of "AUX" power should be connected to "GND" port. If "V-" is connected as Grounding make sure to short the "GND" and "V-" ports.

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



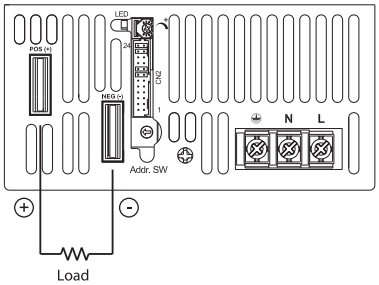
REMOTE SENSE

1) Remote Sense



24 CN2 23	
VO+	VS+
VO-	VS-
GND	POK
VSET	PAR
GND	EN+
AUX	EN+
GND	ACI
GND	VCI
GND	AUX
SDA	SCL
GND	AUX
NC	NC
2	1

2) Local Sense (Default Setting)

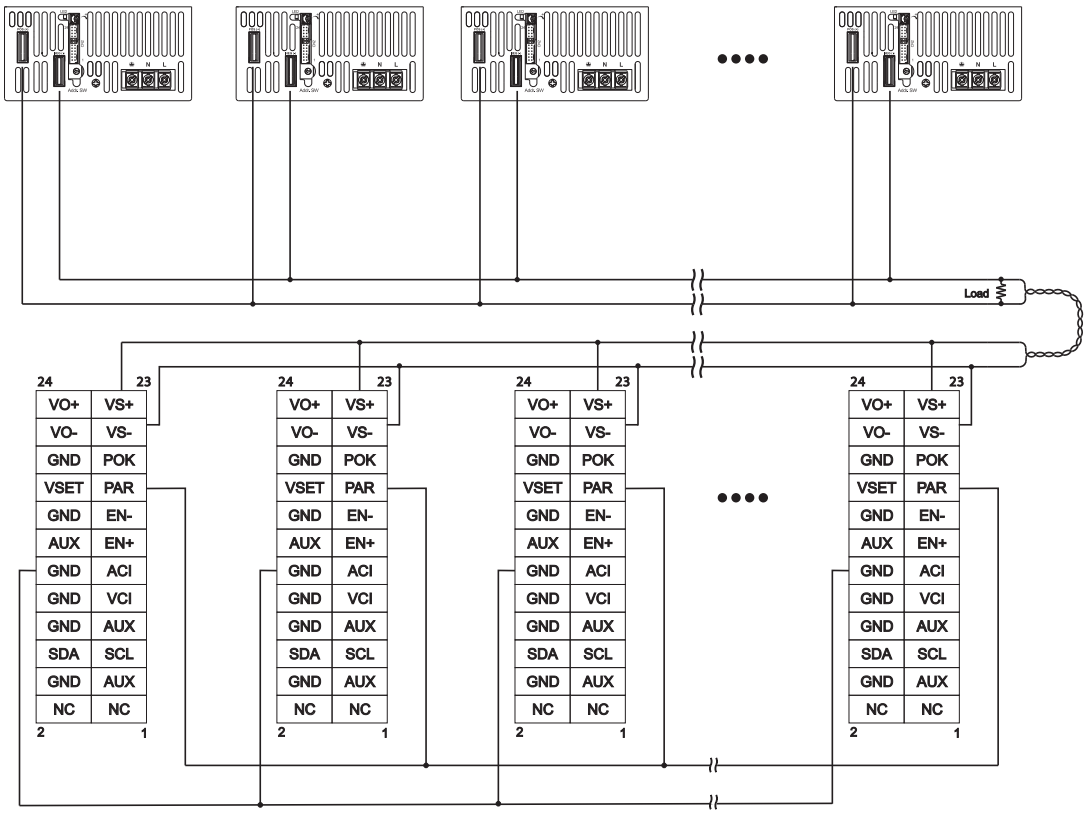


CN2

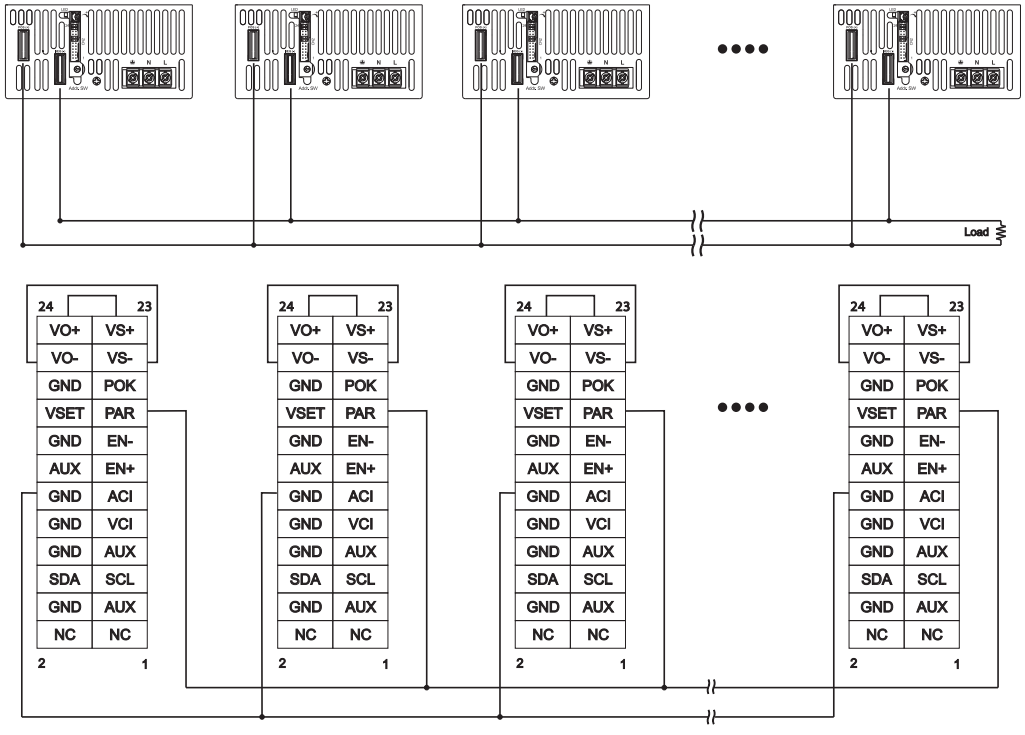
24	23
VO+	VS+
VO-	VS-
GND	POK
VSET	PAR
GND	EN+
AUX	EN+
GND	ACI
GND	VCI
GND	AUX
SDA	SCL
GND	AUX
NC	NC
2	1

CURRENT SHARING

3) Current Sharing with Remote Sense



4) Current Sharing with Local Sensing

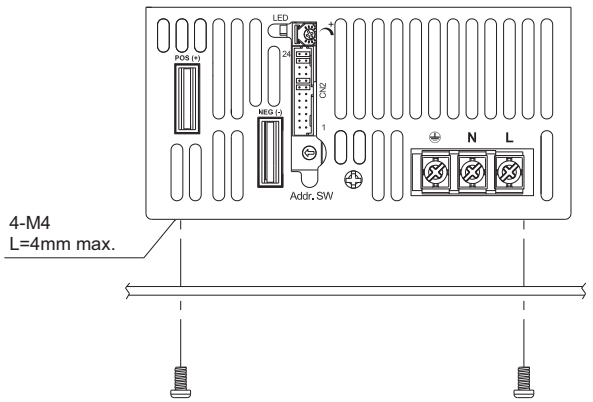


INSTALLATION INSTRUCTIONS

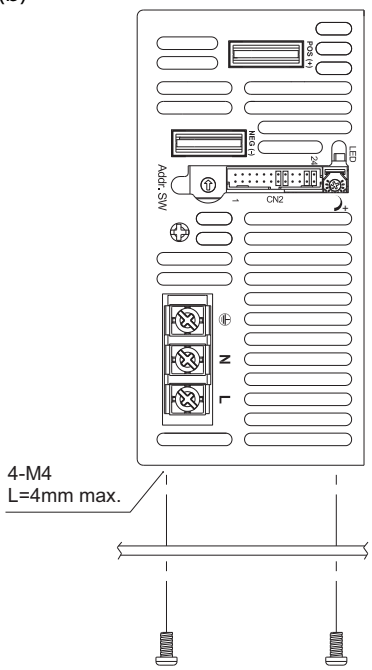
1. Mounting Directions

1-1 Recommended Standard Mounting Methods

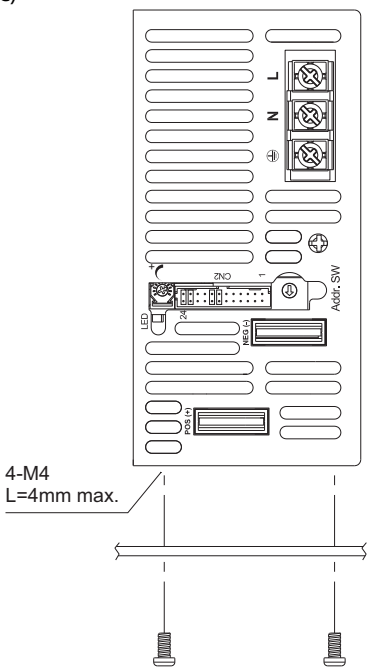
(a)



(b)



(c)



2. Mounting Method

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

2-2 The maximum allowable penetration for the screw is 4mm. Incomplete threading should not be penetrated.

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



COMPANY INFORMATION

Wall Industries, Inc. has created custom and modified units for over 50 years. Our in-house research and development engineers will provide a solution that exceeds your performance requirements on-time and on budget. Our ISO9001-2008 certification is just one example of our commitment to producing a high quality, well-documented product for our customers.

Our past projects demonstrate our commitment to you, our customer. Wall Industries, Inc. has a reputation for working closely with its customers to ensure each solution meets or exceeds form, fit and function requirements. We will continue to provide ongoing support for your project above and beyond the design and production phases. Give us a call today to discuss your future projects.

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