DATASHEET
Rev. C

Wall Industries, Inc.

PSAK1500 SERIES

90~264VAC (127~370VDC) Input
1500 Watts Output Power
Single Output, Active PFC
AC/DC Switching Power Supplies

FEATURES

- Single Output
- Internal Ball Bearing Fan
- RoHS Compliant
- Universal AC Input
- Active PFC
- Programmable Output Voltage (30% ~ 105%)
- Programmable Output Current (40% ~ 105%)
- High Efficiency up to 90%
- +5V / 0.5A Auxiliary Output
- Intelligent LED Indicators
- 1.5U Profile, High Power Density 10.8W/in^3
- Forced Current Sharing at Parallel Operation
- Power OK Signal (Power Good, Logic Low)
- Remote ON/OFF, Remote Sense Function
- Protection: Over Voltage, Over Load, Over Temperature, Short Circuit Protection, and Fan Failure

DESCRIPTION

The PSAK1500 series of AC/DC switching power supplies offers 1500 Watts of output power in a 11.02” x 5.00” x 2.50” enclosed case. This series has a universal input voltage range of 90~264VAC (127~370VDC) and single outputs of 12, 15, 24, 27, and 48VDC. Standard features include high efficiency up to 90%, active power-factor-correction, programmable output voltage and output current, remote on/off, remote sense, power OK signal, and internal ball bearing fan. This series also has over voltage, short circuit, over load, and over temperature protection. All models are RoHS compliant and have UL/cUL, TUV, and CE safety approvals.

SPECIFICATIONS: *PSAK1500 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.

INPUT SPECIFICATIONS		
Input Voltage Range *(see note 3)*		90 ~ 264VAC (127 ~ 370VDC)
Input Frequency		47 ~ 63Hz
AC Current		18A typ. @ 115VAC; 9A typ. @ 230VAC
Inrush Current		30A typ. @ 115VAC; 45A typ. @ 230VAC
Power Factor (typical)		0.99 @ 115VAC, 0.98 @ 230VAC and full load
OUTPUT SPECIFICATIONS		
Output Voltage		See Table
Output Power		1500W
Output Voltage Adjustability		±5.0% typical adjustment by potentiometer (VR1)
Voltage Tolerance *(see note 2)*		±1.0%
Load Regulation		±0.5%
Line Regulation		±0.5%
Output Current		See Table
Ripple & Noise *(see note 1)*		See Table
Setup, Rise Time		800ms at full load, 200ms at full load
Hold-Up Time		16ms typ. @ 230VAC and full load
Temperature Coefficient		±0.02% / °C (0 ~ 50°C)
PROTECTION		
Over Voltage Protection (OVP)		Variable OVP, 120% ±5% Vout. Protection Type: Latch-style (recovery after reset AC power ON or inhibit)
Over Load Protection (OLP)		105% ~ 110% rated output power Protection type: Constant current limiting. Latch-style (recovery after reset AC power ON or inhibit)
Over Temperature Protection (OTP)		80±5°C Protection type: Shutdown output voltage (auto-recovery after temperature goes down)
FUNCTIONS		
Auxiliary Power		5V @ 0.5A (±3%)
Remote ON/OFF Control *(see page 6)*		External switch or NPN transistor to turn ON / OFF
Power OK Signal *(see page 6)*		Open drain signal low when PSU turns on. Max. sink current: 20mA, Max. drain voltage: 40V
Output Voltage Trim *(see page 5)*		Adjustment of output voltage is between 30 ~ 105% of rated output
Output Current Trim *(see page 5)*		Adjustment of output current is between 40 ~ 105% of rated output
Parallel (Current Sharing) *(see note 4)*		yes
GENERAL SPECIFICATIONS		
Efficiency		See Table
Withstand Voltage	Input to Output	3000VAC (4242VDC) (for 1 minute)
	Input to FG	1500VAC (2121VDC) (for 1 minute)
	Output to FG	500VAC (707VDC) (for 1 minute)
Isolation Resistance		100MΩ @ 500VDC (input to output, input to FG, output to FG)
Leakage Current		< 2.5mA @ 240VAC
ENVIRONMENTAL SPECIFICATIONS		
Working Temperature		-20°C to +60°C (see derating curve)
Storage Temperature		-40°C to +85°C
Working Humidity		20% to 90% RH (non-condensing)
Storage Humidity		10% to 95% RH
Vibration		10-500Hz, 5G 10min/1cycle, period for 60min. each along X, Y, ZCompliance to IEC 68-2-6, IEC 68-2-24
Cooling		Load and Temperature Control Fan
PHYSICAL SPECIFICATIONS		
Weight, Packing		7.05 lbs (3200 g); 6pcs/19.2kg/0.98 CUFT
Dimensions (L x W x H) *(see page 4)*		11.02 x 5.00 x 2.50 inches (280 x 127 x 63.5 mm)
SAFETY & EMC *(see note 5)*		
Safety Standards		UL60950-1[(6)], EN60950-1
EMI Conduction & Radiation		EN55022, EN 61000-6-3, -6-4
Power Harmonic & Voltage Fluctuation and Flicker		EN61000-3-2, EN61000-3-3
EMS Immunity		EN61204-3; EN 55024; EN 61000-6-1, ENV 50204, IEC 61000-4-2, 3, 4, 5, 6, 8, 11

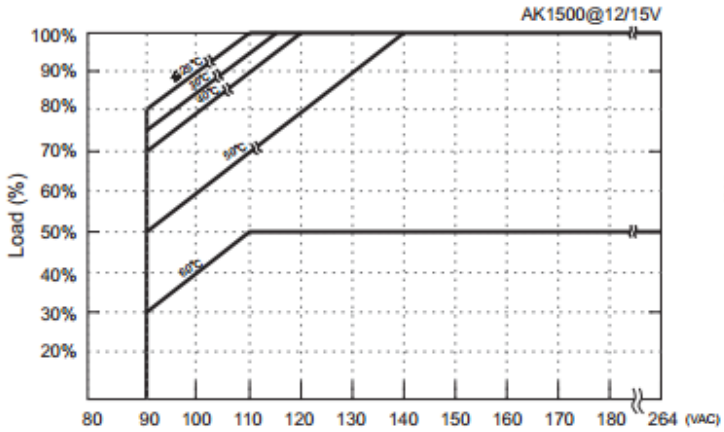
MODEL SELECTION TABLE						
Model Number	**Input Voltage [3] Range**	**Output Voltage**	**Output Current**	**Output [1] Ripple & Noise**	**Output Power**	**Efficiency**
PSAK-1500-12	90 ~ 264 VAC (127 ~ 370 VDC)	12 VDC	125A	150mVp-p	1500W	87%
PSAK-1500-15	90 ~ 264 VAC (127 ~ 370 VDC)	15 VDC	100A	<1%mVp-p	1500W	88%
PSAK-1500-24	90 ~ 264 VAC (127 ~ 370 VDC)	24 VDC	62.5A	<1%mVp-p	1500W	89%
PSAK-1500-27	90 ~ 264 VAC (127 ~ 370 VDC)	27 VDC	55.5A	<1%mVp-p	1500W	89%
PSAK-1500-48	90 ~ 264 VAC (127 ~ 370 VDC)	48 VDC	31.3A	<1%mVp-p	1500W	90%

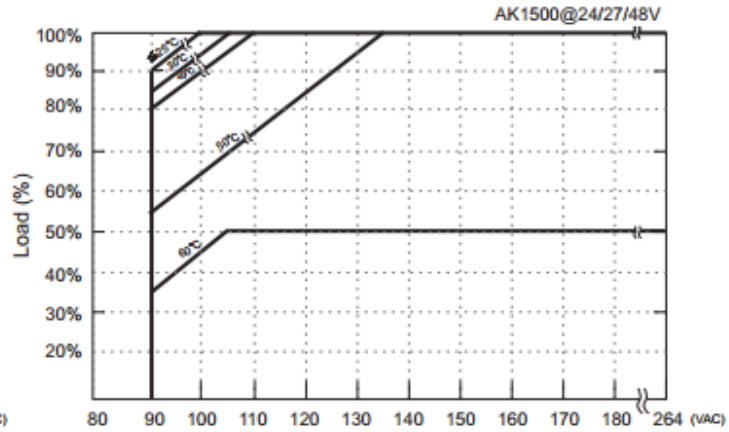
NOTES

1. Ripple & noise is measured at 20MHz bandwidth by using a 12" twisted pair-wire terminated with a 0.1µF capacitor and a 47µF capacitor in parallel.
2. Tolerance includes set up tolerance, line regulation, and load regulation.
3. For voltages near the low end of the input voltage range, see the derating curve for the power supply output rating.
4. When in parallel operation only one unit might operate if the total output load is less than 5% of the rated load condition.
5. 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.
6. This product is Listed to applicable standards and requirements by UL.

**Due to advances in technology, specifications are subject to change without notice.*

DERATING CURVES



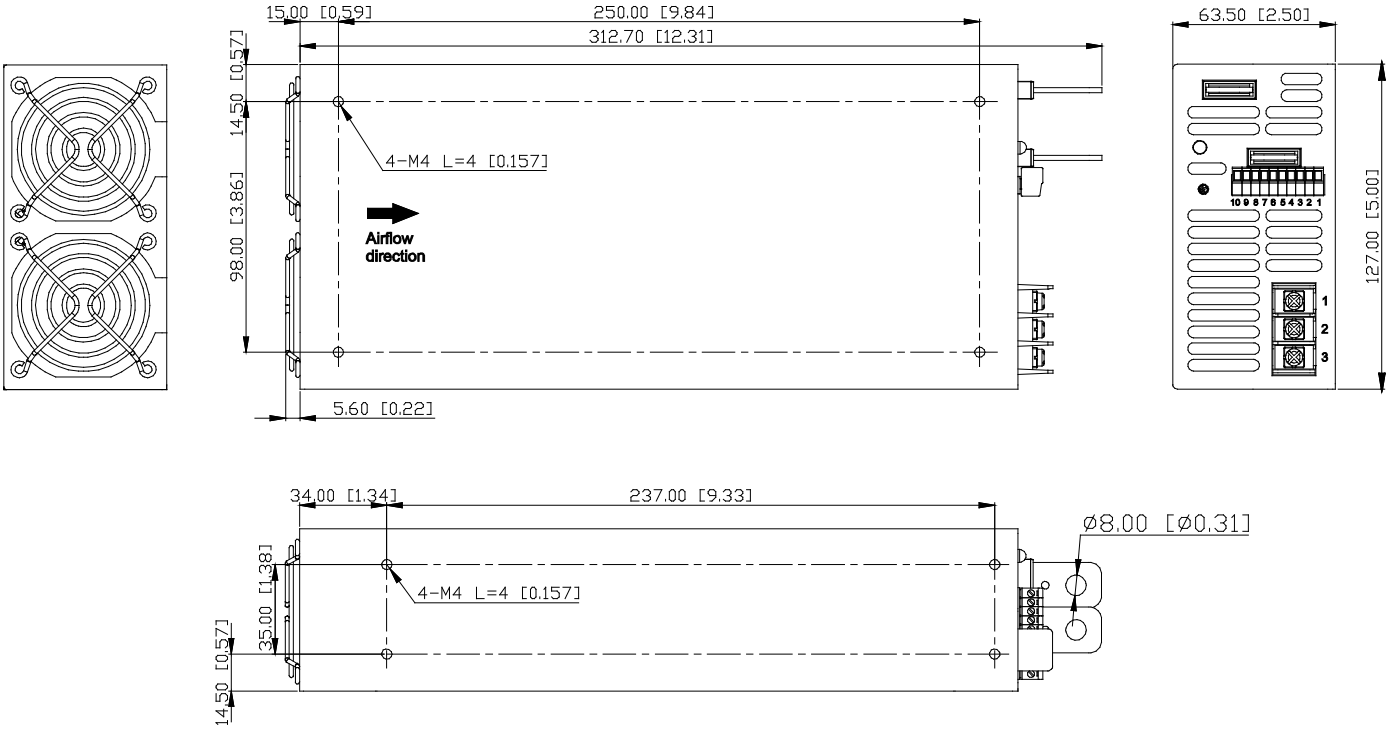


LED STATUS

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 Shorted Circuit Protection (SCP)
		Under Voltage Protection (UVP)
Slow Blink		Over Temperature Protection (OTP)
Intermittent Blink		Fan Failure
Interlace Blink		Power Failure

MECHANICAL DRAWING

Unit: mm [inches]



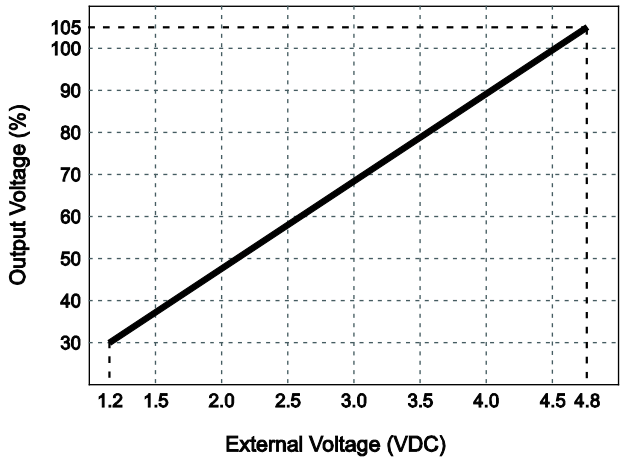
AC Input Terminal Pin Number Assignment	
Pin No.	**Assignment**
1	AC(L)
2	AC(N)
3	⏚

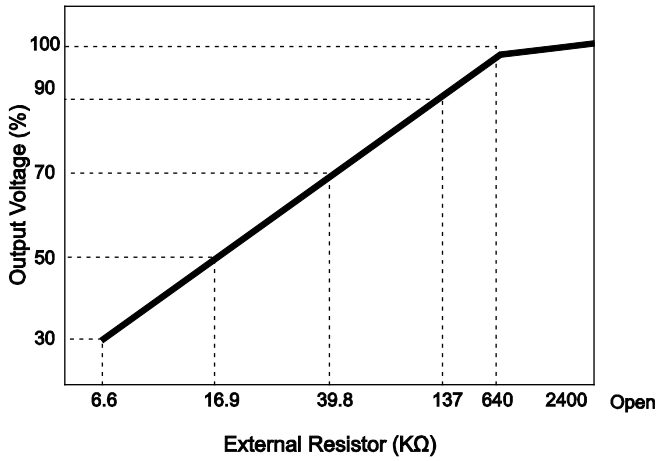
Mating Housing: ECH350R-10P
Terminal EC350V-10P

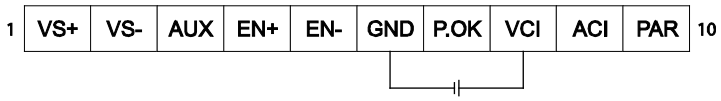
Control Pin Number Assignment		
Pin No.	**Assignment**	**Description**
1	VS+	Remote voltage sense (+)
2	VO+	Local output voltage sense (+)
3	AUX	+5V / 0.5A Auxiliary power
4	EN+	Inhibit ON/OFF (+)
5	EN-	Inhibit ON/OFF (-)
6	GND	Ground
7	P.OK	Power OK
8	VCI	V Program
9	ACI	I Program
10	PAR	Parallel operation current share

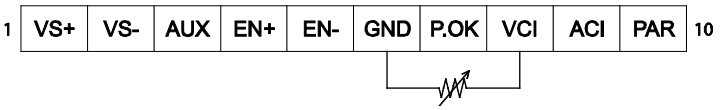
FUNCTIONS

1. Output Voltage Trim

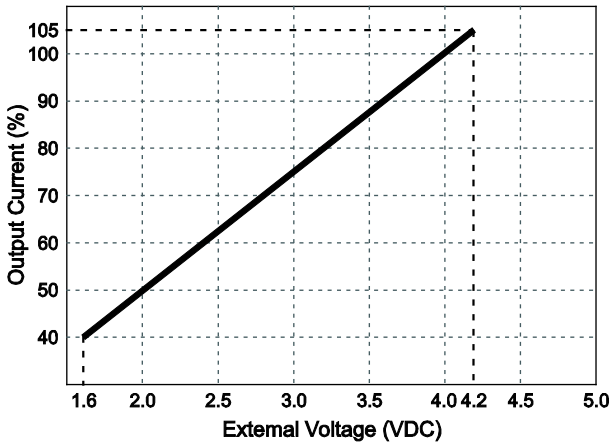


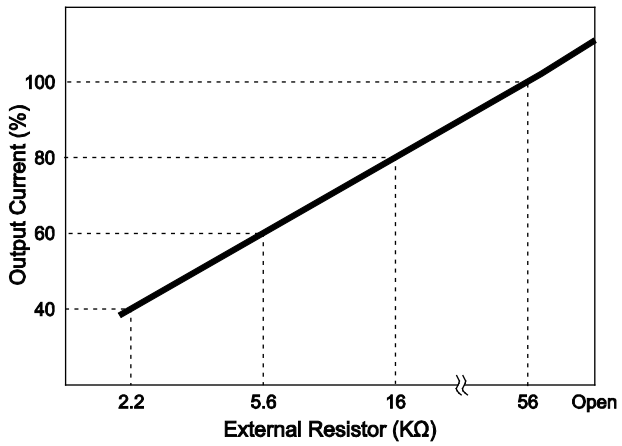


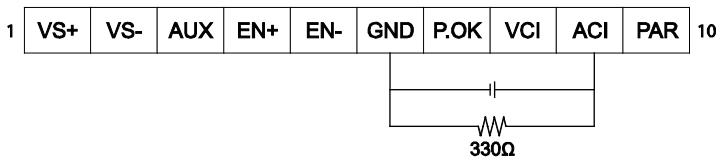


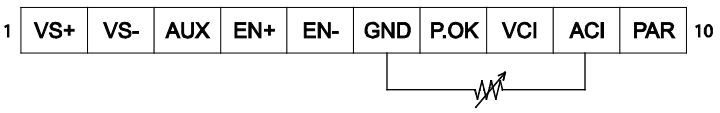


2. Output Current Trim



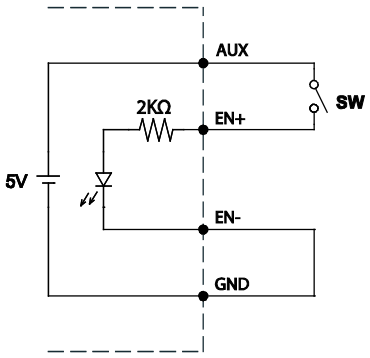






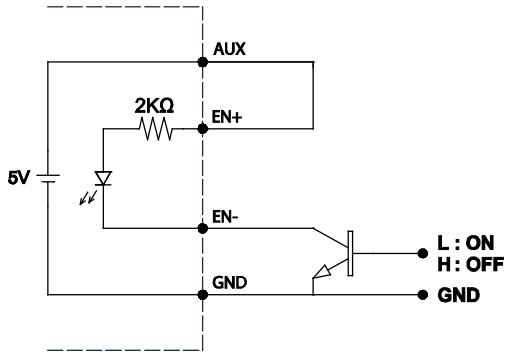
3. Remote ON/OFF

(A)



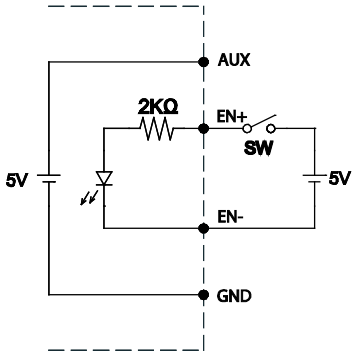
(A) Using Internal 5V auxiliary source

(B)



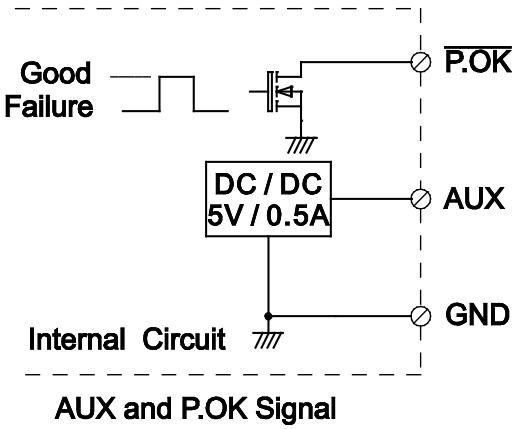
(B) ON/OFF Control by NPN transistor

(C)



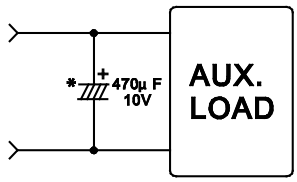
(C) Using external voltage source

4. Power OK Signal

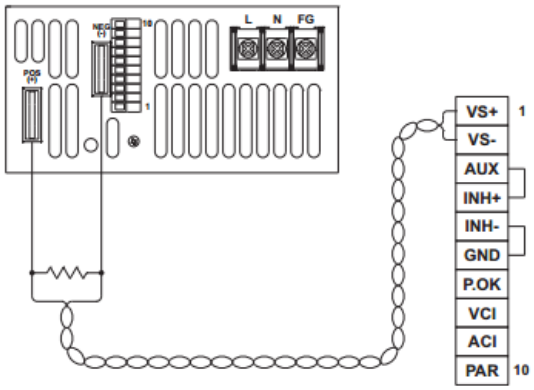


AUX and P.OK Signal

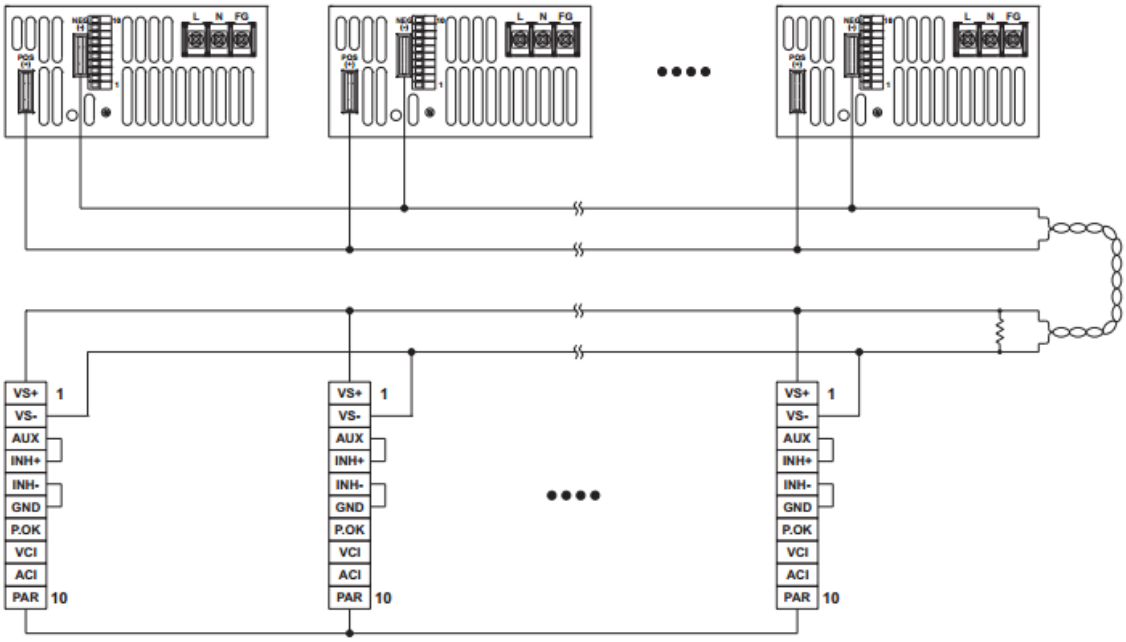
* Place an additional capacitor to have a better performance of auxiliary power operation.
* The grounding of "AUX" power should be connected to "GND" port. If "V-" is connected as Ground, make sure to short the GND and V- ports.



5. Remote Sense



6. Current Sharing with Remote Sensing



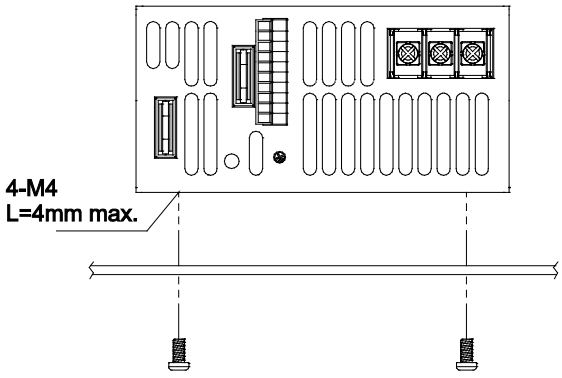
Please connect PAR pins together for current sharing function

INSTALLATION INSTRUCTIONS

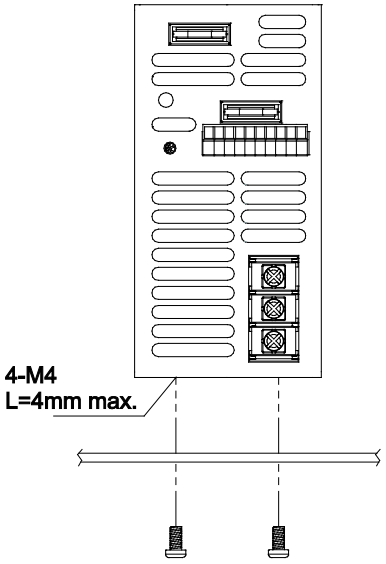
1. Mounting Directions

1.1 Recommended standard mounting methods:

(A)



(B)

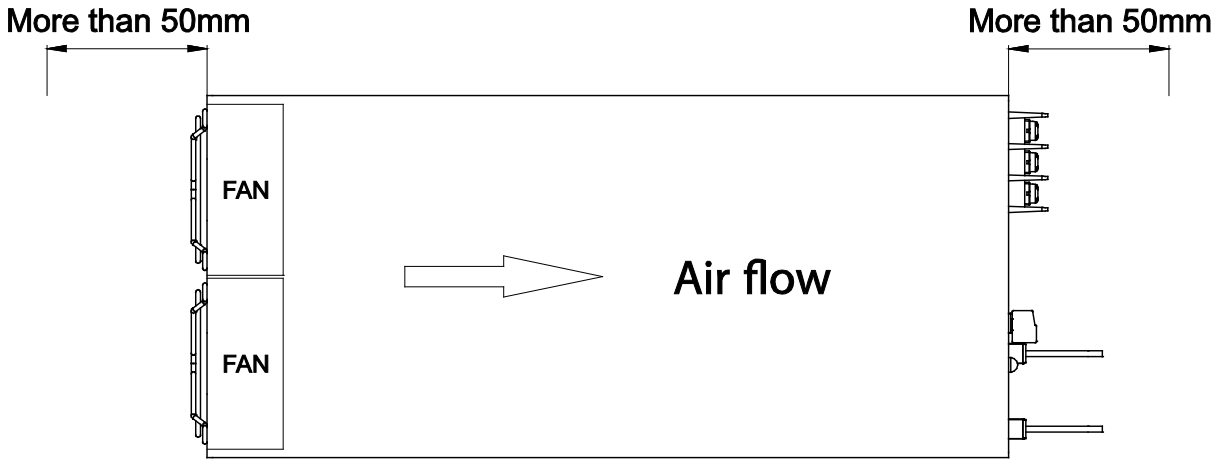


2. Mounting Method

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 of the screws 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: 2015 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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