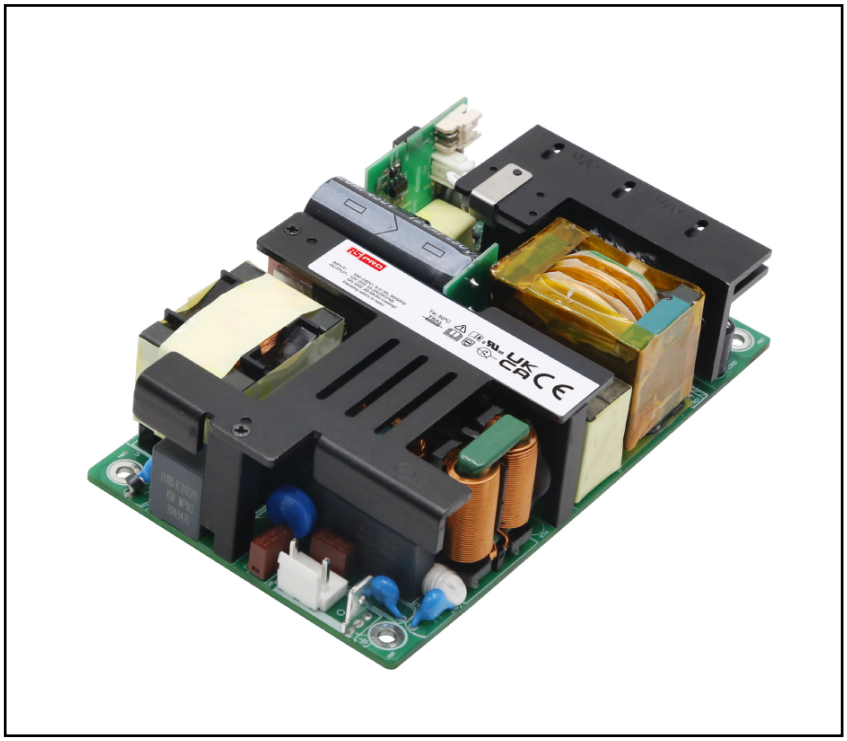
FEATURES

- Universal 90 - 264V AC Active PFC
- Compact size: 5” × 3” × 1.51”
- Efficiency up to 93%
- Stand-by power consumption. < 0.5W
- 250W free air, 450W with 25CFM
- 5V standby output, 12V fan supply, power good signal
- Operating temperature range - 40℃ to +70℃
- Output short circuit, over-current, over-voltage protection.
- Conformally coated
- EMI performance meets. CISPR32 / EN55032 CLASS B
- Suitable for BF application

  IEC/EN/UL62368-1, IEC/EN60335-1, IEC/EN61558-1, GB4943-1, IEC/EN/ES60601-1 (2 × MOPP)

RS PRO Embedded Switch Mode Power Supplies

- **2367913**
- **2367916**



RS Professionally Approved Products bring to you professional quality parts across all product categories. Our product range has been tested by engineers and provides a comparable quality to the leading brands without paying a premium price.

Embedded Switch Mode Power Supplies (SMPS)

Product Description

AC-DC open frame power supply suitable for a wide range of Industrial, Medical and Dental applications. Featuring a universal AC input, this cost-effective, high-density design has double or reinforced insulation and is available in a range of standard outputs. Complying with International and European EMC and safety standards IEC/EN/UL62368, GB4943, IEC/EN60335, IEC/EN61558, IEC/EN/ES60601

General Specifications

Model	AC-DC 450W Medical / Industrial power supply
Mounting Type	Chassis Mount
MTBF	MIL-HDBK-217F@25°C > 200,000 h
Applications	Industrial control systems, instrumentation and medical equipment

RS Stock#	Input Voltage	Output Voltage	Adj'range (V)	Output Current	Wattage	Efficiency (Typ)
2367913	90 to 264V ac 127 to 370V dc	12V DC	11.4-12.6	20.8A (Free air)	250W	91%
				33.3A (25CFM)	400W	
2367916	90 to 264V ac 127 to 370V dc	24V DC	22.8-25.2	10.5A (Free air)	250W	93%
				18.75A (25CFM)	450W	

Input Specifications

Input Specification	
Voltage Range	90 to 264V ac, 127 to 370V dc
Frequency	47 to 63Hz
Input Current	5.2A/115V ac, 2.6A/230V ac
Inrush Current	40A/ 115V ac, 80A / 230V ac
Leakage	<0.1mA contact leakage, <0.5mA Earth Leakage
Power Factor	0.98 Full Load
Standby power consumption	0.5W Room Temperature, 230Vac input (PS-ON Low potential)

Output Specifications

Output Specification						
	2367913			2367916		
Output voltage	12V			24V		
Adjustment range	11.4-12.6V			22.8-25.2V		
Rated Current (25CFM)	33.3A			18.75A		
Max Capacitive load µF	6000µF			6000µF		
Ripple & Noise (max.) *	200mVp-p			200mVpp		
Line Regulation typ.	±0.5%			±0.5%		
Load Regulation typ.	±1%			±1%		
Minimum Load	0%			0%		
Hold-up Time 25℃, 230VAC input	16mS			16mS		
Short Circuit Protection	Recover time <5s after short circuit is removed (Hiccup, continuous, self-recover)					
Over-current Protection	≥105%Io, hiccup, self-recover					
Over Voltage Protection	12V ≤15.6VDC (Output voltage turn off, re-power on for recover)					
	24V ≤31.2VDC (Output voltage turn off, re-power on for recover)					
Fan Power	12V/0.5A					
PS_ON Input Signal*	Power on	PS_ON High	2	-	5	V
	Power off	PS_ON Low	0	-	0.5	
PG Signal*	Power on	The PG signal goes high with 10ms to 500ms delay after power set up	10	-	500	mS
	Power off/Power fail	The TTL signal goes low at least 1ms before output below 90% of rated value	1	-	-	
	High level	High	2	-	6	V
	Low level	Low	0	-	0.6	
Remote Sense*	When RS+ and RS- are connected to the system, with function of remote voltage compensation, if not needed, left RS+ and RS open					
5V Standby*	5Vsb: The load capacity is 0.6A without fan, the load capacity is 1A with fan 25CFM; tolerance 2%, ripple: 120mVp-p(max.)					
Over-temperature Protection*	Output voltage turn off, auto recover after the temperature drops					
Note: 1.*Output Voltage Accuracy : including setting error, line regulation, load regulation; 2.*The “Tip and barrel method” is used for ripple and noise test, output parallel 47uF electrolytic capacitor (Low ESR) and 0.1uF ceramic capacitor, please refer to AC-DC Converter Application Notes for specific information; 3.*Over-temperature Protection: use the discharge pen to release the input electrolytic charge completely, and then						

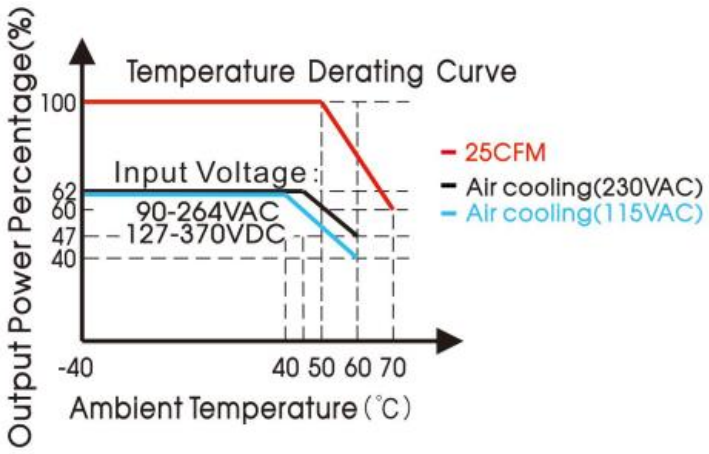
test the restart auto recover. 4.*For all the above test items, please refer to our company standard "AC-DC Black Box Test Specification" for specific test specifications and methods; 5.*For fan power connection method, please refer to 5, 6 in the external dimension drawing; 6.*For PS_ON, 5V standby connection method, please refer to CN6 in the external dimension drawing; 7.*For PG standby connection method, please refer to CN2 in the external dimension drawing.

General Specifications

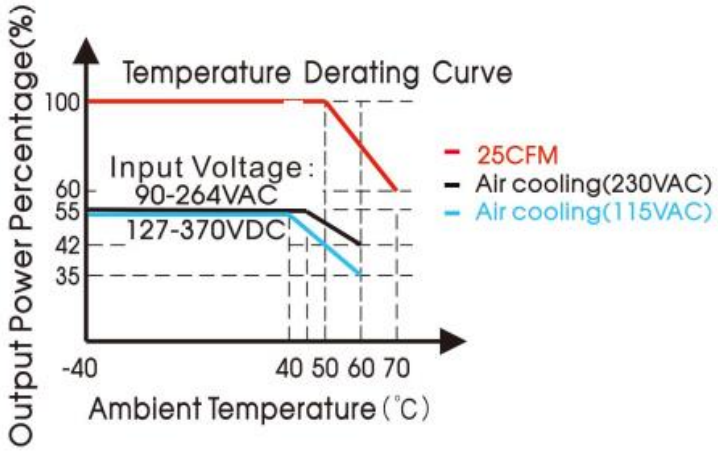
Item		Operating Conditions				Min	Typ	Max	Unit
Isolation	Input-output	Electric strength test for 1min., leakage current <5mA				4000	-	-	VAC
	Input-Earth					2000	-	-	
	Output-Earth					1500	-	-	
Insulation Resistance	Input-Earth	Environment temperature: 25±5℃, Relative humidity: <95%RH, non-condensing Testing voltage 500VDC				100	-	-	MΩ
	Input-output					100	-	-	
	Output-Earth					100	-	-	
Isolation level	Input-output					2 × MOPP			
	Input-Earth					1 × MOPP			
	Output-Earth					1 × MOPP			
Operating Temperature						-40	-	+70	℃
Storage Temperature						-40	-	+85	
Storage Humidity		Non-condensing				10	-	95	%RH
Operating Humidity						20		90	
Power Derating		Operating temperature derating	Air cooling (250W)	115 Vac	+40℃ to +60℃	4.5	-	-	W/℃
				230 Vac	+45℃ to +60℃	4.0	-	-	
			25CFM	+50℃ to +70℃		2.0	-	-	%/℃
		Input voltage derating			90VAC - 115VAC	1.0	-	-	%/VAC
Safety Standard		EN/UL62368/EN60601-1 Safety Approval & EN62368-1 (Report)							
Safety Class		CLASS I							
MTBF		MIL-HDBK-217F@25℃				＞200,000 h			

Derating

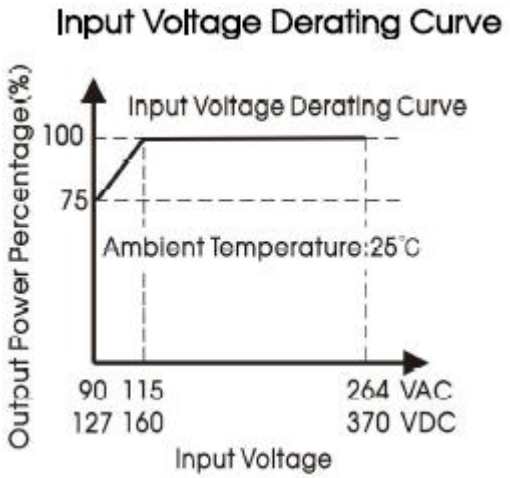
2367913 **(full load 400W with 25CFM)**



2367916 **(full load 450W with 25CFM)**



2367913, 2367916 **Input Voltage Derating Curve**



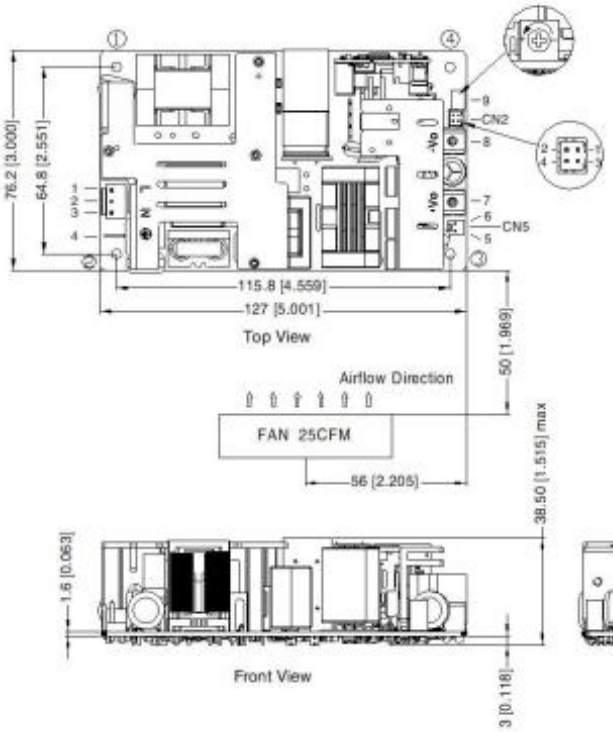
EMC Specifications

Emissions	CE	EN55032(CISPR32)/EN55011(CISPR11) CLASS B	
	RE	EN55032(CISPR32)/EN55011(CISPR11) CLASS B	
	Harmonic Current	IEC/EN61000-3-2 CLASS A and CLASS D	
	Flicker	IEC/EN61000-3-3	
Immunity	ESD	IEC/EN 61000-4-2 Contact ±8KV/Air ±15KV	Perf. Criteria A
	RS	IEC/EN 61000-4-3 10V/m	Perf. Criteria A
	EFT	IEC/EN 61000-4-4 ±2KV	Perf. Criteria A
	Surge	IEC/EN61000-4-5 line to line ±2KV, line to ground ±4KV	Perf. Criteria A
	CS	IEC/EN61000-4-6 10Vr.m.s	Perf. Criteria A
	DIP	IEC/EN61000-4-11 0%, 70%	Perf. Criteria B
Note: *The power supply should be considered as a part of the components in the system. All EMC measurements have been completed on a metal plate (LxWxH, 360mm × 360mm x 1mm). The power supply must be combined with final equipment for EMC confirmation			

Mechanical Specifications

Case Material	Open Frame
Dimensions	127 × 76.2 × 38.5mm
Weight	400g (Typ.)
Cooling Method	Air cooling (250W) / 25CFM(400W/450W)

Dimensions and recommended layout



Pin-Out		Customer Connector
Pin	Mark	
1	AC(L)	Housing: JST VHR or equivalent Contact: JST SVH-21T-P1.1 or equivalent
2	NC	
3	AC(N)	
4	⏚	
5	FAN+	CN5: Fan power output port Housing: TKP 2502 or equivalent Contact: TKP 8811 or equivalent
6	FAN-	
7	+Vo	
8	-Vo	
9	ADJ Output adjustable resistor	

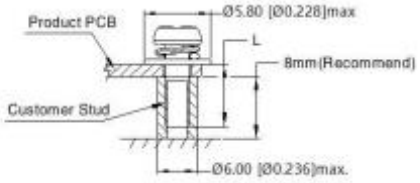
CN6: PS_ON signal input port(3-4) 5VDC Standby output(1-2)

Pin-Out		Customer Connector
Pin	Mark	
1	+5V	Housing: JST PHD-2*2Y or equivalent Contact: JST PHD-TE or equivalent
2	GND	
3	PS-ON	
4	GND	

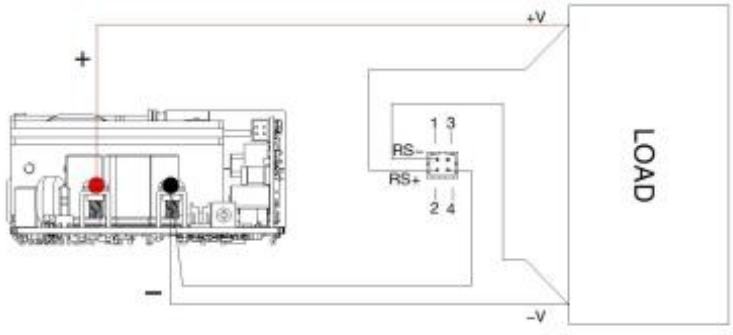
CN2: Remote sensing signal input port(1-2) PG signal(3-4)

Pin-Out		Customer Connector
Pin	Mark	
1	RS-	Housing: JST PHD-2*2Y or equivalent Contact: JST PHD-TE or equivalent
2	RS+	
3	GND	
4	PG	

Position	Screw Spec.	L(Recommend)	Torque(max)
①－④	M3	6mm	0.4N・m



Note:
1. Unit: mm[inch]
2. Pin7,8 connector tightening torque: M4, 1.2N・m(max)
3. General tolerances: ± 1.00[± 0.039]
4. The layout of the device is for reference only , please refer to the actual prod
5. It is recommended 10mm distance between the PCB and other components safety purpose
6. Class I system ①②③ positions must be connected to the earth (⏚)



Remote sensing function wiring diagram

Note:

1. RS－and RS＋cannot be shorted or reversed, otherwise the power module will be damaged;
2. The remote compensation function can compensate the voltage drop on the output cable, which includes the sum of the cable drop connected to the output positive terminal and the output negative terminal;
3. If you need to use remote compensation function, the signal pin needs to be connected with the load and with a twisted pair, otherwise

Approvals

Safety Standard	EN/UL62368/EN60601-1 Design refer to IEC/CB 62368-1/GB4943/EN60335-1
Safety Certification	EN/UL62368/EN60601 Safety Approval
Safety Class	Class I (PE and must be connected)

Additional Information

Custom Tariff Number	85044030

Note:

1. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity<75%RH with nominal input voltage and rated output load.
2. All index testing methods in this datasheet are based on our company corporate standards.
3. In order to improve the efficiency at high input voltage, there will be audible noise generated, but it does not affect product performance and reliability.
4. Products are related to laws and regulations: see "Features" and "EMC".
5. Our products shall be classified according to ISO14001 and related environmental laws and regulations and shall be handled by qualified units.
6. CAUTION: Double pole, neutral fusing. Disconnect mains before servicing."/" ATTENTION: Double pôle/fusible sur le neutre. Débrancher lalimentation avant lentretien;
7. The power supply is considered a component which will be installed into a terminal.