

Open Frame ("O" Suffix)



Size: 5.03 x 3 x 1.38in (127.8 x 76.2 x 35mm)

U-Chassis ("U" Suffix)



Size: 5.5 x 3.25 x 1.66in (139.7 x 82.55 x 42.1mm)

Enclosed Case with Top Fan ("F" Suffix)



Size: 5.5 x 3.25 x 2.48in (139.7 x 82.55 x 62.9mm)

**OPTIONS**

- Case Type
  - Open Frame
  - U-Chassis
  - Enclosed Case with Top Fan
- Paralleling

**FEATURES**

- Input Voltage Range of 90~264VAC (127~370VDC)
- Open Frame, U-Chassis, or Enclosed with Top Fan Case Option
- Remote ON/OFF Function
- PFC Function
- High Efficiency
- Paralleling Operation Available (Contact Factory)
- Open Frame & U-Chassis Feature Built-In 12V/0.3A Auxiliary Output
- Over Power, Over Voltage, Over Temperature, and Short Circuit Protection
- UL/IEC/EN 60601 3.1 Edition & UL/IEC/EN 60950 AM2 (Approvals pending for 15V Models)

**APPLICATIONS**

- ITE
- Medical

**DESCRIPTION**

The PSMQF500 series of medical and ITE AC/DC switching power supplies offers 500 watts of output power in a compact open frame, u-chassis, or enclosed with top fan package. This series consists of single output models with a wide input voltage range of 90~264VAC (127~370VDC) and high efficiency. Features of this series include remote ON/OFF, PFC function, as well as over power, over voltage, over temperature, and short circuit protection. This series also has UL/IEC/EN 60601 3.1 edition and UL/IEC/EN 60950 AM2 safety approvals with approvals pending on the 15V models. Parallel operation is available for this series, please contact factory for details.

**MODEL SELECTION TABLE**

Open Frame Models

Model Number	Input Voltage Range	Output Voltage	Output Current 30CFM Fan	Output Current (Free Air Convection)		Voltage Adj. Range	Typ. Ripple & Noise	Maximum Capacitive Load	Efficiency	Output Power 30CFM Fan	Output Power	
				115VAC	230VAC						115VAC	230VAC
PSMQF500-12SO	90~264VAC (127~370VDC)	12VDC	41.5A	19.16A	20A	11.52~12.48V	160mV	5,000µF	90.5%	500W	230W	240W
PSMQF500-15SO		15VDC	33.3A	15.3A	16A	15.6~14.4V	160mV	3,750µF	90%			
PSMQF500-24SO		24VDC	20.8A	9.58A	10A	23.04~24.96V	240mV	2,500µF	92%			
PSMQF500-48SO		48VDC	10.41A	4.8A	5A	46.08~49.44V	480mV	1,250µF	93%			

**MODEL SELECTION TABLE**

U-Chassis Models

Model Number	Input Voltage Range	Output Voltage	Output Current 30CFM Fan	Output Current (Free Air Convection)		Voltage Adj. Range	Typ. Ripple & Noise	Maximum Capacitive Load	Efficiency	Output Power 30CFM Fan	Output Power	
				115VAC	230VAC						115VAC	230VAC
PSMQF500-12SU	90~264VAC (127~370VDC)	12VDC	41.5A	15.83A	16.6A	11.52~12.48V	160mV	5,000µF	90.5%	500W	190W	200W
PSMQF500-15SU		15VDC	33.3A	12.6A	13.3A	15.6~14.4V	160mV	3,750µF	90%			
PSMQF500-24SU		24VDC	20.8A	7.91A	8.33A	23.04~24.96V	240mV	2,500µF	92%			
PSMQF500-48SU		48VDC	10.41A	3.96A	4.17A	46.08~49.44V	480mV	1,250µF	93%			

**MODEL SELECTION TABLE**

Enclosed with Top Fan Models

Model Number	Input Voltage Range	Output Voltage	Output Current	Voltage Adj. Range	Typ. Ripple & Noise	Maximum Capacitive Load	Efficiency	Output Power
PSMQF500-12SF	90~264VAC (127~370VDC)	12VDC	41.5A	11.52~12.48VDC	160mV	5,000µF	89%	500W
PSMQF500-15SF		15VDC	33.3A	15.6~14.4VDC	160mV	3,750µF	88.5%	
PSMQF500-24SF		24VDC	20.8A	23.04~24.96VDC	240mV	2,500µF	91%	
PSMQF500-48SF		48VDC	10.41A	46.08~49.44VDC	480mV	1,250µF	92%	

**SPECIFICATIONS**

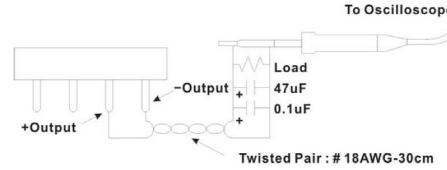
All specifications are based on Nominal Input Voltage, Full Load, and 25°C after warm-up time unless otherwise noted.  
We reserve the right to change specifications based on technological advances.

SPECIFICATION	TEST CONDITIONS	Min	Typ	Max	Unit
<b>INPUT SPECIFICATIONS</b>					
Input Voltage Range	AC	90		264	VAC
	DC	127		370	VDC
Input Frequency		47		63	Hz
Input Current	Full Load	@115VAC		6.3	A
		@230VAC		3.15	
Inrush Current	<2mS, Cold Start	@115VAC		40	A
		@230VAC		80	
Leakage Current	Input-Output			0.1	mA
Power Factor	@230VAC, Full Load	0.94			
<b>OUTPUT SPECIFICATIONS</b>					
Output Voltage			See Table		
Voltage Accuracy			±2		%
Line Regulation	115-264VAC		±0.5		%
Load Regulation	10-100%		±1		%
Output Power			See Table		
Output Current			See Table		
Minimum Load		3			%
Maximum Capacitive Load			See Table		
Ripple & Noise <sup>(2)</sup>			See Table		
Hold Up Time <sup>(3)</sup>	@115VAC	8			ms
Temperature Coefficient	0~50°C		±0.03		%°C
	-30~0°C		±0.06		
<b>PROTECTION</b>					
Short Circuit Protection	Protection Level 1 (Nominal)		Continuous, Auto Recovery		
	Protection Level 2 (Instantaneous High Current)		Latch		
Over Power Protection			Automatic Recovery		
Over Voltage Protection			Automatic Recovery		
Over Temperature Protection			Automatic Recovery		
<b>ENVIRONMENTAL SPECIFICATIONS</b>					
Operating Temperature	With Derating	-30		+70	°C
Storage Temperature		-35		+85	°C
Altitude	During Operation		5000		m
Humidity			95		%RH
Atmospheric Pressure		56		106	kPa
Vibration	10~500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes				
MTBF	@25°C, MIL-HDBK-217F	160,000			Hours
<b>GENERAL SPECIFICATIONS</b>					
Efficiency	@230VAC		See Table		
Isolation Voltage	Input-Output		4000VAC or 5656VDC		
	Input-PE		2000VAC		
	Output-PE		1500VAC		
<b>PHYSICAL SPECIFICATIONS</b>					
Weight	Open Frame		16.93oz (480g)		
	U-Chassis		20.46oz (580g)		
	Enclosed with Top Fan		24.34oz (690g)		
Dimensions (L x W x H)	Tolerance ±0.5mm	Open Frame	5.03in x 3in x 1.38in (127.8mm x 76.2mm x 35mm)		
		U-Chassis	5.5in x 3.25in x 1.66in (139.7mm x 82.55mm x 42.1mm)		
		Enclosed with Top Fan	5.5in x 3.25in x 2.48in (139.7mm x 82.55mm x 62.9mm)		
<b>SAFETY CHARACTERISTICS</b>					
Safety Approvals <sup>(6)</sup>	15V Models (Pending)		UL/IEC/EN 60601 3.1 Edition		
	Others		UL/IEC/EN 60601 3.1 Edition UL/IEC/EN 60950 AM2		
EMC	Conducted and Radiated EMI	EN55011	Conducted Class B, Radiated Class A		
	EMS		EN60601-1-2 4 <sup>th</sup> Edition		

**NOTES**

1. This product is not designed for use in critical life support systems, equipment used in hazardous environments, nuclear control systems, or other such applications which necessitate specific safety and regulatory standards other than the ones listed in this datasheet.
2. Ripple & noise are measured at 20MHz bandwidth with ceramic 0.1uF & chemi-con KY 47uF parallel capacitor.

A 30cm twisted pair of no.18 AWG copper wire is connected to a 47uF and 0.1uF capacitor of proper polarity and voltage rating. The oscilloscope probe ground led should connect right to the ground ring of the probe and should be as short as possible. The oscilloscope bandwidth should be 20MHz and connected to AC ground.

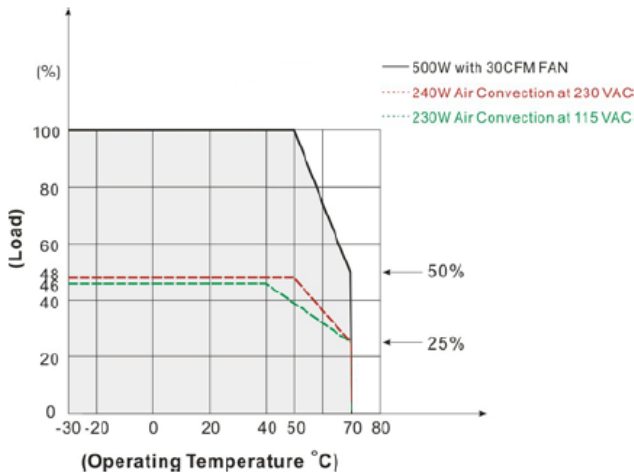


3. Hold-Up Time measured at 90% Vout.
4. Main Vout >3% Load, 12V (Aux)/0.3A., 12V (Aux) need 0.1A Minimum Load, Auxiliary voltage output ground 10.2~13.3V
5. It is strongly recommended to conduct this test with DC voltage. If customer wishes to test AC voltage, disconnect all Y-Capacitors within supply.
6. This product is Listed to applicable standards and requirements by UL.

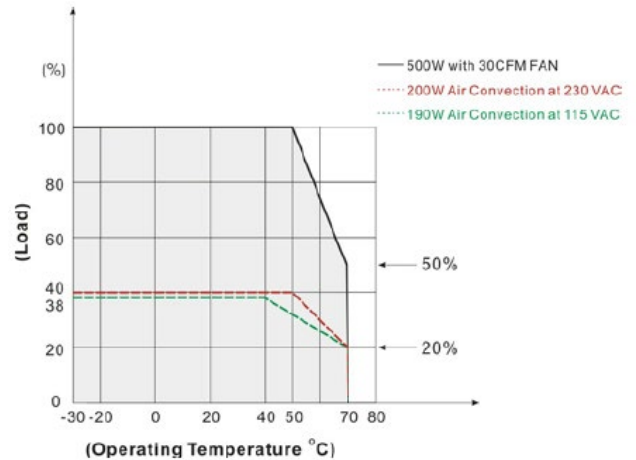
*\*Due to advances in technology, specifications subject to change without notice.*

**CHARACTERISTIC CURVES**

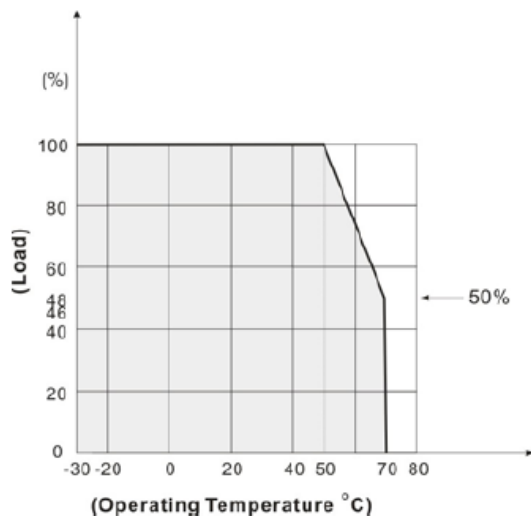
Open Frame Power Derating Curve



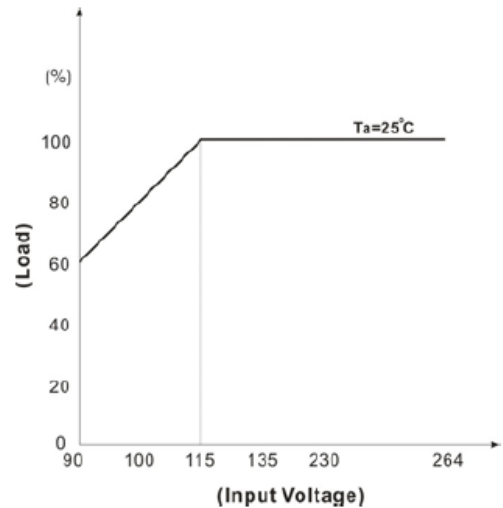
U-Chassis Power Derating Curve



Enclosed with Top Fan Derating Curve

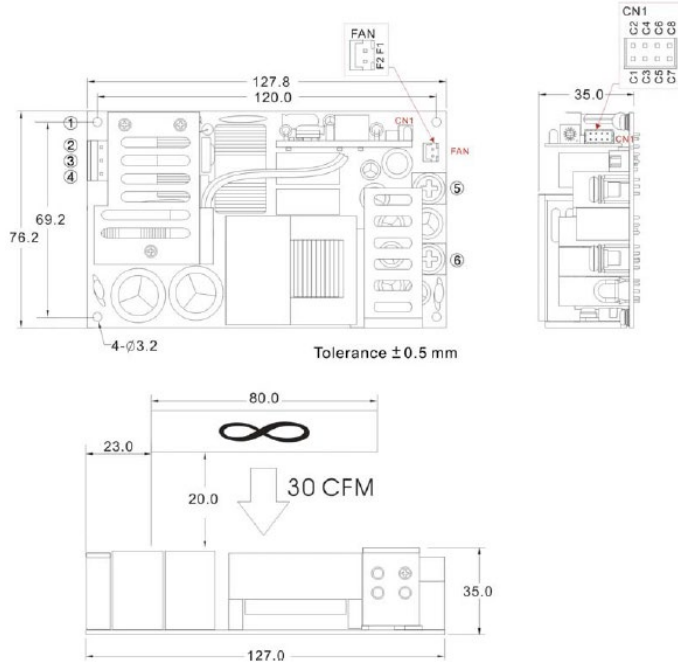


Input Voltage vs. Load



MECHANICAL DRAWINGS

Open Frame Models ("O" Suffix)



PIN#	Single	Mating Housing	Terminal
1	PE		
AC Input Connector Pin: Alex 9397-3			
2	AC IN (N)	Alex 9396-3 or equivalent	Alex 96T Series or equivalent
3	NO PIN		
4	AC IN (L)		
DC Output Connector Pin			
5	+DC OUT	M5 Pan HD screw in 2 positions	
6	-DC OUT	Torque to 8 lbs-in (90 cNm) max.	

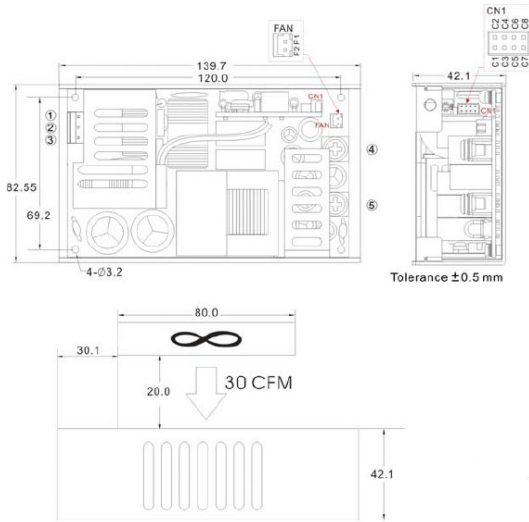
Connector Pin (FAN)=Cherng Weei CX-W250-02

PIN#	Single	Mating Housing	Terminal
F1	+12V	Cherng Weei CS-H250-02 or equivalent	Cherng Weei CS-T2501 or equivalent
F2	GND		

Connector Pin (CN1)=Cherng Weei PHD2.0 – 2x4P

PIN#	Single	Mating Housing	Terminal
C1	-5VSB	Cherng Weei PHD2.0 – 2x4P or equivalent	Cherng Weei PHD2.0 – 2x4P or equivalent
C2	+5VSB		
C3	GND		
C4	DC OK		
C5	-RC		
C6	+RC		
C7	-S		
C8	+S		

U-Chassis Models ("U" Suffix)



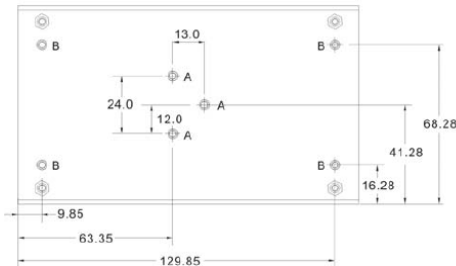
PIN#	Single	Mating Housing	Terminal
A	PE		
AC Input Connector Pin: Alex 9397-3			
1	AC IN (N)	Alex 9396-3 or equivalent	Alex 96T Series or equivalent
2	NO PIN		
3	AC IN (L)		
DC Output Connector Pin			
4	+DC OUT	M5 Pan DH Screw in 2 positions	
5	-DC OUT	Torque to 8lbs-in (90 cNm) max.	

Connector Pin (FAN)=Cherng Weei CX-W250-02

PIN#	Single	Mating Housing	Terminal
F1	+12V	Cherng Weei CS-H250-02 or equivalent	Cherng Weei CS-T2501 or equivalent
F2	GND		

Connector Pin (CN1)=Cherng Weei PHD2.0 – 2x4P

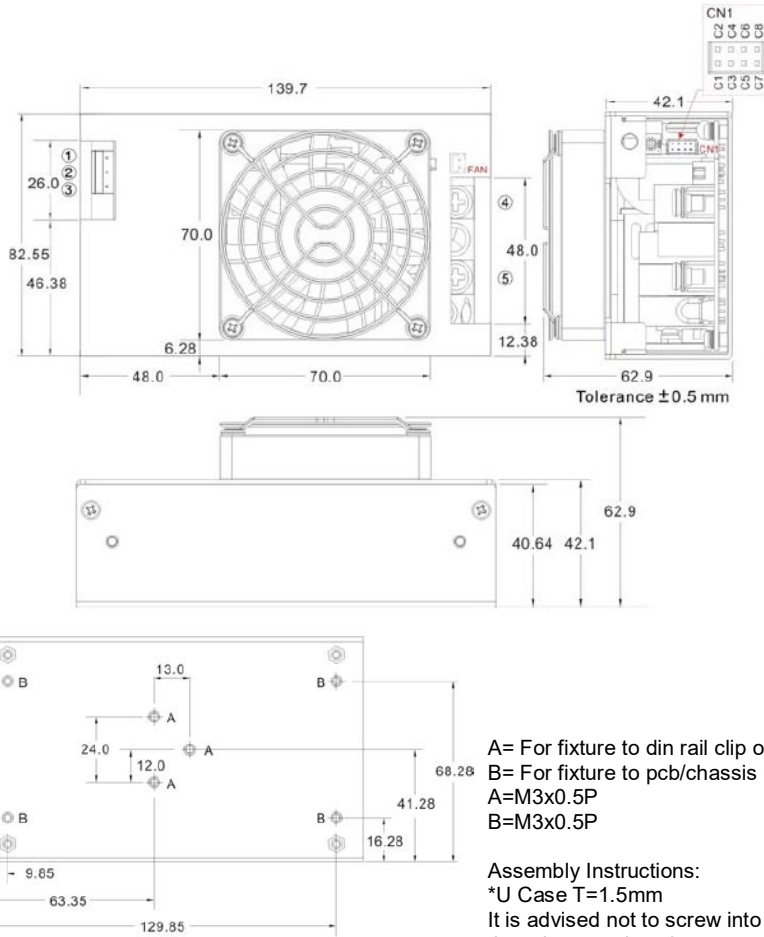
PIN#	Single	Mating Housing	Terminal
C1	-5VSB	Cherng Weei PHD2.0 – 2x4P or equivalent	Cherng Weei PHD2.0 – 2x4P or equivalent
C2	+5VSB		
C3	GND		
C4	DC OK		
C5	-RC		
C6	+RC		
C7	-S		
C8	+S		



A= For fixture to din rail clip only  
B= For fixture to pcb/chassis only  
A=M3x0.5P  
B=M3x0.5P

Assembly instructions:  
\*U Case T=1.5mm  
It is advised not to screw into threads more than 2.5mm

Enclosed with Top Fan Models ("F" Suffix)



Pin#	Single	Mating Housing	Terminal
A	PE		
AC Input Connector Pin: Alex 9397-3			
1	AC IN (N)	Alex 9396-3 or equivalent	Alex 96T Series or equivalent
2	NO PIN		
3	AC IN (L)		
DC Output Connector Pin			
4	+DC OUT	M5 Pan HD Screw in 2 positions Torque to 8lbs-in (90cNm) max.	
5	-DC OUT		

Connector Pin (FAN)=Cherng Weei CX-W250-02

PIN#	Single	Mating Housing	Terminal
F1	+12V	Cherng Weei CS-H250-02 or equivalent	Cherng Weei CS-T2501 or equivalent
F2	GND		

Connector Pin (CN1)=Cherng Weei PHD2.0 – 2x4P

PIN#	Single	Mating Housing	Terminal
C1	-5VSB	Cherng Weei PHD2.0 – 2x4P or equivalent	Cherng Weei PHD2.0 – 2x4P or equivalent
C2	+5VSB		
C3	GND		
C4	DC OK		
C5	-RC		
C6	+RC		
C7	-S		
C8	+S		

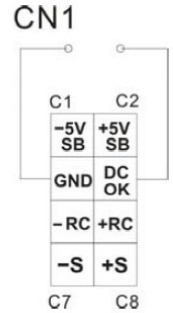
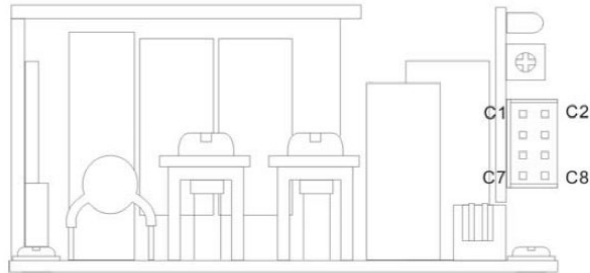
**FUNCTION DESCRIPTION OF CN1**

Pin No.	Function	Description
C1	-5VSB	This pin connects to the negative terminal (-V). Return for DC-OK and -RC signal output.
C2	+5VSB	Standby voltage output ground 4.2~5.5V, referenced to pin C1(-5VSB). The maximum load current is 1A with Fan, 0.4A without Fan.
C3	GND	This pin connects to the negative terminal (-V). Return for DC-OK and -RC signal output.
C4	DC OK	DC-OK Signal is a DC output, referenced to pin C3 (DC-OK GND)
C5	-RC	This pin connects to the negative terminal (-V). Return for DC-OK and -RC signal output.
C6	+RC	Turns the output on and off by electrical or dry contact between pin C5 (-RC), Short: Power OFF, Open: Power ON. The input voltage must be less than 1V in order to disable VOUT and greater than 3.3V (up to 5V) to enable it.
C7	-S	Negative sensing. The -S signal should be connected to the negative terminal of the load. The -S and +S leads should be twisted in pair to minimize noise pick-up effect.
C8	+S	Positive sensing. The +S signal should be connected to the positive terminal of the load. The +S and -S leads should be twisted in pair to minimize noise pick-up effect.

FUNCTION MANUAL & APPLICATION NOTE

1. DC-OK Signal

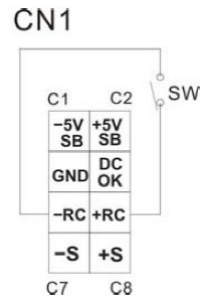
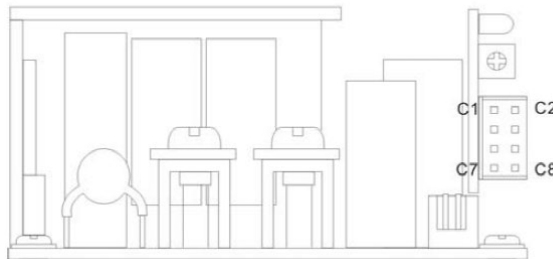
Between DC-OK and GND	Output Status
3.7~6V	ON
0~1V	OFF



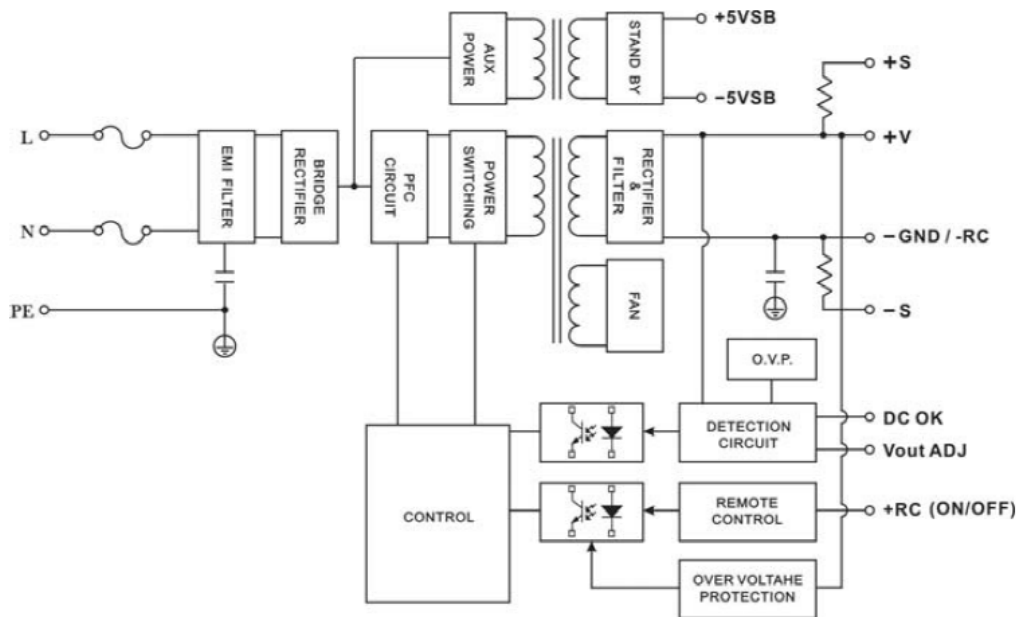
2. Remote Control

It can be turned ON/OFF by using the "Remote Control" Function

Between +RC and -RC	Output Status
SW ON (Short)	OFF
SW OFF (Open)	ON



BLOCK DIAGRAM





MODEL NUMBER SETUP

PSMQF	500	-	12	S	O	-	P
Series Name	Output Power		Output Voltage	Output Quantity	Form Factor		Paralleling
			<b>12:</b> 12VDC <b>15:</b> 15VDC <b>24:</b> 24VDC <b>48:</b> 48VDC	<b>S:</b> Single Output	<b>O:</b> Open Frame <b>U:</b> U-Chassis <b>F:</b> Enclosed with Top Fan		<b>Blank:</b> No Paralleling <b>P:</b> Paralleling

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.

Contact **Wall Industries** for further information:

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