

**KEY FEATURES**

- U Bracket Medical Switching Power Supply
- Remote ON/OFF Function
- 200 Watt with Free Air Convection
- 500 Watt with 30CFM FAN
- 4000VAC Input to Output 2MOPP Insulation
- Built-in 12V/0.3A Auxiliary Output
- Standby 5V@1A with Fan, @0.4A without Fan
- High Efficiency up to 93%
- With P.F.C. Function >0.94
- Current Share Function For Optional (except for 15S)
- Ultra Compact Size: 5.5 x 3.25 x 1.66 Inches
- 3-Year Product Warranty


**ELECTRICAL SPECIFICATIONS**

All specifications valid at normal input voltage, full load and +25°C after warm-up time unless otherwise stated.

Model No.		MQF500U-12S	MQF500U-15S	MQF500U-24S	MQF500U-48S	
Max Output Wattage (W)		500 W (30CFM FAN)				
Max Output Wattage (W)		Others: 190 W (115 VAC) / 200 W (230 VAC)				
		15S: 170 W (115 VAC) / 180 W (230 VAC)				
Input	Voltage (Note 3)	90-264 VAC or 127-370 VDC				
	Frequency (Hz)	47-63 Hz				
	Current (Full load)	<6.3 A max. (115 VAC) / <3.15 A max. (230 VAC)				
	Inrush Current (<2ms) (Cold Start)	< 40 A max. (115 VAC) / < 80 A max. (230 VAC)				
	Leakage Current	< 0.1 mA max. (Input-Output)				
	Power Factor (at 230 VAC)	PF>0.94 at Full Load				
Output	Voltage (V.DC.)	12V	15V	24V	48V	
	Voltage Accuracy	±2%				
	Voltage Adj. Range (V.DC)	±4% Output Voltage				
	Current (with 30CFM FAN) (A) max	41.5	33.3	20.8	10.41	
	Current (Free air Convection) (A) max	at 115 VAC	15.83	11.33	7.91	3.96
		at 230 VAC	16.6	12	8.33	4.17
	Line Regulation (115-264 VAC)	±0.5%				
	Load Regulation (10-100%) (typ.)	±1%				
	Minimum Load	3%				
	Maximum Capacitive Load	5,000µF	3,750µF	2,500µF	1,250µF	
	Ripple & Noise (typ.)	160mV	160mV	240mV	480mV	
	Efficiency (at 230 VAC)	90.5%	90.5%	92%	93%	
Hold-up Time (at 115 VAC)	8 ms min.					
Protection	Over Power Protection	Auto recovery				
	Over Voltage Protection	Auto recovery				
	Overt Temperature Protection	Auto recovery				
	Short Circuit Protection	Protection level 1 (nominal) : Continuous, Auto recovery				
Protection level 2 (instantaneous high current) : Latch						
Isolation	Input-Output (V.AC)	4000VAC or 5656VDC				
	Input-PE (V.AC)	2000V				
	Output-PE (V.AC)	1500V				

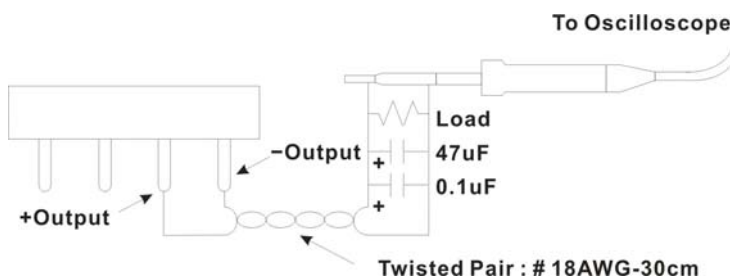
**ELECTRICAL SPECIFICATIONS**

All specifications valid at normal input voltage, full load and +25°C after warm-up time unless otherwise stated.

Model No.	MQF500U-12S	MQF500U-15S	MQF500U-24S	MQF500U-48S
Environment	Operating Temperature	-30°C...+70°C (with derating)		
	Storage Temperature	-35°C...+85°C		
	Temperature Coefficient	±0.03%/°C ( 0~50°C )		
		±0.06%/°C ( -30~0°C )		
	Altitude During Operation	5000m		
	Humidity	95% RH		
	Atmospheric Pressure	56 kPa to 106 kPa		
	MTBF	>160,000 h @ 25°C (MIL-HDBK-217F)		
	Vibration	IEC60068-2-27 (10~500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes)		
Shock	IEC60068-2-6			
Physical	Dimension (L x W x H)	5.5 x 3.25 x 1.66 Inches ( 139.7 x 82.55 x 42.1 mm ) Tolerance ±0.5 mm		
	Weight	580 g		
	Cooling Method	Free convection / 30 CFM FAN		
Safety	Approval	Others: UL / IEC / EN 60601 3.1 <sup>st</sup> Edition & UL / IEC / EN 60950 AM2		
		15S: UL / IEC / EN 60601 3.1 <sup>st</sup> Edition		
EMC	Conducted and Radiated EMI	EN55011 / conducted class B, Radiated Class A		
	EMS	EN60601-1-2 4th edition		

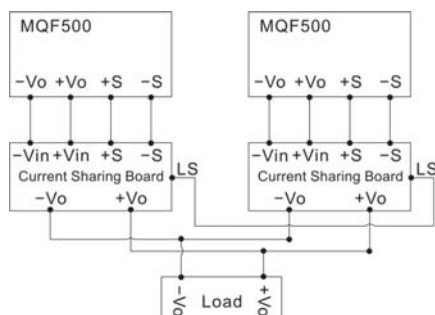
**NOTE**

- Ripple & Noise are measured at 20MHz of bandwidth with ceramic 0.1uF & chemi-con KY 47uF parallel capacitor.



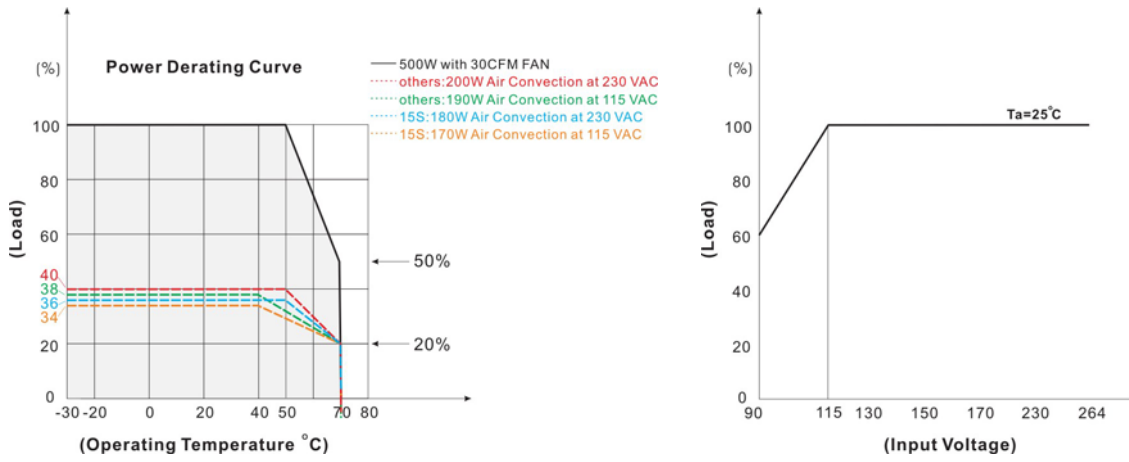
A 30cm twisted pair of no.18 AWG copper wire is connected to a 47uF and 0.1uF capacitor of proper polarity and voltage rating. The oscilloscope probe ground lead should connect right to the ground ring of the probe and be as short as possible. The oscilloscope bandwidth should be at 20MHz and connected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

- Hold-up Time measured at 90% Vout.
- Please check the derating curve for more details.
- Main Vout >3% Load, 12V (Aux) / 0.3A., 12V (Aux) need 0.1A Minimum Load, Auxiliary voltage output ground 10.2~13.3V
- Strongly recommend to conduct this test with DC Voltage. If customer wishes to test with AC Voltage, please disconnect all Y-Capacitors within Arch power supply.
- Current Share Board (Optional):
  - The output voltage difference of each parallel single element should be less than 0.2V.
  - Output power at parallel operation = rated power per unit x number of unit x 90%
  - Connect in parallel no more than 2 units. Please contact ARCH for advice if more than 2 is needed.
  - Minimum Load Should be 15%.

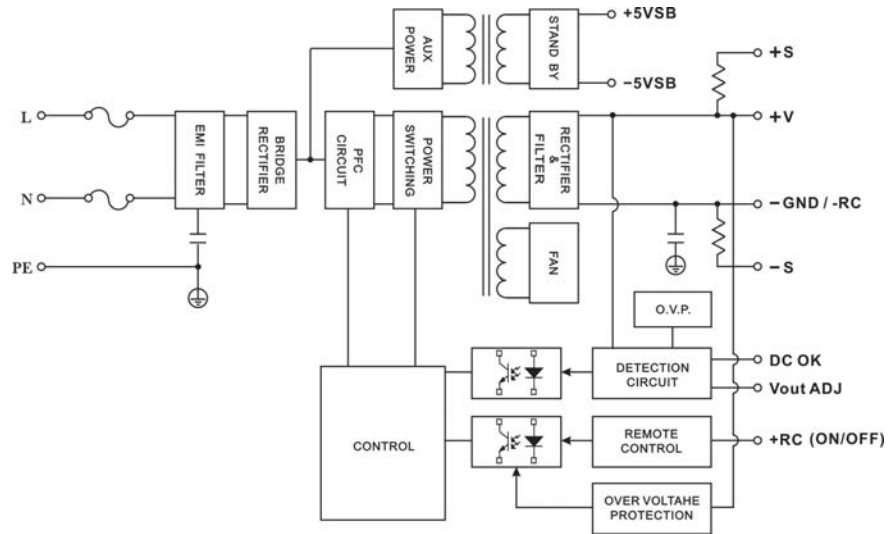


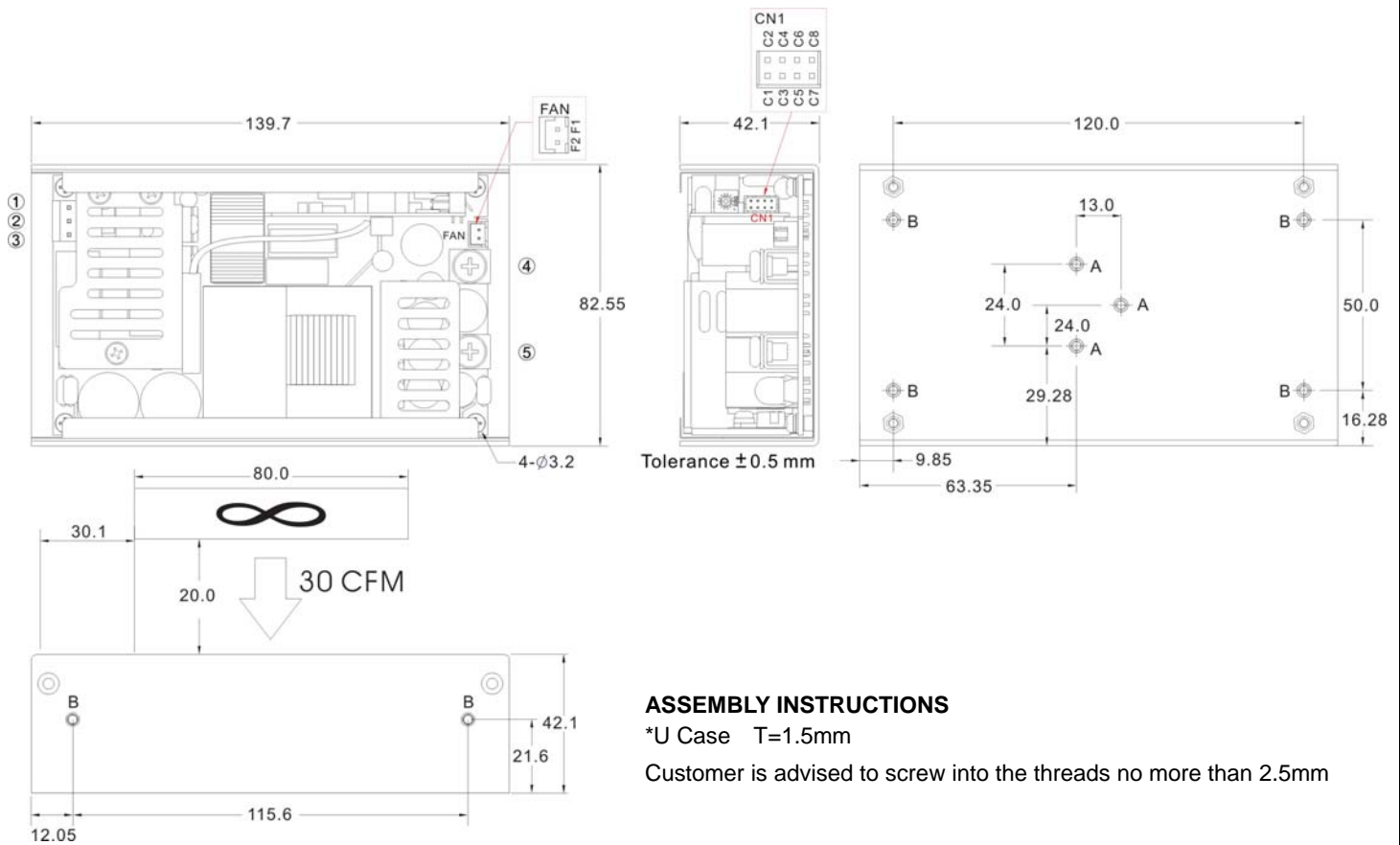
- CAUTION: Double pole, neutral fusing. Disconnect mains before servicing.**

**DERATING**



**BLOCK DIAGRAM**

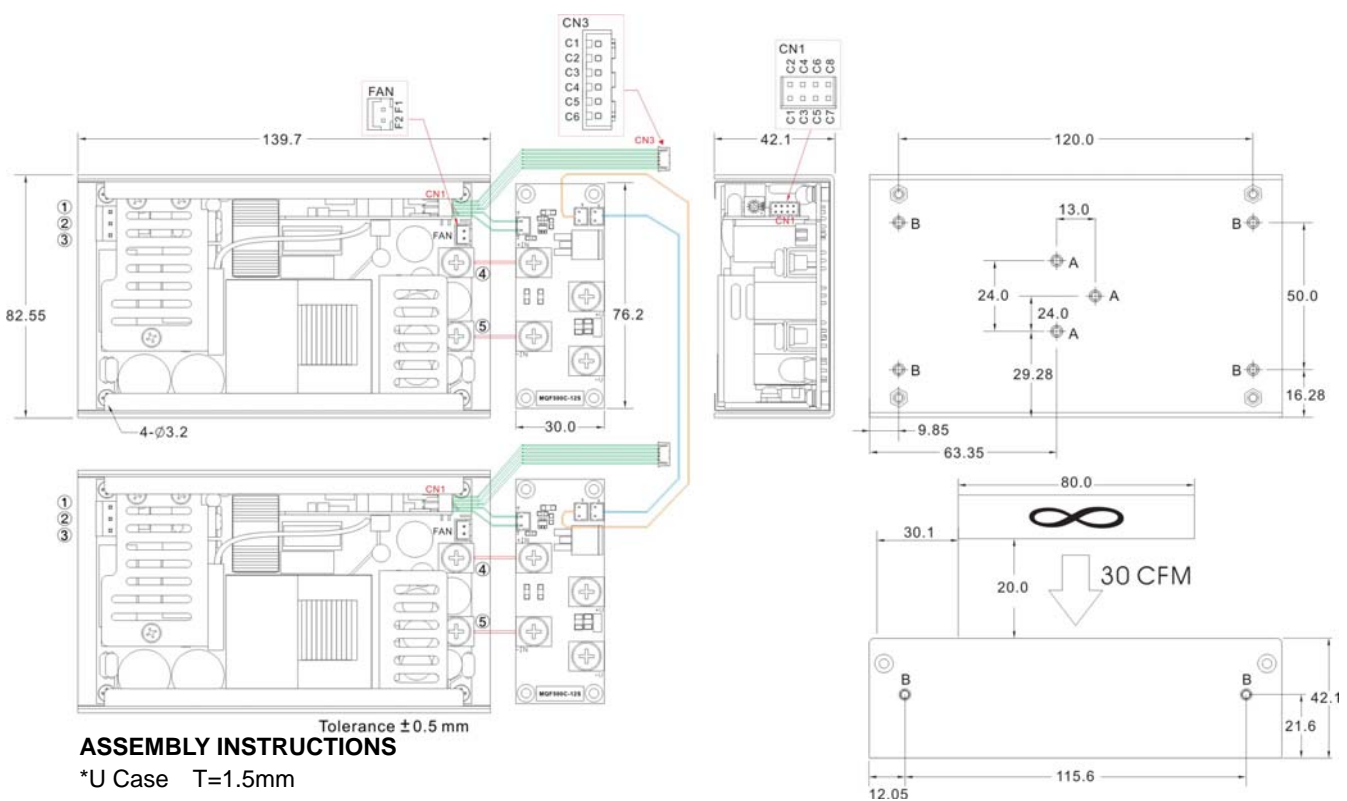


**MECHANICAL DIMENSION ( Top View )**
**MQF500U**


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

<b>Connector Pin (CN1) = Cherng Weei PHD2.0 - 2x4P</b>			
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		

<b>Connector Pin (FAN) = Cherng Weei CX-W250-02</b>			
PIN#	Single	Mating Housing	Terminal
F1	+12V	Cherng Weei	Cherng Weei
F2	GND	CS-H250-02	CS-T2501
		or equivalent	or equivalent

**MECHANICAL DIMENSION ( Top View )**
**MQF500U with Current Share Function**

 Tolerance  $\pm 0.5$  mm

**ASSEMBLY INSTRUCTIONS**

\*U Case T=1.5mm

Customer is advised to screw into the threads no more than 2.5mm

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A,B	PE		
<b>AC Input Connector Pin : Alex 9397-3</b>			
1	AC IN (N)	Alex 9396-3 or equivalent	Alex 96T Series or equivalent
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<b>DC Output Connector Pin</b>			
4	+DC OUT	M5 Pan HD screw in 2 positions	
5	-DC OUT	Torque to 8 lbs-in(90 cNm) max.	

<b>Connector Pin (FAN) = Cherg Weei CX-W250-02</b>			
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F1	+12V	Cherg Weei	Cherg Weei
F2	GND	CS-H250-02	CS-T2501
		or equivalent	or equivalent

<b>Connector Pin (CN1) = Cherg Weei PHD2.0 - 2x4P</b>			
PIN#	Single	Mating Housing	Terminal
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C2	+5VSB		
C3	GND		
C4	DC OK		
C5	-RC		
C6	+RC		
C7	-S		
C8	+S		

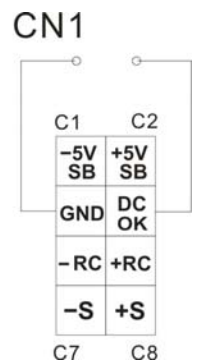
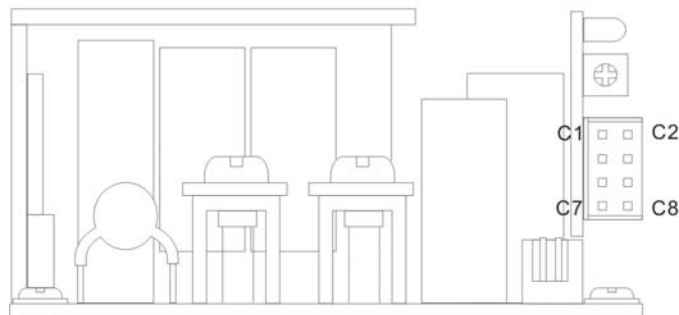
<b>Connector Pin (CN3) = Cherg Weei PHD2.0 - 2x4P</b>			
PIN#	Single	Mating Housing	Terminal
C1	-5VSB	Cherg Weei PHD2.0 - 2x4P or equivalent	Cherg Weei PHD2.0 - 2x4P or equivalent
C2	+5VSB		
C3	GND		
C4	DC OK		
C5	-RC		
C6	+RC		

**FUNCTION DESCRIPTION of CN1 and CN3 (CN3 without C7 and C8 pin)**

Pin No.	Function	Description
C1	-5VSB	This pin connects to the negative terminal(-V). Return for DC-OK and -RC signal output.
C2	+5VSB	Stand by 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.

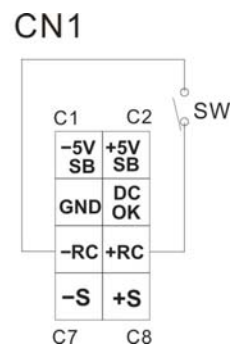
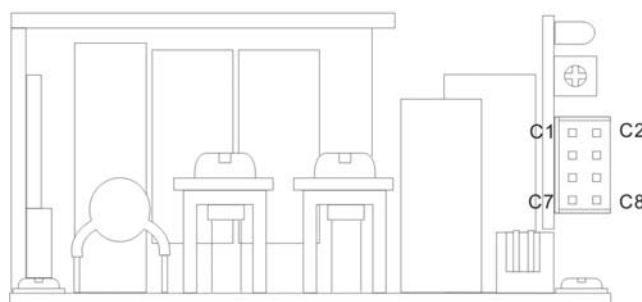
**FUNCTION MANUAL & APPLICATION NOTE**
**1. DC-OK Signal**

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


**2. +S and -S Sense**

Shorter wiring to each unit is recommended, as well as twisting +S and -S in pairs, as shown below

