ARCH ELECTRONICS CORP.

AC-DC ITE Switching Power Supply

ARF1300E SERIES 1300 Watts

KEY FEATURES

- Universal Input 90-264Vac
- 1300 Watt with 40CFM Forced Air
- 800W with Conduction Cooling
- 650W with Natural Convection
- High Efficiency up to 93%
- Operating Altitude 5000M
- Over-Voltage Category OVC III
- Standby 5V@1A with Fan, @0.4A without Fan
- Active PFC Function
- I/O Isolation 4250VAC
- Safety Approval to UL / IEC / EN 62368-1
- 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.			ARF1300E-12S	ARF1300E-24S	ARF1300E-48S
Max Output Wattage (with 40CFM FAN) (W)		(Note 6)	1000 W (115 VAC) / 1100 W (230 VAC)	1300 W	
Max Output Wattage (Conduction Cooling) (W)		(Note 4,6)	650 W (115 VAC) / 700 W (230 VAC)	700 W (115 VAC) / 800 W (230 VAC)	
Max Output Wattage (Natural Convection) (W)		(Note 6)	500 W (115 VAC) / 550 W (230 VAC)	500 W (115 VAC) / 650 W (230 VAC)	
Input	Voltage	(Note 6)	90-264 VAC		
	Frequency (Hz)		47-63 Hz		
	Current (Full load)		< 14 A max. (115 VAC) / < 7 A max. (230 VAC)		
	Inrush Current (<2ms) (Clod Start)		< 70 A max. (115 VAC) / < 105 A max. (230 VAC)		
	Leakage Current		< 1.5mA / 264 VAC (Touch Current)		
	Power Factor (at 230 VAC)		PF>0.9 at Full Load		
Output	Voltage (V.DC.)		12V	24V	48V
	Voltage Adj Range (V.DC.)		±5% Output Voltage		
	Voltage Accuracy		±2%		
	Current (with 40CFM FAN) (A) (max.)	at 115 VAC	83.4	54.1	27.1
		at 230 VAC	91.6	54.1	27.1
	Current (Conduction Cooling) (A) (max.)	at 115 VAC	54.1	29.1	14.5
		at 230 VAC	58.3	33.3	16.6
	Current (Natural Convection) (A) (max.)	at 115 VAC	41.6	20.8	10.4
		at 230 VAC	45.8	27.1	13.5
	Line Regulation (100-264 VAC)		±1%		
	Load Regulation (10-100%) (typ.)		±1%		
	Maximum Capacitive Load		7,000μF	3,500μF	1,750μF
	Ripple & Noise (10-100%) (typ.)	(Note 1)	160mV	1% Vout	
	Efficiency (at 230VAC)		90.5%	92.5%	93%
	Hold-up Time (at 115 VAC)	(Note 2)	3ms 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	(Note 3)	4250VAC or 6000VDC		
	Input-PE	(Note 3)	2850VAC or 4000VDC		
	Output-PE	(Note 3)	1500VAC or 2121VDC		

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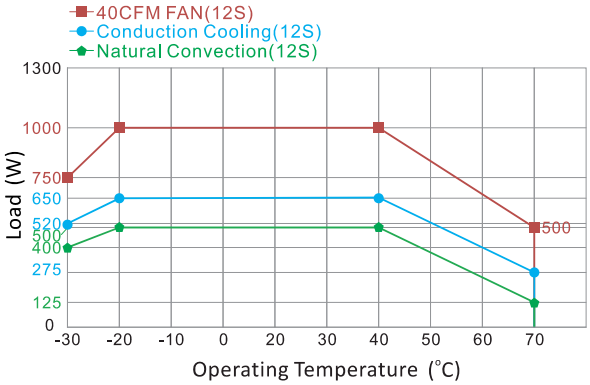
Model No.		ARF1300E-12S	ARF1300E-24S	ARF1300E-48S
Function	5V Stand by	5VSB: 5V@1A with FAN, 5V@0.4A without FAN ; Tolerance ±10%		
	DC OK Signal (Power Good)	Turn ON: 3.7~5.7V ; Turn OFF: 0~1V		
	Remote Control	+RC / -RC: Power ON=open ; Power OFF=short		
Environment	Operating Temperature (Note 6,7)	-30°C…+70°C (with derating)		
	Storage Temperature	-30°C…+85°C		
	Temperature Coefficient	±0.03%/°C (0~50°C)		
		±0.06%/°C (Other)		
	Altitude During Operation	OVC II=5000m、OVC III=2000m		
	Humidity	95% RH		
	MTBF	>100,000 h @ 25°C (MIL-HDBK-217F)		
	Vibration	IEC60068-2-6 (10~500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes)		
	Shock	IEC60068-2-27		
Physical	Dimension (L x W x H)	7.8 x 4.49 x 1.62 Inches (198.0 x 114.0 x 41.0) Tolerance ±0.5 mm		
	Weight	1350 g		
	Cooling Method	Natural Convection / Conduction Cooling / 40CFM FAN		
Safety	Approval	UL / IEC / EN 62368-1		
EMI	Conducted (Note 5)	EN55032 Class B		
	Radiated (Note 5)	EN55032 Class B		
EMS	EN 55035			
	ESD	IEC 61000-4-2 Air ± 15KV , Contact ± 8KV		A
	RS	IEC 61000-4-3 3V/m		A
	EFT/B	IEC 61000-4-4 ± 4KV		A
	Surge	IEC 61000-4-5 ± 4KV(L/N-PE)		A
	CS	IEC 61000-4-6 3Vrms		A
	PFMF	IEC 61000-4-8 1A/m		A
	Dips	IEC 61000-4-11 70% 500ms		A
	Interruptions	IEC 61000-4-11 <5% 5000ms		B

NOTE

1. Ripple & Noise are measured at 20MHz of bandwidth by using a 6” twisted pair-wire terminated with a 0.1uF & 47uF parallel capacitor.
2. Hold-up Time measured at 90% Vout.
3. Strongly recommend to conduct this test with DC Voltage. If customer wishes to test with AC Voltage, please disconnect all Y-Capacitors from Arch power supply.
4. The size of the suggested aluminum plate is shown as below. And for optimizing thermal performance, the aluminum plate must have an even and smooth surface (or coated with thermal grease), and ARF1300E series must be firmly mounted at the center of the aluminum plate (Size=650 x 650 x 3.0 mm)
5. For optimal EMI performance the power supply should be mounted to a grounded aluminium plate (650 x 650 x 3 mm) with electrical contact to the four PCB mounting holes. To comply with safety standards, this plate must be grounded.
6. Please check the derating curve for more details.
7. Due to varying customer application conditions, the product is tested for maximum operating temperature under full load only. For other regulatory requirements, please contact ARCH.
8. CAUTION: Double pole, neutral fusing. Disconnect mains before servicing.
   (ATTENTION : 2 poles avec fusible sur le neutre. Deconnecter le secteur avant intervention.)

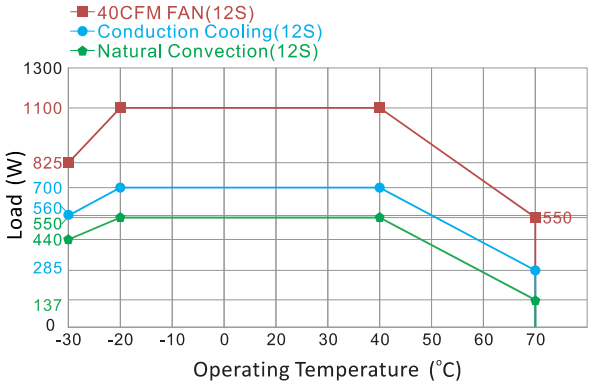
DERATING

Derating Output Load versus Operating Temperature
ARF1300E-12S at 115-197Vin

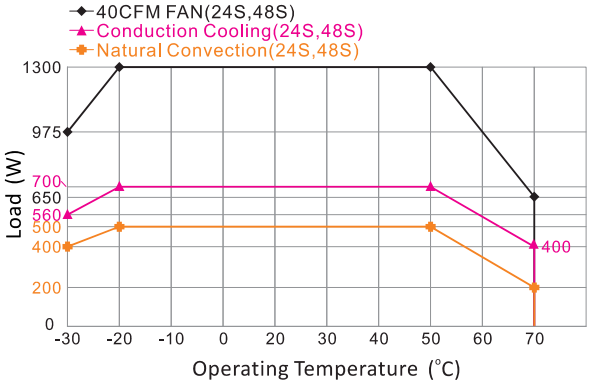


If input voltage is lower than 115VAC, please refer to the output derating V.S. input voltage curve for details

Derating Output Load versus Operating Temperature
ARF1300E-12S at 198-264Vin

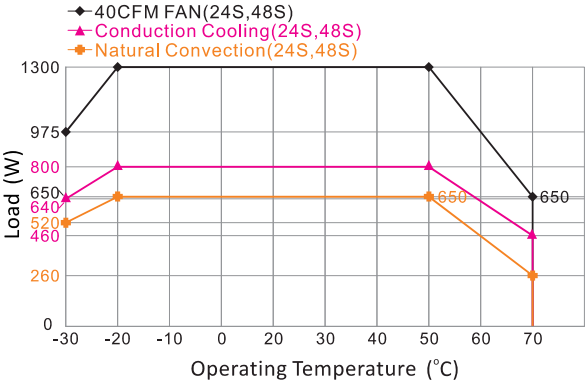


Derating Output Load versus Operating Temperature
ARF1300E-24S,48S at 115-197Vin

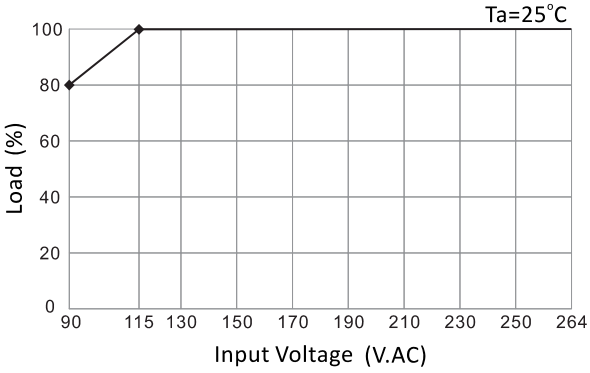


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Derating Output Load versus Operating Temperature
ARF1300E-24S,48S at 198-264Vin

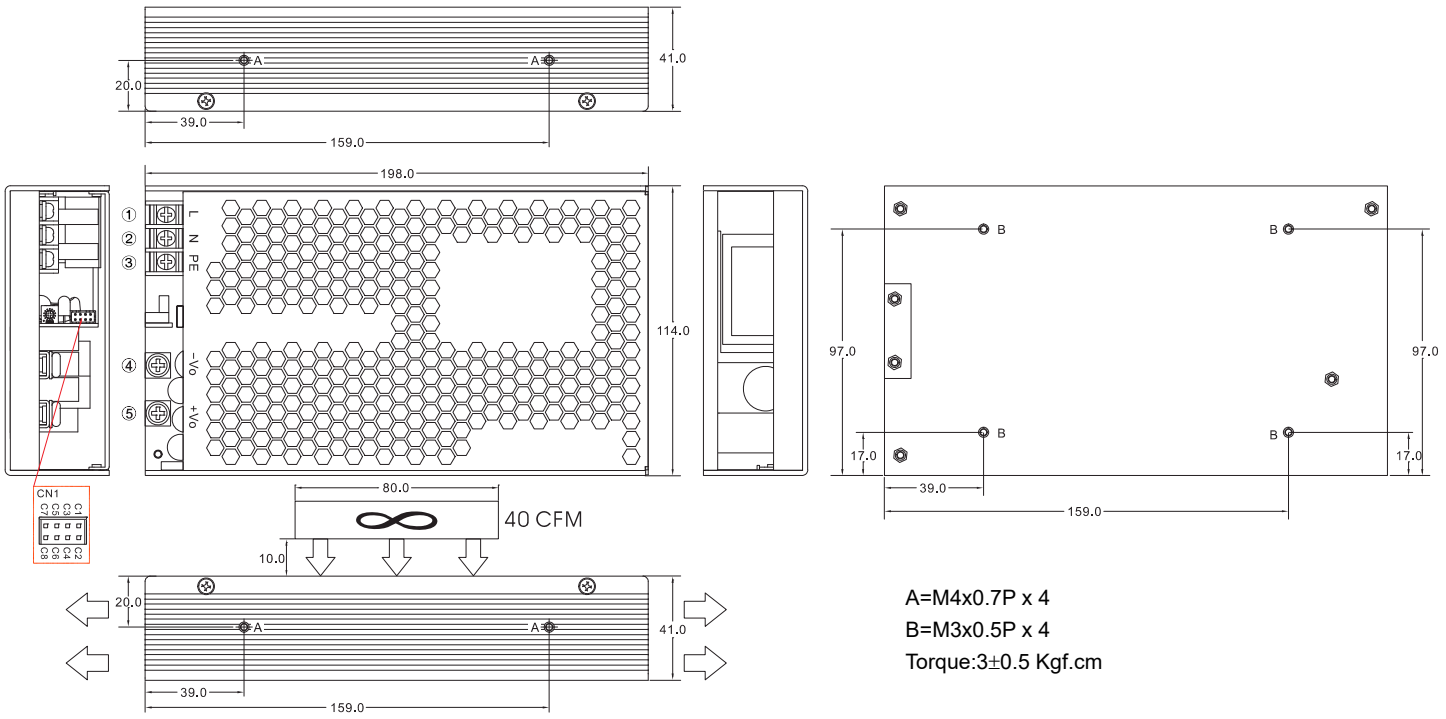


Derating Load versus Input Voltage



ARF1300E SERIES 1300 Watts

MECHANICAL DIMENSIONS (External View)



A=M4x0.7P x 4
B=M3x0.5P x 4
Torque:3±0.5 Kgf.cm

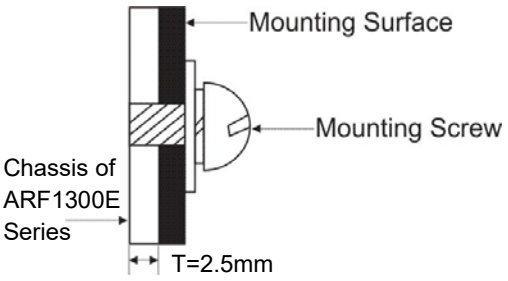
Brands		
PIN#	Single	Terminal
1	AC IN (L)	DINKLE DT-49-B01W-03
2	AC IN (N)	
3,A,B	PE	
4	-DC OUT	M5 Pan HD screw in 2 positions Torque to 8 lbs-in(90 cNm) max.
5	+DC OUT	

Connector Pin (CN1)

Brands		Cherng Weei		JST	
PIN#	Single	Mating Housing	Terminal	Mating Housing	Terminal
C1	+S	PHD-H20-2X4P	PHD-T20	PHDR-08VS	SPHD-001T-P0.5
C2	-S				
C3	NC				
C4	-5V SB				
C5	GND / -RC				
C6	+RC				
C7	PG				
C8	+5V SB				

ASSEMBLY INSTRUCTIONS

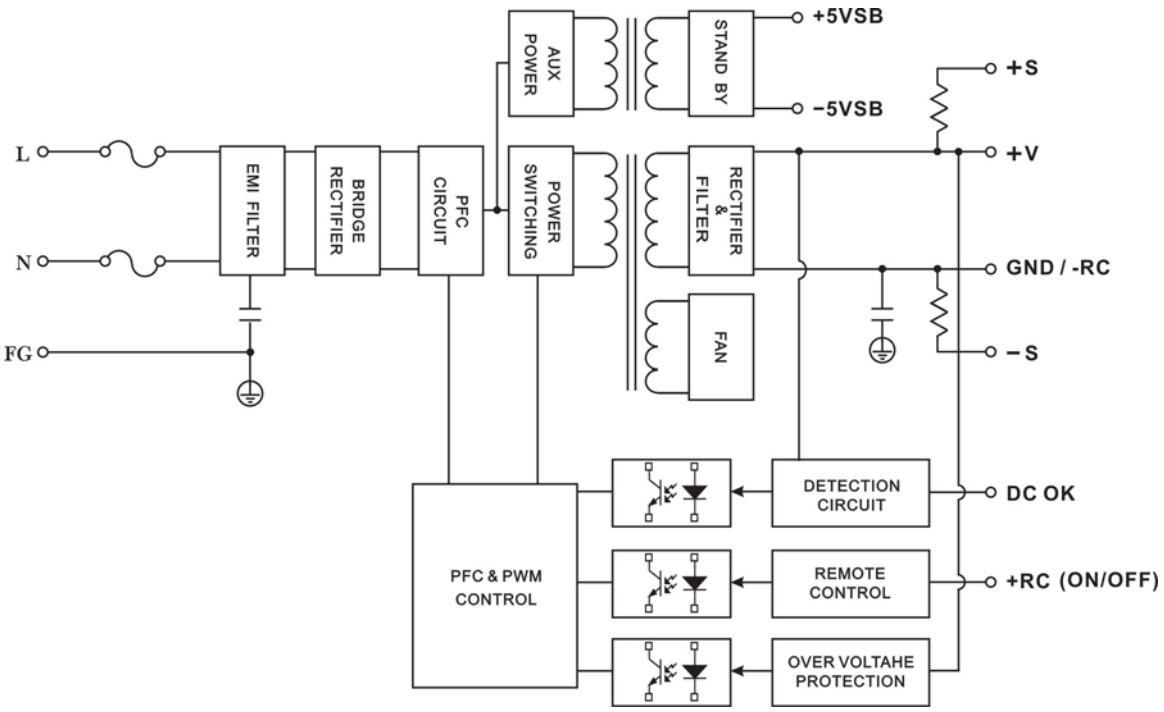
*U Case T=2.5mm
Customer is advised to screw into the threads no more than 2.5mm



FUNCTION DESCRIPITON of CN1

Pin No.	Function	Description
C1	+S	Remote sensing (+)
C2	-S	Remote sensing (-)
C3	NC	
C4	-5V SB	This pin connects to the negative terminal(-V)
C5	GND / -RC	This pin connects to the negative terminal(-V). Return for DC-OK signal output.
C6	+RC	Turns the output on and off by electrical or dry contact between pin C5 (GND / -RC), Short: Power OFF, Open: Power ON.
C7	+PG	DC-OK Signal is a DC output. (DC-OK)
C8	+5V SB	Stand by voltage output ground 4.4~5.5V, referenced to pin C4 or C5(GND). The maximum load current is 1A.

BLOCK DIAGRAM



We reserve the right to make alterations in the product materials and specifications without prior notification and consent to improve reliability, function or design or otherwise.