

**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) /<br>1100 W (230 VAC)                   | 1300 W                            |              |      |
| Max Output Wattage (Conduction Cooling) (W)             | (Note 4,6)                               | 650 W (115 VAC) /<br>700 W (230 VAC)                     | 700 W (115 VAC) / 800 W (230 VAC) |              |      |
| Max Output Wattage (Natural Convection) (W)             | (Note 6)                                 | 500 W (115 VAC) /<br>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                                       |                                   |              |      |

## ELECTRICAL SPECIFICATIONS

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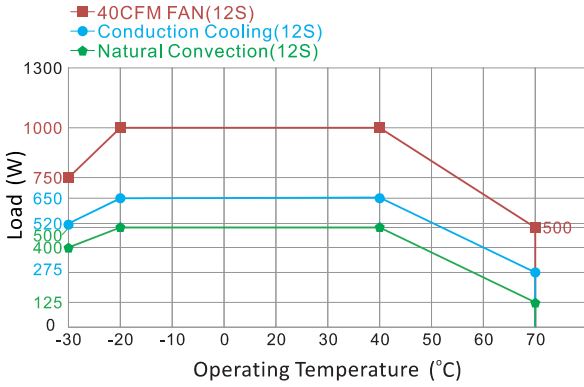
| Model No.   |                                  | ARF1300E-12S  | ARF1300E-24S | ARF1300E-48S |
|-------------|----------------------------------|---|--------------|--------------|
| Function    | 5V Stand by                      | 5VSB: 5V@1A with FAN, 5V@0.4A without FAN ; Tolerance $\pm 10\%$          |              |              |
|             | 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          | $\pm 0.03\%/^{\circ}\text{C}$ ( 0~50°C )                                  |              |              |
|             |                                  | $\pm 0.06\%/^{\circ}\text{C}$ (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 $\pm 0.5$ 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 $\pm 15\text{KV}$ , Contact $\pm 8\text{KV}$            |              | A            |
|             | RS                               | IEC 61000-4-3 3V/m  |              | A            |
|             | EFT/B                            | IEC 61000-4-4 $\pm 4\text{KV}$  |              | A            |
|             | Surge                            | IEC 61000-4-5 $\pm 4\text{KV}$ (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

- Ripple & Noise are measured at 20MHz of bandwidth by using a 6" twisted pair-wire terminated with a 0.1uF & 47uF parallel capacitor.
- Hold-up Time measured at 90% Vout.
- 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.
- 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 )
- 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.
- Please check the derating curve for more details.
- Due to varying customer application conditions, the product is tested for maximum operating temperature under full load only. For other regulatory requirements, please contact.
- CAUTION: Double pole, neutral fusing. Disconnect mains before servicing.  
(ATTENTION : 2 poles avec fusible sur le neutre. Deconnecter le secteur avant intervention.)

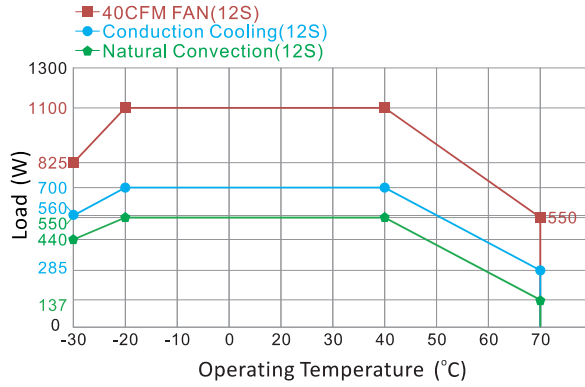
**DERATING**

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

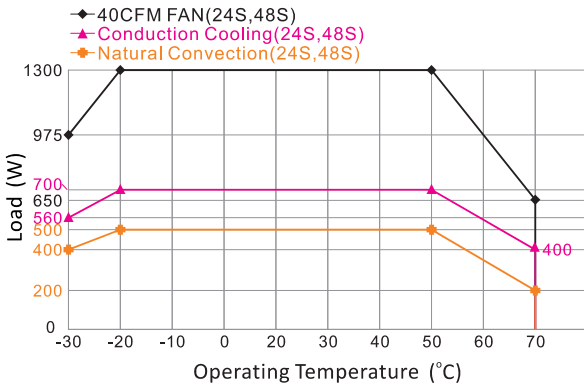


If input voltage is lower than 115VAC, please refer to the output derating V.S. input voltage curve for details

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

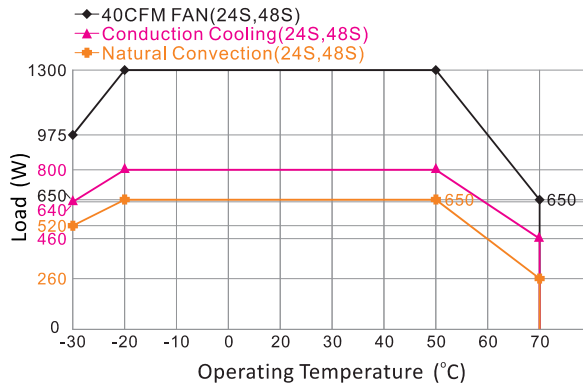


Derating Output Load versus Operating Temperature  
ARF1300E-24S,48S at 115-197Vin

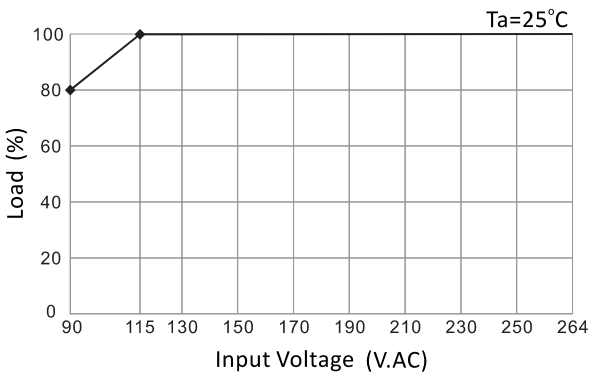


If input voltage is lower than 115VAC, please refer to the output derating V.S. input voltage curve for details

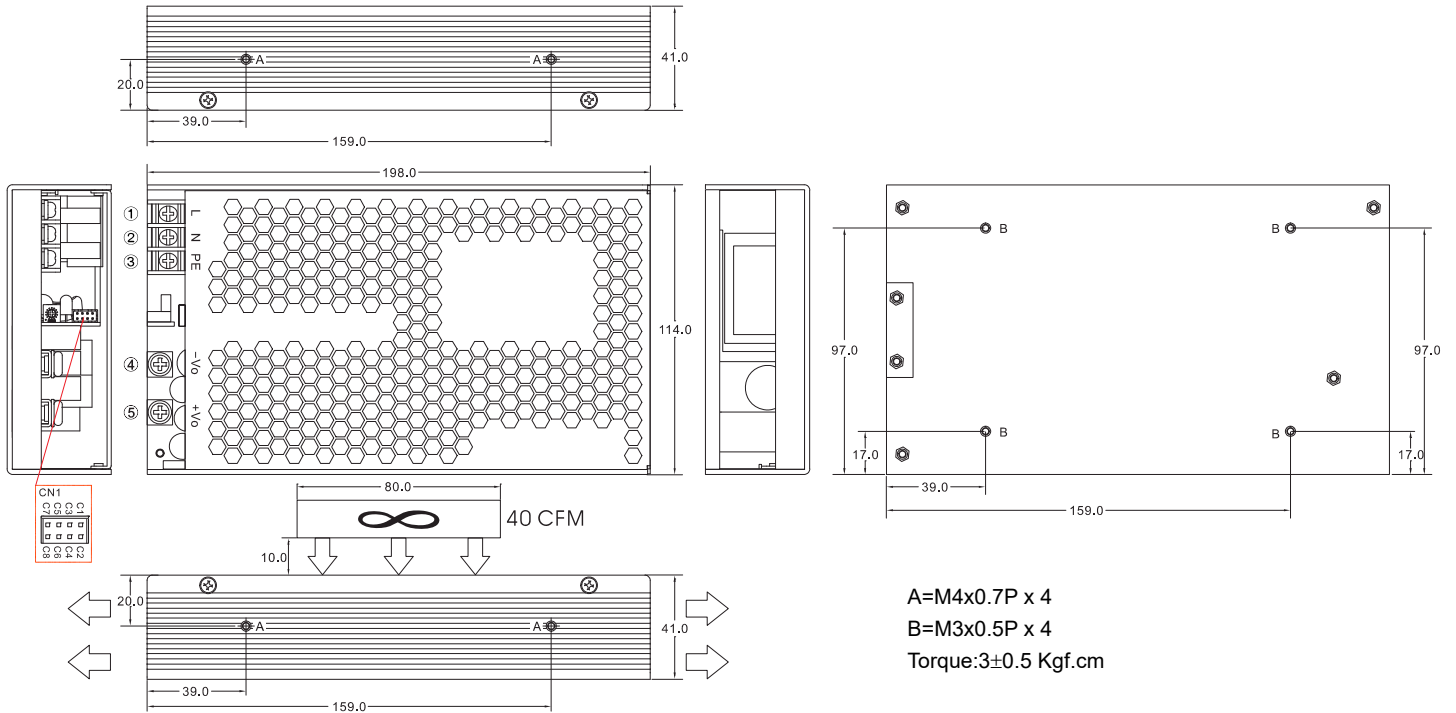
Derating Output Load versus Operating Temperature  
ARF1300E-24S,48S at 198-264Vin



Derating Load versus Input Voltage



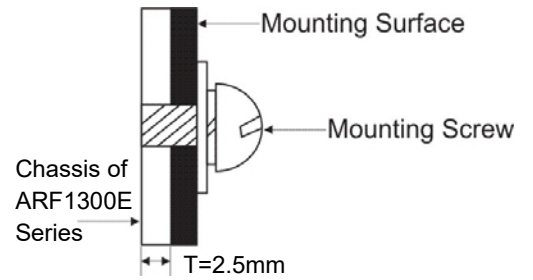
**MECHANICAL DIMENSIONS ( External View )**



**ASSEMBLY INSTRUCTIONS**

\*U Case T=2.5mm

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

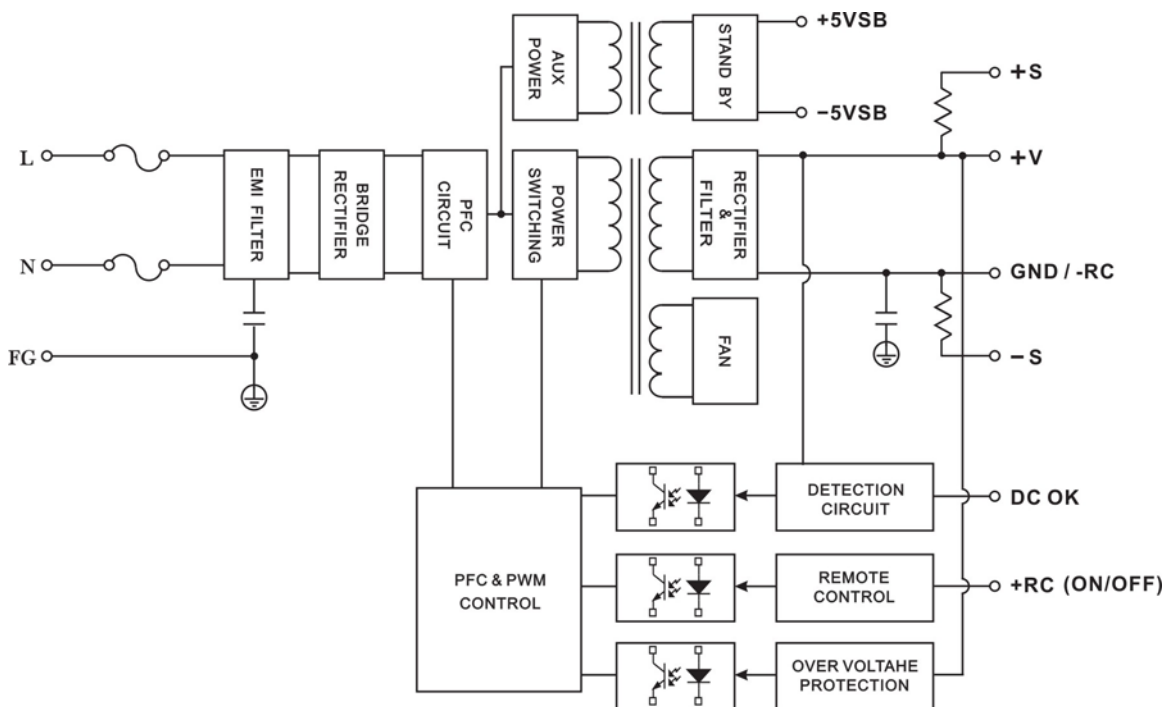


| Brands |           |   |
|--------|-----------|---|
| PIN#   | Single    | Terminal  |
| 1      | AC IN (L) | DINKLE DT-49-B01W-03  |
| 2      | AC IN (N) |   |
| 3,A,B  | PE        |   |
| 4      | -DC OUT   | M5 Pan HD screw in 2 positions<br>Torque to 8 lbs-in(90 cNm) max. |
| 5      | +DC OUT 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

| 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    |                |          |                |                |

**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**


Specifications are subject to change without notice, E&amp;OE. ALL PSU Terms &amp; Conditions apply.

**ALL PSU Ltd, Unit D6 Laser Quay, Culpeper Close, Medway City Estate,**  
**Rochester, Kent, ME2 4HU, Tel : 01634 725527, Fax : 01634 739111**  
**Email: sales@allpsu.co.uk, Web: www.allpsu.co.uk**