

# DT060AF Series | ITE & Medical Safety

## 60W/90W Peak

- Level VI energy compliant
- No load input power < 0.15W
- Average efficiency > 89%
- Eco-friendly design
- UL/CSA/EN 60950-1, 2<sup>nd</sup> edition  
ANSI/AMMI/CSA/EN 60601-1, 3<sup>rd</sup> edition
- 10 year warranty



GREEN POWER

## Description

The **DT060AF Series** is a 60W external power supply (EPS) designed for both medical and ITE applications. The eco-friendly design is compliant with the new DOE Energy Conservation Standards for External Power Supplies. With a 150% (90W) peak power rating, operating efficiencies > 89% and no-load input power < 0.15W, the DT060AF Series is ideal for ITE and medical equipment designs, including MOOP and 2xMOPP, that are compliant with 2016 conservation standards.

## Specifications

### Input

Input Voltage	• 85 VAC to 264 VAC
Input Frequency	• 47 Hz to 63 Hz
Inrush Current	• < 40/80A at 115/230 VAC, cold start, 25°C
Input Protection	• Internal T3.15A / 250 VAC fuse in line
No Load Input Power	• < 0.15W
Input Current	• 2A <sub>rms</sub> max/115 VAC, 1 A <sub>rms</sub> max/230VAC

### Output

Output Voltage	• See tables on page 2
Initial Set Accuracy	• See tables on page 2
Minimum Load	• No minimum load required
Start Up Rise Time	• 2 ms typical
Hold Up Time	• 16 ms typical
Line Regulation	• ±0.5% typical
Load Regulation	• ±3.0% typical
Ripple & Noise	• < 1% pk-pk typical, 20MHz Bandwidth
Over-voltage Protection	• latch off
Over-load Protection	• auto recovery
Short Circuit Protection	• auto recovery

### Environmental

Operating Temperature	• -20°C to 60°C derating: 2.5% / °C > 40°C
Cooling	• 72W, free air convection
Operating Humidity	• 10-95% RH, non-condensing
Storage Temperature	• -40°C to +80°C
Altitude	• 0 to 5000 m

### General

Efficiency	• 89% typical
Energy Saving	• DOE: EPS efficiency Level VI ErP: EC Code of Conduct Ver. 5 (Tier 2/2016)
Isolation	• 4000 VAC Input to Output, 2 x MOPP 1500 VAC Input to Ground, 1 x MOPP 1500 VDC Output to Ground, 1 x MOPP
Isolation Resistance	• 50 MΩ
Switching Frequency	• 120 kHz typical
MTBF	• > 200 kHrs to MIL-HDBK-217F at 50°C

### EMC & Safety

Safety Approvals:	• UL/CSA/EN 60950-1, 2nd edition • ANSI/AMMI/CSA/EN 60601-1, 3rd edition • CE Mark
Harmonic Currents	• EN 61000-3-2 class A
EMI	• EN 55022/CISPR 22 Class B, EN 61000-3-3
ESD Immunity	• EN 61000-4-2, 6kV/contact, 8kV/air
Radiated Immunity	• EN 61000-4-3, 10V/m with 80% AM
EFT Burst	• EN 61000-4-4, 2kV
Surge	• EN 61000-4-5, 1kV/L-L, 2kV/L-G
Conducted Immunity	• EN 61000-4-6, 10V with 80% AM
Magnetic Fields	• E61000-4-8, 10A/m
Dips & Interruptions	• EN 61000-4-11, 30% dips 500ms, 60% dips 200ms, 100% dips 10ms, 100% dips 20ms, 100% dips 5000ms

### Warranty

Manufacturer's Warranty	• 10 years. Call Tri-Mag or go to <a href="http://www.Tri-Mag.com">www.Tri-Mag.com</a> for details.
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## Output Specifications

Model No.	Output Rail	Load				Initial Accuracy	Step Efficiency			Avg. Eff.
		Min	Rated	Max	Peak		@20% Load	@50% Load	@100% Load	
DT060AF-5	+12V	0A	5A	-	7.5A	+11.4V~+12.6V	90%	91%	88%	89%
DT060AF-8	+15V	0A	4.0A	-	6.0A	+14.25V~+15.75V	90%	91%	88%	89%
DT060AF-6	+24V	0A	2.5A	-	3.75A	+22.8V~+25.2V	90%	91%	88%	89%
DT060AF-14	+48V	0A	1.25A	-	1.87A	+45.6V~+50.4V	90%	91%	88%	89%

### Notes

- Output Load:**  
Rated 60W for convection cooling.
- Peak Load Duration:**  
90W peak rating for durations up to 5 sec. Ideal for motor-starting/in-rush conditions.
- Engineering Specification:**  
Contact Tri-Mag for full engineering specification for the specific part number used in your design application.
- Standby Power Consumption with System:**  
New external power supply (EPS) efficiency requirements have been established by the U.S. DOE (EPS) and the European ErP regulations. The no-load power consumption requirements are < 0.21W and < 0.15W respectively.
- Audible Noise:**  
For the DT060AF-x energy saving series, achieving level VI (<0.15W) standby power consumption is accomplished through burst mode operation of the controller. The burst operation frequency is dependent on load conditions and is approx. 114Hz, within the audible frequency range.
- Step Efficiency and Average Efficiency:**  
Test conditions in step efficiency are referred to 3.2.2 IPS (Internal Power Supply) of ENERGY STAR program requirements for computers. ENERGY STAR required for efficiency @ 20%, 50%, 100% load is 90%, 91%, 89%; average efficiency is the average of step efficiency.

7. **Model Ordering Table:**

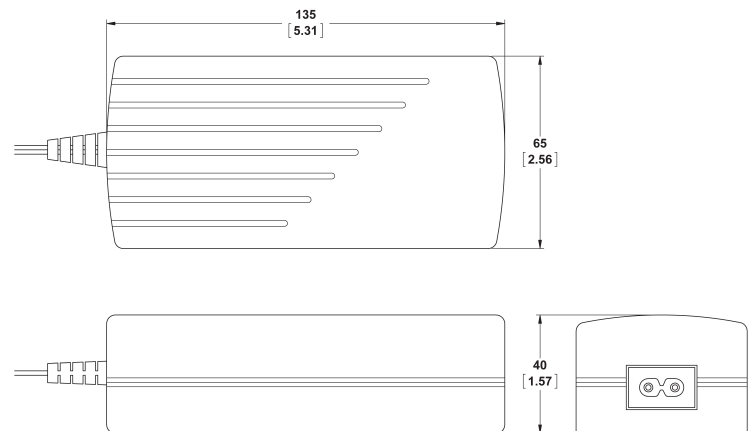
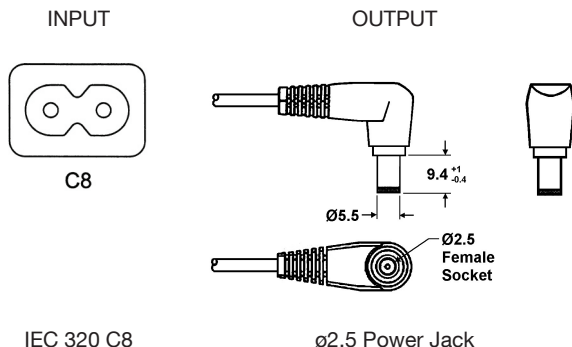
Safety/Application	Energy Saving
ITE & Medical	DT060AF-x

## Mechanical Specifications

### Notes

- Dimensions shown in mm. Tolerance: ±1 mm (excluding cable).
- Size: 65 X 135 X 40 (mm)  
2.56" X 5.31" X 1.57"  
Net weight: 350 g approx./unit

3. Connectors:



- Box Color: Black
- RoHS Compliant