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# M300 Series

## 60 Hz to DC

- 300 Watt Single and Triple Output, Switching Power Supply
- High Efficiency, 60% Minimum
- Short Circuit Protection Standard
- Meets MIL-STD-461B, MIL-STD-810C and MIL-S-901C

### Specifications

#### Input:

103.5 to 126.5 V rms standard, 47 to 440 Hz, single phase. Other inputs available (See Options H and -3 for details).

#### Efficiency:

60% minimum at full load.

#### Line Regulation:

Within 0.2% or 25 mV (whichever is greater) for change from low line to high line with load held constant.

#### Load Regulation:

Within 0.2% or 25 mV (whichever is greater) for change from no load to full load with line constant.

#### Auxiliary Output Tracking Accuracy:

The negative output will track the positive output within 200 mV for all rated conditions (M300T).

#### Pard (Noise and Ripple) for Main and Auxiliary Outputs:

30 mV rms, 100 mV peak-to-peak (maximum) at 25 MHz bandwidth, over the entire temperature range.

#### Isolation Voltage:

500 V dc input to output and input to case, 100 V dc output to case.

#### Insulation Resistance:

50 megohms minimum between input and output, input and case, and output and case when measured at 50 V dc.

#### Temperature Range:

Operating: 0°C to +71°C maximum temperature at center of baseplate. Storage: -55°C to +85°C ambient.

#### Temperature Coefficient:

0.01%/°C for main and auxiliary outputs over entire temperature range.

#### Input Transient Protection:

Unit will withstand 143.8 V ac for 0.3 second in accordance with MIL-STD-1399.

#### Load Transient Recovery

##### Time:

Output voltage returns to regulation limits within 1.5 millisecond for main and 100 microseconds for auxiliary outputs after a 50% step change in load current.

#### Holdup Time:

Typical: 10 mS after nominal input voltage is lost at full load.

#### Short Circuit Protection:

Completely protected against a short circuit of any duration. Outputs automatically restore to normal when overload is removed. All outputs will foldback for overload.

#### Current Limiting:

Output current is limited to 120% on main and auxiliary outputs ( $\pm 10\%$ ) under overload conditions.

#### Remote Error Sensing:

Regulator monitors voltage directly at the load using extra "sensing" leads and compensates for a dc voltage drop up to 0.5 volt in the load leads.

#### Electromagnetic Interference:

Units were designed and tested to the requirement of MIL-STD-461B, Class A1B, for generation of and susceptibility to radiated and conducted interference. For details and reports consult your nearest sales office.

#### Reliability:

The Mean Time Between Failure (MTBF) per MIL-HDBK-217D calculated for the standard model M300T under operating conditions of 50°C baseplate temperature, maximum operating input voltage and maximum rated output power, is 77,455 hours for a ground benign environment and 11,642 hours for a naval sheltered environment. With Enhanced Reliability (-ER option) MTBF was calculated to be 119,771 hours for ground benign environment and 16,233 hours for naval sheltered environment. Please consult factory for additional environment and model calculations.

#### Environment:

Units are encapsulated and hermetically sealed to meet the environmental requirements of MIL-STD-810C and MIL-S-901 including altitude (to 70,000 ft.), vibration, shock, acceleration, sand, dust, humidity, saltspray, fungus, explosion, etc.

#### Connectors:

Standard unit is provided with solder-pin input header and a hermetic seal, stud-type, output connector.



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**Options**

The following standard options are available on the M300 Series power supplies. Please refer to the option section of this catalog for detailed information.

**Special Connectors:**

A military-type hermetically sealed connector is provided as **Option A** in place of our standard header. (To order, replace the "D" in the model number with "A", i.e., M300T/5/15-A.)

**Severe Shock, Acceleration and Vibration:**

Special encapsulation, **Option E**, enables all units to withstand 60 g's shock, 50 g's acceleration and 30 g's vibration. (To order, add "E" after "D" in model number, i.e., M300S/5-DE.)

**Wide Input Voltage:**

With **Option H**, the unit will operate from 90 to 126.5 V ac, with 20% derating in output power. (To order, add "H" after the "D" in model number, i.e., M300T/5/15-DH.)

**Remote Turn On/Off:**

**Option L** provides isolated terminals to turn outputs on/off with TTL logic signal. (To order, add "L" after the "D" in model number, i.e., M300S/5-DL.)

**Remote Output Adjustment:**

With **Option R** an adjustment potentiometer can be remotely located to adjust the output voltage. (To order, add "R" after the "D" in model number, i.e., M300T/5/15-DR.)

**Wider Operating Temperature:**

A wider operating temperature range of -20°C to +71°C is available with **Option T**. PARD (noise and ripple) specification increases to 200 mV peak-to-peak. (To order, add a "T" after "D" in model number, i.e. M300S/5-DT.)

**WYE Input:**

**Option -3** changes input to 3-phase, 4 wire "WYE". (To order, add a "-3" to the end of the model number, i.e. M300T/5/15-D-3.)

**50-50 Power Split:**

**Option -7** provides a 50/50 power split between main and auxiliary outputs. (50% main output, 25% each, auxiliary outputs.) Load regulation of auxiliary outputs will be 2 times greater than standard model. (To order, add a "-7" to the end of the model number, i.e. M300T/5/15-D-7.)

**Enhanced Reliability:**

**-ER Option** provides increased reliability by using higher levels of military-grade components. (To order, add "-ER" after model number, i.e., M300T/5/15-ER.)

**Standard Single Output Models**

Output Voltage Range <sup>1</sup> (Main)	Output Voltage Range <sup>1</sup> (Aux)	Output Current <sup>2</sup> (Main)	Output Current <sup>2</sup> (Aux)	Weight <sup>3</sup> (Lbs.)	Weight <sup>3</sup> (Kgs.)	Model Number
4.75-5.25		60.0		7.8	3.55	M300S/5-D
11.40-12.60		25.0		7.8	3.55	M300S/12-D
14.25-15.75		20.0		7.8	3.55	M300S/15-D
22.80-25.20		12.5		7.8	3.55	M300S/24-D
26.60-29.40		10.7		7.8	3.55	M300S/28-D

**Standard Triple Output Models**

Output Voltage Range <sup>1</sup> (Main)	Output Voltage Range <sup>1</sup> (Aux)	Output Current <sup>2</sup> (Main)	Output Current <sup>2</sup> (Aux)	Weight <sup>3</sup> (Lbs.)	Weight <sup>3</sup> (Kgs.)	Model Number
4.8-5.3	±11.4-±12.6	48.0	2.5	9.2	4.18	M300T/5/12-D
	±14.3-±15.8	48.0	2.0	9.2	4.18	M300T/5/15-D

1. Output voltage is continuously adjustable between the limits shown by means of an externally accessible screwdriver adjustment potentiometer. Adjustment resolution is 35 mV.

2. Maximum output power equals 300 watts.

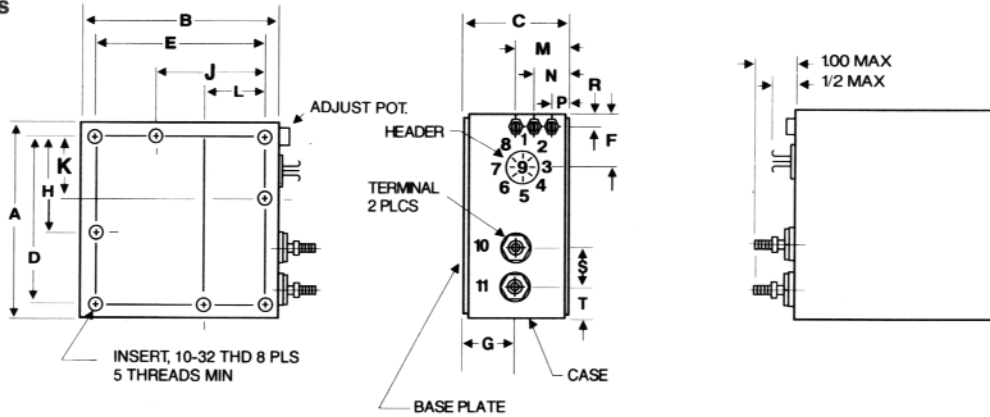
3. Maximum weight, not including options.

**Model Numbering System**

Product Line Series	Total Output Power	Number of Outputs	Slash	Main Output Voltage	Slash	Auxiliary Output Voltage	Dash	Header Type	Options
M	300	T	/	5	/	12	-	D	



Case Drawings



Dimensions

	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T
Inches	6	8	3	5.50	7.50	1 <sup>9</sup> / <sub>32</sub>	1 1/2	3.41	4.11	2.09	3.39	1 <sup>11</sup> / <sub>16</sub>	1 <sup>3</sup> / <sub>32</sub>	1/2	3/8	1 1/4	3/4
mm	152.4	203.2	76.2	139.7	190.5	35.7	38.1	86.64	104.47	53.06	86.02	43.18	27.94	12.7	9.5	31.8	19.1

**Tolerances:** If English unit is a fraction, ± 1/32 inch, (0.8 mm), if English unit is a decimal, ± .015 inch, (0.4 mm).  
**Material:** Base—Aluminum 6061-T6, Case Steel.

**Finish:** Black flat lacquer per FED-STD-595, Color 37038.  
**Mounting:** 10-32 THD inserts 5/32" minimum depth are provided in baseplate. Steel 10-32 bolts American Standard,

unified national fine series, slotted studs are supplied with each unit. Metric hardware and inserts available as a special order.

Pin Designations

(Standard model, not including options. Consult factory for details.)

- |                  |                  |                  |
|------------------|------------------|------------------|
| 1. AC Input      | 5. +Sense (Main) | 9. Case Ground   |
| 2. AC Input      | 6. +Aux. Output  | 10. +Main Output |
| 3. Not Used      | 7. Aux. Com.     | 11. -Main Output |
| 4. -Sense (Main) | 8. -Aux. Output  |                  |

Input Current

(Typical)  
Amps

Model	Output Load	Low Line	High Line
M300S	50%	3.2	2.8
	100%	6.3	5.4
M300T	50%	3.2	2.8
	100%	6.3	5.4