

# MINT1400A

400W Single Output Series



Medical – Universal Input Power Supply

2 Year Warranty

- Compact 3.94" x 7" x 1.58", 1U compatible
- 9.5 W/in<sup>3</sup>
- Up to 250W Convection Rating
- Efficiency up to 91%
- 12Vdc to 48Vdc outputs, up to 400W
- Remote ON/OFF
- Safety approved to Medical and ITE Standards
  - EN/IEC/UL60601-1 and CSA 601.1
  - CSA/EN/IEC/UL60950-1, 2<sup>nd</sup> Edition
- Compliant to EN55011/22 Conducted Noise, Class B
- RoHS Compliant – Category 6



International Safety Standard Approvals



## Specifications

All Specifications are typical at nominal input, full load at 25°C unless otherwise stated.

<b>AC Input</b>	85-270VAC, 47-63 Hz single phase	<b>Turn On Time</b>	500mSec maximum
<b>Input Current</b>	120VAC: 4.2A, 230VAC: 2.1A	<b>Hold-up Time</b>	20 ms at 400W
<b>Inrush Current</b>	Active circuit, 37A max	<b>Overvoltage Protection</b>	See chart
<b>Input Fuses</b>	F1, F2: 6.3A	<b>Overload Protection</b>	Cycling type, 470W typical
<b>Power Factor</b>	0.99 typical, 0.96 minimum	<b>Overtemperature Protection</b>	Provided on all models, auto-recovery. See page 2 for cooling information
<b>Efficiency</b>	Typical 88% @ 120VAC, 91% @ 240VAC	<b>Switching Frequency</b>	Output: 170kHz ± 8kHz; PFC: 90kHz, ± 8kHz; Bias: 100kHz, ± 6 kHz
<b>Remote Sense</b>	Compensates for up to 500mV drop on output leads	<b>Safety Standards</b>	Medical: EN/IEC/UL 60601-1, CSA 601.1 ITE: CSA/EN/IEC/UL 60950-1, 2nd Edition
<b>Output Power</b>	400W with fan cooling. See derating chart for other conditions. Peak: 450W for 1 min., 10% duty cycle	<b>Isolation</b>	Input-Output: 4000VAC, Input-Ground: 1500VAC, Output-Ground: 500VAC
<b>Ripple and Noise</b>	1% pk-pk max., 20MHz BW, differential mode	<b>Earth Leakage Current</b>	100µA at 120VAC, 60Hz Normal. 400µA at 264Vac, 60Hz SFC.
<b>Output Voltages</b>	See chart. Voltages adjustable +/- 5%	<b>Operating Temperature</b>	0° to 70°C, refer to derating curve for ratings >40°C
<b>Total Regulation</b>	See chart	<b>Storage Temperature</b>	-40 to +85°C
<b>Minimum Load</b>	Not required	<b>Relative Humidity</b>	5% to 95%, non-condensing
<b>Transient Response</b>	500µs to 1%, 0.2A/µs, 3.5% Deviation	<b>Altitude</b>	Operating: -500 to 10,000 ft. Non-Operating: -500 to 40,000 ft.
<b>Shock and Vibration</b>	Shock: MIL-STD-810E, 516.4 part IV Vibration: 5Hz – 500Hz, 2.5 Grms		

## Model Number Key

MINT 1 400 A 12 10 L 01

- 01 = Standard Model, 02 and higher indicates a modified model.
- "L" = Input Connector - EBY P/N 5002-03-N-12
- "10" = Output Connections - Bus Bars with #10 screws
- Output Voltage: "12" = 12V output, "24" = 24V output, etc.
- Model Configuration: "A" = Original Configuration; "C" = Optional fan cover included
- Output Power (Watts) - "400" = 400W
- # of Outputs
- Product Family: "M" = Medical, "I" = Internal, "NT" = New Technology

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Model Number	Output Volts (V)	Output Parameters		Ripple & Noise	Total Regulation
		Fan Cooled	Convection		
MINT1400A1210L01	12V	33.0A	21.0A	1%	2%
MINT1400A2410L01	24V	16.7A	10.4A	1%	2%
MINT1400A2810L01	28V	14.3A	8.9A	1%	2%
MINT1400A4810L01	48V	8.30A	5.2A	1%	2%

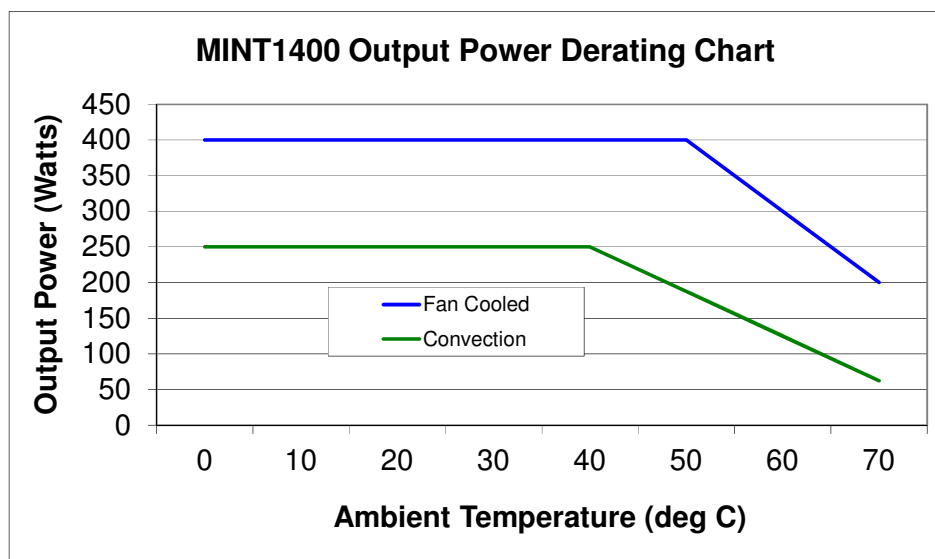
## Signals

<b>Inhibit:</b> TTL LOW to inhibit	<b>DC OK:</b> HIGH when output is >90% of nominal
<b>PS Off:</b> TTL HIGH to inhibit	<b>Fan Output:</b> 12Vdc @ 250 mA.
<b>Pwr OK</b> TTL HIGH when AC is OK, 100-200 mS delay.	<b>5V Standby Voltage:</b> Always on, up to 100mA.
<b>Pwr OK</b> PF LOW 4 mS warning before loss of output regulation.	

## EMI/EMC Compliance

Conducted Emissions	EN55011/22 Class B
Radiated Emissions	EN55011/22 Class A
Voltage Fluctuations	EN61000-3-3, complies
Static Discharge Immunity	EN61000-4-2, 6kV Contact Discharge, 8kV air discharge
Radiated RF Immunity	EN61000-4-3, 3V/m.
EFT/Burst Immunity	EN61000-4-4, 2kV/5kHz..
Line Surge Immunity	EN61000-4-5, 1kV differential, 2kV common-mode
Conducted RF Immunity	EN61000-4-6, 3Vrms
Power Frequency Magnetic Field Immunity	EN61000-4-8, 3A/m
Voltage Dip Immunity	EN61000-4-11 criteria A @ 250 Watts or less.
Line Frequency Harmonics	EN61000-3-2, Class A

## Output Power Derating Curve



**Note:** For convection cooling, the power supply is required to be mounted on a heatsink or system chassis with a minimum of 150 in<sup>2</sup> of surface area.

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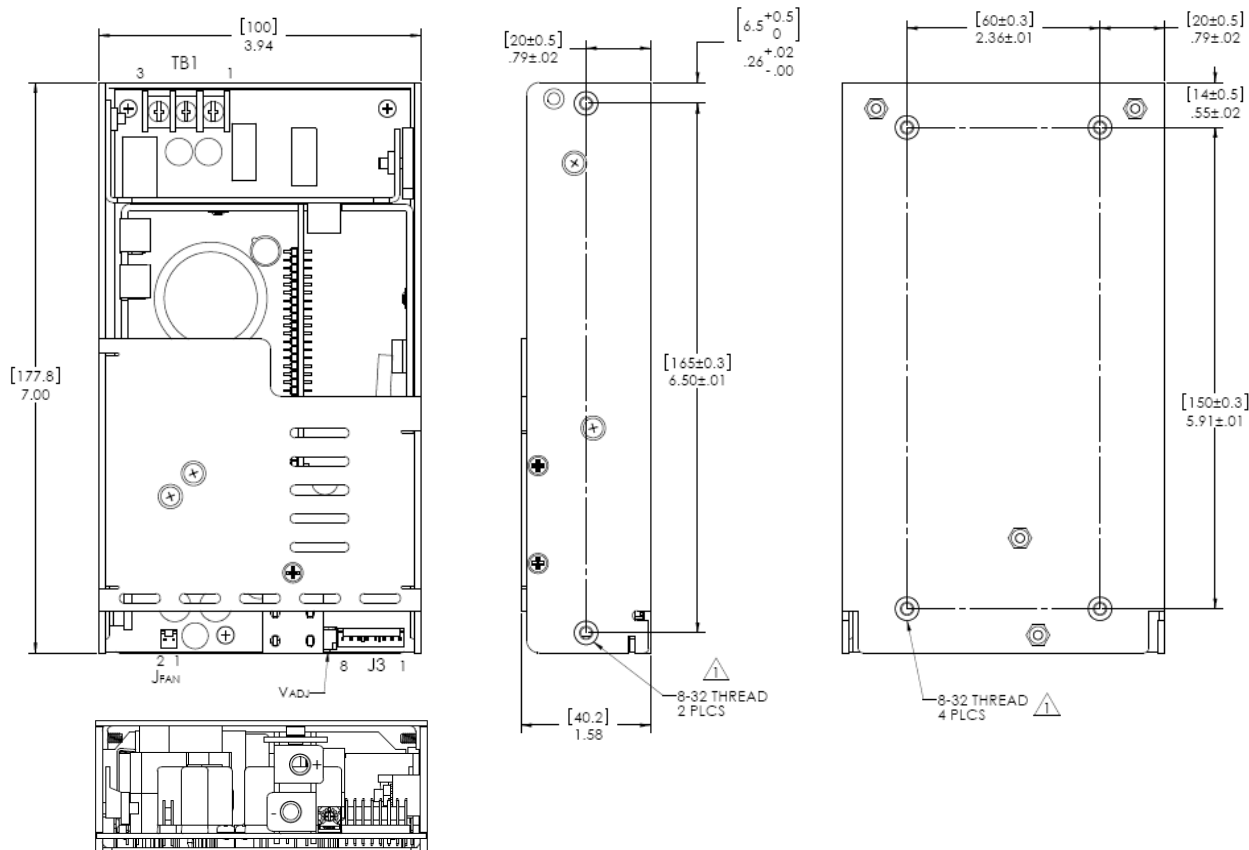
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## Outline Drawing & Connector Information

WEIGHT: 1.6 LBS [0.75 Kg]



### Connector Information

#### INPUT CONNECTOR (TB1):

Pin 1	Pin 2	Pin 3	Manufacturer's P/N:
AC Line	Neutral	Ground	EBY P/N 5002-03-N-12

#### SIGNAL CONNECTOR (J3) (optional):

Pin 1	Pin 2	Pin 3	Pin 4	Manufacturer's P/N: AMP P/N 640456-8
PS OFF	INHIBIT	PWR OK	DC OK	
Pin 5	Pin 6	Pin 7	Pin 8	
RTN	+5V Standby	- SENSE	+ SENSE	

#### DC OUTPUT CONNECTORS (TB2):

Pin 1	Pin 2	Manufacturer's P/N:
+Vout	-Vout	Bus bars with #10 screws

#### FAN OUTPUT CONNECTOR (J4) (optional):

Pin 1	Pin 2	Manufacturer's P/N:
+12V @ .25A	RTN	AMP P/N 640456-2

#### MATING CONNECTORS:

Mate For:	Manufacturer's P/N:	Options:	Mate For:	Manufacturer's P/N:
J1	#6-32 Lug, 0.325 Center	Signals	J3	AMP P/N 1375820-8, Pins: 1375813-3
TB2	Wire - sized for output current rating.	Fan Output	J4	AMP P/N 1375820-2, Pins: 1375813-3