



MLO40
(Open-Frame)

N2Power ML40 AC-DC Series High-Efficiency Medical Power Supplies

HIGHLIGHTS

- 40 W AC-DC
- High-Efficiency—up to 93.5%
- Low standby power consumption (≤ 0.11 W)
- Wide input-voltage range spans from 85 to 264 VAC
- Supports DC-DC input voltage from 120 to 370 VDC
- Convection cooled up to full power—no fan needed
- Built-in EMI filter
- Adjustable output voltage ($\pm 10\%$)
- Open frame dimensions: 2.00" \times 3.00" \times 1.16 "
- 4,000 VAC input to output 2 \times MOPP insulation
- Protection Class I and II
- Low-leakage current (<75 μ A)
- Operating altitude up to 5,000 meters
- Three-year warranty



MLU40
(U-Frame)



MLE40 (Enclosed)



MLD40 (DIN Rail)

CONNECTOR OPTIONS

JST standard (Molex or terminal block optional)



HIGH EFFICIENCY IN A SMALL PACKAGE

The ML40 Series incorporates the latest advancements in power design to provide up to 93.5% efficiency in an AC-DC power supply. Its unique design reduces energy consumption and generates less wasted heat, decreasing AC loads and eliminating the need for forced air cooling. The result is much more cost-effective operation.

A POWER SUPPLY DESIGN LEADER

N2Power leads the power density race with its high-efficiency ML40 AC-DC power supplies, which provide up to 93% efficiency. In fact, comparisons of efficiencies show that our supplies can reduce energy losses by up to 50%. Our advanced technology yields a very small footprint and offers the highest power density in its class. This unique design also generates less wasted heat—reducing the need for forced air cooling, decreasing AC power consumption, increasing reliability, and maximizing its economy of operation. By building our power supplies with a focus on maximizing efficiency, we can provide our valued customers with reduced energy costs, longer product lifespans, and a greater return on their investment.

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INPUT SPECIFICATIONS	
Nominal Input Voltage:	85 – 264 VAC 120 – 370 VDC
Input Frequency Range:	47 – 63 Hz
Input Current:	1.0 A @ 100 VAC 0.5 A @ 240 VAC
Safety Isolation (2xMOPP Insulation):	4000 VAC input to output 2500 VAC Input(output) to ground
Inrush Current:	60 A @ 230 VAC, 25°C
Earth Leakage (ER): Touch Current (TC):	<0.5mA (NC), <0.6mA (SFC) <100uA (NC), <150uA (SFC)
OUTPUT SPECIFICATIONS	
Total Output:	40 W
Output Voltages:	5 V to 53 V
Voltage Tolerance:	±1.0%
Line Regulation:	±0.2% (2)
Hold-Up Time:	Minimum 16 ms (115 VAC input, full power load)
Efficiency:	Up to 93.5%
Minimum Load:	No load
PROTECTION	
Over Voltage Protection:	Latch mode at 125 – 140% of V _{OUT}
Over Power Protection:	Hiccup mode at 145% of I _{OUT}
Short Circuit Protection:	Continuous protection with auto recovery
OPERATING SPECIFICATIONS	
Operating Temperature:	-40 to +85°C
Storage Temperature:	-40 to +85°C
Relative Humidity:	5% to 95% (non-cond.)
MTBF (full load at 25°C):	3,010,000 hours

*See MTBF Report for additional temperature values

MLO models are open frame, MLU models are U-frame, MLE models are enclosed, and MLD models are DIN rail.
Model No. suffix: C = Class I protection; D= Class II protection

Model Number	Part Number	Output	Voltage	Regulation	Max Current	Ripple & Noise P/P
MLO40-05C	400223-14-5	Vout	5	+/-0.7%	8	75 mV
MLU40-05C	400225-14-0					
MLE40-05C	400226-14-8					
MLD40-05C	400224-14-3					
MLO40-05D	400223-01-2					
MLU40-05D	400225-01-7					
MLE40-05D	400226-01-5	Vout	7.5	+/-0.5%	5.34	75 mV
MLD40-05D	400224-01-0					
MLO40-7P5C	400223-15-2					
MLU40-7P5C	400225-15-7					
MLE40-7P5C	400226-15-5					
MLD40-7P5C	400224-15-0					
MLO40-7P5D	400223-02-0	Vout	9	+/-0.5%	4.45	75 mV
MLU40-7P5D	400225-02-5					
MLE40-7P5D	400226-02-3					
MLD40-7P5D	400224-02-8					
MLO40-09C	400223-16-0					
MLU40-09C	400225-16-5					
MLE40-09C	400226-16-3	Vout	12	+/-0.5%	3.34	75 mV
MLD40-09C	400224-16-8					
MLO40-09D	400223-03-8					
MLU40-09D	400225-03-3					
MLE40-09D	400226-03-1					
MLD40-09D	400224-03-6					
MLO40-12C	400223-17-8	Vout	15	+/-0.5%	2.67	75 mV
MLU40-12C	400225-17-3					
MLE40-12C	400226-17-1					
MLD40-12C	400224-17-6					
MLO40-12D	400223-04-6					
MLU40-12D	400225-04-1					
MLE40-12D	400226-04-9	Vout	12	+/-0.5%	3.34	75 mV
MLD40-12D	400224-04-4					
MLO40-121C	400223-18-6					
MLU40-121C	400225-18-1					
MLE40-121C	400226-18-9					
MLD40-121C	400224-18-4					
MLO40-15C	400223-19-4	Vout	15	+/-0.5%	2.67	75 mV
MLU40-15C	400225-19-9					
MLE40-15C	400226-19-7					
MLD40-15C	400224-19-2					
MLO40-15D	400223-06-1					
MLU40-15D	400225-06-6					
MLE40-15D	400226-06-4					
MLD40-15D	400224-06-9					

Chart continued on next page...

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N2Power ML40 AC-DC Series High-Efficiency Medical Power Supplies

...Chart continued from previous page...

Model Number	Part Number	Output	Voltage	Regulation	Max Current	Ripple & Noise P/P
MLO40-151C	400223-20-2	Vout	15	+/-0.5%	2.67	75 mV
MLU40-151C	400225-20-7					
MLE40-151C	400226-20-5					
MLD40-151C	400224-20-0					
MLO40-151D	400223-07-9					
MLU40-151D	400225-07-4					
MLE40-151D	400226-07-2					
MLD40-151D	400224-07-7	Vout	18	+/-0.5%	2.23	75 mV
MLO40-18C	400223-21-0					
MLU40-18C	400225-21-5					
MLE40-18C	400226-21-3					
MLD40-18C	400224-21-8					
MLO40-18D	400223-08-7					
MLU40-18D	400225-08-2					
MLE40-18D	400226-08-0					
MLD40-18D	400224-08-5	Vout	24	+/-0.5%	1.67	75 mV
MLO40-24C	400223-22-8					
MLU40-24C	400225-22-3					
MLE40-24C	400226-22-1					
MLD40-24C	400224-22-6					
MLO40-24D	400223-09-5					
MLU40-24D	400225-09-0					
MLE40-24D	400226-09-8					
MLD40-24D	400224-09-3	Vout	28	+/-0.5%	1.43	75 mV
MLO40-28C	400223-23-6					
MLU40-28C	400225-23-1					
MLE40-28C	400226-23-9					
MLD40-28C	400225-23-1					
MLO40-28D	400223-10-3					
MLU40-28D	400225-10-8					
MLE40-28D	400226-10-6					
MLD40-28D	400224-10-1	Vout	36	+/-0.5%	1.12	75 mV
MLO40-36C	400223-24-4					
MLU40-36C	400225-24-9					
MLE40-36C	400226-24-7					
MLD40-36C	400224-24-2					
MLO40-36D	400223-11-1					
MLU40-36D	400225-11-6					
MLE40-36D	400226-11-4					
MLD40-36D	400224-11-9	Vout	48	+/-0.5%	0.84	150 mV
MLO40-48C	400223-25-1					
MLU40-48C	400225-25-6					
MLE40-48C	400226-25-4					
MLD40-48C	400224-25-9					
MLO40-48D	400223-12-9					
MLU40-48D	400225-12-4					
MLE40-48D	400226-12-2					
MLD40-48D	400224-12-7	Vout	53	+/-0.5%	0.77	150 mV
MLO40-53C	400223-26-9					
MLU40-53C	400225-26-4					
MLE40-53C	400226-26-2					
MLD40-53C	400224-26-7					
MLO40-53D	400223-13-7					
MLU40-53D	400225-13-2					
MLE40-53D	400226-13-0					
MLD40-53D	400224-13-5					

EMC: EMI Emission

EN 55011, EN 55032, EN 60601-1-2 & FCC Part 18/15 (Class B; EN 61000-3-2, EN 61000-3-3

EMC Immunity:

EN 55024, EN 60601-1-2, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 6100-4-6, EN 61000-8, EN 61000-11,

Compliance *Safety:

IEC/ EN/ ANSI/AAMI ES 60601-1 IEC/ EN/ UL 60950-1, IEC/EN/UL 62368-1

Notes:

1. All parameters NOT specifically mentioned are measured at 230 VAC input, rated load, and 25°C ambient temperature.
2. The power supply is considered a component that will be installed into a unit of equipment. The equipment itself must also be certified as EMC compliant.

***This product is not designed for use in critical life support systems, equipment used in hazardous environments, nuclear control systems, or other such applications that necessitate specific safety and regulatory standards other than those listed herein.**

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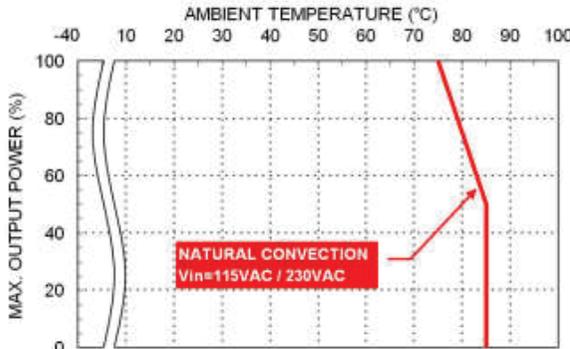
Note: If you can't find your preferred output voltage listed on the table above, please contact a sales representative. We can easily modify standard PSUs to meet client-specific voltage requirements.

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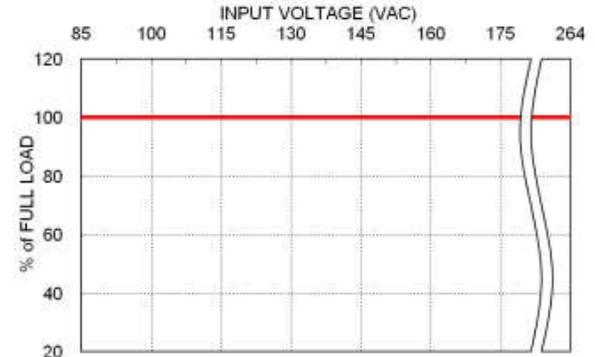
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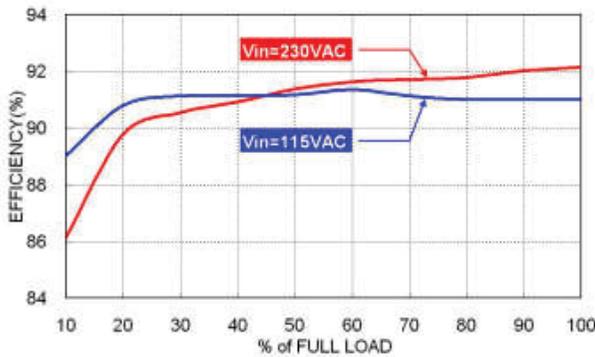
CHARACTERISTIC CURVE



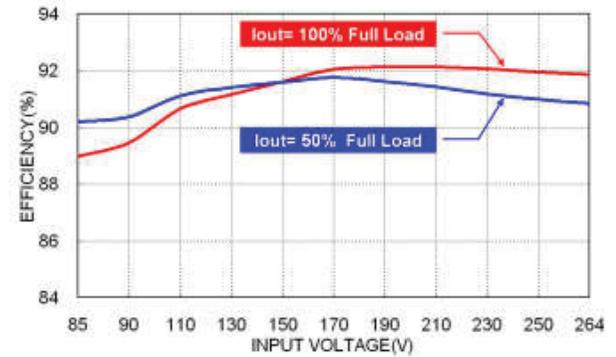
Derating Curve vs. Ambient Temperature



Derating Curve vs. Input Voltage



Efficiency vs. Output Load



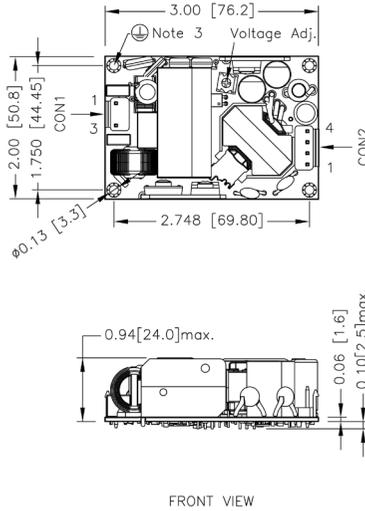
Efficiency vs. Input Voltage

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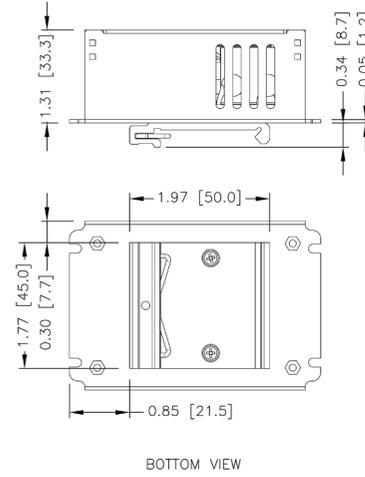
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MECHANICAL DRAWINGS

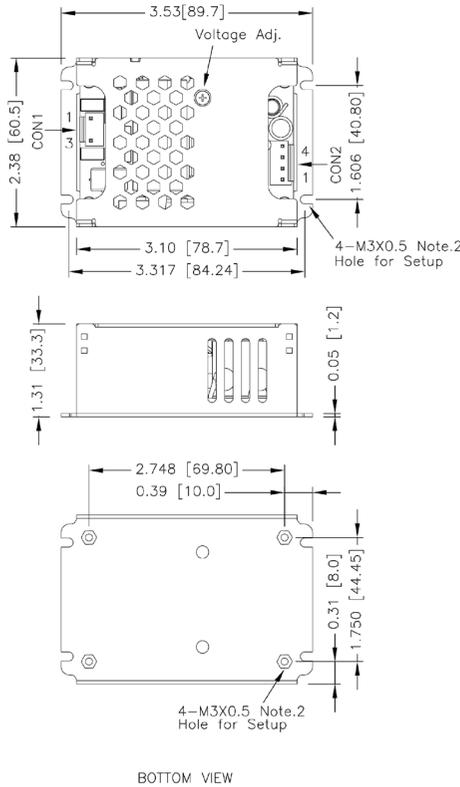
Open type



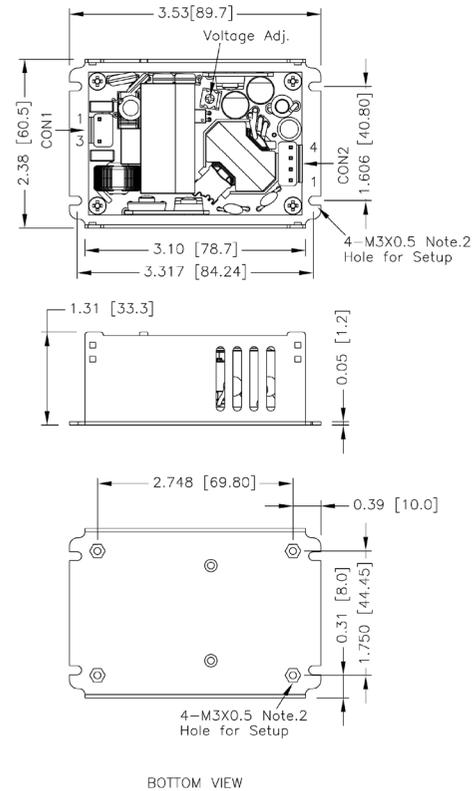
Rail type



Enclosed type



U chassis type



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