

Open Frame (MLO Models)

N2Power ML65 AC-DC Multi Output Series High Efficiency Power Supplies

HIGHLIGHTS

- 65 W AC-DC
- High efficiency (up to 93.5%)
- Low standby power consumption (≤ 0.15 W)
- Wide input voltage range 85 to 264 VAC
- Supports DC-DC input 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" x 3.50" x 1.04"
- 4,000 VAC input to output 2xMOOPP insulation
- Protection Class I or Class II
- Low leakage current (<75 μ A)
- Operating altitude up to 5,000 meters
- 3-year warranty



U-Frame (MLU Models)



DIN Rail (MLD Models)



Enclosed (MLE Models)

CONNECTOR OPTIONS

Choose from JST, Molex or Terminal Block connectors:



HIGH EFFICIENCY IN A SMALL PACKAGE

The ML65 Multi Output 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 ML65 AC-DC power supplies, which provide up to 93.5% 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.

Contact us regarding custom and modified standard supplies for unique applications.



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Model Number	Part Number	Output 1			Output 2			Output 3		Regulation	Ripple & Noise (P&P)
		Voltage VDC	Current (Nominal) A	Current (MAX) A	Voltage VDC	Current (Nominal) A	Current (MAX) A	Voltage VDC	Current (MAX) A		
MLO65-05 N2C	400227-01-3	5	6	10	3.3	6	8			V1, ±0.5%, V2, ±1.5%	V1, V2 100mV p-p
MLU65-05 N2C	400229-01-9										
MLE65-05 N2C	400230-01-7										
MLD65-05 N2C	400228-01-1										
MLO65-05 N2D	400227-21-1										
MLU65-05 N2D	400229-21-7										
MLE65-05 N2D	400230-21-5										
MLD65-05 N2D	400228-21-9										
MLO65-12 N3C	400227-02-1										
MLU65-12 N3C	400229-02-7	12	3	5.42	5	6	8			V1, ±0.5%, V2, ±1.5%	V1, 120mV p-p, V2, 100mV p-p
MLE65-12 N3C	400230-02-5										
MLD65-12 N3C	400228-02-9										
MLO65-12 N3D	400227-22-9										
MLU65-12 N3D	400229-22-5										
MLE65-12 N3D	400230-22-3										
MLD65-12 N3D	400228-22-7										
MLO65-12 N2C	400227-03-9										
MLU65-12 N2C	400229-03-5										
MLE65-12 N2C	400230-03-3	12	3	5.42	3.3	6	8			V1, ±0.5%, V2, ±1.5%	V1, 120mV p-p, V2, 100mV p-p
MLD65-12 N2C	400228-03-7										
MLO65-12 N2D	400227-23-7										
MLU65-12 N2D	400229-23-3										
MLE65-12 N2D	400230-23-1										
MLD65-12 N2D	400228-23-5										
MLO65-15 N3C	400227-04-7										
MLU65-15 N3C	400229-04-3										
MLE65-15 N3C	400230-04-1										
MLD65-15 N3C	400228-04-5	15	2.4	4.34	5	6	8			V1, ±0.5%, V2, ±1.5%	V1, 150mV p-p, V2, 100mV p-p
MLO65-15 N3D	400227-24-5										
MLU65-15 N3D	400229-24-1										
MLE65-15 N3D	400230-24-9										
MLD65-15 N3D	400228-24-3										
MLO65-24 N3C	400227-05-4										
MLU65-24 N3C	400229-05-0										
MLE65-24 N3C	400230-05-8										
MLD65-24 N3C	400228-05-2										
MLO65-24 N3D	400227-25-2	24	1.5	2.71	5	6	8			V1, ±0.5%, V2, ±1.5%	V1, 240mV p-p, V2, 100mV p-p
MLU65-24 N3D	400229-25-8										
MLE65-24 N3D	400230-25-6										
MLD65-24 N3D	400228-25-0										
MLO65-28 N3C	400227-06-2										
MLU65-28 N3C	400229-06-8										
MLE65-28 N3C	400230-06-6										
MLD65-28 N3C	400228-06-0										
MLO65-28 N3D	400227-26-0										
MLU65-28 N3D	400229-26-6	28	1.25	2.33	5	6	8			V1, ±0.5%, V2, ±1.5%	V1, 280mV p-p, V2, 100mV p-p
MLE65-28 N3D	400230-26-4										
MLD65-28 N3D	400228-26-8										
MLO65-05 N2MP3C	400227-07-0										
MLU65-05 N2MP3C	400229-07-6										
MLE65-05 N2MP3C	400230-07-4										
MLD65-05 N2MP3C	400228-07-8										
MLO65-05 N2MP3D	400227-27-8										
MLU65-05 N2MP3D	400229-27-4										
MLE65-05 N2MP3D	400230-27-2										
MLD65-05 N2MP3D	400228-27-6										

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N2Power ML65 AC-DC Multi Output Series High Efficiency Power Supplies

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Model Number	Part Number	Output 1			Output 2			Output 3		Regulation	Ripple & Noise (P&P)
		Voltage VDC	Current (Nominal) A	Current (MAX) A	Voltage VDC	Current (Nominal) A	Current (MAX) A	Voltage VDC	Current (MAX) A		
MLO65-05 N2P6C	400227-08-8	5	6	10	3.3	6	8	12	0.6	V1, ±0.5%, V2, ±1.5%, V3, ±0.7%	V1, V2, 100mV p-p, V3, 120mV p-p
MLU65-05 N2P6C	400229-08-4										
MLE65-05 N2P6C	400230-08-2										
MLD65-05 N2P6C	400228-08-6										
MLO65-05 N2P6D	400227-28-6										
MLU65-05 N2P6D	400229-28-2										
MLE65-05 N2P6D	400230-28-0										
MLD65-05 N2P6D	400228-28-4										
MLO65-05 N2MP6C	400227-09-6	5	6	10	3.3	6	8	-12	0.6	V1, ±0.5%, V2, ±1.5%, V3, ±0.7%	V1, V2, 100mV p-p, V3, 120mV p-p
MLU65-05 N2MP6C	400229-09-2										
MLE65-05 N2MP6C	400230-09-0										
MLD65-05 N2MP6C	400228-09-4										
MLO65-05 N2MP6D	400227-29-4										
MLU65-05 N2MP6D	400229-29-0										
MLE65-05 N2MP6D	400230-29-8										
MLD65-05 N2MP6D	400228-29-2										
MLO65-12 N3MP3C	400227-10-4	12	3	5.42	5	6	8	-5	0.6	V1, ±0.5%, V2, ±1.5%, V3, ±0.7%	V1, 120mV p-p, V2, V3, 100mV p-p
MLU65-12 N3MP3C	400229-10-0										
MLE65-12 N3MP3C	400230-10-8										
MLD65-12 N3MP3C	400228-10-2										
MLO65-12 N3MP3D	400227-30-2										
MLU65-12 N3MP3D	400229-30-8										
MLE65-12 N3MP3D	400230-30-6										
MLD65-12 N3MP3D	400228-30-0										
MLO65-12 N3MP6C	400227-11-2	12	3	5.42	5	6	8	-12	0.6	V1, ±0.5%, V2, ±1.5%, V3, ±0.7%	V1, V3, 120mV p-p, V2, 100mV p-p
MLU65-12 N3MP6C	400229-11-8										
MLE65-12 N3MP6C	400230-11-6										
MLD65-12 N3MP6C	400228-11-0										
MLO65-12 N3MP6D	400227-31-0										
MLU65-12 N3MP6D	400229-31-6										
MLE65-12 N3MP6D	400230-31-4										
MLD65-12 N3MP6D	400228-31-8										
MLO65-12 N2P3C	400227-12-0	12	3	5.42	3.3	6	8	5	0.6	V1, ±0.5%, V2, ±1.5%, V3, ±0.7%	V1, 120mV p-p, V2, V3, 100mV p-p
MLU65-12 N2P3C	400229-12-6										
MLE65-12 N2P3C	400230-12-4										
MLD65-12 N2P3C	400228-12-8										
MLO65-12 N2P3D	400227-32-8										
MLU65-12 N2P3D	400229-32-4										
MLE65-12 N2P3D	400230-32-2										
MLD65-12 N2P3D	400228-32-6										
MLO65-12 N2MP6C	400227-13-8	12	3	5.42	3.3	6	8	-12	0.6	V1, ±0.5%, V2, ±1.5%, V3, ±0.7%	V1,V3, 120mV p-p, V2, 100mV p-p
MLU65-12 N2MP6C	400229-13-4										
MLE65-12 N2MP6C	400230-13-2										
MLD65-12 N2MP6C	400228-13-6										
MLO65-12 N2MP6D	400227-33-6										
MLU65-12 N2MP6D	400229-33-2										
MLE65-12 N2MP6D	400230-33-0										
MLD65-12 N2MP6D	400228-33-4										
MLO65-15 N3MP7C	400227-14-6	15	2.4	4.34	5	6	8	-15	0.6	V1, ±0.5%, V2, ±1.5%, V3, ±0.7%	V1, V3, 150mV p-p, V2, 100mV p-p
MLU65-15 N3MP7C	400229-14-2										
MLE65-15 N3MP7C	400230-14-0										
MLD65-15 N3MP7C	400228-14-4										
MLO65-15 N3MP7D	400227-34-4										
MLU65-15 N3MP7D	400229-34-0										
MLE65-15 N3MP7D	400230-34-8										
MLD65-15 N3MP7D	400228-34-2										

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All information and specifications are based on our knowledge of the products at the time of printing. N2Power reserves the right to change specifications without notice.



N2Power ML65 AC-DC Multi Output Series High Efficiency Power Supplies

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Model Number	Part Number	Output 1			Output 2			Output 3		Regulation	Ripple & Noise (P&P)
		Voltage VDC	Current (Nominal) A	Current (MAX) A	Voltage VDC	Current (Nominal) A	Current (MAX) A	Voltage VDC	Current (MAX) A		
MLO65-24 N3P6C	400227-15-3	24	1.5	2.71	5	6	8	12	0.6	V1, ±0.5%, V2, ±1.5%, V3, ±0.7%	V1, 240mV p-p, V2, 100mV p-p, V3 120mV p-p
MLU65-24 N3P6C	400229-15-9										
MLE65-24 N3P6C	400230-15-7										
MLD65-24 N3P6C	400228-15-1										
MLO65-24 N3P6D	400227-35-1										
MLU65-24 N3P6D	400229-35-7										
MLE65-24 N3P6D	400230-35-5										
MLD65-24 N3P6D	400228-35-9	24	1.5	2.71	5	6	8	-12	0.6	V1, ±0.5%, V2, ±1.5%, V3, ±0.7%	V1, 240mV p-p, V2, 100mV p-p, V3 120mV p-p
MLO65-24 N3MP6C	400227-16-1										
MLU65-24 N3MP6C	400229-16-7										
MLE65-24 N3MP6C	400230-16-5										
MLD65-24 N3MP6C	400228-16-9										
MLO65-24 N3MP6D	400227-36-9										
MLU65-24 N3MP6D	400229-36-5										
MLE65-24 N3MP6D	400230-36-3										
MLD65-24 N3MP6D	400228-36-7										

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.

INPUT SPECIFICATIONS	
Nominal Input Voltage:	85 - 264 VAC 120 - 370 VAC
Input Frequency Range:	47 - 63 Hz
Input Current:	1.65 A @ 100 VAC 0.95 A @ 240 VAC
Safety Isolation (2xMOPP Insulation):	4000 VAC input to output 2500 VAC input 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:	65 W
Output Voltages:	5 V to 28 V
Voltage Tolerance:	±1.0%
Line Regulation:	±0.2% (2)
Hold-up Time:	Minimum 16 ms at (115 VAC input, full power load)
Efficiency:	Up to 93.5%
Minimum Load:	0.5 W
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):	1.059 x 10 ⁶

* See MTBF Report for additional temperature values

Model Numbers Comply with Protection Class 1

EMC: EMI Emission EN55011, EN55032, EN60601-1-2 & FCC Part 18/15 (class B)
EN 61000-3-2, EN 61000-3-3

EMC Immunity: EN55024, EN60601-1-2, EN 61000-4-2, EN61000-4-3,
EN 61000-4-4, EN 61000-4-5, EN6100-4-6,
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:

- All parameters NOT specifically mentioned are measured at 230VAC input, rated load and 25°C ambient temperature.
- The power supply is considered a component which 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 which necessitate specific safety and regulatory standards other than those listed herein.*

Contact us regarding custom and modified standard supplies for unique applications. For complete specifications on all models, please visit our website at N2Power.com

N2Power ML65 AC-DC Multi Output Series High Efficiency Power Supplies

CONNECTOR CONNECTIONS

CON1 – Input Connector

Pin Number	AC Input	DC Input
		Dual Output C, Dual Output D Triple Output C, Triple Output D
Pin 1	Line	DC+
Pin 3	Neutral	DC-

CON2 – Output Connector

Pin 1	Vout3
Pin 2,3	Com
Pin 4,5	Vout2
Pin 6	Vout1

*Either one of four screws holes of Chassis type can be considered as PE connection for CLASS I application.

CONNECTOR OPTIONS

Blank:	JST Type
	Mates with housing
	CON1: VHR-3N
	CON2: VHR-6N
	Crimp terminals
	CON1: SVH-21T-P1.1
	CON2: SVH-21T-P1.1

-M	Molex Type
	Mates with housing
	CON1: 09-50-8031
	CON2: 09-50-8061
	Crimp terminals
	CON1: SD-2478
	CON2: SD-2478

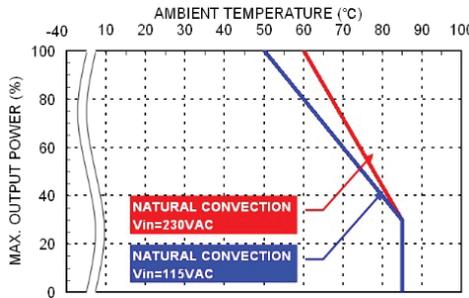
-T	Terminal Block
	Screw locked torque
	MAX 2Kgf.cm/0.2N.m
	Wire dimension range
	26 ~ 16AWG

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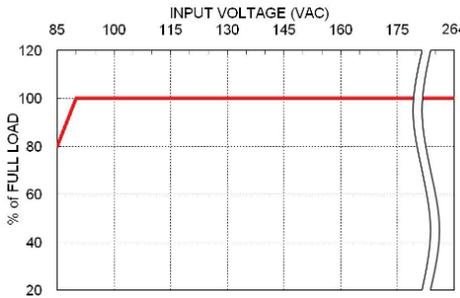
N2Power ML65 AC-DC Multi Output Series High Efficiency Power Supplies

CHARACTERISTIC CURVE



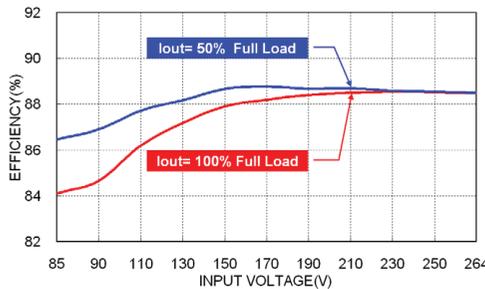
Derating Curve vs. Ambient Temperature

Dual Output Models



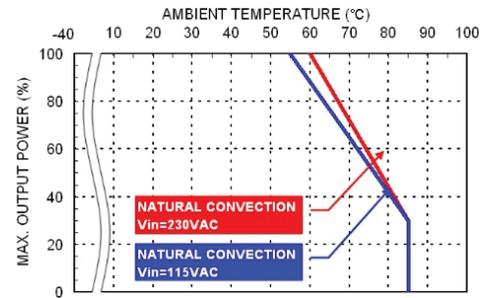
Derating Curve vs. Input Voltage

Dual Output Models



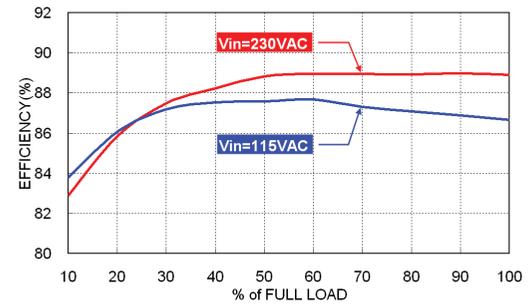
Efficiency vs. Input Voltage

ML65- Models



Derating Curve vs. Ambient Temperature

Triple Output Model



Efficiency vs. Output Load

ML65- Models

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