Rev.12.12.08_102 NLP65 Series 1 of 4

NLP65 Series Single, dual, and triple output

Total Power: Input Voltage: 85 - 264 Vac # of Outputs:

65 - 75W 120 - 370 Vdc* Single, dual, triple





Electrical Specifications

Input			
Input voltage range:	Universal input (see Note 2) NLP65-76xx version only	85-264 Vac 120-370 Vdc	
Input frequency range:		47-63 Hz	
Input current: (cold start)	120 Vac 230 Vac	17 A max. 32 A max	
Safety ground leakage current:	120 Vac, 60 Hz 230 Vac, 50 Hz	0.7 mA 1.4 mA	
Input current:	120 Vac, with PFC 230 Vac, with PFC 120 Vac, without PFC 230 Vac, without PFC	1.4 mA 0.51 A rms 1.40 A rms 0.80 A rms	
Input fuse:	UL/IEC127	S3.15 A, 250 Vac In live and neutral	
Output			
Total regulation: (line and load)	Main output Auxiliary outputs	±2.0% ±5.0%	
Rise time:	At turn-on	1.0 s, max	
Transient response:	Main output 25% step at 0.1 A/μs	5.0% or 250 mV max. dev., 1ms max. recovery to 1%	
Temperature coefficient:		±0.02%/°C	
Overvoltage protection:	Main outputs	125%, ±10%	
Short circuit protection:	Cyclic operation	Continuous	
Minimum output current:	Single and multiple	(See Note 6)	





Special Features

- Universal Input
- 3" x 5" footprint
- Low profile fits 1U applications
- EN61000-3-2 compliance option (HCC)
- Overvoltage and short circuit protection
- 65 W with free air convection cooling
- EN55022, EN55011 conducted emissions level B
- EN61000-4-2,-3,-4, -5, -6 immunity compliant
- RoHS compliant
- LPX80 enclosure kit available
- 2 year warranty

Safety

- VDE0805/EN60950/IEC950 File No. 1040100-3336-0096
- License No. 114404
- UL1950 File No. E136005
- CSA C22.2 No. 950 File No. LR41062C
- China Compulsory Certification 60950

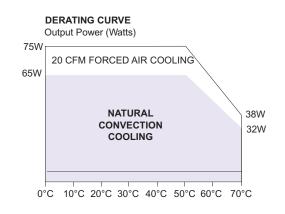
*NLP65-76xx version only

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

EMC Charateristics (11, 12)						
Conducted emissions:	EN55022, FCC part 15	Level B				
ESD air:	EN61000-4-2, level 3	Perf. criteria 1				
ESD contact:	EN61000-4-2, level 4	Perf. criteria 1				
Surge:	EN61000-4-2, level 3	Perf. criteria 1				
Fast transients:	EN61000-4-4, level 3	Perf. criteria 1				
Radiated immunity:	EN61000-4-3, level 3	Perf. criteria 2				
Conducted immunity:	EN61000-4-6, level 3	Perf. criteria 2				
General Specifications						
Hold-up time:	120 Vac, 60 Hz 230 Vac, 50 Hz	16 ms @ 65 W 78 ms @ 65 W				
Efficiency:	120 Vac, 65 W	72% typical				
Isolation voltage:	Input/output Input/chassis	3000 Vac 1500 Vac				
Switching frequency:	Fixed	100 kHz, ±5 kHz				
Approvals and standards: (see Notes 9, 13)	EN60950, VDE0805 IEC950, UL1950, CCC60950 CSA C22.2 No. 950					
Weight:	283 g (10 oz)					
MTBF demonstrated:	MIL-HDBK-217F	150,000 hours min				

Environmental Specifications

Thermal performance:	Operating (See derating curve)	0° C to +70 °C	
(See notes 1, 3, 10)	Non-operating	-40 °C to +85 °C	
	50 °C - 70 °C ambient, convection cooled	Derate to 50% load	
	0 °C to 50 °C, ambient, convection cooled	65 W	
	0 °C to 50 °C, ambient 20CFM forced air (See Note 10)	75 W	
	Peak (0 °C to 50 °C, 60 s)	See table	
Relative humidity:	Non-condensing	5 to 95% RH	
Altitude:	Operating	10,000 feet max.	
	Non-operating	30,000 feet max.	
Vibration (See Note 5):	5-500 Hz	2.4 G rms peak	
Shock	per MIL-STD-810E	516.4 Part IV	



Rev.12.12.08_102 NLP65 Series 2 of 4

Rev.12.12.08_102 NLP65 Series 3 of 4

Output Voltage	Output Current			\mathbf{D} = \mathbf{J} = (\mathbf{A})	Total	Non-harmonic	Harmonic	Ground
	Max (1)	Peak (3)	Fan (10)	Ripple (4)	Regulation (6)	Corrected	Corrected	Pin (12, 14, 17)
+5 V (IA)	7.5 A	9.1 A	8 A	50 mV	±2.0%	NLP65-7608J	NLP65-9608J	NLP65-X608GJ
+12 V (IB)	2.5 A	3.3 A	3 A	150 mV	±5.0%			
–12 V	0.65 A	0.81 A	0.8 A	120 mV	±5.0%			
+5 V (IA)	7.5 A	9.1 A	8 A	50 mV	±2.0%	NLP65-7610J	NLP65-9610J	NLP65-X610GJ
+15 V (IB)	2.2 A	2.9 A	2.5 A	150 mV	±5.0%			
–15 V	0.65 A	0.85 A	0.8 A	150 mV	±5.0%			
+5 V	7.0 A	9.1 A	8.0 A	50 mV	±2.0%	NLP65-3322J ⁽¹⁵⁾		
+24 V	1.5 A	2.6 A	2.0 A	240 mV	±5.0%			
+12 V	0.7 A	1.0 A	1.0 A	120 mV	±5.0%			
+5 V (IA)	7 A	9.1 A	8 A	50 mV	±2.0%	NLP65-7620J	NLP65-9620J	NLP65-X620GJ
+24 V (IB)	2 A	2.6 A	2 A	240 mV	±5.0%			
+5 V (IA)	7 A	9.1 A	8 A	50 mV	±2.0%	NLP65-7629J	NLP65-9629J	NLP65-X629GJ
+12 V (IB)	2.5 A	3.3 A	3 A	150 mV	±5.0%			
+5 V	10 A	13 A	12 A	50 mV	±2.0%	NLP65-7605J	NLP65-9605J	NLP65-X605GJ
+12 V	5.4 A	7 A	6.5 A	120 mV	±2.0%	NLP65-7612J	NLP65-9612J	NLP65-X612GJ
+15 V	4.4 A	5.7 A	5.3 A	150 mV	±2.0%	NLP65-7615J	NLP65-9615J	NLP65-X615GJ
+24 V	2.7 A	3.5 A	3.5 A	240 mV	±2.0%	NLP65-7624J	NLP65-9624J	NLP65-X624GJ

Notes

- Natural convection cooling. Models NLP65-X629J, NLP65-X608J, NLP65-X610J must not exceed 62.5 Watts continuous output power with natural convection. Model NLP65-X620J not to exceed 65 Watts continuous output power with natural convection. Model NLP65-3322J must not exceed 60 Watts continuous output power with natural convection.
- 2~ When the input voltage is less than 90 Vac the operating temperature range is 0 °C to +40 °C. The ripple and regulation specifications may not be met.
- 3 Peak output current lasting less than 60 seconds with duty cycle less than 5%. During peak loading, output voltage may exceed total regulation limits.
- 4 Figure is peak-to-peak for convection power rating. Output noise measurements are made across a 20 MHz bandwidth using a 6 inch twisted pair, terminated with a 10 μF electrolytic capacitor and a 0.1 μF ceramic capacitor.
- 5 Three orthogonal axes, random vibration 10 minutes for each axes, 2.4 G rms 5 Hz to 500 Hz.
- 6 A minimum load on the main output is required for proper start up. For multiple outputs and single +5V output, the minimum load on the +5 V is 0.2 A. For single outputs greater than +5 V the minimum load is 0.1 A. To maintain stated regulation then:
 - for single output units
 - $I \ge 0.2 A$
 - for multiple output units
 - $0.25 \le I(A)/I(B) \le 5$, for $I(A) \ge 0.2 A$.
- 7 For optimum reliability, no part of the heatsink should exceed 120 °C, and no semiconductor case temperature should exceed 130 °C.
- 8 CAUTION: Allow a minimum of 1 second after disconnecting line power when making thermal measurements.
- 9 This product is only for inclusion by professional installers within other equipment and must not be operated as a stand alone product.
- 10 Maximum continuous output power for all multiple output models must not exceed 75 Watts (70 watts for NLP65-3322]) with 20 CFM forced air cooling.

Model Numbering Options

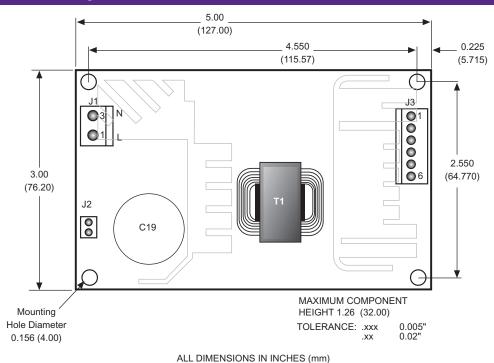
- The enclosure version includes: IEC connector, on/off switch, wire harness output connector and fitted cover. To order, please add the suffix 'E' the model number, e.g. NLP65-9608EJ. See NLP65 enclosure for details.
- **2** A Safety earth ground pin and ground choke are available as an option.
- To order, please add the suffix 'G' the model number, e.g. NLP65-X608GJ.
- **3** To order an enclosure kit (unfitted), order the part number LPX80.

11 Conducted emissions testing were performed using the standard EN55022 setup with a stand alone NLP65 unit placed on a grounded metal plate with a line choke on the AC input and ground wires (i.e. the wires are looped through an EMI suppression toroid).

For system compliance it is usually necessary to install an 'off-the-shelf' AC inlet with an integral line filter in the system chassis or to install a line choke on the input wires as close as possible to AC entry point of the system chassis. Please contact the applications group for assistance with EMI compliance.

- 12 The NLP65 units with the suffix 'G' is the ground pin and ground choke option. J2, L6 and JP10 are included. J2 is a safety agency approved grounding pin, L6 is a ground choke and JP10 is a jumper. This option is intended for use in nonmetallic chassis applications where grounding is not possible via the mounting screws. The ground choke is provided to assist system EMC compliance. When performing conducted emissions testing on stand alone units, the 'G' option is required to meet level B. To order simply add the suffix 'G' to the standard model number, e.g. NLP65-7608GJ, NLP65-9608GJ. This option is available for both the PFC and non-PFC versions.
- ${\bf 13}\,$ All models require a minimum mounting stand-off of 0.25 inches (6.35 mm) in the end use product.
- 14 The NLP65-9608J is available with an enclosure. To order an enclosed version, see model numbering options below.
- 15 No PFC version, EN61000-3-2 is not applicable to this model.
- 16 The 'J' suffix indicates that these parts are Pb-free (RoHS 6/6) compliant.
- 17 NOTICE: Some models do not support all options. Please contact your local Emerson Network Power representative or use the on-line model number search tool at http://www.powerconversion.com.

Mechanical Drawing



	Pin Connections		Input and Output		Mating Connectors		
	J1			Connectors			
Р	Pin 1	AC Line	AC (J1)	Molex 26-60-4030 type	Molex 09-50-3031 or equivalent with Molex 08-50-0105 or equivalent crimp terminals		
Р	Pin 2	No Pin			08-50-0105 of equivalent chillip terminals		
Р	Pin 3	AC Neutral	DC (J3)	Molex 26-60-4060	Molex 09-50-3061 with Molex 2478 phos- phor bronze crimp terminals or equivalent.		
J	J2 (On 'G' Suffic Only)			Note: The input and output connectors are the same as those used on NFS40, NFN40,			
Р	Pin 1	Safety Ground	NAL40, NAN40 and NLP40.				

Output Pin Connections					
J3	SINGLE	DUAL	TRIPLE		
Pin 1	V (A)	V (B)	V (B)		
Pin 2	V (A)	V (A)	V (A)		
Pin 3	V (A)	V (A)	V (A)		
Pin 4	Return	Return	Return		
Pin 5	Return	Return	Return		
Pin 6	Return	N/C	V (C)		

Americas

USA

5810 Van Allen Way Carlsbad, CA 92008 Telephone: +1 760 930 4600 Facsimile: +1 760 930 0698

Rev.12.12.08_102 NLP65 Series

4 of 4

Europe (UK)

Waterfront Business Park Merry Hill, Dudley West Midlands, DY5 1LX United Kingdom Telephone: +44 (0) 1384 842 211 Facsimile: +44 (0) 1384 843 355

Asia (HK)

14/F, Lu Plaza 2 Wing Yip Street Kwun Tong, Kowloon Hong Kong Telephone: +852 2176 3333 Facsimile: +852 2176 3888

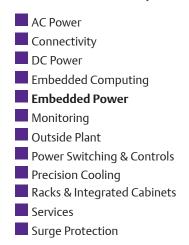
For global contact, visit:

www.powerconversion.com techsupport.embeddedpower@ emerson.com

While every precaution has been taken to ensure accuracy and completeness in this literature, Emerson Network Power assumes no responsibility, and disclaims all liability for damages resulting from use of this information or for any errors or omissions.

Emerson Network Power.

The global leader in enabling business-critical continuity.



EmersonNetworkPower.com

Emerson Network Power and the Emerson Network Power logo are trademarks and service marks of Emerson Electric Co. ©2008 Emerson Electric Co.