

# NLP65-3322

## Triple output

- 5.0 x 3.0 inch card and 1.26 inch package (1U applications)
- Smallest industry standard package
- EN61000-3-2 compliance option (HCC)
- Overvoltage and short circuit protection
- 60W with free air convection cooling
- EN55022, EN55011 conducted emissions level B
- EN61000-4-2,-3,-4, -5, -6 immunity compliant



The NLP65-3322 is a 60W universal input AC/DC power supply on a 5 x 3 inch card with a maximum component height of 1.26 inches for use in 1U applications. This model has the option of input harmonic current correction in the same package size making the series ideal for product designs that will need to comply with EN61000-3-2 legislation. The NLP65-3322 provides 60W of output power with free air convection cooling which can be boosted to 70W with 20CFM of air. The NLP65, with full international safety approval, meets conducted emissions EN55022 level B and has immunity compliance to EN61000-4-2,-3,-4, -5, -6. The NLP65 series is designed for use in low power data networking, computer and telecom applications such as hubs, routers, POS terminals, internet servers, cable modems and PABX's. This list is not exclusive as the generic feature set of the NLP65 series with industry standard output configurations provides a solution for most low power applications including many industrial applications.

2 YEAR WARRANTY

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

### SPECIFICATIONS

#### OUTPUT SPECIFICATIONS

Total regulation (Line and load)	Main output	±2.0%
	Auxiliary outputs	±5.0%
Rise time	At turn-on	1.0s, max.
Transient response	Main output	5.0% or 250mV
	25% step at 0.1A/μs	max. dev., 1ms max. recovery to 1%
Temperature coefficient		±0.02%/°C
Overvoltage protection	Main outputs	125%, ±10%
Short circuit protection	Cyclic operation	Yes, indefinite
Minimum output current	Single and multiple	(See Note 6)

#### INPUT SPECIFICATIONS

Input voltage range (See Note 1)	Universal input	85 to 264VAC 120 to 370VDC
Input frequency range		47Hz to 63Hz
Input surge current (cold start)	120VAC 230VAC	17A max. 32A max.
Safety ground leakage current	120VAC, 60Hz 230VAC, 50Hz	0.7mA 1.4mA
Inrush current	230VAC	32A max.
Input current	120VAC, with PFC 230VAC, with PFC 120VAC, without PFC 230VAC, without PFC	1.05A rms 0.51A rms 1.40A rms 0.80A rms
Input fuse	UL/IEC127	250VAC S 3.15A

#### EMC CHARACTERISTICS (11,12)

Conducted emissions	EN55022, FCC part 15 (Note 11)	Level B
Radiated emissions	EN55022, FCC part 15 (Note 11)	Level A
ESD air	EN61000-4-2, level 3	Perf. criteria 1
ESD contact	EN61000-4-2, level 4	Perf. criteria 1
Surge	EN61000-4-5, level 3	Perf. criteria 3
Fast transients	EN61000-4-4, level 3	Perf. criteria 1

#### EMC CHARACTERISTICS (continued) (11,12)

Radiated immunity	EN61000-4-3, level 3	Perf. criteria 2
Conducted immunity	EN61000-4-6, level 3	Perf. criteria 2
Surge	EN61000-4-5, level 2	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	230VAC, 50Hz	78ms @ 60W
Efficiency		75% typical
Isolation voltage	Input/output Input/chassis	3000VAC 1500VAC
Switching frequency	Fixed	100kHz, ±5kHz
Approvals and standards (See Notes 9 and 12)		EN60950, UL1950, cUL equivalent of CSA C22.2 No. 950
Weight		283g (10 oz)
MTBF	MIL-HDBK-217F	150,000 hours min.

#### ENVIRONMENTAL SPECIFICATIONS

Thermal performance (See Notes 1, 4 and 10)	Operating temperature Non-operating 50°C to 70°C ambient, convection cooled Peak (0°C to +50°C, 60s)	0°C to +50°C -40°C to +85°C 1.65W/°C See table
Relative humidity	Non-condensing	5% to 95% RH
Altitude	Operating Non-operating	10,000m max. 30,000m max.
Vibration (See Note 5)	5Hz to 500Hz	2.4G rms peak
Shock	per MIL-STD-810E	516.4 Part IV

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For the most current data and application support visit [www.artesyn.com/powergroup/products.htm](http://www.artesyn.com/powergroup/products.htm)

OUTPUT VOLTAGE	OUTPUT CURRENT			RIPPLE (3)	TOTAL REGULATION (6)	OVP	MODEL NUMBER
	MAX (4)	PEAK (2)	FAN (10)				
+5V	7.0A	9.1A	8.0A	50mV	±100mV	6.25V ± 0.5V	NLP65-3322
+24V	1.5A	2.6A	2.0A	240mV	±1200mV	---	
+12V	0.7A	1.0A	1.0A	120mV	±600mV	---	

### Notes

- When the input voltage is less than 90VAC the operating temperature range is 0°C to +40°C. The ripple and regulation specifications may not be met.
- Peak output current lasting less than 60 seconds with duty cycle less than 5%. During peak loading, output voltage may exceed total regulation limits.
- Figure is peak-to-peak for convection power rating. Output noise measurements are made across a 20MHz bandwidth using a 6 inch twisted pair, terminated with a 10µF electrolytic capacitor and a 0.1µF ceramic capacitor.
- Maximum continuous output power must not exceed 60W.
- Three orthogonal axes, random vibration 10 minutes for each axis, 2.4G rms 5Hz to 500Hz.
- To maintain stated regulation then:  
I ≥ 0.2A I max.
- For optimum reliability, no part of the heatsink should exceed 120°C, and no semiconductor case temperature should exceed 130°C.
- CAUTION: Allow a minimum of 1 second after disconnecting line power when making thermal measurements.
- This product is only for inclusion by professional installers within other equipment and must not be operated as a stand alone product.
- Maximum continuous output power for this model must not exceed 70 Watts with 20CFM forced air cooling.
- For system EMI compliance the unit must be mounted within a metal chassis.
- All models require a minimum mounting stand-off of 0.25 inches (6.35mm) in the end use product.
- Contact factory for further details with respect to harmonic current correction.

INPUT PIN CONNECTIONS	
J1	
Pin 1	AC Line
Pin 2	No Pin
Pin 3	AC Neutral
J2	
Pin 1	Safety Ground

OUTPUT PIN CONNECTIONS	
J3	TRIPLE
Pin 1	+24V
Pin 2	+5V
Pin 3	+5V
Pin 4	Return
Pin 5	Return
Pin 6	+12V

### Input and output connectors

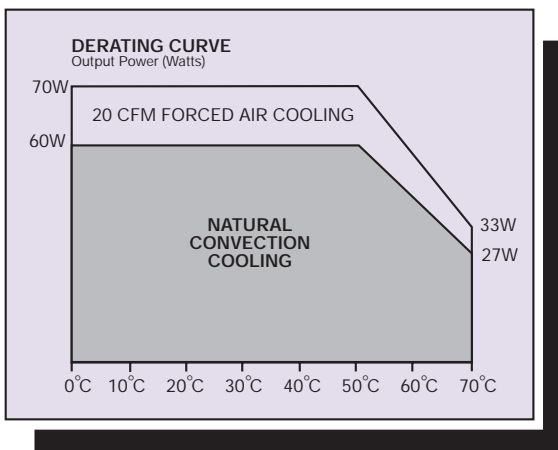
**AC (J1) connector type**  
Molex 26-60-4030 type.

**DC (J3) connector type**  
Molex 26-60-4060 type.

### Mating connectors

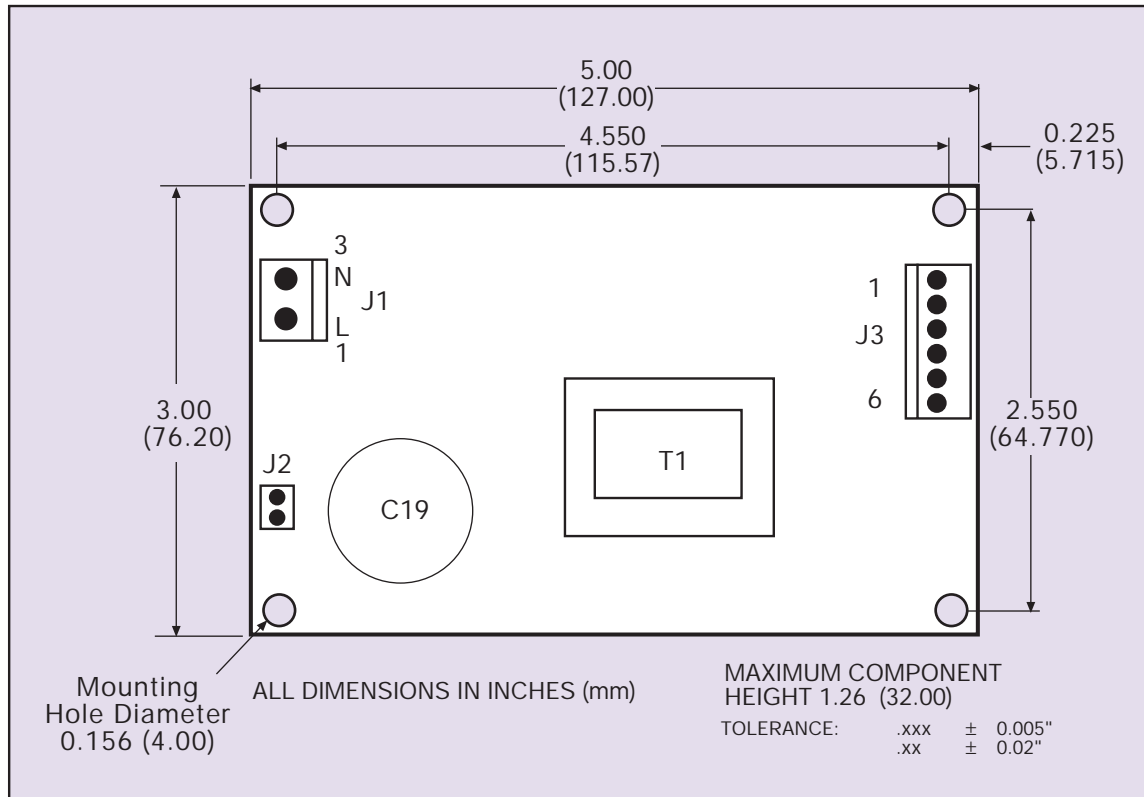
**AC (J1) mating connector type**  
Molex 09-50-3031 or equivalent with Molex 08-50-0105 or equivalent crimp terminals.

**DC (J3) mating connector type**  
Molex 09-50-3061 with Triurcon 6838 or equivalent crimp terminals.




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## International Safety Standard Approvals

 VDE0805/EN60950/IEC950 File No. 10401-3336-1096  
Licence No. 93678

 cUL, UL1950 File No. E136005

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