NLP70 Series



LOW TO MEDIUM POWER AC/DC POWER SUPPLIES 70 W AC/DC Universal Input Switch Mode Power Supplies

- Provides up to 10.5 A on either 3.3 V or 5 V
- 5.5 x 3.0 inch card and 1.26 inch package (1U applications)
- 3.3 V, 5 V and 12 V triple
- EN61000-3-2 compliant
- Overvoltage and short circuit protection
- EN55022, EN55011 conducted emissions level B
- EN61000-4-2, -3, -4, -5, -6 immunity compliant
- Mounting holes as per NLP65 series, easy upgrade
- Available RoHS compliant

The NLP70-9693J is a 70 W (with forced air) universal input ac-dc power supply on a 5.5 x 3 inch card with a maximum component height of 1.26 inches for use in 1U applications. The model has input harmonic current correction making the series ideal for product designs that need to comply with EN61000-3-2 legislation. The NLP70 provides 52.5 W of output power with free air convection cooling which can be boosted to 70 W with 20 CFM of air. The NLP70, with full international safety approval and the CE mark, meets conducted emissions EN55022 level B and has immunity compliance to EN61000-4-2, -3, -4, -5, -6. The NLP70 series is designed for use in low power data networking, computer and telecom applications using 3.3 V or 5 V logic. The NLP70 can provide the same current on either the 3.3 V or 5 V channel making it ideal for applications using a mixture of 3.3V and 5V logic or for applications in transition from 5 V to 3.3 V logic.



(LVD)

2 YEAR WARRANTY

SPECIFICATIONS

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

OUTPUT SPECIFICATIONS

Total regulation (line and load)	3.3 V and 5 V 12 V	±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., 1 ms max. recovery to 1.0%
Temperature coefficient		±0.02%/°C
Overvoltage protection	Main outputs	125%, ±10%
Short circuit protection	Cyclic operation	Continuous
Minimum output current		(See Note 6)
	\$	

INPUT SPECIFICATIONS

Input voltage range	oltage range Universal input	
Input frequency range		47-63 Hz
Input surge 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	1.05 A rms 0.55 A rms
Input fuse	UL/IEC127	250 Vac S 3.15 A

EMC CHARACTERISTICS (10)

Conducted emissions	EN55022, FCC part 15	Level B
Radiated emissions	EN55022, FCC part 15	Level A
ESD air	EN61000-4-2, level 3	
ESD contact	EN61000-4-2, level 4	
Surge	EN61000-4-5, level 3	
Fast transients	EN61000-4-4, level 3	
Radiated immunity	EN61000-4-3, level 3	
Conducted immunity	EN61000-4-6, level 3	

GENERAL SPECIFICAT	IONS		
Hold-up time	120 Vac @ 60 Hz 230 Vac @ 50 Hz	16 ms @ 55 W 78 ms @ 55 W	
Efficiency	120 Vac, 65 W	70% typical	
Isolation voltage	Input/output Input/chassis	3000 Vac 1500 Vac	
Switching frequency	Fixed	100 kHz, ±5 kHz	
Approvals and standards (See Notes 8, 9)		EN60950, VDE0805 IEC950, UL1950 CSA C22.2 No. 950	
Weight		300 g (10.7 oz)	
MTBF	MIL-HDBK-217F	150,000 hours min.	
ENVIRONMENTAL SPECIFICATIONS			
Thermal performance (See Notes 1, 2, 3, 11)	Operating ambient,0 °C to +70 °C(See derating curve)Non-operating-40 °C to +85 °C50 °C to 70 °C ambient,Derate toconvection cooled0 °C to 50 °C ambient,52.5 Wconvection cooled0 °C to 50 °C ambient,52.5 Wconvection cooled0 °C to 50 °C ambient,70 W20 CFM forced air (See Note 10)Peak (0 °C to +50 °C, 60 s)See table		
Relative humidity	Non-condensing	5% to 95% RH	
Altitude	Operating Non-operating	10,000 feet max. 30,000 feet max.	
Vibration (See Note 5)	5-500 Hz	2.4 G rms peak	

NLP70 Series Triple output



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For the most current data and application support visit www.artesyn.com/powergroup/products.htm

OUTPUT	OUTPUT CURRENT			TOTAL	MODEL	
VOLTAGE	TYP. ⁽¹⁾	AIR ⁽²⁾	PEAK ⁽³⁾		REGULATION (6)	NUMBER (13,14)
+5 V (I _A)	10.5 A	13 A	14 A	50 mV	±2.0%	NLP70-9693J
+3.3 V (I _B)	10.5 A	13 A	14 A	50 mV	±2.0%	
+12 V ⁽¹²⁾	0.65 A	0.8 A	0.8 A	120 mV	±5.0%	

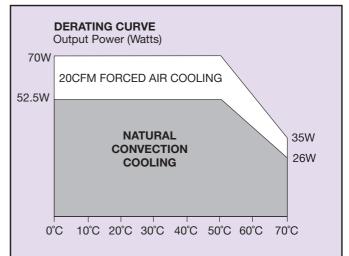
Notes

- Free air convection cooling.
- I₅ = 10.5 A max.; I_{3.3} = 10.5 A max.; I_{3.3} + I₅ < 10.6 A; Po = 52.5 W max. 20 CFM forced air. 2
- $I_{3,3} = 13$ A max; $I_{5,5} = 13$ A max; $I_{3,3} + I_5 < 15$ A; Po = 70 W max. Peak output current lasting less than 60 seconds with duty cycle less 3 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 20 MHz bandwidth using a 6 inch twisted pair, terminated with a 10 μ F electrolytic capacitor and a 0.1 μ F ceramic capacitor.
- Three orthogonal axes, random vibration 10 minutes for each axes, 2.4 G rms 5 Hz to 500 Hz.
- To maintain stated regulation then: 6
- For optimum reliability, no part of the heatsink should exceed 120 °C, 7 and no semiconductor case temperature should exceed 130 °C.
- CAUTION: Allow a minimum of 1 second after disconnecting line power 8 when making thermal measurements.
- This product is only for inclusion by professional installers within other 9 equipment and must not be operated as a stand alone product.

- 10 Conducted and radiated emissions testing were performed using the standard EN55022 set-up with a stand alone NLP70-9693J 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 at Artesyn for assistance with EMI compliance.
- 11 All models require a minimum mounting stand-off of 0.25 inches (6.35 mm) in the end use product.
- 12 12 V is a floating output and can be referenced negative or positive. 13 The 'J' suffix indicates that these parts are Pb-free (RoHS 6/6) compliant.
- TSE RoHS 5/6 (non Pb-free) compliant versions may be available on special request, please contact your local sales representative for details.
- 14 NOTICE: Some models do not support all options. Please contact your local Artesyn representative or use the on-line model number search tool at http://www.artesyn.com/powergroup/products.htm to find a suitable alternative

INPUT		OUTP	
PIN CONNECTIONS		J5	
	J1		
Pin 1	AC Line	Pin 2	
Pin 2	No Pin	Pin 3	
Pin 3	AC Neutral	Pin 4	
	Pin 5		
Pin 1	Safety Ground	Pin 6	
	Pin 7		

OUTPUT PIN CONNECTIONS		
FUNCTION		
3.3V		
3.3V		
Return		
Return		
Return		
5V		
5V		
FUNCTION		
12V Return		
12V ⁽¹²⁾		



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Input and output connectors

Mating connectors

AC (J1) mating connector type

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

DC (J3) connector type Molex 26-60-4020 type.

Molex 09-50-3031 or equivalent with Molex 08-50-0105 or equivalent crimp terminals. DC (J3) mating connector type

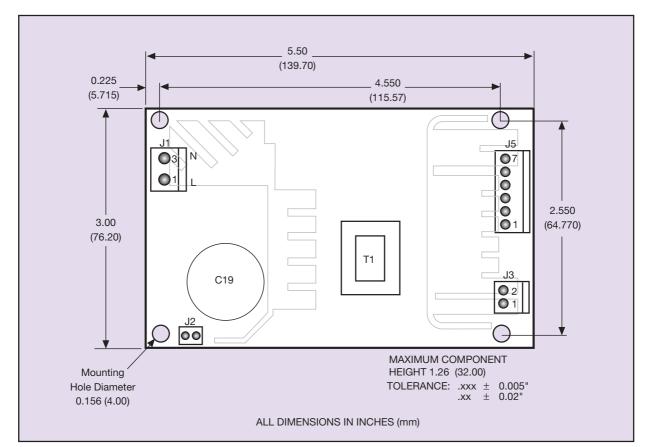
Molex 09-50-3021 with Molex 2478 phosphor bronze crimp terminals or equivalent.

DC (J5) connector type Molex 26-60-4070 type.

DC (J5) mating connector type Molex 09-50-3071 with Molex phosphor bronze crimp terminals or equivalent.

Note: The input and output connectors are the same as those used on NFS40, NAL40, NAN40, NLP40 and NLP65.





International Safety Standard Approvals

SP.

Licence No. 117595 CALLS UL1950 File No. E136005

CSA C22.2 No. 950 File No. LR41062

VDE0805/EN60950/IEC950 File No. 10401-3336-0143

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