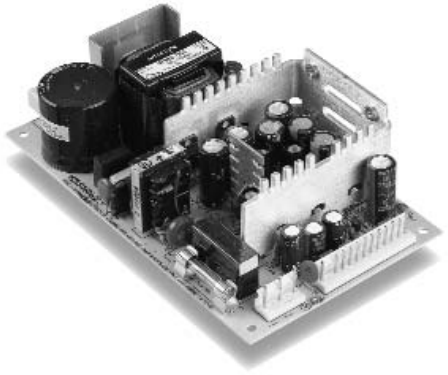
NFS80 Series

Quad output

ARTESYN TECHNOLOGIES

- **7.0 x 4.25 x 1.8 inch package**
- **Overvoltage and short circuit protection**
- **80 W with free air convection**
- **Adjustable outputs**
- **Isolated output**
- **Floating fourth output**
- **EN55022, EN55011 conducted emissions level B**
- **UL, VDE and CSA safety approvals**
- **Available RoHS compliant**

RoHS 2002/95/EC



CE (LVD / RoHS)

2 YEAR WARRANTY

The NFS80 series is a 80 W universal input ac-dc power supply on a 7 x 4.25 inch card. The NFS80 series has two quad output models with a very high peak capability on the auxiliary outputs for drive and motor applications. The NFS80 provides 80 W of output power with free air convection cooling which can be boosted to 110 W with 20 CFM of forced air. Standard features include overvoltage and short-circuit protection. The series, with full international safety approval and the CE mark, meets conducted emissions EN55022 level B. The NFS80 series is designed for use in low power data networking, computer, telecom and industrial applications such as servers, PABX's, storage devices, vending machines and printers.

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

SPECIFICATIONS

OUTPUT SPECIFICATIONS

Output voltage adjustability	+5 V output on multi's Vout on singles	±3.0%
Line regulation LL to HL, FL	Main output Auxiliary outputs	±0.1% max. ±0.1% max.
Total regulation	(See Note 5)	See table
Overshoot/undershoot	At turn-on	0%
Transient response	+5 V (1 A to 12 A)	±150 mV peak 1 ms recovery
Temperature coefficient	All outputs	±0.02%/°C
Overvoltage protection	+5 V output	140% Vout max.
Minimum output current See derating curve	Main output Auxiliary output	1 A 0 A
Output power limit	Primary power limit	160 W Pin max. 110 W Pout min.
Short circuit protection		Yes with auto recovery

INPUT SPECIFICATIONS

Input voltage range	Universal input	90-264 Vac 120-370 Vdc
Input frequency range		47-440 Hz
Input surge current	115 Vac, cold start 230 Vac, cold start	19 A 38 A
Safety ground leakage current	110 Vac, 60 Hz 230 Vac, 50 Hz	0.2 mA 0.4 mA

EMC CHARACTERISTICS (11,C)

Conducted emissions	EN55022,FCC part 15	Level B
Radiated 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

EMC CHARACTERISTICS (11,C)

Surge	EN61000-4-5, level 3	Perf. criteria 1
Fast transients	EN61000-4-4, level 3	Perf. criteria 1
Radiated immunity	EN61000-4-3, level 3	Perf. criteria 1
Conducted immunity	EN61000-4-6, level 3	Perf. criteria 1

GENERAL SPECIFICATIONS

Hold-up time	110 Vac, @ 80 W 110 Vac, @ 110 W 230 Vac, @ 80 W 230 Vac, @ 110 W	35 ms 17 ms 140 ms 100 ms
Efficiency		70% typical
Isolation voltage	Input/output Input/chassis	3000 Vac 1500 Vac
Switching frequency		20-70 kHz
Approvals and standards (See Note 10)		VDE0805, EN60950, IEC950 IEC1010, UL1950 CSA C22.2 No. 950
Weight		600 g (21.18 oz)
MTBF (See Note 7)	MIL-HDBK-217E @ 25 °C	250,000 hours

ENVIRONMENTAL SPECIFICATIONS

Thermal performance	Operating, see curve Non-operating 50 °C to +70 °C natural convection 50 °C to +70 °C 20 CFM forced air cooling	0 °C to +70 °C –40 °C to +85 °C Derate 2 W/°C Derate 2.75 W/°C
Relative humidity		5% to 95% RH
Altitude	Operating Non-operating	10,000 feet max. 30,000 feet max.
Vibration (See Note 9)	5-500 Hz	2.4 G rms approx.

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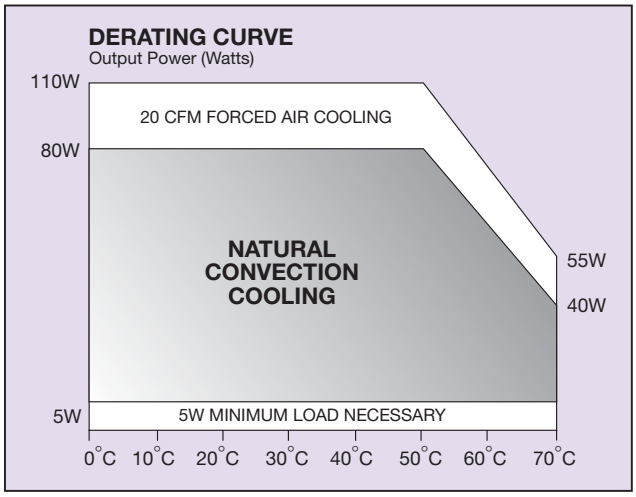
OUTPUT VOLTAGE	OUTPUT CURRENTS			RIPPLE (4)	TOTAL REGULATION (5)	MODEL NUMBER (12,13,E)
	MAX (1)	PEAK (2)	FAN (3)			
+5 V (I_A)	8 A	20 A	15 A	50 mV	±2.0%	NFS80-7602J
+24 V (I_B)	2 A	3 A	2.5 A	240 mV	+10.0/-5.0%	
+12 V	2.5 A	6 A	3 A	120 mV	±3.0%	
±12 V (6)	2.5 A	6 A	3 A	120 mV	±3.0%	
+5 V (I_A)	8 A	20 A	15 A	50 mV	±2.0%	NFS80-7606J
+24 V (I_B)	2 A	3 A	2.5 A	240 mV	+10.0/-5.0%	
+15 V	2.5 A	6 A	3 A	150 mV	±3.0%	
±15 V (6)	2.5 A	6 A	3 A	150 mV	±3.0%	

Notes

1 Natural convection cooling.
2 Peak output current lasting less than 60 seconds with duty cycle ≤10%. During peak loading, outputs may exceed total regulation limits.
3 Forced air cooling, 20 CFM @ 1 atmosphere.
4 50 MHz bandwidth, peak-to-peak, measured differentially.
5 Total regulation is defined as the static output regulation at 25 °C, including initial tolerance, line voltage within stated limits, load currents within stated limits, and output voltages adjusted to their factory settings. Also, for stated regulation on the +24 V output, $I_A / I_B \leq 5$.
6 Pins 10 and 11 are a floating output, which can be referenced as either positive or negative. Pin 10 is positive with respect to pin 11. Either pin 10 or 11 must be connected to return (pins 4-7) for proper operation.
7 Derating curve is application specific for ambient temperatures > 50 °C, for optimum reliability, no part of the heatsink should exceed 110 °C and no semiconductor case temperature should exceed 115 °C.
8 Caution: Allow a minimum of 1 second after disconnecting the power when making thermal measurements.
9 Three orthogonal axes, random vibration, 10 minute test for each axis.
10 This product is only for inclusion by professional installers within other equipment and must not be operated as a stand alone product.
11 For EMI compliance unit may need to be mounted on a metal chassis.
12 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.
13 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.

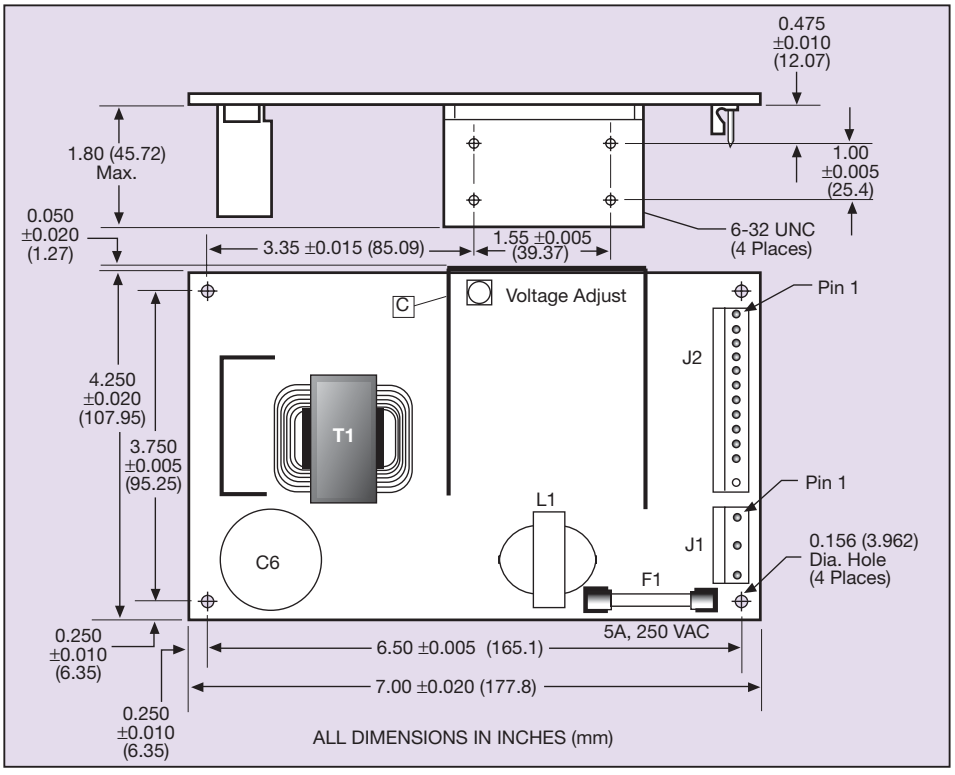


International Safety Standard Approvals

VDE0805/EN60950/IEC950/IEC1010 File No. 10401-3336-0213
Licence No. 40014677

UL1950 File No. E136005

CSA C22.2 No. 950 File No. LR41062C



Mechanical Notes

- **A** Either metallic or non-metallic stand-offs can be used in all four mounting holes without affecting safety approval. The diameter of metal stand-offs, if used, must not exceed 0.212 inches (5.4 mm).
- **B** It is always advisable to attach the power supply heat sink to another thermal dissipator (such as a chassis, a finned heat sink, etc.) The resulting temperature decrease of heat sink-mounted components will improve power supply lifetime.
- **C** The heat sink is grounded, and allows system grounding when mechanically connected to the system chassis. Alternatively, the ground pad encircling the mounting hole near J1, allows system grounding through a metal stand-off to the system chassis.
- **D** The supply must be mechanically supported using the PCB mounting holes and may be additionally supported by the heat sink mounting holes.
- **E** A standard L-bracket and cover is available for mounting which contains all screws, connectors and mounting hardware. Two different kits are available, order part number 'NFS110 COVER KIT' or 'NFS110C'.

AC (J1) connector

Molex 09-50-3051 (with second and fourth pins removed) or Molex 09-91-0500 mating connector with 2478 or equivalent crimp terminals.

DC (J2) connector

Molex 09-50-3131 or Molex 09-91-1300 mating connector with 2478 or equivalent crimp terminals.

PIN CONNECTIONS		
J1	**NFS80-7602J**	**NFS80-7606J**
Pin 1	AC Ground	AC Ground
Pin 2	AC Neutral	AC Neutal
Pin 3	AC Line	AC Line
J2	**NFS80-7602J**	**NFS80-7606J**
Pin 1	+5 V	+5 V
Pin 2	+5 V	+5 V
Pin 3	+5 V	+5 V
Pin 4	Return	Return
Pin 5	Return	Return
Pin 6	Return	Return
Pin 7	Return	Return
Pin 8	+12 V	+15 V
Pin 9	+12 V	+15 V
Pin 10 (6)	-12 V Return	-15 V Return
Pin 11 (6)	-12 V	-15 V
Pin 12	Removed for Key	Removed for Key
Pin 13	+24 V	+24 V