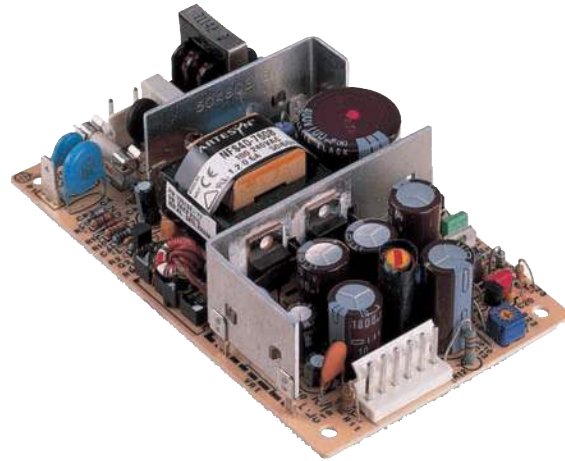


NFS40 Medical Series

Single & Triple Output

Total Power: 40 - 50W
Input Voltage: 85 - 264 VAC
120 - 370 VDC
of Outputs: Single, triple



Special Features

- 5.0 x 3.0 x 1.2 inch package (1U applications)
- Industry standard package
- Overvoltage and short circuit protection
- 40 W with free air convection
- EN55022, EN55011 conducted noise level A
- UL, VDE and CSA safety approvals
- Available RoHS compliant
- 2 year warranty

Safety

- UL2601
- CSA22.2 No. 125
- IEC601/VDE0750

Electrical Specifications

Output		
Voltage adjustability:	+5 V output on triples Vout on singles	± 5.0% ± 5.0%
Line regulation: LL to HL, FL	Main output Auxiliary outputs	± 0.2% ± 1.0%
Load regulation: FL to NL	Main output Auxiliary outputs	± 2.0% ± 5.0%
Transient response:	+5 V (1.5 - 3 A step)	± 120 mV max. dev. 500 μs recovery
Temperature coefficient:	All outputs	±0.02%/°C
Overvoltage protection:	+5 V output	6.25 ± 0.75 Vout
Output power limit:	Primary power limited	90 W input power limit
Short circuit protection:	Single outputs Multiple outputs	Continuous Short term
Input		
Input voltage range:		85 - 264 Vac 120 - 370 Vdc
Input frequency range:		47 - 440 Hz
Input surge current:	110 Vac, 60 Hz, cold start 230 Vac, 50 Hz, cold start	10 A 22 A
Safety ground leakage current:	110 Vac, 60 Hz 230 Vac, 50 Hz	18 μA max. 28 μA max.



Electrical Specifications Continued

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

EMC Characteristics		
Conducted emissions:	EN55022, FCC part 15	Level A
Radiated emissions:	EN55022, FCC part 15	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 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:	110 Vac 230 Vac	18 ms 132 ms
Efficiency:	110 Vac, 230 Vac	70% typical
Isolation voltage:	Input/output Input/chassis	4000 Vac 1500 Vac
Switching frequency:		20 - 110 kHz
Approvals and standards: (See Note 12)	VDE0750, IEC601, EN60601-1, UL2601, CSA C22.2 No. 125	
Weight:		270 g (9.6 oz)
MTBF demonstrated:	MIL-HDBK-217E	170,000 hours

Environmental Specifications

Thermal performance:	Operating, see curve	0° C to +70 °C
	Non-operating	-40 °C to +85 °C
	0 - 50 °C ambient temperature, convection cooled	40 W
	0 - 50 °C ambient temperature	50 W @ 20 CFM
	+50 °C to +70 °C ambient	Derate linearly to 50% load
	Peak (30 seconds)	60 W
Relative humidity:	Non-condensing	5 to 95% RH
Altitude:	Operating	10,000 feet max.
	Non-operating	40,000 feet max.
Vibration (See Note 11):	5 - 500 Hz	0.75 G peak

Ordering Information

Ordering Information						
Output Voltage	Output Currents			Ripple ⁽⁴⁾ PK-PK	Total Regulation ⁽⁵⁾	Model Numbers ^(13, 14)
	Conv Max ⁽¹⁾	20 CFM Max. ⁽²⁾	Peak ⁽³⁾			
+5.1 V (V _A)	3 A	5 A	7 A	50 mV	± 2.0%	NFS40-7908J
+12 V (V _B)	2 A	2 A	3 A	120 mV	± 5.0%	
-12 V ⁽⁶⁾	0.35 A	0 A	---	120 mV	± 5.0%	
+5.1 V (V _A)	3 A	5 A	7 A	50 mV	± 2.0%	NFS40-7910J
+15 V (V _B)	2 A	2 A	2.5 A	150 mV	± 10%/-3.0%	
-15 V ⁽⁶⁾	0.35 A	0.5 A	---	150 mV	± 5.0%	
12 V ⁽⁷⁾	3.3 A	4 A	5 A	120 mV	± 2.0%	NFS40-7912J
15 V ⁽⁷⁾	2.6 A	3.3 A	4 A	150 mV	± 2.0%	NFS40-7915J
24 V ⁽⁷⁾	1.6 A	2 A	2.5 A	240 mV	± 2.0%	NFS40-7924J
+5.1 V	4 A	7 A	5 A	50 mV	± 2.0%	NFS40-7928J
+12 V	0.35 A	1 A	0.5 A	120 mV	± 5.0%	
-12 V	0.35 A	1 A	0.5 A	120 mV	± 5.0%	

Notes

- 1 Natural convection cooling, 40 W maximum.
- 2 Forced air, 20 CFM at 1 atmosphere, 50 W maximum.
- 3 Peak output current lasting less than 30 seconds with duty cycle less than 10%. During peak loading, outputs may go outside of total regulation limits. Peak total power must not exceed 60 W.
- 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, load currents within stated limits, and output voltages adjusted to their factory settings. Also, $0.25^2 I_A / I_B^2 \leq 5.0$ to maintain stated regulation.
- 6 A minimum load of 0.5 A is required on the +5 V output to obtain full current from the negative output.
- 7 Single output models have floating outputs which may be referenced as either positive or negative.
- 8 Derating curve is application specific for ambient temperatures > 50 °C, for optimum reliability no part of the heatsink should exceed 120 °C and no semiconductor case temperature should exceed 130 °C.
- 9 Caution: Allow a minimum of 1 second after disconnecting the power when making thermal measurements.
- 10 Although the minimum output current of the NFS40-79XXJ is 0 A, a 4 W minimum load is required to achieve design MTBF.
- 11 Three orthogonal axes, sweep at 1 octave/min, 5 minute dwell at four major resonances.
- 12 This product is only for inclusion by professional installers within other equipment and must not be operated as a stand alone product.
- 13 The 'J' suffix indicates that these parts are Pb-free (RoHS 6/6) compliant.
- 14 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> to find a suitable alternative.

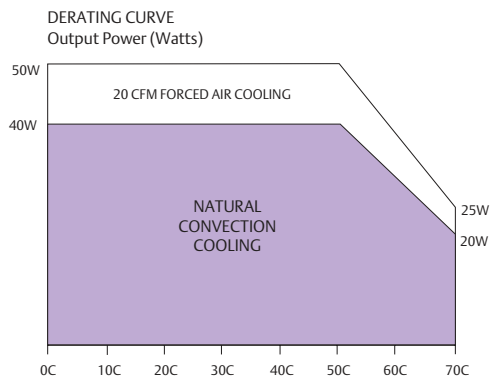
AC mating connector

Molex 09-50-3031 or equivalent with Molex 08-50-0105 or equivalent crimp terminal.

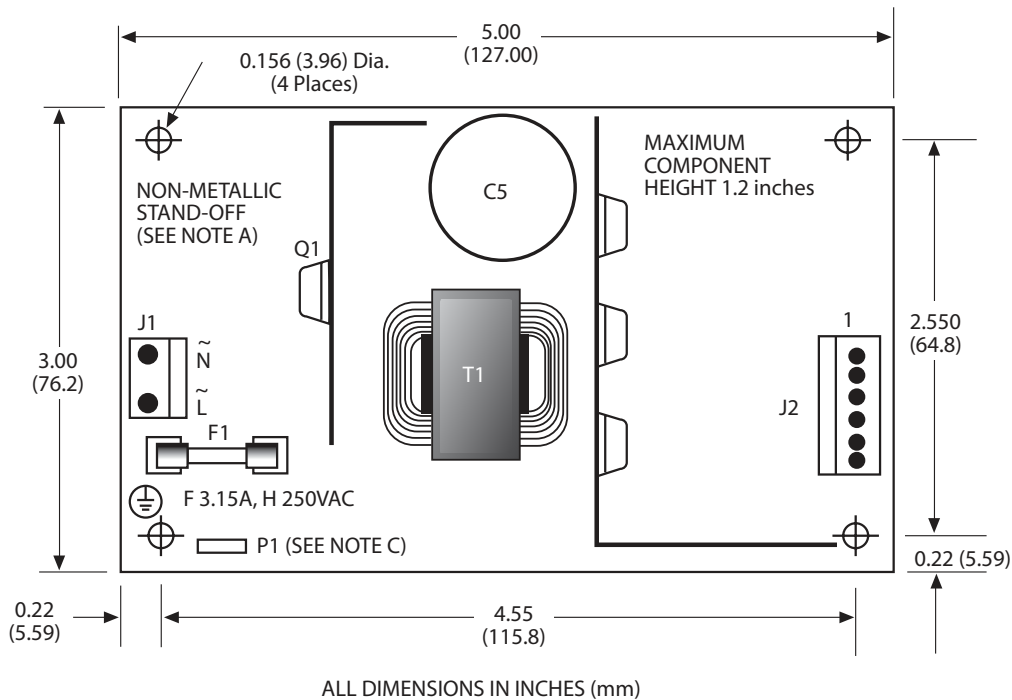
DC mating connector

Molex 09-91-0600 or equivalent with Molex 08-50-0164 or equivalent crimp terminal.

Pin Connections			
J1	-7908J, -7928J	-7910J	SINGLES
Pin 1	AC Line	AC Line	AC Line
Pin 2	AC Neutral	AC Neutral	AC Neutral
J2			
Pin 1	+12 V	+15 V	+Vout
Pin 2	+5.1 V	+5.1 V	+Vout
Pin 3	+5.1 V	+5.1 V	+Vout
Pin 4	Return	Return	Return
Pin 5	Return	Return	Return
Pin 6	-12 V	-15 V	Return
P1			
Pin 1	Safety Earth Ground		



Mechanical Drawing



Mechanical Notes

- A** In order to meet safety requirements, a non-metallic stand-off is mandatory for one hole as specified in the mechanical drawing above.
- B** The ground pad of the mounting hole near P1 allows system grounding through a metal stand-off.
- C** To improve conducted noise, the ground pad of the mounting hole near the output connector should be connected with the ground pad of the mounting hole near P1. Use metal stand-offs attached to a common metal chassis. This connection also significantly attenuates common mode noise.
- D** A standard L-bracket and enclosure kit is available for mounting which contains all screws, connectors and necessary mounting hardware. Order part number NFS40CJ.

Americas

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

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.

- AC Power
- Connectivity
- DC Power
- Embedded Computing
- **Embedded Power**
- Monitoring
- Outside Plant
- Power Switching & Controls
- Precision Cooling
- Racks & Integrated Cabinets
- Services
- Surge Protection

EmersonNetworkPower.com

Emerson Network Power and the Emerson Network Power logo are trademarks and service marks of Emerson Electric Co.
©2009 Emerson Electric Co.