



VOXPOWER

NEVO+1200ML

LOW NOISE MEDICAL AC/DC MODULAR CONFIGURABLE POWER SUPPLY

DATA SHEET



6" x 6" x 1.61"

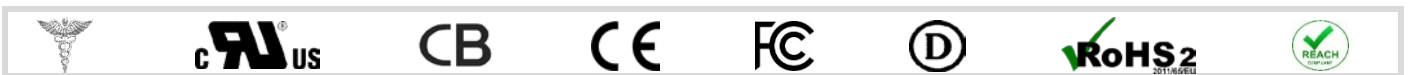
Small

900W

Powerful

1.2kg

Light



The NEVO+1200ML is the smallest in its class and the ultimate power solution for medical applications where size, weight, low standby power and low noise operation are vital factors and delivers up to 900 Watts from a 1.2kg 6" x 6" x 1.61" package. Each configured unit consists of an input module with up to eight output modules, where any combination of outputs can be fitted to create a power solution with up to sixteen isolated outputs.

Standard features include intelligent fan control, wide output voltage adjust capability and primary side shutdown with standby power consumption of less than 3 Watts. The low noise fan option allows you to use this innovative power supply in even the quietest of environments. The series carries full 3rd Edition 60601 safety approvals and complies with EN55022-B EMC Standards and features market leading specifications and design in application support.

MAIN FEATURES

- Up to 900 Watts of output power
- Low noise operation (~18dBA reduction from M version)
- Efficiency up to 89%
- 6" x 6" x 1.61" footprint
- Industry leading power density (16W/in³)
- Lightest modular design – only 1.2kg – 750Watts/kg
- Up to 16 isolated outputs
- Parallel & series connection of modules
- Wide output voltage adjust range
- Remote current / voltage programming
- Primary side remote on/off function
- Standby power ≤ 3 Watts
- Accurate current sharing
- 2 x 5V 1A bias supply
- Field configurable
- UL60601 Ed. 3 (Immunity to Ed. 4)
- 3 Year warranty

SPECIFICATIONS

INPUT ELECTRICAL						
Parameter	Details	Min	Typ	Max	Units	
AC Input Voltage	Nominal range is 100V to 240V	85		264	Vrms	
AC Input Frequency	Contact factory for 400Hz operation.	47	50/60	63	Hz	
DC Input Voltage	Standard	120		370	Vdc	
Power Rating	See graphs for de-rating			900	Watts	
Input Current	900Watts output at 120Vrms input		8.5		Amps	
Inrush Current	265Vrms (cold start)			40	Amps	
Fusing	5x20 Fast acting			12.5	Amps	
Input Current Limit			14		Amps	
Efficiency	See graphs		86	89	%	
Idle Power	All outputs fitted and enabled		46		Watts	
Idle Power	All outputs fitted and Disabled		32		Watts	
Standby Power	Latched off state, 120Vrms		2.5		Watts	
Power Factor			0.99	0.99		
Holdup	900Watts output at 120Vrms input	21	24	26	mS	
UVLO	Turn on only	78		84	Vrms	
Over temperature	Internally monitored. Latching	115		125	°C	
Reliability	40°C 80% load			2	FPMH	
Leakage Current	Normal condition, 264V, 63Hz		190		µAmps	
S I G N A L S	Output Bias voltage	Two isolated Bias Outputs available	4.8	5	5.2	V
	Output Bias current	Hiccup type current limit	0		1	A
	Power Good voltage	PNP open collector with internal 10k pull down resistor	8	10	15	V
	Power Good current		0		20	mA
	Inhibit voltage		2		15	V
	Inhibit current	10k ohm input impedance	0.2		1.5	mA
	Global inhibit voltage		3		15	V
	Global inhibit current	5k ohm input impedance	0.6		3	mA
	AC_OK voltage	High output	4.7		5.2	V
	AC_OK voltage	Low output	0		0.1	V
	AC_OK current		-10		10	mA
	AC_OK warning	See user manual for exceptions	5			mS
	Primary Bias voltage	Medically Isolated	4.8	5	5.2	V
Primary Bias current	Hiccup type current limit			0.5	A	
Primary Remote On/Off	Negative Edge Triggered, Refer to User Manual		5		V	

INSTALLATION			
Parameter	Details	Parameter	Details
Equipment class	I	Flammability rating	94V-2
Installation category	II	IP Rating	IP10
Pollution degree	2	ROHS Compliance	2011/65/EC
Material group	IIIb		Indoor use only

RELIABILITY				
Component	Details	Min	Max	Units
Fan	Mag Lev Std (2 Fans per unit)		3.8	FPMH
Input	Excluding FAN		2	FPMH
Output	See individual output datasheets		1	FPMH
Warranty			3	Years

SAFETY				
Parameter	Details	Min	Max	Units
Isolation Voltage	Input to output (2 MOPP)		4000	Vac
	Input to chassis (1 MOPP)		1500	Vac
	Output to chassis		250	Vdc
	Output to output		250	Vdc
Isolation Clearance	Primary to secondary (reinforced)	7		mm
	Primary to chassis (basic)	2.5		mm
Isolation Creepage	Primary to secondary (reinforced)	12		mm
	Primary to chassis (basic)	4		mm
Leakage Current	Medical: 265Vac, 63Hz, 25°C		300	µA

MECHANICAL	
Parameter	Details
Size	154.5mm (L) x 152.4mm (W) x 41.0 ± 1.0mm (H)
Weight	720 gram + 60 gram per output module
Mounting	Bottom (see diagram for details)

ENVIRONMENTAL

Storage	Parameter	Details	Min	Max	Units
	Temperature			-40	+85
Humidity		Relative, non-condensing	5	95	%
Altitude			-200	5000	m
Air Pressure			54	106	kPa
Operation	Temperature	Full power	-20	50	°C
		Derate input and outputs at 2.5%/°C	50	70	°C
	Humidity	Relative, non-condensing	5	95	%
	Altitude	(-200 to 2000m for UL60601-1)	-200	3000	m
	Air Pressure		78	106	kPa
	Noise level	Unit at idle		24	dBA
	Measured 1m from fan intake	Unit at full power, 25°C		43	dBA
Shock		3000 bumps at 10G (16ms) half sine wave			
Vibration		1.5G 10 to 200Hz sine wave, 20G for 15min in 3 axes random vibration			

EMC

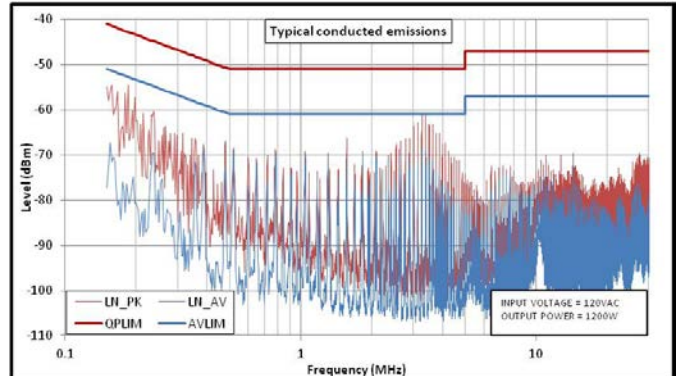
Emissions	Parameter	Standard	Level
	Radiated electric field	EN55011, EN55022, FCC	A (See Note)
Conducted emissions	EN55011, EN55022, FCC	B	
Immunity	Harmonic Distortion	EN61000-3-2	Compliant
	Flicker & Fluctuation	EN61000-3-3	Compliant
	Electrostatic discharge	EN61000-4-2 (15kV air, 8kV contact)	4
	Radiated RFI	EN61000-4-3 (10V/m)	3
	Fast Transient burst	EN61000-4-4 (4kV)	4
	Input line surges	EN61000-4-5 (1kV L-N, 2kV L-E)	3
Conducted RFI	EN61000-4-6 (10V)	4	
Power Freq. Magnetic Field	EN61000-4-8 (10A/m)	3	
Voltage Dips	EN61000-4-11 (EN55024)	Compliant	

Note: To meet Class B radiated emissions the end user should add ferrites to I/P and O/P cables. Consult Vox Power for details.

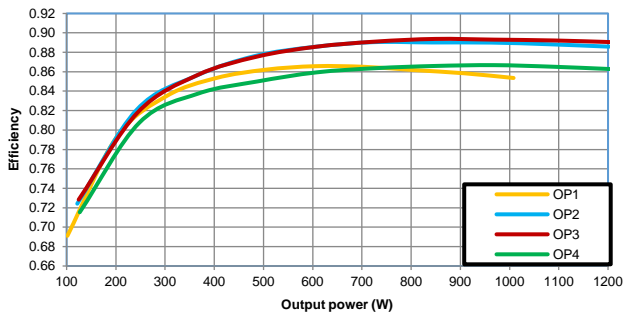
AGENCY APPROVALS

Standard	Details	File
IEC/EN60601-1	IEC 60601-1: 1998 + A1: 1991 + A2: 1995	UL: E316486
UL60601-1	UL60601-1: 2006	
CAN/CSA-C22.2 No. 60601-1	CAN/CSA-C22.2 No. 60601-1 (2008)	
ANSI/AAMI ES60601-1	ANSI/AAMI ES60601-1 (2005 + C1:09 + A2:10)	
CE MARK	LVD 2014/35/EU	

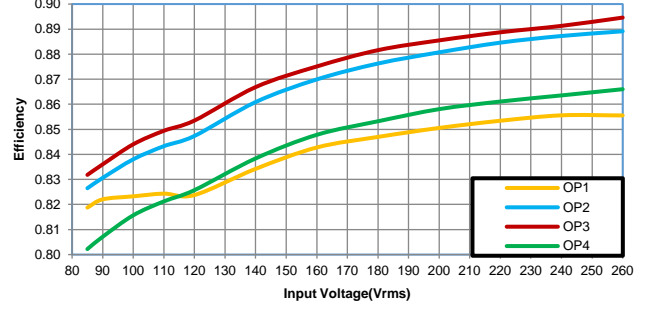
CB certificate and report available on request



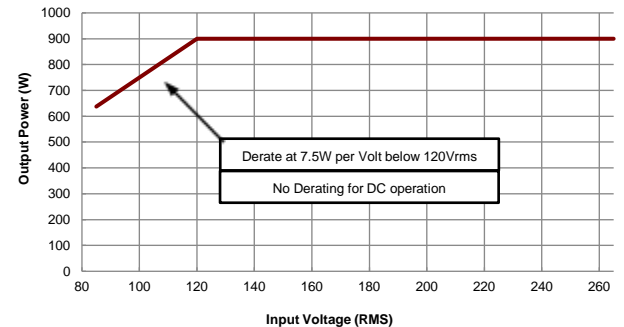
Typical Load Efficiency (220Vrms)



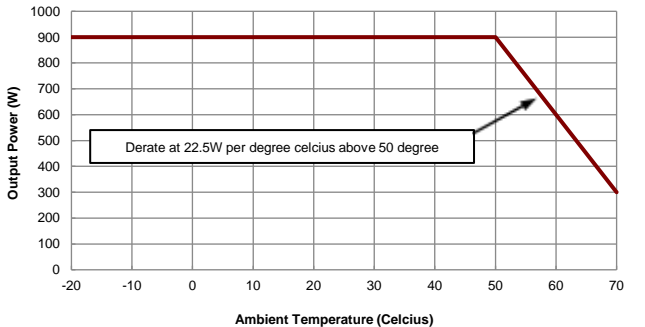
Typical Line Efficiency (Pmax)



Line Derating



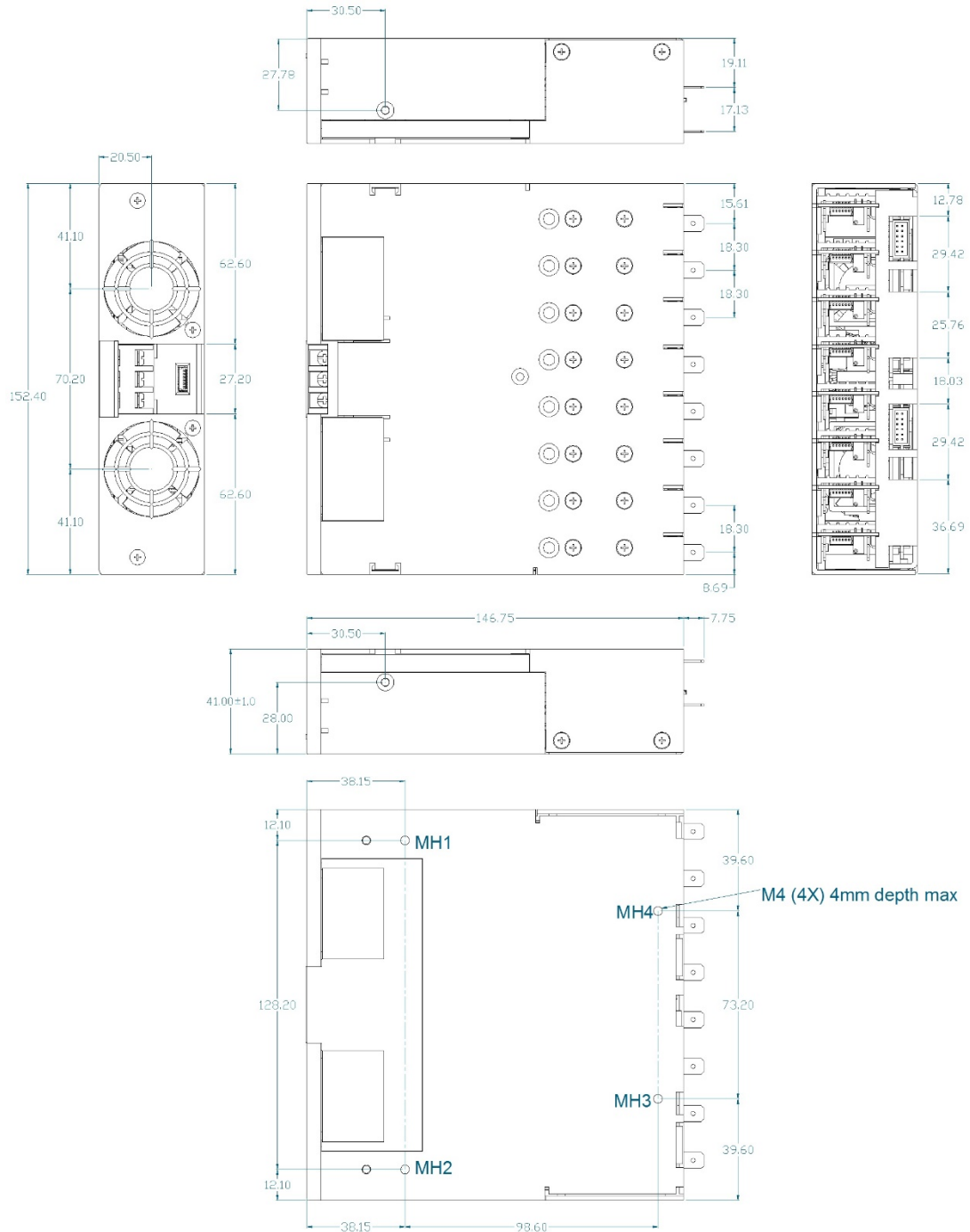
Temperature Derating



MECHANICAL DIMENSIONS AND MOUNTING SCREWS

SCREWS			
LOCATION	DETAILS	PENETRATION	TIGHTENING
MOUNTING	M4 x 4	4mm max, including chassis	0.55 NM ⁽¹⁾
OUTPUT MODULES	M3 x 5, Countersink Posi, 16 Places	Defined by screw	0.35 NM ⁽¹⁾
CHASSIS LID AND FACEPLATE	M3 x 5, Countersink Posi, 11 Places	Defined by screw	0.35 NM ⁽¹⁾

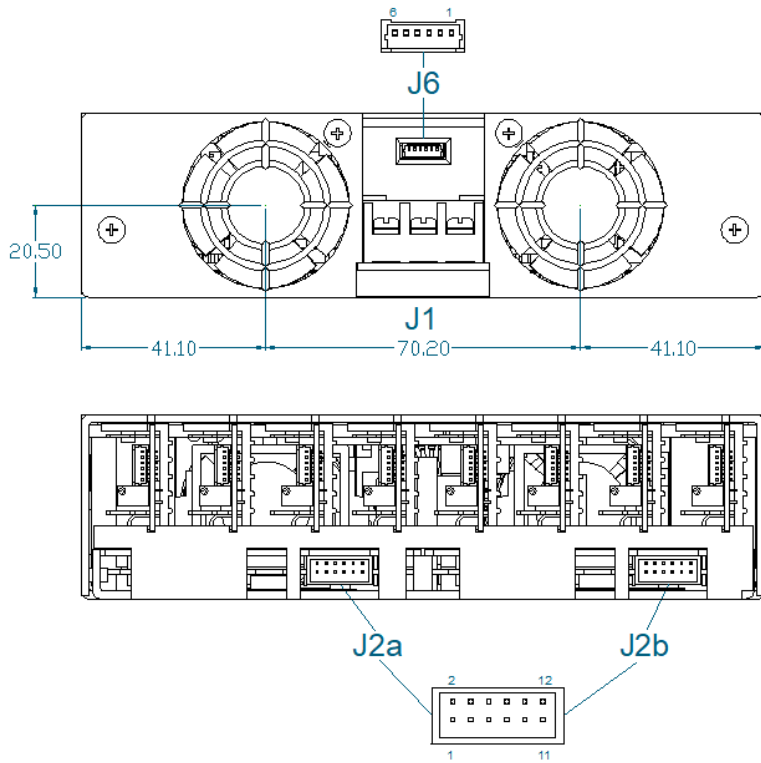
1. Torque settings are for general reference only. The torque settings shown in the datasheet are the insert manufacturers recommended values.



TOLERANCES unless otherwise stated - All dimensions in mm and according to DIN 2768-1/-2 CLASS C

CONNECTORS

PINOUTS		
J1		
Circuit	Details	
1	Live	
2	Earth	
3	Neutral	
J2a/b		
Circuit	Details	
1	Power Good	Slot A and E
2	Inhibit	
3	Power Good	Slot B and F
4	Inhibit	
5	Power Good	Slot C and G
6	Inhibit	
7	Power Good	Slot D and H
8	Inhibit	
9	Global Inhibit	
10	AC OK	
11	+5V 1A Bias Supply	
12	COM	
J6		
1	Common	
2	+5V 500mA Bias	
3	Shut Down	
4	Reserved	
5	Reserved	
6	Reserved	



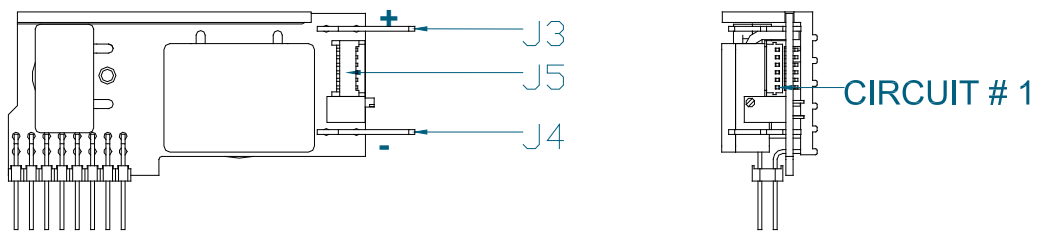
REF	DETAILS	MANUFACTURER	HOUSING	TERMINAL
J1	MAINS INPUT: 3 Pin, Barrier, 6-32 Steel Screws, 0.8 NM or 7IN LB Torque Cable 14-18AWG, 300V, 16A, 105°C, use appropriately rated fork or ring terminal.	MOLEX		
J2a/b	GLOBAL SIGNALS: 12 Pin, 2mm, without Friction Lock, 24-30 AWG	MOLEX	511101251	503948051
J6	INPUT BIAS: OUTPUT SIGNALS: 6 Pin, 1.25mm, with Friction lock, 28-32 AWG	MOLEX	510210600	500588000

Notes

1. Direct equivalents may be used for any connector parts.
2. All cables must be rated 105°C min, equivalent to UL1015

SINGLE OUTPUT MODULE CONNECTORS

PINOUTS	
J3	
Circuit	Details
1	Positive output
J4	
Circuit	Details
1	Negative output
J5	
Circuit	Details
1	-Sense
2	+Sense
3	Voltage control
4	Current control / share / out
5	COM
6	+5V local bias supply

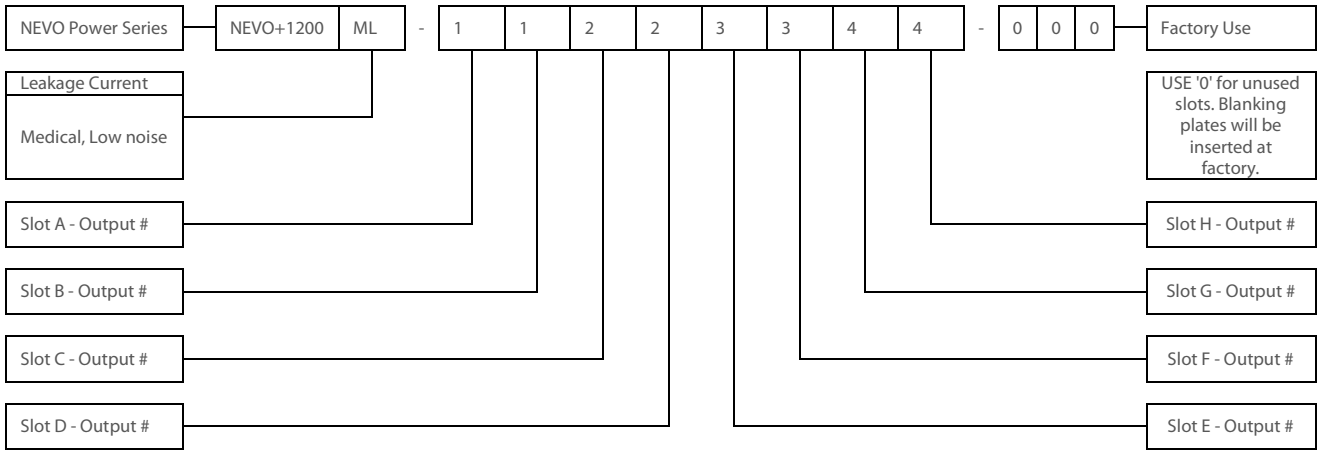


REF.	DETAILS	MANUFACTURER	HOUSING	TERMINAL
J1	MAINS INPUT: 3 Pin, 5.08mm, with Friction Lock, 18-24 AWG	MOLEX	10013036	0008701031
J2	GLOBAL SIGNALS: 12 Pin, 2mm, without Friction Lock, 24-30 AWG	MOLEX	511101251	0503948051
J3/4(1)	OUTPUT POWER TERMINAL: TAB SIZE 6.35mmx0.8mm	VARIOUS		VARIOUS
J5	OUTPUT SIGNALS: 6 Pin, 1.25mm, with Friction lock, 28-32 AWG	MOLEX	0510210600	0500588000

Notes

1. Terminal and wire current rating must exceed maximum short circuit output current. Eg. Output 1 = 25A*1.25 = 31.25Amps
2. Direct equivalents may be used for any connector parts
3. All cables must be rated 105°C min, equivalent to UL1015

PART NUMBERING SYSTEM



Our design team will assist with value add requirement if an application requires standard/non-standard accessories or non-nominal voltage settings. Once approved, the factory will issue a 3 or 4 digit code for your specific configuration which can be used for all future orders of the same configuration. When ordering an input unit with no outputs inserted, simply order NEVO+1200ML.

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