

120 WATTS

SINGLE/MULTI OUTPUT AC-DC

FEATURES:

- Compact Size 8" x 4" x 2"
- 3 Year Warranty
- Universal 85-264VAC Input
- Single, Dual or Triple Outputs
- >90% Peak Efficiency
- Meets CoC Tier I Efficiency⁽⁶⁾
- IEC 60601-1:06/A1:13 Medical Cert.
- IEC 62368-1:2014 AV,ITE,CTE Cert.
- IEC 60601-1-2 4th ed. EMC
- Class B Emissions per CISPR 11/24
- -20 to +70°C Operating Temperature
- RoHS Compliant



SAFETY SPECIFICATIONS



UL-Listed
File E137708

UL 62368-1:2014, 2nd Edition
CAN/CSA C22.2 No. 62368-1-14



CB Reports/Certificates (including all
National and Group Deviations)
IEC 62368-1:2014, 2nd Edition
IEC 60601-1:2005/A1:2012



UL Recognition
File E140259

AAMI/ANSI ES60601-1:2005(R) 2012
CAN/CSA C22.2 No. 60601-1:2014



TUV

EN 62368-1:2014, 2nd Edition
EN 60601-1:2006/A1:2013



Low Voltage Directive
RoHS Directive (Recast)
EMC Directive

(2014/35/EU of February 2014)
(2011/65/EU of June 2011)
(2014/30/EU of March 2014)

MODEL LISTING

MODEL	OUTPUT 1	OUTPUT 2	OUTPUT 3
ELS-120-3001	+5V/12A	+24V/3A	-12V/1A
ELS-120-3002	+5V/12A	+24V/3A	-15V/1A
ELS-120-3003	+5V/12A	+12V/3A	-12V/2A
ELS-120-3004	+5V/12A	+15V/2A	-15V/2A
ELS-120-3005	+5V/12A	+24V/3A	-24V/1A
ELS-120-3006	+12V/7A	+24V/1A	-5V/2A
ELS-120-3007	+24V/4A	+5V/2A	-12V/1A
ELS-120-3008	+24V/4A	+5V/2A	-15V/1A
ELS-120-2001	+5V/12A	+12V/5A	
ELS-120-2002	+5V/12A	+15V/4A	
ELS-120-2003	+5V/12A	+24V/3A	
ELS-120-2004	+12V/9A	+5V/3A	
ELS-120-2005	+12V/8A	-12V/2A	
ELS-120-2006	+12V/8A	+15V/2A	
ELS-120-2007	+12V/8A	+24V/1A	
ELS-120-2008	+15V/8A	-15V/2A	
ELS-120-2009	+24V/4A	+12V/2A	
ELS-120-2010	+24V/4A	+15V/2A	
ELS-120-1001 ⁽⁶⁾	12V/12.5A		
ELS-120-1002 ⁽⁶⁾	15V/10.0A		
ELS-120-1003 ⁽⁶⁾	24V/6.3A		

ORDERING INFORMATION

Consult factory for alternate output configurations.

Please specify the following features when ordering:

C14 – AC Input, IEC320-C14, Standard

IO – Isolated Outputs, Option

C6 – AC Input, IEC320-C6, Option

All specifications are maximum at 25°C, 120W unless otherwise stated, may vary by model and are subject to change without notice.

Advance Product Bulletin

OUTPUT SPECIFICATIONS

Output Power at 40°C ₍₁₎	120W	Internal Fan Cooled
Voltage Centering	Output 1: ± 0.5% (all outputs at 50% load) Outputs 2 & 3: ± 5.0% (all outputs at 50% load)	
Load Regulation	Output 1: ± 0.5% (0-100% load change) Outputs 2 & 3: ± 5.0% (10-100% load change) Output 2: ± 6.0% (2004, 20-100% load change) Output 3: ± 6.0% (3006-3008, 20-100% load change)	
Source Regulation	Outputs 1-3: 0.5%	
Cross Regulation	Outputs 2 & 3: 5.0%	
Ripple & Noise ₍₃₎	Outputs 1-3: 1.0% or 100mV p-p, 20MHz BW	
Turn on Overshoot	None	
Transient Response	Output recovers to within 1% of initial set point due to a 50-100-50% step load change, 500µs maximum, 4% maximum deviation.	
Overvoltage Protection	Latching, between 110% and 150% of rated output voltage.	
Overpower Protection	110-150% rated P _{OUT} , cycle on/off, auto recovery	
Overtemperature Protection	Latching	
Hold-Up Time	25ms minimum, full power	
Start-Up Time	<1 sec., 115/230V Input	
Output Rise Time	25ms typical	
Minimum Load ₍₂₎	No minimum load required	

INPUT SPECIFICATIONS

Protection Class	I
Ingress Protection	IP30
Source Voltage	85 – 264 VAC (see Derating Chart)
Source Frequency	47 – 63 Hz
Input Protection	Dual internal 5A time-delay fuses, 1,500A breaking capacity
Peak Inrush Current	40A max.
Peak Efficiency	Up to 90%
Average Efficiency	>86% Multi's., >88% Singles DoE Level VI (115/230VAC) >89% Singles, CoC Tier I (230VAC)
No-Load Input Power	<300mW, Multi's., DoE Level VI 115/230VAC <210mW, Singles., DoE Level VI 115/230VAC

ENVIRONMENTAL SPECIFICATIONS

Ambient Operating Temp. Range	-20 to +70°C, Derating (see derating requirements)
Ambient Storage Temp. Range	-40 to +85°C
Operating Relative Humidity Range	20-90% non-condensing
Altitude	3,000m ASL Operating
Temperature Coefficient	0.02%/°C
Vibration (MIL-STD-810G)	2.5G swept sine, 10-2,000Hz, 1 octave/min., 3 axis, 1 hour each
Shock (MIL-STD-810G)	20G, 11ms, 3 axis.

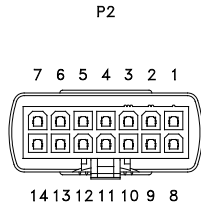
GENERAL SPECIFICATIONS

Means of Protection	Primary to Secondary: 2MOPP (Means of Patient Protection) Primary to Ground: 1MOPP (Means of Patient Protection) Secondary to Ground: Operational Insulation
Dielectric Strength ^(4, 5)	Reinforced Insulation: 5,656 VDC (4,000VAC) Basic Insulation: 2,121 VDC (1,500VAC) Operational Insulation: 707 VDC (500VAC)
Leakage Current	Earth Leakage: <300µA NC, <1,000µA SFC Touch Current: <100µA NC, <500µA SFC Patient Leakage Current: <100µA NC, <500µA SFC
Switching Frequency	PWM:65KHz/PFC:Variable
Mean-Time Between Failures	>165,000 hours, MIL-HDBK-217F, 25° C, GB
Weight	2.33 lbs.

EMC SPECIFICATIONS (IEC 60601-1-2:2014, 4TH ed./IEC 61000-6-2:2016)

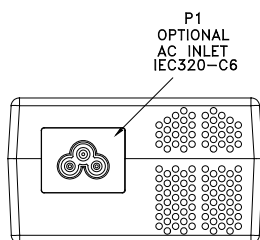
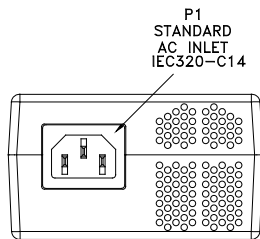
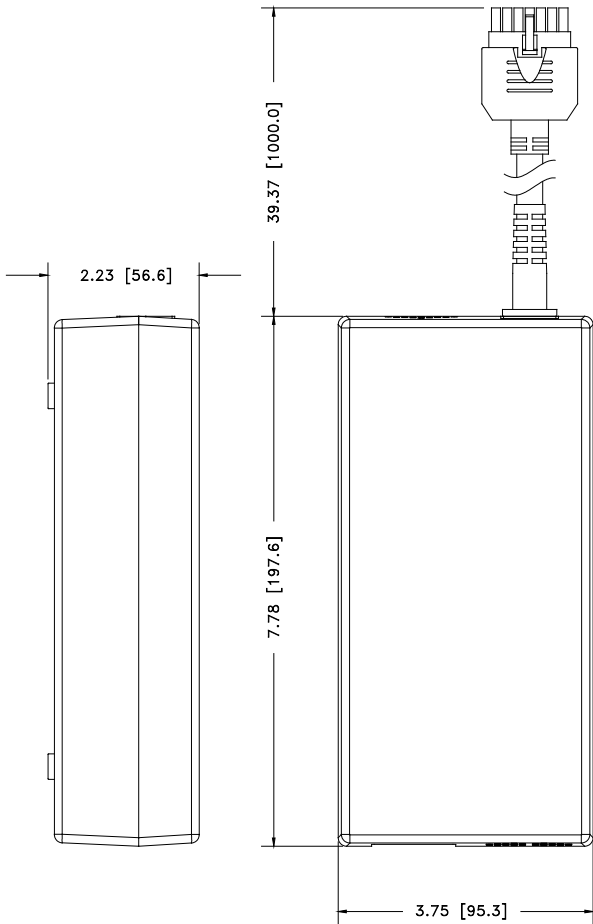
Electrostatic Discharge	EN 61000-4-2	±8KV contact / ±15KV air discharge	A
Radiated Electromagnetic Field	EN 61000-4-3	80MHz-2.7GHz, 10V/m, 80% AM	A
Electrical Fast Transients/Bursts	EN 61000-4-4	±2 KV, 5KHz/100KHz	A
Surges	EN 61000-4-5	±2 KV line to earth / ±1 KV line to line	A
Conducted Immunity	EN 61000-4-6	0.15 to 80MHz, 10V, 80% AM	A
Magnetic Field Immunity	EN 61000-4-8	30A/m, 60 Hz	A
Voltage Dips	EN 61000-4-11	0% U _T , 0.5 cycles@0-315° 100/240V A/A 0% U _T , 1 cycle, 0° 100/240V A/A 40% U _T , 12 cycles, 0° 100/240V B/A 70% U _T , 30 cycles, 0° 100/240V B/A	
Voltage Interruptions	EN 61000-4-11	0% U _T , 300 cycles, 0°	100/240V B/B
Radiated Emissions	EN 55011/32, FCC Part 15		Class B
Conducted Emissions	EN 55011/32, FCC Part 15		Class B
Harmonic Current Emissions	EN 61000-3-2		Class A
Voltage Fluctuations/Flicker	EN 61000-3-3		Complies

- DC OUTPUT
 P2-1: (+) OUTPUT 1
 P2-2: (+) OUTPUT 1
 P2-3: (+) OUTPUT 1
 P2-4: (+) OUTPUT 1
 P2-5: (+) SENSE
 P2-6: (+) OUTPUT 2
 P2-7: (+) OUTPUT 3
 P2-8: (-) OUTPUT 1
 P2-9: (-) OUTPUT 1
 P2-10: (-) OUTPUT 1
 P2-11: (-) OUTPUT 1
 P2-12: (-) SENSE
 P2-13: (-) OUTPUT 2
 P2-14: (-) OUTPUT 3



DETAIL A

14-PIN MOLEX CONNECTOR
(SEE DETAIL A)



- Each output can deliver its rated current but Total Output Power must not exceed 120W, unless otherwise stated.
- Minimum load is not required for reliable operation. However, a 10% load may be required on Output 1 when loading Outputs 2 or 3.
- Peak-to-Peak Output Ripple and Noise is measured directly at the output terminals of the power cord, without the use of the probe ground lead or retractable tip (tip-and-barrel method), 20MHz bandwidth, with each output terminated with a 0.1µF multilayer ceramic and a 10µF low-ESR electrolytic capacitor.
- This product was type-tested and safety-certified using the dielectric strength test voltages listed in Table 6 of IEC 60601-1:2005. In consideration of Clause 8.8.3, care must be taken to ensure that the voltage applied to a reinforced insulation does not overstress different types and levels of insulation. Primary and secondary-to-ground capacitors may need to be disconnected prior to performing a dielectric strength test on the power supply or the end product. It is highly recommended that the DC test voltages listed in DVB.1, Annex DVB of UL 60601-1 1st Edition are not exceeded during a production-line dielectric strength test of the assembled end product. Please consult factory for further information.
- This power supply has been safety-approved and final-tested using a DC dielectric strength test. Please consult factory before performing an AC dielectric strength test.
- Meets CoC Tier I Efficiency on single output models.
- Remote-Sense terminals may be used to compensate for cable losses up to 400mV, depending on model. The use of a twisted pair, decoupling capacitors and an appropriately-rated low-impedance capacitor connected across the load will increase noise immunity.
- Only use an AC line cord with appropriate IEC320 connector and recommended DC output mating connector.
- Firmly connect AC line cord and DC power cord in place.
- Unit does not have any user-serviceable components. Do not open the device, or make any attempt to disassemble or modify it.
- For indoor use only. Avoid placing this product in direct sunlight, or operating in temperatures below -20°C or above 70°C.
- Position unit in well-ventilated area.
- Do not rest any object on the unit, or block the ventilation holes during operation.
- When in use, maintain horizontal position with rubber feet facing down onto a flat surface.
- Do not operate this product with damaged input/output cords or connectors.
- Insure that the supply voltage for this external power supply is within safe operating range, as shown in the nameplate data label located on the bottom of the unit.

MAX P_{OUT} vs. AMBIENT TEMPERATURE/INPUT VOLTAGE

