

Product Features

- Lamp safety approvals, Medical & ITE safety meet
- 2 MOPP input to output isolation
- DOE Efficiency Level VI
- European CoC V5 Tier 2
- Suitable for medical equipment up to class BF^(*)
- Leakage current $\leq 100\mu\text{A}$
- $\leq 0.15\text{W}$ standby power
- 12V to 48V outputs, up to 150W
- Up to 5,000m operating altitude
- 4 types of AC inlet
- Meet 4KV surge immunity IEC61000-4-5



Models & Ratings

Model Number	Voltage ^(*)	Current	Rated Power	Ripple & Noise (max)(*) ⁽²⁾	Voltage Tolerance	Line & Load Regulation	Efficiency (Average)	Start Up Delay
UES150-XXXXXXSPA1/ SPA2/ SPA3/ SPA4	11.1-12.0	0.01-11.0	132W	150mVpk-pk	±5%	Line: ±1% Load: ±5%	89.0%	≤3s
	12.1-13.0	0.01-11.0	143W	150mVpk-pk	±5%		89.0%	≤3s
	13.1-14.0	0.01-10.7	150W	150mVpk-pk	±5%		89.0%	≤3s
	14.1-15.0	0.01-10.0	150W	150mVpk-pk	±5%		89.0%	≤3s
	15.1-16.0	0.01-9.37	150W	180mVpk-pk	±5%		89.0%	≤3s
	16.1-17.0	0.01-8.82	150W	180mVpk-pk	±5%		89.0%	≤3s
	17.1-18.0	0.01-8.33	150W	180mVpk-pk	±5%		89.0%	≤3s
	18.1-19.0	0.01-7.89	150W	180mVpk-pk	±5%		89.0%	≤3s
	19.1-20.0	0.01-7.50	150W	200mVpk-pk	±5%		89.0%	≤3s
	20.1-21.0	0.01-7.14	150W	200mVpk-pk	±5%		89.0%	≤3s
	21.1-22.0	0.01-6.81	150W	200mVpk-pk	±5%		89.0%	≤3s
	22.1-23.0	0.01-6.52	150W	200mVpk-pk	±5%		89.0%	≤3s
	23.1-24.0	0.01-6.25	150W	240mVpk-pk	±5%		89.0%	≤3s
	24.1-25.0	0.01-6.00	150W	240mVpk-pk	±5%		89.0%	≤3s
	25.1-26.0	0.01-5.76	150W	240mVpk-pk	±5%		89.0%	≤3s
	26.1-27.0	0.01-5.55	150W	240mVpk-pk	±5%		89.0%	≤3s
	27.1-28.0	0.01-5.35	150W	300mVpk-pk	±5%		89.0%	≤3s
	28.1-29.0	0.01-5.17	150W	300mVpk-pk	±5%		89.0%	≤3s
	29.1-30.0	0.01-5.00	150W	300mVpk-pk	±5%		89.0%	≤3s
	30.1-31.0	0.01-4.83	150W	300mVpk-pk	±5%		89.0%	≤3s
	31.1-32.0	0.01-4.68	150W	300mVpk-pk	±5%		89.0%	≤3s
	32.1-33.0	0.01-4.54	150W	360mVpk-pk	±5%		89.0%	≤3s
	33.1-34.0	0.01-4.41	150W	360mVpk-pk	±5%		89.0%	≤3s
	34.1-35.0	0.01-4.28	150W	360mVpk-pk	±5%		89.0%	≤3s
	35.1-36.0	0.01-4.16	150W	360mVpk-pk	±5%		89.0%	≤3s
	36.1-37.0	0.01-4.05	150W	360mVpk-pk	±5%		89.0%	≤3s
	37.1-38.0	0.01-3.94	150W	360mVpk-pk	±5%		89.0%	≤3s
	38.1-39.0	0.01-3.84	150W	360mVpk-pk	±5%		89.0%	≤3s
	39.1-40.0	0.01-3.75	150W	360mVpk-pk	±5%		89.0%	≤3s
	40.1-41.0	0.01-3.65	150W	480mVpk-pk	±5%		89.0%	≤3s
	41.1-42.0	0.01-3.57	150W	480mVpk-pk	±5%		89.0%	≤3s
	42.1-43.0	0.01-3.48	150W	480mVpk-pk	±5%		89.0%	≤3s
	43.1-44.0	0.01-3.40	150W	480mVpk-pk	±5%		89.0%	≤3s
	44.1-45.0	0.01-3.33	150W	480mVpk-pk	±5%		89.0%	≤3s
	45.1-46.0	0.01-3.26	150W	480mVpk-pk	±5%		89.0%	≤3s
	46.1-47.0	0.01-3.19	150W	480mVpk-pk	±5%		89.0%	≤3s
	47.1-48.0	0.01-3.12	150W	480mVpk-pk	±5%		89.0%	≤3s

Notes

(*1, 3, 4) Other options are available, please contact our sales representative for details.

(*2) Measured at output connector with 20MHz bandwidth and 0.1uF ceramic in parallel with 10uF electrolytic capacitors.

(*5) Polarized C8 is available.

(^) Power supplies are not medical equipment (applied parts), medical product manufacturers shall take responsibility for further evaluation of class B/BF/CF compliance of their end product.

Input

Input Voltage Range	90-264VAC
Frequency Range	47-63Hz
Input Current	2.5A at 90VAC
Inrush Current	120A max at 240VAC cold start
Touch Leakage Current ^(max)	Class I & Class II $\leq 100\mu\text{A}$ at 264VAC

Environmental

Operating Temperature	-20°C to 40°C
Storage Temperature	-20°C to 60°C
Operating Humidity	10% to 90% RH, non-condensing
Storage Humidity	5% to 90% RH
Operating Altitude	5,000m

General

Dimensions	190(L)x71.5(W)x37(H)mm
Weight	800g
MTBF	>100,000hrs MIL-HDBK-217 at 25°C
Isolation	4,000VAC Input to Output 1,500VAC Input to Ground (Class I version only)

Protection

Overload	120-170% rated output power, auto recovery
Over Voltage	120-150% rated output voltage input to reset
Short Circuit	Trip and restart (hiccup mode)

Mechanical Details

Interchangeable AC Plug Options

C8 (SPA1)^(*) C6 (SPA2) C14 (SPA3) C18 (SPA4)

DC Cable ^(*): UL 2464 16AWG*4C 1,200mm with ferrite for 12- 18V
UL 2464 18AWG*4C 1,200mm with ferrite for 18- 48V

Connector ^(*): 31*10mm, 1&4"+", 2&3"-"

Unit: mm

Safety Approvals

Safety Agency / Mark	Lamp	Medical(Meet)	ITE(Meet)
CB	IEC61347	IEC60601-1	IEC60950-1
UL	UL 8750	ANSI/AAMI ES60601-1	-
TUV	EN 61347	CAN/CSA-C22.2 NO. 60601-1	EN60950-1
CCC	-	EN60601-1	GB4943.1(For Class I only)
PSE	-	-	J60950-1(For Class I only)

EMC

Emissions	Lamp	Medical	ITE
Conducted	EN 55015, CISPR 15	IEC/EN 60601-1-2, CISPR 11	En55022, CISPR 22
Radiated	EN 55015, CISPR 15	IEC/EN 60601-1-2, CISPR 11	EN55022, CISPR 22
Harmonic Currents	EN61000-3-2, Class C	EN61000-3-2, Class A	EN61000-3-2, Class A
Voltage Flicker	EN61000-3-3	EN61000-3-3	EN61000-3-3
Immunity	Lamp	Medical	ITE
ESD	EN61000-4-2	±15kV air, ±8kV contact	EN55024, CISPR 24
Radiated Immunity	EN61000-4-3	10V/m, 3V/m 80MHz - 2.7GHz	
EFT/Burst	EN61000-4-4	±2kV on AC port, ±1kV on signal ports	
Surge	EN61000-4-5	±4KV line to line (diff mode)	
Conducted Immunity	EN61000-4-6	3Vrms, 6Vrms (0.15MHz-80MHz)	
Magnetic Field	EN61000-4-8	30 A/m	
Dips & Interruptions	EN61000-4-11	0%, 70%, 0% of UT	

Others

Dielectric Withstand Voltage	5,656VDC for Class I & Class II input to output
Insulation Resistance	10M Ohms, 500VDC input to output