

## Product Features

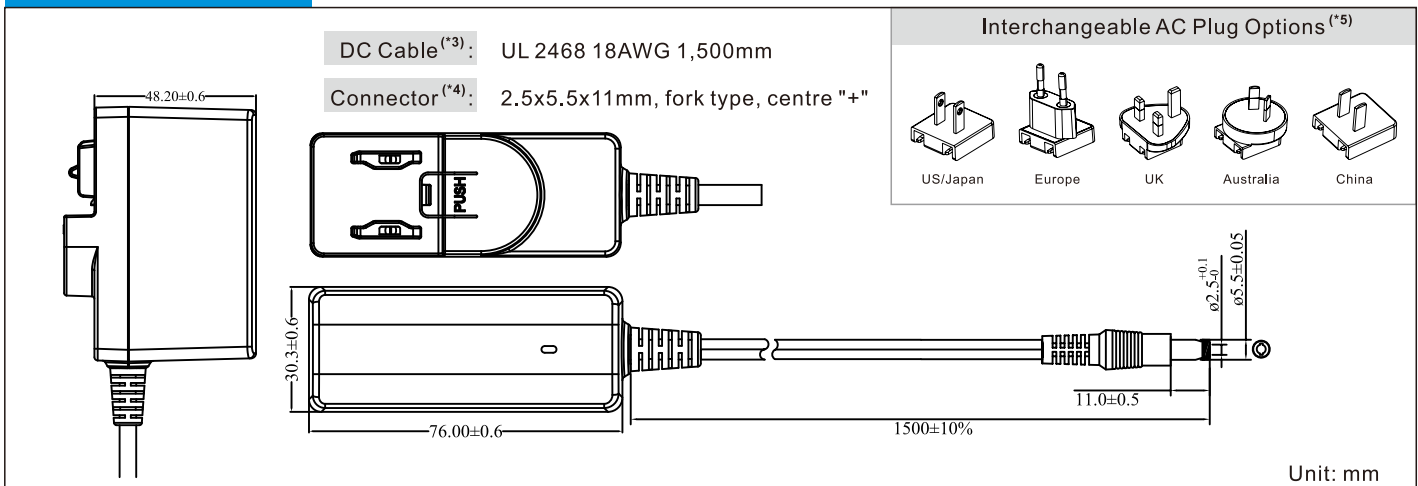
- Medical & ITE safety approvals
- 2 MOPP input to output isolation
- Suitable for medical equipment up to class BF <sup>(^)</sup>
- Low leakage current  $\leq 10\mu\text{A}$
- DOE efficiency level VI
- CoC V5 Tier 2(2016)
- $\leq 0.075\text{W}$  standby power
- 5V to 24V outputs, up to 12W
- Up to 5,000m operating altitude
- Interchangeable AC plugs
- UES12LCP-SPC (Lithium-ion battery charger) with LED indicator



## Models & Ratings

| Model Number                                                                               | Voltage <sup>(*)</sup><br>(V) | Current<br>(A) | Rated<br>Power | Ripple & Noise<br>(max) <sup>(*)</sup> | Voltage<br>Tolerance | Line & Load<br>Regulation          | Efficiency<br>(Average) | Start Up<br>Delay |
|--------------------------------------------------------------------------------------------|-------------------------------|----------------|----------------|----------------------------------------|----------------------|------------------------------------|-------------------------|-------------------|
| UES12LCP-XXXXXXSPA<br>UES12LCP-XXXXXXSPA-OP<br>UES12LCP-XXXXXXSPC<br>UES12LCP-XXXXXXSPC-OP | 4.0-5.0                       | 0.01-2.00      | 10W            | 150mVpk-pk                             | $\pm 7\%$            | Line: $\pm 1\%$<br>Load: $\pm 5\%$ | 79.01%                  | $\leq 3\text{s}$  |
|                                                                                            | 5.1-5.9                       | 0.01-2.00      | 11.8W          | 150mVpk-pk                             | $\pm 7\%$            |                                    | 80.19%                  | $\leq 3\text{s}$  |
|                                                                                            | 6.1-7.0                       | 0.01-1.71      | 12W            | 150mVpk-pk                             | $\pm 7\%$            |                                    | 83.30%                  | $\leq 3\text{s}$  |
|                                                                                            | 7.1-8.0                       | 0.01-1.50      | 12W            | 150mVpk-pk                             | $\pm 7\%$            |                                    | 83.30%                  | $\leq 3\text{s}$  |
|                                                                                            | 8.1-9.0                       | 0.01-1.33      | 12W            | 150mVpk-pk                             | $\pm 5\%$            |                                    | 83.30%                  | $\leq 3\text{s}$  |
|                                                                                            | 9.1-10.0                      | 0.01-1.20      | 12W            | 150mVpk-pk                             | $\pm 5\%$            |                                    | 83.30%                  | $\leq 3\text{s}$  |
|                                                                                            | 10.1-11.0                     | 0.01-1.09      | 12W            | 150mVpk-pk                             | $\pm 5\%$            |                                    | 83.30%                  | $\leq 3\text{s}$  |
|                                                                                            | 11.1-12.0                     | 0.01-1.00      | 12W            | 150mVpk-pk                             | $\pm 5\%$            |                                    | 83.30%                  | $\leq 3\text{s}$  |
|                                                                                            | 12.1-13.0                     | 0.01-0.94      | 12W            | 200mVpk-pk                             | $\pm 5\%$            |                                    | 83.30%                  | $\leq 3\text{s}$  |
|                                                                                            | 13.1-14.0                     | 0.01-0.86      | 12W            | 200mVpk-pk                             | $\pm 5\%$            |                                    | 83.30%                  | $\leq 3\text{s}$  |
|                                                                                            | 14.1-15.0                     | 0.01-0.80      | 12W            | 200mVpk-pk                             | $\pm 5\%$            |                                    | 83.30%                  | $\leq 3\text{s}$  |
|                                                                                            | 15.1-16.0                     | 0.01-0.75      | 12W            | 200mVpk-pk                             | $\pm 5\%$            |                                    | 83.30%                  | $\leq 3\text{s}$  |
|                                                                                            | 16.1-17.0                     | 0.01-0.71      | 12W            | 200mVpk-pk                             | $\pm 5\%$            |                                    | 83.30%                  | $\leq 3\text{s}$  |
|                                                                                            | 17.1-18.0                     | 0.01-0.67      | 12W            | 200mVpk-pk                             | $\pm 5\%$            |                                    | 83.30%                  | $\leq 3\text{s}$  |
|                                                                                            | 18.1-19.0                     | 0.01-0.63      | 12W            | 200mVpk-pk                             | $\pm 5\%$            |                                    | 83.30%                  | $\leq 3\text{s}$  |
|                                                                                            | 19.1-20.0                     | 0.01-0.60      | 12W            | 200mVpk-pk                             | $\pm 5\%$            |                                    | 83.30%                  | $\leq 3\text{s}$  |
|                                                                                            | 20.1-21.0                     | 0.01-0.57      | 12W            | 200mVpk-pk                             | $\pm 5\%$            |                                    | 83.30%                  | $\leq 3\text{s}$  |
|                                                                                            | 21.1-22.0                     | 0.01-0.55      | 12W            | 200mVpk-pk                             | $\pm 5\%$            |                                    | 83.30%                  | $\leq 3\text{s}$  |
|                                                                                            | 22.1-23.0                     | 0.01-0.52      | 12W            | 200mVpk-pk                             | $\pm 5\%$            |                                    | 83.30%                  | $\leq 3\text{s}$  |
|                                                                                            | 23.1-24.0                     | 0.01-0.50      | 12W            | 200mVpk-pk                             | $\pm 5\%$            |                                    | 83.30%                  | $\leq 3\text{s}$  |

## Mechanical Details



### Notes

(\*1, 3, 4, 5) 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.

(^ ) 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                          | 0.5A at 90VAC                |
| Inrush Current                         | 50A max at 240VAC cold start |
| Touch Leakage Current <sup>(max)</sup> | ≤10μA at 264VAC              |

**Environmental**

|                       |                               |
|-----------------------|-------------------------------|
| Operating Temperature | -5°C to 45°C                  |
| Storage Temperature   | -25°C to 75°C                 |
| Operating Humidity    | 10% to 90% RH, non-condensing |
| Storage Humidity      | 5% to 90% RH                  |
| Operating Altitude    | 5,000m                        |

**General**

|            |                                  |
|------------|----------------------------------|
| Dimensions | 76(L)x30.3(W)x48.2(H)mm          |
| Weight     | 120g                             |
| MTBF       | >100,000hrs MIL-HDBK-217 at 25°C |
| Isolation  | 4,000VAC Input to Output         |

**Protection**

|               |                                              |
|---------------|----------------------------------------------|
| Overload      | 120-200% rated output power, auto recovery   |
| Over Voltage  | 120-150% rated output voltage input to reset |
| Short Circuit | Trip and restart (hiccup mode)               |

**Safety Approvals**

| Safety Agency / Mark | Medical                   | ITE                       |
|----------------------|---------------------------|---------------------------|
| CB                   | IEC60601-1                | IEC60950-1                |
| UL                   | ANSI/AAMI ES60601-1       | UL60950-1 UL62368         |
| TUV                  | CAN/CSA C22.2 NO. 60601-1 | CAN/CSA C22.2 NO. 60950-1 |
| RCM                  | EN60601-1                 | EN60950-1                 |
|                      | -                         | AS/NZS 60950.1            |

**EMC**

| Emissions            | Medical                    | ITE                                                                    |
|----------------------|----------------------------|------------------------------------------------------------------------|
| Conducted            | IEC/EN 60601-1-2, CISPR 11 | EN55022, CISPR 22                                                      |
| Radiated             | IEC/EN 60601-1-2, CISPR 11 | EN55022, CISPR 22                                                      |
| Harmonic Currents    | EN61000-3-2, Class A       | EN61000-3-2, Class A                                                   |
| Voltage Flicker      | EN61000-3-3                | EN61000-3-3                                                            |
| Immunity             | IEC/EN 60601-1-2           | EN55024, CISPR 24                                                      |
| ESD                  | EN61000-4-2                | ±15kV air, ±8kV contact                                                |
| 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                | ±2KV line to line (diff mode) compatible ±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 input to output         |
| Insulation Resistance        | 10M Ohms, 500VDC input to output |