

# **SLPOWER SLE33PD SERIES**

33 W USB-PD

**External Power Adapters** 

















Advanced Energy's SL Power SLE33SPD series AC-DC power adapters feature both medical and ITE safety approvals. It delivers up to 33 W output with USB-C PD (Power Delivery)\*, and meets Department of Energy Level VII requirements and European Code of Conduct V5 Tier 2 Directive efficiency standards.

#### **SPECIAL FEATURES**

- Medical and ITE safety certifications
- USB-C with power delivery output
- Suitable for medical equipment up to class BF
- < 0.075 W standby power
- 2 x MOPP input to output isolation
- Overvoltage, overcurrent and short circuit protection
- EU CoC V5 Tier 2 compliant
- Meets DoE Efficiency level VII
- Up to 5000 m operating altitude
- Low leakage current less than 100 μA
- AC input via interchangeable or fixed blades (class II)

#### SAFETY

- IEC/UL/EN60601-1 3.2 Edition
- IEC/UL/EN62368-1

# AT A GLANCE

#### **Total Power**

33 Watts

#### **Input Voltage**

80 to 264 VAC

#### # of Outputs

Single

Programmable\*









Note\*: Charge Protocol Supports: PD2.0, D3.0, QC2.0, QC3.0, QC4.0, PPS (@ 5V:3.3 to 11V/3A, @ 9V:3.3 to 16V/2A)

# **ELECTRICAL SPECIFICATIONS**

| Input                        |   |  |  |
|------------------------------|---|--|--|
| Input Voltage Range          | 80 to 264 VAC   |  |  |
| Frequency                    | 47 to 63 Hz   |  |  |
| Input Current                | 0.9 A @ 100 VAC   |  |  |
| Inrush Current               | 80 A @ 240 VAC cold start   |  |  |
| Touch Leakage Current        | ≤ 100 μA @ 264 VAC  |  |  |
| Isolation Safety Rating      | Input to output: 2 x MOPP   |  |  |
| Dielectric Withstand Voltage | Input to output: 4,000 VAC  |  |  |
| Insulation Resistance        | Input to output: 10 Mohms, 500 VDC  |  |  |
| Output                       |   |  |  |
| Output Voltage               | 5 V, 9 V, 12 V, 15 V, 20 V  |  |  |
| Voltage Regulation           | ±5%   |  |  |
| Start-up Delay               | ≤ 3 s (full load)   |  |  |
| Hold up Time                 | > 12 ms at 115/230 Vac input and full load                                    |  |  |
| Rise Time                    | < 200 ms at 100 to 240 Vac at full load (DC output rise time from 10% to 90%) |  |  |
| Turn-on Overshoot            | < +5% of output voltage   |  |  |
| Overvoltage Protection       | 110% to 150% rated output voltage, auto-recovery                              |  |  |
| Overload Protection          | 105% to 140% rated output power, auto-recovery                                |  |  |

# **RELIABILITY**

| MTBF | > 100.000 hours Telcordia SR-332 at 25°C |
|------|--|
|      |  |

# **ENVIRONMENTAL SPECIFICATIONS**

| Operating Temperature   | -10 to +40°C ambient          |  |  |
|---|-------------------------------|--|--|
| Storage Temperature   | -20 to +70°C                  |  |  |
| Operating Humidity  | 10% to 90% RH, non-condensing |  |  |
| Storage Humidity  | 5% to 90% RH                  |  |  |
| Operating Altitude  | 5,000 m                       |  |  |
| Weight  | 160 g                         |  |  |
| Dimension   | 90.5 x 48 x 33.5 mm           |  |  |
| Packing Quantity  60 pcs/carton for versions with fixed output cable; 72 pcs/carton for versions with built-connector |                               |  |  |



# **EMC/EMI COMPLIANCE**

| Conducted Emissions                                    | Meet EN/IEC60601-1-2 & EN55032:2015/A11:2020, class B  |
|--|--|
| Radiated Emissions                                     | Meet EN/IEC60601-1-2 & EN55032:2015/A11:2020, class B  |
| Radiated Immunity                                      | IEC61000-4-3 2020,EN55035,IEC60601-1-2.3V/m 80MHz-2.7GHz.10V/m 80MHz-2.7GHz. Criterion Class A |
| Electro-Static Discharge (ESD) Immunity on Power Ports | IEC61000-4-2,EN55035,IEC60601-1-2, ±15 kV air, ±8 kV contact. Criterion Class A                |
| Harmonic Current Emissions                             | EN 61000-3-2   |
| Electrical Fast Transients (EFT) / Bursts              | IEC61000-4-4,EN55035,IEC60601-1-2, ± 2KV for input power port(AC/DC). Criterion Class A        |
| Surges, Line to Line (DM) and Line to Ground (CM)      | IEC61000-4-5,EN55035,IEC60601-1-2. ±1KV line to line.Criterion Class A                         |
| Conducted RF Immunity                                  | IEC61000-4-6 2023,EN55035,IEC60601-1-2, 3 Vrms, 6 Vrms (0.15 MHz to 80 MHz)                    |
| Voltage Dip Immunity                                   | IEC61000-4-11,EN55035,IEC60601-1-2   |

### **ORDERING INFORMATION - SLE33SPD SERIES**

| Model Number  | Maximum<br>Power | Output<br>Voltage     | Maximum<br>Load <sup>1</sup> | Ripple &<br>Noise² | Line<br>Regulation | Load<br>Regulation | Output<br>Configuration <sup>3</sup> | Input Configuration⁴                                  |
|---------------|------------------|-----------------------|------------------------------|--------------------|--------------------|--------------------|--------------------------------------|---|
| SLE33SPD96B01 | 33 W             | 5, 9, 12, 15,<br>20 V | 3 A                          | 200 mV<br>pk-pk    | ± 2%               | ± 5%               | 1.2m cable,<br>USB C Conn.           | Class II, Interchangeable<br>Blades (Sold Separately) |
| SLE33SPD00B01 | 33 W             | 5, 9, 12, 15,<br>20 V | 3 A                          | 200 mV<br>pk-pk    | ± 2%               | ± 5%               | Built-in USB C<br>Conn.              | Class II Interchangeable<br>Blades (Sold Separately)  |
| SLE33SPD96C01 | 33 W             | 5, 9, 12, 15,<br>20 V | 3 A                          | 200 mV<br>pk-pk    | ± 2%               | ± 5%               | 1.2m cable,<br>USB C Conn.           | Class II, Fixed US Plug                               |
| SLE33SPD96M01 | 33 W             | 5, 9, 12, 15,<br>20 V | 3 A                          | 200 mV<br>pk-pk    | ± 2%               | ± 5%               | 1.2m cable,<br>USB C Conn.           | Class II, Fixed EU Plug                               |
| SLE33SPD96G01 | 33 W             | 5, 9, 12, 15,<br>20 V | 3 A                          | 200 mV<br>pk-pk    | ± 2%               | ± 5%               | 1.2m cable,<br>USB C Conn.           | Class II, Fixed UK Plug                               |
| SLE33SPD96H01 | 33 W             | 5, 9, 12, 15,<br>20 V | 3 A                          | 200 mV<br>pk-pk    | ± 2%               | ± 5%               | 1.2m cable,<br>USB C Conn.           | Class II, Fixed AU Plug                               |
| SLE33SPD00C01 | 33 W             | 5, 9, 12, 15,<br>20 V | 3 A                          | 200 mV<br>pk-pk    | ± 2%               | ± 5%               | Built-in USB C<br>Conn.              | Class II, Fixed US Plug                               |
| SLE33SPD00M01 | 33 W             | 5, 9, 12, 15,<br>20 V | 3 A                          | 200 mV<br>pk-pk    | ± 2%               | ± 5%               | Built-in USB C<br>Conn.              | Class II, Fixed EU Plug                               |
| SLE33SPD00G01 | 33 W             | 5, 9, 12, 15,<br>20 V | 3 A                          | 200 mV<br>pk-pk    | ± 2%               | ± 5%               | Built-in USB C<br>Conn.              | Class II, Fixed UK Plug                               |
| SLE33SPD00H01 | 33 W             | 5, 9, 12, 15,<br>20 V | 3 A                          | 200 mV<br>pk-pk    | ± 2%               | ± 5%               | Built-in USB C<br>Conn.              | Class II, Fixed AU Plug                               |

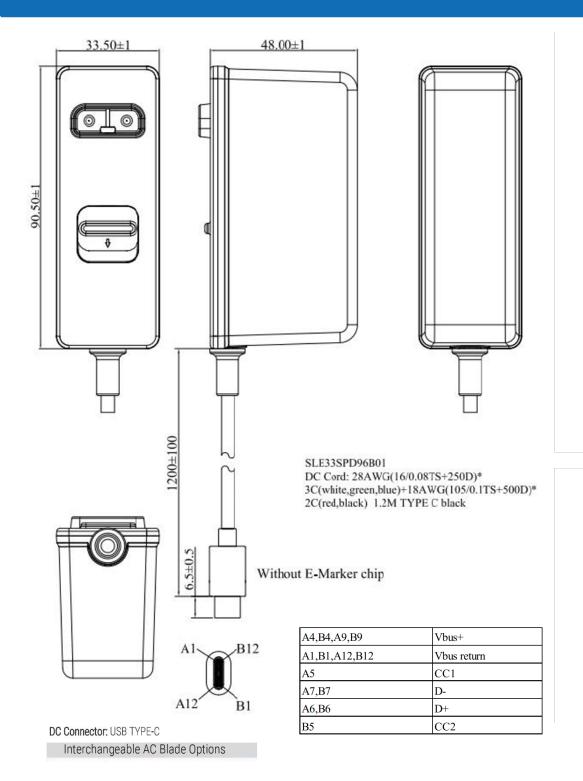
#### Note

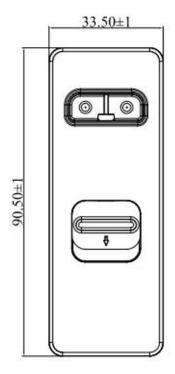
- 1. See Output Voltage, Efficiency, and Output Power table below.
- 2. Measured at output connector with 20 MHz bandwidth and 0.1  $\mu F$  ceramic in parallel with 10  $\mu F$  electrolytic capacitors.
- 3. Power supply with built-in USB C connector is not provided with a USB-C cable.
- 4. Power supplies are not medical equipment (applied parts), medical product manufacturers take responsibility for further evaluation of class B/BF/CF compliance of their end product.

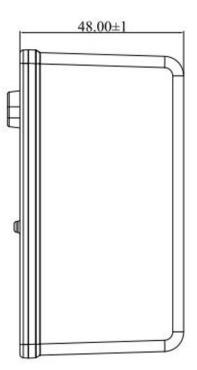
#### SLE33SPD Series Output Voltage, Efficiency, and Output Power table

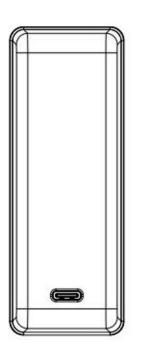
| Rated Power | Minimum<br>Voltage | Nominal<br>Voltage | Maximum<br>Voltage | Output<br>Current | Average<br>Efficiency |
|-------------|--------------------|--------------------|--------------------|-------------------|-----------------------|
| 15 W        | 4.75 VDC           | 5.00 VDC           | 5.25 VDC           | 3.0 A             | 81.84%                |
| 27 W        | 8.55 VDC           | 9.00 VDC           | 9.45 VDC           | 3.0 A             | 87.30%                |
| 30 W        | 11.40 VDC          | 12.00 VDC          | 12.60 VDC          | 2.5 A             | 87.70%                |
| 33 W        | 14.25 VDC          | 15.00 VDC          | 15.75 VDC          | 2.2 A             | 88.03%                |
| 33 W        | 19.00 VDC          | 20.00 VDC          | 21.00 VDC          | 1.65 A            | 88.03%                |







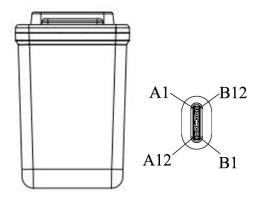




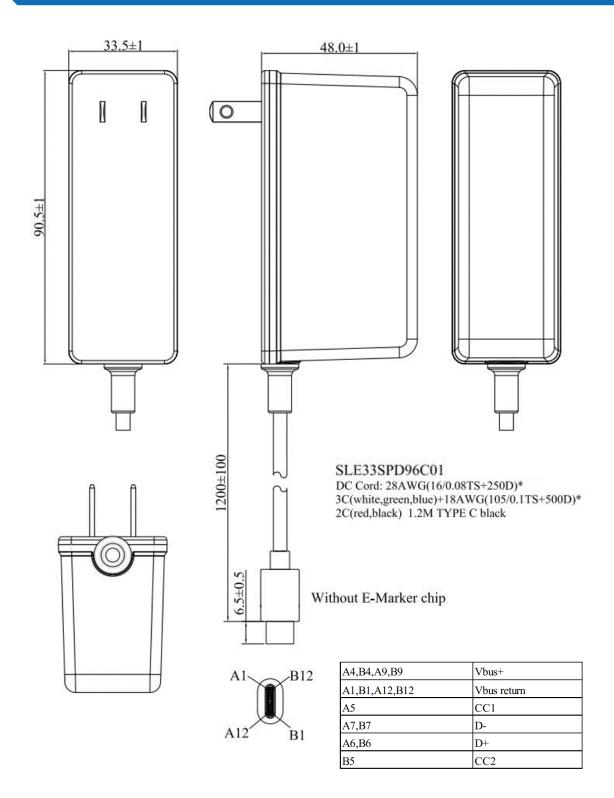


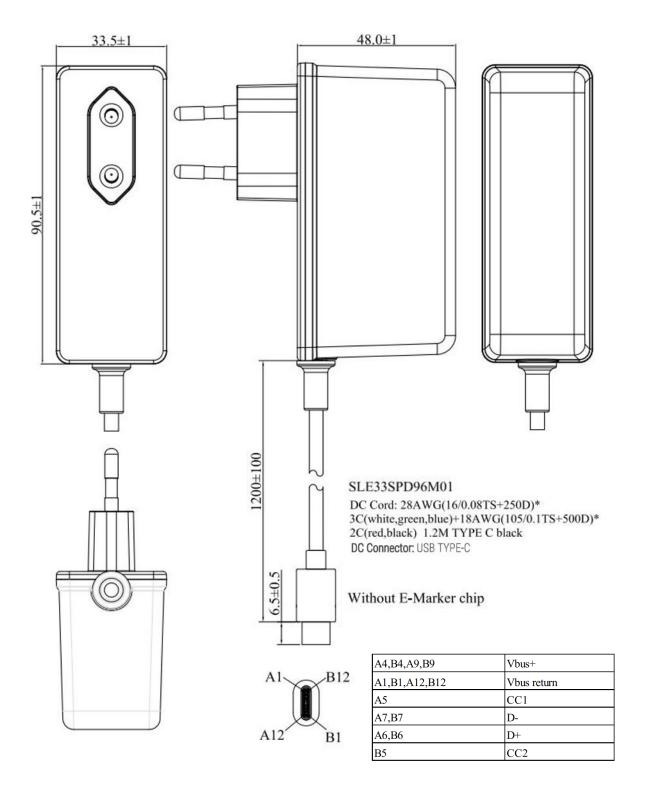
DC Cord: N/A

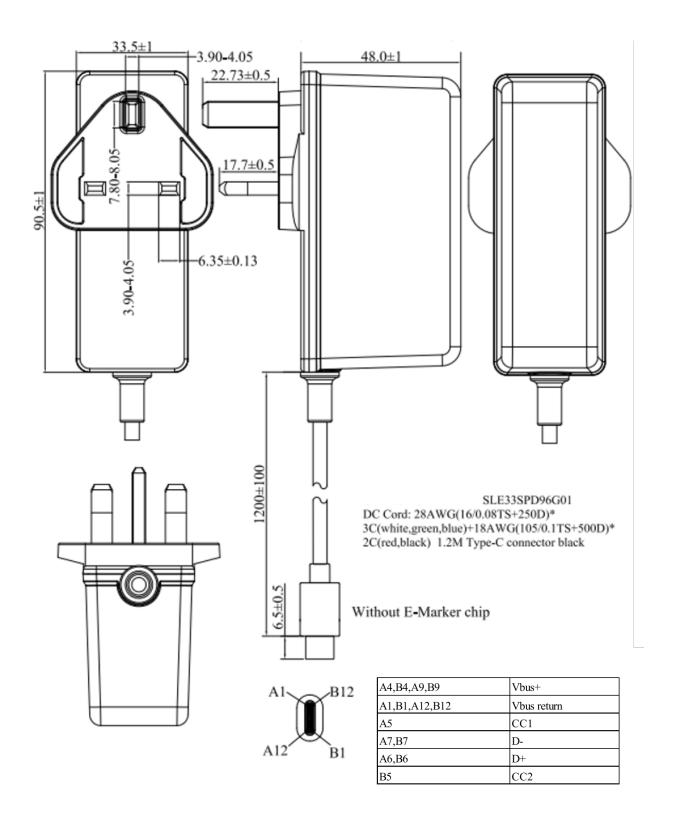
DC Connector: USB TYPE-C

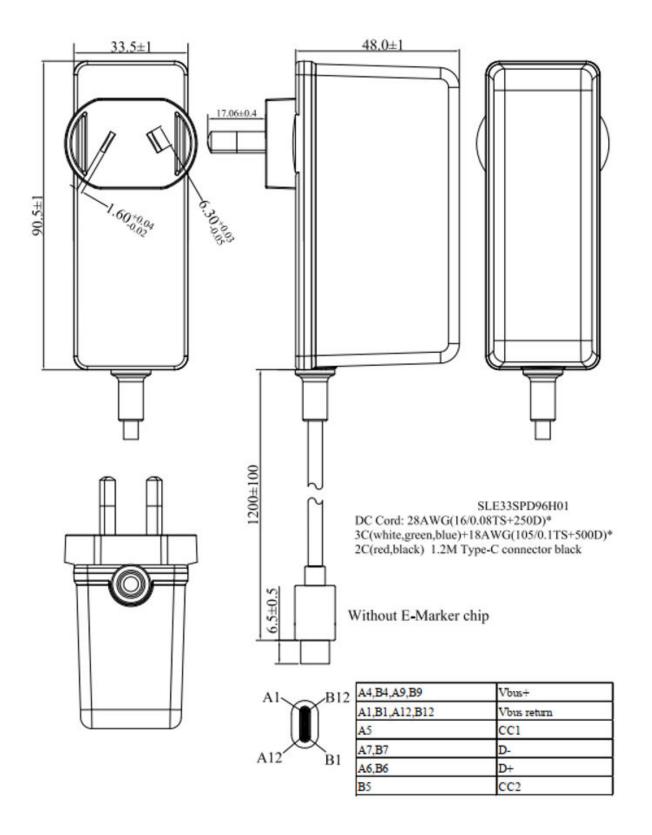


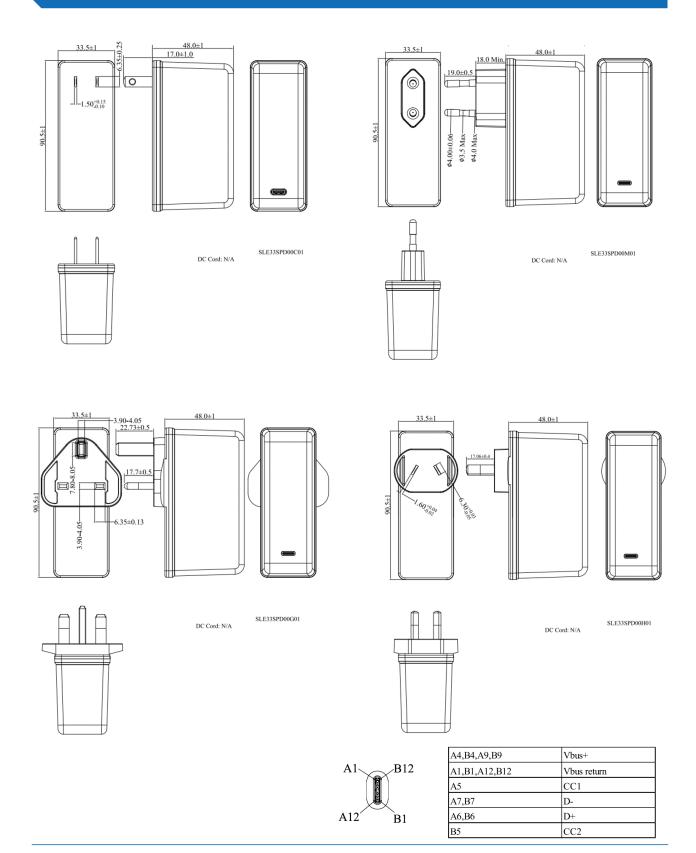
| A4,B4,A9,B9   | Vbus+       |
|---------------|-------------|
| A1,B1,A12,B12 | Vbus return |
| A5            | CC1         |
| A7,B7         | D-          |
| A6,B6         | D+          |
| B5            | CC2         |











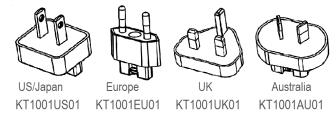
# **MECHANICAL DRAWINGS**

Case Material: PC. Class 94V-0

Output Cord: UL2468m, 18AWG, black, 1.5 m

Output DC Plug:  $2.5 \times 5.5 \times 9.5$  mm, "H" plug

Interchangeable AC Plug Options\*:



<sup>\*:</sup> Blades sold separately, use "KT" numbers above for ordering.





For international contact information, visit advancedenergy.com.

powersales@aei.com (Sales Support) productsupport.ep@aei.com (Technical Support) +1 888 412 7832

#### **ABOUT ADVANCED ENERGY**

Advanced Energy (AE) has devoted more than four decades to perfecting power for its global customers. AE designs and manufactures highly engineered, precision power conversion, measurement and control solutions for mission-critical applications and processes.

Our products enable customer innovation in complex applications for a wide range of industries including semiconductor equipment, industrial, manufacturing, telecommunications, data center computing, and medical. With deep applications know-how and responsive service and support across the globe, we build collaborative partnerships to meet rapid technological developments, propel growth for our customers, and innovate the future of power.

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