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| REVISION |                       |          |            |
|----------|-----------------------|----------|------------|
| LTR      | DESCRIPTION           | DATE     | APPROVED   |
| A        | RELEASED PER EDR 5892 | 10/14/03 | LZ, KK, KE |
|          |                       |          |            |

Model SL30P&N300X3396 is a remotely controlled reversible polarity power supply. Inside this single chassis, two independent high voltage output sections shall be connected to a high voltage relay circuit. This relay circuit shall then be connected to the single rear panel mounted high voltage output connector. A customer provided polarity control signal shall determine the output polarity of the power supply. The salient features of this custom unit are as follows:


1. **Input Voltage:**  
208 Vac, single phase  $\pm 10\%$ , 50/60 Hertz.
2. **Output Voltage:**  
0 to +30kV or 0 to -10kV; polarity dependant upon status of polarity control signal.
3. **Output Current:**  
Internally set to 10mA. Sink or source capability, dependant upon selected polarity.  
A 3 megohm, 33 watt preload resistor rated at 10kV will be connected from the negative output to chassis ground. This preload current will appear on the current monitor.
4. **Output Voltage Regulation:**  
Load: 0.05% of maximum voltage for a full load change.  
Line:  $\pm 0.05\%$  of maximum voltage for a  $\pm 10\%$  input line voltage change.
5. **Output Current Regulation:**  
Load: 0.05% of maximum current  $\pm 100\mu\text{A}$  for a full voltage change.  
Line:  $\pm 0.05\%$  of maximum current for a  $\pm 10\%$  input line voltage change.
6. **Stability:**  
100 ppm/hour after a one half hour warm-up, voltage or current regulated.
7. **Ripple:**  
0.1% peak to peak of maximum output, voltage or current regulated.
8. **Efficiency:**  
85% typical.
9. **Temperature/Humidity:**  
Operating: 0°C to 50°C.  
Storage: -40°C to 85°C.  
Humidity: 10% to 90%, non-condensing

|  |               |         |   |  |  |  |  |
|--|---------------|---------|---|--|--|--|--|
| UNLESS OTHERWISE SPECIFIED<br>DIMENSIONS ARE IN INCHES<br>TOLERANCES ARE | CONTRACT NO.  |         |  | <b>Spellman<br/>High Voltage Electronics Corporation</b><br>475 Wireless Blvd. Hauppauge, New York 11788 |  |  |  |
|  | APPROVALS     | DATE    |   | SPECIFICATION CONTROL DRAWING<br>SL30P&N300X3396   |  |  |  |
| FRACIONS DECIMALS ANGLES<br>XX XX XX                                     | DRAWN JP      | 10/3/03 | SIZE<br>A   |  |  |  |  |
| MATERIAL   | CHECKED EM    | 10/3/03 |   |  |  |  |  |
| FINISH   | DESIGN N/A    | N/A     | SCALE: Part Code: Sheet 1 of 1  |  |  |  |  |
|  | PROJ. ENG. LZ | 10/7/03 |   |  |  |  |  |
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10. **Temperature Coefficient:**  
100 ppm/°C.
11. **Slow Start:**  
The NSS option shall be included where the rise time shall be less than 200ms.
12. **Arc/Short Circuit Protection and Intervention:**  
The power supply shall be immune to transient and continuous arcing by virtue of internal resistive arc current limiters up to a 1 Hertz continuous rate. Arc inhibit, arc quench, reramp, and arc count/trip features will not be provided. The power supply shall be immune to transient and continuous short-circuiting by virtue of a fast acting automatic regulating current loop.
13. **High Voltage Enable:**  
The IO Option (Instant On) shall be provided.
14. **Front Panel Features:**  
Clear anodized front panel shall be provided.  
A circuit breaker, power ON indicator and handles shall be provided.
15. **Rear Panel Features:**  
Line Cord: A captive 7.5 foot long, three-conductor line cord shall be provided.  
High Voltage Connector: A single Spellman designed delrin high voltage output connector shall be provided. A detachable 10 foot shielded coaxial high voltage output cable shall be provided.
16. **Ground Connector:** A 1/4-20 threaded ground stud complete with locking hardware, that it electrically bonded to the rear panel sheet metal panel enclosure shall be provided for load return and system ground connections.

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|---|---------------|---------|---|--|----------------|-------------|-----|
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|   | DRAWN JP      | 10/3/03 |   |  |                |             |     |
|   | CHECKED EM    | 10/3/03 |   | SIZE   | CODE IDENT NO. | DRAWING NO. | Rev |
| MATERIAL  | DESIGN N/A    | N/A     | A   | 10610  | 137396-001     | A           |     |
| FINISH  | PROJ. ENG. LZ | 10/7/03 | SCALE:  |  |                |             |     |
| DO NOT SCALE DRAWING  | QA/MFG KK, KE | 10/7/03 | Part Code:  |  | Sheet          | 2 of 2      |     |
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17. Remote Interface Connector:

A single AMP CPC type (SHV#105808-257) 16 position connector shall be provided to allow the customer to interface with the power supply. The pin out of this connector is as follows:

| PIN | Function  |
|-----|---|
| 1   | No connection   |
| 2   | External Interlock (0V or ground = disable, 10V = enable)                           |
| 3   | Current Monitor (0 to 10V = 0 to 10mA, relay switched to show + or - output)        |
| 4   | Voltage Monitor (0 to 10V = 0 to full scale, relay switched to show + or - output)  |
| 5   | Voltage Program (0 to 5V = 0 to full scale, -10kV or 30kV respectively)             |
| 6   | +15 Vdc @ 100mA, maximum  |
| 7   | Polarity Control (Opt coupler driven, transistor "off" = Positive, "on" = Negative) |
| 8   | Polarity Status (TTL low=positive)  |
| 9   | Signal Ground   |
| 10  | Signal Ground   |
| 11  | No connection   |
| 12  | Chassis Ground (for cable shield connection)  |
| 13  | No connection   |
| 14  | No connection   |
| 15  | No connection   |
| 16  | No connection   |

18. Mechanicals:

Size: 19.0" wide by 21.0" deep by 5.25" high


Weight: Approximately 33 pounds

Cooling: Forced air, intake on forward side panel, exhaust out rear panel.

Mounting: 6 holes with no. 10-32 PEM's provided for slide mounts, 4.25x9.50x15.25x1.75 from bottom.

19. Regulatory:

The unit shall be CE marked, and is designed to meet UL1010.

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| FINISH  | DESIGN N/A    | N/A     | SCALE: Part Code: Sheet 3 of 3  |  |  |  |  |
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