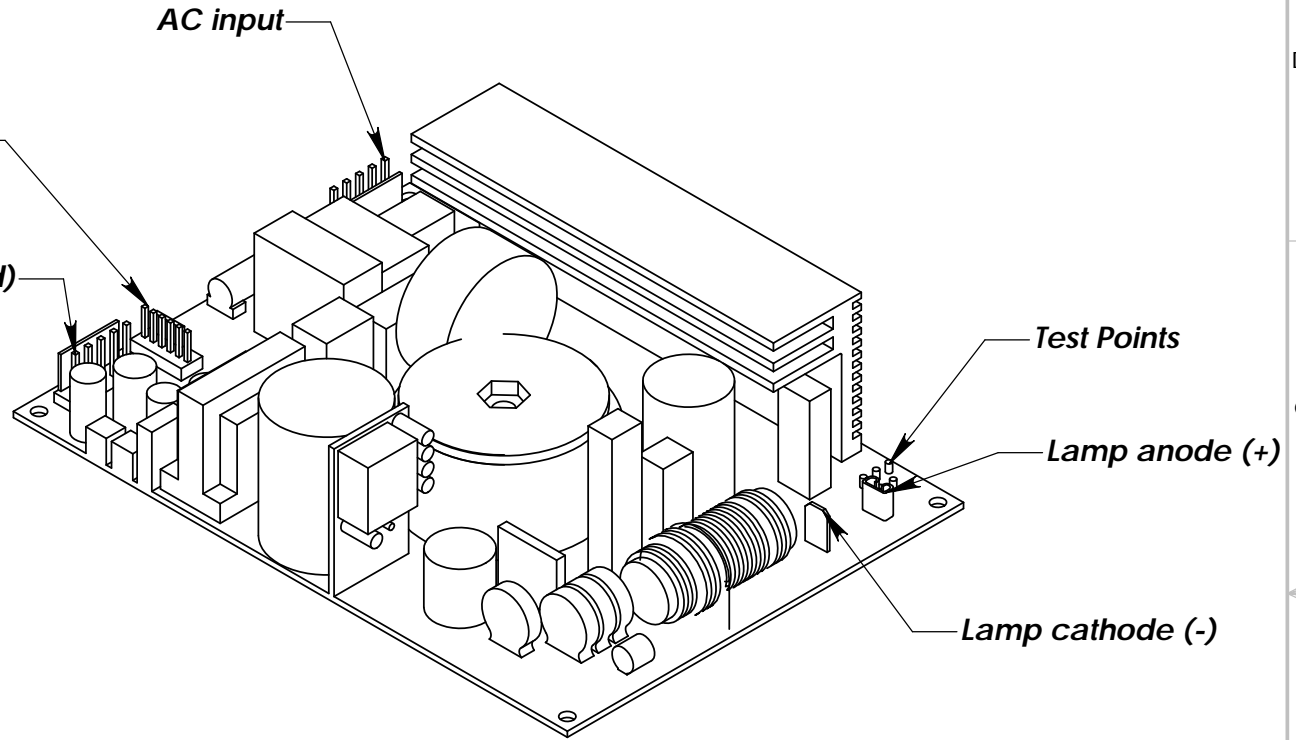


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PART NO: **01056-00001**

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CONNECTOR PINOUTS:

AC INPUT:

- p1 Line
- p2 N.C.
- p3 Neutral
- p4 N.C.
- p5 Earth

LVPS

- p1 +5 Return
- p2 +5VDC, 4.0A \*
- p3 -12VDC, 0.3A \*
- p4 +/-12 Return
- p5 +12VDC, 2.5A †

CONTROL I/O

- p1 Lamp Lit Return
- p2 Lamp Lit Signal
- p3 Enable Return
- p4 Enable Input
- p5 Intensity Control Return
- p6 Intensity Control

TEST POINTS:

- TP203: Signal Ground
- TP202: Current Sense (100mV/A)
- TP204: Voltage Sense (19.6mV/V)

\* Optional outputs, see specification.  
 † +24VDC, 1A option available, see specification.

ECO #	Description	Date	REV.

ENGINEERING CHANGE RECORD

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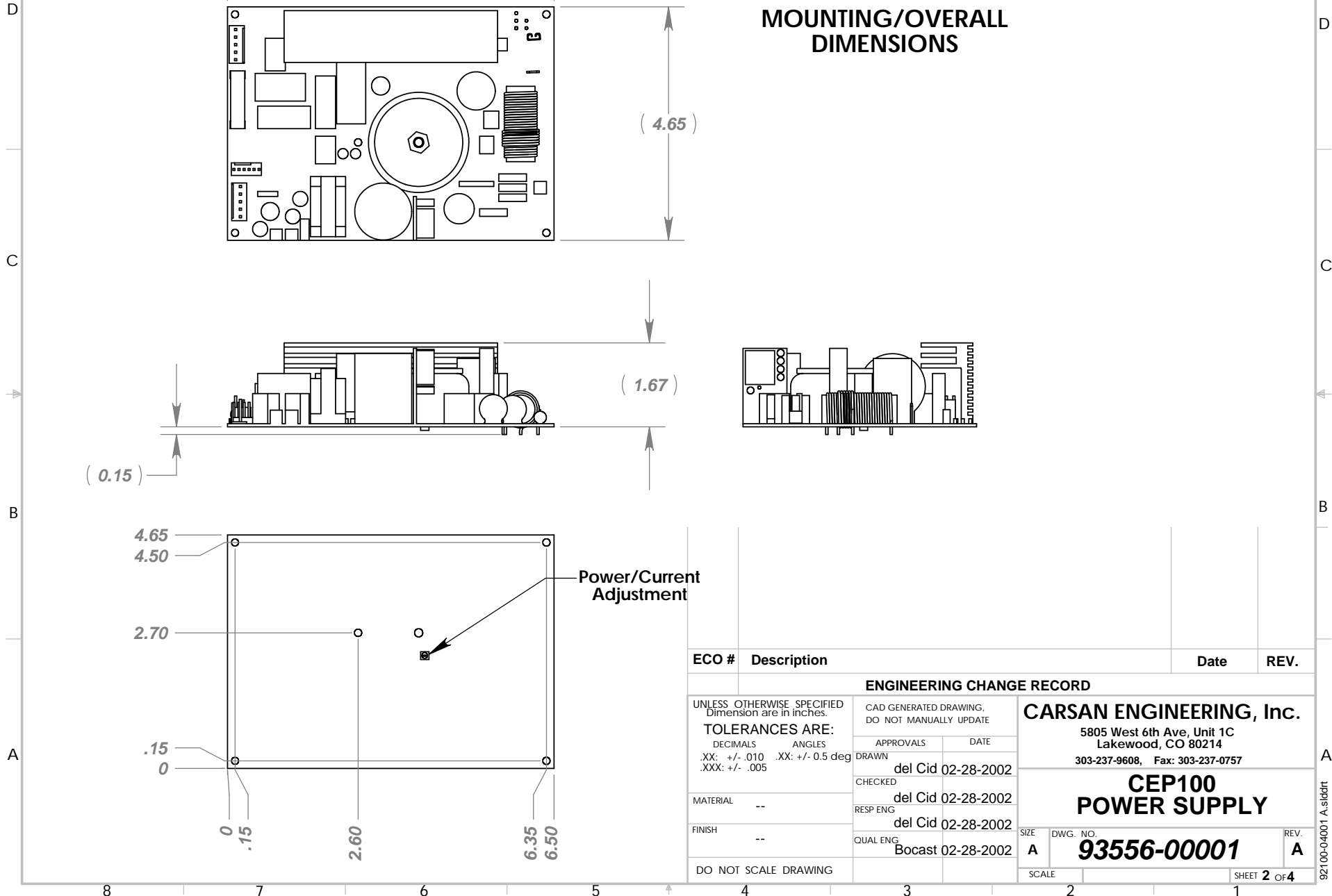
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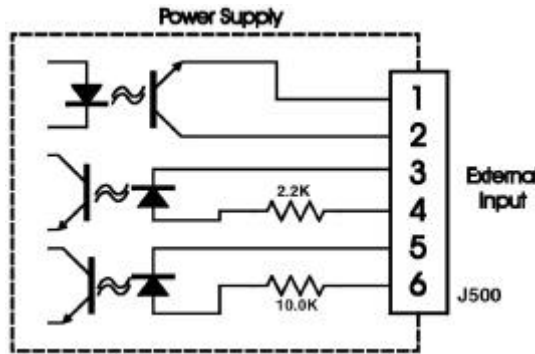


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		<b>CEP100 POWER SUPPLY</b>	
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### Using The CONTROL I/O:

The Control I/O Connector consists of two inputs and one output, each of which is optically isolated. The inputs are designed to be driven by a 5-12V source.



#### PINS 1 and 2:

The Lamp Lit output is a transistor that is on when current is flowing to the lamp. The collector current will be greater than 3.0 mA when the lamp is on. A 2.2K ohm resistor pull-up will create a TTL-compatible signal. The delay from light output from the lamp to the Lamp Lit output being asserted is less than 10 ms.

#### PINS 3 and 4:

The Enable input turns the lamp on and off. A high input (5-12VDC) to the Enable pin turns on the lamp. The source used must have a low impedance and be capable of supplying 2.0 mA into the circuit. The electrical delay of the enable input is less than 10 ms. To turn on the lamp, the delay of the Enable input must be added to the time to ignite the lamp, which is approximately 100 ms, for a total of 110 ms. Turning off the lamp takes only 10 ms. The auxiliary +12 V supply runs all the time, regardless of the state of the Enable input.

#### PINS 5 and 6:

See "Using the Lamp Intensity Control Input on the CEP100 Power Supply" (page 4).

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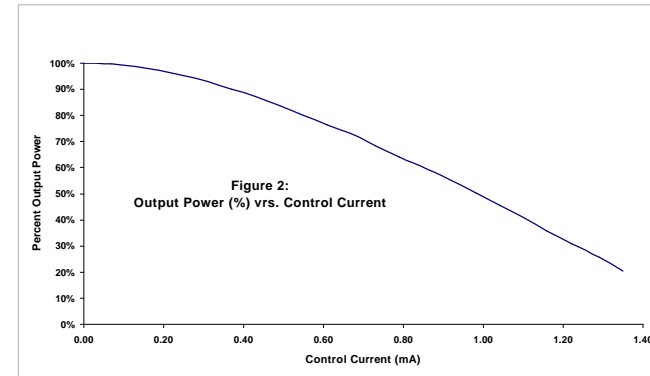
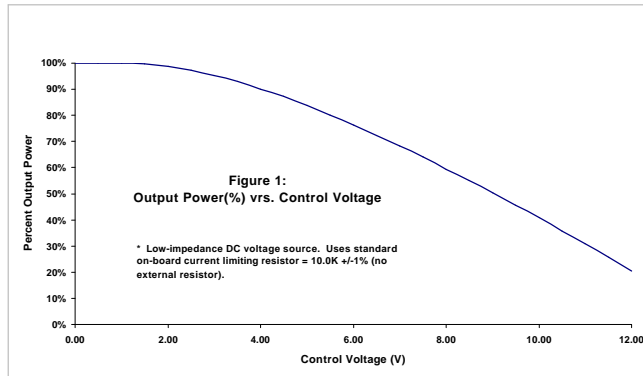
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## Using the Lamp Intensity Control Input on the CEP100 Power Supply

The Carsan Engineering power supply drives xenon lamps with a constant power or constant current. The supply provides an external input for controlling the power to the lamp. This paper provides the information needed by the system designer to take advantage of the Lamp Intensity Control input.

The power stage of the supply can be modeled as a high-gain amplifier with current and voltage feedback from the lamp. The power to the lamp is controlled by a user adjustable potentiometer that adjust the feedback from the multiplier. This determines the quiescent power to the lamp.

The Control I/O Connector provides an optoisolated input for controlling lamp power. When a voltage is applied to the Lamp Intensity input (pins 5 & 6), current flows in the diode of the optoisolator. A corresponding current flows in the coupled transistor, which injects a current into the output reference. This lowers the reference, hence reducing the power. Notice that the external input is only capable of decreasing lamp power. This is a safety feature; the lamp power can never exceed the value set by the potentiometer. The typical relationship between the external applied voltage and the lamp output is shown in Figure 1. Note that although the output power is capable of going to zero, many lamps become unstable when run at less than 30% to 50% of their rated power.



The transfer function from the external applied voltage to transistor current is not linear. This is often not a problem for closed loop feedback systems. If the feedback loop is a first order loop, or has low open-loop gain, then it may be desirable to linearize the transfer function of the optoisolator. This can be done if the input is driven with a constant current source. The transistor current will be equal to the diode current. For most applications this will require a 12V supply in order to give the driving current source enough compliance. The typical relationship between the control current and the lamp output is shown in Figure 2. The current transfer ratio (CTR) of the optoisolator is specified to stay between 100% and 200% over time and temperature.

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