



PerkinElmerTM
optoelectronics

**PS300-12
POWER SUPPLY
OPERATING INSTRUCTIONS**

Installation Requirements

HAZARDOUS VOLTAGES EXIST WITHIN THIS PRODUCT.

Installation of the PS300-12 power supply unit (PSU) must only be carried out by qualified personnel in accordance with this document and other relevant safety procedures. Never operate the power supply without providing adequate protection against electric shock or other safety hazards. If further information or guidance is required when installing this PSU please consult the appropriate support personnel before proceeding.

Perkin Elmer Optoelectronics
44370 Christy Street
Fremont
CA94538
USA

Tel: +1 510 979 6500
Fax: +1 510 687 1100
e-mail: sales@perkinelmer.com
<http://www.perkinelmer.com>

Once unpacked from its transport carton, the power supply should be carefully inspected before use.

Any damage caused through shipment, the transportation agency must be contacted to establish a claim, otherwise, contact Perkin Elmer Optoelectronics Customer Services.

The PS300-12 is approved as a component power supply to UL60601-1 medical safety (excluding emc and biocompatibility) **UL file no. E193746**.

The UL investigation also included National/group deviations for USA (UL60601-1), Canada (CAN/CSA-22.2 No.601.1-M90), European CENELEC countries (EN60601-1) and is CE marked according to the European Low Voltage Directive.

To maintain safety the relevant regulatory specifications for the country of use must be adhered to.

The psu is intended for class 1 applications and an earth / ground **MUST** be connected before operation.

The psu is normally supplied so that when correctly connected to a lamp and a mains supply, the lamp will light immediately mains is applied and will the psu will deliver maximum current to the lamp. In this case a minimum 300W lamp should be used unless the current is adjusted to use a lower power lamp (see detailed user instructions). Other modes of operation are possible (see detailed user instructions).

General Specification:

Input voltage:	90 – 264V rms. universal input
AC Power Connector:	3 X 0.25" spade tabs
Input Frequency:	47 – 63Hz
Maximum Input Power:	<500W
Maximum Input Current:	<7A rms.
Input Fuse:	8A time lag (T8A 250V HRC 5 X 20mm in line only)
Input Power Factor:	>0.95 (meets the harmonic requirements of EN61000-3-2 class-D)
Mains Earth Leakage Current:	<100uA @120Vrms, <170uA @240Vrms
Maximum Output Voltage:	22Vdc (compensates automatically for lamp voltage up 22V max)
Output Current Range:	4 – 24A (constant current, adjustable by internal pot or remotely)
Output Connections:	2 X 0.25" spade tabs
Over Current Protection:	>25A constant current
Maximum Output Power:	320W lamp + 30W auxiliary / fan
Output Ripple Current:	<2% peak –peak
Lamp Boost Voltage:	>200Vdc
Lamp Ignition Pulse:	Bipolar >+/-15KV wrt ground (30KV peak – peak)
Interface Controls:	Remote Enable / Disable. Auto / Manual mode. Interlock Remote output current adjust. Current monitor
Interface Signals:	LAMP ON and LAMP REPLACE signals
Auxiliary Outputs:	5V +/-4% @ 1A, 12V +/-4% @ 2A isolated & independent of lamp operation.
Fan Output:	12V +/-4% @ 1A (only present when lamp operating)
Efficiency:	70% (at full power)
Operating Temperature Range:	0 – 45deg.C
Storage Temperature:	-20 to +85deg.C
Over Temperature Protection:	Thermostat shuts psu down if excessive internal temperature.
Air Flow Requirement:	>60cfm
Maximum Operating Humidity:	95% RH non condensing
Shipping Shock & Vibration:	NSTA1A, ASTMD 169
Safety Compliance:	UL60601-1, EN60601-1, IEC60601-1, CSA-22.2 No.601-1-M90 CE mark, CB report. (psu requires correct installation) UL file. E193746
Size:	7" X 4.5" X 2.05" (177.8 X 114.2 X 52mm)

CON2:
Interface Controls & signals
Auxiliary outputs
Remote Enable / disable
+12V Fan supply

Pin 1

Pin 12

RV2:
Manual output
current adjust

CON3:
Alternative
12V Fan

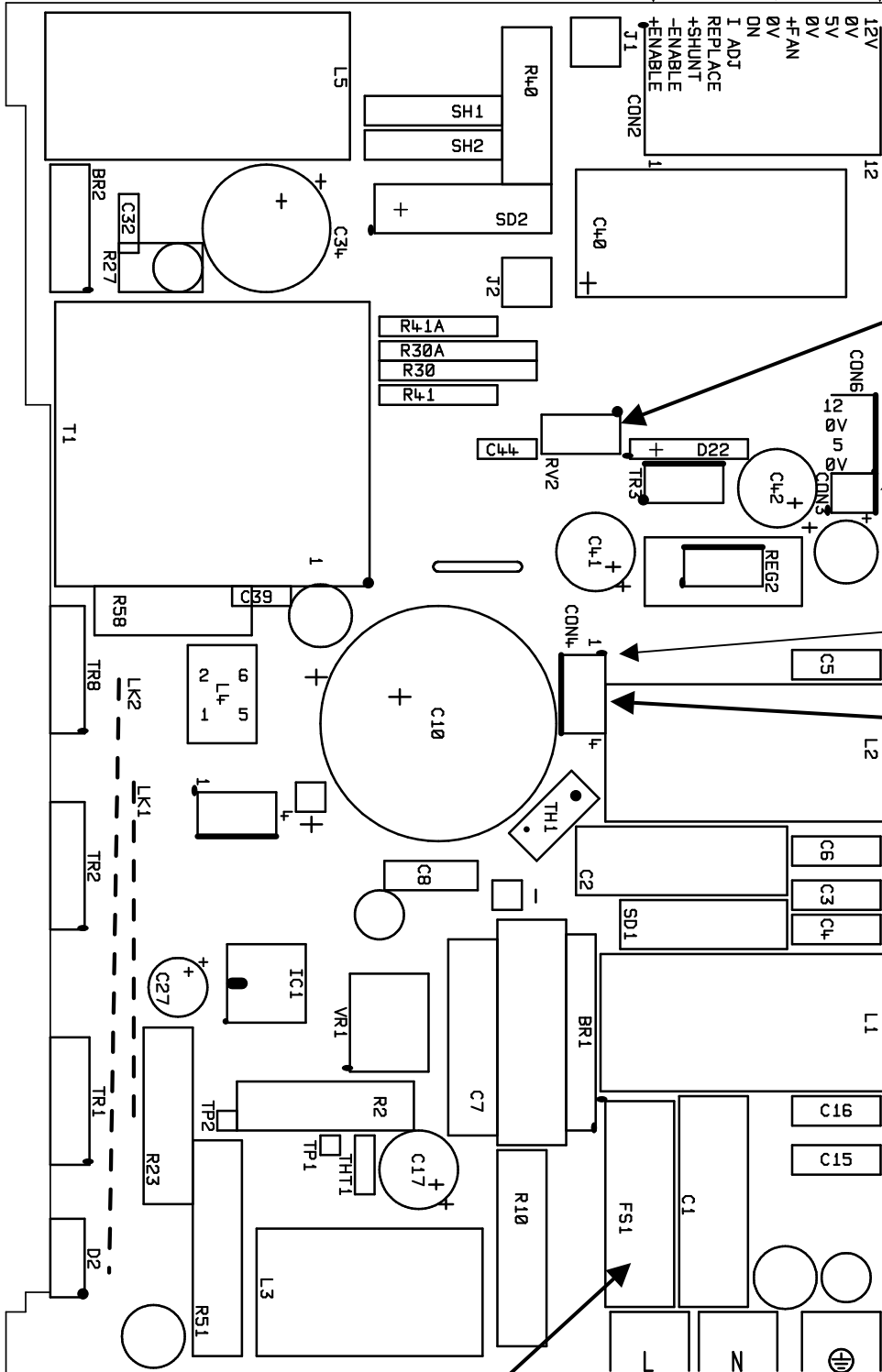
CON 4:
Manual / Auto
Interlock

Fuse T8A 250V HRC
5 X 20mm

Line

Neutral

Earth /Ground



Connections:

Mains Supply

The mains is supplied to the psu via 3 X 0.25" spade tabs marked:

L Line

N Neutral

 Earth / Ground

Wiring to the input connections should be a minimum of 8A rated.
A minimum suitable wire is 22AWG and rated UL106 or better.

The psu is safety class 1 and requires an earth connection.

Wiring should be kept together and as short as possible and routed away from the psu or any other electronics to minimise emc.

(Note: The psu has only one fuse fitted in the Line and for medical applications the Line and Neutral require fusing).

Lamp Connection

The lamp connection is made by the 2 spade tabs marked **+** , **-**
(Fitted to the separate trigger pca mounted above CON 2 the signals / Interface connector).

When the lamp is operating the –ve lamp terminal is effectively connected to earth / ground.

Both cables need to be a minimum of 15KV, 24A rated

The voltage rating does not need to be a continuous rating as the cable only has a high voltage applied during ignition of the lamp. The ignition pulse has a duration of <100ns.

The ignition pulse is typically 40-50ns duration and applied symmetrically with respect to earth to the –ve and +ve lamp terminals. The open circuit voltage can be >+/-15KV (30KV total) but when connected to a lamp is normally clamped to typically +/-10KV (20KV total). This voltage varies with lamp type and age.

Because the ignition pulse has very fast rising edge the voltage can be severely reduced by the effective capacitance of the cables to each other and to earth.

The ignition pulse and can cause radiated noise that can affect electronics in the same enclosure as the lamp and cables. The cables should be kept as short as possible and routed away from all other wiring or electronics.

Connections:

CON 2:	<p>Pin 1(+ve) Pin2(-ve): ENABLE INPUT (Isolated from mains and outputs). When psu used in Manual mode (see CON 4), apply +5V to enable lamp (or 12V via 1K5).</p> <p>Pin 3(+ve): CURRENT MONITOR. Current shunt (0.005ohm ie 5mV/A) monitors lamp current ie 100mV = 20A</p> <p>Pin 4: LAMP REPLACE. Signal to indicate lamp needs replacing when lamp voltage > 16V. Low output (<1V) when lamp needs replacing. Open collector transistor output. Should use a 2K pull-up resistor to +12V FAN output.</p> <p>Pin 5: CURRENT ADJUST. Can be used to remotely adjust output current by connecting external resistance between pin 5 & 7(0V). With lamp current set at 21A, with 10K pot fitted, typical results: 5.6K = 19A, 2.2K = 17A, 1.24K = 15A, 750R = 13A, 450R = 11A, 240R = 9A, 105R = 7A, 12R = 5A</p> <p>Pin 6: LAMP ON. Signal to indicate lamp is ON (when lamp voltage < 24V). Low = Lamp ON (LED indicator can be used via 510R resistor to fan supply voltage (connector CON 3. Pin 1 or CON 2 pin 8) High = Lamp OFF (5.1K internal pull-up resistor fitted to 12V FAN output, and 7V5 Zener in series with o/p.</p> <p>Pin 7: 0V. Signal 0V. (referenced to ground). Return for pins 3,4,5,6,8</p> <p>Pin 8: +12V FAN. Additional fan voltage supply connection in parallel to Con 3</p> <p>Pin 9: 0V (Return of AUX. 5V)</p> <p>Pin 10: +5V/1A (auxiliary, floating output. ON when Mains ON, irrespective of lamp)</p> <p>Pin 11: 0V (Return of AUX. 12V)</p> <p>Pin 12: +12V/2A (auxiliary, floating output. ON when Mains ON, irrespective of lamp) Note: Aux outputs are isolated from each other and from the interface 0V and ground</p>
CON 3:	<p>Pin 1: +12V/1A - Can be used for psu fan. Only present when lamp is ON.</p> <p>Pin 2: 0V (12V FAN Return, is referenced to ground)</p> <p>Note: The fan supply is also available on CON 2 pins 7 & 8.</p>
CON 4:	<p>Pins 1-2: INTERLOCK. Supplied fitted with link. Lamp will shut down if pins open.</p> <p>Pins 3-4: MANUAL/AUTOMATIC. Supplied with link fitted. If pins open lamp will only operate using the Enable input. (See CON2 pin1&2). NOTE: pins 2,3 are joined.</p> <p>Note: CON 4 is referenced to mains voltage therefore creepage / clearance distances to Earth / ground and output need to be considered according to safety requirements.</p>

Signal Connectors:

CON 2: 12 way, 0.1" pitch, right-angle locking header.

CON 3: 2 way, 0.1" pitch, straight locking header.

CON 4: 4 way, 0.1" pitch, straight header, fitted with 2 jumper links.

Types fitted are Taicom TKB series

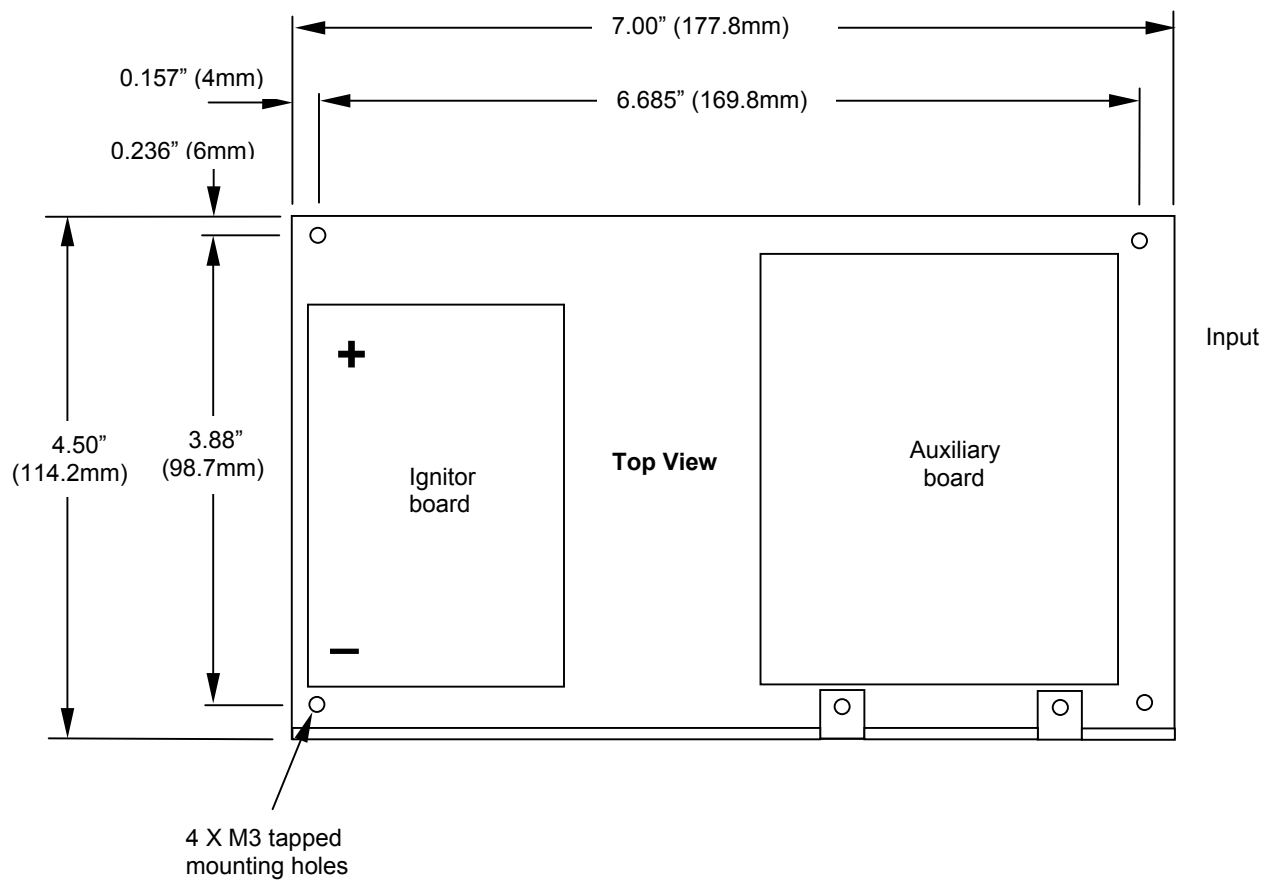
Mating connector housing type:

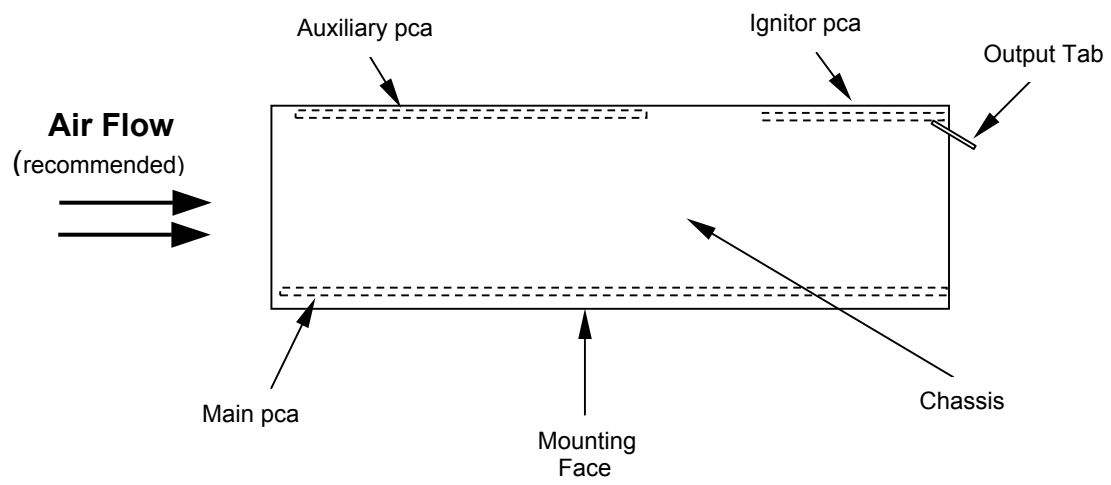
Taicom type TKB series
or Molex type KK series

Crimp type:

Taicom TK series
or Molex KK series

Mounting Detail:





Assembly view pending

Typical Application:

