Features

- Easy to use
- Low cost
- Simple, flexible control using dedicated software
- Adjustable voltage to the light source
- CW or pulsed operation—MHz to DC
- Nanosecond to seconds repetition rate
- Current and voltage monitor
- powered from USB (<0.5A) or DC supply

The Boston Electronics Universal Photon Source (UPS) Driver delivers! It is a flexible, compact, low cost, configurable board, including power supply, that drives a **wide** range of light sources. The driver can control pulsed and CW sources, which makes it suitable for driving **ultraviolet (UV), visible and infrared (IR) sources, light emitting diodes (LEDs)** and lasers over a frequency range of MHz to DC.

Control is provided by easy to use PC software. The last used drive parameters are stored in the non-volatile EEPROM memory; thus, the configuration is remembered. The UPS Driver is equipped with voltage and current monitors, trigger output, power and communication inputs and anode/cathode connections for the sources.

**The UPS Driver is compatible with UV, visible and IR sources, LEDs and lasers.**
UPS Driver Specifications

Electrical parameters:

- Power supply: - USB from computer or +5 ... +6 V, connected to the DC Jack connector
- Average power delivered to connected source
  - max. 1.5W, for the power supply from USB
  - max. 10W, for the power supply connected to the DC Jack connector
- Adjustable output voltage supply, in the range 0.5 – 25V, 4095 steps
- Maximum current: 10 A (tested with QCL at 20 V and 100 ns pulse width)
- Monitor for the supply voltage source (ADC)
- Master clock period / frequency:
  - main clock period / frequency
    - 25 ns / 20 MHz: 1.638 ms / 610 Hz
    - 50 ns / 10 MHz: 3.27 ms / 305 Hz
    - 100 ns / 5 MHz: 6.55 ms / 152 Hz
    - 200 ns / 2.5 MHz: 13.1 ms / 76.3 Hz
    - 1600 ns / 0.312 MHz: 104 ms / 9.54 Hz
    - 6.4 μs / 78 kHz: 420 ms / 2.38 Hz
    - 25.6 μs / 19.5 kHz: 1.677 s / 0.594 Hz
  - output signal max. period / min. frequency
    - 25 ns / 20 MHz: 62.5 ns
  - Pulse repetition period - adjustable in the range 1 ... 65535 times the period of the master clock
  - Pulse duration - adjustable in the range 1 ... 65535 times the period of the master clock
    - if pulse duration is higher than the period, source stays on – CW operation
  - Driving signal rise / fall times < 3 ns.
  - Pulse jitter: 6 ns pp
  - Trigger output starts 50 ns before the IR pulse
    - adjustable duration time in the range 1 ... 65535 times the period of the master clock
  - Power supply monitor
  - Source average current monitor - time constant 100 ms
  - All parameters have their equivalent – minimum/maximum to provide for safe operation
  - Anode of the source is connected to ground, cathode below ground potential

Software:

- The UPS Driver is configured using PC software, or text protocols.

Connections:

- trigger output—SMA connector
  - output impedance 50 Ω
  - standard LVTTL: logic 0 - 0 V, logic 1 – 3.3 V @ Hi-imp, 1.65 V @ 50 Ω
- output current monitor—SMA connector
  - DC offset ~ 100 mV @ 50 Ω
  - current sensitivity 0.1 V/A @ 50 Ω / can be modified
  - 100 MHz bandwidth
- micro-USB connector
  - communication with PC, virtual COM port
  - power supply, if current consumption of the driver does not exceed 0.5 A (USB 2.0 standard)
  - DC power jack 2.5/5.5
    - power supply, if driver requires more than 0.5A (USB 2.0 standard), or if the PC is not used (configuration is restored from the memory)

Size:

- PCB dimensions 6x0.5x15mm (width×height×depth), including connectors