



#### Features

- \* Easy to use
- \* Low cost
- \* Simple, flexible control using dedicated software
- \* Adjustable voltage driving the 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

## UPS Driver™

### Universal Photon Source (UPS) Driver Board

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.**



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## UPS Driver Specifications

### Electrical parameters:

- ◆ Power supply: - USB from computer or +5 ... +6 V, connected to the DC Jack connector
- ◆ Average power sources
  - ◇ max. 1.5W, for the power supply from USB
  - ◇ max. 10W, for the power supply connected to the DC Jack connector
- ◆ Adjustable 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                      output signal max. period / min. frequency

|                            |                    |
|----------------------------|--------------------|
| 25 ns / 40 MHz             | 1.638 ms / 610 Hz  |
| 50 ns / 20 MHz             | 3.27 ms / 305 Hz   |
| 100 ns / 10 MHz            | 6.55 ms / 152 Hz   |
| 200 ns / 5 MHz             | 13.1 ms / 76.3 Hz  |
| 1600 ns / 0,625 MHz        | 104 ms / 9.54 Hz   |
| 6.4 $\mu$ s / 156,25 kHz   | 420 ms / 2.38 Hz   |
| 25.6 $\mu$ s / 39,0625 kHz | 1.677 s / 0.594 Hz |
- ◆ 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

Developed with, and  
manufactured by:

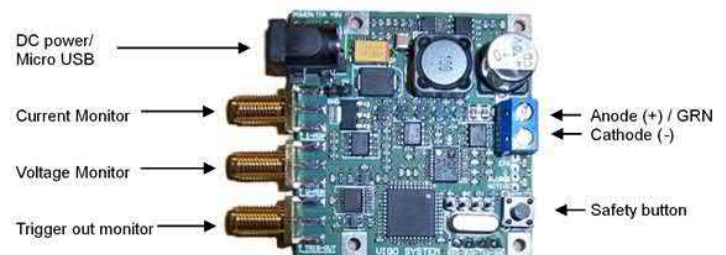
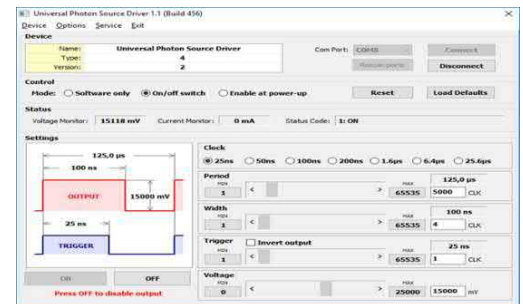


### Software

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

### Connections:

- ◆ trigger output—SMA connector
  - ◇ output impedance 50  $\Omega$
  - ◇ standard LVTTTL: logic 0 - 0 V, logic 1 – 3,3 V @ Hi-imp, 1.65 V @ 50  $\Omega$
- ◆ output current monitor—SMA connector
  - ◇ DC offset ~ 100 mV @ 50  $\Omega$
  - ◇ current sensitivity 0.1 V/A @ 50  $\Omega$  / can be modified
  - ◇ 100 MHz BW
- ◆ output voltage monitor—SMA connector
  - ◇ DC offset ~ 100 mV @ 50  $\Omega$
  - ◇ voltage sensitivity 50mV/V @ 50  $\Omega$  / 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 60x50x15mm (width×height×depth), including connectors

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