

# Datasheet v1.5.3.8

**Delay to UTC (UTCOP):** +4 microseconds\*.

**Port:** USB 2.0 (Type B Jack).

**Antenna connector:** SMA female.

**GPS antenna (recommended):** Operating frequency 1575.42 MHz (GPS), 50Ohms Impedance, SMA male connector, R.H.C.P. and 3.3m length.

**USB cable (recommended):** USB shielded High Speed cable 2.0, Length: 1m (Revision 28AWG/1P+24AWG/2C).

**ROHS compliant:** Lead Free.

**Operative System:** Windows XP SP3 and above (.NET Framework 4.0 required).

## Outputs:

- GPS fix: LED (green).
- LED pulse firing: LED (red) and BNC female connector (TTL, 5.0 volts).
- Intervalometer (PRO only): BNC female connector (TTL, 6, 9 or 12 volts on demand).

\* timeBOX compared to UTCOP UTC time of SYRTE atomic clock (SYRTE, Observatoire de Paris, France)

## 1. LED firing

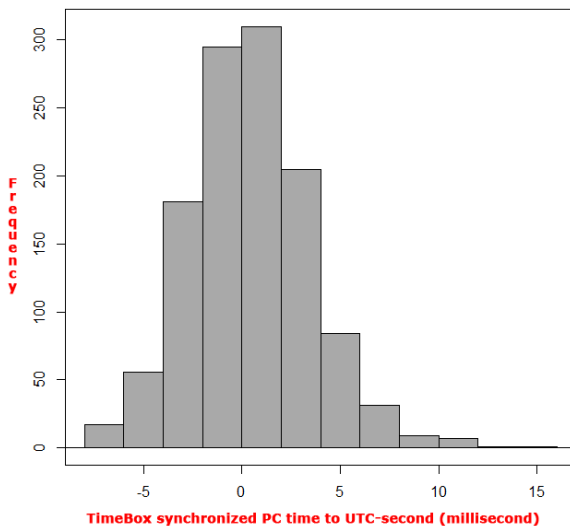
**Delay to UTC (UTCOP):** 4 microseconds.

**Jitter:** 10 nanoseconds.

**LED/pulse duration:** From 1 to 100 milliseconds.

## 2. PC time synchronization

**Precision:**  $\pm 2$  milliseconds\* UTC.



Software: Genika Trigger<sup>®</sup> AiryLab (<http://www.airylab.com>)

Camera: Basler 640-100gm at 200 fps and 50uSec exposition (Gigabit Ethernet).

Computer: Lenovo ThinkPad Intel i5 Core i5-540M (2.53GHz, 3MB Cache), 4GB DDR3 RAM, USB2.0 port.

Time Synchronization: timeBOX, Computer time (mode) and continuous PC time synchronization.

Properties: Synchronize every 60 seconds, Tolerance 4 STD and Corrected after 30 values above tolerance (4-8 STD). Correct after 30 values above tolerance (>8 STD)

Mean	STD	0%	5%	50%	95%	100%	n
0.9131161	3.06929	-8	-4	1	6	16	1197



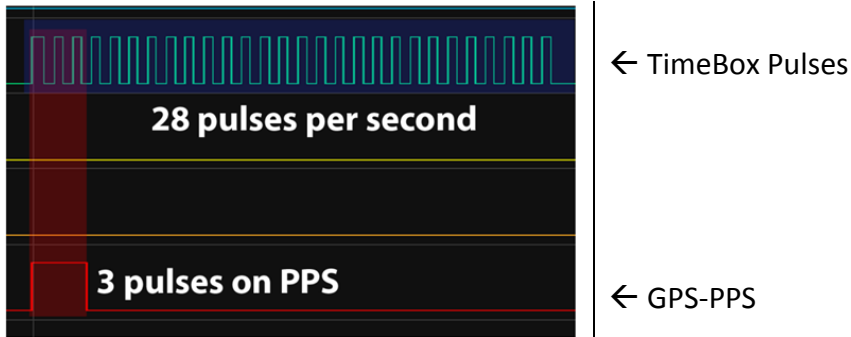
**3. Pulse Firing (Trigger/Intervalometer).** Only for TimeBox BASIC with Trigger Plus and TimeBox PRO.

**Pulses voltage:** TTL 6, 9 or 12 volts, on demand.

**Pulses frequency:** Low 0.1, 0.2, 0.5, 1, 2, 4, 6, 8, 10, 15, 20 and 24 Hz.

**Delay to UTC (UTCOP):** 4 microseconds.

**Jitter:** < 50 microseconds.



Computer Time,GPS Time

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Pulse number: 1, Time from second (miliSeconds): 1.881, Time from second (microSeconds): 1881  
Pulse number: 2, Time from second (miliSeconds): 49.634, Time from second (microSeconds): 49634  
Pulse number: 3, Time from second (miliSeconds): 91.368, Time from second (microSeconds): 91368
```

Oscilloscope acquisition showing the TimeBox dated pulses compared to a GPS PPS