SHOTMAXX
User Manual

Documentation revision: v1.2
Release date: 7 July 2014

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Revision history

Date	Firmware number	Changes	Approved by
13/04/2014	3043	- Battery consumption fixes - Spy mode sensitivity adjustments - Added: Spy Delay	Eli Huttner
07/07/2014	3070	- BT protocol upgrades - BT data trasmission modifications - Various bug fixes	Eli Huttner
23/07/2014	3085	- Additional bug fixes - Fixes to the upload link (app->SM).	Eli Huttner

Introduction

Thank you for purchasing the SHOTMAXX shot timer. SHOTMAXX is the most advanced shot timer catered for practical shooting - large bore and airsoft. SHOTMAXX was designed by shooters for shooters to bring to you some of the most useful features that will help you to excel in training and at matches.

SHOTMAXX was developed for Range Officers and for shooters. While there are many similarities between these two groups, some requirements are very different from one to the other. SHOTMAXX offers some useful Range Officers' tools such as countdown, various Start Delay options, bright and easy to read display, rechargeable battery and more. At the same time, it offers the shooters some very helpful tools to elevate their game to the next level - BT connectivity to allow for data transfer from the unit to either smartphones and/or tablets along with some innovative applications to keep track of their training progress, data storage and more. Spy mode is yet another out-of-the-box feature which is unique to the SHOTMAXX - it allows you to record your own stage time without interfering with the RO's timer, more on this below.

This user manual offers you a comprehensive reference point to all the current features of the SHOTMAXX timer.

Please make sure you are running the latest firmware on your SHOTMAXX.
Firmware updaters for PC and Mac along with the firmware files are available here:
www.doublealpha.biz
www.shotmaxx.com/support

Unlocking your SHOTMAXX

Timers are shipped in the locked mode, to prevent accidental activation while in transit (lower display shows "LocHd").

If your timer arrived unlocked,, this is most probably due to the fact that we manually installed the latest firmware on your device.

To unlock the timer, press and hold down the MODE and START buttons for three seconds. To enter the locked mode, first enter the Stopwatch Countdown mode by pressing the MODE button twice from Clock mode and then pressing once the SET button - you are now in Countdown mode. Press and hold the MODE and START buttons for three seconds.

Charging for the first time

Before first using your SHOTMAXX timer and after a firmware update, be sure to plug it into a USB port or a USB power supply for at least 3-4 hours, to ensure that the Lithium polymer battery is fully charged.

Note:
1. The battery indicator icon has only one state - half full and it illuminates while charging. It will also blink once your timer reaches 20% or lower. To accurately see the battery levels, press the Set button 5 times while in Watch mode until you reach the battery indicator display which will display: bAtt XX%
2. It is not possible to operate the timer while it is charging.

Menu navigation and buttons

SHOTMAXX has three main modes:
1. Watch
2. Timer
3. Stopwatch/Countdown

The **Mode** button (top left) is used to navigate between the three modes.
Note:
1. Each mode illuminates an icon indicating which mode is active.
2. Timer mode will revert back to Watch mode automatically if there was no active use of the timer for 10 consecutive minutes.

Attention!
In Timer mode, during active shot detection, the Mode and Set buttons are deactivated until you press the Rev button. This is to prevent accidentally exiting the Timer mode while the timer is recording.

The **Set** button is in charge of the various settings configurations for each mode you are in. More on that below.

The **Up and Down / Start and Rev** buttons also serve multiple purposes, depending on which function you are currently using.

The **Backlight** button turns on the backlight for 5 seconds or until button activity ceases.

Watch mode

SHOTMAXX offers a standard watch functionality which includes 24/12hr time, date, alarm clock and battery indicator.

Active icons in Watch mode:
- Watch icon
- PM icon

Press the Mode button until you get to the Watch mode.
Press the Start button to toggle the display between AM/PM and 24hr mode.
Press the Rev button to toggle the display between seconds and date.

Set time
In Watch mode, press the Set button once. The Watch icon flashes.
Press the Up/Down button to set the hour – the hour value will blink.
The Set button toggles cyclically between hours, minutes, and seconds. Pressing and holding down either the Up or Down buttons results in fast forward or backward in setting the time.

Once the time is set, press the MODE button once to exit the Watch time setting mode, then once more to return to Watch mode.

Set date
In Watch mode, press the SET button twice to reach the date settings. Press the Up/Down button to set the month. The SET button toggles cyclically between the month, day and year.
Press the MODE button to exit.

Set alarm
In Watch mode, press the SET button three times. Change the ON/OFF value by pressing either the UP or DOWN button.
Press the SET button once more to set the alarm time. Use the UP/DOWN button to set the hour and minutes.
Once the alarm is set to ON, an Alarm icon is displayed on the screen.
Press MODE to exit.

Note: Once the alarm is set, it will be activated daily so ensure you set it to off if not needed more than once. Also note that the alarm clock does not go off when the timer is in active use.

View battery level
In Watch mode, press the SET button five times. The battery level is displayed in percentage. When SHOTMAXX is charging, the battery level is also displayed.
Note that the battery icon while charging can only show a "half-full" state. To view the precise battery level you must manually enter this battery level display.

Battery consumption
Watch mode: the battery will last for about 2 months if set idle in Watch mode.
Timer mode: you can use your SHOTMAXX for around 20 hours in Timer mode.
The calculation is based on one activation per 3 minutes with Bluetooth inactive.
Activating Bluetooth will drain the battery quicker.

Timer mode

Press the Mode button to advance to the Timer mode.
The Timer icon illuminates.

Active icons in Timer mode:
- Timer icon
- Delay icons – I/F/R/C (I=Instant, F=Fixed, R=Random and C=Custom)
- Sensor: Mic (Microphone) / Acc (Accelerometer)
- Par icon
- 1st Shot/Shots/Rev

Timer settings
In Timer mode, press the Set button to enter timer settings.
The timer settings consist of the following features:
1. Delay - sets the type of delay and accordingly the elapsed time from the moment you press the Start button until the beep sounds.
2. Par - sets a single par time. Note that in Sensitivity = Airsoft, shots cannot be recorded while the Par beep sounds.
3. Auto Start
4. Beep Type
5. Sensor - Microphone or Accelerometer.
6. Sensitivity - set according to the shooting range and caliber of your firearm. Use Asoft mode for Airsoft.
6. Filter - set to disregard potential indoor echo "shots".
7. Bluetooth (bt)
8. Send (shot data via Bluetooth)
9. Spy mode - True Spy mode.
10. Spy Delay.

Delay
Press the Up/Down button to choose between the Start Delay options. Note that the relevant icons illuminate according to your selection - I/F/R/C.
Custom delay is an exception in the way it is being set - hold down for 2 seconds the Set button when "C" is selected. The tenths of the second will flash. Use the Up/Down buttons to set the tenths. Press the Set once more to toggle to the seconds and again use the Up/Down buttons to set the seconds. Press Mode to exit.

Note: Random delay ranges between 2-5 seconds.

Par
Press the Up/Down buttons to set the Par time. Press the Mode button to exit.
When Par time is set, it will appear on the lower half of the main Timer mode screen to indicate a Par is set. It will disappear from display once the Par has sounded.
To clear a Par time, enter Par settings again and press and hold the Set button for 1.5-2sec and release to resets. The display will automatically progress to Auto Start settings once you release the Set button.

Note: maximum par time is 99:90 seconds.

Auto Start (AUtSt)
If Auto Start is OFF, and the timer is running, the Rev button will have to be pressed at least once before the timer can be activate again.
Press the Up/Down button to set Auto Start to ON/OFF.

Beep Type
SHOTMAXX sports three beep types:
High - Type 2
Low - Type 1
Silent - OFF

Press the Up/Down buttons to select between the three beep type options.

Note: Some shooters with certain types of hearing loss most often find it easier to pickup beep Type 1 since it operates at a lower frequency.

Sensor (sEnSr)
This is arguably the most innovative feature of the SHOTMAXX shot timer.
All other shot timers pickup shots by using a simple microphone. Once a shot reaches a certain threshold, the shot is registered. SHOTMAXX is different. Even when the Microphone is activated (sEnSr = Mic), the timer uses a sophisticated shot detection algorithm.
The Mic settings of course works similarly to any other timer and you can time yourself or another shooter, the very same way you would with another timer.

When the Sensor is set to Accelerometer (sEnSr=AccEl), SHOTMAXX will pickup *your* shots only and disregard any other shots fired in the close or distant vicinity. SHOTMAXX uses an innovative shot detection algorithm that determines if a shot has been fired based on its vibration footprint. This is an excellent feature if you shoot near other shooters or train in a group. It is also practical if you shoot Airsoft.

Press the Up/Down buttons to select between Mic (Microphone) and AccEl (Accelerometer).

Sensitivity (sEnSi)
SHOTMAXX is probably the most sensitive timer in the market. In Airsoft mode (Sensitivity = ASoft), it can sense shots at a distance of up to 3 meters.
SHOTMAXX offers 10 sensitivity options from Minimum up to Airsoft as follows:
Sense = Min, 2, 3, 4, 5, 6, 7, 8, Max, ASoft.

IMPORTANT: sensitivity levels are set according to the previously selected input sensor! If Microphone (Mic) has been selected at the previous step, the selectable sensitivity is referred to the Microphone only. If however the Accelerometer (Acc) has been chosen for the Sensor type, the sensitivity selector refers to the Acc only.

Press the Up/Down buttons to select the desired sensitivity level.

Recommended sensitivity settings
Outdoor range, Sensor = Mic
Sensitivity = 3 to 5 (for smaller calibers such as .22 choose a higher Sense settings)

Indoor range, Sensor = Mic
Sensitivity = Min
Filter = 0.09sec to 0.12sec

<u>Sensor = Acc, pistol and rifle calibers</u>
Sensitivity = 5

<u>Sensor = Acc, Airsoft</u>
Sensitivity = Asoft

Filter (FILtr)
SHOTMAXX might pickup echoes of shots in some indoor ranges. To disregard these echoes on your SHOTMAXX, set the Filter until you stop registering echo shots. In some very rare occasions, where the echo conditions are so extreme, use a tape to cover over the microphone which is positioned in the slit below the "SHOTMAXX" logo of the watch. This will further attenuate the sound level.

Bluetooth (bt)
SHOTMAXX is the very first shot timer to sport bluetooth in order to communicate with other 3rd party devices such as iOS and Android smartphones and tablets.

Browse the App Store and Google Play market for SHOTMAXX applications.

Developers - our APIs are available for download from our website.

Press the Up/Down buttons to turn Bluetooth ON or OFF. The BT icon will appear on screen. You can then pair your SHOTMAXX with your smartphone/tablet.

Your SHOTMAXX will appear on your smartphone/tablet as such: SMX-0XYYYYYY.

Note:
1. You would have to wait for about 3-5 seconds between toggles (ON/OFF) should you wish to immediately toggle back.
2. Bluetooth will automatically switch off if in no use for longer than 5min approximately.
3. **To preserve battery life it is advised that you manually switch off Bluetooth when not in use. Set bt=OFF.**

Transmission Type (sEnd)
SHOTMAXX offers two data transmission types:
All shot history - selecting this option will send all recorded shots to the application.
Last fired/recorded shot and number of shots - selecting this option will only send the time of the last shot fired and the total number of shots fired to the application.

How to send shot data to your smartphone/tablet:
Once your have successfully recorded your shots and based on your transmission type selected above, press the Rev button once. A short beep will sound to indicate that the data has been sent. If you selected to send all shot history, "WAIT" might appear on display until the data has been successfully transmitted. Should you wish to resend the data again, hold down the REV button for 1 second while in Review mode.

Note: Make sure your smartphone/tablet volume (audio) is turned on to the max when using Bluetooth.

Spy Mode (SPY)

Spy mode allows you to record your own stage time while in a match or training while you are activated by someone else, a Range Officer or your shooting buddy for example.

How to use Spy Mode:

- In Timer Mode, press the Set button (9 times) until you reach Spy = OFF. Turn it on by press the up or down buttons to set it to ON.
- Press the Mode button to return to Timer Mode (exit settings).
- SHOTMAXX will show SPY - -
- Press the Start button. The display will show SPYon which means that the Spy Mode has been activated.

You now have 3 seconds to assume the start position. These 3 seconds will count down as soon as the START button is pressed and is gone once the SHOTMAXX is ready to be activated. This is when the SHOTMAXX is ready to start upon a sharp movement of your hand. Once it has been activated, the display will show SPY only.

Once you make a sharp movement with your hands (reacting to the RO's start beep) your SHOTMAXX will start running and record all shots being fired.

Spy Delay (sPY d)

In Spy mode, SHOTMAXX compensates over the reaction time which is lost during the activation. The default compensation is 0.15 of a second. Spy Delay allows you to adjust this delay compensation to your own reaction time. Range of setting: 0.05-0.50 sec.

Timer operation

Start - starts the countdown based on your Start Delay selection (I/F/R/C).

Rev - reviews the recorded shots and stops the timer from recording. The first shot in the string is displayed. If BT mode is on, the last shot will be sent to the application.

Light - will also stop the timer from recording, turn on the backlight for 5 seconds or until keys are not being pressed, and will display last shot in string. If BT mode is on, the last shot will be sent to the application.

Note: SHOTMAXX will record up to a maximum time of 600 seconds (10 minutes) or 100 shots in a single string – whichever comes first.

Stopwatch/Countdown mode

While in Stopwatch/Countdown mode, press the Set button toggle between stopwatch, 3 minute and 5 minute countdown.

Stopwatch
Press the START button to start the stopwatch. Pressing START again while the stopwatch is running pauses or resumes the count.

Pressing the DOWN button while the stopwatch is running records the "split/lap" time. When the stopwatch is paused, you can review these split times by scrolling using the REV button.
Hold the SET button to reset.

Countdown
Press the START button to start countdown. Pressing the START button again while the countdown is running will pause the countdown.

Press the DOWN button to reset countdown.
When Countdown time is reached, a buzzer will sound. Type of buzzer is according to beep type chosen for the Timer.

Firmware upgrade

Always ensure you are running the latest firmware which can be found here:
http://www.shotmaxx.com/support/

Installation of new SHOTMAXX software, detailed steps
Note: Steps 1-4 are needed only for the first time a PC/MAC is used to update FW. All consecutive updates should start with step 5.

1. Check if your system is 32 or 64 bit. This determines which files you need to run. Files ending with x64 are for a 64bit machines while files ending with
x86 are for 32bit machines.

2. Download the CP210x Windows VCP driver and install the proper 32 or 64 bit driver for your system.
http://www.silabs.com/products/mcu/pages/usbtouartbridgevcpdrivers.aspx

3. Download the Windows "BurnShotMaxx_Win_xx.zip" app and Unzip the Zip file into a single folder on your PC.

4. Run the "setup.exe" and follow the instructions. The installer may prompt you to install Microsoft's .NET 4 software if needed.
After it has finished installing you can delete the "BurnShotMaxx_Win_nn" folder. It will automatically launch the app after installing, so skip to step 6.

5. From the Start menu, choose Programs -> Double-Alpha Academy BV -> BurnShotMaxx to launch the program. Note: Once installed, if there is a new update available, it will prompt you to update when you launch the app.

6. Connect SHOTMAXX to the PC via the USB cable supplied with the SHOTMAXX Timer and the dialog box should now show "Found".
Note: Not all micro USB cables can be used for burning FW. Even if the cable can be used for charging the Timer, it may not be suited for data transfer.

7. Click "Browse" to select the new Firmware file that you have downloaded from the Double-Alpha website (you may need to unzip the file so it ends with.txt) and then click on the "Update Firmware" button. Please wait while the software is updated.
DO NOT unplug the watch until finished (it should not take
longer than 10 seconds).

Once FW update is completed, the watch should display the new version of software on the screen. You can unplug your SHOTMAXX at that point. However you may
want to allow the SHOTMAXX to fully recharge. Press the a button to show the Charging screen and allow the SHOTMAXX to reach 100% for full capacity.

Please note:
1. Steps 1 to 4 need to be done one time only per computer. In future updates on the same computer, you can skip these steps and go straight to step 5.
You may need to run the program (setup.exe) "as administrator".

Recommended settings

Outdoor range (recommended starting point)
Sensi (Sensitivity): 1 to 5 for MIC or 5 for ACC
Filter: 0.08
Sensr (Sensor): Mic or Acc, depending on your use.

Indoor range (recommended starting point)
Sensi (Sensitivity): Min to 3 for MIC or 5 for ACC
Filter: 0.09 to 0.12
Sensr (Sensor): Mic or Acc, depending on your use.

Spy mode
Sensor: Acc
Sensitivity: Min (or Airsoft if you are shooting Airsoft)
Filter: N/A

Airsoft
Sensor: Mic or Acc
Sensitivity: Airsoft

Troubleshooting and support

Firmware version
To check the firmware version which is installed on your SHOTMAXX timer, go to Clock Mode and press and hold the Set and Rev buttons. The last 4 digits of the top segments is your firmware version revision (i.e. 3085).

Bluetooth
If the SHOTMAXX is not used for 5 minutes, it will turn the "bt OFF" and will no longer transmit times. If an App still shows Connected, you can try to turn **bt** back "ON" again.

If you are having problems getting the SHOTMAXX connected, you may want to connect the SHOTMAXX to a power source, such as the car charger or electrical outlet to Reset it. Wait for 5 to 10 seconds and then disconnect the power. Set **bt** to ON and then follow the procedure at the beginning of this section to Connect the SHOTMAXX again.

iOS: when an app first launches it will ask you if you want to allow it to use the "Microphone". If you had tapped No, then you will not be able to receive times. Launch the Apple "Settings" app. Go to Privacy -> Microphone, find SHOTMAXX Trainer and turn the switch ON. It should be green in color when on.

Beep level
Should you notice the beep level dropping or sounding strange, make sure you recharge your timer for 3-4 hours straight.

Charging
Ensure you fully charge your device for 3-4 hours for every 2-3 partial charges. Full charges will ensure your battery lasts longer.

Care
SHOTMAXX, like any other sports-watch is a delicate piece of electronic device - treat it as such. While it is water resistant, DO-NOT submerge it or expose it for long periods of times in rainy conditions.
Ensure that you dry and clean the mini-USB contacts should your SHOTMAXX been exposed to water or heavy dust.

Which Driver to download?
If you are running a Windows based machine, you need to download the CP210 driver from Siliconlabs: http://www.silabs.com/products/mcu/pages/usbtouartbridgevcpdrivers.aspx

Most probably you are running a Windows XP or higher, in which case, you need to download the driver from the top download section which states: "Download for Windows XP/Server 2003/Vista/ 7/8/8.1 (v6.7)"

Support
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