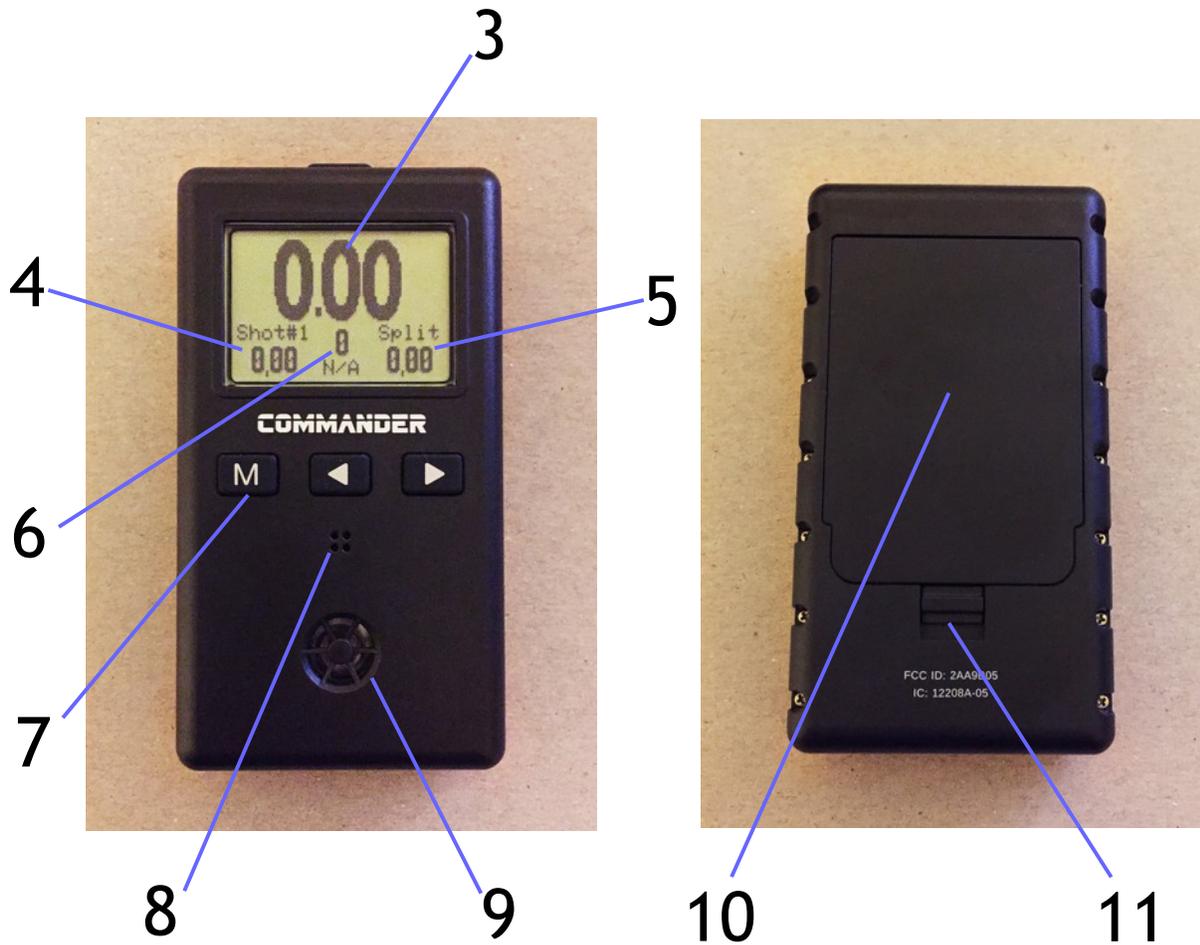# COMMANDER
Shot Timer
by AMG Lab LLC

USER MANUAL

FEATURES LIST

- Compact, ergonomic design

- Clear and informative display with largest time digits

- Uses 4x AAA batteries for longer battery life

- Simple, straight forward, intuitive interface with only 3 navigation buttons for one hand operation

- 105dB, 1.5kHz Beep

- Adjustable beep volume

- Digitally adjustable sensitivity with ability to detect dry fire at high sensitivity on many guns

- Instant or Delayed start with random or fixed or combination of both delay times.

- Up to 3 Par times

- Five saveable presets for commonly grouped settings

- 3 shot strings in memory

- Adjustable max string length (5 or 10 minutes)

- Ability to display 3 shot strings simultaneously to compare shots

- Auto Power off

- Bluetooth connectivity with PractiScore

- State of the art hardware and software sensitivity and shot detection

CONTROLS AND COMPONENTS

1 – On / Off button
2 – Start signal button
3 – Current shot time
4 – First shot time
5 – Split time
6 – Shot number and total shots count

7 - Menu and Control buttons
8 - Microphone
9 - Beeper
10 – Battery compartment door
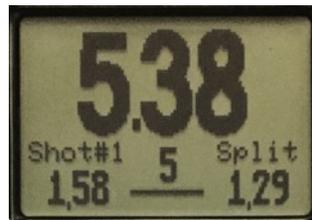11 – Battery compartment latch

Basic operation:

Turning On/Off:
To turn Commander on – press on/off button once. To turn Commander off press and hold on/off button for 2 seconds. Shut down will occur automatically after 15 minutes of non-use (shut down time can be increased or decreased by user)

Starting the timer:
Press "GO" button once to trigger shot string timing sequence, depending on start type (instant or delayed) Commander will beep immediately or will delay briefly prior to the beep. Shots will recorded and displayed along with first shot, split time (difference between current and previous shot), and number of shots fired. The small animated scanline at the bottom of the display indicates that Commander is currently listening for shots. Listening will stop after 5 minutes. This can be extended to 10 minutes. If any button is pressed on the front panel will stop it from listening shots.

When recording shots, make sure Commander's microphone is always pointed toward the firearm without obstruction. For ideal results keep it at distance of approximately 5 – 6 feet from the shooter. If necessary you can get closer however always maintain a safe distance and do not get so close that gases from the ejection port or compensator might contact the microphone. Rather than getting closer it is better to increase the sensitivity to maintain a few feet of distance to the shooter.

Reviewing shot string:
When timer is not in "listening for shots" mode, you can use the ◀ and ▶ buttons on the front panel to navigate through a shot string and review your performance.

When reviewing shots, pressing the "M" button on front panel once will switch between "single" or "multiple" string viewing mode. Multiple string viewing mode allows you to compare the last 3 strings formatted like a spreadsheet for convenience. At the top are the shot numbers and each row is a string of shots.

Settings:

Using various settings menus you can adjust Commander to behave the way most suitable for your shot timing conditions. For example you can adjust the microphone sensitivity, or echo suppression delay, start beep delay, beep volume, and other parameters.

To enter settings mode press and hold "M" button for 1 second and you will be prompted to series of settings screens which you can advance through by repeatedly pressing the "M" button. When you have cycled through all menus timer will return back to shot viewing mode. To exit the menu and immediately start listening for and recording shots simply press the "GO" button.

At any setting screen, use ◀and▶buttons to change currently displayed parameter.

The Following parameters are user controlable:
1 – PRESETS, is a very useful feature if you want to predefine certain shot detection configurations and quickly switch between them. For example you can have sensitivity set low, a delayed start and a loud beep for outdoor live fire training, at the same time you can have a preset for dy fire training which has a different delay length, par times enabled and low beep volume. To switch between two different training routines move cursor to the desired preset and you done. Presets is the first menu screen because changes on the subsequent sreens are applied to the preset selected here.

2 – SENSITIVITY, Commander offers 10 levels of sensitivity 1 being for detecting very loud firearms and 10 being for very quiet firearms. Selecting an appropriate sensitivity is very important for reliable measurements. If the sensitivity set too low some shots may be missed and if set too high false shots may be detected. Experiment with sensitivity to find what works best for you in your various shooting situations. Commander uses state of the art hardware and software for shot detection to ensure that the best possible results are achieved, this provides a distinct advantage over the competition, especially in detecting quiet guns.

3 – START TYPE, this menu screen comprises two settings and and gives you the choice between instant or delayed starting beep. If you chose delayed you will be prompted to enter your desired delay times. Total delay time is a summary of "fixed" and "random" delays. Setting "fixed" times will ensure a minimum time will pass before the beep sounds. Random will add random within the number that you choose. If you want to have a fixed delay simply set random to 0.00. For example to set up Commander to delay at least 5 seconds after you press go, and then after 5 seconds beep randomly within a 4 second window set fixed to 5.00 and random to 4.00. Commander will then beep randomly between 5 and 9 seconds after you press go.

4 – PAR TIMES, allow you to define up to three par time beeps to measure your performance against. First, choose how many par beeps you want to have and then you will be prompted to set those par times. A 0.1 second delay will be automatically placed between par beeps and after initial start beep so that each beep can be distinguishable.

5 – ECHO DELAY, this is amount of time that timer will stay insensitive to pick up the next shot after any shot has been detected. This setting ensures the same shot won't be picked up twice due to echoing. Just like the sensitivity setting, this one needs to be set carefully, if you set it too low you may pick up additional shots, and if you set it too high you may not pick up

shots from rapid firing. Setting 0.10 is a good starting point, however at the indoor range you may need to start at 0.13 and work up from there.

6 – BEEP VOLUME, this setting simply controls how loud the beep is. Loudest beep is suitable for live fire when the beep needs to be heard through hearing protection. The lowest volume is suitable for dry fire training at home.

Bluetooth connectivity

Commander has Bluetooth connectivity which allows shot times to be downloaded or streamed into a smart phone or tablet for scoring or analysis. Commander utilizes a simple and open protocol, which means any developer will be given access upon request.

The Commander team is very proud to be first timer in the world integrated into the leading match scoring app: PractiScore on both platforms, Android and iOS. Check their website at https://blog.practiscore.com/android-app-bluetooth-timers/ for details.

Additional settings:

Serial number and MAC address:
When timer is off, hold ◄ button on the front panel as you turn it on to display your timer's serial number, MAC address for Bluetooth module, and last 4 digits of MAC address for quick reference (Commander's Bluetooth name is "AMG Lab COMM XXXX, with XXXX being last 4 digits of the MAC address), pressing any button will exit from this screen and continue into normal timer operation.

Reset to factory defaults:
With Commander turned off press and hold the "M" and ◄ buttons then power on. This will reset everything to factory defaults. Commander will automatically reboot during this procedure.

Advanced setting menu:
When timer is off, press and hold "M" button to enter advanced "set and forget" settings that are not normally changed often.
- Self-beep setting allows Commander to avoid detecting its own beep at high sensitivities, when it is set to "NO" shots during beep sound at any sensitivity level are ignored. Setting this to "YES" means Commander will ignore any shots during the beep at sensitivities #7 and up, it will still record shots during beeps at sensitivities below #7.
- Shdn. Del. Is the auto shut down timeout..
- Str length, is how long Commander will listen for shots after it started, you can choose from two options here, 5 minutes or 10 minutes.
- BLE push, is a bluetooh setting to enable or disable pushing shot data through the bluetooth protocol with every detected shot, normally this is off and shot string data can be pulled from timer on demand via bluetooth app on smartphone.
- Battery voltage, battery unit's voltage level, this is not a setting but just reference data, providing additional insights into battery stage, when battery is getting close to depletion, this voltage will be close to 4.00V.

To exit this menu into normal timer mode simply keep pressing "M" button to cycle through all settings and exit out of this menu.

Change batteries

To change batteries, open the battery compartment by sliding locking tab on the back of the unit down using your thumbnail or small object. Do not force it down, apply gentle force along the length of the unit, as shown in the following illustration:

Next, remove battery door to get access to 4 AAA batteries

Install new batteries with care, ensuring they are installed in the correct direction, as marked inside the battery housing . Do not mix old and new batteries and only install fresh batteries. Do not store Commander for long periods with batteries installed to avoid damage from corrosion. Remove depleted batteries immediately to avoid damage from corrosion. Use only reputable battery brands, preferably with leak protection. You can use Alkaline, NiMH or Lithium chemistries all will have very good battery life.

When batteries are close to depletion, you will hear beep signal start acting "interrupted/broken", you can still finish timing current shooter and comfortably finish your training exercise. You should change the batteries at the first opportunity when this happens.

Regulatory:

"This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions. (1) This device may not cause harmful interference. (2) This device must accept any interference received, including interference that may cause undesired operation."

"This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device. Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le onctionnement."