

# microSMART

## user manual

### 1 Unit power-on

After connecting the battery the motor will buzz:

- **Single buzz:** everything OK
- **Two buzzes:** the unit wasn't yet learned, see "**Cycle learning**"
- **Three buzzes:** the battery voltage is either below 6.5 V or above 16.5 V, **firing will be disabled**, the battery has to be recharged or changed

After the initial buzzes programming mode can be entered. Right after the last buzz **press and hold the trigger** and wait for the motor to beep. For programming see the section "**Programming**".

If you didn't enter programming mode (the trigger wasn't pressed), the motor will make another **single short buzz** and thus confirm that the gun is ready to use.

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#### Cycle learning:

After connecting the battery for the first time the length of the cycle isn't yet known. The unit needs to know the cycle length to determine burst timing and other functions. On first power-up of the unit, the motor will buzz twice and after that once more. After that, make 6 shots on the **semi position**. Make **slow and even shots** so there are no errors. After the 6th shot the motor will make a single buzz and cycle length will be saved.

#### When to re-learn the gun?

Re-learning the cycle length should be done, if:

1. You notice that the burst or semi cycle has suddenly **changed** since the last time
2. If you use a **different battery** (just recharging the battery doesn't need re-learning)
3. If you changed the **strength of braking** in programming

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### 2 After shot warnings

After the shot, the unit will inform you of any errors:

- **1 buzz after shot:** the unit was learned – this happens **only when learning the cycle**
- **2 buzzes after shot:** the battery capacity has fell below 20%, if the capacity falls below 5%, firing will be disabled (until replacing the battery)
- **3 buzzes after shot:** the unit temperature exceeded 70°C, the unit will turn itself off until replacing the battery
- (in case of an **over-current** condition, the motor **won't buzz** to avoid doing damage)

## 2 Programming

The unit is programmed with trigger pulls. After entering programming mode, pull the trigger the wanted number of times to select the wanted menu. After 2 seconds the motor will buzz twice to confirm selection. Now you can select the wanted parameter, again with trigger pulls. After selection the motor will buzz three times. Now you can select a different menu or exit from the programming mode.

After programming you can exit with a long trigger press (three seconds or until the motor buzzes once). If you want to exit programming and re-learn the cycle (when changing braking strength), hold the trigger for 6 seconds or until the second motor buzz. **See notes on the next page.**

### Entering programming:

- disconnect the battery, wait **at least 3 seconds**, reconnect the battery
- motor **buzzes once** (in case of two buzzes, **learn the cycle first**)
- after the buzz **hold the trigger**, after the beep we are in programming

### Learning the cycle:

- put the selector to "semi" and make 6 shots
- make slow shots and press the trigger **slowly and fully**
- after 6 shots the motor will **buzz**, learning is done
- the gun is ready to use

### Menu selection

1	Battery monitoring
2	Fire selector
3	ROF control
4	Shorter cycle time
5	Longer cycle time
6	Braking
7	Precocking
8	Burst-Auto delay
9	Semi delay

wait two second for confirmation (3 buzzes)

OR

exit programming	hold trigger for 3 seconds (to first buzz)
exit and re-learn cycle	Hold trigger for 6 seconds (to second buzz)
factory reset unit	Hold trigger for 10 seconds (to third buzz)

wait two second for confirmation (2 buzzes)

### Parameter selection

under the number of which menu was selected before

<h4>1 Battery monitoring</h4> <table border="1"> <tr><td>1</td><td>7.4 V LiPo</td></tr> <tr><td>2</td><td>11.1 V LiPo</td></tr> <tr><td>3</td><td>14.8 V LiPo</td></tr> <tr><td>4</td><td>9.6 V LiFePO</td></tr> <tr><td>5</td><td>12.8 V LiFePO</td></tr> </table>	1	7.4 V LiPo	2	11.1 V LiPo	3	14.8 V LiPo	4	9.6 V LiFePO	5	12.8 V LiFePO	<h4>4 Shorter cycle time</h4> <table border="1"> <tr><td>N</td><td>every trigger press decreases cycle time by 2%</td></tr> </table>	N	every trigger press decreases cycle time by 2%	<h4>8 Burst-Auto delay</h4> <table border="1"> <tr><td>1</td><td>0.1 s delay</td></tr> <tr><td>2</td><td>0.2 s delay</td></tr> <tr><td>3</td><td>0.4 s delay</td></tr> <tr><td>4</td><td>0.6 s delay</td></tr> <tr><td>5</td><td>1 s delay</td></tr> </table>	1	0.1 s delay	2	0.2 s delay	3	0.4 s delay	4	0.6 s delay	5	1 s delay										
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(note) values in orange are factory defaults

### 3 Notes

**Burst (hybrid)** is a fire mode, in which the gun will transition from burst to full-auto mode if you continue to hold the trigger after the finished burst cycle. How quickly the gun switches to full auto is determined in menu 8 (Burst-Auto delay).

**Shorter and longer cycle time** – it can happen that after learning the gun, the burst cycle won't be exactly 3 rounds. You might notice something like this when shooting bursts: 3 rounds, 3 rounds, 2 rounds (or 4 rounds), 3 rounds, 3 rounds, etc. For this purpose you can fine tune the burst cycle time. If you notice that the burst cycle is too short (occasional 2-round burst), enter programming and select menu 5. Press the trigger a few times (5-10 is a good starting point). Exit the programming with a long trigger pull (3 seconds – until the buzz). If the burst cycle time is still too low, repeat the process a few times. On the other hand, if you get an occasional 4-round burst, in programming select menu 4 and decrease the cycle time.

**Precocking** is a fire mode in which the gears are stopped just before releasing the piston, so that the next shot will be as fast as possible. In this position the nozzle is already sealing against the bucking and the BB is loaded, so precocking can increase accuracy. After using the gun it is recommended to release the piston – simply switch to full-auto and press the trigger. The gun will make a two round burst and release the piston.

**Active braking** can be adjusted from 0 to 100%. When using a DMR rifle or when using any gun primarily on semi-auto, we can safely use braking at 100%. With assault rifles or rifles which are used mostly in full-auto, it's better for the motor to decrease braking strength, so it's recommended to use 50 or 80% strength. Because braking changes the cycle length, you have to re-learn the cycle after changing braking strength. When in programming hold the trigger down for 6 seconds (until the second buzz), exit programming and after a short buzz make 6 slow semi-auto shots.