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## 1. GENERAL PRINCIPLES OF OPERATING AND SETTINGS

Customization of the Unicorn flashlight operation implies following configuration options:

- bringing to the main menu particular additional options (stroboscope, button lock, beacon, button backlight, battery check, tactical mode, additional custom mode); connecting the option with particular command («slot»).
- bringing to the main menu particular options of user interface changing (smooth or discrete adjustment, memory of modes – on/off, button backlight in the off and on state); connecting the option with particular command («slot»).

Commands are configured through the engineering menu. (pt 1-1, 1-2).

Green LED in the button indicates confirmation of the command execution or turning on the function; Red LED indicates disabling of the function (for example, memory of modes or button backlight).

Engineering menu also allows:

- quickly switch between three pre-configured user interfaces (pt 1-3);
- save the current settings configuration as one of the pre-configured user interfaces (pt 1-4);
- set up thermal control of the flashlight (pt 2-1, 2-2).

### 1-1. Engineering menu

To access the engineering menu screw the cap until tight while holding the button.

To exit the engineering menu de energize the flashlight (unscrew the cap).

**CAUTION!** *Before de energizing, make sure that the flashlight is turned off FULLY (button backlight has gone out or has switched to the permanent mode). Otherwise, unsaved data will be lost!*

Available engineering menu commands:

7 clicks +hold – enable slot setting mode.

8 clicks – turn off slot setting mode.

9 clicks +hold – thermal control settings.

13 clicks + hold – set current configuration as UI 1.

14 clicks – download UI 1

15 clicks +hold – set current configuration as UI 2.

16 clicks – download UI 2.

17 clicks +hold – set current configuration as UI 3

18 clicks – download UI 3

20 clicks +hold – temperature sensor calibration.

*Pause between clicks in “click+hold” commands should last no more than 0.5 second.*

## 1-2. Configuration and settings of slots (commands)

1) Enter the engineering menu (screw the cap until tight while holding the button);

2) enable slot setting mode (7 clicks +hold);

3) execute the command you configure;

4) select the option number to be executed by this command with clicking the button corresponding numbers of times.

<b>Available commands</b>	<b>Available options by numbers</b>
2 clicks 2 clicks +hold 3 clicks 3 clicks +hold 4 clicks 4 clicks +hold 5 clicks 5 clicks +hold 6 clicks	1. Unchanged 2. Empty 3. Additional mode (customizable) 4. Maximum 5. Stroboscope (12.5Hz 10ms) 6. Battery check 7. Beacon main LED 8. Tactical mode (turned off by unscrewing the cap) 9. On/Off button lock 10. On/Off memory of modes 11. On/Off discrete brightness adjustment 12. On/Off button backlight when the flashlight is OFF 13. On/Off beacon of the button when the flashlight is OFF 14. Loading UI 1 15. Loading UI 2 16. Loading UI 3

Next you can

- set up other commands in the same way;

- exit the slot setting mode, remaining in the engineering menu (8 clicks);

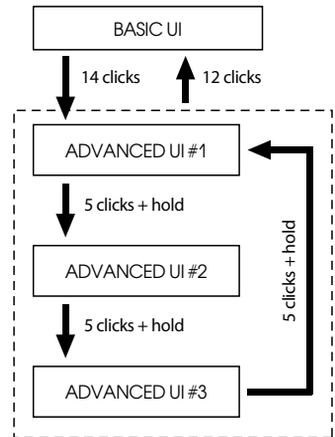
- exit the engineering menu (de energize the flashlight after 1-2 seconds).

- For example, you want to set the battery check function to “4 clicks” command:
- enter the engineering menu (screw the cap until tight while holding the button);
  - enable slot setting mode (7 clicks +hold), the button will flash green;
  - execute the “4 clicks” command, the button will blink green;
  - press the button 6 times (the number of the “battery check” option), the button will flash green;
  - after 1-2 seconds de energize the flashlight to exit the engineering menu.

### 1-3. Preconfigured user interfaces

It is possible to save several different sets of settings by using three preconfigured user interfaces (UI 1, UI 2, UI 3) with fast switching between them. In fact, each interface is a combination of settings, which is loaded into the working area of the flashlight when particular UI is activated.

Out of the box the flashlight has Basic Interface which is as simple as possible. With a command of 14 clicks, you can switch to UI 1, and then you can switch in a circle between UI 1, UI 2 and UI 3 (5 clicks +hold). You can return to the Basic Interface only by completely resetting the flashlight (12 clicks), while all the settings you have made for all UIs will also be reset to the factory state.



Out of the box configuration of user interfaces:

Function and Commands	Basic UI	UI 1	UI 2	UI 3
Function	Discrete 5 modes Memory ON	Ramping Memory ON	Ramping Memory ON Button's backlight ON	Discrete 5 modes Memory OFF Start level Med
2 clicks	Max	Max	Max	Max
2 clicks+hold	-	-	Decrease from Max	-
3 clicks	-	-	Strob	Strob
3 clicks+hold	-	-	Beacon	-
4 clicks	Battery check	Battery check	Battery check	Battery check
4 clicks+hold	-	-	Tactical mode	Memory on/off
5 clicks	-	-	Button's backlight on/off	Button's backlight on/off
5 clicks+hold	-	Loading UI 2	Loading UI 3	Loading UI 1
6 clicks	-	-	Button lock	-
14 clicks	Loading UI 1			
<b>12 clicks</b>	<b>Reset to the factory state and Basic UI</b>			

## **1-4. Changing of preconfigured user interfaces**

If needed, you can customize a configuration of settings and save it instead of any of three UIs. If current configuration was not saved, it will be lost.

*For example, you configured the functions you need, and now you want to save current configuration as UI 1:*

- enter the engineering menu (screw the cap until tight while holding the button);
- execute the command "set current configuration as UI 1" (13 clicks +hold), the button will flash green;
- after 1-2 seconds exit the engineering menu.

*Now UI 1 matches your individual configuration of settings. Similarly, you can configure all three UIs, as well as ways to switch between them.*

All individual interface settings will be reset when the flashlight is completely reset to the factory state (12 clicks).

## 2. THERMAL CONTROL SETTINGS

Unicorn is equipped with active thermal control system that changes brightness depending on the degree of heating of the flashlight. The flashlight is already set up for comfortable work, temperature threshold is 50°C; sensor is calibrated at room temperature of 25°C.

If necessary, you can reconfigure the thermal control limit on your own, or reset the settings and recalibrate the temperature sensor.

### 2-1. Manual thermal control setting

Allows setting a comfortable degree of flashlight heating:

- 1) Enter the engineering menu (screw the cap until tight while holding the button);
- 2) Turn on the flashlight on Maximum and wait for the desired temperature;
- 3) Execute a "9 clicks+hold" command, current temperature of the flashlight will be set as an operating threshold of a thermal control.
- 4) After 1-2 seconds exit the engineering menu.

The default threshold for thermal control is 50°C. *Please note that the thermal control is working in the process of the setting, so you can not heat the lamp substantially above 50 degrees.*

The set temperature will be used in all UIs, but it will be reset to default when the flashlight is reset (12 clicks) or when the temperature sensor is calibrated.

### 2-2. Temperature sensor calibration

This function allows resetting temperature control and re-calibrating temperature sensor of the flashlight. During calibration, current air temperature will be recorded as 25°C, the temperature sensor will proceed from this value during temperature measurements.

Adjustment must be made at a room temperature (~ 25°C); the flashlight should not be heated by working before the adjusting.

- 1) Enter the engineering menu;
- 2) Execute the command "20clicks +hold", the button will flash green.
- 3) After 1-2 seconds exit the engineering menu.

The results of the temperature sensor calibration will stay even after resetting of the flashlight. Also, when calibrating the temperature sensor, the results of manual adjustment of the temperature control will be automatically reset (p.2-1).

## 3. SOME PARTICULAR QUALITIES OF UNICORN 1.0

### 3-1. Battery check and indication

Battery charge indication is implemented using the button backlight:

**Green** – battery is almost full (voltage higher than 3.8V).

**Green + red** – average charge level (voltage higher than 3.5V).

**Red** – it's time to change the battery (voltage lower than 3.5V).

Battery charge indication is made considering the battery drawdown compensation. This allows representing a correct charging status, regardless of the brightness mode.

Manual battery checking is also available:

5 flashes – voltage higher than 4.06V (80%)

4 flashes – voltage higher than 3.86V (60%)

3 flashes – voltage higher than 3.7V (40%)

2 flashes – voltage higher than 3.62V (20%)

1 flash – voltage lower than 3.62V

The default command for manual battery checking is 4 clicks; you can change it in the slots-setting mode.

### 3-2. Basic features of adjustment

- Stroboscope is always activating with the maximum brightness. After that it is possible to set the brightness with holding the button.
- Tactical mode and Beacon has the brightness of the mode from which they were turned on, or 170 lm if turned on from the OFF state.
- When the memory of modes is off, the current (memorized at the moment) brightness mode will be set as the start mode.
- The additional mode has its own memory function. It can be set to any slot and configured with holding the button.
- If the battery voltage is insufficient during the brightness rising (transition to Direct-Drive), the interface considers that the upper limit is reached.

### 3-3. Smooth adjustment features

- Brightness is gradually adjusted by holding the button; the direction (brightness up or down) is switched with releasing and fast (<1 sec) next holding the button. The "click-and-hold" command can be also used for changing the direction of the adjustment.
- Short click in one second after smooth brightness regulation allows making a "step back" for more precise adjustment (in fact, click will be treated as a very short-term hold). Short click after more than one second turns OFF the flashlight.
- If brightness reaches the maximum or the minimum level for more than 1 sec, the flashlight will return to the brightness mode used before the smooth adjustment when the button is released. It can be used for activating non-latching Max mode.

### **3-4. Discrete adjustment features**

- Brightness levels switches upward with holding the button. When the maximum or the minimum brightness level is reached, the direction changes (after a small pause).
- The "click-and-hold" command can be also used for changing the direction of the adjustment.
- There are five brightness levels (Min-Low-Med-High-Max), which switches with 0.7 sec. interval.

### **3-5. Features of the maximum mode with fast access**

- Short click returns to the previous mode (and turns the flashlight OFF if it was OFF before using Max).
- Hold starts adjusting the brightness down with switching to basic brightness modes.
- Click-and-hold turns OFF the flashlight (always, regardless of the previous mode).
- If Max is activated by a command with holding the button ("2click+hold" for example), the flashlight will automatically decrease the brightness with continue holding the button. This function can be used for scrolling the modes "from highest".

### **3-6. Slots features**

When using "2 clicks" and "2 clicks + hold" commands, the light does not turn off during the execution of a command. This is done for ease of use maximum or additional mode on these slots, without flashes when activated.

When using commands with 3 or more clicks, the light turns off before the execution of a command.