

Operation manual for Beacon serials

Introduction :

There are 4 models of LiteFlux Beacon serials flashlights : LF2 – using 1AAA or 10440 Li-Ion batteries , LF3 – using CR123A or RCR123 or 16340 Li-Ion batteries , LF4 - using CR2 or RCR2 or 15260 Li-Ion batteries , LF5 – using 1AA or 14500 Li-Ion batteries ; Build in MCU and special designed 2-stage switch user can program the intensity and flash format of outputs . Up to 7.8KHz PWM controlled by MCU no flickering even in very low intensity . MCU measure and calculate the voltage of battery to compensate the intensity of output . That let the flashlight can operate in wild range of input voltage 0.9 ~ 5.0 V .

Three positions twisting action for ON/OFF and programming : OFF , P1 , P2 . Tighten for OFF that reduce the chances of losing the complete head (bezel & LED module) . Four operation modes can be changed by few times switching action directly no need to turn OFF and turn ON for mode changing . Four extra functions : battery voltage indicator , programming function , rechargeable battery over-discharge protection and reset function , user can program intensity and strobe forms to meet personal needs .

Note : Demo function is for QC test only .

Specification :

1. LF2 :

- LED : Cree XR-E – Cree Version , SSC P4 – P4 Version
- Size : Cree Version – L 80.5mm D 14mm , SSC P4 Version – L 76.5mm D 14mm
- Input Voltage : 0.9V ~ 5.0V
- AAA size Battery : Alkaline , NiMH , Primary Lithium and 10440 Li-Ion
- Removeable Orange peel aluminum reflector
- AR Coated glass lens
- HA III finish
- 3 positions twisting action for ON/OFF and programming : OFF, P1, P2
- Tighten for OFF , P1 : loose 1/4 turn from OFF , P2 : loose more 1/4 turn from P1
- Stable tail stand
- Operation modes : Standard mode , User adjustable mode , Strobe mode and SOS mode
- Extra function : battery voltage indicator , programming function , demo function , rechargeable battery over-discharge protection function and reset function .
- Waterproof
- Accessories : 3 O-ring , plastic diffuser and silicon lubricant
- Wooden gift box

2. LF3 :

- LED : SSC P4
- Size : L 79mm D 20.5mm
- Input Voltage : 0.9V ~ 5.0V
- Battery : Primary Lithium CR123A , RCR123 and 16340 Li-Ion
- Removeable smooth aluminum reflector
- AR Coated glass lens
- HA III finish
- 3 positions twisting action for ON/OFF and programming : OFF, P1, P2
- Tighten for OFF , P1 : loose 1/4 turn from OFF , P2 : loose more 1/4 turn from P1
- Stable tail stand
- Operation modes : Standard mode , User adjustable mode , Strobe mode and SOS mode
- Extra function : battery voltage indicator , programming function , demo function , rechargeable battery over-discharge protection function and reset function .
- Waterproof
- Accessories : 3 O-rings , plastic diffuser and silicon lubricant
- Wooden gift box

3. LF4 :

- LED : SSC P4
- Size : L 69mm D 19.1mm
- Input Voltage : 0.9V ~ 5.0V
- Battery : Primary Lithium CR2 , RCR2 and 15260 Li-Ion
- Removeable smooth aluminum reflector
- AR Coated glass lens
- HA III finish
- 3 positions twisting action for ON/OFF and programming : OFF, P1, P2
- Tighten for OFF , P1 : loose 1/4 turn from OFF , P2 : loose more 1/4 turn from P1
- Stable tail stand
- Operation modes : Standard mode , User adjustable mode , Strobe mode and SOS mode
- Extra function : battery voltage indicator , programming function , demo function , rechargeable battery over-discharge protection function and reset function .
- Waterproof
- Accessories : 3 O-rings , plastic diffuser and silicon lubricant
- Wooden gift box

4. LF5 :

- LED : SSC P4
- Size : L 92mm D 19.1mm
- Input Voltage : 0.9V ~ 5.0V
- AA size Battery : Alkaline , NiMH , Primary Lithium and 14500 Li-Ion
- Removeable smooth aluminum reflector
- AR Coated glass lens
- HA III finish
- 3 positions twisting action for ON/OFF and programming : OFF, P1, P2
- Tighten for OFF , P1 : loose 1/4 turn from OFF , P2 : loose more 1/4 turn from P1
- Stable tail stand
- Operation modes : Standard mode , User adjustable mode , Strobe mode and SOS mode
- Extra function : battery voltage indicator , programming function , demo function , rechargeable battery over-discharge protection function and reset function .
- Waterproof
- Accessories : 3 O-rings , plastic diffuser and silicon lubricant
- Wooden gift box

Battery Replacement :

1. Remove the head cap by completely unscrewing it counter-clockwise .
2. Install AAA battery with the positive (+) end up , toward the head cap .
3. Replace the head cap and turn clockwise to secure .

Definition and Default Settings :

1. OFF position : Turn head cap clockwise or tube body anti-clockwise to secure .
 2. Position 1 (abbreviation : **P1**) : loose 1/4 turn from OFF position .
 3. Position 2 (abbreviation : **P2**) : loose more 1/4 turn from P1 .
 4. Switch cycle (abbreviation : **SW**) :
 - (1) From **P1** to **P2** and back to **P1** , all the periods must less than 1 second .
 - (2) From **P2** to **P1** and back to **P2** , all the periods must less than 1 second .
 - (3) **SW** x 1 : **P1** -> **P2** -> **P1** or **P2** -> **P1** -> **P2**
SW x 2 : **P1** -> **P2** -> **P1** -> **P2** -> **P1** or **P2** -> **P1** -> **P2** -> **P1** -> **P2**
SW x 3 : **P1** -> **P2** -> **P1** -> **P2** -> **P1** -> **P2** -> **P1** or
P2 -> **P1** -> **P2** -> **P1** -> **P2** -> **P1** -> **P2**
SW x 4 : **P1** -> **P2** -> **P1** -> **P2** -> **P1** -> **P2** -> **P1** -> **P2** -> **P1** or
P2 -> **P1** -> **P2** -> **P1** -> **P2** -> **P1** -> **P2** -> **P1** -> **P2**
- and so on

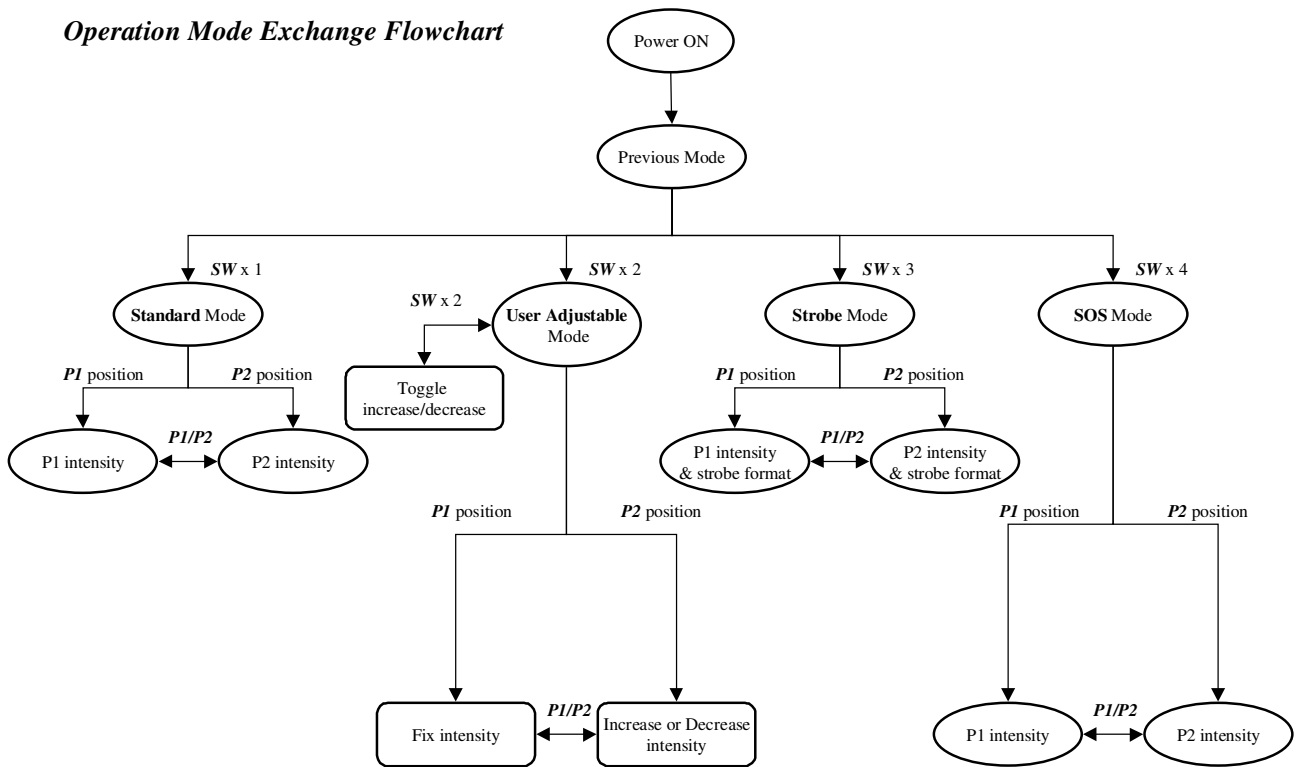
5. Factory default settings :

Operation mode	P1/P2	intensity	ON-time	OFF-time	frequency
Standard	P1	15%	-	-	-
	P2	50%	-	-	-
Strobe	P1	50%	32ms	992ms	about 1 Hz
	P2	100%	32ms	32ms	about 15.6 Hz
SOS	P1	6.5%	-	-	Period about 7 sec.
	P2	50%	-	-	Period about 7 sec.

Operation modes exchange and description :

Current operation mode will be saved before power OFF , the next time power ON will be in the last operation mode automatically .

Operation Mode Exchange Flowchart



1. **Standard mode :**

- (1) In any operation mode **SW x 1** will change to standard mode .
- (2) There are two positions indicated two different intensity output (**P1 & P2**) . Both of the intensity can be set by using programming function . Default setting is **P1 – 15%** , **P2 – 50%** .
- (3) If access Standard mode at **P2** position the output will be **P1** intensity and change to **P2** intensity after 1 second .

2. **User adjustable mode :**

- (1) In any operation mode **SW** x 2 will change to user adjustable mode .
- (2) In user adjustable mode , **P1** position means fixed intensity and **P2** means changing intensity position . At **P2** position will increase or decrease intensity . Increase or Decrease depend on the setting flag default is Increase . **SW** x 2 will toggle Increase or Decrease , ex: default Increase **SW** x 2 change to Decrease more **SW** x 2 will back to Increase .
- (3) The intensity of user adjustable mode will be saved into EEPROM when the position back to **P1** . Next time into user adjustable mode will output previous setting intensity even after power OFF . Factory default intensity setting is 50% .
- (4) First time into user adjustable mode intensity is 50% and need a lower output :
 - (a) At **P1** position using **SW** x 2 change to decrease then turn to **P2** position , after 1 second the intensity will be lower and lower . Back to **P1** position to fix and save the setting intensity when it meet the need .
 - (b) At **P1** position turn to **P2** position and using **SW** x 2 change to decrease , after 1 second the intensity will be lower and lower . Back to **P1** position to fix and save the setting intensity when it meet the need .
- (5) If access user adjustable mode at **P2** position , the intensity will increase or decrease after 1 second . ex : At standard mode **P2** position **SW** x 2 will change to user adjustable mode and intensity will change (increase or decrease) after 1 second . Turn to **P1** position fix and save setting intensity or **SW** x 2 to toggle increase/decrease .
- (6) It will flash one time when the intensity reach 100% .

3. **Strobe mode :**

- (1) In any operation mode **SW** x 3 will change to strobe mode .
- (2) There are two positions indicated two different intensity and strobe forms output (**P1** & **P2**) . Intensity and strobe forms can be set by using programming function .
- (3) This mode is discontinue output , ON time period and OFF time period combine to strobe form . Unit time of ON or OFF time is 32 mini-second (ms , 1000ms = 1 second) . Both of them have 127steps , therefor the minimum period is 64ms (ON- 32ms plus OFF- 32ms) and the maximum period will be 8128 ms (ON- 4064ms plus OFF- 4064ms) .
- (4) Factory default setting are **P1** : 50% intensity 32ms ON and 992ms OFF (1 Hz beacon form)
P2 : 100% intensity 32ms ON and 32ms OFF (15.6Hz strobe form)
- (5) If at **P2** position access strobe mode the output will show **P1**'s intensity and form firstly , it will change to **P2**'s intensity and form after 1 second . ex: Factory default setting in standard mode **P2** position , **SW** x 3 will change to strobe mode . Firstly , it shows 50% intensity 1Hz beacon form and change to 100% intensity 15.6Hz strobe form 1 second latter .

4. **SOS mode :**

- (1) In any operation mode **SW** x 4 will change to SOS mode .
- (2) There are two positions indicated two different intensity output (**P1** & **P2**) . Both of the

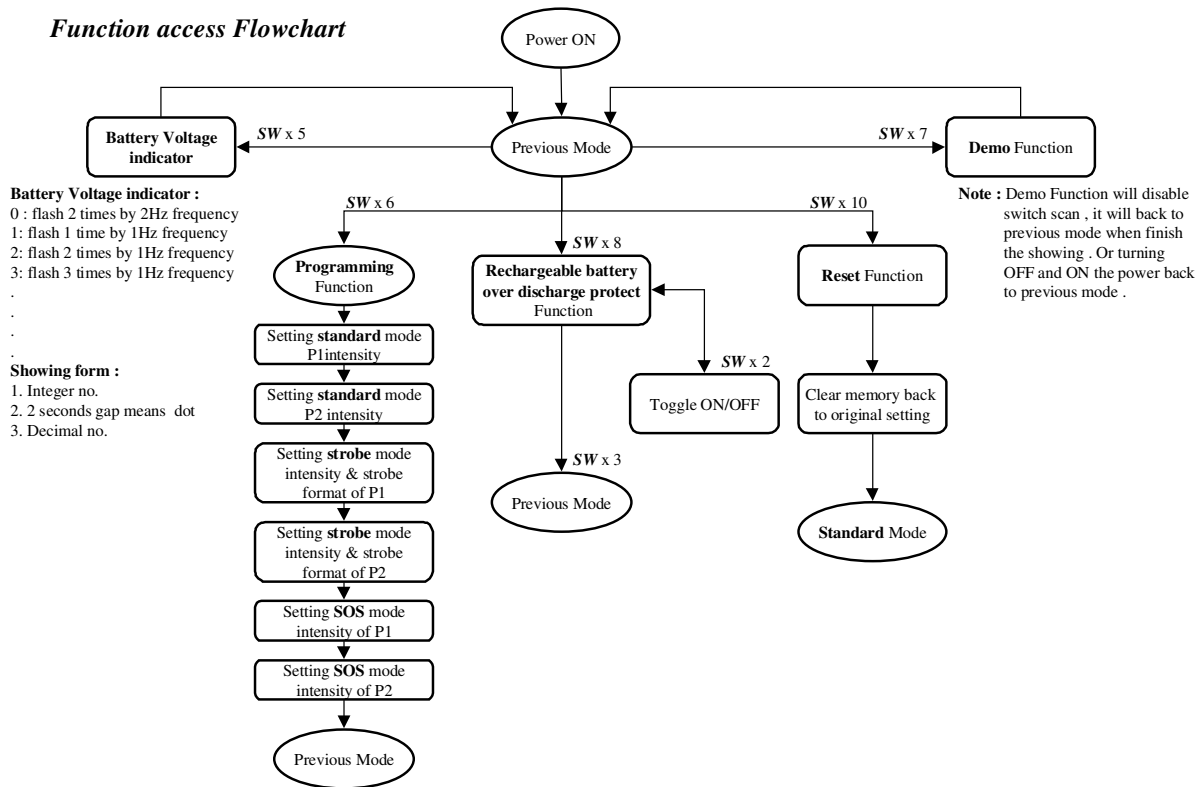
intensity can be set by using programming function .

(3) Factory default setting are **P1** : 6.5% intensity , **P2** : 50% intensity .

(4) If access SOS mode at **P2** position the output will be **P1** intensity and change to **P2** intensity after 1 second .

Function description and operation :

Extra functions only can be accessed in operation modes and the **SW** action will be controlled or disable by function modules . It will back to previous operation mode when the function finished except reset function that will change to standard mode .



1. **Battery voltage indicator :**

(1) In any operation mode **SW** x 5 will go into battery voltage indicator function .

(2) On the beginning turn off output and measure the voltage of battery after that begin to flash indicated voltage : integer no. - 2 seconds gap - decimal no .

(3) 1 flash (1 Hz) represent 1

2 flashes (1 Hz) represent 2

3 flashes (1 Hz) represent 3

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9 flashes (1 Hz) represent 9

2 quick flashes (2 Hz) represent 0

ex : 2.8 V is indicated by 2 flashes (1 Hz) , 2 seconds gap , 8 flashes (1 Hz)

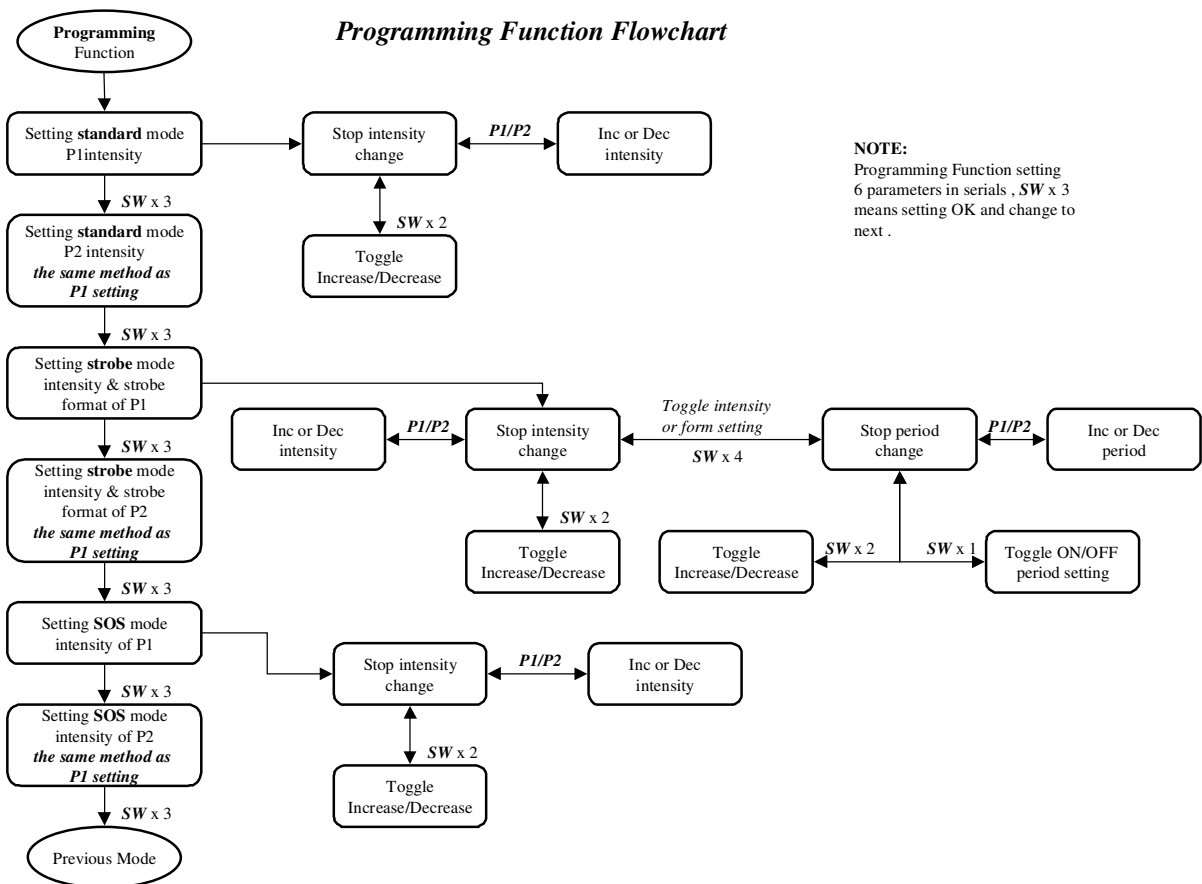
0.9 V is indicated by 2 quick flashes (2 Hz) , 2 seconds gap , 9 flashes (1 Hz)

(4) When finish showing will back to previous operation mode .

Note : The loaded voltage indicated is an approximate reading and varies due to different brands , Chemistry , internal resistance and condition of the battery in use.

2. **Programming function :**

In any operation mode **SW x 6** will go into programming function , there are 6 parameters need to set (standard mode **P1** - standard mode **P2** - strobe mode **P1** - strobe mode **P2** - SOS mode **P1** - SOS mode **P2** in serials) .



(1) **Definition of position and switching action :**

P1 position : fix intensity or time period

P2 position : vary intensity or time period

SW x 1 : toggle setting ON-time / OFF-time period , only available in setting strobe mode

SW x 2 : toggle Increase / Decrease intensity or time period

SW x 3 : save current setting and jump to next setting or previous operation mode (SOS mode **P2** setting)

SW x 4 : toggle intensity / time period setting , only available in setting strobe mode

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- (2) **Standard mode P1** : Setting the intensity of standard mode **P1** position , method is similar to user adjustable mode . **SW** x 2 toggle Increase / Decrease (default is Increase) , at **P2** position vary intensity and at **P1** position fix the intensity . After setting the intensity **SW** x 3 will save the setting and go next setting .
 - (3) **Standard mode P2** : Setting the intensity of standard mode **P2** position , method is the same as (2) .
 - (4) **Strobe mode P1** : Setting intensity and strobe form of strobe mode **P1** position .
 - (a) The entry is setting intensity , **SW** x 4 toggle intensity / time period setting .
 - (b) Intensity setting method is the same as (2) .
 - (c) In strobe form setting **SW** x 1 toggle ON-time / OFF-time period . **SW** x 2 toggle Increase / Decrease time period (default is Increase) .
 - (d) After set the intensity and strobe form **SW** x 3 will save it and go next setting .
 - (5) **Strobe mode P2** : Setting intensity and strobe format of strobe mode **P2** position . Method is the same as (4) .
 - (6) **SOS mode P1** : Setting intensity of SOS mode **P1** position . Method is the same as (2) .
 - (7) **SOS mode P2** : Setting intensity of SOS mode **P2** position . Method is the same as (2) . **SW** x 3 will save the setting and go back to previous operation mode .
3. **Demo function** : In any operation mode **SW** x 7 will go into demo function . Demo function will disable SW detection and show all operation modes. After finish showing modes will back to previous operation mode or turn power OFF and ON to back to previous mode .
4. **Rechargeable battery over discharge protect function** :
- (1) In any operation mode **SW** x 8 will go into this function and show the current setting .
Function OFF (disable) : flash 1 Hz frequency
Function ON (enable) : flash 2 Hz frequency
 - (2) **SW** x 2 toggle function ON / OFF , ON enable rechargeable battery over discharge protect function and indicated flash by 2 Hz frequency , OFF disable this function and indicated flash by 1 Hz frequency .
 - (3) **SW** x 3 save setting and back to previous operation mode .
 - (4) It will flash 3 times every 40 seconds when the loaded voltage has reached 1.0V (NiMH) or 3.0V (Li-Ion) . When 0.8V (NiMH) or 2.8V (Li-Ion) is detected , rapid flashing warning occurs for 6 seconds and shut off to prevent over-discharge .
5. **Reset function** : In any operation mode **SW** x 10 will restore factory setting to EEPROM .After that will back to standard mode .