

NOVATAC

Lighting the Path of Innovation



Flashlight User Guide

EDC- 85P or 120P

Copyright 2007 by NovaTac, Inc.

All rights reserved

July 2007

Flashlight User Guide

Novatac™ EDC- 85P or Novatac™ 120P
Copyright 2007 by NovaTac, Inc.
All rights reserved July 2007

Congratulations on your purchase of the EDC-85P or 120P Flashlight, the finest user programmable flashlight available! The EDC is your best-of-class everyday carry pocket flashlight that provides regulated light output at your desired brightness. The single button activates and controls all operations of the light. The EDC is a very rugged light that will provide a lifetime of dependable service even under the toughest conditions.

Thank you for purchasing our product.

Introduction

Using the lowest brightness level compatible with the task being performed will maximize battery life and also provide an intensely bright light when needed. Approximately every two levels brighter will halve the battery life and every two levels dimmer will double the battery life. The maximum brightness level uses significantly more power than the others and therefore has a much shorter battery life.

The human eye responds to light in a logarithmic way. A significant visible increase in brightness requires a doubling in the amount of light and power. The brightness levels of the light are spaced to provide small, visually even changes in brightness. The lower brightness levels will help preserve night vision adaptation while still allowing you to distinguish colors.

The Quick Start guide will provide simple instructions on the basic operation of the flashlight. More detailed instructions are contained in the User Guide.

Contents

1. Quick Start
2. User Guide
3. Brightness Settings
4. The Options Menu
5. Resets
6. Low Battery Indication
7. Installing a new battery.
8. Hi Temperature Indication
9. Cleaning and Maintenance
10. Warnings
11. Factory Default Settings
12. Specifications
13. Primary Features
14. Settable options
15. Supported Battery Configurations
16. Warranty

1. Quick Start.

Important:

A **Click** is less than 1/3 second (like a mouse click).

A **Press** is greater than 1/3 second.

For basic operation Please perform the following:

1. **Click:** Turn on to primary
2. **Two Clicks:** Toggle between Primary and Secondary or return to Primary or Secondary from other settings
3. **Three Clicks:** Minimum setting
4. **Press:** Momentary Maximum setting
5. **Click-Press:** Maximum setting
6. **Click:** Turn off
7. **Click Press:** Maximum setting from off

2. User's Guide.

Using the Single Push Button:

The single push button is used to turn the light on or off, and access other functions. The following concepts are important to understand the operation of your light:

Click:

a quick push and release of the button lasting less than one third of a second.

Press:

a long push and release of the button lasting more than one third of a second.

You must pause for more than one third of a second between commands to prevent commands from running together.

Turning the light on:

Click or press the button once. Each time the light is turned on it is forced to the Primary setting.

When the light is on:

Toggle between the Primary and Secondary settings by double-clicking the button. If on the Minimum or Maximum setting, the light will return to the last Primary or Secondary setting used.

Set it to the Minimum setting by triple-clicking the button.

Momentarily set the light to the Maximum setting by pressing the button. Releasing the button returns it to the previous setting. Lock the light on the Maximum setting by click-pressing the button.

Ramp the current brightness setting up or down by click-click-pressing the button. See below for a more detailed explanation.

Enter the Options menu by click-click-click-pressing the button. See below for a more detailed explanation.

Turning the light off:

Click the button once.

From off, the light can be turned directly on to the Maximum setting by click-pressing the button. The light will stay on until it is turned off.

3. Brightness Settings.

The light has 21 or 22 brightness levels and 3 signal levels available. Four of these are preset at the factory. The 4 settings are called Primary, Secondary, Minimum and Maximum. Any of the 22 brightness levels may be assigned to any of the preset settings.

The 3 signal levels are: Disorienting Strobe, Emergency Strobe, and SOS, respectively. Any of these 3 signal levels may be assigned in place of solid light output on any of the 4 pre-sets.

The disorienting strobe can induce seizures in certain individuals so it should be used with caution.

When setting brightness, the light will blink twice when the highest brightness level is reached then display Disorienting Strobe, Emergency Strobe, and SOS signals. Each signal level will be displayed for 4 seconds before moving to the next level. When the lowest brightness is reached the light will blink twice at that level.

The brightness ramp is circular in nature. The highest brightness setting is followed by the Disorienting Strobe, Emergency Strobe, and then SOS. SOS is followed by the lowest brightness level and vice versa.

Changing Brightness Settings (from on, 2 Clicks-Press-hold)
The light will always begin the ramping process by increasing brightness.

From your choice of preset settings:

1. **Increase the brightness level** with Click-click-press-hold. Brightness will increase, blink twice at Maximum then proceed to the three available signal settings.
2. Release the button when the desired brightness or signal level is reached.
3. Do not turn the light off unless you want to save the setting.
4. Turn the light off to remember the brightness or signal level for this preset.
5. **Decrease brightness level** with click-click-press-hold until brightness begins to increase then release the button.
6. Repeat the click-click-press-hold. Brightness level will decrease.
7. Release the button when the desired brightness or signal level

is reached.

8. Do not turn the light off unless you want to save the setting.
9. Turn the light off to remember the brightness or signal level for this preset.

If there is insufficient power to remember the setting, the light will flash rapidly for 2 seconds then turn off. The selected changes will take effect temporarily but be deleted at the next battery change or soft reset.

Levels:

Levels	1	2	3	4	5	6	7	8	9	10	11	12	13
Brightness	.08	.12	.17	.23	.33	.47	.66	.94	1.3	1.9	2.7	3.8	5.3

Levels	14	15	16	17	18	19	20	21	Max	Disor Strobe	Emerg Strobe	SOS
Brightness	7.5	10	15	21	30	42	60	85	120			

4. The Options Menu.

Options Menu (from on, 3 Clicks-press-release)

The Options Menu is used to turn the optional features in the light on or off. Each option has a unique identifying flash and a specific position in the menu. When the Options Menu is entered, the first menu item will always be shown. The sequence continues from the last item back to the first if a selection is not chosen, and vice versa. It is helpful to point the light at the following chart when first navigating the menu. This practice will quickly familiarize you with the option indicators:

1. Emergency strobe <flash>
2. Emergency SOS signal <SOS>
3. Locator flash <dim flash>
4. Force setting <long flash>
5. Automatic button lock <three rapid flashes>
6. Automatic turn off <bright-to-dim>
7. Simple momentary <short-long flash>
8. Tactical momentary <short-short-long flash>
9. Ramping/Options menu <dim-to-bright>

If the button is not pressed for 10 seconds, an unknown command is entered, or the button is not held until the light turns off, the light will exit the Options menu unchanged. The error flash sequence of six rapid flashes will be displayed and the light will return to the last setting accessed.

To enter the Options Menu:

1. Turn the light on to any brightness level.
2. **Click-Click-Click-Press** the button. When the button is released, the Emergency Strobe identification will flash. This is the first menu item.
3. **Click** once to move to each of the next options. **Double-clicking** will reverse the direction.
4. When the desired option is reached, **Press** and **Hold** the button for 2 seconds until the light turns off. If the option is being enabled, the light will display an increasing brightness sequence. If the option is being disabled, the light will display a decreasing brightness sequence.
5. **Release** the button when the light turns off.
6. The Option is set and the light will return to the brightness setting it was on when the Options Menu was accessed.

If there is insufficient power to remember the setting, the light will flash rapidly for 2 seconds then turn off. The selected changes will take effect temporarily but be deleted at the next battery change or soft reset.

Option 1: Emergency Strobe (flash)

The Emergency Strobe option flashes the maximum brightness once a second. It is intended to be used as an emergency beacon. Setting it once enables it. To stop the Emergency Strobe signal, turn the light off.

If the Automatic Turn-Off option is enabled, the Emergency Strobe will turn off after 5 minutes.

The default setting is: Disabled.

The Emergency Strobe may be assigned to any brightness level. See Changing Brightness Settings.

Option 2: Emergency SOS (---...)

The SOS option flashes the international emergency SOS signal (dot, dot, dot, dash, dash, dash, dot, dot, dot). Setting it once enables it. To stop the SOS signal, turn the light off.

If the Automatic Turn-Off option is enabled, The SOS signal will turn off after 5 minutes.

The default setting is: Disabled.

The Emergency SOS may be assigned to any brightness setting. See Changing Brightness Settings.

Option 3: Locator Flash (dim flash)

The Locator Flash option dimly flashes the light every 3 seconds when it is turned off. This allows you to find your light in the dark.

The Locator Flash runs in the background of all other functions, and will continue to function until disabled.

The Locator Flash is a toggle setting. Setting it once enables it while setting it again disables it.

The default setting is: Disabled.

Option 4: Force Setting (long flash)

The Force Setting option forces the light to turn on to the desired setting. When the Force Setting option is disabled, the light will remember which setting was used when it was turned off, and returns to this setting when it is turned back on.

To select a setting to be forced, first disable the Force Setting option. Select the Minimum, Maximum, Primary or Secondary setting to be forced. Enter the Options menu and re-enable the Force Setting option. The light will now turn on to the selected setting.

If the forced setting is Minimum or Maximum, double-clicking will take you to the Primary setting.

The Force Setting option is a toggle setting. Setting it once enables it while setting it again disables it.

The factory default is: Enabled with the light forcing on to the Primary setting.

Option 5: Automatic Button Lock (three rapid flashes)

The Automatic Button Lock option locks the light off after it has been off for five (5) minutes. If the button is pressed while the light is locked, it will flash three times and remain off.

To release the Automatic Button Lock, triple-click the button. After the third click, the light will turn on.

When the Automatic Button Lock option is enabled, the light can manually be locked by triple-clicking from off.

The Automatic Button Lock option is a toggle setting. Setting it once enables it while setting it again disables it.

The default setting is: Disabled.

Option 6: Automatic Turn Off (bright-to-dim)

The Automatic Turn Off option turns the light off after five (5) minutes of button inactivity. The light will provide a warning prior to turning off by slowly sequencing down to the lowest brightness, and slowly blinking for ten (10) seconds. Clicking the button once during the warning period will restore the light to its original setting.

The Automatic Turn Off option is a toggle setting. Setting it once enables it while setting it again disables it.

The default setting is: Disabled.

Option 7: Simple Momentary (short-long flash)

The Simple Momentary option allows momentary on and click on. When enabled, the light will stay on as long as the button is pressed. Releasing the button turns the light off.

Also, a click turns the light on and another click turns it off.

When the Simple Momentary option is disabled, the light remains on when the button pressed OR clicked.

Simple Momentary is a toggle setting. Setting it once enables it while setting it again disables it.

The default setting is: Disabled.

Option 8: Tactical Momentary (short-short-long flash)

The Tactical Momentary option provides a pure momentary mode of operation. When the button is pressed, the light will be on. When released, the light will be off. Any desired configuration changes (such as forcing on to Maximum) must be made before enabling the Tactical Momentary option.

If the Automatic Button Lock option is enabled, the button will lock upon enabling the Tactical Momentary option and the light remains dark when the button is pressed. Upon releasing the Automatic Button Lock (triple-click), the light will remain off until the button is pressed again.

When both the Tactical Momentary option and the Automatic Button Lock option are enabled, a Soft-Reset will force the button to lock. Tactical Momentary is disabled by performing a Factory-Reset.

Option 9: Ramping/Options Menu (dim-to-bright)

The Ramping/Options Menu option is used to disable the Brightness Ramping and Options menu, preventing further configuration changes. Perform a factory reset to re-enable the Brightness Ramping and Options menu.

The default setting is: Enabled.

Error Flash Sequence (six rapid flashes)

While in the Options menu, the Error Flash Sequence of six rapid flashes will be displayed if the button is not pressed for 10 seconds, an unknown command is entered, or the button is not held until the light turns off. The light will exit the Options menu unchanged, returning to the last brightness setting accessed.

5. Resets.

Resets are performed if the type of battery is changed, to restore factory default settings, to disable Tactical Momentary and to re-enable Brightness Level Ramping and the Options menu.

Soft Reset

Soft Reset will not change any personal settings. Use if the light has fallen into an unresponsive state.

1. Turn the light on.
2. Unscrew the battery case until the light turns off.
3. Screw the battery case back together; there will be one second

of dim light.

4. The Soft Reset is complete.

If the light is still unresponsive, remove the battery for two minutes, then reinstall.

Battery-Detect-Reset

Battery-Detect-Reset will not change any personal settings. Required when changing to or from a rechargeable battery. A rechargeable battery must be fully charged before installation.

1. Turn the light on.
2. Unscrew the battery case until the light turns off.
3. Screw the battery case back together; there will be one second of dim light.
4. During the one second of dim light, press and hold the button.
5. You will see five seconds of bright light, followed by dim light.
6. Release the button when the light goes dim.
7. The Battery-Detect-Reset is complete.

If the button is released during the brighter light period, the Error Flash Sequence of six rapid flashes will be displayed and the light will not detect the new battery configuration. If there is insufficient power to remember the detected configuration you will see two seconds of very rapid flashing. The battery configuration will not be detected and damage may occur to rechargeable batteries.

Factory-Reset

Returns the light to the factory default settings.

Factory Reset disables Tactical Momentary and Re-enables Brightness Level Ramping and the Options menu.

1. Turn the light on.
2. Unscrew the battery case until the light turns off.
3. Screw the battery case back together; there will be one second of dim light.
4. During the one second of dim light, press and hold the button.
5. You will see five seconds of bright light, 3 seconds of dim light, 2 seconds of bright light then the light will go out.
6. Release the button when the light goes out.
7. The Factory Reset is complete.

If the button is released during either of the brighter light periods, the Error Flash Sequence of six rapid flashes will be displayed and the

light's settings will remain unmodified. If there is insufficient power to remember the factory settings you will see two seconds of very rapid flashing. The default settings will be restored but when the battery is changed or a soft reset is done the change will be forgotten.

6. Low Battery Indication.

(light drops down to 50% of its current selected brightness)

As the battery becomes depleted, it will not be able to supply enough power to run the light at its selected brightness. It will momentarily turn off, then back on at half of its previous brightness. This step down process repeats as the battery is depleted. When the lowest brightness level is reached, the light will blink continuously until the battery can no longer power the light. The battery should be replaced before the light reaches this point.

The light remembers the restricted brightness level as long as it remains on. Turning it off and back on resets the restricted brightness level. This gives you access to all brightness levels if the battery can supply enough power.

If a dying battery must be used, a lower brightness level should be selected immediately. The lower the brightness setting, the longer the battery will last.

If there is continued use of a rechargeable battery after the light has dropped to its lowest brightness level, it is assumed you are in an emergency situation and the light will sacrifice the battery to remain on.

The length of time the battery will last varies depending upon how the light is used, the type and quality of battery being used, and how cold the temperature is. Due to LED tolerances, you will see flashlight to flashlight runtime variations, even being operated under similar conditions.

Low battery behavior can occur if the battery contacts become dirty. To clean, gently wipe the battery contacts in a counter-clockwise direction, or the spring in a clockwise direction using a clean, dry cloth. This is normally sufficient to remove dirt. If in doubt, the battery should be replaced.

7. Installing a new Battery.

The light comes with a fresh battery installed from the factory. To replace the battery, unscrew the battery compartment at the head or the button cap. Insert a new battery into the battery compartment so the positive terminal is toward the front of the light. Be sure both the head and button cap are screwed back on snugly.

If the battery is inserted backwards into the battery compartment, the light will not turn on. The light and battery are protected against reverse polarity so the battery can simply be re-installed in the correct orientation.

When changing battery configurations a Battery-Detect-Reset is required. A rechargeable battery must be fully charged before installation. The light will protect rechargeable batteries from over-discharge.

8. High Temperature Indication

(single brightness level decreases).

The light can produce an excess amount of heat on its higher brightness levels. If the light is held with a bare hand during operation, the hand will conduct away any excess heat and prevent the light from becoming too hot for normal operation. If the light is placed on a table or held with a gloved hand, the excess heat is not as easily conducted away.

A thermal sensor will detect increasing temperature before the light becomes dangerously hot. It will reduce the output one brightness level at a time until it stabilizes at a safe level. The light will remember the safe brightness level and will not allow higher brightness as long as it remains on. Turning the light off and back on will reset the restricted brightness level and allow all brightness levels if the light is cool enough.

The light's temperature is regulated so it can always be picked up safely and to prevent damage to the LED.

9. Cleaning and Maintenance.

Periodically clean the threads and O-rings with a clean, lint-free cloth, and apply a thin coat of non-conductive silicon or petroleum grease to the threads and O-rings. If the O-rings become worn or damaged, they should be replaced. The exposed electrical contacts can be cleaned using a cotton swab moistened with isopropyl alcohol.

Recessed contacts should be cleaned in a counter-clockwise direction, while springs should be cleaned in a clockwise direction to prevent snagging the swab. Be sure to remove any cotton fibers that may be left behind.

The exterior can be cleaned with a mild soap and water. Rinse well and dry with a lint-free cotton cloth. Paper towels or tissues should be avoided when cleaning plastic lenses as scratching may result.

10. Warnings.

The LED on the higher brightness levels is very bright and can be intense enough to cause injury to the eyes. Looking directly into it should be avoided at all times.

Never mix battery brands, types, or fresh with used batteries. Doing so may cause a battery to overheat, outgas, catch fire or explode.

Although sudden total failure is unlikely, it is still possible. We recommend you always carry a second light during potential life-critical situations and enough spare batteries to cover your lighting requirements.

Not all lithium-ion battery over-discharge circuits are compatible with the flashlight and can cause sudden darkness when the circuit activates. The flashlight includes over-discharge protection and will protect non-protected batteries. Only use approved batteries.

11. Factory Default Settings

The light is configured at the factory with the following settings:

- Maximum setting: 85 or 120 lumens (30 minutes runtime*)
- Secondary setting: 30 lumens (2.5 hours runtime*)
- Primary setting: 10 lumens (14 hours runtime*)
- Minimum setting: 0.3 lumens (240 hours runtime*)
- Force Setting: Enabled to Primary setting
- Locator Flash: Disabled
- Automatic Button Lock: Disabled
- Automatic Turn Off: Disabled
- Simple Momentary: Disabled
- Tactical Momentary: Disabled
- Ramping and Options Menu: Enabled

*Runtimes using Duracell Ultra CR123A at 95°F for 60 lumen model. Runtimes at lower levels will typically be greater on the 85 or 120 lumen models.

12. Specifications:

- Input voltage: 1.8V to 4.5V
- Light Source: White LED
- Maximum light Output: 85 or 120 lumens
- Regulation: Constant power regulation with Tint Control™
- Battery pack: 1xCR123A lithium-manganese dioxide
- Runtimes: See Factory Default Settings
- Housing: Aerospace aluminum, military type III hard anodize
- Lens: Polycarbonate with anti-reflective coatings
- Dimensions: 1 inch (25mm) diameter by 3.3 inches (80mm) long
- Weight: 3 ounces (86g) including batteries, excluding accessories
- Waterproof: 66 feet (20 meters) – not dive rated

Specifications are subject to change without notice.

13. Primary features:

- Single button user interface
- Four directly accessible and user-programmable brightness/signal settings
- Rechargeable battery protection
- Reverse polarity protection
- Graceful power reduction for weak batteries
- Thermal regulation
- Intrinsically safe design.

14. Settable Options:

- Four (4) configurable brightness/signal settings
- Disorienting Strobe
- Emergency Strobe signal
- Emergency SOS signal
- Locator Flash
- Force Setting
- Automatic Button Lock
- Automatic Turn Off, Simple Momentary
- Tactical Momentary
- Disable Brightness Ramping and Options menu.

15. Battery configurations supported by the power supply.

Primary cells (non-rechargeable)

- Li-FeS₂: 2 cells (3.3)
- Li-MnO₂: 1 cell (3.2V)
- Li-SOCl₂: 1 cell (3.6V)
- Alkaline: 2 cells (3.3V)

Secondary cells (rechargeable)

- Li-ion: 1 cell (4.2V)
- NiCad: 2 cells (2.5V)
- NiMH: 2 cells (2.6V)

Battery Compartment O-ring: 1.5mm x 21.5mm, 70 durometer Nitrile (Buna-N).

16. Lifetime Warranty.

NovaTac, Inc. warrants that its products will be free from defects in material and workmanship for life. Liability is limited to the original purchase price of the product and does not cover cosmetics, color variations, modifications or batteries.

To obtain warranty service, please obtain a Return Material Authorization (RMA) number by phone or email. Securely package the item being returned and include a clear explanation of the problem, your RMA number, name, address, phone number and e-mail address postage paid to:

NovaTac, Inc.
Tactical Lighting Products
2302 E. Speedway Blvd., Suite 211
Tucson, Arizona 85719
USA
520-881-5800
Support@NovaTac.com
www.NovaTac.com