

pi-Lit® Remote-Control

Operating Instructions

The pi-Lit® Remote-Control Unit allows the operator to control a string of pi-Lit® lamps from the safety of a vehicle or at a safe location a distance from highway traffic. While the pi-Lit® Remote-Control Unit is not essential for proper and complete control of the pi-Lit® lamps, it represents a convenient and safe option. These instructions pertain to the Remote-Control Unit. Button names are slightly different on the lamps themselves. The Remote-Control Unit will control all of the pi-Lit® products; the **Sunflower cone-top lamp, Barricade-Style lamp, and the Ice Cream Sandwich Sequential flare**. Differences are pointed out below.

- 1) When operating the pi-Lit® Remote-Control the operator must be **within 660 feet** (200 meters) **of any one of the Pi-Lit™ lamps in a string**. The actual line-of-site range is greater than this (up to 300 meters – 1000 feet), but for conservative recommendations we specify the range of 200 meters. The string may be 1 kilometer long or longer. The pi-Lit® Remote-Control unit needs to communicate with any single lamp in the string; it may be number 15 or number 50. Hence, it is not necessary to position yourself closest to number 1, for example. Any safe location within 200 meters of any lamp will work perfectly. The pi-Lit® lamp will send the instructions up and down the string.
- 2) The pi-Lit® Remote-Control uses two standard AA Alkaline batteries. When inserting batteries, PROPER POLARITY IS IMPORTANT. The unit will not operate if the batteries are inserted incorrectly
- 3) The pi-Lit® Remote-Control is not designed to withstand prolonged exposure to rain or other wet weather.

Operation:

Power On/Off: The Remote-Control unit does not have an on/off button. It turns on anytime that you touch any button. The unit will turn off 30 seconds after the last press of any button.

If the Remote-Control **All Off** indicator flashes red, then it does not “hear” any lamps transmitting on the remote’s current Group ID (frequency). If the green LED is lit then it is communicating with at least one lamp in the same Group. To change the Remote-Control Unit’s Group ID press **Group**. The green LED under **Group** will indicate the **Group ID** chosen. Five **Group IDs** may be chosen from the Remote-Control. There are 5 Group IDs available.



NOTE: Pi-Lit® Barricade and Sunflower lamps operate on Groups 1-5. The Ice Cream Sandwich sequential flare operates on Groups 6-10. Therefore, Remote-Control Units for Barricade/Sunflower lamps will not control the Ice Cream Sandwich flare, nor will the Remote-Control for the flare operate the Barricade or Sunflower lamp.

- 1) **Group ID** – pi-Lit® lamps may be deployed in close proximity to multiple strings of lamps through the use of selected “Group IDs”. Each string using a different Group ID will behave independently of other strings. There is no limit to the number of lamps in any one group, even if there are multiple groups operating in close proximity. To control a string using the Remote-Control Unit, one must first set the Remote-Control Unit to the same **Group ID** as the string of interest. There are 5 **Group ID** choices on the Remote-Control Unit (1 through 5 for Barricade/Sunflower lamps; 6 through 10 for the ICS flare).
 - a) Press any button to turn on the Remote-Control Unit. The green LED will indicate which Group that the Remote is set to. Press the **Group** button again to cycle through the range of choices. If the **All Off green** LED flashes then the Remote-Control Unit is communicating with at least one of the lamps in the string. If the **All Off LED** flashes **red** then the Remote-Control Unit is not communicating with the lamps: It is set to a different Group ID or out of range.
- 2) **Inhibit Flash** – This function allows the operator to turn off the flashing lamps while maintaining the current sequence. The lamps will continue to communicate via radio and maintain their sequence order, but the lamp will not flash. This is different than **All Off**, which turns the lamps completely off for stowage. Battery life when the flash is “inhibited” is quite prolonged. We anticipate 6 months of battery capacity on the Barricade lamps, 3 months for the Sunflower, and 1 month for the ICS flare. When inhibited the device uses far less energy than when flashing and hence the operating period is significantly prolonged. It is the bright flashing LED that uses most of the energy. When **Inhibit** is pressed again, the lamps will begin to flash in proper sequence.

Please remember that when the inhibit function is activated only the LED of each lamp is inhibited. The radio communication between lamps continues, hence battery depletion is taking place. **HOWEVER**, battery life will

be substantially **longer** while the lamps are in the “inhibit mode”, as much of the battery drain is related to the LED flash. With the LED dark, less battery is being utilized. This is not to be used to turn off a string of lamps, but to inhibit their flashing for a period of time (minutes, days, weeks, etc.). To turn off the lamp completely, either press the **All Off** button

for 2 seconds on the Remote-Control Unit, or press for 2 seconds the **Group** button on any lamp. *The **Inhibit** function allows for the operator to deploy lamps in a sequence and “turn them off” when leaving the site for the day or night or week. When returning to the work zone, the operator can drive by in their vehicle and turn the lamps on with a push of a button on the remote and they will be in sequence.*



- 3) **12/24 - Sunset** – When first deployed, the pi-Lit® lamps are defaulted to 24 hour mode. This allows the operator to see them operating during daylight hours so that they can be “aimed” properly at oncoming traffic, the pattern chosen, etc. When deployment is complete, the operator has the choice to press the **24 Hour/Sunset** button to activate the photo-detector which places the lamps in “sleep” mode during the daylight hours.

- a) Press the **12/24 Hour** button on the Remote-Control. The Green LED will toggle back and forth between **24 Hour** (all day) or **Sunset** (dark hours only). Battery life is enhanced in 12 hour mode.
 - b) **NOTE 1:** It may take several minutes for the lamps to turn off or turn on once changing the **12/24 Hour** mode. The proprietary software is averaging the light sensed by the photo-detector to determine whether night has fallen, or a cloud has passed overhead, or whether dawn has arrived or a car has passed by.
 - c) **NOTE 2: The 12/24 hour function on the Remote-Control unit has no action when operating the ICS flare.**
- 4) **Steady-Burn illumination – (Default is no steady-on illumination)** In some states, a steady-on LED between flashes is preferred. *pi-Lit®* Barricade Lamps provide the flexibility of **sequential flashing with or without a steady-on feature**. To activate steady-burn, press the **Steady Burn** button.
NOTE: The Steady Burn function on the Remote-Control unit has no action when operating the ICS flare.
- 5) **Membrane Locking** - To avoid curious fingers from pressing buttons and disrupting operation of the lamps, the operator is able to lock **ALL** of the buttons on **ALL** of the lamps from a single remote control (or from any lamp). Simply press the **Key Lock** button (Remote-Control Unit) for a moment and this will lock the membranes. The green LED will flash to indicate that the *pi-Lit®* lamps' buttons have been locked. When locked, pressing **Pattern, 12/24, On/Off**, etc., on the lamp will **not** change the lamp settings. By momentarily pressing **Key Lock** button (on the Remote-Control Unit) again the buttons will be unlocked on all of the lamps in the group.
NOTE: The Key Lock function on the Remote-Control unit has no action when operating the ICS flare.
- 6) **Pattern (see note at end of instructions)** – One feature of the *pi-Lit®* Sequential Lamp system is the ability to select different flash patterns. There are five factory choices.
a) Press the **Pattern** button. The green LED will illuminate to indicate the current **Pattern** choice (1 of 5 choices). At this point the operator may press the **Pattern** button to cycle through the various **Pattern** choices. The green LED will indicate which pattern has been chosen.
NOTE: New Feature! Patterns 4 and 5 have been modified. Pattern 3 is now the “wave” pattern; Pattern 4 is a fast march; Pattern 5 is all lamps flashing **simultaneously**.
- 7) **Turning Off an Entire String** – An important safety feature of the Remote-Control is the ability to turn all of the lamps off with a single press of a button from a safe location. This allows collection of the lamps from the road side without having to turn them off individually, either on the roadside or in the vehicle.
a) Using the Remote-Control Unit, press and hold the **All Off** button for 2 seconds. The red LED will flash. Release the button. All of the lamps in the string will turn off after 4 or 5 flashes (4 or 5 seconds). The lamps will no longer remember their sequence number but will retain the **Group ID, Pattern, 12/24 Hour** status, and LED flash duration (100 versus 200 millisecond)

- 8) **Face - Bi-Directional Flash Control – (Default is both directions)** When using the Remote-Control with the pi-Lit® Barricade Lamp, front (one-direction) or back or both(two-direction) can be chosen. If the operator prefers light emanating from the lamp in two directions, that is, front and back, then press the **Face** button. The green LED will indicate the current choice.

NOTE: ICS Flare-The “Face” button on the Remote-Control will control the choice of LED flash on the ICS flare. Either the default (gravity sensitive), top LEDs, or side LEDs may be chosen with the “Face” button on the Remote-Control unit.

- 9) **NEW FEATURE:** All the pi-Lit® sequential products may now be commanded to reverse the direction of sequence. This can be controlled at the lamp itself, or at the Remote-Control unit. Press the **Pi (π) button to reverse the sequential flash.**

- 10) **Battery Status of Remote-Control Unit** – The operator can check the status of the 2 AA-Alkaline batteries powering the Remote-Control Unit. Press and hold the **Pi (π)** function button for **2 seconds**. The Pattern LEDs will illuminate to indicate the status of the battery. Five greens indicate that the batteries are fresh. As the battery is depleted, the number of green LEDs will indicate the level.

***NOTE:** Pattern choice – The team at Pi Variables, Inc., has tested extensively the impact that different patterns have on driver perception. These data are neither published nor scientific. However, they may act as a guide for arriving at your own impression.



- 1) Pattern 1 – Single Lamp Flashing – Good general purpose sequence. (100 msec. flash)
- 2) Pattern 2 – Two Lamps Flashing – More noticeable from a distance – good for taper
- 3) Pattern 3 – “Wave” pattern. The flash tails off. A more calming march pattern.
- 4) Pattern 4 – Fast March – More dramatic; more impact; more attention getting.
- 5) Pattern 5 - NEW! Simultaneous – All lamps flashing at the same time.

It is **STRONGLY** recommended that the operator cycle through the various patterns to establish their own preference for each application.

We love to hear from our customers. Please telephone or email with any questions. (949) 415-9411 or info@pi-lit.com