



User Guide

Rev. 1.0

Simple and Smart

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1. Introduction

Cryopak Verification Technologies, Inc. offers new and advanced temperature indicator.

Cryopak's new K1 is now available with the option to monitor 1 or 2 temperature thresholds, with a long battery life, pre-programmed and start & stop feature and much more. K1 can be used to monitor the cold chain for perishable food product, blood, vaccines and many other applications.

K1 is entirely electronic device unlike chemical indicators which may contain hazardous chemicals.

2. Safety instructions



In no circumstance should heavy force be applied to your K1 logger. Applying heavy force to any part of your K1 could result in logger malfunction and/or injury.



Your K1 logger should only be operated within the parameters specified in the technical data discussed within this user manual. A failure to follow these instructions could result in your K1 logger malfunctioning and cause permanent damage to the unit.



Your K1 logger is not to be subjected to a naked flame. Exposures to such conditions may result in damage to your K1 logger, and result in an explosion of the battery.



Do not attempt to repair or modify any part of this logger. Such actions will result in a loss of warranty. All repairs are to be made by an official ESCORT Verification Technology service.



If a K1 PCBA or sensor comes into direct contact with moisture it will not perform accurately.



Once your logger's sleeve has been opened your K1 logger is no longer covered by warranty.

3. Product code

The product code for K1 temperature indicator is identified as
 K1-1 1 temperature threshold
 K1-2 2 temperature thresholds

K1 is the product name

For ease of communication, the dashes within the product code may be omitted.

All K1 data loggers are fitted with two LED's.

4. Memory size

The K1 temperature indicator has a small memory to hold the information of any excursion based on the program parameters, which triggers respective alarm LED

5. Features

- Superior to chemical indicators
- Rear label specifying product code and serial number plus bar coded serial number according to EAN 128;
- Multifunction LEDs;
- One or two alarm options
- Light weight - 6 grams (including battery);
- Preprogrammed to customer specifications
- Start and Stop function
- Optional start delay for climate acclimation;
- CE compliant;
- Long battery life
- Contained in waterproof pouch
- Non-stop monitoring
- Two LEDs provide instant status

6. Specifications

Description	Specifications
Product Code	K1-1 K1-2
Alarm Thresholds	K1-1 One Temperature threshold

	K1-2 Two Temperature thresholds
Sensor	Internal
Temperature Range	-40 °C to +80 °C -40 °F to +176 °F
Sensor Response Time	T90 of 5 minutes in moving air
Sensor Location	Internal
Preprogram Option	Factory programmed
Start Option	Push button
Stop Option	Yes, Push button
Size	40x50x3 mm (with sleeve)
Weight	6 grams
Case Material	Plastic sleeve
Battery	3.0V
IP Rating	IP 67
Other Certification	ISO9001:2008, RoHS

7. Picture



8. Size & Dimensions

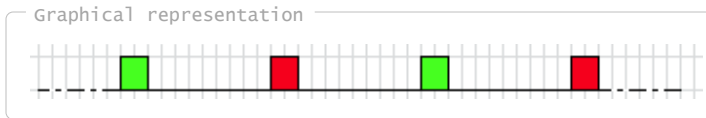
K1 is very compact in size, 40x50x3 mm (with sleeve)

9. Operation

The K1 has two LEDs to indicate the alarm and device status. LEDs will function during operation or when any of the alarms is triggered.

9.1. New K1

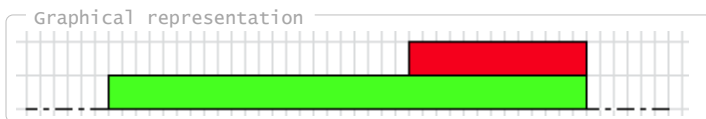
New received K1 unit will flash RED and GREEN LEDs one after another every 3.6 seconds non-stop until the K1 is manually started.



Pressing START (🔴) button in this mode will turn on GREEN LED. Make sure not to press (🔴) button until ready to start the K1 indicator.

9.2. To Start

Press (🔴) (start button) and hold it (pressed) for 10-15 seconds. Initially GREEN LED will be solid lit, then both RED and GREEN both LEDs will be solid lit.



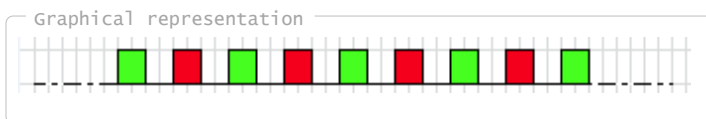
At this time let go (🔴) button, GREEN LED will blink rapidly for 2.8 seconds.



K1 has started.

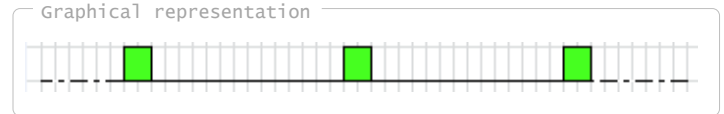
9.3. Start delay

If K1 is requested with a delayed start, the unit will be configured with delay start mode. In delayed start mode unit will go in delay countdown mode. Unit will flash RED and GREEN LED one after another each second till the delay time has met.



9.4. No Start Delay (within spec.)

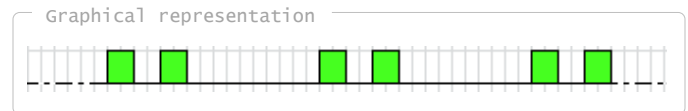
If the K1 is configured without delay or when the delay time has met, it will start monitoring the temperature and if the temperatures are within defined range it will blink GREEN LED every 6.8 seconds (as long as no alarm has been triggered).



9.5. During alarm delay

If an excursion happen and K1 is in alarm delay mode (total and/or consecutive alarm delay), the GREEN LED will start flashing twice every 4.8 seconds. This conditions appears in the event of first alarm (if unit is configured for two alarms).

- Only Low Alarm delay or
- Only high alarm delay



In the event of second alarm the alarm delay time cannot be displayed with the LED's however it will count the alarm delay in background and display respective LEDs accordingly.

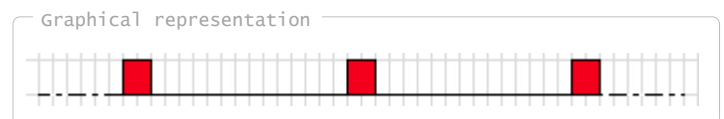
9.6. During an Alarm

In the event of an alarm (based on the programming parameters if the K1 is configured for 1 or 2 alarms) the RED LED will flash to represent, which alarm has been triggered. There can be three different scenarios,

- Only LOW alarm is triggered
- Only HIGH alarm is triggered
- Both LOW and HIGH alarm is triggered (for product code K1-2)

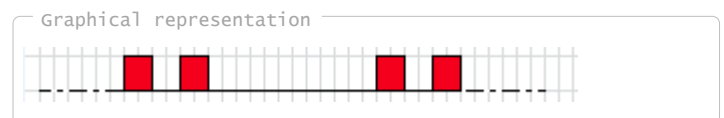
9.6.1. Only LOW Alarm

When only the LOW alarm is triggered, K1 will flash RED LED once every 6.8 seconds. RED LED will blink Non-stop, even after the unit is manually stopped, until the end of battery life.



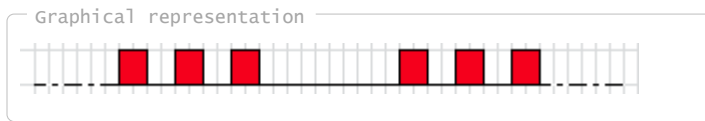
9.6.2. Only HIGH Alarm

If only the HIGH alarm is triggered, K1 will flash RED LED twice every 5.7 seconds. RED LED will blink Non-stop, even after the unit is manually stopped, until the end of battery life.




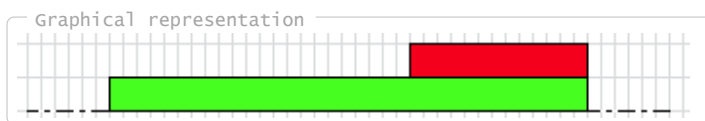
9.6.3. Both HIGH & LOW Alarm

If both High and LOW alarms are triggered, K1 will flash RED LED three times every 4.8 seconds. RED LED will blink Non-stop, even after the unit is manually stopped, until the end of battery life.



9.7. To Stop

After the designated trip, K1 can be manually stopped by pressing  button (press & hold) for 10-15 seconds. Initially GREEN LED will be solid lit, then both RED and GREEN both LEDs will be solid lit.



At this time let go  button, RED LED will blink rapidly for 2.8 seconds.



K1 has stopped.

The respective alarm LED pattern will remain until the battery is completely depleted.

10. Battery Life

Below is the information of battery life K1 temperature indicator.

Battery life		
Phase	Event	Estimated
Shelf life	Not in use	3 years
During use	1 Alarm/ 1 LED flash	2.5 years
	2 Alarm/ 2 LED flash	2 years
	3 Alarm/ 3 LED flash	2 years

11. Details

- K1 is powered by 3.0-volt coin battery.

- All the units are tested (100%) independently in our test chambers for the accuracy.
- Double sided tape can be requested through sales if the K1 is need to be attached to any surface (additional charges apply).
- Each K1 unit will be shipped with unique serial number.
- Configuration parameters will be displayed on the unit.

12. Warranty info.

(Clause from CVT Terms & Conditions)

9.1 CVT's warranties in respect of the Products are:

(a) The warranties and conditions implied by the Uniform Commercial Code

Article 2, Part 3 312(Warranty of Title and Against Infringement), 313-2(b) (sale by description) and 314-2, 315 (merchantable quality); or

(b) A specific warranty or Product specification included in the Order Confirmation or on the CVT website www.cryopak.com.

9.2 The warranty in subclause 9.1 is to the exclusion of all other warranties, conditions and liabilities wherever expressed or implied and whether arising in contract, court or by statute or otherwise.

9.3 No representation in relation to the Products shall be binding on CVT unless in writing and signed by CVT or one of its Directors, or included in either of the warranties detailed in clause 9.1.

9.4 CVT will not be liable for any personal injury, property damage, consequential or contingent loss or damage caused through the negligence or otherwise of CVT, its servants or agents or rising out of the goods being defective or otherwise not in accordance with any warranty given.

10. Specific Warranty Provisions

10.1 Warranty is understood as "return to base". You will be responsible for freight/taxes and duties back to CVT; CVT will pay the return freight back to You.

10.2 Product Warranty is twenty four months on all products, except for the Single Trip loggers where the warranty term is limited to a single trip to be performed within the 24 month period. This does not include batteries.

10.3 The warranty does not cover:

- RH calibration later than 1 year after production, or if the unit has been subject to environmental conditions outside those specified.
- Willful damage, mistreatment, misuse or abuse of the goods.
- Loss or damage caused by ingress of moisture unless ordered with immersion rating;
- Batteries
- Circumstances where the unit has been modified from CVT specifications.
- Exposure of the logger to temperatures outside the specified storage temperature, or operating temperature.

(g) Exposure to environmental conditions outside the specified conditions.

(h) Circumstances where the printed circuit board has been removed or tampered with.

10.4 In the case of a warranty claim CVT will repair the Product or, at its option supply an equivalent replacement.

10.5 In some circumstances, where a specific return is authorized, CVT, may permit the use of its Federal Express account number for returning Product. Such permission is valid ONLY for that authorized shipment. CVT will not accept any freight charges for goods that have been returned without its express permission.

10.6 You may return Product to CVT for accuracy testing, if there are reasonable doubts as to the Products overall accuracy.

10.7 If a Product is returned within the warranty period, a Traceability Certification will be performed. Should the logger read within the specifications, a Traceability Certificate will be issued and You will be charged with the cost and the cost of return freight. If the logger does not pass the certification, ie: the logger is at fault, the logger will be replaced or repaired. The new or repaired logger will be issued with a Traceability Certificate free of charge.

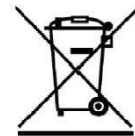
10.8 If the Product is returned outside the warranty period, a Traceability Certificate will be issued and charged regardless of the outcome of the test.

10.9 CVT will not pay for any performance tests undertaken by any outside organization, without prior approval



Recycling of electronic devices

Some parts in products from Cryopak Verification Technologies consist of recyclable materials, but others should not be disposed of in household waste. To avoid pollution, we kindly ask you to adhere to national policies and regulations concerning waste disposal and recycling. K1 data loggers must be returned to your distributor for disposal (European Standard EN 50419:2005).



13. Contact details

If you require further information regarding **CRYOPAK Verification Technologies, Inc. products** please contact us at:

USA

Mailing Address: PO Box 309, Buchanan, VA 24066
 Office: 120 Parkway Drive, Buchanan, VA 24066
 Phone: +1-540-254-1433
 +1-732-346-9200 Ext.131
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Phone: +1-514-324-4720
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You can find additional information regarding all of our products on our website:

www.cryopak.com
<http://www.cryopak.com/en/k1>