

# How to Operate the Fridge-tag® 2L Temperature Monitoring Device

Providers enrolled with the Idaho Immunization Program (IIP) are required to monitor vaccine storage unit temperatures with a calibrated, continuously recording temperature monitoring device measuring the daily minimum and maximum temperatures. The IIP supplies one Berlinger Fridge-tag® 2L for each 24-hour storage unit holding IIP-supplied vaccine. For additional information regarding temperature monitoring devices and requirements, please refer to the IIP [Provider Policies & Guidelines](#).

This documentation provides guidance to clinic staff about how to document daily temperatures, download and save monthly temperature logs, respond to alarms, and adjust the time.

The Fridge-tag® 2L comes in two colors; yellow for refrigerators and blue for freezers. Providers must ensure the correct device is placed on the appropriate unit.

## How to Monitor Daily Temperatures

At the start of each clinic day:

1. Look at the Fridge-tag® 2L display to view the current temperature and check the *Alarm state*. If no alarm is indicated (“✓”), proceed to step 2. If an alarm is indicated (“X”), then:
  - a. Quarantine vaccine until viability can be determined,
  - b. Download the temperature file (see **How to Download Fridge-tag® 2L** section below),
  - c. Report the *Alarm* to the Idaho Immunization Program immediately ([Vaccine Temperature Incident or Alarm Report](#)), and
  - d. Refer to **How to Address a Fridge-tag® 2L Alarm** section below.
2. Press the READ button, circled in red below, to view the warmest (maximum) temperature since midnight.
3. Press the READ button a second time to view the coldest (minimum) temperature since midnight.
4. Press the READ button a third time to view the warmest (maximum) temperature from the previous day.
5. Press the READ button a fourth time to view the coldest (minimum) temperature from the previous day.



A ✓ in the lower left corner of the Fridge-tag® 2L indicates that there have been no out of range alarms since temperatures were last verified.



After following the steps above, the Fridge-tag® 2L will display a time stamp in the *Events* column of the PDF report (discussed below), fulfilling the requirement to document the daily minimum and maximum temperatures. As best practice, the IIP recommends documenting the minimum, maximum, and current temperatures at the start of clinic day on the [Min-Max Temperature Log – Refrigerator](#) and [Min-Max Temperature Log - Freezer](#).

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If out-of-range temperatures are identified while checking the minimum and maximum temperatures at the start of each clinic day, even if an alarm ("X") is not indicated, then:

- Quarantine vaccine until viability can be determined,
- Download the temperature file (see **How to Download Fridge-tag® 2L** section below), and
- Report the out-of-range temperature(s) to the Idaho Immunization Program immediately ([Vaccine Temperature Incident or Alarm Report](#)).

## How to Check Previous Temperatures

The Fridge-tag® 2L displays a month of daily minimum and maximum temperatures on the screen, as indicated by the red box in the picture below. Pressing the READ button multiple times allows the user to scroll back through the month to view the minimum and maximum temperatures from each day. The blinking arrows ▲▼ along the top of the display indicate which day's temperatures are currently displayed.

If the ▲▼ symbols are displayed along the top of the screen, even when not scrolling through that day, this indicates a temperature excursion took place on the specific day. After acknowledging an alarm, the arrows will remain on the screen. Each day, they will move to the left one place. The bars above the display indicate how many days in the past a temperature incident occurred. After 30 days, this information is found in the downloaded PDF file.



The direction the arrow is pointing will indicate if the temperatures exceeded the maximum temperature ▲, or dropped below the minimum temperature ▼ during that day's excursion. If both symbols are displayed on top of each other ◆, this indicates one of two situations has occurred: two or more temperature excursions took place that day, one above and one below the acceptable temperature range, or the unit was disconnected from the probe for more than 15 minutes triggering an external sensor alarm.

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The Fridge-tag® 2L has two report types: a PDF report and a TXT file. Providers **must**:

- Download temperatures monthly,
- Save a copy of both reports at the clinic for a minimum of three years, and
- Email the PDF report only to the IIP at [IIP@dhw.idaho.gov](mailto:IIP@dhw.idaho.gov) **no later than the 7<sup>th</sup> of each month** for the previous month's temperatures.
  - After reviewing the monthly PDF report, IIP staff may request the TXT file so it is imperative that both reports be saved at the clinic.

## How to Download the Fridge-tag® 2L

Prior to downloading the temperature files, the IIP recommends creating a folder on the clinic's computer where the monthly temperature files can be saved and accessed for review.

To download the temperature files:

1. Disconnect the Fridge-tag® 2L from the probe (leaving the probe and buffer inside the storage unit).
2. Pull the black USB cord, shown in the picture above, out from the top of the Fridge-tag® 2L and connect to a computer USB port.
3. If the device does not automatically open on the computer, open File Explorer, found in the Start Menu, and navigate to the Fridge-tag® 2L USB drive, which will look like the graphic below.



4. Double-click on *FT-2 L* to access the temperature files.
5. Two files will be displayed: PDF and TXT.
6. Double-click on the PDF to open the file. After it opens:
  - a. Click *File*,
  - b. Click *Save As*,
  - c. Select where in the computer the file will be saved, and
- d. Rename the file as VFCPin# Fridge or Freezer Date Downloaded MMDDYY.pdf (e.g. 123 Fridge 013118.pdf).

*Note: Using this naming convention will help ensure the IIP has record of receiving the monthly temperature files for the clinic. If more than one storage unit of the same type is used at the clinic, then include an identifier in the file name (e.g. 123 Fridge-Nurse Station 013118.pdf) and ensure that unit is named with the same identifier each time it is downloaded.*

7. Repeat the steps above for the TXT file.
8. Repeat steps 1-7 for all other Fridge-tag® 2L devices in the clinic.
9. Attach the PDF file(s) to an e-mail and send to the IIP at [IIP@dhw.idaho.gov](mailto:IIP@dhw.idaho.gov), if necessary.
10. Once completed, place each Fridge-tag® 2L back on the appropriate storage unit and plug the probe back into the device.

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## How to Read the Fridge-tag® 2L PDF Temperature Report

Below is an example of a Fridge-tag® 2L PDF report for a refrigerator:

### PDF document of the Fridge-tag® 2 L

Identification number: 510500023788  
 Date and time of report creation: 08/04/2017 08:46h  
 Activation date: 07/13/2017 12:01h  
 Site Name:  
 PIN:  
 Upper alarm limit: Above +46.4°F for 30min  
 Lower alarm limit: Below +35.6°F for 15min  
 Measurement interval:<sup>1)</sup> 1min (fixed)  
 Logging interval: 5min

No.	Date (MM/dd/yyyy)	Events <sup>2)</sup>	Average temp.	Lower alarm limit				Upper alarm limit				Ext. sensor connection error			Signature / notes Action taken
				Status	Min. temp.	Cumulative daily time below the limit	Alarm trigger time	Status	Max. temp.	Cumulative daily time above the limit	Alarm trigger time	Status	Duration	Alarm trigger time	
1	Today	06:44	+39.9°F	In progress	+39.5°F	0min		In progress	+40.8°F	0min		ALARM	59min	08:03h	
2	08/03/2017	08:27,16:08	+40.2°F	ok	+38.6°F	0min		ok	+42.4°F	0min		ok	0min		
3	08/02/2017	06:47,22:11	+40.4°F	ok	+39.2°F	0min		ok	+42.4°F	0min		ok	0min		
4	08/01/2017	06:41,17:11	+40.1°F	ok	+39.3°F	0min		ok	+41.9°F	0min		ok	0min		
5	07/31/2017	06:43,16:47	+40.2°F	ok	+39.7°F	0min		ok	+42.8°F	0min		ok	0min		
6	07/30/2017	08:58,16:32	+41.0°F	ok	+38.6°F	0min		ok	+43.8°F	0min		ok	0min		
7	07/29/2017	07:32,18:59	+39.9°F	ok	+36.3°F	0min		ok	+43.5°F	0min		ok	0min		
8	07/28/2017	06:44,12:46	+37.9°F	ok	+35.7°F	0min		ok	+40.8°F	0min		ok	0min		
9	07/27/2017	06:38,17:13	+37.0°F	ALARM	+33.0°F	1h 44min	18:16h	ok	+39.9°F	0min		ok	1min		
10	07/26/2017	06:45,18:07	+39.7°F	ok	+38.6°F	0min		ok	+42.4°F	0min		ok	0min		
11	07/25/2017	06:39,20:40	+40.1°F	ok	+37.5°F	0min		ok	+42.0°F	0min		ok	0min		
12	07/24/2017	06:38,16:49	+40.2°F	ok	+39.2°F	0min		ok	+42.2°F	0min		ok	0min		
13	07/23/2017	07:11,21:05	+39.7°F	ok	+37.9°F	0min		ok	+43.8°F	0min		ok	0min		
14	07/22/2017	06:33,16:57	+39.3°F	ok	+37.2°F	0min		ok	+41.5°F	0min		ok	0min		
15	07/21/2017	06:43,16:49	+39.9°F	ok	+38.8°F	0min		ok	+41.5°F	0min		ok	0min		
16	07/20/2017	06:42,18:18	+39.5°F	ok	+36.8°F	0min		ok	+42.2°F	0min		ok	0min		
17	07/19/2017	06:49,18:23	+39.5°F	ok	+37.7°F	0min		ok	+42.4°F	0min		ok	0min		
18	07/18/2017	07:09,16:43	+39.3°F	ok	+37.5°F	0min		ok	+41.7°F	0min		ok	0min		
19	07/17/2017	06:52,13:02	+38.6°F	ok	+37.4°F	0min		ok	+40.4°F	0min		ok	0min		
20	07/16/2017	13:52	+37.2°F	ALARM	+34.5°F	40min	16:52h	ok	+41.7°F	0min		ok	0min		
21	07/15/2017	09:16,12:14	+38.1°F	ok	+34.8°F	51min		ok	+41.0°F	0min		ok	0min		
22	07/14/2017	06:55,16:32	+35.9°F	ALARM	+34.3°F	3h 11min	21:53h	ok	+37.7°F	0min		ok	0min		
23	07/13/2017	12:02	+34.7°F	ALARM	+31.9°F	7h 22min	12:43h	ok	+37.9°F	0min		ok	2min		

<sup>1)</sup> Sampling and data analysis every minute  
<sup>2)</sup> t = time / date changed, hh:mm = status checked

The information in the upper left corner indicates the identification (serial) number of the device, the date the report was created, and the date/time the device was initially activated. Additionally, the upper and lower alarm limits are defined, as shown within the red box.

The **Events** column indicates the time when the *READ* button was pressed at least two times. If the *READ* button is pressed in the morning and again in the afternoon, then two times will be displayed for that date; one showing what time temperatures were checked in the morning and one showing what time temperatures were checked in the afternoon. Note: all times are displayed in 24-hour military time (e.g. 2:00 PM equals 14:00).

Providers are only required to check the minimum and maximum temperatures at the start of each clinic day. Therefore, at least one-time stamp should be displayed in the *Events* column for each day the clinic was open.

The **Average temp.** column indicates the average temperature for that date, from midnight until 11:59 PM.

The **Lower alarm limit** and **Upper alarm limit** sections, denoted by bold outlines, each contain the following four columns of data:

1. **Status** – The daily temperature summary, which can be one of the following:

a. **ok**

- i. **Lower alarm limit:** The temperature in the vaccine storage unit did not go below the acceptable lower limit of 35.6° F (2° C) for more than 15 minutes.

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- ii. **Upper alarm limit:** The temperature in the vaccine storage unit did not go above the acceptable upper limit of 46.4° F (8° C) for more than 30 minutes.
  - b. **ALARM:** The temperature in the unit went **below** or **above** the acceptable range of 35.6° F - 46.4° F (2° C - 8° C) for 15+ minutes (lower alarm limit) or 30+ minutes (upper alarm limit).
  - c. **In progress:** The temperatures for the current day are still being recorded and out of range temperature data are still being collected.
2. **Min. temp.** or **Max. temp.** – Indicates the minimum and maximum temperatures recorded on that date.
  - a. On occasion, a temperature below the acceptable minimum of 35.6° F (2° C) may be indicated in the **Lower alarm limit** section and the *Status* column will indicate “ok”; this is because the minimum temperature was not out range for 15 minutes or longer.
  - b. On occasion, a temperature above the acceptable maximum of 46.4° F (8° C) may be indicated in the **Upper alarm limit** section and the *Status* column will indicate “ok”; this is because the maximum temperature was not out of range for 30 minutes or longer.
3. **Cumulative daily time below or above the limit** – The duration in hours and/or minutes that temperatures were below or above the acceptable range of 35.6° F – 46.4° F (2° C - 8° C).
4. **Alarm trigger time** – The time that the alarm was triggered.

The **Ext. sensor connection error** section contains three columns of information, which are:

1. **Status** – Indicates if the probe was securely connected to the Fridge-tag® 2L and recording data.
  - a. **ok:** The probe was securely connected and recording temperatures.
  - b. **ALARM:** The probe was not securely connected and not recording temperatures for 15 minutes or longer.
2. **Duration** – Indicates how long, in hours and/or minutes, the probe was disconnected from the device.
3. **Alarm trigger time** – The exact time the external sensor alarm was triggered.

The white probe, shown below, can be disconnected from the Fridge-tag® 2L for up to 15 minutes before the external sensor alarm will be triggered. This should allow time to disconnect the device, download the temperatures, and return the device to the vaccine storage unit to resume temperature recording. **Please do not keep the probe disconnected from the Fridge-tag® 2L for more than 15 minutes.**



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## How to Address a Fridge-tag® 2L Alarm

If an alarm is indicated (“X”):

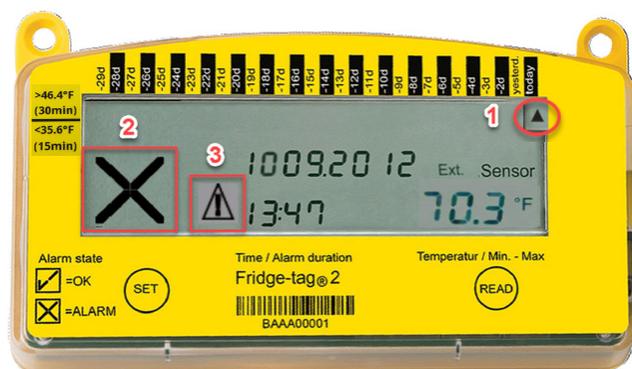
- a. Quarantine vaccine until viability can be determined,
- b. Download the temperature file (see **How to Download Fridge-tag® 2L** section above), and
- c. Contact the Idaho Immunization Program immediately.

The Fridge-tag® 2L has three (3) alarm indicators; each one is numbered below and outlined in red. Additionally, there is an audible beep. In the event of an alarm, the audible alarm will immediately trigger by sounding three (3) beeps. After this initial trigger, and if the alarm is not immediately addressed, the beeps will occur less frequently, per the following schedule:

- During 10 minutes after initial alarm – One beep every one (1) minute
- During 11 through 50 minutes after initial alarm – One beep every ten (10) minutes
- During 51 minutes through 11 hours after initial alarm – One beep every one (1) hour

If the alarm is not addressed within 12 hours, the audible beeps will stop. This is important to note if the device alarms after close of clinic day when the clinic will not be open again for 12+ hours.

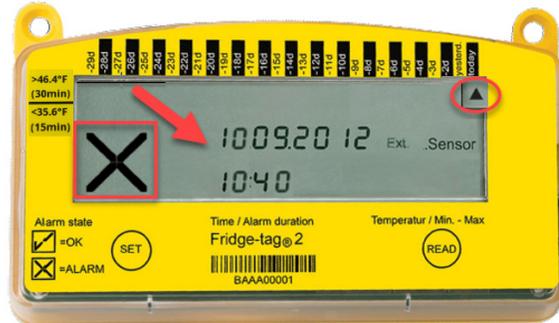
1. Arrows indicate high ▲ or low ▼ temperature alarms.
  - a. The position of the alarm indicates the day the alarm occurred (e.g. -4d = 4 days ago).
2. X indicates *Alarm state*.
3. The warning symbol ⚠ can be disregarded if the device is not in an *Alarm state* as mentioned above. The presence of this symbol alone is a manufacturer warning setting indicating temperatures were not reviewed twice daily. The IIP only requires min/max temperatures be documented once daily at the start of each clinic day.



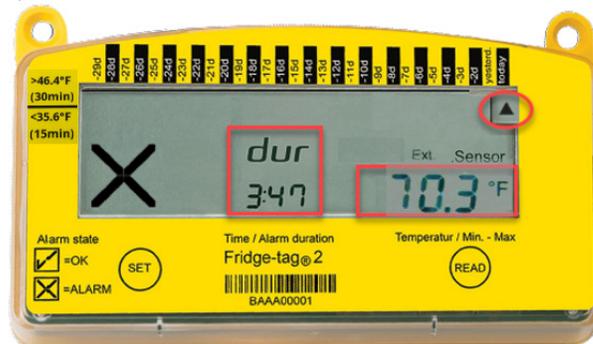
To review and clear a Fridge-tag® 2L alarm, press the READ button enough times to scroll past the day when the alarm occurred. Using the alarm indicated in the picture above as an example,

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1. Press the READ button.
  - a. The up arrow will blink.
  - b. The date and time of the high alarm will display.



2. Press the READ button a second time.
  - a. The up arrow will continue to blink.
  - b. The duration temperatures were above the acceptable maximum of 46.4° F (2° C) will display.
  - c. The highest recorded temperature will display.

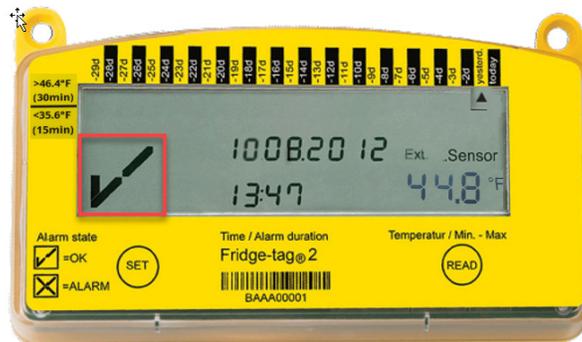


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3. Press the READ button a third time.
  - a. The down arrow will blink.
  - b. *Alarm state* indicates OK because the lowest recorded temperature was above the acceptable minimum of 35.6° F (2° C).
  - c. The lowest recorded temperature will display.



4. Press the READ button a fourth time.
  - a. The alarm is acknowledged (X disappears) and the *Alarm state* indicates OK.
  - b. Memory records the *Alarm state* was acknowledged.



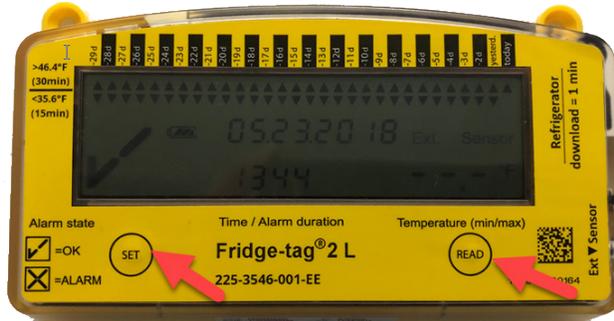
Note: Although the X is cleared and the *Alarm state* indicates OK, the up arrow will remain at the top of the display as a reminder of the out-of-range temperature alarm on that day.

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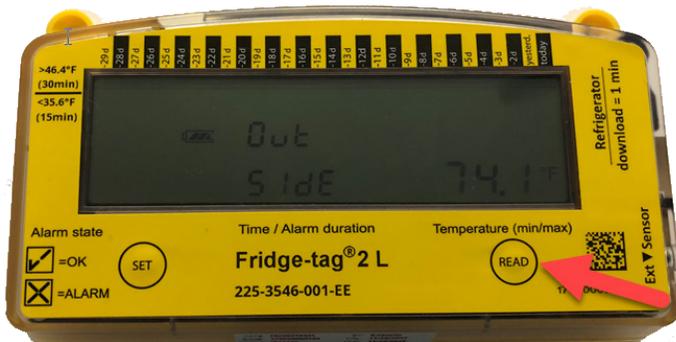
## How to Adjust the Fridge-tag® 2L Time

The clinic may wish to update the time on the Fridge-tag® 2L device when Daylight Savings time starts/ends.

1. Press Both the SET and READ buttons simultaneously and release quickly.



2. When the Fridge-tag® 2L device is in Change mode, the device will display “Out Side”. Press the READ button one time.



3. The screen will display “Set Date”, press SET to start changes.



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4. The current date format (mmdd20yy) will be shown, press SET to confirm.



5. The first digit will flash; when a digit is flashing, it can be changed. Press the SET button to scroll to the time. Once positioned to the digit to update, press READ button to advance numerically by one. When the correct adjustment has been made, press SET to save the changes and return to the main display.

