Fridge-tag

User Guide for National Immunization Programme

Sri Lanka

EPIDEMIOLOGY UNIT
MINISTRY OF HEALTH

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Contents

1. What is a Fridge-tag?

Fridge-tag is a Data Logger design for the continuous temperature monitoring in vaccines storage points in the EPI programme.
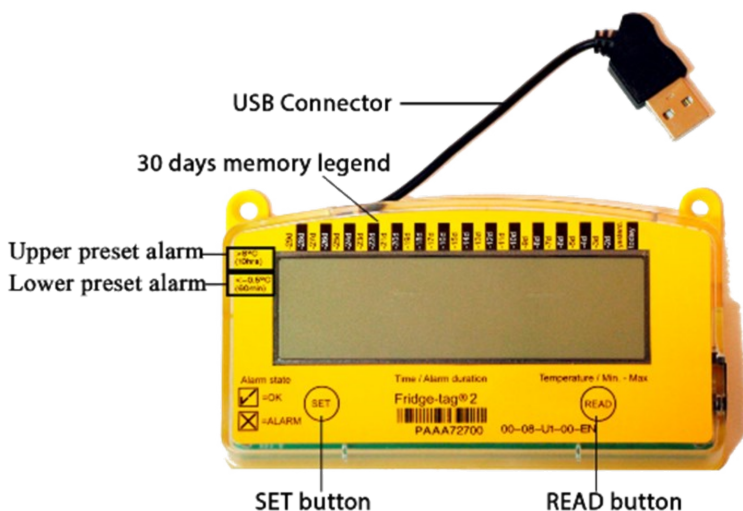
2. Parts of the Fridge-tag

Figure 1 Parts of the Fridge-tag

2.1 <u>30 days memory legend</u>

Just above the upper margin of the fridge tag display, a 30 days memory legend has marked beginning from today to minus 29 days

2.2 <u>Upper and lower preset alarm</u>

The Fridge-tag has two preset temperature/time limits. If the Fridge tag gets exposed to the defined temperature limits, it indicates as alarms. High preset alarm has adjusted to more than $+8^oC$ continuously for more than 10 hours while the low preset alarm has to lower than 0.5^oC continuously for more than one hour duration.

3. How to use the Fridge-tag

3.1 LOC function

The fridge-tag will stop storing temperature in following situations

1. while pressing the buttons (READ or SET button)

2. While fridge-tag connecting to the computer

After completion of these actions the Fridge-tag will not record temperature for 10 minutes from last button press and the in the display the "LOC" symbol will appear.

Figure 2 LOC function

3.2 Current temperature reading

The screen displays as follows (Fig 3)

- Current temperature reading (4.1^{o}C)

- Current date and the time(16.09.2016 12:54)

- OK ($\sqrt{}$) symbol will be shown as long as the fridge tag is kept at the preset alarm levels (between $+0.5^{o}$C to $+8^{o}$C) and duration and this level is maintained throughout for the last 30 days (today to minus 29th day).

Figure 3 Current temperature reading with no preset alarm levels violation

3.3 Current temperature reading with violations of preset alarm levels

The screen displays as follows (fig 4)

- Current temperature reading(6.01^oC)

- Current date and time (16.09.2016 17:15)

- The warning symbol ⚠ which indicates that, there is/are new preset alarm level violation/s which reader has not visualize.

Figure 4 Current temperature reading with preset alarm levels violations

- Alarm (X) symbol has appeared as there are violations of the preset alarm levels which has occurred at least ones, within last 30 days (form today to minus 29th day)

- Arrow head/s (non-blinking) will indicate in the upper display area to

show which alarm limit has been violated (upper and/or lower) and on which day/s.

3.4 Temperature reading in last 30 days

The user can visualize the highest and the lowest temperature recordings up to last 30 days. For this the user has to press the READ button accordingly.

3.4.1 Reading highest temperature non violated preset alarm levels

After pressing the READ button following will be displayed on the screen

- A blinking **upward** arrowhead ( ) for the corresponding day (today)
- **Highest** temperature reading for the corresponding day (10.2°C)
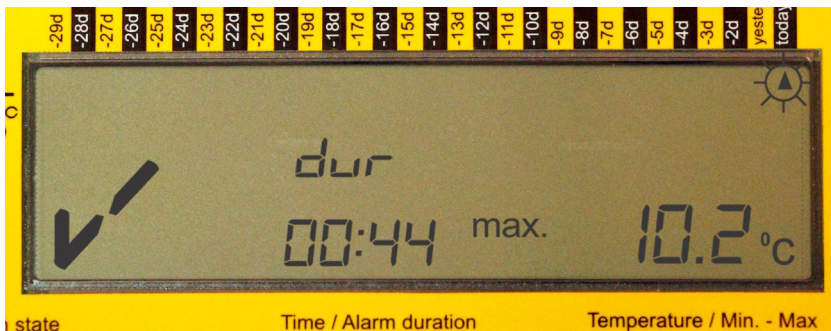- The duration of out of the highest preset temperature limit (00:44)

Figure 5 Fridge-tag with non-violated preset alarm levels - reading of highest temperature

- The OK (√) symbol is shown as there was no violation of the preset alarm levels in the corresponding day (more than +8°C but only for 44 minutes).
- max. sign to indicate the "maximum temperature"

3.4.2 Reading lowest temperature with non-violated preset alarm levels

After pressing the READ button again, following will be displayed on the screen

- A blinking **downward** arrowhead ( ) for the corresponding day (today)

- **Lowest** temperature reading recorded for the corresponding day (2.4°C)

- The duration of out of the lowest preset temperature limit (00:44)(as the exposed lowest temperature was above the preset alarm level(-0.5C) time duration shown as 00:00)

- The OK (√) symbol is shown as there was no violation of the preset alarm levels for the corresponding day.

- min. sign to indicate the "minimum temperature"

Figure 5 Fridge-tag with non-violated preset alarm levels - reading of lowest temperature

3.4.3 Reading lowest temperature with violated preset alarm levels

Two different screens will be displayed once the user moving the blinking arrowhead to the preset alarm levels violated day after repeatedly pressing the READ button.

The 1st screen will be displayed the following

- blinking arrowhead ( )

- Corresponding date (19.09.2016)

- The starting time of the temperature violation

- The alarm (X) symbol
- Warning sign

Figure 6 Visualizing the history of a Fridge-tag with preset alarm level violations – First display

After pressing the READ button again, 2nd display will be appear and it will indicate

- **Lowest or highest** temperature reading for the corresponding day
- The time duration out of the preset low temperature limit
- Warning symbol
- "min." sign (When showing the minimum temperature duration "min." sign will appear while displaying highest temperature "max." will appear)

Figure 7. Display of History mode of a Fridge-tag with alarm state – 2nd display

Once the reader visualizes the two displays the warning symbol will dis-appear. Until such time the warning sign will be appear in the display.

3.5 Visualizing the temperature records with PDF reader

3.5.1 <u>Requirements</u>

- A computer (desktop computer / laptop) with an installed PDF reader (such as Adobe PDF reader)

- You can download adobe PDF reader from adobe website

    https://get.adobe.com/reader/?source=1432

- Functioning Fridge-tag

3.5.2 How to take Fridge-tag printouts

Connect the Fridge-tag into the computer via USB connector.

Please note that the Fridge Tag is equipped with the USB connector which is inserted over the side of the Fridge-tag.

Based on the windows version in the computer select (Double click) the My Computer/ Computer/ This PC on the desktop or in start menu
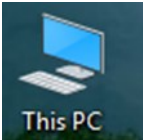
Windows XP	Windows 7/8	Windows 10

Figure 8 My computer icon

Windows explorer (as shown in the figure 9) will appear in the screen. Double click and open the FRIDGE-TAG2

As depicted in figure 10 "pdf" file will be appear and by double clicking on the file reader can visualize the recording as a table. If the reader wants to get a printout, follow the same procedure to print the pdf document.
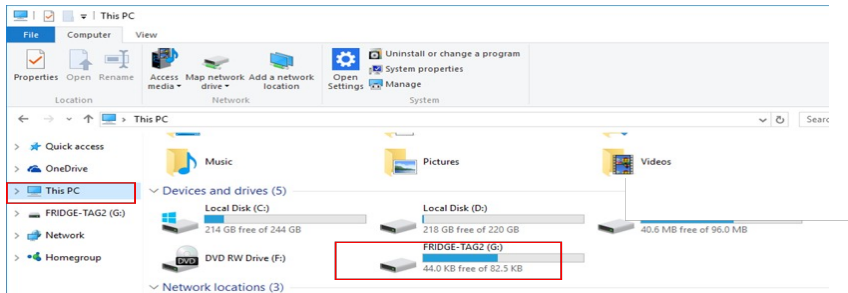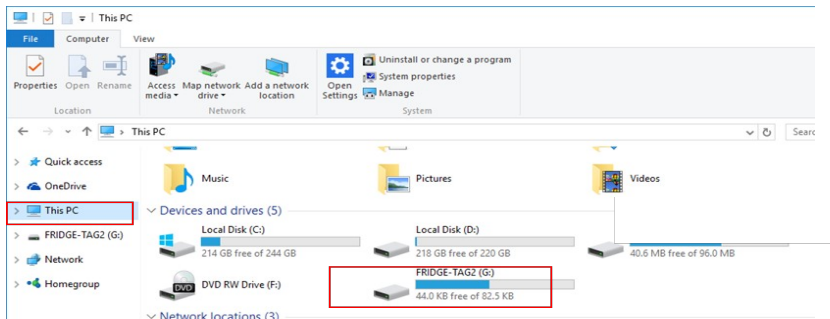
Figure 9 Windows explorer 1

Figure 10 Windows explorer 2

To ensure smooth functioning of the Fridge-tag, proper USB-port disconnection of the device is recommended. Therefore always use the "safely remove hardware" function on your computer before removing the Fridge-tag manually from the computer.
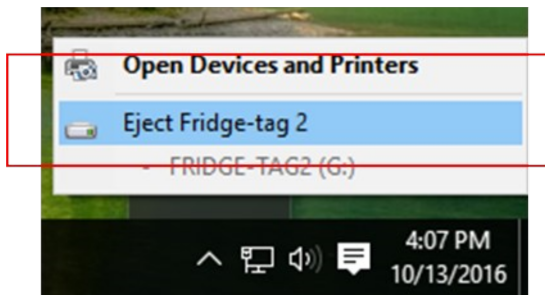

Figure 11 Removing of Fridge-tag

4. Advantages of the Fridge-tag

♦ Fridge-tag have a inbuilt USB connector

♦ No need of a special software to read the recordings

♦ Once connected to a computer, a automatically generated PDF document with displaying the information

♦ Can visualize recordings of 30 days on Fridge-tag display and 60 days recording after connecting to a computer

♦ Preset alarms for high/low (above +8°C continuously for 10 hours and low (-0.5°C continuously for 1 hour) temperature exposures

♦ Display the highest and lowest temperatures reached with their duration

♦ A user friendly device

5. Monitor Temperature with Fridge-tag

Fridge-tag in the refrigerator should be checked at least once a day. When checking the morning temperature, inside the refrigerator check whether the temperature is being maintained between $+2^0$C and $+8^0$C after obtaining the last temperature reading (previous day afternoon).

If the Fridge-tag indicates a warning signal, record as "Alarm" in the cold chain record and inform IMMEDIATELY to the MOH.

6. References

Berlinger & Co. AG, *Fridge-tag® 2 with internal sensor,* viewed 12 December 2017, pamphlet, Berlinger & Co. AG, Switzerland

Berlinger & Co. AG, *Fridge- tag® 2 storage temperature monitoring with USB port*, viewed 12 December 2017, pamphlet, Berlinger & Co. AG, Switzerland

World Health Organization, *Introduction of Fridge-tag®,* viewed 12 December 2017, pamphlet, WHO, Geneva

NOTES