Working with the TempTale® 4 (TT4) Monitor
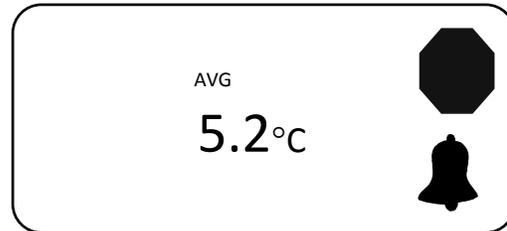
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1. Accessing and Reading Data on the TT4

1. Open the TempTale Manager Program on the computer. The "Start-Up Assistant" screen is displayed. Click on the icon beside "Read a TT4 Monitor."

2. The next screen reads, "Looking for Interface Plus on COM1." This screen occurs very quickly and may be missed.

3. To read the data on the TT4 put the TT4 on the Interface Plus unit (the Alberta Health label will be visible) and align the sensors (under the "Start" and "Stop" buttons on TT4) with the sensor readers on the Interface Plus unit and click OK.. If the "Stop" button on the TT4 was not pressed prior to attempting to access the data, a prompt box stating, "Would you like to stop this multiple-use monitor now?" will appear. The option of "Yes" or "No" will also be displayed. Click on "Yes" and the monitor will stop recording data.

4. The next screen reads, "Connecting to Monitor," followed by "Connected to TT4 Monitor. Reading configuration data."

5. The next screen reads, "Retrieving Monitor Data. Please wait."

6. The next screen indicates, "The Monitor was successfully read."

7. Remove the TT4 from the Interface Plus unit and click OK.

8. The next screen is a graph showing the temperature range during shipment. At the bottom of this screen, there are tabs for four data sheets containing information about the recorded temperatures of the vaccine shipment. Descriptions of the data sheets and printing instructions follow:

   - The **Graph** tab is the default and contains a pictorial summary of the data retrieved from the monitor. Data is displayed on a black background with the 2 to 8⁰C temperature range shown in green. A white line details the temperature ranges experienced during shipment. To print this page select the printer icon at the top of the screen or select "File," "Print" and "OK."

   - The **Summary** tab contains a synopsis of the data retrieved from the monitor and contained on the Tabular page. For shipments originating at the Provincial Vaccine Depot (PVD), staff at the PVD print the Summary page and attach it to the Vaccine Shipment Monitor Form when the TT4 is returned. This information is then attached to the Alberta Health Services Zone Depot order form, which details the amount and lot numbers of biologicals included in the order. This process provides confirmation that shipments from the depot were maintained within appropriate temperature ranges during shipment. If the shipment from the PVD experienced a cold chain break, the recommendations from Alberta Health (AH) are also attached to the PVD file. To print this page select the printer icon at the top of the screen or select "File," "Print" and "OK.

   - The **Tabular** tab contains a table showing the temperatures recorded every six minutes while the TT4 was activated. The data contained on the Tabular page can generate a large number of pages if printed. Printing is usually not necessary. This data can be very useful, however, in assessing a cold chain break. For cold chain breaks caused by exposure to temperatures >8⁰C, the data will be displayed in a red font. For cold chain breaks caused by exposure to temperatures <2⁰C, the data will be displayed in a blue font. To print this information select the printer icon at the top of the screen or select "File," "Print" and "OK." If there is selected data on the Tabular sheet to be printed, highlight the appropriate rows and click "Selected Rows" in the print options screen before pressing "OK."

   - The **Configuration** tab provides information on how the TT4 was configured for use during vaccine shipments. The Summary datasheet and the Configuration datasheet print on the same page. In order to capture the data reflected on the Configuration data sheet, it is necessary to print the Summary data sheet.
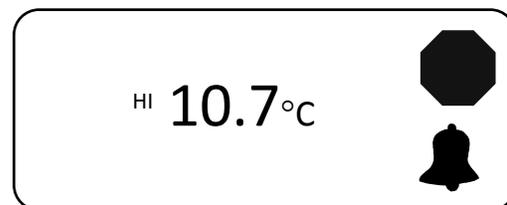
2. Understanding the Recorded Data on a TT4 Display

Similar to a Minimum/Maximum thermometer, the TT4 records high and low temperatures during shipment. The TT4 also records the duration of those temperatures. To view the temperature history on a TT4, press the "Stop" button (press and hold for at least three full seconds), and then press the "Start" button. The recorded data appears in a series of five windows as illustrated.

The first window displays the average temperature during the monitoring cycle. In this example, the average temperature inside the shipment was 5.2ºC.

AVG	
5.2°C	

The second window displays the highest temperature recorded during the monitoring cycle. In this example, the highest temperature inside the shipment was 10.7ºC.

HI 10.7°C

The third window displays the length of time the high alarm was triggered. This is a cumulative total and may refer to more than one occurrence of a temperature 8ºC or higher. In this example, the monitor recorded temperatures 8ºC or higher for a total of 30 minutes.

HI 30.0
Min

The fourth window shows the lowest temperature recorded during the monitoring cycle. In this example, the lowest temperature inside the shipment was -2.5ºC.

LOW - 2.5°C

The fifth window displays the length of time the low alarm was triggered. This is a cumulative total and may refer to more than one occurrence of a temperature 2ºC or lower. In this example, the monitor recorded temperatures 2ºC or lower for a total of one hour.

LOW 1.0
HR

- The bell symbol appears on the display monitor only if the temperature was 2ºC or lower or if the temperature reached 8ºC or high.

- If unable to record all the numbers initially, press and hold the "Start" button again. The five windows will appear in the same sequence each time.

- The information contained in the TT4 can only be deleted using the interface unit and software. The "Start" button can be pressed as often as necessary to record all the data.

3. Reconfiguring the TT4

It is important to reconfigure the TT4 prior to storing or reusing the monitor. Reconfiguring the monitor serves to clear the display screen and preserves the life of the battery.

3.1 Reconfiguring the TT4 while the TempTale Manager Program is open.

1. After reviewing the data on a TT4 and printing any required information, exit the file by clicking on the small "x" at the top of the screen. A prompt will appear: "New data has not been saved. Do you wish to save it?" There are three choices: Cancel, Yes, No.

   - **Cancel:** The data from the TT4 remains on the screen and is retained in the TT4.
   - **Yes:** Refer to "Saving Data from the TT4" for further information. The data is still retained in the TT4.
   - **No:** The data disappears from the screen; however, it is retained in the TT4.

2. After selecting the appropriate option, the TT4 **MUST** be reconfigured to clear the data from the TT4. Select the word "Monitor" at the top of the screen, and then select "Configure TempTale Monitor."

3. The next screen is the monitor configuration screen and reads, "Connect a TT4 Monitor to the Interface Plus, then click OK to continue."

4. Place the TT4 on the Interface Plus ensuring the sensors are lining up and click OK.

5. The screen reads, "Connecting to monitor." This will take a few seconds to complete, then there will be a message: "Connected to TT4. Reading configuration data." This screen occurs very quickly and may be missed.

6. The next screen reads, "Please click OK to write a new configuration or Cancel to discard changes." Click OK. **Do NOT change any of the settings on the TT4**.

7. The next screen displays, "Writing configuration to monitor. Please wait." A very brief message, "Configuration successful," will be followed by "Please remove monitor from reader then click OK."

8. Remove the monitor from the reader and click OK.

9. The next screen reads, "If you wish to configure another monitor, connect it to the Interface Plus, then click OK to continue, or click Cancel if you are finished." To configure another TT4, place it on the interface and continue as outlined above. Click Cancel if there are no other TT4s to reconfigure.

10. The display window on the TT4 is now blank.

11. To use the TT4 again, **precondition it in the fridge for at least one hour** prior to packing. After the TT4 is preconditioned, press the "Start" button until the sun is displayed on the TT4 window and include the TT4 in your vaccine shipment.

3.2 Reconfiguring the TT4 after Closing the TempTale Manager Program

1. If the TempTale Manager Program has been inadvertently closed, you will need to re-open the program before proceeding.

2. Open the TempTale Manager Program. The "Start-Up Assistant" screen will be displayed.

3. Select the "Configure a TempTale Monitor" icon.

4. The next screen reads, "Looking for Interface Plus on COM1" followed very briefly by the message, "Connected to Interface."

5. The next screen is the monitor configuration screen and reads, "Connect a TT4 Monitor to the Interface Plus then click OK to continue."

6. Place the TT4 on the Interface Plus and click OK.

7. The next screen reads, "Connecting to monitor." This takes a few seconds to complete and will be followed by the message, "Connected to TT4. Reading configuration data."

8. The next screen reads, "Please click OK to write a new configuration or Cancel to discard changes." Click OK. **Do NOT change any of the settings on the TT4**.

9. The next screen displays, "Writing configuration to monitor. Please wait." A very brief message, "Configuration successful," will be followed by "Please remove monitor from reader."

10. Remove the monitor from the reader and click OK.

11. The next screen reads, "If you wish to configure another monitor, connect it to the Interface Plus, then click OK to continue, or click Cancel if you are finished." To configure another TT4, place it on the interface and continue as outlined above. Click Cancel if there are no other TT4s to reconfigure.

12. The display window on the TT4 is now blank.

13. To use the TT4 again, **precondition it in the fridge for at least one hour** prior to packing.   After the TT4 is preconditioned, press the "Start" button until the sun is displayed on the TT4 window and include the TT4 in your vaccine shipment.

3.3 Saving Data from the TT4

An electronic computer folder should be established to store electronic readings from the TT4 in the event of a cold chain break. The file containing these readings can be emailed to AH for assessment. See "Emailing a TT4 File" for further information. It is not necessary to retain the information downloaded from the TT4 after the cold chain break has been resolved.

When saving data from the TT4, it is important to name the file in an easily recognizable manner. It is recommended that the file name contain the number from the back of the monitor and a shipment destination name: for example, "54 Anytown." "54" refers to the TT4 number and "Anytown" refers to the site where the vaccine shipment was delivered.

There are three options for saving data from the TT4:

1. Select the diskette-shaped "Save" icon at the top of the screen. Choose the location where the file will be saved and rename the file. Select "Save."

2. Select "File." Select "Save Data." Choose the location where the file will be saved and rename the file. Select "Save."

3. Select "File." Select "Save Data as." Choose the location the file will be saved and rename the file. Select "Save."

Consult a local IT specialist if problems are encountered when saving data from a TT4. On occasion, when an electronic file containing data saved electronically from a TT4 is re-opened after saving, the default Graph data screen will appear blank. Click on any other tab (e.g., Summary), and then re-select the Graph tab. The Graph data screen will be displayed.

3.4 Opening a file after saving

1. Open the TempTale Manager Program.

2. The "Start-Up Assistant" screen will display.

3. Click on the icon beside "Open TTD/TT4 File."

4. Double-click on the file to open.

3.5 Printing Data from the TT4

It is not necessary to save the data contained in the TT4 in order to print.

To print the TT4 data:

1. Select the data sheet to be printed (e.g., Graph, Summary).

2. Select the printer icon at the top of the screen or select "File," "Print" and "OK." The Tabular data sheet may generate a large number of pages. If there is selected data on the Tabular sheet to be printed, highlight the appropriate rows and click "Selected Rows" in the print options screen before pressing "OK."

3.6 Emailing a TT4 File

In the event of a potential cold chain break, AH may request the file containing the TT4 readings for assessment. By receiving the data electronically AH can quickly make recommendations regarding the vaccine shipment. The data contained in the TT4 must be saved to a file on a computer before it can be e-mailed to AH.

It may be necessary to open the email program on the computer prior to emailing the data downloaded from a TT4.

To email a TT4 file:

1. Open the TempTale Manager Program.
2. The "Start-Up Assistant" screen will be displayed.
3. Click on the icon beside "Open TTD/TT4 File."
4. Select the file containing the TT4 data.
5. Right-click with your mouse.
6. Select "Send To."
7. Select "Mail Recipient."
8. The email program should now be visible with the file attached at the bottom of the screen.
9. Type in the name of the recipient at AH and send the email.
10. Another available option is to select "Copy" after right-clicking. The TT4 data from the file can then be pasted into the body of the email.

3.7 Deleting a TT4 File

1. Open the TempTale Manager Program.
2. The "Start-Up Assistant" screen will be displayed.
3. Click on the icon beside "Open TTD/TT4 File."
4. Right-click on the file to be deleted.
5. Confirm file deletion by selecting "Yes" on the confirm file deletion screen.
6. If the file is moved to the recycle bin when it is deleted, empty the recycle bin.

3.8 Care and Maintenance of the TT4

- TT4s may be stored in a refrigerator when not in use. Ensure that the monitor is turned off prior to storing in the refrigerator.
- Prior to using a TT4 in a vaccine shipment and before pressing the "Start" button, precondition the monitor by placing it in a refrigerator for at least one hour.
- TT4s should not be left in an Interface Plus unit when not in use. Always remove the TT4 from the interface when downloading or configuring is complete so that the battery is not drained.
- Wait until prompted by the computer program prior to placing a TT4 on the Interface Plus unit. Connecting the TT4 prematurely may interfere with downloading data or configuring the monitor.
- Do not place a TT4 directly in dry ice or store in freezing conditions. Extreme temperatures can drain the battery and damage internal components.
- TT4s are not intended to monitor refrigerator temperatures or temperatures inside vaccine bags. Running a TT4 for extended periods of time rapidly depletes the battery.
- A small amount of moisture will not damage a TT4. If the TT4 gets wet, dry with a cloth.
- AH will arrange for all TT4s to be returned to the manufacturer annually for battery replacement and unit testing.
- Maintain a record of the unit number shown on the pink label on the back of the TT4. In the event that a TT4 is misplaced, AH must be notified of this unit number. Should a TT4 be damaged, it MUST be returned to AH for repair or replacement.