



QuickSTAR[®]

HORIZON



OPERATIONS MANUAL

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PRODUCT OVERVIEW

The QuickSTAR™ Horizon™ Strip Reader is a hand-held instrument designed to quickly read and analyze lateral flow and dry chemistry test strips from PerkinElmer. The unit provides qualitative and fully quantitative test results in less than ten seconds.

Key Features

- Touchscreen interface
- Ergonomically designed for easy use in the field or lab
- USB compatibility
- Automatic internal calibration at startup
- Remotely upgradeable software updates
- Internal 2D barcode reader

Additionally, the QuickSTAR™ Horizon™ Strip Reader features a rechargeable internal lithium-ion battery, and printer connectivity options. The QuickSTAR™ Horizon™ Strip Reader comes with the Data Manager Desktop Suite™, which allows the user to easily transfer data from the unit to a Windows 7/8/10 laptop or desktop computer and to view, archive, print, and export all test results.

Please take time to familiarize yourself with the unit's features and setup prior to testing. For technical support, email Bioo.Support@PerkinElmer.com or call 1-888-208-2246 or 1-512-707-8993.

GENERAL FEATURES AND OVERVIEW

Items Provided

1. QuickSTAR™ Horizon™ Strip Reader
2. USB Data Connection Cable
3. Power Supply Adapter
4. QuickSTAR™ Horizon™ Cartridge Adapters #1 and #2
5. Data Manager Software Suite can be downloaded from the following website:
bit.ly/QuickSTARHorizon

Charging the Unit

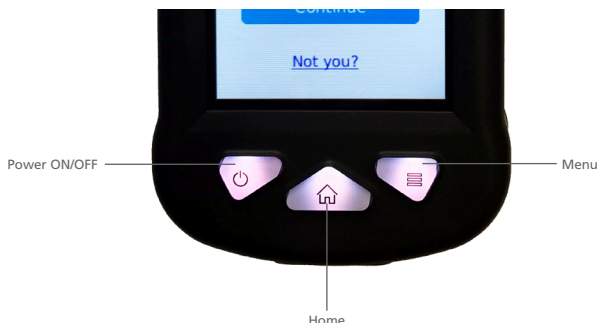
To charge your QuickSTAR™ Horizon™ unit, connect the power adapter to the left side of the unit. When powered off and connected to the power adapter the unit will reach full charge in three hours. When the unit is on or in use while connected to power, it will maintain its current power state.

A dialog box will display to notify the user when the battery needs to be charged. For peak battery life and performance, it is recommended to use the **Total Power Down** feature to shut off the device at the end of each testing session. Total Power Down exits all programs and conserves battery life. It also ensures the unit recalibrates when restarted.

To properly Total Power Down, select  **Menu**, select **Power**, and select **Power Off**. Alternately, press the Power button at the bottom of the device and select Power Off.

If the battery is fully drained, all data and settings will be preserved, however, upon startup the user will be prompted to reset the date and time. Refer to the User Control Menu section.

Primary Buttons and Controls



POWER

The power button should be used to power down the device, and if there is a need for a hard shutdown in the event the unit freezes and becomes unresponsive. Alternately, use the Total Power Down method by following on-screen  **Menu** → **Power** → **Power Off** to shut down the reader safely.

HOME

The **Home** button can be used to return to the Main menu from any point of the testing routine.

MENU

The  **Menu** button can be used to access the user menu from the main screen.

KEYBOARD

The QuickSTAR™ Horizon™ strip reader interface features an onscreen keyboard, allowing the user to input data into the device by touching the desired letters and numbers.

Select **↑** to temporarily use uppercase letters for a single letter.

Select **&123** to alternate between letters and symbols.

THEORY OF OPERATION

Inserting an adapter containing a lateral flow test strip into the QuickSTAR™ Horizon™ strip reader will initiate a test imaging and analysis sequence in which the reader performs an optical image scan of the test strip's results area.

For all tests, it is important to properly insert the test strip into the cartridge adapter, as well as to properly insert the cartridge adapter into the reader.

Refer to the figures on this page to acquaint yourself with the correct procedure.



Insert the disposable test strip, sample application pad first, into the supplied cartridge adapter, ensuring that the test strip remains flat against the adapter and that the cartridge is inserted fully into the reader.

RUNNING A TEST

To run a test on the reader, turn the reader on, select the **User**, or add a new one. The reader will then display the Main Menu with the time and two fields: **Category**, and **Test Name**.

Using the drop-down menu for each field, make a **Category** and a **Test Name** selection.

Select **Run Test** to begin analysis of the test strip. The user will be prompted to enter an optional **Sample ID** to uniquely identify the test. Select .

Testing will display at the top of the screen and the user will be prompted to insert the test strip and run the test.

Inserting additional test strips without exiting from the testing setup will prompt the reader to run the same test and save the results under an incrementally increased sample ID. If the user exits the result screen by clicking **X** in the top right corner, the reader will confirm that the user wants to quit the testing routine, then return to the Main menu and allow the user to choose another **Category** and/or **Test**.

Viewing Test Results

After each test is run, the results are displayed with captured images of the test strip.

From here, the user may select  to run the test again.

Change can be selected to give a new sample ID to a test before re-testing.

Results Screen

The QuickSTAR™ Horizon™ strip reader stores the results of each test conducted.

This data can be viewed on the Results Screen by selecting the **View Results** option from the  **Menu**.

The Results Screen displays information for each test that has been run: test name, sample ID, date and time, the result, and the image of the strip.

By clicking on the listing, the user can view the actual test image of the stored tests.

Printing Test Results

Connect a compatible printer (Dymo 450 Turbo or Seiko SLP620) to the QuickSTAR™ Horizon™ reader via a micro-USB connector on the right side of the reader. After each test run, or if you bring up a result from the results list via  → **View Results**, the results can be printed by clicking on the  in the top right on the screen.

DATA MANAGER SOFTWARE

Background

The PerkinElmer Data Manager Software Suite can be downloaded from bit.ly/QuickSTARHorizon. Once installed, the software enables test results from the unit to be easily transferred to a computer. The software automatically and intuitively organizes test results, providing pertinent information such as user name, test name, sample ID, date and time, result, and the actual test result image.

Installing Data Manager Software Suite

To install the Data Manager Software follow these instructions:

1. Download the software from bit.ly/QuickSTARHorizon.
2. Double click on [DataManager.exe](#)
3. Follow on-screen installation instruction to choose the installation folder and install the data manager
4. The program shortcut will be named PerkinElmer Data Manager

Importing Data Using Data Manager Software

Connect the QuickSTAR™ Horizon™ unit to your computer using the USB cord plugged into the left side of the reader. Click the  icon to connect the reader, and choose the [USB connection](#) option. Launch [PerkinElmer Data Manager](#). Click on [Import/Browse Data](#) in the left sidebar. Click [Browse](#) in the Data Storage section and determine locally where to save results.

Click [Browse](#) in the Import via USB Cable section and navigate to the data folder of the reader, which is going to show up as [\[user's external drive designation\]:\Data](#). Choose whether you want to erase the results after importing. Save your settings. Click [Import](#). A green bar will fill the screen and a [Complete](#) message will appear. Your data has now been imported.

Exporting Data Using Data Manager Software

Click [Export Data Options](#) in the left sidebar. Specify the file name and location of where the data will be saved on the computer. In the [Filter Data](#) section you can specify which data is to be exported, otherwise the data manager will export all the data on the reader. Save export settings. Click [Export](#) now. After the [Export Complete](#) checkbox appears you can quit the Data Manager and open the data file using Excel.

USER CONTROL MENU

Main Menu

When the QuickSTAR™ Horizon™ strip reader is powered on, the **User** selection window will appear. Once the **User** is selected, the Main Menu will be displayed. The user may return to the Main Menu using the  button below the screen, or whenever the  appears at the bottom of the screen.

From the Main Menu, the user may run a test and access settings and calibration options.

Settings Screen

Selecting  on the main page will bring up the Settings Screen, where the user may add a new lot ID (when applicable to the kit being tested), run diagnostics, or access other advanced settings.

Diagnostic Check

The Diagnostic Check monitors the system diagnostics to ensure that the unit's hardware is operating correctly, and that the calibration status is current.

To run diagnostics, select  to view the Settings Screen, then select **Diagnostic Check**.

The Calibration Status will display either **Passed** or **Out of Date**.

If the device is due for calibration, the user will see **Please Calibrate**, and should select **Start** to perform the unit calibration routine.

Unit Calibration Routine

The calibration routine verifies that the unit meets factory calibration standards. The calibration cartridge is used to verify and update a unit's calibration status when the calibration status reads **Out of Date** or **Invalid**.

1. If the calibration status reads Out of Date/Invalid, the user should proceed to calibration.
 - a. From the  screen, select **Diagnostic Check**.
 - b. Follow on-screen directions to insert the calibration cartridge directly into the unit and select **Start**.
 - c. User will see the crosshairs aligned with the cross of the white calibration cartridge.
 - d. In the event of a successful calibration check, a message will read: **Last diagnostic [current date] Passed**. The calibration check is valid for 1 year.

In the event of an unsuccessful calibration check, a message will read: **Calibration error found**. If an error in calibration is found, it is necessary to send the device in for factory recalibration.

Touch-screen menu

OPTIONS

Selecting  on the Main page will bring up a menu screen where the user may view results, edit the user list, update the software and reset or power off the QuickSTAR Horizon reader.

EDITING THE USER LIST

From the  Screen, select **User Preferences**. The user may add or delete user names. A user name can be deleted if their name is listed under **Select Other** and has an X next to it. To edit a user name, delete it and enter the correct one. A user name cannot be deleted if the name is listed as **Current**. To delete the name listed under **Current**, click on any name in the **Select Other** category and then delete the name no longer needed once it switches into **Select Other** category.

CHANGING TIME

From the  screen, select **User Preferences**. Click on the  in the top right of the screen. Select **Time**. Click on the time displayed and use arrows to adjust as desired. Click **Save** to switch to new settings. The date format and the 12/24h time format can also be modified on the main Time screen.

CHANGING THE DATE

From the  screen, select **User Preferences**. Click on the  in the top right of the screen. Select **Time**. Click on the date displayed and select the correct date on the calendar. Click **Accept** to switch to new settings.

CHANGING SCREEN BRIGHTNESS

Click on the  menu → **User Preferences** →  → **Brightness**. Use +/- buttons to adjust the brightness.

CHANGING SIGNAL VOLUME

Click on the  menu → **User Preferences** →  → **Volume**. Use +/- buttons to adjust the volume.

RESETTING AND REBOOTING

Soft Reboot Of The Reader

In rare cases when the reader becomes slow or unresponsive, a reboot may be necessary

1. Select the  **Menu**, choose **Power**. Alternately, press the Power button below the touch screen.
2. Choose the blue **Restart** button.
3. Once the reboot is complete, the Main Menu will display.

Hard Reboot After Freeze

If a Soft Reboot is not possible, the QuickSTAR™ Horizon™ strip reader will need to be hard-rebooted to resolve an issue. To reboot the unit, perform the button sequence below (see pg. 4 for button location).

Locate the gray **power** button on the QuickSTAR™ Horizon™. Press and hold the button until the screen goes dark. Wait a few seconds.

Press the power **button** for a few seconds until the buttons illuminate blue. The unit will reboot and will then perform the startup routine.

NOTIFICATION ICONS

On the bottom of the display there are two Notification Icons.

Connection Status

Connect the mini-USB end of the cable to the left USB port of the reader, and the USB end to a USB port of a computer. Click the , then the **USB Connection** icon on the reader screen once the QuickSTAR™ Horizon™ strip reader is connected to a computer. Once connected, launch the **Data Manager** to import the results.

WiFi status

The unit can be connected to the wireless network and the results uploaded to the user's computer. Select , then **Network**. The reader will appear as a drive on the user's computer and results can be uploaded according to the **Importing Results Using the Data Manager** procedure.

PROPER STORAGE CONDITIONS

Store the QuickSTAR™ Horizon™ in a dry, dust-free environment at normal room temperature (17°-30°C).

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