Bioo Scientific

QuickSTAR™

STRIP READER USER MANUAL

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Product Overview

The QuickSTAR™ Strip Reader is a hand-held instrument designed to quickly read and analyze lateral flow and dry chemistry test strips from Bioo Scientific. The unit provides fully quantitative test results for most assays in less than five seconds.

KEY FEATURES INCLUDE:

- Color touchscreen interface
- USB compatibility
- Automatic internal calibration at startup
- Remotely upgradeable software updates
- Internal 2D barcode reader
- Fully programmable test routines
- Rugged IP67-compliant design

Additionally, the QuickSTAR Strip Reader features a rechargeable internal lithium-ion battery, expandable SD card memory, and WiFi and printer connectivity options. The QuickSTAR Strip Reader comes with the Data Manager Desktop Suite™, which allows the user to easily transfer data from the unit to a 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 **support@biooscientific.com** or call 1.512.707.8993.
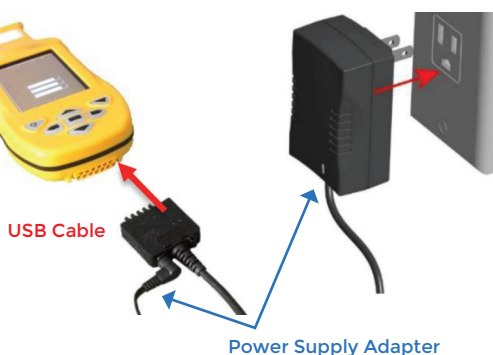
General Features and Overview

ITEMS PROVIDED

1. QuickSTAR Strip Reader
2. USB Data Connection Cable
3. Power Supply Adapter
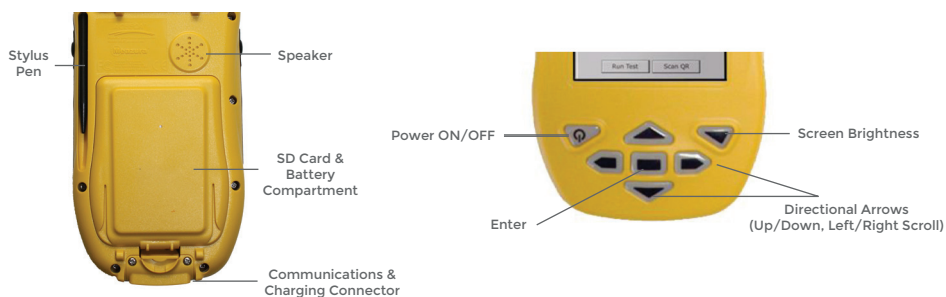4. QuickSTAR Cartridge Adapter
5. Data Manager Software Suite CD

CHARGING THE UNIT

The unit is supplied with a USB data connection cable and a power supply charger that connects to the cable. The cable from the power supply adapter plugs into the USB connection cable, which then connects to the bottom of the unit. Please ensure that the unit is allowed to fully charge for 2 hours prior to first use. The QuickSTAR Strip Reader will perform several hundred tests per session before needing a charge.

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.

USB Cable

Power Supply Adapter

PRIMARY BUTTONS AND CONTROLS

Stylus Pen

Speaker

SD Card & Battery Compartment

Communications & Charging Connector

Power ON/OFF

Enter

Screen Brightness

Directional Arrows (Up/Down, Left/Right Scroll)

Run Test   Scan QR

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SHORTCUTS

The primary buttons and controls can be used as shortcuts to carry out various operations.

The **Screen Brightness** brings up controls for changing the brightness of the touchscreen interface. It can be changed using the stylus or the directional arrows, once the button is selected.

The **Directional Arrows** allow the user to move between various options on the screen. Select **Enter** to open the desired one.

Enter can be used to run a test when at the Main Menu.

The **Left Side Button** on the reader allows the user to go back to a previous screen.

Left Side Button

Right Side Button

Power ON/OFF

Screen Brightness

Enter

Directional Arrows
(Up/Down, Left/Right Scroll)

KEYBOARD

The QuickSTAR strip reader interface features an on-screen keyboard, allowing the user to input data into the device by touching the desired letters and numbers using the stylus.

The user may select the Keyboard Icon at any time when it is present on the screen to display or hide the keyboard.

Select CAP to alternate between uppercase and lowercase letters, numbers and symbols.

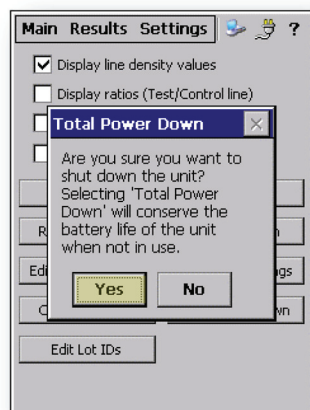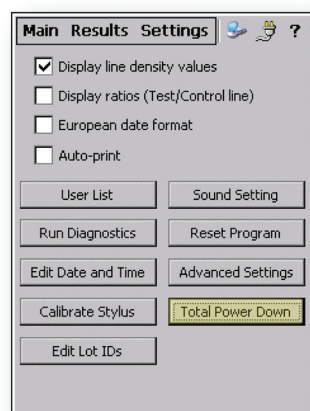Select Shift to temporarily use uppercase letters for a single letter.

Select áü to alternate between accented letters and symbols.

TOTAL POWER DOWN

For peak battery life and performance, it is recommended 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 that the unit recalibrates when restarted.

Select **Settings** from the User Control Menu and select **Total Power Down**. Select **Yes**.

Theory of Operation

Inserting an adapter containing a lateral flow test strip into the QuickSTAR strip reader will initiate a test imaging and analysis sequence in which the reader illuminates the assay and 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 black 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.
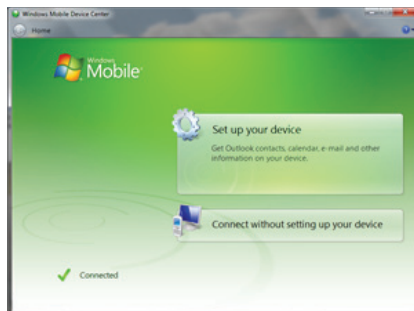

Insert the disposable test strip, sample application pad first, into the supplied black cartridge adapter, ensuring that the test strip remains flat against the adapter and that the cartridge is inserted fully into the reader.

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Initial Software Setup
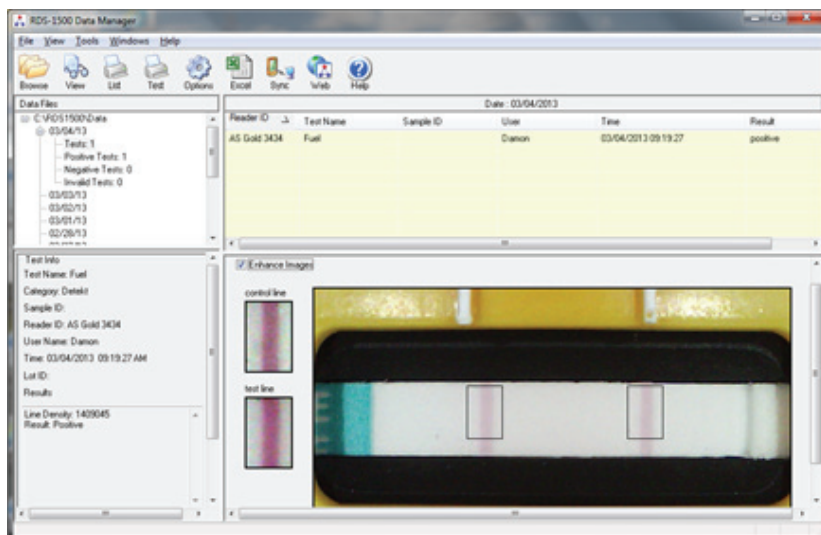
INSTALLING WINDOWS MOBILE DEVICE CENTER

The QuickSTAR strip reader utilizes the Windows Mobile Device Center synchronization software to connect the hand-held unit to a laptop or desktop computer. Upon initially connecting the QuickSTAR Strip Reader to a desktop computer using the supplied USB cable, this software will automatically download and install. Internet access is required. In order to initiate the process, the QuickSTAR must be turned on.

Upon automatic installation of the software, the screen prompt to the right will be displayed. If the computer is running Windows XP or an earlier version or does not have internet access, a version of Microsoft Active Sync will be installed in lieu of Windows Mobile Device Center when the Data Manager CD is installed in the next step.

INSTALLING DATA MANAGER SOFTWARE SUITE

The unit comes with a Data Manager Software Suite CD that enables test results from the unit to be easily transferred to a desktop 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.
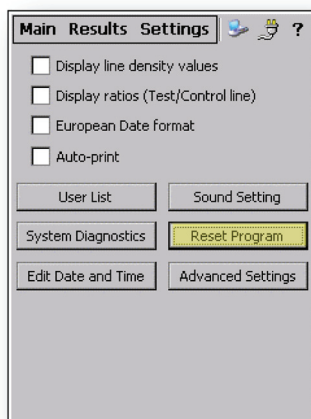
Resetting and Rebooting

RESETTING THE PROGRAM

In most cases, resetting the program will fix any issues. The program reset will not erase any saved data or saved settings. Any open applications will be closed and any unsaved data will be lost. The program reset will restart the Windows CE operating system.

To reset the program, select **Settings** and select **Reset Program**.

The reader will take a couple of seconds to reset.

REBOOTING THE DEVICE

In cases when resetting the program does not fully solve a software or hardware issue, a reboot may be necessarily. The reboot will shut down the device and exit the Windows CE operating system, and restart both the device and program.

1. Select and hold the power button and the brightness button.
2. Hold the buttons until the screen turns white, then release.
3. The reader will take a couple of seconds to exit the operating system, reboot the device, and restart both the device and program. Once the reboot is complete, the Main Menu will display.

User Control Menu

MAIN MENU

When the QuickSTAR strip reader is powered on, the Main Menu will be displayed. The user may return to the Main Menu at any time by selecting the **Main** tab from the User Control Menu located at the top-left region of the touchscreen interface. From the Main Menu, the user may run a test.

RESULTS SCREEN

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

This data can be viewed at any time on the Results Screen by selecting the **Results** tab from the User Control Menu.

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

The results of the tests can be sorted by each of the four categories by simply selecting the desired sorting category (e.g. Name, Sample ID, Time, and Result) with the stylus.

By selecting **View**, the user can view the actual test image of the stored tests.

SETTINGS SCREEN

Selecting **Settings** from the User Control Menu will bring up the Settings Screen, where the user may edit the user list, run diagnostics, edit date and time, change sound settings, reset the program, and access other advanced settings.
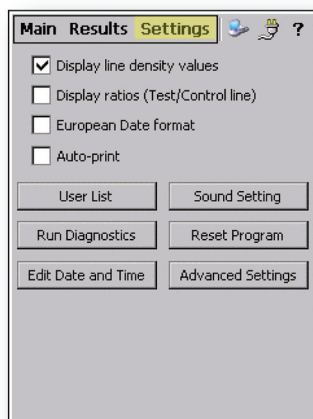
The Settings Screen allows the user to customize settings by checking boxes for desired displays:

Checking **Display Line Density Values** will display an exact value of line densities for both the control and test lines in the results of a test.

Checking **Display Ratios (Test/Control line)** will enable the unit to show the ratio of the intensity of the test line to the intensity of the control line for the Semi-quantitative Ratio and Quantitative Ratio tests.

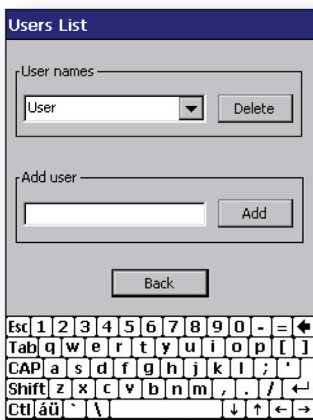Checking **European Date Format** will display the date in the "Day-Month-Year" format.

Checking **Auto-print** will enable automatic print-ing of the results for each test that is run. A printer must be connected to the unit.

USER LIST

From the Settings Screen, select **User List**.

The user may add, edit, or delete user names to the device.

Notification Icons

To the right of the User Control Menu, in the top-right corner of the display interface, are the three Notification Icons.

CONNECTION STATUS

Connection Status displays when the QuickSTAR strip reader is connected to a computer using the USB cable. This icon indicates that the unit is ready to transfer data to the desktop.

If a connection status icon does not display when initially connecting the USB cable to the unit, turn the unit off and back on to allow the desktop computer to initiate the connection.

POWER PROPERTIES

Power properties displays information regarding the battery charge percentage and power scheme settings for the battery and AC power.

External Battery indicates that the unit is charging, connected to a computer, and is using the external battery.
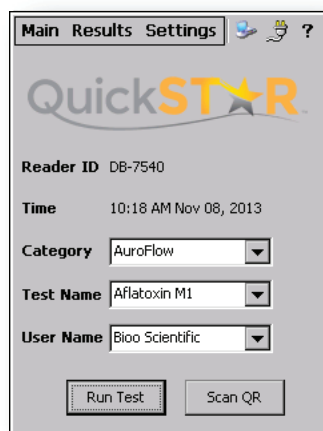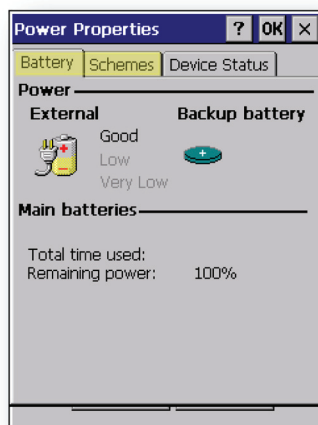
Battery indicates that the device is not charging and is instead using the main battery. Selecting Battery displays the status of the external and backup battery and the percentage of remaining power.

Schemes allows the user to determine whether the unit will run on AC Power or battery power, and to change settings for time frames after which the state switches to user idle, system idle, or suspends.

HELP

Help features tips and key information for any particular screen or function.

When navigating to any particular screen, select the Help icon in the top right corner to get assistance in using the features of that particular screen.

Inserting a Test Strip

Insert a Bioo Scientific test strip (sample pad first) into the supplied black cartridge adapter and ensure that the test strip is inserted fully and is flat against the cartridge adapter. When inserted correctly, the rounded edge of the cartridge adapter will face toward the right, away from the unit. When inserted into the device, the test strip should face down, toward the user.

Running a Test

To run a test, select the **Main** tab. The reader will display the Main Menu with the time and three fields: Category, Test Name, and User Name.

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

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

VIEWING TEST RESULTS

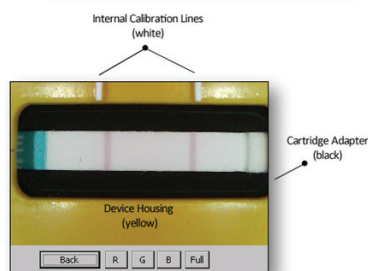After a test is run, the results are displayed with captured images of the control line and the test line.
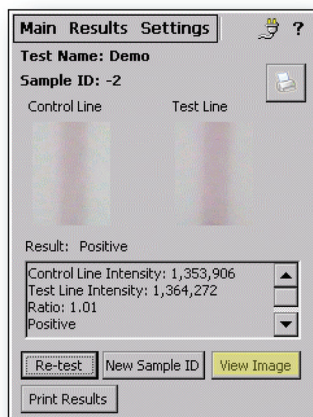
From here, the user may select **Re-test** to run the test again.

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

Selecting **View Image** displays the image of the test strip.

To view this image under red, green, or blue color channels, select the **R**, **G**, or **B** options after **View Image** is selected.

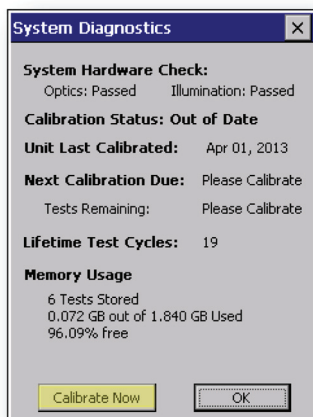To return to the captured, full-color image, select **Full**.

Run Diagnostics

Run Diagnostics checks system diagnostics to en- sure that the unit's hardware is operating correctly and that the calibration status is current.

To run diagnostics, select **Settings** to view the Set- tings Screen, then select **Run Diagnostics**.

The Calibration Status will display Current or Out of Date. Optics and Illumination will display Passed or Failed.

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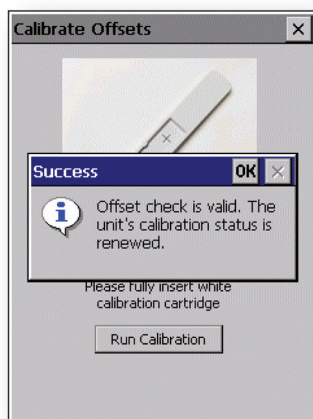
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UNIT CALIBRATION ROUTINE

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

1. Insert the calibration cartridge into the unit and select **Settings** and **Run Diagnostics**.
2. If the calibration status reads Out of Date, the user should proceed to calibration.
3. From the System Diagnostics screen, select **Calibrate Now**.
4. Ensure that the white calibration cartridge is properly inserted into the reader and select **Run Calibration**.
5. In the event of a successful calibration check, a message will read: Offset check is valid. The unit's calibration status is renewed.

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.

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