

AbraScan Test Strip Reader

Digital Reading of Test Strips for the Determination
of Cyanotoxins, Herbicides, and GMOs in Contaminated Samples

Product No. 475025B

1. General Description

The AbraScan RDS-2500 Test Strip Reader is a third generation digital test strip interpretation device used with select Abraxis Strip Test Kits. The reader provides a digital photographic record of the test strips and an objective analysis and interpretation of line intensities. Used in combination, the reader and test strips provide semi-quantitative and/or qualitative evaluation in contaminated water samples and/or sample extracts (please see individual kit user's guides for information on sample types). Positive samples should be confirmed by HPLC, GCMS, or other conventional methods.

2. Reader Features

The AbraScan RDS-2500 Test Strip Reader has a color touchscreen interface and features a rechargeable internal lithium-ion battery and WiFi and printer connectivity options. The reader also has remote update capability, allowing users to download an updated database of test types as new tests are developed. This feature provides the user with the ability to quickly and easily add the capability to test for additional new analytes of interest.



3. Materials Provided

- 3.1 AbraScan RDS-2500 Test Strip Reader
- 3.2 USB Data Connection Cable
- 3.3 Power Supply Adapter
- 3.4 Test Strip Cartridge Adapter
- 3.5 Data Manager Software
- 3.6 Calibration Cartridge
- 3.7 User's Guide

4. Additional Materials (Not Provided)

- 4.1 Micro USB to USB adapter or Micro USB flash drive

5. Reader Charging

- 5.1 To charge using the power cord, plug the power cord into the port on the left side of the reader, then plug the power cord into the power source. Please note that when on or in use while plugged into a power source, the reader will maintain its current power state. When powered off, the reader will fully charge in three hours.
- 5.2 To USB charge the reader, plug the micro USB sync cable into the micro USB port on the left side of the reader, then plug the into the PC's USB port. Please note that USB charging will occur more slowly. For fastest re-charging, use the charging procedure described in section 5.1 above.
- 5.3 A dialog box will appear showing a notification on the reader when the battery requires charging.

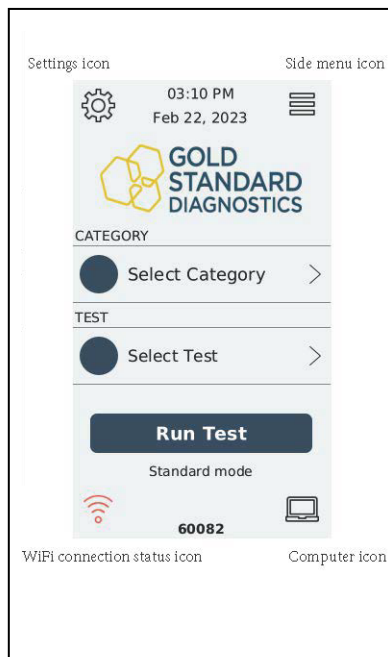
6. Software Installation

The Data Manager software enables the test results to be transferred from the reader to a desktop or laptop computer. The Data Manager software is provided on a USB flash drive.

- 6.1 Insert the flash drive into the USB port on the laptop or computer.
- 6.2 Right click on the Data Manager software file and select "Run as administrator."
- 6.3 A series of windows will be brought up; select "next" on each window until the install wizard begins the software installation.
- 6.4 Once the installation is complete, select "finished."

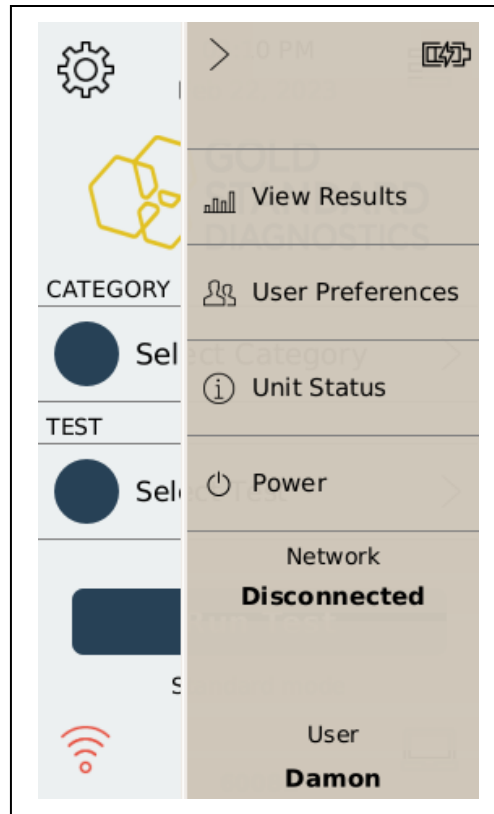
7. Primary Buttons and Controls

- 7.1 The keypad at the base of the front of the unit is intended to allow quick access to several key features.
 - 7.1.1 Pressing the right button opens the side menu when on the Home/Main Menu screen.
 - 7.1.2 Pressing the middle button during the testing routine will return to the Home/Main Menu screen.
 - 7.1.3 The left button is used to turn the unit on and also as the hard-reset button. The hard-reset is only to be used in the rare case of a unit being non-responsive (see section 10, Restarting and Resetting, for additional information). **Do not use the power on/hard reset button to turn the reader off.** To safely shut off the unit, use the side menu power feature (see 7.2.5, below).
- 7.2 The side menu button is located on the upper right side of the Home/Main Menu screen.

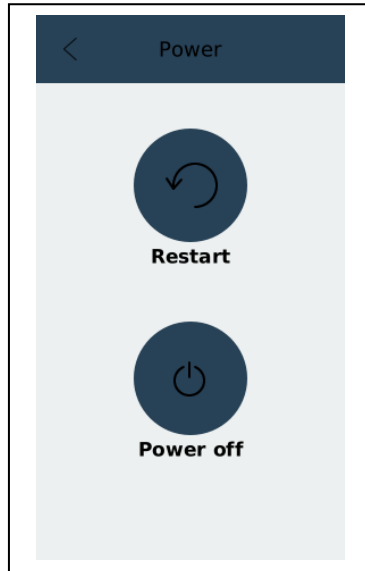




The side menu allows access to several functions:



- 7.2.1 At the upper right corner is the battery status icon, used to monitor the unit's battery.
- 7.2.2 **View Results** can be selected to view results of tests that have been run.
 - 7.2.2.1 The details of each result can be viewed by selecting it from the list of results that will be displayed.
 - 7.2.2.2 To delete all test results, select the icon at the top right of the **View Results** page.
- 7.2.3 Select **User Preferences** and then press the upright row of circles in the upper right corner of the menu heading. A drop-down menu of options including Time and Date, PPM/PPB toggling, Unit IDs, Brightness, Printers, and Volume will appear, allowing the user to customize their preferred reader settings.
- 7.2.4 Select **Unit Status** to view the current software version and date of the last diagnostic check. This screen is used for updating the software or test database (see section 16, Updating the Test Database for additional information).
- 7.2.5 To safely power off the reader, select **Power** and then **Power off**. This function allows the reader to properly complete any read or write cycles prior to powering off, preventing the unintended loss of data which can occur if a unit is powered off using the far left button on the keypad. **Do not use the power on/hard reset button located on the front of the reader to turn the reader off.**
*Note: The option to **Restart** the unit is also displayed on the **Power** screen and can be selected if restarting the unit is necessary.*



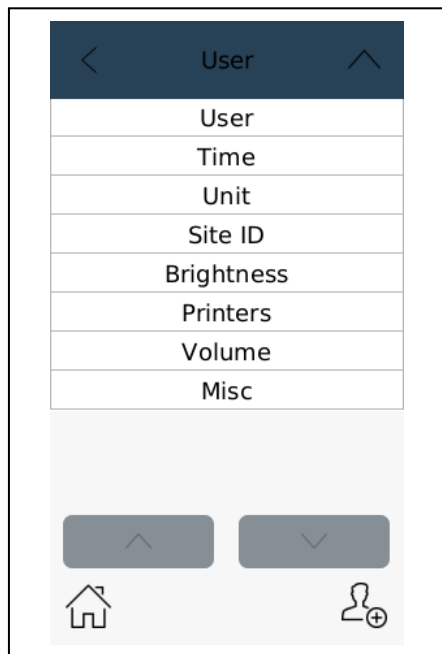
8. Micro USB Port Functionality

The AbraScan RDS-2500 features two micro USB ports, one on either side of the reader. These ports enable various functions including printing directly from the reader (see section 14 for additional information on printing), transferring test results to a PC (see section 15), and updating the test database or software version on the reader (see section 16).

9. Selecting/Setting Up User IDs

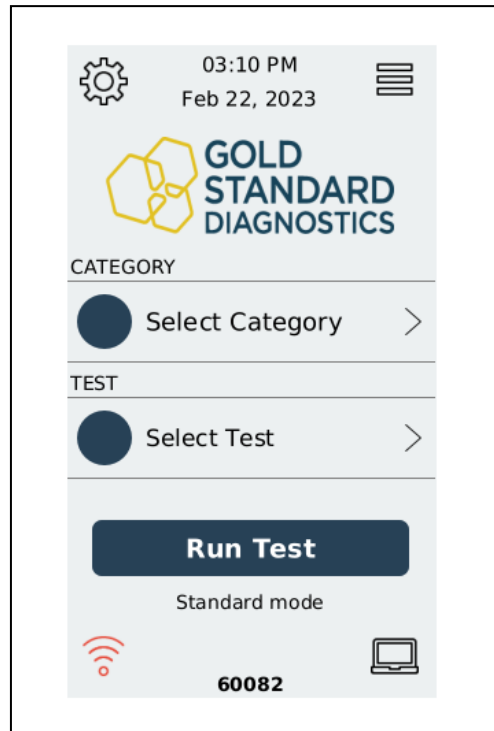
When initially powered on, the User Selection screen will appear. A user ID must be selected before proceeding to the Home/Main Menu screen. The last user ID used for testing will automatically appear on the User Selection screen.

- 9.1.1 If the user ID is correct, select **Continue**.
- 9.1.2 If a different user, not the one displayed, will be using the reader, select **Not you?** and a list of users will then be displayed.



- 9.1.2.1 If the correct user name appears in the listing, select the correct user name, then press the “<” on the top left of the “< User” heading or press the **Home** icon at the bottom left of the screen.
- 9.1.2.2 If a new user will be operating the reader, select the icon at the bottom right of the screen (outline of figure with “+” symbol), then enter the new user’s name and select **Accept**, then press the “<” on the top left of the “< User” heading or press the **Home** icon at the bottom left of the screen.

Once the user ID is selected, the Main Menu screen will be displayed.



From the Main Menu screen, several different options can be accessed, including running tests, entering Data Transfer mode to transfer results from the reader to a PC, checking Wi-Fi connection status, navigating reader settings, and accessing the side menu.

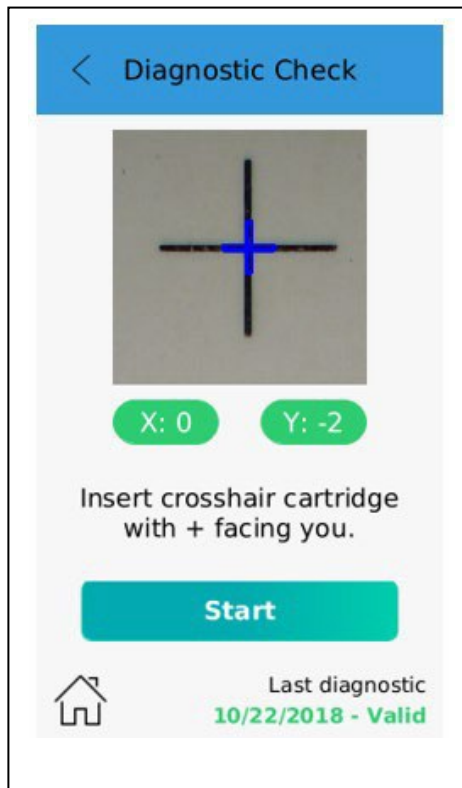
10. Restarting and Resetting

- 10.1 Restarting the Reader
 - 10.1.1 Access the side menu either by pressing the side menu access button (far right button at bottom of reader) or pressing the side menu access icon (upper right side of the Home/Main Menu screen).
 - 10.1.2 Select **Power** and then **Restart**.
- 10.2 Hard Reset
 - 10.2.1 If a hard reset is required, the reader can be powered off using the power on/hard reset button (far left button on bottom of reader).
*Note: Powering off the reader in all instances other than a hard reset should be done via the Power settings from the side menu, **not using the power on/hard reset button**.*

11. Diagnostic Check

The AbraScan RDS-2500 requires an annual diagnostic check to validate the system’s optics module.

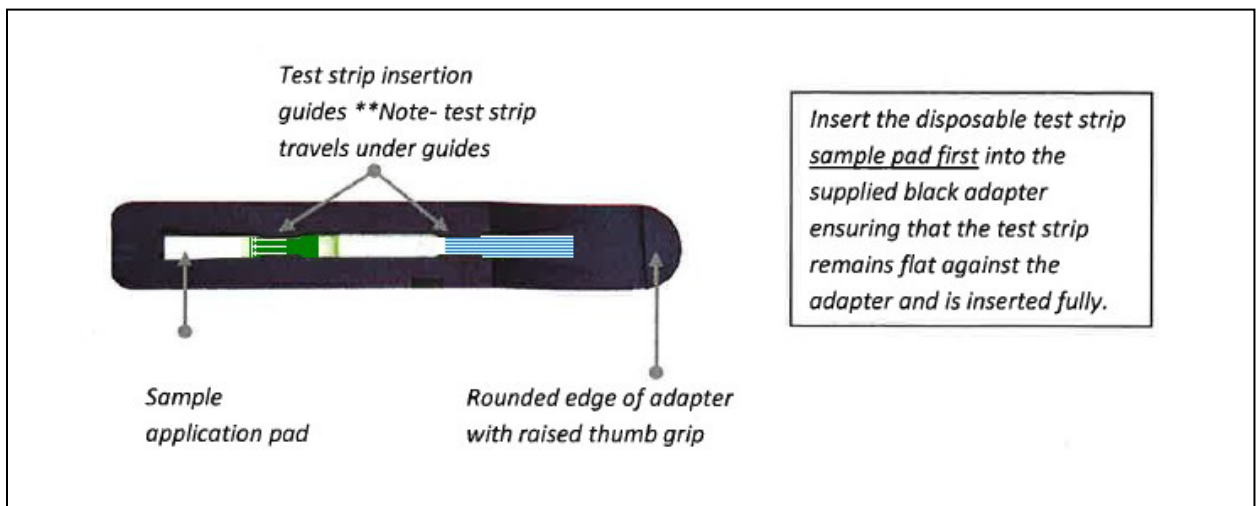
- 11.1 Press the **Settings** icon on the upper left corner of the Home/Main Menu screen.
- 11.2 Select **Diagnostic Check** from the menu.
- 11.3 Insert the white crosshair calibration cartridge with the “+” facing toward the reader screen.



11.4 After ensuring that the white calibration cartridge is properly inserted into the reader, select **Start**.

12. Running the Test

- 12.1 From the Home/Main Menu screen, press **Select Category**, then select Abraxis.
- 12.2 Press **Select Test** and press the name of the desired test type. The reader will then automatically return to the home screen (the selected Category and Test will then be shown).
- 12.3 Select **Run Test**. A sample ID can be added to uniquely identify the test (optional) or the field may be left blank.
- 12.4 Select **Accept**. The reader will then display "Insert Cartridge."
- 12.5 Insert the test strip into the cartridge adapter as described and shown below:





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- 12.6 With the test strip facing the user, hold the adapter by the raised thumb grip, with the arrows on the test strip facing down. Insert the adapter into the reader until the cartridge stops and actuates the internal switch.
- 12.7 After the strip is read, the results are displayed with the captured images of the control line and the test line. Pressing the “Test line” box will display the test line intensity value. Pressing the same area again will return to the sample result.
 - 12.7.1 To re-read the test strip without removing it from the reader, select the re-test icon on the bottom left of the reader screen. To change the sample ID before re-reading the test strip, press **Change** (located in the center at the bottom of the screen) before pressing the re-test icon.
- 12.8 To read additional strips, remove the cartridge from the reader, remove the previous test strip, and replace with the new test strip to be read. A sample ID for the new strip to be read can be entered by selecting **Change** (located in the center at the bottom of the screen), entering the appropriate sample ID, then pressing **Accept**. The test strip can then be read (step 12.6 above).

Note: If using only time and date information for sample identification (no sample ID), test strips can be read in immediate succession (no additional commands necessary).

Please see section 13, Sample ID, below for additional information regarding the use of sample IDs.

13. Sample ID

A unique sample ID can be entered for each test strip to allow the user to name and track specific tests. To use a unique sample ID for each sample, **Change** (located in the center at the bottom of the screen) must be selected and a new sample ID entered before each sample result is read. If running a series of tests that can be grouped sequentially under a single sample ID, for example, if running a series of test strips on “Smith Lake,” the tests can be linked together under a common Sample ID by entering the single sample ID (“Smith Lake”), then reading the strips sequentially (i.e. without selecting **Change**). Each subsequent test will then be assigned a sequential number value along with the group sample ID (Smith Lake, Smith Lake-1, Smith Lake-2, etc.), allowing for the differentiation of samples within a group without having to re-enter the group ID (Smith Lake) for each sample.

14. Printer

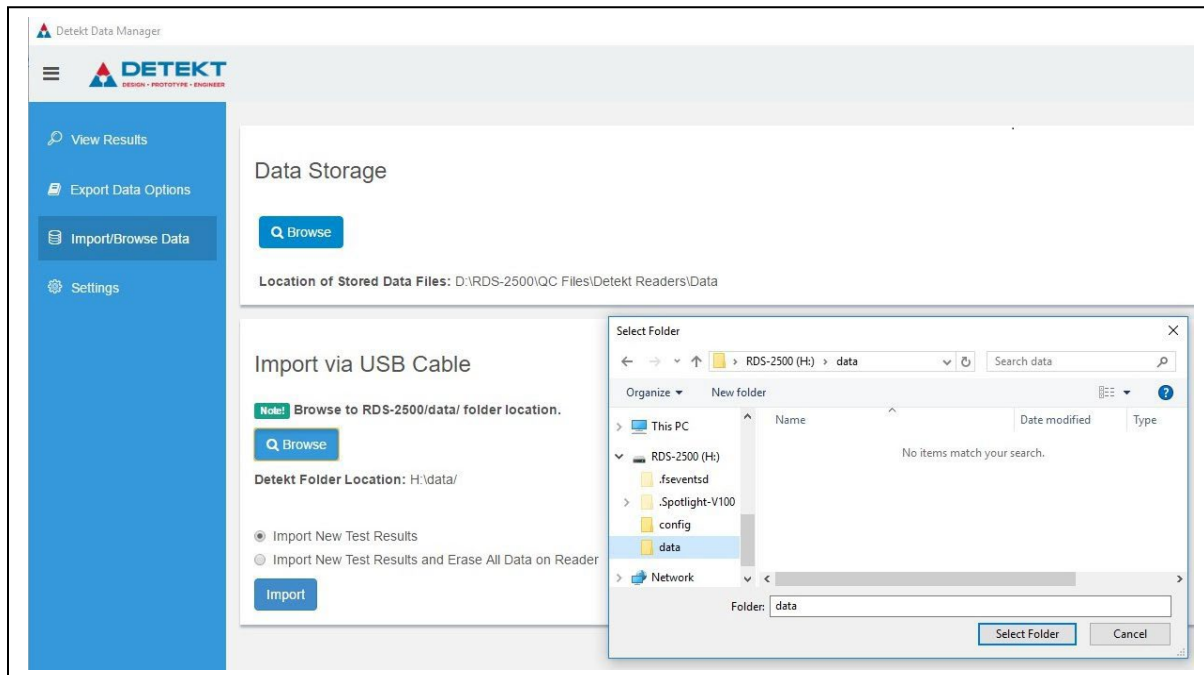
The RDS-2500 is compatible with the Seiko SLP 620 and Dymo 450 Turbo external printers. Using a micro USB adapter, connect the micro USB side of the adapter to the right micro USB port on the reader. Connect the USB side of the adapter to the printer's cable.

- 14.1 Results can be printed at the time of testing by pressing the printer icon located on the bottom, right of the results screen.
- 14.2 The reader contains an optional auto-print feature, in which results will print out automatically at the time of testing without a separate print command being entered for each sample.
 - 14.2.1 Access the side menu either by pressing the side menu access button (far right button at bottom of reader) or pressing the side menu access icon (upper right side of the Home/Main Menu screen).
 - 14.2.2 Select **User Preferences** then select the **User** heading at the top of the screen.
 - 14.2.3 Select **Printers**, then **Turn ON**.
- 14.3 Sample results stored on the reader can be printed at a later date/time.
 - 14.3.1 Access the side menu either by pressing the side menu access button (far right button at bottom of reader) or pressing the side menu access icon (upper right side of the Home/Main Menu screen).
 - 14.3.2 Select **View Results** then select the individual sample result.
 - 14.3.3 Press the printer icon at the top, right of the screen.

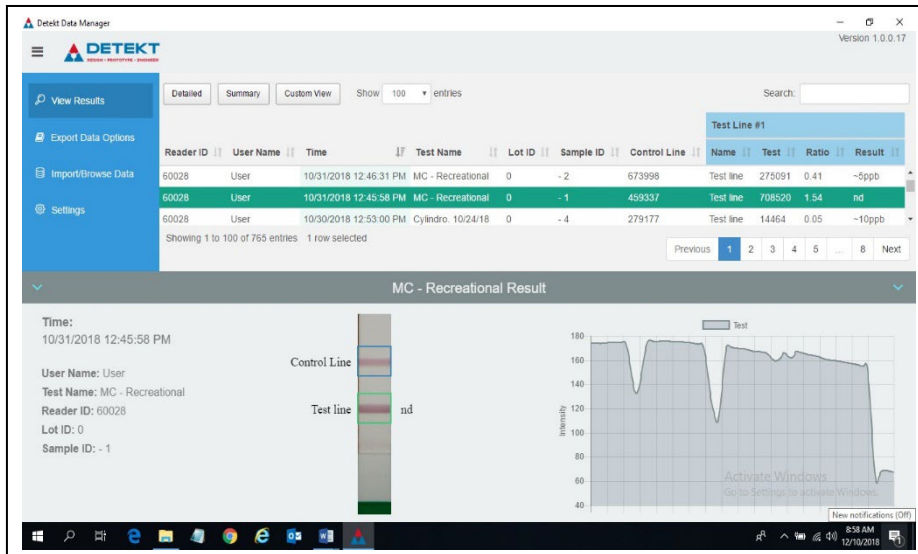
15. Transferring and Viewing Results (on PC)

- 15.1 Install the RDS-2500 Data Manager Software (see section 6, Software Installation, above). The Data Manager Software is capable of having multiple RDS-2500 units synchronized with it and will place each unit's data into a unique folder labeled with the unit's name. Data from multiple units can be sorted and compared.
- 15.2 Open the Data Manager on the PC.

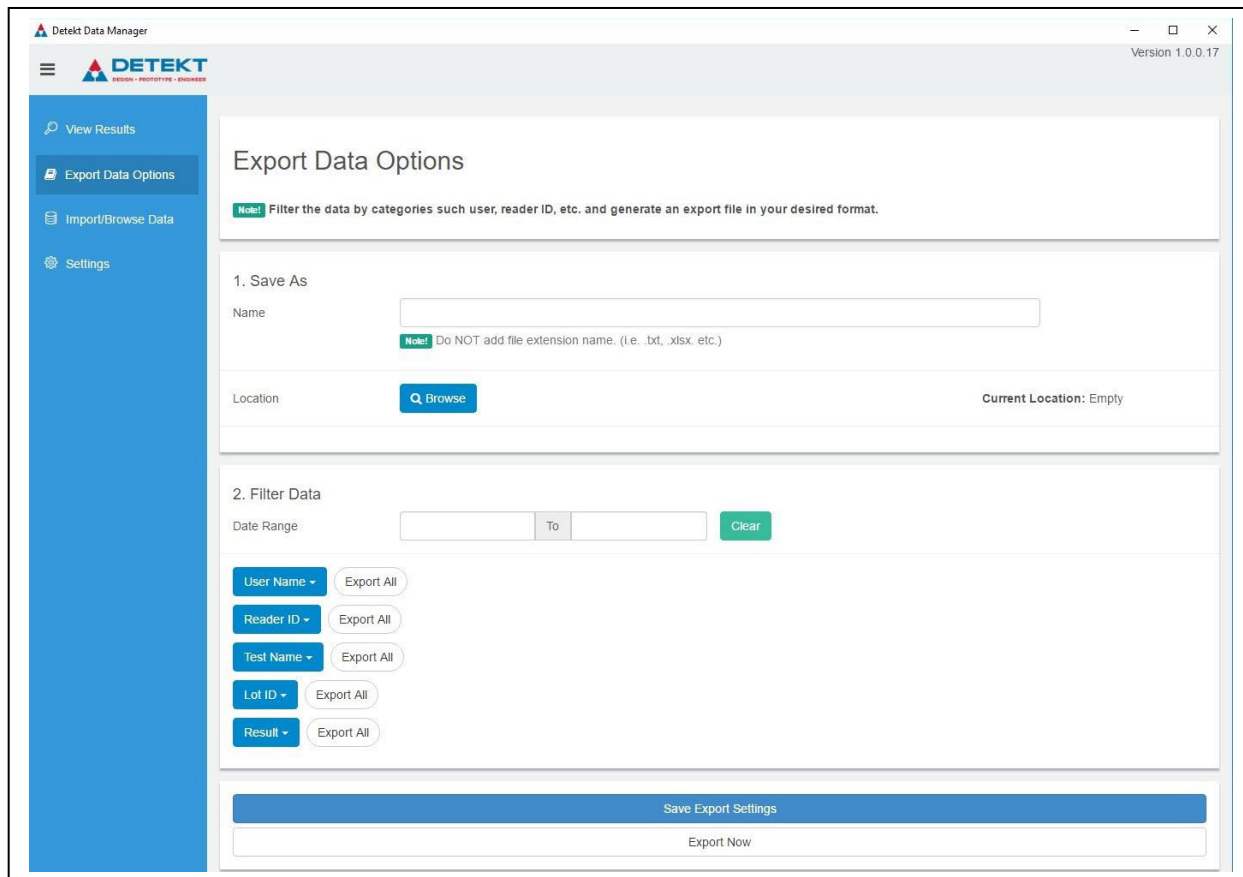
- 15.3 Insert the micro USB sync cable into the micro USB port on the left side of the reader and the USB side into the PC's USB port.
- 15.4 Press the computer icon in the lower right side of the Home/Main Menu screen to select the data transfer mode on the reader. The reader screen will then display the heading "USB Mode" and the message "Ensure RDS-2500 is connected to computer."
- 15.5 On the PC, select "Import/Browse Data" from the menu on the upper left side of the screen.
 - 15.4.1 Prior to transferring data to the Data Manager for the first time, the paths for locating the data to be imported and the location for the data to be stored on the PC must be mapped.
 - 15.4.1.1 Under Data Storage, select "Browse" and then select the folder where the data should be stored on the PC.
 - 15.4.1.2 Under Import via USB Cable, select "Browse" and navigate to and select "RDS-2500" then "data" and select "Select Folder."



- 15.4.1.3 Select the desired radio button (either import only or import and delete data from reader).
- 15.6 Select "Import." Once the data has been transferred, "Complete!" and a green bar will temporarily display at the bottom of the screen.
- 15.7 Press the Home/Main Menu icon in the lower left corner of the reader's screen to safely disconnect the reader and PC before removing the connection cable from the reader and the PC.
- 15.8 To view transferred results on the PC, select "View Results" from the Data Manager menu (please note that the wait time until results appear will vary, depending on the number of tests in the folder).
- 15.9 Select a test for review by clicking on its row. The pertinent data and images will be displayed below. Detailed test information can be found in the lower left of the screen. Test images are located in the bottom center of the screen.



- 15.9.1 The Custom View button located at the top of the screen can be used to enable or disable the displaying of specific columns on the table to customize the results display.
- 15.10 To access additional display options, such as displaying the data format as dd/mm/yyyy instead of mm/dd/yyyy, select “Settings” from the Data Manager Menu, make desired display options, then select “Save Settings.”
- 15.11 In the Data Manager, data can be exported to an Excel file
- 15.11.1 Select “Export Data Options” from the menu on the left side of the computer screen.
- 15.11.2 Enter the name for the Excel test result file in the Name field, then select “Browse” to select the location where the file will be saved on the PC, then “Select Folder.” If desired, filter the data by date or use the additional dropdowns to select specific users, readers, etc.
- 15.11.3 Select “Save Export Settings” and then “OK.”
- Note: “Save Export Settings” must be selected before exporting data to create an excel file with the name entered in the Name field. Not selecting “Save Export Settings” before exporting will cause the previously save file name to be re-used with the time and date added to the name, rather than using the newly entered file name.*
- 15.11.4 Select “Export Now.”



15.11.5 Use the file explorer on the PC to navigate to the folder where the file was saved and open to view the data in the Excel spreadsheet.

16. Updating the Test Database

As new test strip kits are developed for additional analytes of interest, the database of test types that can be interpreted using the AbraScan reader can be updated. This provides the user with the ability to quickly and easily add the capability to test for additional new analytes of interest.

- 16.1 Save the emailed updated test database onto a USB flash drive.
- 16.2 Using a USB adapter, connect the micro USB side of the adapter to the right micro USB port on the reader. Connect the USB side of the adapter to the USB flash drive.
- 16.3 On the reader, open the side menu, then select **Unit Status**.
- 16.4 After a few seconds, a blue button should appear. Select **Update** to download the update from the USB flash drive to the reader. The reader will then restart.
- 16.5 After the automatic restart, the reader will be updated with the new database and additional test types can be accessed, along with all of the previous test types, by pressing **Select Test** on the Home/Main Menu screen.

17. AbraScan Compatible ABRAXIS® Strip Test Kits

*ABRAXIS® Anatoxin-a Strip Test
 PN 520042 (5 Test) and PN 520043 (20 Test)
 For use with freshwater samples*

*CP4 EPSPS Strip Test
 PN 510200 (100 Test)
 For use with soybean samples*



*ABRAXIS® Cylindrospermopsin Strip Test
PN 520029 (5 Test) and PN 520030 (20 Test)
For use with freshwater samples*

*ABRAXIS® Glyphosate Strip Test
PN 500098 (5 Test) and PN 500095 (20 Test)
For use with freshwater and various food samples (see kit user's guide and technical bulletins for complete listing of food sample types)*

*ABRAXIS® Microcystins Strip Test for Finished Drinking Water at 0.3 ppb
PN 520046 (20 Test)
For use with treated drinking water samples (detection range up to 3 ppb)*

*ABRAXIS® Microcystins Strip Test for Finished Drinking
Water PN 520016 (5 Test) and PN 520017 (20 Test)
For use with treated drinking water samples (detection range up to 5 ppb)*

*ABRAXIS® Microcystins Strip Test for Source Drinking
Water PN 520019 (5 Test) and PN 520020 (20 Test)
For use with untreated drinking water samples (detection range up to 5 ppb)*

*ABRAXIS® Microcystins Strip Test for Recreational
Water PN 520023 (5 Test) and PN 520022 (20 Test)
For use with freshwater recreational water samples (detection range up to 10 ppb)*

*ABRAXIS® Saxitoxin Strip Test
PN 520044 (5 Test), PN 520045 (20 Tests) and PN 520047
For use with seawater, drinking water, recreational water and shellfish samples*

18. For ordering or technical assistance contact:

Gold Standard Diagnostics
795 Horsham Road
Horsham, PA 19044
WEB: www.abraxiskits.com

Phone: (215) 357-3911
Fax: (215) 357 5232

Ordering: info.abraxis@us.goldstandarddiagnostics.com
Technical Support: support.abraxis@us.goldstandarddiagnostics.com