



MatMaCorp



**Solas 8™**

**Quick Start Guide**

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## Quick Start Guide

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# Contents

<b>Section 1 - Getting Started</b> .....	1
<b>1. Unpack</b> .....	1
<b>2. Connect to Power Supply</b> .....	1
<b>3. Detector Alignment</b> .....	1
<b>4. Connecting the Device to the Network</b> .....	2
<b>5. Access Point Mode (AP Mode)</b> .....	3
<b>6. Software and Custom Kits Update</b> .....	3
<b>Section 2 - Isolating DNA/RNA using MagicTip™ Kits</b> .....	4
<b>1. To Add a User</b> .....	4
<b>2. To Add a Sample</b> .....	4
<b>3. To Isolate DNA/RNA</b> .....	5
<b>Section 3 - SNP or Target Detection using C-SAND™ Kits</b> .....	7
<b>1. To Run a C-SAND™ Test</b> .....	7
<b>Section 4 - Visualizing and Exporting Data (Results)</b> .....	9
<b>1. Real Time Results and Real Time Fluorescence</b> .....	9
<b>2. Results and Fluorescence data after a Run is Complete</b> .....	9
<b>3. Search and Advanced Report Functions</b> .....	10
<b>Notes</b> .....	12

## Section 1 - Getting Started

Your Solas 8™ instrument is a Point of Use laboratory platform that can be used either in a laboratory or out in the field. The Solas 8™ features a resistive touchscreen interface to enable robust, uninterrupted use even while wearing gloves.

### 1. Unpack

**NOTE: If the main package was damaged in shipping, please notify the carrier immediately and do not accept the shipment.**

- There are two boxes in a big brown box. Open the smaller white box (containing the power supply) using the flap on one end.
- Carefully unseal the top of the brown inner box with a blade less than 0.5"/1.25 cm in length. Your Solas 8™ machine is suspended inside.
- Remove the suspension assembly from the inner box and place it on a stable surface.
- There are two flaps that are underneath the Solas 8™. Carefully unfold these flaps to release the tension on the plastic.
- Remove your Solas 8™ from under the plastic sheet.

### 2. Connect to Power Supply

- The Universal power supply that comes with the Solas 8™ can run on voltages ranging from 100-240 Volts AC, with powerline frequencies from 50-60Hz. A country specific power cable should be present with each power supply.

### 3. Detector Alignment

It is strongly recommended that you verify the Solas 8™ detector alignment using the blue LED provided before using the device for the first time. The blue LED can be found taped inside a well in the big well heating block that is below the touch screen. Remove it and keep it in a safe place.

From the start screen, go to Diagnostics > Stepper Motor. You will see two options:

**3.1 STEP VARIATION** - checks for mechanical displacements. Press the ► button and wait for test to complete. Variations less than 10 steps won't affect the performance of the device. If variations are greater than 10 steps, please contact the MatMaCorp Support team at (+1) 402-387-7900 as the device's overall performance might be affected.

**3.2 ALIGNMENT** - checks the detector starting reference point. To run this function: Turn the blue LED ON. Insert the blue LED into Well #1 of the small block (block above the touch screen with small holes that holds 0.2ml tubes). Press the ► button.

The device will automatically adjust the detector reference point which will be indicated as the New Reference point.

## **4. Connecting the Device to the Network**

Your Solas 8™ can connect to either wired (LAN) or wireless networks (WiFi). A network connection can be used to view results (graphic representation of raw data) on a modern browser (like Google Chrome or FireFox). In order to view results from your Solas 8™, ensure that it is powered on and connected to your local network or in Access-Point Mode (see below). Type the device's hostname, or the device IP (this can be found on the main screen of the Solas 8™) into your browser's address bar, depending on your network configuration. If the hostname does not work, your local network probably requires advanced configuration to make the device hostname visible.

**4.1 WIRED NETWORK** - To connect your Solas 8™ device to your local network using the Ethernet port, simply plug in a Cat 5e or better Ethernet cable into the device. After a few seconds, depending on your network, the start screen will show an IP address. If not, advanced configuration is required to allow the device to be part of the local network. Advanced parameters can be set from the start screen Settings > Ethernet. If your local network configuration requires further advanced options that are not available through the User Interface, please contact the MatMaCorp Support team at (+1) 402-387-7900.

**4.2 WiFi NETWORK** - To connect to a wireless network, from the start screen go to Settings > WiFi - AP. Check the "Enable WiFi" checkbox. If the device is in AP mode, it will automatically be disconnected. A list of detected networks will be displayed. If your network is not in the list, you can refresh the list of detected WiFi networks by clicking the **Scan** button. To connect to a network:

- Select your network from the list
- Type in the network password

**NOTE: Presently, the Solas 8™ doesn't handle WiFi networks that require a username and password authentication or a web login.**

## 5. Access Point Mode (AP Mode)

The Access Point (AP) Mode option allows a Solas 8™ to be turned into a router. Any WiFi enabled device with a web browser can access the web server running on the Solas 8™. This is very practical if the Solas 8™ doesn't have access to any WiFi or LAN network, particularly in a remote location. This allows the user to access fluorescence data in real-time and also see various reports generated by the machine.

To enable the Access Point (AP) Mode, go to Settings > WiFi - AP and select the "Enable Access Point (AP)" checkbox:

- Select an Access Point name and IP address (you can use default values)
- Click the **Start AP** button
- From your WiFi enabled device, connect to the AP name (default is Solas 8™)
- Once connected, the webserver is accessible by typing in the AP IP address in any web browser URL (default is 192.168.10.1).

**NOTE: If multiple Solas 8™ devices are simultaneously in Access Point mode next to each other, make sure to give them a unique AP name.**

## 6. Software and Custom Kits Update

When software/database updates are available, machines that have web access will automatically display the update icon on the main screen. These updates will happen at regular intervals. When a C-SAND™ assay or DNA kit is ordered for the first time, the specific database changes needed will be part of the update. Additionally, if any standard test or DNA kit is ordered, all relevant protocols will also be updated. Test and kit specific updates are made only for specific machines. This is to ensure confidentiality for each customer. Only general software/database updates are sent to all machines.

If web access is not available, software/database updates can be sent to a specific email address and then transferred to the Solas 8™ using a USB drive.

## Section 2 - Isolating DNA/RNA using MagicTip™ Kits

Specialized MagicTip™ kits can be used to isolate DNA or RNA from different sample types. The Solas 8™ device has a big well heat block below the touchscreen that can be used for this purpose.

All necessary materials (buffers, reagents, MagicTip™, printed instructions) are provided with the DNA isolation kit. However, the use of the Solas 8™ platform is not necessary to use the MagicTip™ DNA/RNA isolation kit if a suitable big well heat block is available.

When using the Solas 8™ platform to isolate DNA/RNA, it is necessary to:

1. Add a User
2. Add a Sample under that User and then,
3. Isolate DNA/RNA

### 1. To Add a User

From the Start screen, select:

- Menu > Add Users/Samples > Add User (+ User icon).

You will be taken to a different screen. First and Last Name fields are mandatory. If the Solas 8™ has Internet access, the "Notifications" checkbox can be selected. An email address must be provided. To test the connection, click the TEST EMAIL button. Notifications will send email alerts and genotyping results at the end of different steps when a test is run.

### 2. To Add a Sample

It is necessary to select a User first to add samples. From the Start screen, select:

- Menu > Add Users/Samples
- From the Users list, select a User you want to add a sample to by selecting the corresponding row
- Click the Add Sample icon (+ Sample)

You will be redirected to a different screen where you will be asked to enter the sample information: the sample ID, the sample type from a list (tissue, blood, hair etc.), specific test needed for the sample (available on the device) and presented as a list also. Description and premise ID can be left blank. However, if a specific sample is attached to a particular description or location (premise id), then this information can be used later to find samples using the "Find Sample/Status" view. If DNA is already available, when entering the sample information, select "DNA" in the "SELECT SAMPLE TYPE" list.

- Click Save

**2.1 Control Samples** - In most diagnostic tests or biology related experiments, some samples are run as Positive or Negative controls. Please be aware that the system is agnostic about the role of a sample as long as the user knows what sample is being run as a control. It is possible that some of the target detection kits provided by MatMaCorp will have internal controls (positive or negative). This information will be available with the documents that come with the kit.

**2.2 Background Controls** - For the Solas 8™, there is another control type which is referred to as a Background Control (BKGD CTRL). This control is treated by the system like any other sample except that it does not expect this sample to have any DNA/RNA or other biological material in it. This is used to constrain the calling algorithm for a specific fluorescence and assay. This constraint is particularly important for Target detection. We recommend running one BKGD CTRL the first time you receive a new C-SAND™ Target detection kit.

**NOTE: Once a BKGD CTRL is set, then the constraints are used for that test on all subsequent runs until you specify another negative control. You may want to change BKGD CTRL depending on background noise.**

### 3. To Isolate DNA/RNA

Once samples are added to the database, it is possible to isolate DNA or RNA from those samples.

**NOTE: Only one sample type can be processed together. For example, if you are isolating DNA from blood, all the blood samples that are available will appear in the sample list.**



From the Menu screen select "Isolate DNA/RNA":

- Choose a MagicTip™ kit (depending on the sample type you want to process)
- Click the Next arrow on the top right corner
- Select the samples you want to isolate DNA/RNA from the list of samples that will be displayed
- Click the Next arrow on the top right corner
- You will be prompted with a Confirmation screen. Confirm or change your selection
- Follow the Protocol Instructions that appear on the screen

The Protocol Instructions screen shows the protocol for the DNA/RNA isolation kit you selected. It is a touchscreen readable version of the protocol instruction booklet included in the MagicTip™ kit box. The left column contains the protocol steps, and the right column contains the different sub-steps for each step selected. Follow along on the device highlighting each step as you go. As soon as the protocol begins, the heat block will start heating to the required temperature. If one of the sub-step requires heating or a timer, the touchscreen will display a START button that is greyed out until the heat block reaches the temperature for a heating step. If it's a timer step, clicking START will start the countdown.

After all the step have been completed, selecting the last sub-step of the last main step will display a "DONE" button in place of the "CANCEL" button. The user has to confirm that the DNA/RNA isolation is complete to notify the system and update the samples status. This will now mark the samples as DNA so that the system knows that it is available for further analysis.

## Section 3 - SNP or Target Detection using C-SAND™ Kits

C-SAND™ Assay kits can be custom made or standard (off the shelf) and contain all the necessary reagents to perform SNP or target detection assays using the Solas 8™ device. Eight samples can be processed at one time for the same test.

When using the Solas 8™ platform to run a C-SAND™ test, you need to:

1. Add a User
2. Add a Sample (could be DNA or RNA)
3. Isolate DNA/RNA and then,
4. Run the C-SAND™ test

Once the database contains the necessary information to track a sample from start to finish, and DNA is available (either using the MagicTip™ method or any other DNA isolation methods), only then a user can run a C-SAND™ test. The Solas 8™ database is organized around the concept of USERS. A user owns samples that can be of different types, the user isolates DNA/RNA and runs the needed C-SAND™ test to get results which are then linked to that sample.

To Add a User, and Add a Sample and Isolate DNA etc., please refer to the "Isolating DNA/RNA using MagicTip™ Kits" section.

### 1. To Run a C-SAND™ Test

Once DNA/RNA is available, you can run a C-SAND™ assay based Test on the Solas 8™. For this, go to the Menu screen and select "Run Test":

1. Select a Test that you want to run
2. Select a Protocol (field or lab kit protocol depending on the kit you have available)
3. Click the Next arrow on the top right corner
4. Select Samples. You can only select 8 samples at the most.

For a Target Test, it may be necessary to have a Negative Control and a Positive Control. Both controls have to be entered as Samples when you Add Samples as described in Section 2. For Background Controls (BKGD CTRL), see special instructions under Add Samples in the "Isolating DNA/RNA using MagicTip™ Kits" section.

**NOTE: Sample well position will be laid out from 1 to 8 in the order they are selected.**

5. Click the Next arrow on the top right corner

**IMPORTANT: YOU WILL BE PROMPTED WITH A LAYOUT CONFIRMATION. AT THIS POINT, THE ASSOCIATION BETWEEN WELL POSITION, SAMPLE, AND TEST IS DONE WHEN THE USER CLICKS THE "YES" BUTTON. IF THIS LAYOUT IS NOT RESPECTED, THE SOFTWARE WILL ASSOCIATE THE WRONG FLUORESCENCE SIGNAL WITH THE WRONG SAMPLE.**

6. Follow the protocol instructions that appear on the screen

**NOTE: You can highlight each step to visually keep track of your progress. The protocol displayed on the screen is a touchscreen readable version of the protocol instruction booklet included in the C-SAND™ Assay kit.**

7. Highlight the last step (scroll down if necessary)

**NOTE: Highlighting the last step will hide the protocol and show toggle buttons reflecting the layout. To avoid starting a reaction before all steps are completed, the user must manually activate all the toggle buttons. Only then the "START" button becomes clickable.**

8. **Select all samples** and click "START"

## Section 4 - Visualizing and Exporting Data (Results)

Data (results) generated by the device on a test (or experiment) you are running can be printed, exported, emailed or summarized in different ways. Different file formats (csv, pdf and html) are also available depending on your needs and the needs of your clients (customers).

### 1. Real Time Results and Real-Time Fluorescence

After you click START for Step 2 (see section 3 above), you will see a **Results** icon appearing on the screen. Clicking **Results** will display a table that shows the genotyping calls for the assay and all samples being run. When the “Done” column is checked automatically, the call has been completed for an assay and sample.

It is also possible to visualize real-time **fluorescence** while a test is being run. You will need a WiFi enabled device if you connect through the Access-Point or a computer that is connected to the same network as the Solas 8™ device. For details on how to connect to the Solas 8™ directly or through a network, see item 4 and 5 in Section “Getting Started”.

- Once connected to the Solas 8™ device, type in the IP address or the host name of your Solas8 in a web browser address bar. The IP address (for wired or Wi-Fi network) as well as the host name can be found on the Start Screen towards the bottom. If you are using a Wi-Fi network and you use the host name, make sure to put a w after the host name (ex: Sol18100001w). You will open a folder with a red banner on top that shows two folders – Reports and Tests.
- Select Tests and browse to your experiment

The “Tests” folder will contain folders named after the different C-SAND™ kits. Those folders will contain the different experiments that were run. Opening the experiment will show you real-time fluorescence for each sample and calls made if available.

### 2. Results and Fluorescence data after a Run is Complete

After a test is complete, the real-time Results icon seen during the Run of the experiment (that showed the table with data) will disappear. You can access a summary of the final results in two ways: directly from the Solas 8™ device or using a Wi-Fi enabled device or a computer connected to the same network as the Solas 8™.

**2.1 Directly from the Solas 8 device** - Go to the Main screen. Select the Reports Icon. Once you click on it, it will display the latest experiment that you ran. You can display up to 40 experiments. Select the experiment(s) you want to export, insert a USB drive into the Solas 8™ and click the “Export” button. All the results for the selected experiment(s) can now be viewed offline from the USB drive. When you open a folder on the USB drive with a specific test that you are interested in, you will find **csv**, **pdf** and **html** versions of results for the samples that were run.

**2.2 Using a Wi-Fi enabled device or computer** - The procedure for this is similar to what is described above for visualizing real-time fluorescence. You will need a WiFi enabled device (example, smart phone) if you connect through the Access-Point or a computer that is connected to the same network as the Solas 8™ device. For details on how to connect to the Solas 8™ directly or through a network, see item 4 and 5 in Section “Getting Started”.

- Once connected to the Solas 8™ device, type in the IP address or the hostname of your Solas 8™ in a web browser address bar. You will open a folder with a red banner on top that shows two folders – Reports and Tests. Click on “Reports > solas8”. Under the solas8 folder, you will find the same folder structure as in Tests. Simply navigate to your latest experiment and open the folder you want to open. When you open a folder you will find **csv**, **pdf** and **html** versions of results for the samples that were run.

**NOTE: In both cases described above, the genotyping.html file contains a table with the different assays and calls that were made. Clicking the Graph Viewer link will display the fluorescence signal for the sample and assay selected.**

### 3. Search and Advanced Report Functions

**3.1 To find data (results) from a single sample** - From the Start Screen, Select Menu and from there select “Find Samples/Status”. Click on the icon. The table displays the last 500 entries. You can perform a quick search by using the search entry text box looking up for the different column heading in the database. If you need a more refined search, Clicking the “Filter” icon next to the search bar will take you to a new screen where you can perform a more detailed database look up. If a sample has been tested, highlighting a sample row and clicking the “Status” icon will give the genotyping results. Clicking the right pointing arrow will show the breakdown for the different calls.

**3.2 Advanced Reports** - From the Main screen, Select Reports > Advanced. The "Advanced" page allows the user to generate more refined reports by applying date time, user or test filters. Once the different filters are selected, clicking the "Generate" button will create a new folder with the report name under "Reports > Advanced" on the Solas 8™ web server. If the USB checkbox is selected, data can be copied over to a USB drive.





## **Contact Us:**



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