

SARIN TECHNOLOGIES LTD.

Sarine Light

PC to System Coupling and Head-Stone Verification

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Safety First

Sarin Technologies Ltd. believes that the safety of personnel working with and around our systems is the most important consideration. Read all safety information below and in the System's Operations and Maintenance Manual before attempting to operate the system or perform any other procedures.

Warnings

- 1. Obey and follow all warnings and cautions given in this document.
- 2. Comply with all approved and established precautions for operating electrical and mechanical equipment.
- 3. All the procedures should be performed only by trained and authorized personnel.

Conventions

The following symbols have been inserted on the left hand side of the operating instructions in order to make it easier for the User to perform procedures:

Symbol	Description
-	Note: Information given in a note describes how the part/unit/system functions or provides a tip on how best to use it.
	Caution: Information given in a message labeled "caution" refers to the safe operation of the system and provides warnings where the possibility for loss of data or damage to the equipment exists.
O	Danger: Information given in a message labeled "danger" warns of possible hazard to personnel and extreme hazard to the system.

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1. General

The Sarine LightTM is an advanced high-precision system used to evaluate measure and grade the light performance of a diamond.

The Sarine LightTM evaluates how the light plays within the diamond and the amount of the light that is returned out of the diamond, back to you.

Once a diamond is placed in the Sarine Light[™] machine, it automatically measures the diamonds 4 light parameters, Brilliance, Fire, Sparkle and Light Symmetry, which is then merged into a total grade.

1.1 Purpose

The following document provides detailed instructions for:

- Configuring the PC coupled with the Sarine Light system
- Head-stone verification procedure

1.2 Related Documents

System Operation and Maintenance Manual

1.3 Environment

Particles and dust free environment

1.4 Safety

Verify there are no obstacles near the rotating parts of the system.

2. Process Flow and Required Parts

2.1 Process Flow

The process of coupling the PC with the Sarine Light system includes the following procedures:

- 1. Creating encrypted files (see chapter 3)
- 2. Coupling the PC with the system (see chapter **Error! Reference source not found.**)
- 3. Sarin Ref-Stone verification process (see chapter 4)

2.2 Required Parts and Tools

The following parts are required for configuring the PC and for performing the head-stone verification process.

2.2.1 PC for Encrypted Files Creation

Tool Description	P/N	Notes
PC with Windows 7 or XP OS loaded with:		
Production Tool application		Version 1.0.1.0

2.2.2 PC Hardware and Software

Tool Description	P/N	Notes
PC with Windows 7 OS loaded with:		32 bit with two mirror raid disks of 2 TB each
Google Chrome		29.0.1547.76 m
Team Viewer		Version 8
Sarine Light Installation CD		

2.2.3 Verification Parts and Tools

Tool Description	Tool P/N	Notes
Calibration stones kit		3 different size stones
Tweezers	10034T	
Alcohol or IPA	0012-60	

3. Creating Encrypted Files

Configuring the Sarine Light coupled PC requires six unique encrypted files. The files are created for each system serial number, using a dedicated PC with the **Production Tool** application.

Note: To create the encrypted files the PC must be configured as follows:

- Open VPN with an account for production
- Out of the PROXY

Following are the operations for creating the encrypted files for a number of Sarine Light systems.

 Browse to the folder Dlight\ProductionTool_V1.0.1.0, and create a text file with a list of all systems and their serial number named machines.txt (see Figure 3-1).



Figure 3-1. Machines text file (without GUID)

- 2. Create a new folder named Target_folder.
- 3. Double click the **createVersion** batch file. The following occurs:

A folder named **prev** is created in the **Target_folder**.

All files from the **current** folder are copied to the **prev** folder.

The SarinAuthServer.ProductionClient application is activated (see Figure 3-2).

une . mi oben	Share with * Burn New folder						
vorites	Name	Date modified	Туре	Size			
lesktop	🔒 build_folder	08/05/2013 12:20	File folder				
ownloads	I Target, folder	02/06/2013 15:34	File folder				
ecent Places	CreateVersion	19/03/2013 16:11	Windows Batch File	2 KB			
	exclude	10/03/2013 14:26	Test Document	1 KB			
aries	machines - Copy	06/05/2013 14:40	Test Document	3 KB			
ocuments	machines	28/08/2013 13:01	Text Document	1 KB			
usic	SarinAuthServer.ProductionClient	19/03/2013 11:45	Application	250 KB			
ctures deos	SarinAuthServer.ProductionClient.exe	12/03/2013 11:31	CONFIG File	7 KB			
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Figure 3-2. Production Tool GUI

The following text boxes are automatically filled (see Figure 3-3):

- Working folder with the path to the build_folder.
- Target folder with the path to the current folder.
- Version with the number of the current software version.

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Desktop	build_folder	08/05/2013 12:20	Filefolder			
Downloads	Target_folder	02/06/2013 15:34	File folder			
Recent Places	createVersion	19/03/2013 16:11	Windows Batch File	2 KB		
	exclude	10/03/2013 14:26	Test Document	1 KB		
braries	machines - Copy	06/05/2013 14:40	Text Document	3 KB		
Documents	machines	28/08/2013 13:01	Test Document	1 KB		
Music	SarinAuthServer.ProductionClient	19/03/2013 11:45	Application	250 KB		
Pictures	SarinAuthServer.ProductionClient.exe	12/03/2013 11:31	CONFIG File	7 KB		
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Figure 3-3. Production Tool (in progress)

Folders for each of the systems listed in the **machines.txt** file are created in the **current** folder (in the **Target_folder**), which includes the unique build for each of the specified Sarine Light systems.

4. At the end of the process copy the six created files into the folder created for each Sarine Light system, named with its serial number.

5. Backup the encrypted files to <u>\\netapp\target\Machine Data</u> <u>Production\D-Light\Dlight 1.2\DlightEncryptionFiles</u>

Encrypted files to backup are:

configuration.xml

LP. Algo. Brilliance Symmetry Calculator S. dll

LP. Algo. Fire Contrast Calculator S. dll

 $Server_public.key$

AnalyzerManagerS.dll

CalibrateManagerS.dll

4. Head-Stone Verification Process

The head-stone verification process is a process that calibrates the Sarine Light system with three Sarin reference stones, and includes the following two steps:

- <u>Step 1</u>: Measuring the stones
- <u>Step 2</u>: Verifying the stone measurements

4.1 Logging-in and Connecting

1. Double-click the **Sarin Agent** shortcut on the PC desktop (see Error! Reference source not found.).

The following window opens.

Machine Agent - Connected to http://app.qa1.	sarinelight.com	
🖶 Disconnect View Settings		
Machine Information About		
IP Address 192.168.92.57 State Temperature 26 Calibration Needed	11:44:14 : Initialized. 11:45:13 : Machine Agent - Keep alive. 11:46:13 : Machine Agent - Keep alive. 11:47:13 : Machine Agent - Keep alive. 11:49:13 : Machine Agent - Keep alive. 11:50:13 : Machine Agent - Keep alive. 11:51:13 : Machine Agent - Keep alive.	
🖶 💠 UPLD INFO		Version: 1.2.0.39

Figure 4-1. Machine Agent window

- 2. Verify the following (see Figure 4-1):
 - There is an **IP Address**
 - There is a number for the **Temperature**
 - **Connected** is written on the window upper banner.

The above indicates the PC is connected to the system and there is a valid internet connection.

3. Double-click the **Sarin Light for Trade** (Chrome) shortcut on the PC desktop (see Error! Reference source not found.).

The Login screen appears.

Figure 4-2. Login screen

4. Type-in the Username and Password.

The Home page opens.

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	SARINE	Light	n-Store Measure Archive	My Reports Account	
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	+ 0	alibrate	Laboratory	Select Laboratory *	
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				0	

Figure 4-3. Home page

5. On the toolbar click **Account** and select the **Settings** option (see Figure 4-4). A list of the available machines is presented.

Note: The machines are identified according to their IP address or according to the Computer name.



Figure 4-4. Connect to machine

6. Click Connect.

The Login Date is updated (see Figure 4-5).

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	Pattern						The Light	for trading	system				
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	» Local» Proxy			Machine 192.168.92	User Name	MAG 402CF4E9CADE	Login Date 1 28.8.13	Version - 62	IP. 219.243.155				
										Show Me	How.		
🔊 📋 🗴	0	7	5	9 🥳						EN	- 12 10 40	11:58 28/08/2013	T

Figure 4-5. Connected screen

4.2 Adding a Verification Stone

1. On the toolbar click **Measure** and select the **Verify** option (see Figure 4-6).



Figure 4-6. Add Stone tab

 $2. Click the \ \textbf{Add Stone} \ tab.$

The Add new verification stone window opens.

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Figure 4-7. Add stone name window

- $3. \ \ \, \mbox{Type-in Stone name}$ and mark the Sarin Ref Stone checkbox.
- 4. Click Apply.

4.3 Calibrating and Measuring the Stone

1. Click **Start** on the **Calibration** task (see Figure 4-8).

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	Brilliance:	Symmetry:					
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Figure 4-8. Stone Calibration

A message requesting to place the stone appears.

Figure 4-9. Place a stone message

Note: Clean the stone with IPA (or alcohol) before placing on the Iris.

2. Do the following:

Close the Machine's Iris all the way. Place the stone to be measured at the center of the Iris Open the Iris, letting the stone drop on the machine's sapphire lens. Close the Iris around the stone, centering the stone on the lens. Open the Iris all the way.

3. Click Start on the Measure task (see Figure 4-10).

Figure 4-10. Begin Measuring

The Calibration Status changes to Done (in green), and the stone measurement process begins (the progress bar advances). A live video of the stone measurement is presented on the screen left pane (see Figure 4-11).



Figure 4-11. Measuring stone 1 (in progress)

When the stone measurement is complete a message requesting to rotate the stone and scan appears (see Figure 4-12)



Figure 4-12. Rotate the stone message

4. Lift the stone with tweezers and do the following: Close the Machine's Iris all the way.

Rotate the stone to a different angle and place it at the center of the Iris Open the Iris, letting the stone drop on the machine's sapphire lens. Close the Iris around the stone, centering the stone on the lens. Open the Iris all the way.

5. Click **OK**.

A second measuring process is performed.

After the second measurement is complete a message requesting to again rotate the stone and scan appears (see Figure 4-13).



Figure 4-13. AddSotne-sarinRef3Popup

6. Lift the stone with tweezers and do the following:

Close the Machine's Iris all the way.

Rotate the stone to a different angle and place it at the center of the Iris Open the Iris, letting the stone drop on the machine's sapphire lens. Close the Iris around the stone, centering the stone on the lens. Open the Iris all the way.

7. Click **OK**.

A third measuring process is performed.

After the third measurement is complete the following occurs (see Figure 4-14):

- The Status changes to **OK** in green
- A Last Successful Verification date and time notification line is presented.

Note: The date and time are those of the server (not of the connected PC).



Figure 4-14. Last Successful Verification

8. Click the arrow sign (▶) to open a dropdown window with the stone measurement results (see Figure 4-15).

Figure 4-15. Stone measurement results

Note: Results written in red indicate the stone was not centered. Is such a case — repeat the measurement.

- 9. Check and ensure the stone Avg results match the stone size provided by the system engineer and are within the acceptable tolerance. If they are not — repeat the calibration and measuring process.
- $10.\,\rm Click\,\, Back$ to List.

11. Repeat the calibration and measuring process with the other two Sarin reference stones.

4.4 Verifying the Stones Measurements

After calibrating and measuring the three reference stones, a verification process is performed to verify the machine is calibrated.

1. Mark the checkboxes of the three measured stones (see Figure 4-16).

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					Light	Cherry -	
				1	he LIGHT for trading syste	m	
					R Notification	Add Stone Verify	
	Measure Panel	- + + +	Verification Stone	s Management		Machine# MTBF-SARIN2	
			Last Successfi	I Verification: 28 Aug	2013 06:41AM		
					Stone name	Status	
			1	Þ	stone6 (Sarine Ref)	ок	
			s.	۲	stone4 (Sarine Ref)	ок	
			đ	•	stone3 (Sarine Ref)	OK	
		can					
	Total Grade:	Lov # - Ultrate ###					
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Figure 4-16. Marking the reference stones

- 2. On the toolbar click Measure and select the Verify option (see Figure 4-6).
- 3. Repeat the calibration and measuring process for each of the three reference stones.
- **Note:** If at any time during the verification process a wrong size stone is placed, the full verification process should be repeated.



Figure 4-17. First stone verification (in progress)

 After measuring each of the reference stones, click the arrow sign (▶) to open the dropdown window with the stone measurement results (see Figure 4-18).

ərine Light for Trade	× T MTBF_Sarin pp.qa1.sarinelight.cor	× M natish n/RefStone/RefStone	napiro9@gmail.com ×	https://	://mail-att	chment.							•
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	_	Select Range #		Task Nam Calibration	e 1	ask Descri	ption			Status Done			
			Saved Scan Dev Min Ma Devlation ±	Diameter 598.377 598.639 x 0.262 55	1 Brilliance 76.811 74.387 2.424 3.5	torie6 (Sati Scintillation 83.716 82.809 0.907 6	ne Ret) 1 Symmetry 89.478 89.634 0.156 3	Fire 104.046 105.302 1.256 8.5	Contrast 80.145 79.012 1.133 3.5	Static Fire 1 93.741 94.805 1.064 8	Dynamic Fire 145:269 147:289 2:020 10		
	Total Grade:	lor + - Utrate +++	-	Measure Measure	1	tone4 (San tone3 (San	ne Ref): ne Ref):			NotStarted	Start		
	Brilliance:	Symmetry:	+ Back to Lis										
6										\$	Show Me	How	2

Figure 4-18. First stone verification results

Note: If the Deviation value is written in red, it is because the measurement exceeded the acceptable tolerance. Repeat the measurement.

5. Click **Back to List** after each stone to verify the next stone.



Figure 4-19. Third stone verification (start)

Click Start to perform the verification process.
 After verifying all three stones, the Status changes to Done (in green).

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	SARINE	Light	In-Store Measure A	vrchive My Reports /	Account	
				The Light for tradin	g system	
	Measure Panel	+ 1 #	Verification Process	R Rest (1	Deine G, Add G, Venty Machine# MTBF-SARIN2	
			Task Name	Task Description	Status	
		Sniect Range +	Calibration		Done	
			▶ Measure	stone6 (Sarine Ref):	Done	
	4	and a	▶ Measure	stone4 (Sarine Ref):	Done	
	÷.	Roscan	Measure « Back to List	stone3 (Sarine Ref):	Done	
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Figure 4-20. Verify stone done

7. Click Back to List.

The Last Successful Verification date and time are updated (see Figure 4-21).



Figure 4-21. Stone verification done and successful

4.5 Verification Troubleshooting

In case there was a disconnection between the PC and the machine or internet, the following message appears (see Figure 4-22).



Figure 4-22. Disconnection

In such a case — start the measuring process from the beginning.

5. Appendices

Appendix 1. Reference Stone Sizes