

L SCAN[®] 1000T Integrator Manual





Cross Match[®] Technologies

L SCAN[®] 1000T

**Rolled Finger and ID-Flats Live Scan
System**

Integrator's Manual

Version 2

Second Edition (December 2006)

Availability and specifications are subject to change without prior notice. Cross Match Technologies GmbH assumes no liability for maloperation or improper use of products.

No portion of this guide may be reproduced in any form or by any means without the express written permission of Cross Match Technologies GmbH.

Cross Match[®] and L SCAN[®] are registered trademarks of Cross Match Technologies in the USA and the EU.

All other trademarks, brands and names are the property of their respective owners and are protected by US and international copyright and trademark laws.

© Copyright 2006, Cross Match Technologies GmbH. All rights reserved.

Contents

Preface

Appropriate Operation	xi
Who should read this book	xi
How this book is organized	xi
Conventions	xii
Safety instructions	xii

Introduction

L SCAN 1000T overview	1-1
The L SCAN 1000T features	1-1
The function pad	1-3
System requirements	1-4
Operating systems	1-4
Hardware	1-4
Cabling	1-4
L SCAN 1000T system use cases	1-4
Using the portable option	1-5
Transportation to place of operation	1-5

Installing the SDK

Installing the CaptureEssentials software package	2-1
Updating the SDK	2-3
Using the control panel	2-3
Using the Installshield Wizard	2-3

Installing the L SCAN 1000T

Unpack the L SCAN 1000T	3-1
Packing list	3-2
Connecting the L SCAN 1000T	3-3
Installation	3-5
Switching the L SCAN 1000T on and off	3-7

Switching off the L SCAN 1000T	3-7
The standby mode	3-7
Controlling the system	3-8
During text input	3-8
During fingerprinting	3-8
Preparing the L SCAN 1000T for cabinet integration	3-9

Testing the L SCAN 1000T

The TestWizard	4-1
Checking the computer configuration	4-2
Initializing the scanner device	4-3
Testing the control elements	4-4
Testing the scanner units	4-4
FPLU camera window	4-5
PPLU camera window	4-6
Using the generated log	4-7
Additional test applications	4-8
Error and Warning Messages	4-8

Maintenance

Maintenance levels	5-1
Preventive maintenance	5-1
Daily maintenance	5-1
Weekly maintenance	5-2
Quarterly maintenance	5-2
Regular Maintenance	5-2
Cleaning the glass platen	5-2
Cleaning the workspace and the case	5-3
Silicone pad maintenance	5-3
Replacing a silicone pad	5-4
Cleaning the silicone pad with cleaner sheets	5-7
L SCAN 1000T Specifications	5-9
FCC Statement	5-9
CE Compliance	5-10

Problem correction and Technical Support

Common problems	6-1
The computer does not recognize the L SCAN 1000T	6-1
Scanner disconnected during operation	6-1
Spotted background and dark image sections	6-2
Visualization and capture speed too slow	6-2
Scanner initialization failed	6-2

Glass platen illumination out	6-3
Function pad illumination out	6-3
Technical Support	6-3
Electronic Mail	6-3
Telephone and facsimile	6-4
Returns and repairs	6-4
Delivery costs	6-5
The product is in the warranty period	6-5
The product is not in the warranty period	6-5
Contact information	6-5
Corporate Headquarters	6-5
Germany	6-5
Corporate Web Page	6-5
Warranty and Remedy	
Standard Warranty and Remedy	7-1
Limited Warranty	7-1
Repair or Replacement	7-1
Limitations	7-2
Out-of-Warranty Repairs	7-3
Extended Maintenance	7-3

Index

Figures

Figure 1.1: The L SCAN 1000T, front view	1-2
Figure 1.2: The L SCAN 1000T, rear view	1-2
Figure 1.3: Details of the function pad	1-3
Figure 2.1: Setup main menu	2-1
Figure 2.2: Custom setup screen	2-2
Figure 2.3: Installation completed	2-2
Figure 3.1: Unbag the L SCAN 1000T	3-1
Figure 3.2: Supplies box	3-2
Figure 3.3: Removing the connector tray covers	3-3
Figure 3.4: Connectors of the L SCAN 1000T	3-3
Figure 3.5: Connecting the L SCAN 1000T	3-4
Figure 3.6: Connecting the L SCAN 1000T completed	3-5
Figure 3.7: Found new hardware	3-5
Figure 3.8: Choose the search option	3-6
Figure 3.9: Driver installation completed	3-6
Figure 3.10: Removing the platen cover	3-10
Figure 3.11: Mounting the faceplate	3-10
Figure 4.1: TestWizard start screen	4-2
Figure 4.2: Computer configuration screen	4-2
Figure 4.3: Initialization screen	4-3
Figure 4.4: Control elements screen	4-4
Figure 4.5: FPLU camera unit screen	4-5
Figure 4.6: FPLU live image screen	4-6
Figure 4.7: Log file screen	4-7
Figure 5.1: Cleaning the glass platen	5-3
Figure 5.2: L SCAN 1000T finger guide and the silicone pad	5-4
Figure 5.3: Cleaning supplies	5-5
Figure 5.4: Prying up a corner of the silicone pad	5-5
Figure 5.5: Peeling back the first film	5-6
Figure 5.6: Adjust and lowering the silicone pad	5-6
Figure 5.7: Wiping bubbles from silicone pad	5-7
Figure 5.8: Removing top protective film	5-7

Figure 5.9: Peel a cleaner sheet from the pad5-8
Figure 5.10: Place and press cleaner sheet to silicone pad5-8
Figure 5.11: Lift cleaner sheet off silicone pad5-8

Tables

Table 1.1: L SCAN 1000T features	1-2
Table 1.2: Function pad features	1-3
Table 3.1: Supplies box content	3-2
Table 3.2: L SCAN 1000T connectors	3-3
Table 5.1: L SCAN 1000T specifications	5-9
Table 6.1: Technical Support department addresses	6-3
Table 6.2: Technical Support department numbers	6-4
Table 6.3: Addresses for product returns	6-4

PREFACE

Appropriate Operation

The L SCAN 1000T Rolled Finger and ID-Flats Live Scan System must solely be used for the intended application to electronically capture fingerprint images. The system compares rolled and plain with rolled fingerprints thereby providing a duplicate finger check. Depending on the type of capture, the fingerprints can be printed on a high resolution laser printer and can be electronically transmitted to the central site.

The scanner device is intended for use in an IT-devices area. The operation must be in connection with suitable computer equipment and has to be in accordance with the IEC 60950 and UL 60950 standards.

Who should read this book

This Integrator's Manual is intended to help you set up and use the L SCAN 1000T Rolled Finger and ID-Flats Live Scan System (hereinafter referred to as the L SCAN 1000T).

How this book is organized

- **Chapter 1 “Introduction”** introduces the L SCAN 1000T and the system requirements of the scanner.
- **Chapter 2 “Installing the SDK”** covers the software package installation process for the L SCAN 1000T.
- **Chapter 3 “Installing the L SCAN 1000T”** takes you through unpacking, installing and setting up the L SCAN 1000T.
- **Chapter 4 “Testing the L SCAN 1000T”** describes a tool that helps to perform a complete interactive diagnosis of the system and the scanner.
- **Chapter 5 “Maintenance”** covers how to maintain the L SCAN 1000T and presents the L SCAN 1000T specifications.
- **Chapter 6 “Problem correction and Technical Support”** covers errors, causes, and corrections. The chapter also explains how to get the technical support that is available from Cross Match Technologies.
- **Chapter 7 “Warranty and Remedy”** contains the full text of the product warranty from Cross Match Technologies GmbH.

Conventions

The following conventions are used in this book:

- **Bold UPPER/lower case** and *italics* are used for emphasis.
- Pages are numbered in the chapter-page format, where as page 3-4 would mean the fourth page of the third chapter.
- Notes, cautions, warnings, and danger notices appear as follows:

Note Used to make a procedure easier. To disregard this notice may cause inconvenience, but not mechanical damage or personal injury.

Caution Used to prevent equipment damage or data loss. To disregard the caution may cause mechanical damage or data loss; however, personal injury is not likely.

Warning Used when an action or circumstance may potentially cause injury or loss of life. Mechanical damage may also result.

DANGER Used whenever an action or circumstance is likely to or will cause injury or loss of life. Mechanical damage may also result.

In addition, the following terms are used throughout this manual

Safety instructions

This product has been designed, manufactured and tested according to international safety standards. The following general safety precautions must be observed during all phases of operation to ensure safe operation of the L SCAN 1000T Live Scan system. Cross Match Technologies GmbH assumes no liability for the customer's failure to comply with these requirements.

DANGER The device must be used only in a dry room. Avoid any condensation. Operation in the vicinity of electroconductive dust, such as pulverized coal, metal coal and the like may cause a hazard.

- The maximum environmental temperature is 95°F (35°C).
- When operating the device, the electrical installation and cabling must comply with the IEC 60950 standard.
- The connection to suitable computers must use a standard IEEE 1394 interface.
- The L SCAN 1000T device is protection class 3 equipment. The power supply must be provided by an certified power supply unit with an output voltage range of 18.50 to 19.95 V DC. The electric current range of the power supply unit must be at min. 3 A and max. 5 A. If the power supply unit supports more than 5 A an external certified fuse (IEC/EN 60127) must be used.
- Whenever it is likely that the electrical protection has been compromised, the device and system must be unplugged and secured against unauthorized use.
- For continued protection against fire, replace fuses with fuses of the same type and rating.

- Only authorized service personnel should open the scanner. Before opening the device disconnect the power cable from the device.
- There are no user-serviceable parts in the scanner device. For service, contact qualified and authorized personnel.
- Do not apply mechanical stress to the scanner platen. Do not throw heavy objects onto the scanner platen. The platen is made of glass and might be destroyed if not handled properly. A broken platen might have sharp edges, which could cause injuries.
- Do not scratch the platen. The platen is vulnerable to sharp metallic instruments (knives, scissors) and extremely hard objects (diamonds). Scratches may reduce the image quality and thereby lead to scanning results below the required quality specification.
- Always keep the platen clean. Use the recommended glass cleaner and lint-free tissue for cleaning. Do not use oily or abrasive cleaners since they might affect the platen surface quality.
- Do not pour liquids (water etc.) onto the scanner. The scanner device is protected against cleaning with a damp cloth or tissue, however, it is not waterproof.

Before you operate the device in a modular system such as a rack or cabinet consider the following:

- You must meet the requirements of the IEC 60950 and UL 60950 standards.
- Do not exceed the approved total leakage current of the system.
- If the device is mounted in a cabinet, ensure that it cannot tilt forward and disengage from the cabinet in the event that the cabinet is disturbed.

Introduction

THIS CHAPTER INTRODUCES THE L SCAN 1000T AND COVERS THE SYSTEM REQUIREMENTS FOR THE LIVE SCAN SYSTEM.

The L SCAN class of professional-grade scanners are the world's first Live Scan devices to achieve FBI certification for fingerprint capture at 1000 ppi. This Integrator's Manual is intended to help you set up and use the Live Scan System.

L SCAN 1000T overview

The L SCAN 1000T has been designed to electronically capture flat and rolled fingerprint images for electronic submission, combining crystal clear and crisp images with rock solid performance, real time display and instant quality checks. For the standard version the glass platen is illuminated in red. An optional special version is available with green illumination and an protective silicone pad on the platen, which is used to both protect the platen and enhance the fingerprint images.

The device is a very compact and lightweight scanner and connects to a standard PC running Windows XP Professional using an IEEE 1394 Firewire communications interface.

The L SCAN 1000T can be used either stand-alone or connected to a dedicated network. Two smart buttons make it easy to operate.

The L SCAN 1000T features

The following images and tables contain the major components and important details of the L SCAN 1000T with a brief description of each.

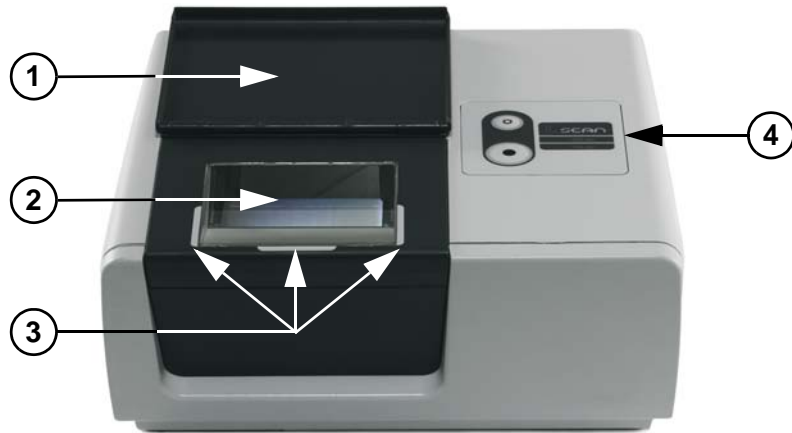


Figure 1.1 The L SCAN 1000T, front view

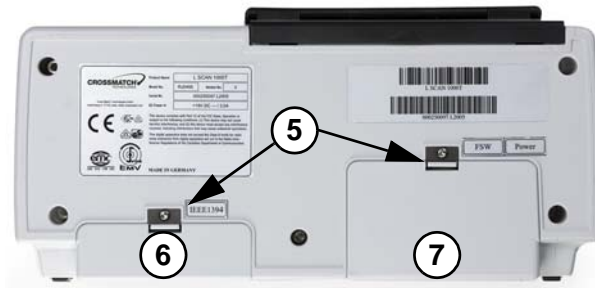


Figure 1.2 The L SCAN 1000T, rear view

Table 1.1 L SCAN 1000T features

Feature Description	
①	Platen Cover. Mounted with a hinge and is movable, the cover protects the glass platen and minimizes the deposit of dust and grit on the platen when the device is not in use.
②	Glass Platen. The glass portion of the device through which the L SCAN 1000T captures the fingerprint images.
③	Gray Markers. The gray markers help to position the thumbs correctly.
④	Function Pad. Contains two smart buttons to control the L SCAN 1000T during capture as well as indicators of operating status and capture resolution.
⑤	Self-locking Springs. Holding both cable tray covers in position.

Table 1.1 L SCAN 1000T features

Feature Description	
⑥	Interface Connector Tray Cover. Secured with a self-locking spring, this cover holds the IEEE 1394 interface cable in the correct position and prevents it from disconnecting during operation.
⑦	Power Supply Tray Cover. Secured with a self-locking spring, this cover holds the DC power cable and the foot switch cable in their correct positions and prevents both from disconnecting during operation.

The function pad

The function pad is located to the right of and slightly above the glass platen. After the scanner is switched on all elements will be illuminated if their functions are active.

The smart buttons are backlit and illuminate after the scanner is initialized by the capture software.

**Figure 1.3** Details of the function pad

When used, the foot switch it is always connected to the default smart button. This allows easier operation, especially capturing rolled fingerprints.

Table 1.2 Function pad features

Function Pad Features	
①	Default Smart Button. Located below the alternate smart button, it triggers the current functional step within the capture workflow and is backlit green or yellow.
②	Alternate Smart Button. Used for alternate functions during the capture workflow, and is backlit in red or no color.
③	Status Indicator. The L SCAN logo is backlit blue. It flashes in scanner's standby mode and during a capture process. When steady, it indicates that the device is operational.
④	Resolution Indicator. The capture resolution indicator is backlit blue and flashes together with the status indicator during the capture process.

System requirements

This section details the system requirements needed to support the L SCAN 1000T. Your system should consist of a dedicated PC workstation with an available IEEE 1394 Firewire interface or a PCI slot to install it, or a laptop with a PCMCIA card bus.

Operating systems

- Windows XP Professional, Service Pack 2
- Windows 2000 Professional, Service Pack 4

Hardware

The following are hardware requirements for all systems:

- 2 GHz or higher Pentium IV-compatible CPU
- 512 MB RAM general, 1 GB for 1000 ppi mode operation
- IEEE 1394 port or a PCI slot for IEEE 1394 Interface Card
- High resolution screen for displaying 1280 x 1024 pixel
- DirectX drivers must be installed
- DirectDraw hardware acceleration must be enabled

Cabling

The L SCAN 1000T requires an IEEE 1394 interface cable and the external power supply with an AC power cable with your country-specific plug. Both cables are shipped by Cross Match Technologies GmbH.

L SCAN 1000T system use cases

The L SCAN 1000T can be used for either desktop, portable or integrated cabinet use.

The L SCAN 1000T system is a portable solution that can be moved together with a laptop, in a convenient, rugged and attractive travel case to any place, set up there in minutes, and used as a stand-alone fingerprint capture station.



The new L SCAN Cabinet accommodates all fingerprint and palm print scanners of the LITE and L SCAN class series. All user controls are arranged in the most ergonomic layout including the optional motorized height adjustment of the workspace to make the job of the booking officer as easy and safe as possible.

The large flat screen with optional touch functionality is located to display the captured fingerprints in full resolution. The workspace around the scanner provides additional space for placing paper documents or mounting additional input devices like signature capture devices. Foot switch controls are conveniently located at both front corners of the cabinet base.

Using the portable option

The design and dimensions of the travel case may vary with the scanner. The cardboard box contains the travel case as it is delivered originally from Cross Match Technologies to you.

Note It is important to keep your original packaging and all other packaging material. The original packaging will help protect your system should you ever have to return it for repair or maintenance. Cartons should be unfolded completely and kept in storage in a flattened state.

Transportation to place of operation

In order to protect the equipment, the following instructions must be observed:

- Keep the scanner and laptop in a warm and dry place when not in use, preferably in the original system travel case.
- Do not leave the system outside a building, or in a car, since very low or high temperatures could occur.
- Always pack the scanner into the original system travel case before taking it outside closed buildings, since the travel case protects the scanner against humidity and dirt.
- During transportation to a place of operation, keep the system at normal room temperature, in order to be able to start the operation within a comparatively short time later on.
- In case the device was exposed to cold temperatures during transport, the scanner and laptop must be allowed enough time at the place of operation to adapt to the room temperature there.

Warning Do not connect scanner and laptop to AC power when they have condensed air humidity on the housing (cold devices brought into warm rooms could show this effect) and wait until the condensation disappears.

- When carrying the travel case, handle it with care, be aware of the weight, do not drop it.
- Do not tip it over or throw it.
- Protect it against rain.
- Do not scratch the glass platen.
- When using forwarder services (express delivery, air freight), always pack the travel case back into the original cardboard packaging - do not sent it out in the travel case only. Declare as sensitive goods.

- Inspect the travel case and its contents immediately after receiving it from your forwarder or the baggage claim carousel and report possible damages instantly.

Installing the SDK

THIS CHAPTER PROVIDES ALL THE INFORMATION REQUIRED FOR INSTALLING THE CAPTURE ESSENTIALS SOFTWARE PACKAGE FOR YOUR LIVESCANNER INCLUDING APPLICATIONS TO TEST THE FUNCTIONALITY.

Installing the CaptureEssentials software package

The *CaptureEssentials* software provides the specific functions to capture fingerprints, to display scanner real-time images on the screen while the finger is on the platen and includes all PC interfaces and drivers.

Installing the *CaptureEssentials* software copies all the required L SCAN driver files into the same directory, where they can be easily accessed during the L SCAN 1000T installation.

Note Before you connect the L SCAN 1000T to the IEEE 1394 port of your PC you must install the CaptureEssentials software.

- 1 Switch on your computer and insert the CrossMatch Livescanner Software Setup CD.
 - If the software setup does not automatically start, navigate to the CDROM drive using Windows Explorer and double-click the file named [CDAutoRun.exe](#).



Figure 2.1 Setup main menu

- The *Main Menu* of the software setup appears showing all the installable components and all the viewable L SCAN 1000T documents.
- 2 Click on *Install CaptureEssentials 4.10* to run the setup. The standard Windows Installation Wizard guides you through the process.
 - 3 At the *Welcome* screen click **Next**, agree the *License Agreement* with **I accept...**, enter your customer information in the fields and click **Next** to enter the *Setup options*.
 - 4 Choose the **Complete** option to install all components to the default Windows drive.
 - The **Custom** option allows you to choose a different destination drive and to select a different set of components to install.

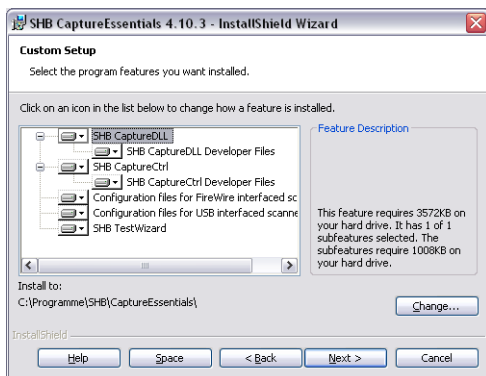


Figure 2.2 Custom setup screen

- 5 Click **Next** to choose the *Scanner interface* type and select the **IEEE 1394 Firewire** interface option.
- 6 Click **Next**, then **Install** to start the installation.
- 7 Click **Finish** to complete the installation of the *CaptureEssentials* software.



Figure 2.3 Installation completed

- 8 Leave the *Main Menu* by clicking **Exit** and remove the CDROM from your CDROM drive as the last step.

The software is now properly installed. You do not need to restart your computer.

Updating the SDK

There are two ways to obtain a new version of the SDK:

- Purchasing a CDROM of the latest version from your sales representative. To install it, see [page 2-1](#).
- Downloading the latest version from Cross Match Technologies' support web server for every registered customer. Not registered customers, please contact Cross Match Technologies GmbH International Sales at:

Tel.: +49 (0)3641 4297-18 or **e-mail:** international-sales@crossmatch.com.

Note Before you install the latest version of the CaptureEssentials you must uninstall your previous version.

To uninstall a previous version of the CaptureEssentials you have two options available:

Using the control panel

Navigate to Start/Settings/Control Panel/Add Remove Programs and remove the SHB CaptureEssentials component. After it is removed, you do not need to restart your computer.

Using the Installshield Wizard

- 1 Insert the CrossMatch Livescanner Software Setup CD again.
 - If the software setup does not automatically start, navigate to the CDROM drive using Windows Explorer and double-click the file named [CDAutoRun.exe](#).
- 2 Click on *Install CaptureEssentials 4.10* to run the setup. The standard Windows Installation Wizard guides you through the process, allowing you to modify, to repair, or to remove the *CaptureEssentials 4.10*.
- 3 At the *Welcome* screen click **Next**, click the maintenance option **Remove**, and click **Next** to start the routine.
- 4 Leave the *Main Menu* by clicking **Exit** and remove the CD from your CDROM drive as the last step.

You do not need to restart your computer again. Install the new version of the *CaptureEssentials* as described in the section above.

Installing the L SCAN 1000T

THIS CHAPTER COVERS UNPACKING AND INSTALLING THE SCANNER AND PREPARING IT FOR CABINET INTEGRATION.

The scanner device comes in a cardboard box. Put this box in an upright position on a hard surface such as a table, desk or counter top before opening. The cardboard box also contains a smaller box containing supplies.

Unpack the L SCAN 1000T

Note It is important to keep all original packaging materials in the unlikely event you should need to return the scanner for repair or maintenance. Cartons should be unfolded completely and kept in storage in a flattened state.

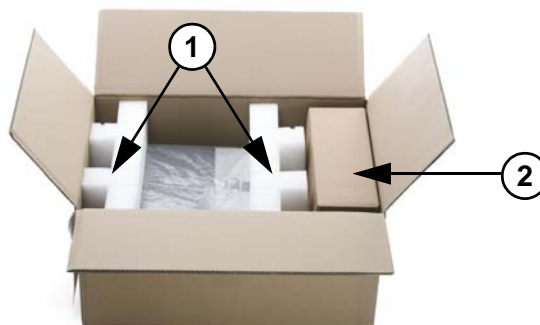


Figure 3.1 Unbag the L SCAN 1000T

- 1 Carefully open the cardboard box and take out the supplies box (2) so that you can unbag the scanner.
- 2 To unbag the scanner, grasp it with both hands between the shock absorbers (1), lift it up and place it on a solid, flat surface.

Caution Ensure that you hold the scanner tightly from underneath to avoid losing your grip on the device. The plastic bag around the scanner is slippery.

- 3 Remove the shock absorbers that protect the scanner from damage. You can then remove the plastic bag.

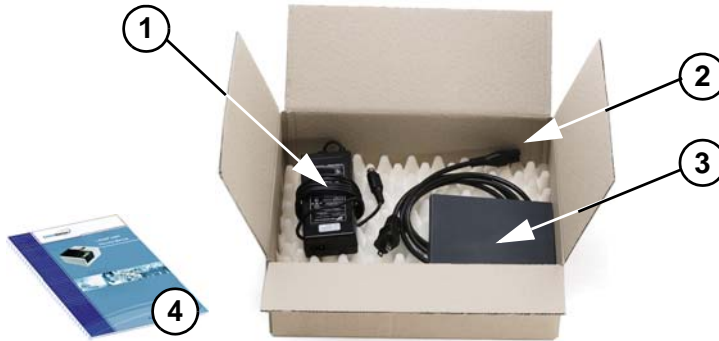


Figure 3.2 Supplies box

Table 3.1 Supplies box content

Supplies box	
1	External Power Supply.
2	AC Power Cable
3	Faceplate
4	Operator Manual

- 4 Verify that you have all the components on the packing list. The supplies are typically packed individually in transparent plastic bags.

Note Inspect all components visually for damage from transportation or possible customs inspection.

Packing list

The content of the supplies box may vary based on your specific order. However, you should have received the following items:

- The L SCAN 1000T
- The external power supply unit
- The AC power cable with your country-specific plug
- The Faceplate
- The IEEE 1394 Firewire interface cable
- The Operator's Manual
- Other accessories (see your invoice)

Connecting the L SCAN 1000T

Note Before you begin, ensure that all devices reach room temperature before switching on the device. Locate a clean, dust-free area to put the device, such as a desk or table. Keep all sharp and pointed objects away from the glass platen surface.

The back contains all the connectors required to connect the L SCAN 1000T to a laptop or PC, as well as to other needed components. All connectors are secured by self-locking tray covers.

- Remove a connector tray cover by pushing down its self-locking spring (!) and simultaneously with your fingernail pull it a little away from the scanner. Then you can grasp the cover to remove it completely.



Figure 3.3 Removing the connector tray covers

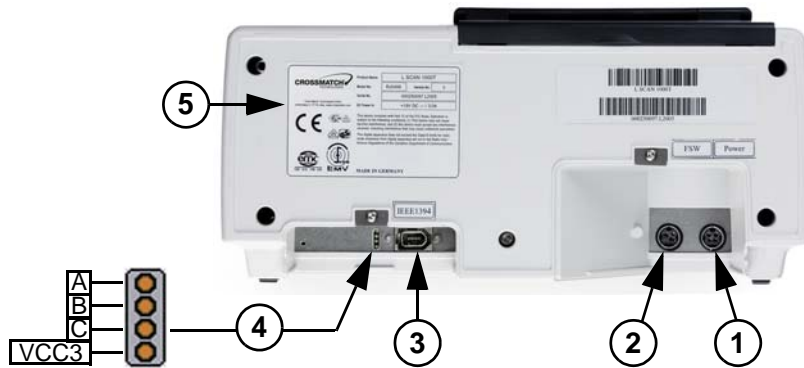


Figure 3.4 Connectors of the L SCAN 1000T

Table 3.2 L SCAN 1000T connectors

Connectors Description

- 1 Power.** Connector for the DC power cable.
- 2 FSW.** Connector for the foot switch.

Table 3.2 L SCAN 1000T connectors

Connectors Description	
3	IEEE 1394 Firewire. Connector for the data interface cable to a laptop or PC.
4	LEDs. 4 LEDs indicate the status of the scanner device during operation: A (green) - platen heating B (green) - asynchronous communication via P1394 C (green) - isochronous transfer via P1394 VCC3 (green) - internal power
5	Labels. Showing the Barcode and information on Manufacture, Model Number, Serial Number, Connection Values, FCC Compliance, CE Compliance and other Certification Symbols.

- 1 Plug the DC power cable into the DC Power **(1)** connector on the L SCAN 1000T. Thereby keep the flattened part of the plug facing up for correct orientation.
- 2 Connect the IEEE 1394 FireWire cable **(3)** from the back of the L SCAN 1000T to the back of the laptop or PC.

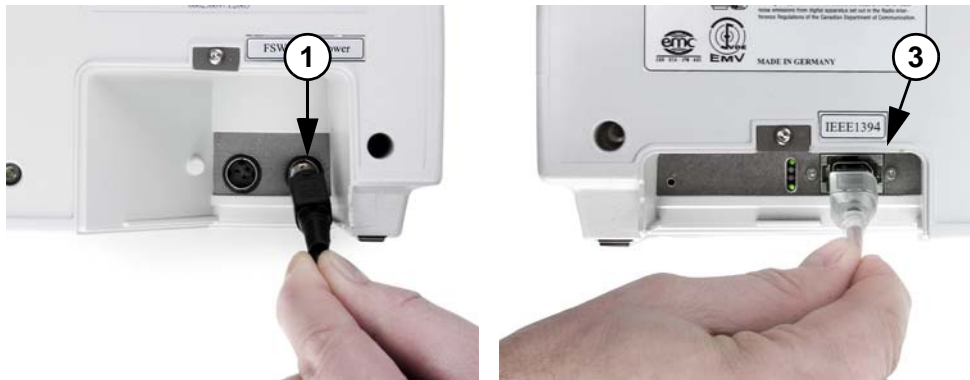


Figure 3.5 Connecting the L SCAN 1000T

- 3 Plug the AC power cable into the external power supply and into the AC electrical outlet.
- 4 Connect the foot switch, if available, to the back of the L SCAN 1000T.

Caution

To avoid causing damage to the devices, ensure that you properly orient all cable plugs at the connectors on the laptop or PC and on the L SCAN 1000T.

- 5 Place each cable into a cable support, take the required connector tray cover and feed its guide tracks into the guide tracks at the scanner’s bottom. Ensure that the cable remains in place while sliding in the tray cover until its self-locking spring snaps into place.
- 6 Assemble the other cable tray cover in the same way.



Figure 3.6 Connecting the L SCAN 1000T completed

With all cable connections complete, the system is ready for the device driver installation and for the initial functional test, see **Chapter 4 “Testing the L SCAN 1000T”**. The goal is to ensure that all components are working in stand-alone mode, so that transportation and assembly damage or mistakes can be identified.

Installation

Note Before you connect the L SCAN 1000T to the IEEE 1394 port of your PC you must install the Capture Essentials software.

1 Switch on the computer.

Note Close all applications and programs before continuing the installation.

2 Connect the L SCAN 1000T to a IEEE 1394 port of the computer or IEEE 1394 hub.

Caution Usage of a hub without built-in power output can result in malfunctions of the device, if the current supplied by the hub is not sufficient.

3 The system detects the new IEEE 1394 device and starts the *Hardware Wizard* for installation of the device driver.

- Instead of the Windows default option for checking its update web site choose **No, not this time**, click **Next** and select **Install from a list or a specific location**. Then click **Next**.



Figure 3.7 Found new hardware

- 4 Select the **Include this location in the search** check box and click **Browse**.
 - Navigate into your Windows drive, where the L SCAN 1000T components are installed and select the folder **_Driver**, for example, C:\ProgramFiles\SHB\CaptureEssentials_Driver**Hbs1394** subfolder choose the file HBS-1394Livescanner.inf and click **Open**.

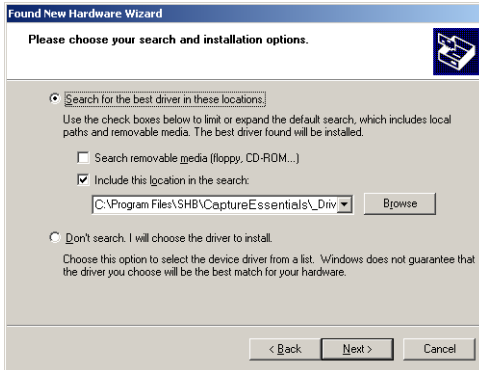


Figure 3.8 Choose the search option

Note Your Windows Explorer settings may display this file without its INF extension as HBS-1394Livescanner only. If so, start Windows Explorer, select the menu **Tools**, then **Folder Options....** On the property page uncheck **View** the option **Hide file extensions for known file types** to display file extensions.

- 5 Click **Next** after you verify the path. Ignore the Microsoft driver signing message and install the driver.
- 6 Click **Finish**.



Figure 3.9 Driver installation completed

- 7 After installation, check the *Windows Device Manager* to confirm that the L SCAN has been properly installed. Under **Livescanner** the device is registered as L SCAN 1000T.

Caution Do not disconnect the IEEE 1394 cable during the capture process. If this should happen the software stops and no error message appears. However, once a new capture task starts, a communication error message appears. The device has to be initialized again after the IEEE 1394 connection is re-established

Switching the L SCAN 1000T on and off

Note Always switch on the scanner before the computer. If the scanner is still powered-off when starting the capture software, the initialization procedure could fail.

Switch on the system devices in the following sequence:

- 1 Connect the L SCAN 1000T to the AC electrical outlet.
 - All function pad elements should quickly flash on and off, you hear a beep, and the L SCAN logo should come on backlit blue and flashing. The flashing L SCAN logo indicates the standby mode.
- 2 Switch on the laptop or PC.
 - The red light of the glass platen should come on, the L SCAN logo stops flashing and you hear a beep again.
- 3 Start your capture software.
 - The capture software initializes the scanner and automatically switches it from standby to the operation mode.
 - During this time, some self tests are performed to check the correct functioning of the system. Should the self tests identify a problem, the start-up procedure is stopped and the operator is notified by an appropriate ERROR or WARNING message. See **Chapter 6 “Problem correction and Technical Support”** for more information.

Note Keep fingers and other items off the scanner glass platen during this time. The glass platen should be clean at all times. Protect the glass platen from exposure to sunlight or other sources of bright light.

- 4 When starting or restarting, allow at least 30 minutes for the platen to reach its operating temperature before capturing prints. After the glass platen has reached optimum temperature, the scanner may be used with the application.

Switching off the L SCAN 1000T

- 1 Shut down the program.
- 2 Switch off the laptop or PC.
 - The scanner device automatically detects the computer power-off status and switches from the operation mode to the standby mode.
- 3 Unplug the L SCAN 1000T from the AC electrical outlet, if you want to completely power-down the system.

The standby mode

The system can be kept in standby mode. This allows you to start capturing in a very short time without waiting for warm up the glass platen. In this mode:

- The power supply to the computer is off.

- The fingerprint scanning electronics are off and the internal illumination of the glass platen is off.
- The heating of the glass platen is on, keeping its optimum temperature.
- The L SCAN logo on the function pad is backlit in blue and is flashing.

The fully automatic start-up procedure of the system does not need operator input at any time during this process. The scanner device should normally be kept in either standby or operating mode at all times.

Controlling the system

During text input

Use the keyboard for text input. The built-in mouse pad of the laptop works by simply touching it with one finger. To activate certain functions some of the keyboard function keys are used.

Note Do not touch the mouse pad with two fingers. That moves the cursor to an undefined position on the screen.

During fingerprinting

All operations during the capture sequence can be carried out by pressing the smart buttons or by using the foot switch. There is no need to use the mouse or the keyboard during this time. The function of each smart button is defined by the capture software and the context of the current capture step. Both smart buttons will be displayed on the screen whenever they can be used during the capture workflow and are labeled with the current function accordingly.

Note The functions might change from step to step, note the relevant labeling of the smart buttons on the computer screen.

The foot switch is always connected to the default smart button and is generally used to proceed with the current functional step. So that starting an action and confirming a result can be done easily by depressing the foot switch.

The following examples shows different illumination configurations of the smart buttons and describes their regular functionality in an example.

Regular Operation



Both smart buttons are not illuminated and therefore not active. After successful initialization of the scanner the default smart button is backlit green.



The alternate smart button is active and allows options such as Optimize Contrast or Repeat the Last Capture Step. Both options are used as alternate functions during the regular capture workflow.

The default smart button lights green, indicating that the scanner is ready to start the capture sequence. If no error occurs during capture the backlit color remains green. You may proceed to the next step.

Recapture Operation



If an error occurs, the available option is to optimize the contrast and recapturing the print.

When an error occurs during the last capture step, the default smart button lights yellow. The operator must repeat the last capture step as a regular task by pressing the button. This returns to the capture mode and the backlit color changes back to green.



If the alternate smart button lights red, an error occurred for a second time during re-scanning the same print. Now the operator has the option to override the last image with the newly captured print, although this may be of poor quality. After pressing the button the red light goes out and the captured image is saved in the record.

If the default smart button lights yellow, an error occurred again during re-scanning the last print. If the operator uses the override option mentioned above, the backlit color changes back to green, and the scanner is ready for the next capture step.

Preparing the L SCAN 1000T for cabinet integration

For cabinet integration, the factory-installed platen cover must be replaced by the faceplate, which is shipped with the scanner. The cabinet has a scanner protection flap installed, which is used instead of the scanner's platen cover. No additional tools or utilities are required for the replacement.

- 1 Position the scanner so that its back is freely accessible and keep the platen covered. With your fingers grasp underneath the nib of the plastic cover at its back and with a quick forcefully flip (1) snap the platen rear cover.



Figure 3.10 Removing the platen cover

- 2 Carefully lift the platen cover rear off the scanner about an inch. With your other hand lift off the cover's front and keeping this dihedral position (2) to remove the platen cover completely.

Note Keep the platen cover in a safe place for future use.

- 3 Take the faceplate out of the supplies box, pointing the nib at the back to the scanner's back and position the faceplate onto the scanner. Align the faceplate in a way, that the bottom edge at the front is placed between the three guide nibs (3) and the trailing edge of the glass platen frame.



Figure 3.11 Mounting the faceplate

- 4 When the faceplate is in the correct position push down (4) to snap it into position. The faceplate and the glass platen frame should be level.

The L SCAN 1000T is ready for further cabinet installation.

Replacing the faceplate with the platen cover is the reverse of the procedure.

Note The scanner glass platen is now unprotected. Keep all sharp and pointed objects away from the glass platen surface. Especially during further cabinet installation steps.

Testing the L SCAN 1000T

THIS CHAPTER DESCRIBES A TOOL THAT HELPS TO PERFORM A COMPLETE INTERACTIVE DIAGNOSIS OF THE SYSTEM AND THE SCANNER.

Separate software tools that support the identification and diagnosis of technical problems are provided as part of the software package.

The TestWizard

This tool helps to perform a complete interactive diagnosis of the system and the scanner. It is designed for easy operation and does not require special knowledge. The program guides the integrator through several step-by-step diagnostic procedures.

The test sequence covers test procedures start everything from the beginning, where the scanner and all driver software is not initialized yet till the end and finish when all components have been checked.

- 1 Start the *TestWizard* by clicking the icon on the desktop or select Start/ProgramFiles/SHB CaptureEssentials/SHB TestWizard.
 - The program starts with a version information dialog. This is the starting point for every test procedure.
 - You can view the *User Guide* for this software by clicking **Help**.



Figure 4.1 TestWizard start screen

2 Click **Start Checks...** to start the computer configuration test sequence.

Checking the computer configuration

The first step in the sequence is an automatic analysis of such system resources as:

- CPU type and clock speed,
- PC main memory (RAM),
- Screen resolution, color depth
- and Current versions of the software components.

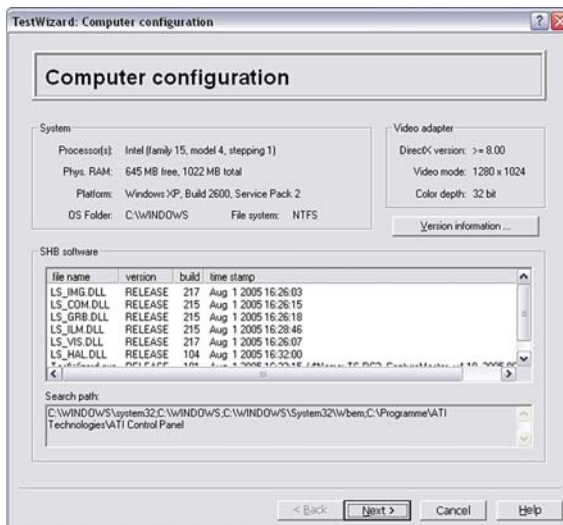


Figure 4.2 Computer configuration screen

1 Clicking **Next** starts the initialization of the device. After waiting about 15 seconds, completion of the scanner initialization is signaled to you by displays

the initialization page and the internal lights of the scanner glass platen come on.

Caution This information is important to ensure the proper operation of the whole system. Especially when selecting and configuring a new PC, since incorrect resources can cause slow performance, wrong data and even crashes.

Initializing the scanner device

After successful initialization, the initialization page appears, showing you the following information about the scanner connected to your computer.

- The scanner and device type,
- Controller version,
- Vendor information,
- Serial number,
- Production date and last service,
- Internal counters,
- The number of camera units (number of capture platen)

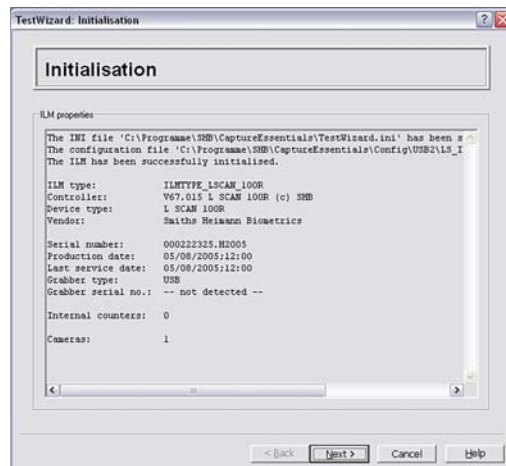


Figure 4.3 Initialization screen

If the initialization fails, you will see an error message with a numerical value that describes the nature of the problem.

Note For keys to the error numbers refer to the *CaptureDLL API* document.

In the case of a non-numerical error/warning, you probably have an installation problem, because the *TestWizard* cannot find the required information in its configuration files.

- 1 Click **Back** to return to the configuration page and repeat the initialization if you simply forgot to connect the scanner or know how to solve a initialization problem quickly.
- 2 If you do not know how to solve the problem click **Next** to continue this test session and create a report.

Testing the control elements

The control elements page shows all available control elements supported by your scanner and allows to check its function buttons, the foot switch, and to play all available beeper sequences (tunes). Normally all function buttons and the foot switch button are selected for testing.

- 1 Click **Start key test** to start the test procedure. Press the function buttons and the foot switch of your scanner in any order but not simultaneously. A successful test will be indicated by changing the color of the tested button from white to gray.
 - Alternatively you can select a button separately using the cursor and clicking the desired button.
- 2 To test a beeper click the radio button of the desired sequence and click **Play**.
 - To test all sequences click the button **Play** eight times.

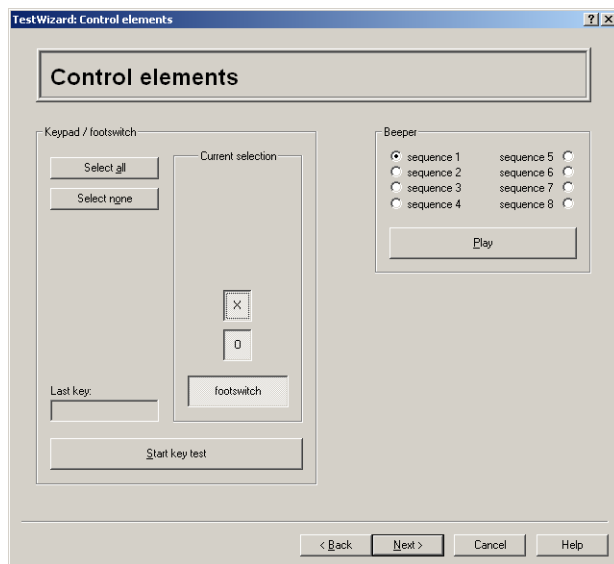


Figure 4.4 Control elements screen

- 3 Click **Next** to finish the test session and proceed with testing the scanner units.

Testing the scanner units

The scanner contains a digital camera, which is able to work in two capture modes. The FPLU (**F**inger **P**rint **L**ivescan **U**nit) camera mode is used to capture rolled fingerprint images whereas the PPLU (**P**alm **P**rint **L**ivescan **U**nit) camera mode captures all flat fingerprints. By examining the scanner properties you are able to test both the FPLU mode and the PPLU mode. The FPLU camera mode is tested as the first step.

- Each camera unit screen shows the properties of the scanner platen. This includes:
- Camera name and type,

- Rolling/scanning functionality,
- Scan resolution,
- Statistics of the associated temperature sensors for prism heating.

The temperature values should normally vary around a certain level when the scanner is operated for a longer time - hence the temperature is nearly constant.

Note If the displayed temperature between the left and right side differs by more than 15°C or if the temperature remains constant and does not change at all (not even by 1°C), the heater control could be defective.

- 1 Click **Test dimming** to start the illumination test. The glass platen of the scanner lights up from dark to pale red, goes back to dark and restores the old illumination intensity.
- 2 Clicking **Open camera window...** opens the camera's window to capture photo images with the camera and to inspect the scanner itself. The digital camera provides either live images (for preview during finger positioning) or scanned (rolled or flat) images.
- 3 The PPLU camera screen shows the additional button **Check Calibration**. This function checks the calibration status of the PPLU camera unit and if necessary the camera will be re-calibrated.

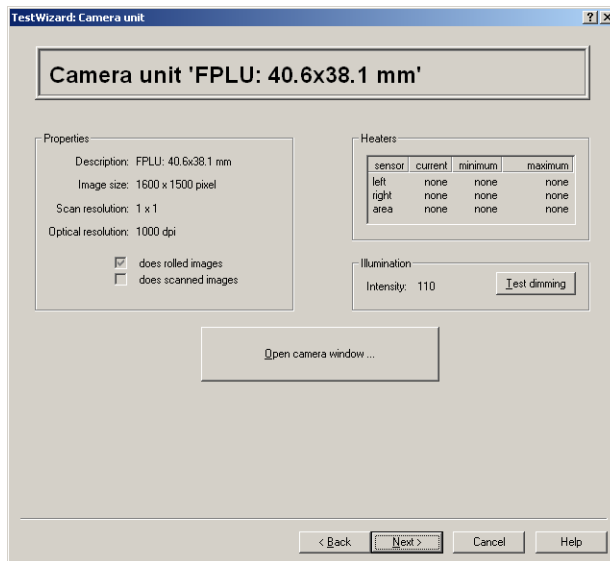


Figure 4.5 FPLU camera unit screen

FPLU camera window

- 1 Start the live image visualization by clicking **Live**.
- 2 Click **Optimize Contrast** to adjust the image contrast.
- 3 To create a high resolution image of a rolled fingerprint, put your finger onto the glass platen and roll the finger to the roll-start position, either left or right. Keep the finger still at this position for a moment and click **Start rolling**.

- Roll your finger quickly, in a time span of about 2 seconds from nail edge to nail edge, across the surface of the platen.
- Reverse the rolling direction a little at the end before lifting the finger.
- Lift the finger off the platen. The final rolled print image appears in full resolution on the screen.

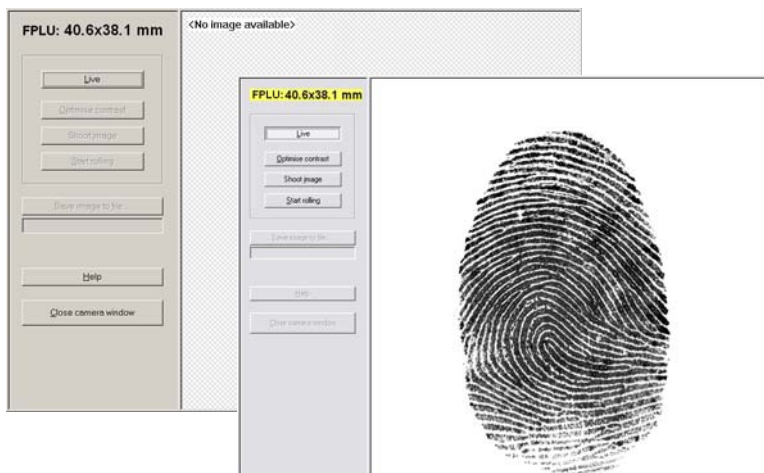


Figure 4.6 FPLU live image screen

4 To save the displayed image, click **Save image to file...** and enter a file name. Click **Close camera window** and then click **Next** to continue the test session. The *PPLU camera window* appears.

PPLU camera window

- 1 Start the live image visualization by clicking **Live**.
 - When you put your thumb or 4-slap-fingers on the glass platen an edge pattern should be seen in the large image window on the monitor.
- 2 Click **Optimize Contrast** to adjust the image contrast.
- 3 To create a high resolution image of your fingerprint, put your thumb or 4-slap-fingers onto the glass platen, apply moderate pressure and click **Start scanning**.
 - Hold the thumb/hand in place during the scanning time of approx. 1.5 seconds to avoid a blurred image and an error message.
- 4 To save the displayed image, click **Save image to file...** and enter a file name.
- 5 Click **Close camera window** and then click **Next** to finish the test session. The *Log file content* screen appears.

Using the generated log

All results retrieved from the system during these tests are displayed on the screen in a text window, and are also stored in a log file. This log file contains the results of all tests in the sequence, and must be stored on the system or on removable media.

This log file is normally saved in the directory C:\Program Files\SHB\CaptureEssentials and is important to understand the status and symptoms of a possibly defective scanner, especially when trying to solve problems using remote support.

1 Click **Save log as...** and enter a name in the following pattern:

NNNLNNNN_DDDMMYY.log

NNNLNNNN = scanner serial number (e.g. 490F2000)

DDMMYY = Date of creation (e.g. 231005)

2 Click **Copy to clipboard** to copy the log file contents to the clipboard for further use, for example to paste the text into a text editor (MS Notepad) so that you can be print out it.

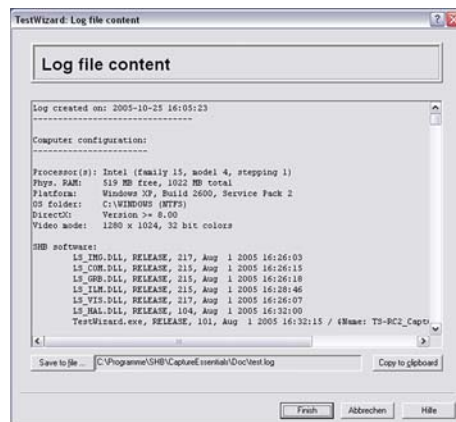


Figure 4.7 Log file screen

3 Click **Finish** to display the *Test Wizard Startup* screen.

4 Click **Quit** to exit the *TestWizard*.

The service technician must save this log file to send it to the responsible Service or Support Center. This log file also contains the scanner serial number and the firmware version number.

These two pieces of information are among the most important for tracking problems. If the scanner cannot be operated (for example, a defective power supply), then the test stops at a very early stage and the service person must record the serial number from the scanner's bottom side manually.

Additional test applications

Two additional simple test applications are also available to demonstrate the use of all scanner functionalities.

The *LsCaptureCtrl Test* application is based on Visual Basic programming, while the *CaptureDLL Test* application is based on Visual C++. Both test applications support programmers developing their main application.

For references see the *LsCaptureCtrl Interface* and the *CaptureDLL API* documentation.

Open *Start/Programs/SHB CaptureEssentials/* and choose the desired *CaptureDLL Test* application or the *LsCaptureCtrl Test* application to start the application.

Error and Warning Messages

If any of the test steps should fail, an according generic error message and a code number describing the nature of the problem is displayed. Positive numbers denote a non-critical warning which lets you continue to operate. Negative numbers describe critical errors preventing you from further operations.

Maintenance

This chapter covers routine maintenance procedures that will prolong the life of the product and the platen.

Maintenance levels

The L SCAN 1000T is designed for harsh environments. In order to ensure that your Live Scan system is working at its optimum level and reaching a product longevity, periodical maintenance of the system is essential, especially in the case of everyday use.

The maintenance activities range from cleaning to checking all system functions.

Preventive Maintenance		Regular Maintenance
Operator	Administrator Integrator	System Provider
Daily/Weekly	Quarterly	Yearly

Preventive maintenance

The preventive maintenance can also be carried out by an operator, based on according permissions, training, and instructions by the system provider.

Daily maintenance

The operator is responsible for the following daily procedures:

- Keep the scanner workspace clean of dirt and grime.
- Clean the glass platen or the silicone pad before starting a new booking process to capture quality fingerprint images.
- Keep all sharp and pointed objects away from the glass platen surfaces. Be extremely careful if the subject to be booked is wearing handcuffs.

Weekly maintenance

Note The shutdown of the Live Scan system can be limited by permissions, therefore not all users are permitted to carry out this task.

- Shut down and restart the Live Scan system once a week as this resets the system.

Note After restarting allow at least 30 minutes for the platen to reach their operating temperature before capturing prints.

- Wipe off the monitor (conventional or flat-screen) with a soft dry cloth to remove the dust.

Caution Do not use any glass sprays or cleaning products.

- Check the supply of consumables. Ensure that there is always spare stock and replace any depleted stock immediately.

Quarterly maintenance

Once per quarter, or after a three month period of operation, perform the following:

- Check the condition of all installed accessories and cables visually.
- Verify that all cable plugs are well connected to the devices of your system.
- Clean the air intake on the computer's back.
- Perform a function test using the tool TestWizard and save its log file for later review in case of technical problems.

Note It is the system provider's responsibility to convince and instruct the end user of the scanner system on how to implement the maintenance work into his daily operation in the best and most effective way.

Regular Maintenance

Due to the serious importance of correct fingerprint images for applications in the field of criminal identification, and in accordance with applicable regulations and requirements by law in certain countries, regular maintenance can be part of the system provider's responsibility.

Regular maintenance can be performed at annual intervals, and includes a check of all system functions, the according evaluation, and detailed assessment of the system performance by a qualified servicer.

Cleaning the glass platen

This section shows how to clean the glass platen, if no silicone pad installed on the platen. A clean platen is required for proper operation. It avoids the transfer of communicable diseases and prevents dirt from reducing the quality of the captured images. Clean the platen with normal glass cleaner and make sure that no dirt, fluids or skin oils remain.

Warning Do not pour liquids (water etc.) onto the scanner. The scanner device is protected against cleaning with a damp cloth or tissue, however it is not waterproof.

Caution Do not use oil-based cleaners or abrasive cleaners.

- 1 Spray the glass cleaner sparingly onto each glass platen.
- 2 With a lint-free cloth or tissue, wipe off the surface until clean and dry.
- 3 Ensure that the glass platen is dry before starting the capture process.



Figure 5.1 Cleaning the glass platen

Cleaning the workspace and the case

The scanner workspace is the area around the glass platen and the function pad.

Warning Before you clean the case, switch off the L SCAN 1000T and disconnect it from the grounded outlet.

To remove dirt, grime, and oil:

- 1 Take a soft, lint free cloth and put a small amount of glass cleaner on it.
- 2 Carefully wipe the workspace in a direction AWAY from the glass platen and the connectors.

Caution Do not use acetone, oil-based, abrasive or other unauthorized cleaners. This may damage the device and render it inoperable. Using unapproved cleaning solutions will void the warranty.

Silicone pad maintenance

If your L SCAN 1000T is shipped from the factory with a silicone pad installed on the platen the following instructions provide step-by-step procedures for replacing and maintaining the protective silicone pad. It is used to both protect the platen and enhance the fingerprint and palm print images and lasts indefinitely if cared for properly and must only be replaced when damaged.

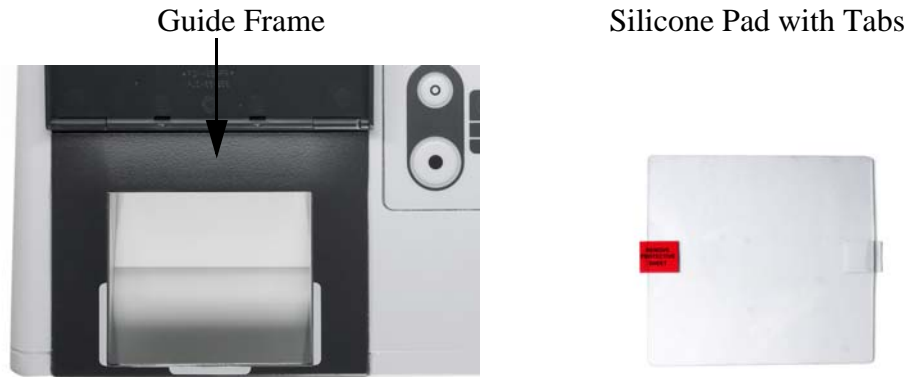


Figure 5.2 L SCAN 1000T finger guide and the silicone pad

Note Before you replace a silicone pad, shut down your capture software and switch off the L SCAN 1000T.

Replacing a silicone pad

Each silicone pad is moulded according to the form of the finger guide frame around the glass platen. Two thin protective films cover the silicone pad on each side. The protective films can be removed by pulling the red tab that is attached. If no tab attached then carefully pry up one corner of the protective film with the edge of your nail.

Silicone pad need changing only when damaged. Signs that the silicone pad needs to be changed could be:

- Air bubbles
- Tearing
- Corners peeling up.

To properly replace the silicone pad, you will need to assemble the following materials:

- Alcohol spray (91% isopropyl)
- Soft lint-free cloth
- Canned air
- A new silicone pad



Figure 5.3 Cleaning supplies

- 1 With the edge of your nail or use a non-metal object such as a toothpick, carefully pry up one corner of the silicone pad.



Figure 5.4 Prying up a corner of the silicone pad

- 2 Slowly peel it away from the platen taking care not to scratch the platen. Dispose of the old silicone pad.
- 3 Once the silicone pad has been removed, use the alcohol spray to clean the glass platen.
- 4 With a lint-free cloth, wipe off the surface until clean and dry. Ensure that the glass platen is dry before attaching the silicone pad. See [Figure 5.1, “Cleaning the glass platen” on page 5-3](#).

Note Make sure to clean your hands before handling the new silicone pad. While holding the silicone pad touch it only by the edges. Do not touch the unprotected surface of the pad.

- 5 While holding the replacement silicone pad only by the edges, peel back the protective film on one side. Thereafter maintain Top/Bottom orientation as needed.



Figure 5.5 Peeling back the first film

Note The silicone pad should not be applied if the platen is still wet. Wait for the platen to dry completely before applying a silicone pad.

- 6 Carefully, with the unprotected side down, adjust the silicone pad within the frame against the back edge of the platen in a low angle.



Figure 5.6 Adjust and lowering the silicone pad

- 7 Holding the pad on by the edges continue lowering the silicone pad into position and let it dropping down. Proceed slowly to avoid covering the back of the silicone pad with fingerprints.

Note Do not bend the silicone pad during lowering. Bending the pad may produce bubbles beneath the upper protective film and after the silicone pad is installed onto the glass platen you cannot identify whether the bubbles are located beneath the pad or underneath the upper protective film.

- 8 You can remove large bubbles by gently lifting the edge closest to the bubble until the bubble is removed and then releasing the pad.

- 9 Rub your finger in a sinuous line on the silicone pad to remove trapped-air bubbles and thereby apply moderate pressure. For easier motion use a lint-free cloth or tissue. With the tips of your fingers move the bubbles past the edge of the pad.



Figure 5.7 Wiping bubbles from silicone pad

- 10 Carefully pull the attached tab to remove the top protective film, making sure not to remove the silicone pad along with it.



Figure 5.8 Removing top protective film

After the new silicone pad is installed correctly, the L SCAN 1000T scanner is ready for use again.

Note Before using again, switch on and initialize the L SCAN 1000T.

Replace the silicone pad for the small platen in the same way.

Cleaning the silicone pad with cleaner sheets

Cleaning the silicone pad with an adhesive cleaner sheet is similar to removing lint from a fabric. The cleaner sheets are supplied with the product (each package contains about 25 sheets). To clean the silicone pad:

- 1 Peel one pad cleaner sheet from the pack.



Figure 5.9 Peel a cleaner sheet from the pad

- 2 Place the cleaner sheet and press it onto the silicone pad, ensuring that it has good adhesion to the pad.



Figure 5.10 Place and press cleaner sheet to silicone pad

- 3 Gently lift the cleaner sheet off the silicone pad.



Figure 5.11 Lift cleaner sheet off silicone pad

- 1 Inspect the pad. It should be clean. If not yet clean enough, repeat Steps 3 - 5. Use a new cleaner sheet, if necessary.
- 2 Resume using the L SCAN 1000T to capture fingerprints.

L SCAN 1000T Specifications

The following table contains the technical specifications for the L SCAN 1000T. Each category of specification is identified and described.

Table 5.1 L SCAN 1000T specifications

Category	Definition
Resolution	1000 ppi scan mode (39.4 points-per-millimeter) 500 ppi scan mode (19.7 points-per-millimeter)
Dynamic Range	8 bit, max 256 gray scales, no missing scales
Image Quality	Certified to FBI Standard CJIS-RS-0010, Appendix F "IAFIS Image Quality Specifications for Scanners", category Live Scan Systems 500/1000 ppi and category Identification Flats Systems 500 ppi
Scanned Finger Types	Rolled and flat single fingers, flat 4 fingers, flat 2 thumbs
Capture Format (HxV)	Rolled prints: 1.6" x 1.5" (40,6 x 37,5 mm) Slap prints: max. 3.2" x 3.0" (81,2 x 76,2 mm)
Scanning Times	<0.5 seconds, at 500 ppi and at 1000 ppi
Temperature Range	50 to 95°F (+10 to +35°C)
Humidity Range	Max. 80% non-condensing, no direct sunlight exposure
Weight	15.2 lbs (6.9 kg) excluding cables
Dimensions (WxDxH)	11.8" x 10.0" x 5.5" (299 x 255 x 141 mm)
Distance to Scan Area	0.4"(10 mm± 1 mm), from front edge to the glass platen
Front Angle	68° over the width of the glass platen
Interface Cable	IEEE 1394 (Firewire) OHCI interface
Power Supply	External power supply, wide range input: AC 100V-240V, 50/60 Hz output: DC 18.5 - 19.95 V, max. 3A, 50/60 Hz
Power Consumption	Max. 75 VA (operation)
Regulatory	FCC, CE

FCC Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: (1) This device may not cause harmful interference, and (2)

This device must accept any interference received, including interference that may cause undesired operations.

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communication.

CE Compliance

This device complies with the mandatory European marking to indicate conformity with the essential health and safety requirements set out in European Directives.

L SCAN 1000T Fingerscanner

EC Declaration of Conformity *Number 1219*

With respect to the certification of products which are subject to the provisions of the European Directive

89/336/EEC including amendments

and

73/23/EEC including amendments

we,

*Cross Match Technologies GmbH
Unstrutweg 4
07743 Jena, Germany*

declare herewith, that our product

Fingerprint Scanner L SCAN 1000T, Model RJ 0466

is in full compliance with the following standards and directives:

Standard

**DIN EN 55022 (VDE 0878 Teil 22):2003-09; EN 55022:1998 + Corr:July 2003 + A1:2000 + A2:2003
Grenzwerte für Einrichtungen der Klasse B / Limits for class B equipment
DIN EN 55024(VDE 0878 Teil 24):2003-10; EN 55024:1998 + A1:2001 + A2:2003**

**DIN EN 60950-1 (VDE 0805 Teil 1):2003-03; EN 60950-1:2001
IEC 60950-1(ed.1)**

The VDE Testing and Certification Institute (EU Identification-No. 0366), Merianstr. 28, D-63069 Offenbach has tested and certified the product.

Licence No. 40016185; File Reference 2295300-3250-0004 / 67014 / FG13 / EKR

and File Reference 2295300-3250-0004 / 66598 / FG43 / OTT



Jena, 29th March 2006

Dr. Bernd Reinhold
Managing Director
Cross Match Technologies GmbH

Mrs. Petra Holzhey
Quality Assurance
Cross Match Technologies GmbH

Problem correction and Technical Support

THIS CHAPTER COVERS ERRORS, CAUSES, AND CORRECTIONS. THE CHAPTER ALSO EXPLAINS HOW TO GET THE TECHNICAL SUPPORT THAT IS AVAILABLE FROM CROSS MATCH TECHNOLOGIES.

Common problems

This section describes some common problems and possible solutions concerning the L SCAN 1000T. Please try the procedures in this section before contacting Cross Match Technologies Technical Support.

Note Whenever it is likely that a technical problem cannot be solved immediately, the device and system should be unplugged and secured against unauthorized use.

The computer does not recognize the L SCAN 1000T

Possible Error Message displayed:

-201 COMM_ERR

Primary steps to resolution

- 1 Verify IEEE 1394 Firewire cable is firmly connected to the computer.

Secondary steps to resolution

- 1 Check the correct installation of the hardware driver.
- 2 Replace the IEEE 1394 Firewire cable to find out if it is defective.

Scanner disconnected during operation

Possible Error Message displayed:

Initially None. You hear a beep.

However, once a new capture task starts, the -201 COMM_ERR or the -101 GRAB_ERR error message appears.

Primary steps to resolution

- 1 Re-establish the IEEE 1394 Firewire connection. You hear a beep.
- 2 Initialize the scanner again.

Spotted background and dark image sections

Possible Error Messages displayed:

642 ILM_WRN_FLED

648 ILM_WRN_FSURFACE_DIRTY

Primary steps to resolution

- 1 Clean the scanner glass platen.
- 2 Be sure not to place any object on the platen while initializing the scanner.
- 3 Ensure that you have no direct light exposure shining onto the glass platen
- 4 Verify the correct installation of all software and hardware components.

Visualization and capture speed too slow

Possible Error Messages Displayed:

None

Primary steps to resolution

- 1 Verify the system requirements. See, **“System requirements” on page 1-4** for more information.

Scanner initialization failed

Possible Error Messages Displayed:

Error -402 VIS_ERR_DDRAW_INIT_FAILED

Primary steps to resolution

- 1 Verify the system requirements. See, **“System requirements” on page 1-4** for more information.

Secondary steps to resolution

- 1 Verify the correct installation of all software and hardware components.
- 2 Install the DirectX drivers and enable the DirectDraw Acceleration feature on your system.

Note The installation of components to the system can be limited by permissions, therefore not all users are permitted to carry out this task.

Glass platen illumination out

Possible Error Messages Displayed:

None

Primary steps to resolution

- 1 Verify that the system is in standby mode. See, **“Switching the L SCAN 1000T on and off” on page 3-7** for more information.
- 2 Start your capture software to fully start the scanner.

Secondary steps to resolution

- 1 If the primary steps failed contact the Cross Match Technologies Technical Support. See, **“Technical Support” on page 6-3** for more information.

Function pad illumination out

Possible Error Messages Displayed:

None

Primary steps to resolution

- 1 Verify the correct installation of all software and hardware components.
- 2 Ensure that the power switch is in the on (1) position. See , **“Switching the L SCAN 1000T on and off” on page 3-7**
- 3 Start your capture software to fully start the scanner.

Secondary steps to resolution

- 1 If the primary steps failed contact the Cross Match Technologies Technical Support. See, **“Technical Support” on page 6-3** for more information.

Technical Support

During the initial set-up, installation and operation of your product, you may require some technical assistance.

Electronic Mail

Free Technical Support by e-mail is available for the duration of the warranty period and is provided on a first-come, first-serve basis.

Table 6.1 Technical Support department addresses

North and South America	Europe and Asia
customercare@crossmatch.com	support.cmj@crossmatch.com

If the warranty has expired, please contact Technical Support by telephone or facsimile.

Telephone and facsimile

Technical Support is available at the following telephone numbers:

Table 6.2 Technical Support department numbers

North and South America	Europe and Asia
Monday-Friday 8 am to 5:30 pm EST	Monday-Friday 8 am to 4 pm CET
Customer Care Tel: 1.866.276.7761 (Toll Free) Fax: 1.561.622.8769	Manager Customer Service Tel: +49 (0)3641 4297-57 Fax: +49 (0)3641 4297-41

Free technical support is available using telephone or facsimile for the product under warranty. After the warranty has expired, technical support will be provided at a specific cost per hour. Contact Technical Support for further information.

Technical support of software products and/or services purchased from Cross Match Technologies or of third party products is not covered under warranty and will be provided at a cost to the purchaser.

When contacting Cross Match Technologies, please be prepared to provide the following information:

- Company name
- Contact person
- Product serial number (located on the back of product)
- Information on the configuration of your computer
- Description of problem, error messages appearing on the screen

Returns and repairs

To return this product for repair or replacement, contact Technical Support using e-mail or telephone for a Return Material Authorization (RMA) number. The RMA number should be marked clearly on the outside of the box as well as on the shipping label, as shown below. Any product shipped to Cross Match Technologies without an RMA number will be returned to sender.

Table 6.3 Addresses for product returns

North and South America	Europe and Asia
Cross Match Technologies, Inc. 3950 RCA Boulevard, Suite 5001 Palm Beach Gardens, Florida 33410 USA RMA: RXXXX.XXXX	Cross Match Technologies GmbH Service Department Unstrutweg 4 07743 Jena Germany RMA: RMAXXX...

When a package with an RMA number arrives at Cross Match Technologies, the corresponding paperwork (describing the reason for the return) is pulled, and is routed to the appropriate department for applicable servicing/replacement. The product is then returned to the sender.

Note You must return a product in the original packaging. If original packaging is not available, call the Technical Support department for instructions.

Delivery costs

The product is in the warranty period

- The customer accepts all charges to send the product to Cross Match for service.
- Cross Match Technologies accepts all charges to return the product to the customer.

The product is not in the warranty period

The customer accepts all charges.

Contact information

Corporate Headquarters

Cross Match Technologies, Inc.
3950 RCA Boulevard, Suite 5001
Palm Beach Gardens, Florida USA 33410
Tel: (561) 622-1650
Fax: (561) 622-9938
Tel: (866) 725-3926 (toll free)

General Mailbox: info@crossmatch.com

Sales Department: sales@crossmatch.com

Technical Support: CustomerCare@crossmatch.com

Germany

Cross Match Technologies GmbH
Unstrutweg 4
07743 Jena
Germany
Tel: +49 (0)3641 4297-0
Fax: +49 (0)3641 4297-14

Corporate Web Page

www.crossmatch.com

Warranty and Remedy

THIS CHAPTER CONTAINS THE TEXT OF THE PRODUCT WARRANTY.

Standard Warranty and Remedy

Limited Warranty

Cross Match Technologies GmbH (CMT/G) warrants that the CMT/G product you have purchased will be free from defects in material and workmanship in normal service and under normal conditions for a period of 12 months from the date of the invoice. Normal service and normal conditions are defined in the product documentation. This warranty is subject to the terms and conditions set forth below.

Repair or Replacement

The sole obligation of CMT/G and your exclusive remedy and recourse under this limited warranty is for CMT/G, at your election, to either (i) repair the suspected defective product and return the same to you or (ii) replace the suspected defective product, all on the terms set forth below. The repair or replacement will provide you with a product which, in CMT/G's opinion, performs consistently with its age and usage. If you become aware that your CMT product is defective in material or workmanship in normal service and under normal conditions during warranty period, then you must promptly contact CMT/G's Service Center, describe the suspected defect in detail and request a Return Merchandise Authorization ("RMA") number prior to sending the affected product for repair or requesting a replacement product. Please see your product manual for more information on RMAs. If you elect to have CMT/G replace your suspected defective product during the warranty period, CMT/G will ship a refurbished replacement product to you, and you will return your suspected defective product to CMT/G upon your receipt of the replacement product. The original returned product will become the property of CMT/G and will not be returned to you. CMT/G will pay the freight to send the replacement product to you, and you will

pay the freight to return the suspected defective product to CMT/G's designated Service Center.

Alternatively, during the warranty period, you may return your suspected defective product to CMT/G's designated Service Center for repair. You will pay the freight to send the product to CMT/G's designated Service Center, and CMT/G will pay the freight to return the repaired product to you.

Each repaired or replacement product is warranted (as set forth herein) for the remaining portion of the original product warranty.

THE FOREGOING CONSTITUTES YOUR SOLE AND EXCLUSIVE REMEDY AND CMT'S SOLE AND EXCLUSIVE LIABILITY IN CONNECTION WITH YOUR CMT PRODUCT, AND IS IN LIEU OF ANY AND ALL OTHER REMEDIES WHICH MAY BE AVAILABLE TO YOU.

Limitations

This limited warranty does not cover visits to repair the CMT/G product at your premises, or the commissioning of the product on site. This limited warranty is only a promise by CMT/G, to you the customer, that CMT/G will repair certain faults. It is not a warranty, guarantee or promise that your CMT/G product will conform to its specification or will not fail. Some defects and failures are not covered. CMT/G will not provide warranty repair or replacement if in CMT/G's opinion the problem resulted from externally caused damage or use outside the product's specifications, or from the use of options, parts, equipment, software or consumables which are not CMT/G approved. This limited warranty does not cover the replacement of used consumables or of parts which need replacement during the life of the product as a result of the use made of them. Cross Match Technologies reserves the right to improve/modify products at any time, at its sole discretion, as it deems necessary. CMT/G shall incur no liability under this limited warranty and this limited warranty is voidable by CMT/G if in CMT/G's opinion (a) the product is used other than under normal use and under proper environmental and/or electrical conditions, as specified in the product manual; (b) the product is not maintained as specified in the product manual; (c) the product is subject to abuse, misuse, neglect, accident, flooding, storm, lightning, power surges, dirty power, third-party errors or omissions, or acts of God; (d) the product is modified or altered (unless expressly authorized in writing by CMT/G); (e) the product is installed or used in combination or in assembly with products not supplied or authorized by CMT/G; (f) there is a failure to follow specific restrictions or operating instructions; or (g) payment for the product has not been timely made. CMT/G's obligations hereunder are contingent upon your providing the product serial number as proof-of-purchase, and upon CMT/G's determination that the suspected malfunction is actually due to defects in material or workmanship.

THIS LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES RELATED TO THE CMT/G PRODUCT, WHETHER EXPRESSED, IMPLIED, OR STATUTORY, INCLUDING THE WARRANTIES OF NONINFRINGEMENT, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ALL OF WHICH ARE EXPRESSLY DISCLAIMED BY CMT/G. THIS LIMITED WARRANTY IS FOR THE SOLE BENEFIT OF, AND APPLIES ONLY TO, THE ORIGINAL PURCHASER OF

THE CMT/G PRODUCT. THIS WARRANTY IS NOT ASSIGNABLE BY SAID PURCHASER.

Out-of-Warranty Repairs

When warranty coverage for your CMT/G product lapses, or for repairs or replacements not covered by CMT/G's warranty, you will pay for all repairs based on a costs estimation, created by CMT/G's Service Center after inspection of the defect equipment plus shipping. To obtain out-of-warranty service, you must obtain an RMA number and send the affected product, at your expense, to the designated CMT/G Service Center for inspection. You will be contacted with an estimated price and time of repair or replacement after analysis. No repairs or replacements will be made until CMT receives a Purchase Order from you. You shall pay return freight charges, which will be added to the invoice, for the return of the repaired product or replacement product. In the event you decide not to have a unit repaired or replaced after receiving a repair estimate, there will be a two hour labor charge for evaluation plus return freight charges. At your request, CMT/G will, for a premium, ship a refurbished unit to you in exchange for the failed unit. CMT/G will contact you with a price for the exchange after receipt of the failed unit. The shipment will be made when CMT/G receives a Purchase Order from you. You will pay return freight charges, which will be added to the invoice, for the exchange unit. The original returned product will become the property of CMT/G and will not be returned to you. The refurbished unit will be warranted as set forth above from the date of the invoice.

Extended Maintenance

An Extended Maintenance is available for this product. For Extended Maintenance terms, pricing, or requirements, please contact CMT/G Sales at: Tel.: +49 (0)3641 4297-18 or e-mail: international-sales@crossmatch.com.

Index

A

AC power cable, **3-4**
additional test applications, **4-8**
appropriate operation, **0-xi**

B

back of the L SCAN 1000T, **3-3**

C

capture software, **3-7**
CaptureEssentials, **2-1**
cardboard box, **3-1**
CE Compliance, **5-10**
clean the glass platen, **5-2**
clean the workspace, **5-3**
cleaner sheet, **5-7**
cleaning the silicone pad, **5-7**
contact information, **6-5**
controlling the system, **3-8**
conventions
 caution, **0-xii**
 danger, **0-xii**
 note, **0-xii**
 warning, **0-xii**

D

daily procedures, **5-1**
DC power cable, **3-4**
default smart button, **1-3**

E

environmental temperature, **0-xii**
error and warning messages, **4-8**

F

FCC Statement, **5-9**
foot switch, **1-3, 3-4**
FSW, **3-3**

function pad, **1-3**

function pad details
 alternate smart button, **1-3**
 default smart button, **1-3**
 resolution indicator, **1-3**
 status indicator, **1-3**

G

glass cleaner, **5-2**

H

holding the replacement silicone pad, **5-5**
how this book is organized, **0-xi**

I

IEC 60950, **0-xi, 0-xiii**
IEEE 1394, **1-4, 3-4**
initializing the scanner, **4-3**
integrator's manual, **0-xi**

L

L SCAN 1000T, **1-1**
labels, **3-4**
LEDs, **3-4**

M

maintenance levels, **5-1**

O

optimize contrast, **4-5, 4-6**

P

packing list, **3-2**
periodical maintenance, **5-1**
portable option, **1-5**
power in, **3-3**
preventive maintenance, **5-1**
product longevity, **5-1**

protective films, **5-4**

Q

quarterly maintenance, **5-2**

R

regular maintenance, **5-2**

remove large bubbles, **5-6**

remove the top protective film, **5-7**

repair, **7-1**

replace the silicone pad, **5-4**

resolution indicator, **1-3**

S

safety instructions, **0-xii**

service personnel, **0-xiii**

shock absorber, **3-2**

silicone pad, **1-1, 5-4**

silicone pads, **5-3**

smart buttons, **1-3**

specifications, **5-9**

- capture format, **5-9**

- dimensions, **5-9**

- distance to scan area, **5-9**

- dynamic range, **5-9**

- front angle, **5-9**

- humidity range, **5-9**

- image quality, **5-9**

- interface cable, **5-9**

- power consumption, **5-9**

- power supply, **5-9**

- regulatory, **5-9**

- resolution, **5-9**

- scanned finger types, **5-9**

- temperature range, **5-9**

- weight, **5-9**

standby mode, **3-7**

start rolling, **4-5**

start scanning, **4-6**

status indicator, **1-3**

system requirements, **1-4**

- cabling, **1-4**

- hardware, **1-4**

- operating systems, **1-4**

- system use cases, **1-4**

T

technical support, **6-3**

- delivery costs, **6-5**

- electronic mail, **6-3**

- returns and repairs, **6-4**

- telephone and facsimile, **6-4**

terms, **0-xii**

testing the L SCAN

- CaptureDLL Test, **4-8**

- LsCaptureCtrl Test, **4-8**

TestWizard, **4-1**

- computer configuration, **4-2**

- FPLU camera window, **4-5**

- generated log, **4-7**

- testing the scanner unit, **4-4**

travel case, **1-5**

troubleshooting

- capture speed too slow, **6-2**

- L SCAN not recognized, **6-1**

- scanner disconnected, **6-1**

- spotted background, **6-2**

U

UL 60950, **0-xi, 0-xiii**

unbag the scanner, **3-1**

unpacking the L SCAN 1000T, **3-1**

W

warranty, **7-1**

- extended warranty, **7-3**

- limitations, **7-2**

- limited warranty, **7-1**

- out-of-warranty repairs, **7-3**

weekly maintenance, **5-2**

who should read this book, **0-xi**



Part Number: 96100004662002

Cross Match Technologies, Inc.

Worldwide Headquarters

3950 RCA Boulevard
Suite 5001
Palm Beach Gardens, FL 33410
561-622-1650

US Federal Affairs

4600 North Fairfax Drive
Suite 1004
Arlington, VA 22203
703-841-6280

International Headquarters

Unstrutweg 4
07743 Jena
Germany
+49 (0)3641 4297-0