



L SCAN[®] 100/100R Operator Manual





Cross Match[®] Technologies

L SCAN 100/100R

Operator's Manual

Version 1.0

First Edition (August 2006)

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PREFACE

Who should read this book

You should read this book if you are a user and you will be operating the L SCAN 100/100R Single Fingerprint Capture Device.

Conventions

The following conventions are used in this book:

- **Bold UPPER/lower case** are used for emphasis.
- *Italics* are used for program and publication names
- 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.

Safety when operating

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.

Cross Match Technologies GmbH assumes no liability for the customer's failure to comply with these requirements.

- The L SCAN 100/100R is designed for electronically capturing single flat and rolled fingerprints.
- The operation of the device must be in connection with suitable computer equipment.
- The Finger scanner device is intended the use in an IT-devices area.
- The device must be operated only in a dry room.
- The maximum environmental temperature is 103°F (40°C).
- The power supply will be provided using the USB 2.0 interface of the computer.
- When operating the device, the electrical installation and cabling must comply with the IEC 60950 standard.
- Only authorized service personnel should open the scanner. Before opening the finger scanner disconnect the USB cable from the device.
- Whenever it is likely that the electrical protection has been compromised, the device and system must be made unplugged and secured against unauthorized use.
- 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.

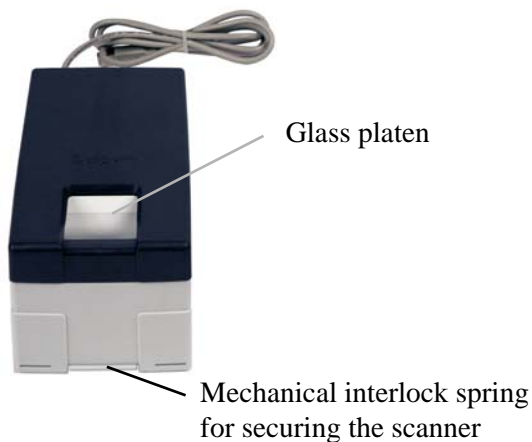
- Do not pour liquids (water etc.) onto the scanner. The scanner device is protected against cleaning with a damp cloth or tissue, however, it is not waterproof.
- There are no user-serviceable parts in the scanner device. For service, refer to qualified and authorized personnel.

The L SCAN 100/100R

The model L SCAN 100 is used to capture single flat fingerprints only. The model L SCAN 100R is used to capture both single flat and single rolled fingerprints.

Top of the scanner

The top of the scanner has a glass platen.



Back of the scanner

The back of the device holds the USB cable that connects to a computer.



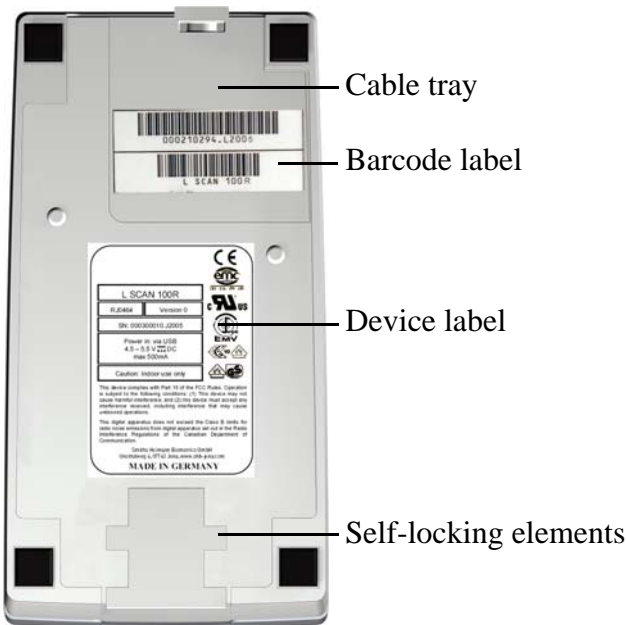
The USB 2.0 interface is compatible with USB 1.1, but the scanner will take several minutes to initialize and the capture process will be very slow. Therefore the USB 1.1 option is not recommended.

Caution

Do not disconnect the USB 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.

Bottom of the scanner

The bottom of the scanner contains a label, the cable tray and the self-locking elements for securing the scanner to a hard surface



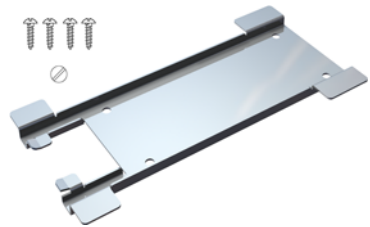
The device label shows information on Manufacture, Model Number, Serial Number, Connection Values, FCC Compliance, CE Compliance and other Certification Symbols.

Securing the scanner

To permanently secure the L SCAN 100/100R to a hard surface such as a table, desk or counter top, use the Quick Snap'n Work holder.

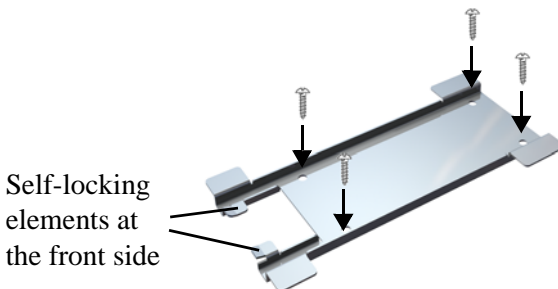
All required parts are packaged together in a plastic bag. The package contains:

- 4 slotted round head wood screws (3 x 16 mm)
- the holding plate.



Mounting the holding plate

- 1 Position the Holding Plate where you wish to install it so that both of its self-locking elements are pointed to the front.



- 2 Measure and mark the hard surface where you wish to secure the L SCAN 100/100R.
- 3 Screw in the 4 screws by using a screwdriver or a screw bit.

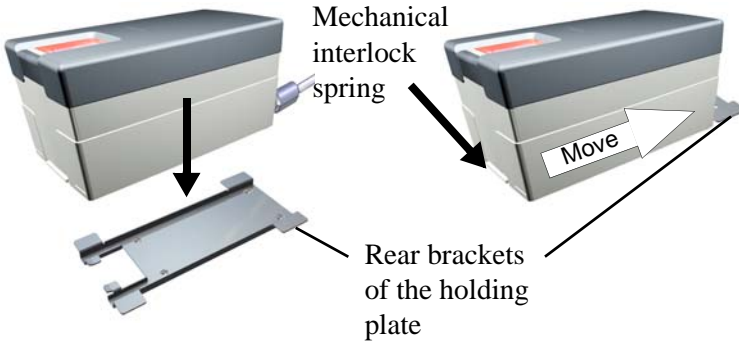
Note

Depending on the surface of the mounting area, it may be necessary to pre-drill the holes for the screws.

Assembling with the holding plate

After the holding plate is secured the L SCAN 100/100R device can easily be attached to it.

- 1 Place the scanner device on the holding plate so that the rear brackets overlap the scanner's rear side.
- 2 Push down the mechanical interlock spring on the scanner and simultaneously move the L SCAN device toward the rear brackets until it stops.



The self-locking elements should snap into the mechanical interlock spring of the holding plate.

The L SCAN 100/100R fingerprint scanner is now securely mounted.

Remove the device by pushing down the mechanical interlock spring and simultaneously moving the L SCAN 100/100R device toward the front of the holding plate until the rear brackets are free of the scanner's rear side.

Now you can lift the L SCAN 100/100R off the holding plate.

Warning

If the holding plate is to remain mounted at the place of operation cover its sharp edges to avoid injuries.

Fingerprinting technique

Before you begin capturing fingerprints, it is important to understand the basic technique for capturing fingerprints. In this section, you learn the technique for slap and rolled prints. This knowledge enables you to capture quality fingerprint images.

Some technique concepts include: the amount of the finger to include in the fingerprint, the amount of pressure to apply to the fingers, and recognizing of poor quality fingerprints.

In contrast to the smooth, hard platen, a finger is relatively soft. Therefore, the finger can easily shift or slide on the scanner platen, especially when capturing rolled fingerprints where the geometrical form of the finger has an adverse effect. The rolling must be carried out accurately to obtain the best quality results. This requires an appropriate amount of training.

Technique for slap prints



Slap prints are simpler to capture because the subject's fingers are placed flat on the platen. To capture optimum slap prints, position the subject's fingers properly on the platen and apply the amount of pressure needed to produce an acceptable image.

The scanner requires no movement at all on the part of the subject, other than placing the finger on the platen. Since the platen does not move, the scanner software or the official who is capturing the fingerprints judges when the print is satisfactory.

Technique for rolled prints



Rolled prints should start at one edge of the fingernail and finish at the other edge. The print should include as much of the finger as possible from the tip to just below the first crease. A rolled fingerprint has a more rectangular look than a slap fingerprint.

Finger pressure

Knowing how much pressure to exert when capturing rolled impressions is important and comes through experience and observation. Practice and attention to detail and to the characteristics of the images will yield proper results in time.

Encourage the subject to relax and not to “help” by exerting pressure, which makes it difficult to gauge the amount of pressure needed. Use two fingers of the opposite hand to place a slight pressure on the tip and first knuckle of the subject's finger.

Finger guiding for rolled prints

You grasp the finger with your thumb and index finger, while guiding the wrist/hand with the other hand, applying moderate pressure. In fingerprinting you should take advantage of the natural wrist movement. Start with the hand placed in a slightly strained position and rotate it to a more natural position. Use a relaxed continuous motion and avoid shifts or other improper movement of the finger.

One of the most important factors for obtaining good quality prints is to correctly guide of the finger before, during and after rolling it across the platen. The operator should focus on guiding the finger on the scanner platen correctly. Do not look at the PC screen while rolling the finger.

Experience has shown that concentrating on the finger being rolled produces the best results.

Reversing the roll direction stops the capture process and thereby acts in the same way as lifting the finger up at the end. It is generally easier to achieve good prints with this technique.

Note

Simply lifting off the finger may produce smeared areas with unclear ridges.

Rolled print capturing is carried out in 5 easy steps:

- 1 Place the finger in the center of the platen
- 2 Roll the finger to the starting side
- 3 Start capturing and roll the finger to the other side, from nail edge to nail within 2-3 seconds
- 4 Reverse the rolling direction a little at the end
- 5 Lift the finger off the platen

Fingerprint image quality

A number of conditions can affect image quality and the system is able to detect potential mistakes by the operator. The following list contains conditions you are likely to encounter while capturing fingerprints. Each image has the condition of the fingerprint and the suggested remedy to improve the print.

Wet or sweaty finger

The image for wet or sweaty fingers contain black areas without line details.

Remedy: Dry each finger using a dry soft tissue and clean the glass platen after each print.



Dry or cold finger

A dry or cold finger image has a low contrast and contains white areas and breaks in line definition.

Remedy: Wipe each dry finger with a moisturizing tissue or warm-up each cold finger and clean the glass platen after each print. Alternatively use a creme to moisten the finger before scanning.



Note

Apply the creme sparingly and spread it evenly. Wait until the creme has been completely absorbed by the skin before repeating the scanning procedure.

Finger positioned incorrectly

If fingers are placed too high, the tip area is not shown.

Remedy: Lower the finger on the platen.



If fingers are placed too low, the crease is not shown.

Remedy: Raise the finger on the platen.



Blurred images

Shifting the finger during capture will produce a blurred image, especially if you are capturing a rolled fingerprint.

Remedy: Repeat the rolling capturing procedure and make sure to avoid incorrect rolling.



Cone-shaped fingers

Extremely cone-shaped fingers contain missing segments of the fingerprint, usually the upper part.

Remedy: Increase the pressure on the tip portion of the subject's finger. Keep an even pressure throughout the roll.



Capturing a fingerprint

Use the **OPTIMIZE CONTRAST** function during all fingerprint captures. This function is available for all fingerprints. The selected settings will remain active during the entire capturing sequence.

Before applying make sure that the finger of the person is placed on the scanner platen. The system automatically checks the quality of the fingerprint image and will, if necessary, adjust the contrast of the scanner so that optimal image quality is assured.

Start the capture process.

- Incorrectly placed fingers are recognized immediately. In such cases you must repeat the capture process.
- Correct a misplacement by lifting-up and then replacing the finger. Once the finger is on the platen, make no movement that would deform the fingerprint image.
- When touching the scanner glass platen, the fingerprint is not instantly captured. Capturing only starts after you activate the capture mode.

Slap prints

With your software in capture mode:

- 1 Place the finger straight and flat in the center of the glass platen, apply moderate pressure and check the contrast.
- 2 Start the capturing and keep the finger still during the scanning time of approx. 1.5 seconds.
- 3 Capture the fingerprint and close the capture mode.



Rolled prints

With your software in capture mode:

- 1 Place the finger, using the displayed colored cross hair as a guideline for the core, in the center of the glass platen and check the contrast.



- 2 Roll the finger to the start position, either left or right. Keep the finger still at this position for a moment. Hold the fingertip with one hand, while guiding the wrist/hand with the other hand. Check that the fingerprint on the screen is of good quality.



- 3 Start the capture and roll the finger quickly, in a time span of about 2 seconds from nail edge to nail edge, across the surface of the platen. Guide the fingertip as well as the wrist while rolling the finger and make sure to apply sufficient pressure.

- 4 Reverse the rolling direction a little at the end before lifting the finger.

- 5 Lift the finger off the platen. The final rolled print image appears in full resolution on the screen.



Note

Avoid shifts or other improper guidance of the rolled finger.

The system commences the capture process of the rolled print immediately when you begin to roll in the correct direction. If, for example, at the start the finger was rolled to the right side of the platen, then the system assumes that the roll capturing will be done from right to left. Rolling the finger further to the right side does not start the capture process. Instead, the system waits until the finger roll direction goes from right-to-left.

The system has a built-in timer which checks whether a rolling action is finished within a reasonable time.

Cleaning

This section shows how to clean the glass 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.

Cleaning the glass platen

- 1 Spray the glass cleaner sparingly onto the 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.



Cleaning the workspace and the case

The scanner workspace is the area around the glass platen.

Warning

Before you clean the case, disconnect the USB cable.

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.

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