LABSTAMP ™
By Somark

USER GUIDE
Labstamp 1.0

SOMARK Innovations, Inc.
San Diego, CA
USA

www.labstamp.com
1-800-430-1243

Copyright Information

Safety Information

Always follow basic safety precautions when using this product to reduce risk of injury from fire or electric shock.

1. Please read and understand all the instructions included in the documentation that comes with the Labstamp™ System.

2. Observe all warnings and follow all instructions provided with the product.

3. The suitability of tattooing any particular mouse using the Labstamp System is based upon tail size, specifically tail girth. The range of acceptable tail girths is determined by the Labstamp Tail Gauge. Determining the correct Restraint Cartridge and Needle Cartridge combination as prescribed by the Tail Gauge, enables tattooing mice from weanling to adult. Using the Labstamp System on mice smaller or larger than the Tail Gauge indicates may result in poor tattoo quality, cause harm to the animal, and/or damage to the Needle Cartridge. The tail girths were tested using C57BL/6, BALB/c, C3H/He, and ICR(CD-1) mice.

4. Anesthesia is not required for tattooing mice. Defer to your Institutional Animal Care and Use Committee (IACUC) for any animal welfare concerns.

5. The Labstamp System was designed and tested for use on mice. The Labstamp System was neither designed for nor tested on rats.

6. This product does not have a CE or UL marking applied at this time, because compliance with safety and/or emissions requirements have not yet been verified.

7. Use only the power supply provided or approved by SOMARK Innovations. Using a power supply not provided by SOMARK Innovations could damage the Applicator Machine and void the warranty.

8. Use only a grounded electrical outlet when connecting this product to a power source. If you do not know whether the outlet is grounded, check with a qualified technician.

9. Before cleaning this product, unplug it from wall outlets.

10. Do not install or use this product near water, when you are wet, or if the product is wet.

11. Handle Needle Cartridges with care and discard used Needle Cartridges into a sharps container. In the unlikely event that you accidentally stick yourself with a needle, be familiar with your site policy for any treatment and/or reporting the incident to your employer. If used and handled properly, Needle Cartridges are safe and designed to last for up to 50 tattoos.

Table of Contents

Section 1   Overview

This document describes the procedure for using the Labstamp System to create automated tail tattoos for mouse identification. The Labstamp System is a significant breakthrough for researchers and scientists for ensuring accuracy of animal research. The Labstamp System features unsurpassed technology that automatically applies the most consistent, readable and durable ID to research mice. Its advanced design overcomes issues associated with traditional visual identification methods. By applying automated tattoos to mice from weanling to adult, the Labstamp System is setting a new standard to protect the integrity of critical research with many advantages to the facility, operator and the animal.

IMPORTANT

The Labstamp System was designed and validated for mice. The System was neither designed nor validated for rats. The System was designed to accommodate a specific range of mouse tail diameters (girth) as is generally found in mice from weanling to adult. Accommodating such a wide range of tail girth is achieved by using a combination of red (labelled SMALL) or blue (labelled LARGE) Restraint Cartridge, and yellow (shorter) or green (longer) Needle Cartridge. For each animal, there is only one Restraint Cartridge and Needle Cartridge combination that will produce an optimal tattoo (i.e. one that is legible and permanent). **The Labstamp Tail Gauge must be used for guidance in selecting the correct Restraint Cartridge and Needle Cartridge combination.**

Note: Tail size, and not animal age or weight, dictates the correct and singular combination of Restraint Cartridge and Needle Cartridge that the user must use.

Using the Labstamp System on mice outside of the tail size range will result in light or incomplete tattoos on undersized animals, and it may cause harm to the animal or damage to the Needle Cartridge on oversized mice. The complete tail size range was tested and validated using C57BL/6, BALB/c, C3H/He, and ICR(CD-1) mice.

Anesthesia is not required for using the Labstamp System. However, please defer to your Institutional Animal Care and Use Committee (IACUC), attending veterinarian and/or veterinary services for any animal welfare concerns.

Figure 1-1 Labstamp System

Section 2   Labstamp Components

LABSTAMP SYSTEM:

1   Applicator Machine

2   Restraint Cartridges (SMALL and LARGE)

3   Tail Gauge

4   Needle Cartridges (Yellow and Green)

5   UV Thumb Light

6   Ink Slides (Black or UV Green, in foil pouches)

7   Tail Oil

Figure 2-1 Labstamp System

RESTRAINT CARTRIDGE COMPONENTS

1   TriCell Ink slide

2   Tail Cover

3   Red Dome

4   Tail Gripper buttons

5   Tail Grippers

6   V-Groove Tail Guide

7   Tail Bed

8   Tail Cover Alignment Posts

9   Restraint Cartridge Platform
    (labelled SMALL or LARGE)

10 Handle

Figure 2-2 Restraint Cartridge Components

APPLICATOR MACHINE

1 Gun-Head Door/Gun-Head

2 Control Panel (see Control Panel, below)

3 Power Switch

4 Power Plug

5 USB Port (optional)

Figure 2-3 Applicator Machine

CONTROL PANEL

Figure 2-4 Control Panel

1 Restraint Cartridge Status light

Red solid light - *The Restraint Cartridge is inserted but not fully seated in place for tattooing.*

Red flashing light - *Tattooing is in progress. Do not remove Restraint Cartridge until tattooing is complete and the status light has returned to green.*

Green light - *The Restraint Cartridge has been inserted correctly. You are ready to start a tattoo or remove the Restraint Cartridge.*

Light off - *No Restraint Cartridge has been detected.*

2 Auto increment button

Turns the Auto Increment mode ON. The Auto Increment button light will remain on while the machine is in this mode.

3 Change Needle button

Opens the gun-head door and extends the gun-head and installed Needle Cartridge out of the Applicator Machine. May also be used to retract the gun-head after installing a new Needle Cartridge.

4 Start button

Begins the tattooing process. Retracts the gun-head and Needle Cartridge into the Applicator Machine.

5 LCD display screen

Provides user instruction. See System Messages on page 15.

6 Stop button

Aborts Applicator Machine operations.

7 Alpha key

Changes keypad to A-Z. Press once to turn on mode for single character. Press and hold to lock-in the alpha mode.

8 Backspace button

"Backspace." Erases the last character entered.

Labstamp Components | Labstamp User Guide | PN: 1202.D

Section 3   Procedure

3.1. PREPARING WORKSPACE

3.1.1   Set-up the tattooing area with the supplied Applicator Machine, Restraint Cartridge(s), Tail Gauge, Ink Slides (keep in foil pouch until ready to tattoo), Needle Cartridge(s), and Tail Oil. *See* Figure 3-1 Labstamp System

Figure 3-1 Labstamp System

3.1.2   Obtain a small dish, cotton tipped applicators, and gauze.

3.1.3   Plug the SOMARK provided power supply into the Applicator Machine, and plug the power supply into a power outlet. Using the power switch located on the rear of the machine, turn on the Applicator Machine. See Figure 3-2 Power Switch.

3.1.4   When ready to tattoo, open the foil pouch containing the Ink Slides.

> ***Note: Once opened, Ink Slides must be used or re-sealed within twenty-four (24) hours.***

Figure 3-2 Power Switch

3.1.5   Pour a small amount of Tail Oil into the dish.

3.2. RESTRAINING THE MOUSE

3.2.1   Make an initial selection of the Restraint Cartridge (SMALL or LARGE) based upon whether mice are young or adult. See Figure 3-3 Restraint Cartridges

Figure 3-3 Restraint Cartridges

3.2.2   Remove the Red Dome and Tail Cover from the Restraint Cartridge. (Remove the Tail Cover by lifting it straight-up off of the Restraint Cartridge platform.) Pick-up a mouse by the tail and place it on the Restraint Cartridge platform with the head facing toward the handle.

3.2.3   With one hand still holding the mouse by the tail, use your forefinger and thumb on your other hand to pick up the Red Dome. Depress the tail gripper buttons on either side of the dome to spread open the tail grippers. *See* Figure 3-4 Restraining a mouse.

3.2.4   Lower the Red Dome over the mouse keeping the tail gripper buttons pressed open. Set the Red Dome in place on the Restraint Cartridge platform until the magnet guides are engaged.

3.2.5   With the tail gripper buttons still pressed open, pull the mouse gently against the back wall of the Red Dome. Release the tail gripper buttons to secure the mouse. You may now release the mouse tail.
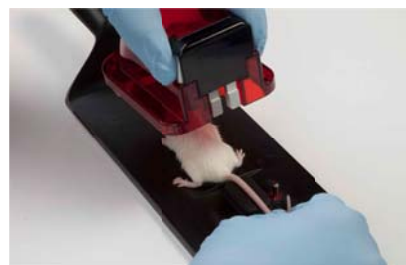
Figure 3-4 Restraining a mouse

3.3. DETERMINING THE CORRECT RESTRAINT AND NEEDLE CARTRIDGE COMBINATION

IMPORTANT: The Labstamp Tail Gauge is used to determine the appropriate Restraint Cartridge and Needle Cartridge combination that is to be used for each mouse. The proper use of this tool will ensure that the best quality and most durable tattoo is produced. Relying on the age or weight of a mouse to determine the appropriate Restraint Cartridge or Needle Cartridge will not result in a quality tattoo.

The Tail Gauge is comprised of 5 slots of increasing widths. *See* Figure 3-5 Tail Gauge. Two of the 5 slots fall within a red colored zone, and two fall within a blue colored zone. These colored zones correspond to the SMALL and LARGE Restraint Cartridges, respectively.

Above each of the 4 slots on the Tail Gauge is a yellow or green colored dot. These colored dots correspond to the yellow and green colored Needle Cartridges used in the Applicator Machine.

The 5th slot on the far left of the Tail Gauge has the international circle-slash symbol above it. It identifies mice that are too small to be used in the Labstamp System at this time.

3.3.1   To measure the tail, position the mouse tail across the v-groove of the rubber tail bed. If necessary, gently hold the tail in place. *See* Figure 3-6 Positioning the Tail Gauge.

3.3.2   Hold the Tail Gauge as close as practical to the tail grippers, i.e. where the tail exits the red dome,

NOTE: Ensure the Tail Gauge is held vertically and square with respect to the tail.

Figure 3-6 Positioning the Tail Gauge

3.3.3   Measure from the smallest slot on the left, to the largest slot on the right, until you find the appropriate fit.

3.3.4.   The appropriate slot on the Tail Gauge should drop under its own weight over the tail. A snug fit is permissible but do not force the gauge over the tail. See Figure 3-6 Positioning the Tail Gauge.

3.3.5.   Once the slot that best fits the mouse tail is determined, identify the correct Restraint Cartridge size and Needle Cartridge color that corresponds to that slot.

In some cases, you may need to change the mouse to the other Restraint Cartridge than what you first selected to measure the tail.

NOTE: Any time that a mouse is placed or repositioned, either on the same Restraint Cartridge or on a different Restraint Cartridge, it is important to use the Tail Gauge to confirm the appropriate combination of Restraint Cartridge and Needle Cartridge is being used.

IMPORTANT: If the tail is too large for any of the slots, the animal is too large to be tattooed.

3.4. INSTALL THE NEEDLE CARTRIDGE

IMPORTANT: Needle Cartridges can be used for a maximum of 50 IDs. After 50 IDs, the needle tips become blunt and are not as effective at producing a quality tattoo. Also, please always handle Needle Cartridges with care. Never put your fingers inside the Applicator Machine.

If you are changing the Needle Cartridge, proceed to Section 3.5 CHANGING THE NEEDLE CARTRIDGE

3.4.1 Press the CHANGE NEEDLE button on the front panel of the Applicator Machine. The gun-head door will open, and the gun-head will emerge from inside the Applicator Machine. *See* Figure 3-7 Change Needle Button

NOTE: If this is the first time the Applicator Machine is being used, the gun-head will already be in the Change Needle position with the gun-head protruding out of the Applicator Machine.

Figure 3-7 Change Needle Button

3.4.2 With the needle pointing downward, install the Needle Cartridge by lining up the clip arms of the Needle Cartridge with the slots in the gun-head. Gently push in until the clip arms snap into place. *See* Figure 3-8 Install Needle Cartridge*.*

3.4.3 Press the CHANGE NEEDLE or START button on the front panel of the Applicator Machine to retract the gun-head. Ensure the small gun-head door closes.

Figure 3-8 Install Needle Cartridge

3.4.4 Once the Needle Cartridge is installed, proceed to section 3.6 - APPLYING TAIL OIL

3.5. CHANGING THE NEEDLE CARTRIDGE

IMPORTANT: Needle Cartridges can be used for a maximum of 50 IDs. After 50 IDs, the needle tips become blunt and are not as effective at producing a quality tattoo. Please always handle Needle Cartridges with care. Never put your fingers inside the Applicator Machine.

3.5.1 Press the CHANGE NEEDLE button on the front panel of the Applicator Machine. *See* Figure 3-7 Change Needle Button*.* The gun-head and used Needle Cartridge will emerge from inside the Applicator Machine.

3.5.2 Using the forked-end of the Tail Gauge, push it onto the mid-section of the Needle Cartridge. The tangs of the fork will depress the clip arms to release the Needle Cartridge from the gun-head. See Figure 3-9 Tail Gauge Fork-End.

Figure 3-9 Tail Gauge Fork-End

3.5.3   Withdraw the Tail Gauge. The used Needle Cartridge will be retained between the fork tangs.

3.5.4   Install the replacement Needle Cartridge by holding it between your thumb and forefinger, lining-up the clip arms of the Needle Cartridge with the slots in the gun head, and then gently pushing-in on the body of the Needle Cartridge until the clip arms snap into place. See Figure 3-8 Install Needle Cartridge.

3.5.5   Press the CHANGE NEEDLE or START button on the front panel of the Applicator Machine to retract the gun-head. *See* Figure 3-7 Change Needle Button. Ensure the small gun-head door closes.

3.5.6   Discard used Needle Cartridges into an approved sharps container.

3.5.7   Install the replacement Needle Cartridge as described in Section 3.4- INSTALL THE NEEDLE CARTRIDGE.

3.6. APPLYING TAIL OIL

IMPORTANT: Prior to tattooing, the mouse tail should be coated with a layer of Tail Oil. The Tail Oil serves to condition the skin, enhance needle penetration, and enable excess tattoo ink to be removed more readily after the tattoo process.

3.6.1   Saturate a cotton-tipped applicator with Tail Oil.

Figure 3-10 Apply Tail Oil

3.6.2   While gently holding the tail, liberally apply a layer of Tail Oil on the top and sides of the tail that lies across the v-groove of the rubber tail bed. *See* Figure 3-10 Apply Tail Oil.

3.7. INSERTING THE INK SLIDE

NOTE: The Ink Slides are single-use only and will need to be replaced after each ID. Once opened, the package of slides must be used within twenty-four (24) hours or re-sealed otherwise the Ink Slides will dry-out and result in light or incomplete tattoos when used.

3.7.1   Pull out one Ink Slide from the foil pouch. *See* Figure 3-11 Ink Slide Pouch. *Verify that ink is present in each of the three (3) ink compartments. If any of the ink compartments are dried or damaged, use a different ink slide.*

Figure 3-11 Ink Slide Pouch

3.7.2   Insert the Ink Slide into the slotted opening on the side of the Tail Cover. Ensure that the holes of the Ink Slide line up with the holes in the Tail Cover. The Ink Slide is properly installed when it will not push-in any further and the alignment holes are aligned. *See* Figure 3-12 Ink Slide Insertion.

Figure 3-12 Ink Slide Insertion

3.8. PLACING THE TAIL COVER

3.8.1   Align the tail within the v-groove of the rubber tail bed. Hold the tail gently to keep it in place, but do not attempt to stretch the tail nor hold it taut. See Figure 3-14 Aligning the tail.

Figure 3-14 Aligning the tail

3.8.2   Align the Tail Cover with the color-coordinated posts of the Restraint Cartridge platform - blue aligns with blue, and red with red. *See* Figure 3-13 Tail Cover

3.8.3   Carefully lower the Tail Cover, with the Ink Slide inserted, over the tail. Be sure to release any tension that you may have applied to the tail while attempting to hold the tail in place.

NOTE: The Tail Cover has magnets and alignment posts to ensure that the Tail Cover snaps into proper position.

Figure 3-13 Tail Cover

3.9. LOADING THE RESTRAINT CARTRIDGE INTO THE APPLICATOR MACHINE

3.9.1   With the mouse and Tail Cover in place, lift the Restraint Cartridge by the handle.

3.9.2   Gently insert the Restraint Cartridge into the docking port on the front of the Applicator Machine. *See* Figure 3-15 Load Restraint Cartridge.

3.9.3   In the upper left corner of the Control Panel, check the RESTRAINT CARTRIDGE STATUS light:

3.9.3.1   The Restraint Cartridge is properly installed when the RESTRAINT CARTRIDGE STATUS light changes from red to green.

Figure 3-15 Load Restraint Cartridge

3.9.4   You are ready to apply a tattoo.

3.10. SELECTING THE ID METHOD / ENTERING THE ID

There are two options for selecting the ID to be applied:

- Manual entry
- Auto increment.

Figure 3-16 Entering the ID

3.10.1 Option 1: Manual Entry

3.10.1.1   Using the Applicator Machine keypad, enter the desired alpha/numeric ID combination from 0-999 and/or A-Z. A space and plus/positive (+) or minus/negative (-) are also available.

3.10.2 Option 2: Auto Increment

3.10.2.1   Press the AUTO INCREMENT button. The button light will illuminate.

3.10.2.2   Enter the first ID in your desired sequence.   Beginning with the number that you entered, the subsequent tattoos that are applied will increase according to the rules below.

Auto increment sequence rules

- *Alpha/Numeric sequences will increase by 1 from 0-999 or A-Z. You may start with any alpha/numeric character.*

If the first ID is…	the next ID will be …	& the final ID will be …
9 _ _	1 0 _	9 9 9
_ _ 9	_ 1 0	9 9 9
A 9 _	B 0 _	Z 9 _
_ A 9	_ B 0	_ Z 9
A 0 9	A 1 0	Z 9 9
1 Z _	2 A _	0 Z _
_ 1 Z	_ 2 A	_ 0 Z
0 1 Z	0 2 A	9 9 Z
A 0 Z	1 B 0	9 Z 9
Z _ _	A A _	Z Z Z
_ _ Z	_ A A	Z Z Z

3.11. APPLY THE TATTOO

3.11.1   Ensure that the ID has been selected and the RESTRAINT CARTRIDGE STATUS light is green.

3.11.2   Press the START button to begin tattooing. See Figure 3-17 Start Button. The button will beep when it has been pressed, and the Applicator Machine will begin to tattoo.

Figure 3-17 Start Button

NOTE: When the machine begins to tattoo, the RESTRAINT CARTRIDGE STATUS light will begin to flash red. Do not attempt to remove the Restraint Cartridge from the Applicator Machine while the light is flashing red.

NOTE: While one animal is being tattooed, you can use a second Restraint Cartridge to prepare the next animal for identification. However, for the comfort of the mouse, animals should not be left for more than a couple of minutes with the tail grippers restraining the mouse.

3.11.3   After tattooing is complete and the RESTRAINT CARTRIDGE STATUS light returns to green, remove the Restraint Cartridge by sliding it straight-back and out of the Applicator Machine. See Figure 3-18

Figure 3-18 Removing the Restraint

3.11.4   Remove the Tail Cover by lifting it straight-up off of the Restraint Cartridge platform.

3.11.5   While holding the tail gently, remove excess tattoo ink by wiping the newly tattooed tail with either a cotton-tipped applicator or a piece of gauze saturated with Tail Oil.

3.11.6   With one hand holding the mouse by the tail, use the other hand to depress the tail gripper buttons on the red dome in order to release the mouse from the Restraint Cartridge.

When finished, clean the Labstamp components as needed, and proceed with the next mouse, *See* Cleaning & Maintenance below for detailed instruction on cleaning the System.

Figure 3-19 Tattoo Complete

Section 4   Cleaning & Maintenance

Figure 4-1 J-Hooked
Needle

For best results and to preserve the life of your Labstamp System, please ensure the
following:

4.1. AS NEEDED

    4.1.1   Clean the Needle Cartridge.

        4.1.1.1   Press the "Change Needle" button. Wait for the gun head to emerge.
Gently wipe the needle tips with a cotton-tipped applicator coated in
tail oil, alcohol or other cleaning agent. Press the "Change Needle"
button to retract the gun head.

    4.1.2   Inspect the Needle Cartridge to check for damaged or J-Hooked needles. See Figure 4-1
J-Hooked Needle

        4.1.2.1   Press the "Change Needle" button. Wait for the gun head to emerge. Using the forked-
end of the Tail Gauge, push it onto the mid-section of the Needle Cartridge. The tangs
of the fork will depress the clip arms to release the Needle Cartridge from the gun-head.
See Figure 3-9 Tail Gauge Fork-End

        4.1.2.2   Inspect the Needle Cartridge to check for damaged or J-Hooked needles. See Figure
4-1 J-Hooked Needle

4.2. AFTER EACH TATTOO

    4.2.1   Replace the Ink Slide.

4.3. AFTER EVERY 50 TATTOOS

    4.3.1   Replace the Needle Cartridge at least after every 50 tattoos.

4.4. AT THE COMPLETION OF THE SESSION

    4.4.1   Wipe down the Applicator Machine, all Restraint Cartridge
components and Tail Gauge thoroughly according to your laboratory guidelines. Clean the
needle cartridge with a cotton-tipped applicator coated in tail oil, alcohol or other cleaning
agent.

Note: Do not spray into the Applicator Machine port in the front nor into the air vents to the rear of the System.

CLEANING METHODS
Acceptable cleaning methods for each Labstamp component are listed below:

	ETO	Irradiate	Autoclave	VHP	Spray/wipe	Chlorine dioxide gas
Applicator machine	•			•	•	•
Restraint cartridge	•	•		•	•	•
Ink slide (single-use)		•		•	•	•
Needle	•	•		•	•	•
Tail oil	•	•	•	•	•	•

ETO= Ethylene oxide

VHP= Vaporized hydrogen peroxide

The Applicator Machine can fit inside an isolator with a 12" diameter transfer portal.

⚠️ **WARNINGS**

The Applicator Machine has electrical components that can be damaged by autoclave processes. The external surfaces of the machine can be cleaned with any sterilant or disinfectant solution. Do not spray _any_ liquid (including sterilant or disinfectant) directly into the docking port or air vents, located on the back.

Section 5   System Messages

Message	What it means
ENTER MOUSE ID _ _ _	Appears in the Manual Entry option. In this option, a new ID will need to be entered for each mouse.
ENTER FIRST ID	Appears in the Auto Increment option. See rules on page 12.
TATTOOING IN PROGRESS	The machine is tattooing a mouse. Do not remove the Restraint Cartridge from the docking port until the RESTRAINT CARTRIDGE STATUS light returns to green.
NEXT MOUSE ID _ _ _ PRESS START	In the Auto Increment option, the next number in the sequence automatically appears. Press START to begin tattooing.
REPLACE NEEDLE	50 tattooed IDs have been applied. The needle must be replaced. Will stay on until the new needle has been installed.
REMOVE RESTRAINT CARTRIDGE	Usually appears after pushing the CHANGE NEEDLE button. The Restraint Cartridge must be removed before changing the Needle Cartridge.
PLEASE WAIT	The gun-head is either extending out of or retracting into the machine. Wait until the gun-head stops before attempting to change the Needle Cartridge.
AUTO INCREMENT MODE ON	The Auto Increment option has been turned on.
AUTO INCREMENT MODE OFF	The Auto Increment option has been turned off.

Section 6   Troubleshooting

In addition to the troubleshooting tips below, support for the Labstamp System can be obtained by contacting a SOMARK representative at **1-800-430-1243 or support@somarkinnovations.com.**

ALERT MESSAGES

If you experience an alert message or problem with the Labstamp System:
Turn off the Applicator Machine. Wait 5 seconds. Then turn the Applicator Machine on. **If this does not resolve the issue, note the Labstamp alert message that appears on the LCD screen and the Applicator's serial number and contact a SOMARK representative.**

Check the Ink Slides before use by gently squeezing the ink portion to ensure liquid is present inside. In addition, check the expiration date. Slides are intended for single use only. Re-using an ink slide is not recommended.
.

Check the Needle Cartridge for damaged or J-hooked needles. Use an eye loupe or stereo microscope to inspect the needles and verify if the needles are hooked or damaged.

Check to ensure that the appropriate Restraint Cartridge and Needle Cartridge were selected for the mouse as prescribed by the Tail Gauge.

Check to ensure the tail was properly positioned in the Restraint Cartridge.

Check for any debris that may be present under the Tail Cover. Clear the debris and resume tattooing.

If the needle has not been properly installed, it may fall off the gun head. If this happens, the needle may interfere with the operation of the Applicator. Do not install another needle or attempt to operate the Labstamp System. Contact SOMARK for further assistance.

Section 7   Applicator Machine Specifications

General	
Model	Labstamp 1.0
Dimensions	10.9" x 12.5" x 4" (27.7 x 31.8 x 10.2 cm)
Weight	9.5 lbs (4.3 kg)
DISPLAY	
Type	LCD
Screen size	2.5" x 0.6" (6.35 x 1.52 cm)
Resolution	80 x 16
ELECTRICAL	
Power source	120V, 60Hz
Power consumption	1.5A (max)
Operating temperature	32°F to 122°F (0°C to 50°C)
ENVIRONMENTAL	
Storage temperature	-4°C to 122°C (-20°C to 50°C)
Operating relative humidity	90% max. (non-condensing)