User Guide

MilliSentials™
Lab Labeling System

MISELLABST	**MISELLABSE**
MISELLABSI	**MISELLABSL**
MISELLABSA	**MISELLABSR**
MISELLABSJ	**MISELLABSB**
MISELLABSC	**MISELLABSN**

MilliSentials™ Lab Labeling System Printer

MilliSentials™ Lab Labeling System Software

Introduction

The MilliSentials™ Lab Labeling System is an intuitive labeling system combining laboratory grade adaptable labels, a compact WiFi® printer, and a custom developed software to streamline laboratory labeling workflows.

What's in the box

MilliSentials™ Lab Printer

Two (2) cardboard core adapters, diameters of 1 inch and 0.5 inch

Two (2) plastic core adapters

AC power supply, power cord

USB cable

MilliSentials™ Lab Adaptable Labels

MilliSentials™ Lab Printer Ribbon

USB flash drive includes MilliSentials™ Lab Labeling System Software

Watch the Setup Video
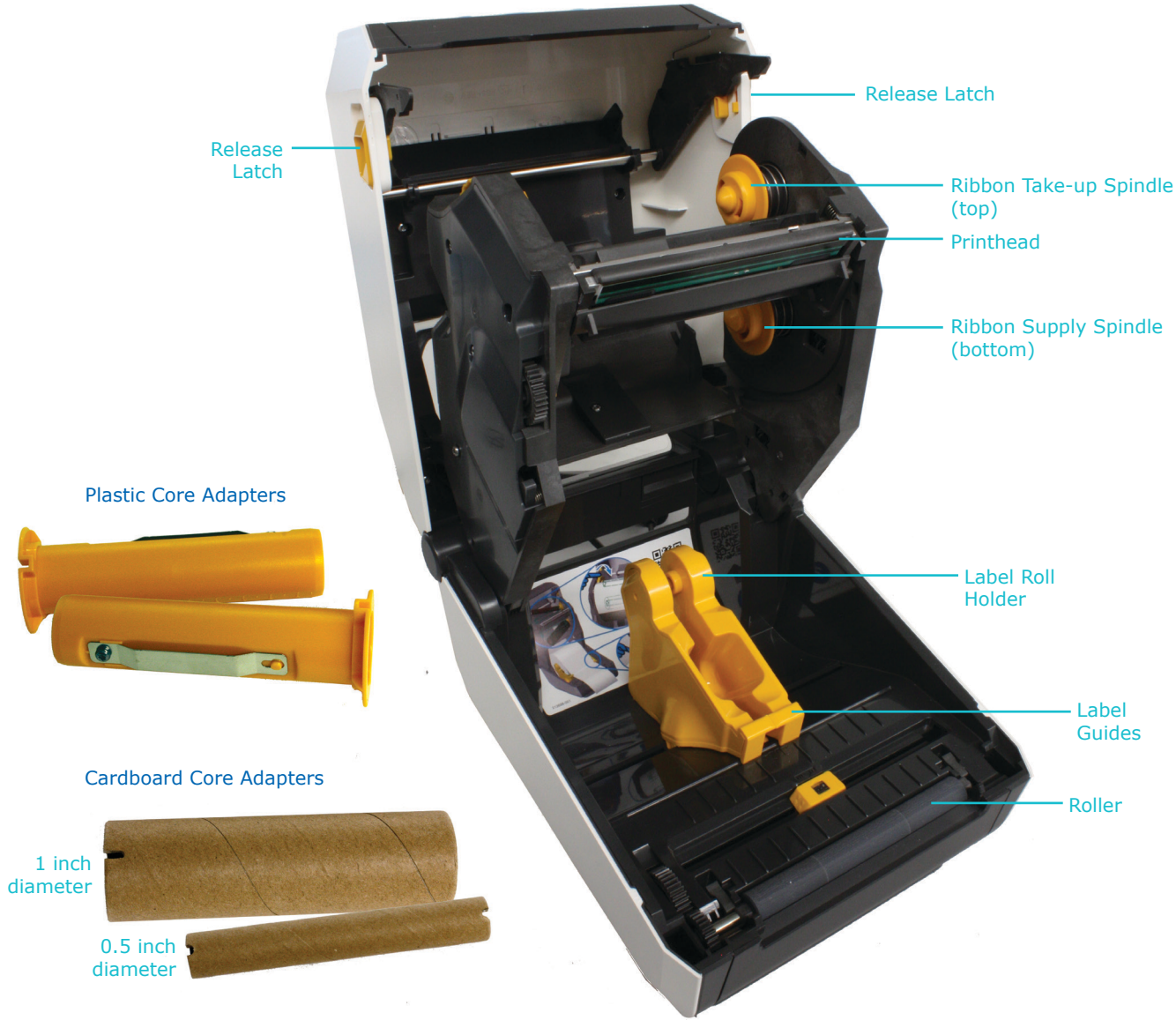
View the code using your smart phone's camera (IOS® or Android™) and a notification should pop up. Follow the prompt on your device to access the setup video web page. Once there, you will see two videos. Click on the video for your printer model to watch step-by-step instructions.

The videos are also available at SigmaAldrich.com on the Setting up MilliSentials™ Lab Labeling System page.

Identify Internal Components

Release Latch

Release Latch

Ribbon Take-up Spindle (top)

Printhead

Ribbon Supply Spindle (bottom)

Plastic Core Adapters

Label Roll Holder

Cardboard Core Adapters

Label Guides

1 inch diameter

0.5 inch diameter

Roller

Control Panel

Indicator Lights

Status Pause Data Media Network

Power Button

07:20 PM
Home

Idle

Print Status Printer Info

Menu

Wizards

Shortcuts

Pause Button

Feed Button

Cancel Button

LCD Touch Screen

ZEBRA ZD621

Glossary

0.5-0.6 mL Tube: A lab vessel size referenced in MilliSentials™ Lab Labeling System Software. The predetermined lab label size for this vessel is one third of a full label.

1-2 mL Tube: A lab vessel size referenced in MilliSentials™ Lab Labeling System Software. The predetermined lab label size for this vessel is two thirds of a full label.

≥5 mL Tube: A lab vessel size referenced in MilliSentials™ Lab Labeling System Software. The predetermined lab label size for this vessel is one full label.

Authenticated User: A user who has a profile and is logged into the MilliSentials™ Lab Labeling System Software.

Configure Label Line: This menu is accessed by clicking on a line in a label preview within the MilliSentials™ Lab Labeling Software and provides options to customize each line of the lab label.

Ethernet Connection: A network connection which uses a specific hardwired "Ethernet cable" to connect a printer or computer to a network outlet.
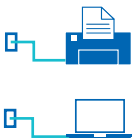
Full Label: The full label is one label with all perforations intact, meant to fit on vessels that are larger than 5mL volume.

Hardwire (USB) Connection: A method to set up the Lab Labeling System, by connecting the host computer to the printer using a USB cable.

Host Computer: A computer that is used to install the printer and facilitates use of the MilliSentials™ Lab Labeling System Software.

IP Address or IPv4: The "IP" part of IP address stands for "Internet Protocol." The "address" part refers to a unique number that gets linked to all activity to or from that device. V4 is version 4. The printer IP Address appears on the Touch LCD Screen, under "Printer Info". If it is all zeros, the printer is not connected to the network.

Network Connection via WiFi®: A wireless connection that provides communication to the network without the need for cables. This can be used to connect the printer and host computer as well as other devices.

One third of a Label: This refers to a single piece of the label after a full label has been split into three sections using the perforations. This format of the label is intended to be wrapped around a 0.5-0.6mL tube or on a plate or dish, but can be used on other vessels.

Perforation: A row of small holes in a piece of paper or full label to make it easier to separate without use of scissors. The MilliSentials™ Lab Adaptable Labels have two horizontal perforations that allow users to seperate the label into thirds.

Plate or Dish: A lab vessel size referenced in MilliSentials™ Lab Labeling System Software. The predetermined lab label size for this vessel splits the full label into thirds and allows the text to fully span the label width.

Quick Printing: To print a small number of labels without using a saved template or advanced label configuration options.

Ribbon: The ribbon provides "ink"-like material that is transferred onto the labels during the thermal transfer printing process. The ribbon must be installed by the user.

Sidebar Menu: The menu in the upper-left corner of the MilliSentials™ Lab Labeling System Software, represented by three lines. For authenticated users, this menu provides access to the Print Tab ("Print"), user profile preferences ("Profile"), printer connection settings ("Settings") and logout option ("Logout").

Two thirds of a Label: This refers to the lower two sections of the label kept together after the top perforation is discarded. This format of the label is intended to wrap around a 1-2 mL tube but can also be used on other vessels.

Unauthenticated User: In the MilliSentials™ Lab Labeling System Software, a user who is not logged into any profile. Unauthenticated users may still print but features are limited.

User Devices: The user device communicates with the host computer to create and print lab labels. It must be on the same network as the host computer/printer. User devices can be Windows® computers, Mac® computers, tablets, or smart phones.

Vessel Format: A label layout in the MilliSentials™ Lab Labeling System Software designed specifically for commonly used laboratory vessels. (Example: 0.5-0.6 mL tubes, plate or dish, 1-2 mL tubes or ≥5 mL tubes). There are 8 different vessel formats.

Software and Computer Requirements

Assigning a Host Computer

The computer that the MilliSentials™ Lab Labeling System Software is installed on is referred to as the host computer and should be used to connect to the printer. After installation and connection with the printer the host computer can be used to run the software and print labels. Both Microsoft® Windows® and Macintosh® (Mac) host computers can connect to the printer through a direct USB connection or a network connection. Mobile devices can be used to facilitate initial printer setup and print labels through connection with a host computer, but cannot be host computers. Host computers should have the minimum operating systems described in the next section.

The MilliSentials™ Lab Labeling System Software does not need to be installed on other devices in order to print. Once connected to the printer, the host computer can also facilitate communications with other devices and computers in the lab through use of a network connection and web browser. For this reason, a computer that is already being used to run other lab equipment is a suitable choice as a host computer. Be sure this computer does not enter sleep mode.

Install Software

The MilliSentials™ Lab Labeling System comes with a USB flash drive containing programs required to communicate with the printer.

MilliSentials™ Lab Labeling System Software

Windows® Computer

Minimum Operating System Requirement:

Microsoft® Windows® 10 OS, version 1909 OS Build 18363.1016

1. Plug the MilliSentials™ USB flash drive into the computer.

2. Wait for the drivers to load from the USB flash drive device (this may take a few moments).

3. To install the MilliSentials™ Lab Labeling System Software, navigate to and double click the application called **MilliSentials Lab Labeling System Software Setup_Windows.exe**.

4. Select "run" or "allow access". **DO NOT extract the zip file**, extracting will prevent installation.

5. Follow the setup wizard instructions to install.

   Note: If a security message pops up, click "run anyway" or "add certificate". You may need to contact IT administrator depending on your institution's security settings.

6. Restart the computer. A light blue icon will appear on your desktop.

7. You may remove the USB flash drive.

Macintosh® Computer (Mac®)

Minimum Operating System Requirement:

Macintosh® (Mac) macOS Catalina, version 10.15.6.

1. Plug the MilliSentials™ USB flash drive into the host computer.

2. Wait for the drivers to load from the USB flash drive (this may take a few moments).

3. Navigate to the flash drive. Double click on the folder MilliSentials Lab Labeling System Software. For Mac®, click and drag the zip folder called **MilliSentials Lab Labeling System Setup_Mac** onto the desktop. Double click on the folder and the computer will open and install the program automatically. A light blue icon will appear on your desktop.

4. You may remove the USB flash drive.

Printer Ribbon Installation

The printer should be powered off and unplugged during this step. You will need:

- MilliSentials™ Lab Printer Ribbon (taken out of the bag but not unwrapped)
- One (1) plastic core adapter
- 1 inch diameter cardboard core adapter
- MilliSentials™ Lab Printer

Note: there are two (2) plastic core adapters included with your system. They are the same. Use only one for ribbon installation.

1. Open the printer by pulling the release latches on either side of the printer toward you until you hear a click. Lift the lid.

   Note: For ease-of-use the internal parts for ribbon and label installation are yellow.

2. Gently unwrap the clear plastic packaging, keeping it adhered onto the end of the ribbon.

   Important: Do not remove clear plastic layer.

3. Hold the ribbon so that the Zebra® logo inside the ribbon core faces to the right.

4. Hold the plastic core adapter so the notches are on the left, and slide it through the ribbon core. The ribbon should feed from the bottom (see drawing). Center the ribbon core on the plastic core adapter.

   Note: Inserting the plastic core adapter through the ribbon core requires some force.

   Ribbon Orientation

   Ribbon feeds from bottom

5. Locate the bottom supply spindles in the printer. With the right side of the loaded plastic core adapter, push against the right supply spindle spring. Match up the notches of the plastic core adapter to the supply spindle on the left.

   Step 5

6. Unwrap the ribbon ensuring the adhesive packaging still remains attached.

7. Hold the 1 inch cardboard core adapter with the notches on the left.

8. With the adhesive from the ribbon packaging facing up, place the 1-inch cardboard adapter onto the adhesive so that it is centered.

9. Roll the adapter away from you to wind the excess around the cardboard core adapter until the end of the ribbon is visible.

   Note: If the plastic ribbon packing is removed while unpacking, use adhesive tape (or a MilliSentials™ Lab Adaptable Label) to secure the ribbon to the cardboard core adapter.

   Step 6

10. Gently pull the cardboard core adapter and ribbon up and over the printhead. Push the right side of the cardboard core adapter into the right side take-up spindle spring. Match up and lock the notches of the cardboard core adapter into the take-up spindle on the left.

    Step 10

11. Take any slack out of the ribbon by gently turning the cardboard core adapter/take-up spindle away from you. The spindle will click as you roll it. Ribbon is now installed.
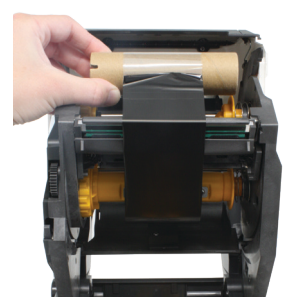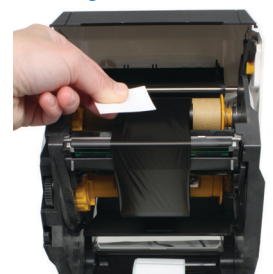
TIP: Check Ribbon Orientation To ensure that you've installed the ribbon correctly, peel one MilliSentials™ Lab Adaptable Label from the roll. With the adhesive facing down, gently place the adhesive onto exposed ribbon against the cardboard core adapter. Allow the label to adhere slightly to the ribbon, and then remove it.

Checking Ribbon Orientation

- If the label adhesive has black markings from the ribbon, then the ribbon is installed in the correct orientation.

- If the label adhesive does not have black markings from the ribbon, the ribbon is upside-down. Repeat ribbon installation or watch the how-to video.
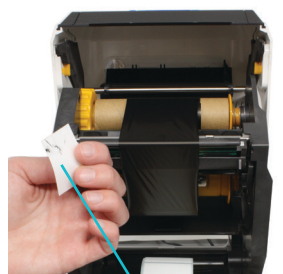
Black Markings

Adaptable Labels Installation

The printer should be powered off and unplugged for this step. You will need:

- MilliSentials™ Lab Adaptable Label Roll
- MilliSentials™ Lab Printer

1. Open the printer by pulling the release latches on either side of the printer toward you until you hear a click. Lift the lid.

   Note: For ease-of-use the internal parts for ribbon and label installation are yellow.

2. Locate the Label Roll Holder in the base of the printer. It is comprised of two yellow brackets that slide apart so the label roll will fit between.

3. Hold the roll of labels so that the labels feed from the top (see drawing).

4. Slide the Label Roll Holder apart and place label roll between the two sides of the Label Roll Holder. Allow the Label Roll Holder to grasp the label roll core.

Label Orientation

Labels feed from the top

5. Gently pull the labels towards you, threading the labels underneath the Label Guides to secure them.

6. Pull labels outward to slightly extend past the roller. If installed correctly, the label roll will roll smoothly in the Label Roll Holder.

7. The labels are now installed. Close the printer lid, press down firmly until it clicks into place. Part of the labels should be visible outside of the printer.

Step 5

Congratulations!
The printer ribbon and labels are installed.
To close the printer lid, press down firmly until it clicks into place. If not firmly closed, the red "Head Open" warning will appear on the Touch LCD Screen. Ensure that the printer head clicks into place.

Note: If the printer was ON during the installations, it will go into Pause Request Mode. The Touch LCD Screen will display a yellow screen and a "Pause Request" warning, and the PAUSE indicator light will be yellow. To exit Pause Request Mode, press the PAUSE button. The PAUSE indicator light will turn off and the printer Touch LCD Screen will display "Idle" under "Print Status".

Note: Every time the printer lid is opened, closed and exits Pause Request Mode, the printer will self-calibrate and roll out one (1) or more labels. To disable this feature, see *User Diagnostic Tools (p.24)*.

Printer Connectivity

There are three typical ways of setting up and connecting your printer to the host computer, and other devices:

Simple Kiosk - Easiest Setup
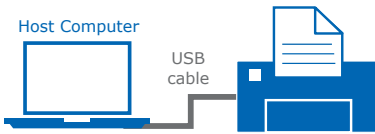
To use this Host/Printer connection,
go to *Connecting the Printer via Hardwire (USB) (p.10)*

Pros:

- Easiest setup option
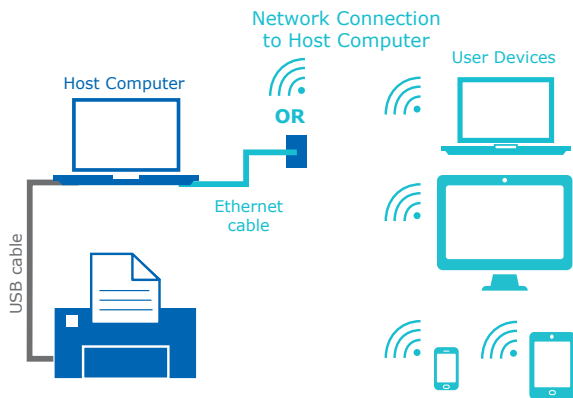- Quickest setup option

Cons:

- No wireless printing
- Computer is always required to be within proximity of the printer and takes up additional space
- One user at a time

Network Kiosk - Highest Flexibility

To use this Host/Printer connection,
go to *Connecting the Printer via Hardwire (USB) (p.10)*

Pros:

- Ability to print from any device wirelessly that is on the same network as the host computer
- Easiest way to print wirelessly
- Easy setup for host computer
- Quick way to gain access wirelessly

Cons:

- Requires reliable network connection
- Host computer is always required to be within proximity of the printer and takes up additional space
- Host computer must always be powered on and have software running
- Setup may require IT administrator assistance

Standalone Printer - Greatest Mobility
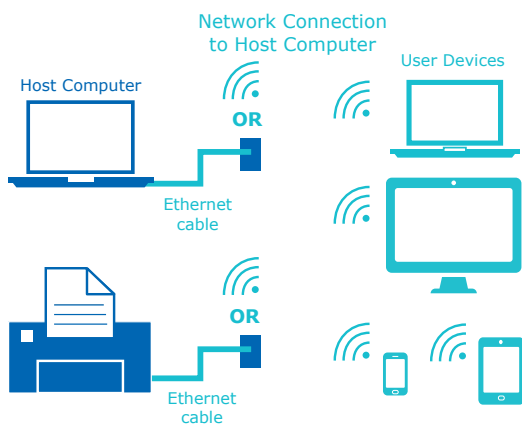
To use this Host/Printer connection,
go to: *Network Connections (p.10)* via WiFi or via Ethernet

Pros:

- Ability to print from any device, anywhere, wirelessly
- Printer can move to different locations as laboratory needs arise

Cons:

- Most difficult setup for host computer
- Requires reliable network connection
- Host computer must always be powered on and have software running
- Setup may require IT administrator assistance

Connecting the Printer via Hardwire (USB)

This is the easiest connection to setup and start printing labels. The printer will be connected directly to the computer.

Before starting, *Install Software (p.6)* must be completed.

Windows® Host Computer

1. Plug the printer into a power source, long-press the power button to turn it on. It will take a minute to boot up.

   Note: If the screen is in Pause Request Mode and the PAUSE indicator light is on, press the PAUSE button.

2. Connect your printer to your host computer via USB cable.

3. Allow a few moments for the printer drivers to install.

4. Keep the host computer connected to the printer.

TIP: Test your printer connection by going into the "Printers & Scanners" menu on your Windows computer and ensuring that ZDesigner ZD621-300dpi ZPL is on the list. If connected via USB, you can click on the printer name, go to "Manage" and the status in the pop-up should read "Idle".

Mac® Host Computer

1. Plug in the printer into a power source, long-press the power button to turn it on. It will take a minute to boot up.

   Note: If the screen is in Pause Request Mode and the PAUSE indicator light is on, press the PAUSE button.

2. Connect your printer to your host computer via USB cable.

3. On your Mac® device, open the **Settings** menu.

4. Click on **Printers & Scanners**.

5. Below the box there is are + and - icons. Click the **+** icon to add a printer.

6. The **Zebra® ZTC ZD621-300dpi ZPL** printer information should already be available and recognized on the list under the "add" menu. Click on it to select.

   Note: It is *not recommended* to re-name the printer using a Mac® device, as this may interfere with communication between the printer and computer.

7. In the box labeled "use", choose **Select Software...** From the drop down menu, find the option "Zebra® ZPL Label printer", highlight it and click OK.

8. Click **Add**. The Mac® host computer will install the printer automatically. A pop-up window will appear to confirm the new printer has been installed. It should be green and display "idle", indicating that it is ready for use with the MilliSentials™ Lab Labeling System Software.

9. Close the settings menu. Keep the host computer connected to the printer.

> After connection has been established, you are ready to print labels.
> Skip to *MilliSentials™ Lab Labeling System Software (p.13)*

Network Connections

Your printer can communicate with the host computer through the network wirelessly using WiFi® or hardwired using Ethernet cables. Before starting, complete *Install Software (p.6)*.

Note: You may need to contact your IT administrator to setup a network connection to the printer.

via WiFi®

The IP address is displayed on the printer Touch LCD Screen, by pressing "Printer Info" from the Home screen. The IP address is displayed on the second line down, under "Active IP (Wi-Fi)".

Printer Control Panel
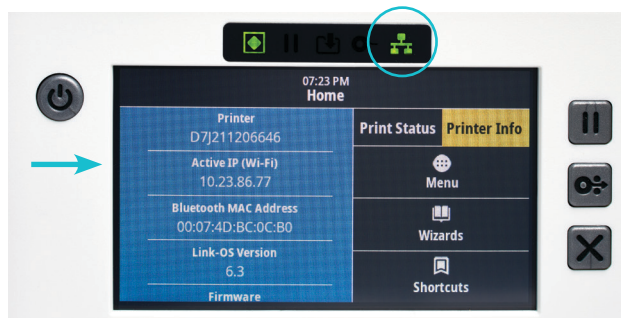
If the network connection is lost, the IP address will show only zeros and periods or the network indicator light will be red.
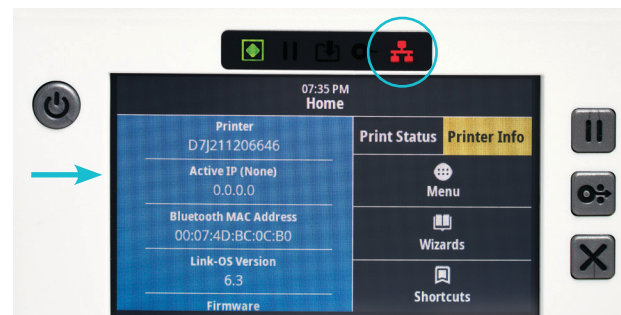
WiFi® with a Windows® or Mac® Host Computer

Your printer should be plugged in, powered on, and the USB cable should still be connected to the Windows® host computer and printer.

1. Use the Connection Wizard on the Touch LCD Screen. From "Print Status" or "Printer Info" under the Home screen, press "Wizards".

2. On the "Introduction" screen, press "Connection".

3. On the "Connection" screen, press "Start Connection".

4. On the "Network Settings: Primary Network" screen, check Wi-Fi and press on the check mark on the bottom right.

5. On the "Network Settings: Ports" screen, press on the check mark on the bottom right.

6. On the "Wired: Wired IP Protocol" screen, check DHCP and press on the check mark on the bottom right.

7. On the "Wi-Fi: Wi-Fi Country Code" screen, your country/region should automatically be detected and checked off. If not, check your country/region, and press on the check mark on the bottom right.

8. On the "Wi-Fi: Wi-Fi Security" screen, scroll and check on WPA PSK, and press on the check mark on the bottom right.

   NOTE: if you are using an open network and do not have a password, then scroll down to select "none" on this screen.

9. On the "Wi-Fi: WPA-PSK" screen, press on the box labeled "Pre-shared Key", and use the keyboard to enter the password of the WiFi® network you plan to use. Ensure "String" is highlighted in yellow. Then, press on the check mark to confirm and press on the check mark on the bottom right to continue.

   NOTE: if you are using an open network and do not have a password, then select HEX on the screen with the keyboard and press on the check mark to confirm.

10. On the "Wi-Fi: Wi-Fi Band" screen, check All and press on the check mark on the bottom right.

11. On the "Wi-Fi: ESSID" screen, press on the box labeled "ESSID", and use the keyboard to enter the name of your WiFi® network. Press on the check mark to confirm and then press on the check mark on the bottom right to continue to the optional Bluetooth™ Section of the Wizard.

Bluetooth™ Wizard

(Steps 12-15 of the Wizard are optional)

Bluetooth connection is only relevant if you wish to facilitate connection through a mobile device.

12. On the "Bluetooth: On/Off" screen, choose whether you would like the printer Bluetooth™ to be on or off.

13. On the "Bluetooth: Bluetooth Discovery" screen, choose whether you would like the printer to be discoverable via Bluetooth™ and press on the check mark on the bottom right to continue.

14. On the "Bluetooth: Friendly Name" screen, press on the box labeled "Friendly Name" to change from the default using the keyboard, and press the check mark to confirm, or keep the default name of the printer as is. Press the check mark on the bottom right to confirm.

15. On the "Bluetooth: Security" screen, choose the level of security you wish to have on your device, and press the check mark on the bottom right to confirm.

16. Once the NETWORK indicator light has turned green, you may disconnect the USB cable from the computer and printer.

After connection has been established, you are ready to print labels. Skip to *MilliSentials™ Lab Labeling System Software (p.13)*

Via Ethernet

An Ethernet cable is not included with the MilliSentials™ Lab Labeling System.

Note: You may need to contact your IT administrator to setup a network connection to the printer.

The printer should be plugged in and powered on. The USB cable can be disconnected if it is still in place.

1. Connect one end of an Ethernet cable to the Ethernet port on the back of the printer. Connect the other end of the Ethernet cable into a functioning Ethernet wall outlet or a router.

2. It may take a few moments before the NETWORK indicator light on the printer will turn from red to green. An IP address will appear on the Touch LCD Screen, under "Printer Info".

3. Do not disconnect the Ethernet cable.

> After connection has been established,
> you are ready to print labels.
> Skip to *MilliSentials™ Lab Labeling System Software (p.13)*

Connecting User Devices Using Network Kiosk or Standalone Printer Modes

User devices separate from your host computer can be used to print if they are connected to the same network as the host computer. User devices can be Windows® computers, Mac® computers, tablets, or smart phones.

Recommended browser versions:

Windows®	Google® Chrome® 85.0.4183.102 or higher
Mac®	Google® Chrome® 85.4183.102 or higher
Android®	Google® Chrome® 85.4183.101 or higher
iOS®	Google® Chrome® 85.0.4183.92 or higher

1. Set up your host computer as described in the previous sections, using either hardwire (USB) connection or a network connection.

2. Locate and write down the IPv4 Address of your host computer:

    Microsoft® Windows® 10 OS host computer:
    • Connect to a wireless network.

    • Click on the network symbol in the bottom right-hand corner of your desktop, select your network name and click "properties." On the pop-up window, scroll down to locate and copy the IPv4 Address.

    Macintosh® (Mac®) iOS Catalina host computer:
    • Connect to a wireless network.

    • Open **Network Preferences**. A pop-up window will appear. The status described in the pop-up will say "connected" under "status" and below there will be a phrase that says, "WiFi® is connected to (your network name) and the IP address is (IPv4 address)." Copy the IP address.

3. From your user device, open the Google® Chrome™ browser and type the IP Address in the address bar near the top of your browser.

4. Press enter and the MilliSentials™ Lab Labeling System Software will load onto your screen.

5. Use the MilliSentials™ Lab Labeling System Software to create and print lab labels. Saving templates will save the file on the host computer (not your device).

    Note: The host computer must be running the MilliSentials Lab Labeling System Software. If your host computer is turned off or goes to sleep, you may not be able connect successfully.

MilliSentials™ Lab Labeling System Software

First Time Login and User Profiles

Login

Before printing, you must enter printer information into the MilliSentials Lab Labeling System Software. To do this, you must create a profile and login to the software.

The first time you open the MilliSentials Lab Labeling System Software a tutorial will bring you through basic navigation and features of the system. Additionally this tutorial will load each time a new user profile logs in to the system. If you skip the tutorial, the program will bring you back to the Print Tab.

1. Open the MilliSentials™ Lab Labeling System Software from your device. If the program is not installed, follow *Install Software (p.6)*.

2. All existing user profiles will appear as colored bubbles on the 'profiles' screen. Select your profile or click "sign up" to create a new profile.

   Note: Only a user who has created a profile can set up the printer for the first time. Once the printer is connected, you can use the MilliSentials™ Lab Labeling System without a profile (unauthenticated user). Some functions are not available. Creating/logging into a profile is recommended.

Logout

Select Logout from the sidebar menu.

Sidebar Menu

≡

Profiles

Creating a Profile

1. Open the program from your device.

2. Click Login.

3. Select **Sign Up**

4. Populate the First Name, Last Name and Email Address fields. Click OK. These fields are required to have your initials print on lab labels.

Editing your Profile

1. When logged in, navigate to the sidebar menu.

   Note: You may also access the Edit profile screen in the upper left corner of the "My Templates" screen.

2. Click Edit profile. Change desired fields:

   • Email preference

   • First/Last Name

   • Language preference (choose from English, German, French, Italian, Spanish, Portuguese, Korean, Japanese and Chinese).

   Note: the MilliSentials™ Lab Labeling System Software will default to the language chosen for your browser, if it is in the list of available options.

3. Click Save.
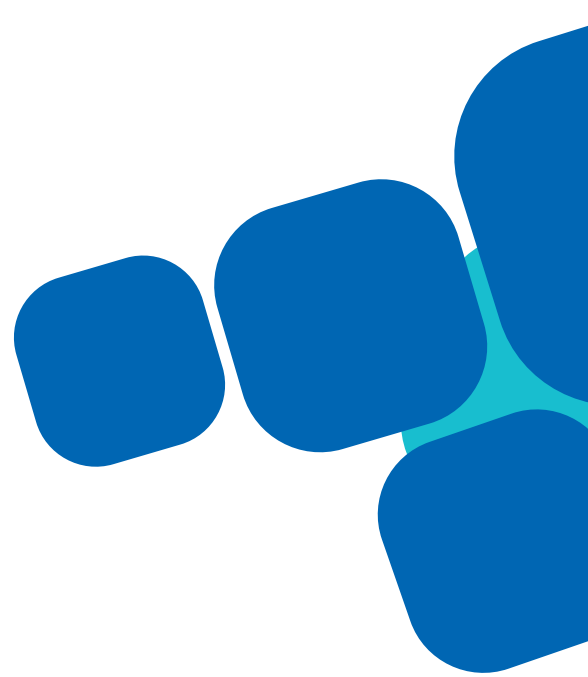
Connecting the Software to the Printer on a Host Computer

To use the MilliSentials Lab Labeling System Software, the connected Host Computer must have the software installed and the printer must be properly set up via Hardwire (USB) Connection or there must be an IP address displayed on the Touch LCD Screen under "Printer Info" from a network connection.

NOTE: This connection will be saved across user profiles and when the program is closed, as long as connection to the network is maintained.

1. Open MilliSentials Lab Labeling System Software. The home screen is called the **Print Tab**.

2. An authenticated user must connect the software and the printer, which means that the user must create a profile. See *First Time Login and User Profiles (p.13).*

3. Click settings.

TIP: After first installing printer drivers, we recommend restarting the MilliSentials™ Lab Labeling System Software to establish connection to the printer.

If connected via Hardwire (USB):

4. The software will automatically show your printer name (**ZDesigner ZD621-300dpi ZPL**). Click on the printer name to put a checkmark next to it.

5. Click update.

Go back to the **Print Tab**. If you have successfully connected to a printer, the printer icon in the upper right-hand corner of the **Print Tab** will turn green.

Note: This connection will be saved across user profiles and when the program is closed, as long as connection to the USB is maintained. Selecting a printer is a one-time requirement.

If connected via Network (Wi-Fi/Ethernet):

Note: you must have an IP address displayed on your printer Touch LCD Screen to use this option)

4. Within the "settings" screen, select Network printer

5. Enter the printer's IP address on the line exactly as it appears on the Touch LCD Screen.

    Note: You may use the printer DNS name to connect. Contact your IT administrator to connect using this strategy.

6. Click update.

Go back to the **Print Tab**. If you have successfully connected to a printer, the printer icon in the upper right-hand corner of the **Print Tab** will turn green.

Quick Print Label

Before printing, the MilliSentials™ Lab Labeling System Software should be installed on your device and communicating with the printer. When the connection is successful, the printer icon will be green. If the printer icon is red, see *FAQ (p.22)*.

Open the MilliSentials™ Lab Labeling System Software to the **Print Tab**:

1. Pick a vessel size and type.

Click on the blue button above the Label Preview to choose the vessel format. For this example, use the 0.5-0.6 mL tube vessel format. Dotted lines represent label perforations. The label perforates into 3 lab labels with 3 lines of text per label (the default option is a 0.5-0.6 mL tube that perforates into 3 lab labels with 2 lines of text per label). For more information, see *Vessel Format Specs (p.16)*.

Note: The program will not allow you to switch vessel formats once data is entered unless your clear all the text fields or print the label. To clear data, you may clear line-by-line or select the "Clear All" button on the **Print Tab**.

2. Add Text.

i. Click on any field (light blue color) to enter text. The Configure Label Line menu will open. The Configure Label Line menu defaults to the "Fixed Value" option, where you can type in the text you want to print. Type in text you want to print. Press Save.

ii. The program brings you back to the **Print Tab** and the text you entered will appear in the Label Preview.

iii. In this example, the user has selected a "Fixed Value" of MilliSentials for line 1, "User Initials" for line 2 and "Print Date" for line 3.

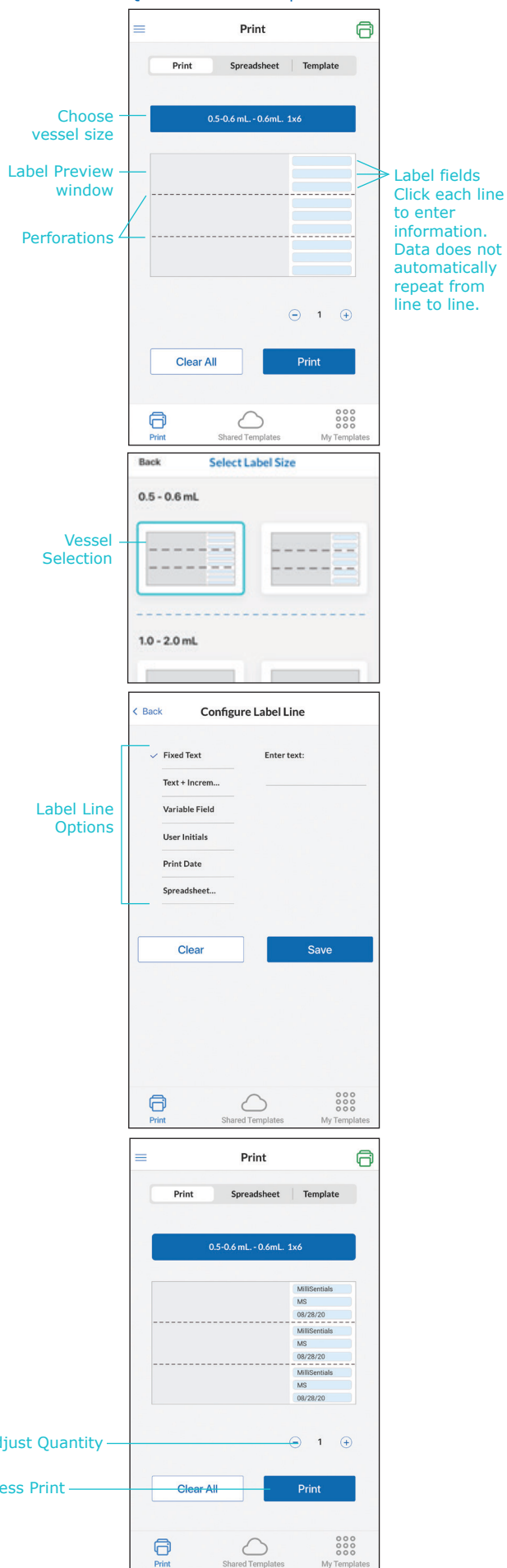**Note:** Some Configure Label Line menu options and advanced printing options are only available if you are logged in or have a spreadsheet loaded.

3. Select Quantity.

Choose the + or – to increase the number of copies of the full label to print. Alternatively, you may click on the number and type in the desired quantity.

4. Press Print.

Printer Icons

Quick Print Label Steps

Choose vessel size

Label Preview window

Perforations

Label fields
Click each line to enter information. Data does not automatically repeat from line to line.

Vessel Selection

Label Line Options

Adjust Quantity

Press Print

Print Tab Features

The print tab functions as the main tab of the software where labels are created and printed. Both the spreadsheet and Template Tabs provide additional functions that can enhance the lab label created in the Print Tab.

Vessel Format Specs

These labels are custom designed to have two horizontal perforations that split one full sized label into three smaller labels. These perforations were designed to allow users to customize their label size and number of lines to their vessel of interest.

0.5-0.6mL
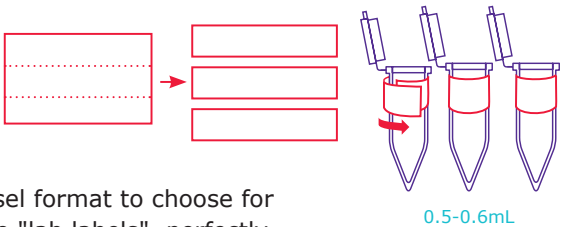
The blue button directly above the Label Preview identifies what vessel format to choose for your vessel size and type. The roll of Adaptable Lab Labels will create "lab labels", perfectly sized for your lab vessel.

The software automatically limits the printable space on the lab label to avoid covering text when wrapped around the lab vessel.

0.5-0.6 mL Tubes

One third of the full label. Prints three 0.5-0.6 mL lab labels from one full label. Fits:

- 0.5-0.6 mL tubes
- HPLC vials
- 1-2 mL tubes (tapered)

Maximum 14 characters per line
Maximum 14 characters per line
Maximum 14 characters per line

Maximum 11 characte
Maximum 11 characte
Maximum 11 characte

Plates and Dishes

One third of the full label prints three lab labels for plates and dishes. For these, text will print across the entire label since they are not wrapped around over themselves. Fits:

- Plates
- Dishes

14 characters per line split | 14 characters per line split
two columns per label | two columns per label

Maximum 41 characters per line, no perfor
Maximum 41 characters per line, no perfor
Maximum 41 characters per line, no perfor
Maximum 41 characters per line, no perfor

1-2 mL Tubes

Print one bottom two thirds of the full label. Discard the top portion. Fits:

- 1-2 mL tubes (straight or non-tapered)
- Cryovials
- HPLC vials

Maximum 27 characters per l
Maximum 27 characters per l
Maximum 27 characters per l
Maximum 27 characters per l
Maximum 27 characters per l
Maximum 27 characters per l

Maximum 20 character
Maximum 20 character
Maximum 20 character
Maximum 20 character

Tubes and Vessels ≥5 mL

Uses the full label with no perforations. Fits:

- 15 mL conical tubes
- 50 mL conical tubes
- Cryovials
- Glassware
- Any vessel larger than 5 mL

Maximum 41 characters per line, no perfor
Maximum 41 characters per line, no perfor
Maximum 41 characters per line, no perfor
Maximum 41 characters per line, no perfor

Maximum 30 characters per line
Maximum 30 characters per line
Maximum 30 characters per line
Maximum 30 characters per line
Maximum 30 characters per line
Maximum 30 characters per line

The MilliSentials™ Lab Labeling System has two font sizes to accommodate varied needs. For each vessel format, there are specific alloted characters.
The label size and text above are not 100% to scale.

Note: When using some of the software features and configure label line menu options, the character limits might be reduced.

Configure Label Line Menu Options

The MilliSentials™ Lab Labeling System Software allows you to customize the content of your lab labels.

To open this menu, click in any light blue Label Field. After you have entered the text and configured it, press **SAVE** to go back to the Label Preview screen. Repeat for each line in the lab label.

Fixed Value

Enter text that remains the same across multiple labels (Example: Lab name). The cursor defaults into the Enter Text area, so if using this option, simply type. Characters are automatically limited based on your font size and chosen vessel type. See *Vessel Format Specs (p.16)*

Print Date

This predefined field enters the current date from your device.

User Initials

Enters the user's initials from their profile. You must be logged in to use this feature.

Value + Increment

Enter text followed by a number that will increase automatically with each label. You may choose the number to start your increments by using +/-.

Example: Aliquot #1, the next label will be Aliquot #2 and so on.

Note: User defined characters will be limited (see table right) to accommodate the added characters in the increment.

Variable Field

Choose this to enter unique data for each lab label printed. A pop-up prompt will interrupt printing to enter unique text.

Example: If printing labels for different samples use this for entering a unique sample name for each label).

Note: if the character limit for the chosen vessel size is exceeded in the variable field, the Software will not print.

Spreadsheet

This option enables you to use a spreadsheet already loaded from the Spreadsheet Tab. See *Spreadsheet Tab Features (p.18)*

To select specific data into a Label Field, click on the column header name in the configure label line menu, and in the spreadsheet tab, check the boxes to select specific rows. If you select 10 spreadsheet rows, you will print 10 lab labels. Column headers will not print.

Note: For 0.5-0.6mL tube and plate or dish vessel formats, there are 3 lab labels per full label. For these formats, each row of a spreadsheet is predefined to fill one third portion of the label.

IMPORTANT: By default, all rows in the spreadsheet are automatically selected unless you select specific rows.

IMPORTANT: The spreadsheet data may print outside of the label area after the maximum number of characters has been met. If the spreadsheet data is longer than the label's character limit, the data does not automatically wrap to the next line.

Configure Label Line

Allotted Characters for Vessel Formats

	Allotted Characters			
	Small Font Size		Large Font Size	
Label Size	Fixed Value	Value + Increment	Fixed Value	Value + Increment
0.5-0.6mL tubes	14	10	11	7
1-2mL tubes	27	23	20	16
Plate/Dish	41 (1 column)	37 (1 column)	14 (2 columns)	10 (2 columns)
5mL+	41	37	30	26

Spreadsheet Data Selection

Spreadsheet Tab Features
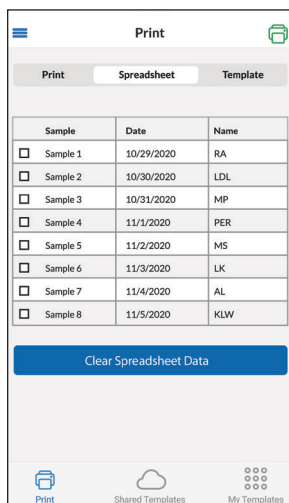
Prepare Spreadsheet File

- Arrange your spreadsheet with row 1 as the header row (row 1 will not print). The software will print each row of data on a unique lab label.

  Example: 10 rows of data = 10 lab labels

- Cells in the spreadsheet should not exceed the number of characters that fit on the lab label line. Extra characters may print off of the label area. See *Configure Label Line Menu Options (p.17)* for the maximum number of printable characters for each vessel format.

- The spreadsheet must be saved in .CSV format only. If using Microsoft® Excel®, use "save as" and choose .CSV (comma delimited).

Import Data

1. From the MilliSentials™ Lab Labeling System Software, click on the **Spreadsheet Tab**.

2. Click and drag your .CSV file into Spreadsheet Options box. Alternatively, click on the Spreadsheet Options box to open File Navigator and select the .CSV file. Once loaded, a preview of your data will appear with your column headers embolden.

3. Check the boxes to the left of the rows that you would like to print. You can change your selection at any time. If no boxes are selected, the software will print all labels by default.

Add Data to Lab Labels

4. From the **Print Tab**, select the Label Field you want the spreadsheet data entered into.

5. The Configure Label Line menu will open, click on **Spreadsheet**. Select a spreadsheet column header from the list.

6. Press SAVE to return to the **Print Tab**. The column header will be displayed in the Label Preview.

   Note: Once you've entered data into the spreadsheet, the Print Quantity option disappears. For printing multiple copies, we suggest designing the spreadsheet with the desired copies as different rows and selecting them for printing.

   Note: For 0.5-0.6mL tubes and plate or dish formats, the bottom two thirds of the label will change color and will not be configurable. This is because rows from the spreadsheet will be automatically incorporated as separate labels. For example, if you select 6 rows in your spreadsheet to print, the software will print 2 full labels for these vessel formats.

Template Tab Features

Create New/Save Templates

1. The user must be logged in to create, save or edit templates.

2. Create a label using Configure Label Line menu options, including spreadsheet. A spreadsheet must be imported before it can be used in labels.

3. After creating the lab label, go to the **Template Tab**. Name your template for future use.

   Note: the name of your template is limited to 19 characters.

4. Click Save and press OK. This will save all data used in the label. After saving, the data in **Print Tab** will be cleared.

5. Access the template again by selecting it on the **My Templates** screen.
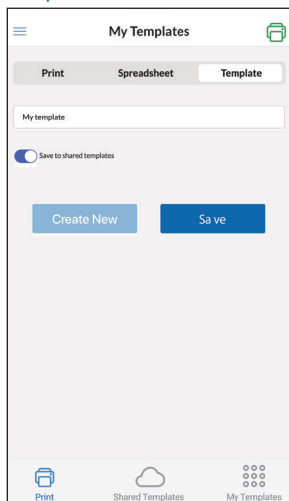
Template Tab

My Templates

Templates you saved are available under the My Templates icon in the bottom-right corner of your screen. This menu is only available from your specific profile.

Edits can be made to an existing template:

- To save edits in the template, click UPDATE from the **Template Tab**. This will overwrite the current template. You can only click UPDATE if edits have been made to the label or the label name.

To start a blank template:

- Prior to entering data into your label, go to the **Template Tab** and select Create New and press OK, name the template for future use. Create New is only available if you are logged in to a profile.

  Note: Every time a new template is created, data in the **Print Tab** is cleared.

Shared Templates

Any user, including unauthenticated (not logged in), can access shared templates.

To share, toggle the Save to Shared Templates button while saving a template.

The user who created the template can access this template in either the My Templates or the Shared Templates menus.

Specifications

MilliSentials™ Lab Printer

Length	267 mm (10.5 in.)
Width	202 mm (8.0 in.)
Height	192 mm (7.6 in.)
Weight	2.5 kg (5.5 lb)
Operating System	Link-OS®
Resolution	12 dots per mm (300 dpi)
Memory	512 MB Flash; 256 MB SDRAM
Maximum Print Width	108 mm (4.26 in.)
Maximum Print Speed	152 mm (6 in.) per second
Media Sensors	Full width, movable reflective/black mark sensor; multi-position transmissive/gap sensor
Firmware	ZPL II; EPL 2; XML; ZBI; PDF Direct
Communications	802.11ac WiFi® and Bluetooth® 4.1 (dual radio)
User Interface	4.3" full color touch LCD Resolution: 480 wide x 272 high
Operating Temperature	4.4 °C to 41 °C (40 °F to 105 °F)
Operating Humidity	10-90% non-condensing
Storage Temperature	-40 °C to 60 °C (-40 °F to 140 °F)
Storage Humidity	5-95% non-condensing
Cleaning Agents* for Housing	Isopropyl and ethyl alcohol, ammonium, hydrogen peroxide, phosphoric acid, bleach/ sodium hypochlorite, sodium troclosene/sodium dichloroisocyanurate, mild dish soap
UV Compatibility	UV Compatible
Electrical	Auto-ranging (PFC Compliant) 100-240 VAC, 50-60 Hz
Warranty	3-year Zebra® OneCare

MilliSentials™ Lab Adaptable Label Roll

Label Length	51.5 m (169 ft) Maximum: 991 mm (39.0 in.)
Label Media Width	46.8 mm (1.844 in.) Range: 15 mm - 118 mm (0.595 in. – 4.65 in.)
Media Roll Size (Outer Diameter)	120.6 mm (4.75 in.) Maximum: 127 mm (5.00 in.)
Media Roll Size (Core Inner Diameter)	25.4 mm (1 in.) core

Individual Adaptable Label

Length	28.5 mm (1.125 in.)
Width	43.6 mm (1.72 in.)
Thickness	1.27 mm (0.050 in.)
Length of one third label	9.5 mm (0.375 in.)
Label Type	Continuous black mark

MilliSentials™ Lab Printer Ribbon

Ribbon Length	300 m (984 ft.)
Ribbon Size (Outside diameter)	66 mm (2.6 in.)
Ribbon Ratio	1:4 ribbon to media
Ribbon Width	59.9 mm (2.36 in.) Range: 33.8 mm – 109.2 mm (1.33 in. – 4.3 in.)]
Ribbon Core (Inner Diameter)	25.4 mm (1 in.)

* Do not mix cleaning agents.

Printed Label Compatibility

- Adhere the MilliSentials™ Lab Adaptable Labels onto surfaces at room temperature and in a dry environment.

- In addition to printing, you can write on the MilliSentials Lab Adaptable Labels using permanent ink markers (Sharpie®) or ethanol-resistant pens. Please consult the pen manufacturer for chemical and temperature resistance of the inks.

- Printed lab labels have been tested for compatibility with common laboratory chemicals (see table below).

Chemical Compatibility

- Water
- Isopropyl alcohol (≤95%)
- Ethanol (≤95%)
- Dimethyl- sulfoxide(≤70%)
- Methanol (≤95%)
- Acetonitrile (≤75%)
- Bleach (≤70%)
- Xylene (≤95%)
- Acetone (≤95%)

Surface and Temperature Compatibility

Surface	Recommended Compatible Temperature Range
Steel	-20 °C (freezer) to 20-25 °C (room temperature)
Polypropylene	-196 °C (liquid nitrogen) to 100 °C (boiling water) and withstands 30 minute autoclave cycle
Polyethylene	4-8 °C (refrigerator) to 20-25 °C (room temperature)
Glass	4-8 °C (refrigerator) to 100 °C (boiling water) and withstands 30 minute autoclave cycle
Cardboard	-80 °C (ultra-low temperature) to 20-25 °C (room temperature)
Styrofoam	-80 °C (ultra-low temperature) to 37 °C
Polycarbonate	4-8 °C (refrigerator) to 20-25 °C (room temperature)
Polystyrene	-20 °C (freezer) to 37 °C

Troubleshooting

FAQ

Topic/Question	Cause	Answer/Suggested Fix
Software Installation		
I have an older device that does not match the requirements. Can I still use it?	--	The MilliSentials™ Lab Labeling System Software was optimized for the recommended operating systems and browser versions. We do not guarantee that the program will be optimized for other systems.
Ribbon and Label Installation		
I unwrapped my ribbon so that the plastic wrapping is no longer attached. How can I install the ribbon?	--	The plastic wrapping is used to attach the ribbon to the cardboard core adapter. As an alternative, you may use tape or a MilliSentials™ Lab Adaptable Label to attach the ribbon to the core.
Printer wasting 1 to 3 labels after closing the printer.	Printer is self calibrating.	We recommend keeping this on to ensure proper alignment but the feature can be disabled. See *Disable Self-Calibration (p.25).*
Installing your Printer		
After installing the printer, the MilliSentials program did not show the printer name.	Printer drivers not compatible with computer operating system.	Check *Software and Computer Requirements (p.6)* to make sure your system is compatible with the printer and software.
	USB was disconnected.	Check the USB connection to the computer. If connected, unplug both ends of the cable and plug in again.
	The MilliSentials™ program was not restarted after initial installation.	Close MilliSentials™ Lab Labeling System Software and re-start your computer. Re-open the MilliSentials program.
Label Alignment and Printer Settings		
I accidentally reset my printer. What should I do?	--	See *Using the Print Wizard (p.25).*
My label text is misaligned slightly right/left or up and down.	A minor text adjustment may be necessary.	See *Making Minor Label Alignment Adjustments (p.24).*

Topic/Question	Cause	Answer/Suggested Fix
Setting up by Configuring Wireless Connectivity		
The network light never turned green and I never got an IP address.	Incorrect Country selected Incorrect Network Name Incorrect PSK (password)	Go through the steps for printer set up again. Ensure that the correct country is selected from the drop-down menu. Ensure that the network name (ESSID) is exactly how it appears on your network connection and the password is entered correctly with no typos.
	Network issue causing problems with wireless configuration. IT Administrator or Security issue.	If problem persists, try another wireless connection or contact your IT administrator. Use Simple Kiosk Mode via Hardwire (USB) printing in the meantime.
Using MilliSentials Lab Labeling System Software		
My printer icon is red, even after updating my connection (on a host computer connected via USB).	USB cable not well connected.	Check the connection of your USB cable.
	IP address typo in the Settings menu or "update" not confirmed.	Ensure that you have the correct IP address (periods included) entered and that you've pressed "update" under the settings menu.
My printer icon is red, even after updating my connection (on a host computer connected via network).	Wireless connection spotty or unstable or Wireless connection dropped.	Check your network connection. The printer will provide occasional error messages if the connection is not stable. If the problem persists for wireless connection, try connecting using Simple Kiosk Mode via hardwire connection, as the connection may not be stable, and contact your IT administrator.
My printer icon is red, even after updating my connection (accessing a host computer from another device over network)	Lag time	Depending on your network, the connection to the printer may take a few moments to establish.
	Host computer not connected to the printer.	Go to "Settings" and ensure that printer connection is established.
	Host computer is asleep or locked and/or is not running the MilliSentials™ Lab Labeling System Software.	Ensure that the host computer is turned on and does not go to sleep, and that the MilliSentials™ Lab Labeling System Software is running.
	Accessing device not connected to the same network as host computer.	Check to make sure that your accessing device is connected to the same network as the host computer.
	Wireless connection spotty or unstable or Wireless connection dropped.	Check your network connection. The printer will provide occasional error messages if the connection is not stable. If the problem persists for wireless connection, try connecting using Simple Kiosk Mode via hardwire connection, as the connection may not be stable, and contact your IT administrator.
Can I select a date other than today's date?	--	No. We suggest using the Variable function for this, see Advanced Software options or you may enter the date manually using fixed value.

User Diagnostic Tools

Print a Configuration Label

1. From "Print Status" or "Printer Info" under the Home screen, press "Menu".

2. On the left hand side of the screen, press "Settings".

3. Scroll down to the "Print: System Settings" option. Upon pressing this option, the settings will print out over approximately 6 full labels.

   Note: The configuration labels will not be properly aligned when they print.

Making Minor Label Alignment Adjustments

1. From "Print Status" or "Printer Info" under the Home screen, press "Menu".

2. On the right hand side of the screen where there are several icons, press on the printer icon (third option down).

3. On the left hand side of the screen, select "Image Adjust".

   - If misaligned up and down: Under "Vertical Label Offset", the value will be -40. Press the (+) or (-) button to change this value incrementally. Moving in the negative direction will raise the text and moving in the positive direction will lower the text.

   - If misaligned left and right: Under "Horizontal Label Offset", the value will be -240. Press the (+) or (-) button to change this value incrementally. Moving in the negative direction will move the text toward the right and moving in the positive direction will move the text toward the left.

4. Use the MilliSentials™ Lab Labeling System Software to print a test label. If still misaligned, make minor adjustments against using step (3) until satisfactory.

Perform Sensor Calibration

1. From "Print Status" or "Printer Info" under the Home screen, press "Menu".

2. On the right hand side of the screen where there are several icons, press on the printer icon (third option down).

3. On the left hand side of the screen, select "Sensors".

4. Select the "Manual Calibration" option and follow the on-screen directions, which involves 10 steps. This process will use 15-25 labels.

Disable Self-Calibration

Every time the printer head is opened, closed or exits Pause Request Mode, it will self-calibrate and roll out 1 to 3 labels. This is normal and helps the printer to calibrate correctly for optimal print alignment.

To disable this feature:

1. From "Print Status" or "Printer Info" under the Home screen, press "Menu".

2. On the left hand side of the screen, press the third option down, "Settings".

3. Scroll down to "Power Up Action" and select it.

4. Scroll down and select "No Motion". Press either the arrow in the upper left hand side of the screen, or the Home icon on the upper right hand side of the screen to exit.

   Note: Upon leaving Pause Request Mode, there will be no sound or label movement.

   Note: If this function is disabled, you must press the FEED button once or twice before printing so the printer senses the mark on the bottom of the label and the label is correctly aligned. If the printer is ever misaligned, you must press the FEED button once or twice to correct alignment.

Using the Print Wizard
Only use when directed by Tech Support

1. From "Print Status" or "Printer Info" under the Home screen, press "Wizards".

2. On the left hand side of the screen, choose "Print" (fourth Wizard down).

3. On the "Print: Introduction" screen, select Start Print.

4. On the "Print Quality: Print Type" screen, select Thermal Transfer, and press the check mark to confirm.

5. On the "Print Quality: Media Type" screen, select either Auto Detect or Mark (either will work for this printer) and press the check mark to confirm.

6. On the "Label Width (Dots)" screen, begin typing to enter a number. Enter 1280 with the keypad and press the check mark to confirm.

7. On the "Image Adjust: Media Handling" screen, select Tear Off, and press the check mark to confirm.

8. Ensure that your labels are correctly installed and resting over the sensor in the printer at this time during the Wizard. Press the check mark to continue.

9. If the printer head is not closed, close the printer head. Press the check mark to continue.

10. If you would like to try a test label, press the check mark. If not, select the 'x'. This step is optional.

11. On the "Image Adjust: Tear Line Offset" screen, use the (-) and (+) buttons to adjust the number to 0. Press the check mark to continue.

12. On the "Print Quality: Adjustment Method", select Set Manually and press the check mark to continue.

13. On the "Print Adjustments: Set Manually" screen, select Darkness and use the (-) and (+) buttons to adjust the number to 23. Press the check mark to continue. Select the Print Speed and use the (-) and (+) buttons to adjust the number to 2. Press the check mark to continue. You may also select Print Test Label if you wish to try printing with these settings (test labels are optional). When Print Adjustment settings have been changed, press the check mark to confirm.

14. The printer will provide a message that the Print Wizard is complete.

15. There are still some settings that need adjusting. From "Print Status" or "Printer Info" under the Home screen, press "Menu".

16. On the right hand side of the screen where there are several icons, press on the printer icon (third option down).

17. On the left hand side of the screen, select "Image Adjust".

18. Scroll down and select "Horizontal Label Offset". Use the (-) and (+) buttons to adjust the offset to -240 and press the check mark to confirm.

19. Scroll down and select "Vertical Label Offset". Use the (-) and (+) buttons to ajust the offset to -40 and press the check mark to confirm.

20. Return to the printer icon as in step 16, and scroll down to "Sensors". Ensure that the "Label Sensor" is set to 10, and that the "Sensor Type" is set to Reflective. Press the arrow in the upper left hand side of the screen or the Home icon in the upper right hand side of the screen to return to the Home screen.

Load Factory Settings on the Printer
Only use when directed by Tech Support.

1. From "Print Status" or "Printer Info" under the Home screen, press "Menu".

2. On the left hand side of the screen, press the third option down, "Settings".

3. Scroll down to "Restore System Defaults" and select it.

4. Select "Restore Printer" and press the check mark to confirm. This action will reset the printer settings back to default.

5. You may repeat steps 1-3 and select "Restore Network" if you wish.

Product Ordering

Purchase online at SigmaAldrich.com.

MilliSentials™ Lab Labeling System

Includes:

- MilliSentials™ Lab Printer
- AC power supply, power cord (country specific)
- USB cable
- USB flash drive
- MilliSentials™ Lab Adaptable Labels, 1615 labels (1 roll)
- MilliSentials™ Lab Ribbon, 1 ribbon (prints ~6000 labels)
- Two (2) cardboard core adapters, 1 inch and 0.5 inch (25.4 mm and 12.7 mm)
- Two (2) plastic core adapters

Country	Catalogue Number
Taiwan	MISELLABST
India	MISELLABSI
APAC	MISELLABSA
Japan	MISELLABSJ
China	MISELLABSC
Europe	MISELLABSE
LATAM	MISELLABSL
Argentina	MISELLABSR
Brazil	MISELLABSB
North America	MISELLABSN

Refills	Qty	Catalogue Number
MilliSentials™ Lab Adaptable Labels (1615 labels/roll)	1 roll	MISELADLA
MilliSentials™ Lab Printer Ribbon (prints ~6000 labels)	1 ea	MISELPRRI

Notice

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Visit the tech service page on our website at SigmaAldrich.com/techservice.

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The applicable warranty for the products listed in this publication may be found at SigmaAldrich.com/terms.

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