User Guide

Millicell® Digital Cell Imager

MDCI10000

Contents

Intended Use

The Millicell® Digital Cell Imager (Millicell® DCI) is an intuitive imaging platform used for analysis during routine cell culture monitoring. For research use only.

Included

- Millicell® DCI device
- EdiMax Wireless USB adapter
- Millicell® DCI power cord

Also Required (not included)

- Ethernet cable (optional)
- Needed for Software Updates: USB flash drive, FAT32 formatted

Safety Information Sheet

A printed copy of the Safety Information has been included in the product box and is also downloadable from the Safety and Documentation section on the product page at SigmaAldrich.com. This document includes:

- Electrical Specifications
- Environmental Operating and Storage Conditions
- Warnings
- End of Life Directions WEEE Directive
- Symbol Definitions

Installation

Unboxing Instructions:

Remove protective film from the touch screen and lens. After removal from the lens, the user may need to wipe the lens with a Kimwipes® cleaning wipe. Any remaining debris can be removed using an IPA solution and a Kimwipes® cleaning wipe.

The power cord will need to be fitted with the appropriate plug (included). Place Millicell® DCI device on a flat level surface such as on the bench-top or in a bio-safety cabinet. Millicell® DCI device is not intended for the incubator. If you will be using the Millicell® Cloud feature, locate the device near a strong WiFi® signal or Ethernet access (optional). For WiFi® signal, insert the WiFi® adapter into one of the USB ports on the back panel of the Millicell® DCI device.

Plug the power cord into the back of the Millicell® DCI device and into the wall electrical outlet. Using power strips or extension cords is not recommended.

Power On/Off

The power switch is located on the back of the device. The Millicell® DCI device will go to "sleep" when not in use.

Cleaning and Maintenance

The instrument body can be sanitized by wiping with a soft cloth moistened with 70% ethanol.

- Wipe the screen with a soft, dry, nonabrasive cloth. Do not clean the display screen with sanitizing agents or other aggressive solutions.

  CAUTION: When sanitizing, make sure that no liquid enters any part of the instrument.

- The instrument is NOT autoclavable. Extreme heat will damage the display screen and other electronic components.

Specifications

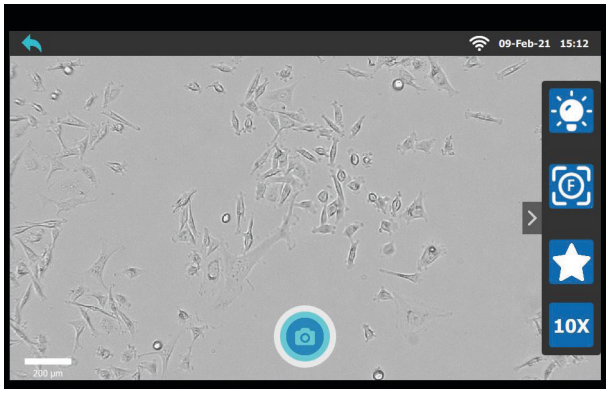
Instrument Body	
Material	ABS plastic housing, Aluminum stage
Height	15.24 cm (6 in)
Width	27.94 cm (11 in.)
Depth	30.48 cm (12 in.)
Weight	< 6 lbs
Integrated Display with Touchscreen, Anti-glare coating	7 inches
Display Resolution	1024 x 600 pixels
Z-focus Range	+/- 5 mm (0.20 in.)
System Compatibility	
WiFi® Network	Yes, via EDIMAX External USB WiFi® Adapter
Ethernet	Yes, 10-100 Mb/s
Memory Storage	32 GB
Chemical Compatibility	
Wiping with alcohol	Compatible with 70% ethanol by wiping
Device is not submersible	
Recommended Cell Culture ware	
Compatible with most transparent culture ware with focal planes 0-8.75 mm above the bottom surface of the object. Maximum vessel height ≤ 2.19 in. (55.6 mm)	

Directions for Use

Software Symbols

- Back to previous screen
- Adjust illumination
- Adjust focus
  - Coarse adjustment
  - Fine focus
- Save focus settings
- Adjust focus to last saved position
- Capture Image
- Error or missing required field
- Discard
- Finish
- Home/Log out
- Focus
- Uploading
- WiFi® Connected
- 20x Digital Zoom
- 10x Digital Zoom

Click to show/hide Settings Bar



Getting Started

On the Home Screen choose:

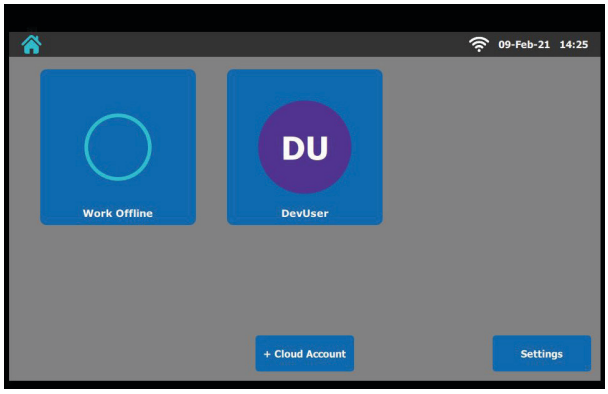
Work Offline

or

Link User Account (click "+ Cloud Account", input email address and password and press the Login button)

or

Use an existing user account

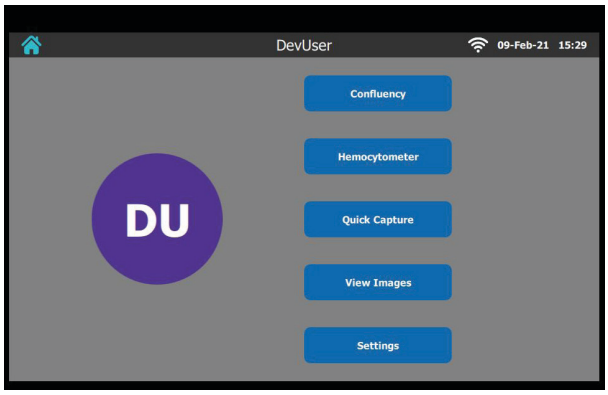


Note: When adding an account, the user has the option to setup a pin. The pin can be changed by clicking on Settings in the user profile.

Note: To remove an account from this device, press and hold the user profile icon until the delete button appears. Click DELETE to confirm.

Image Analysis

Click on Confluency.



Place vessel with cells on the stage. Adjust focus and lighting, and click the Capture icon. Confluency and cell density will automatically be determined.

Note: The magnification automatically defaults to 10X. In order to change to 20x, open the Settings Bar (see right, circled). Click on the 10X icon in the Settings Bar. Toggling back and forth between 10X and 20X will change the zoom.

Confluency is displayed as a percent. The green overlay mask indicates cell coverage.

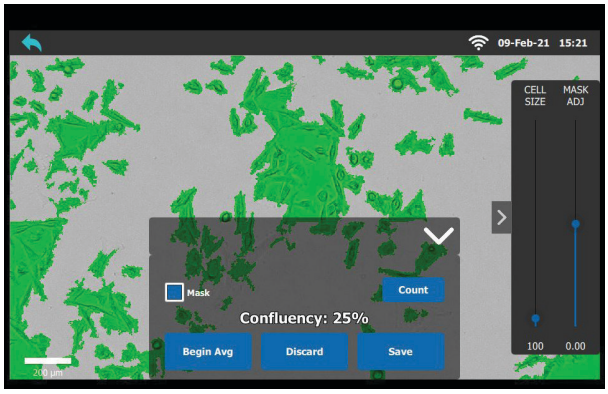
Click Mask to toggle mask view on/off.

To calculate estimate cell count click Count. The confluency and cell count masks can be adjusted. Click the arrow on the right side of the screen to open the two slide bars.

Note: Once modified, the mask adjustments settings remain in place, regardless if the instrument is turned off.

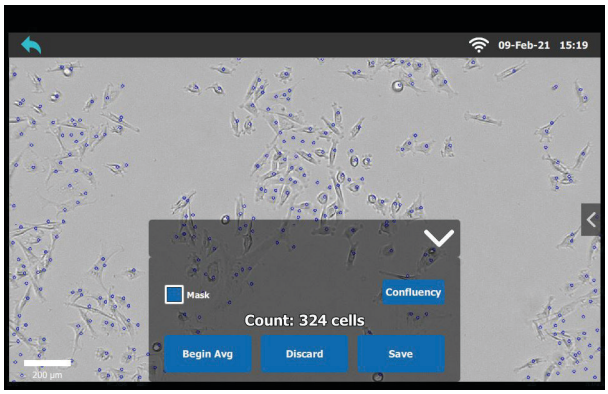
The Mask Adj slide bar will increase/decrease the coverage of the confluency mask.

The Cell Size slide bar has an in-direct relationship with the estimated cell count size. Moving the Cell Size slider up will indicate that the sizes of the cells are larger which will result in a decrease in estimated cell count. Conversely, moving the Cell Size slider down will indicate that the sizes of the cells are smaller, which will result in an increase in estimated cell count.



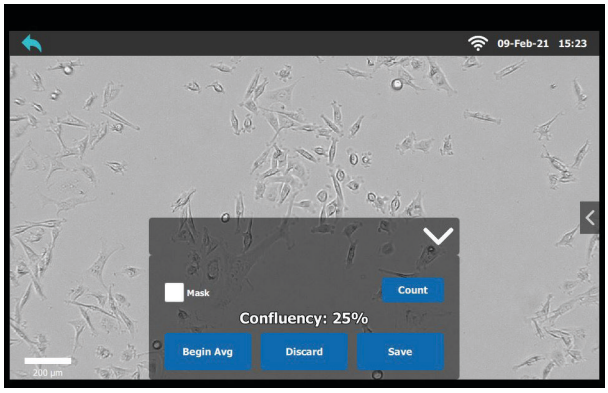
Cell count is displayed as total cells in view. The default settings are 100 for Cell Size and 0.00 for Mask Adj. The values can be entered manually by clicking on the number.

Click Mask to toggle mask view on/off.



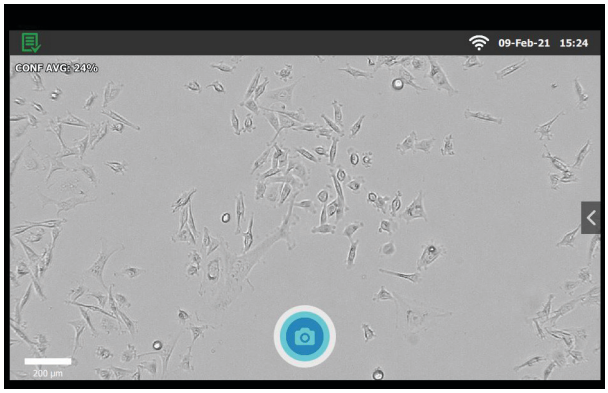
Average

To calculate the average confluency or cell count of a series of images click on Begin Avg.

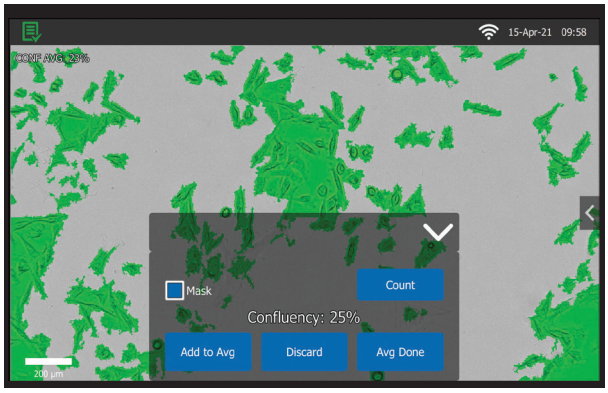


The average confluency or cell count will be displayed in the top left-hand corner. Move the vessel to the desired location and click the Capture button.

The series can be accessed by clicking the icon in the upper left corner.

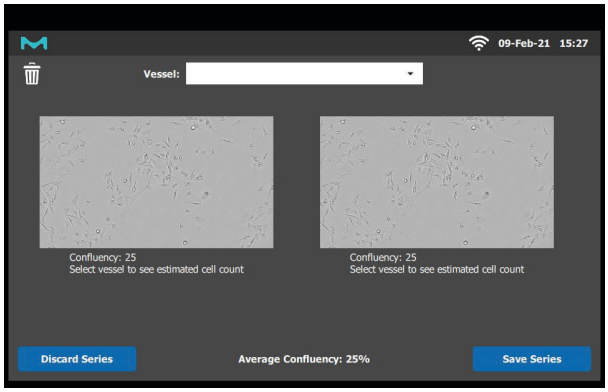


Once all the images have been collected, click Avg Done.



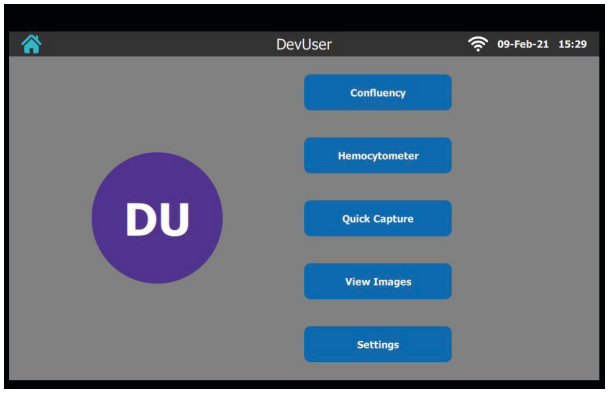
The series of images will be displayed and can be saved or discarded.

To calculate the estimated cell count, select the vessel from the drop-down menu. Images can be discarded from the series by first clicking on the icon and then selecting the image(s).

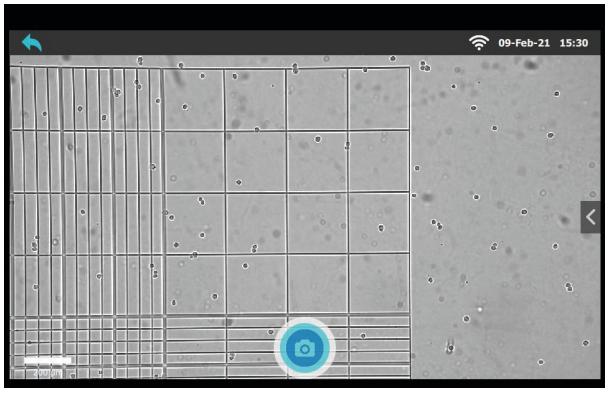


Hemocytometer

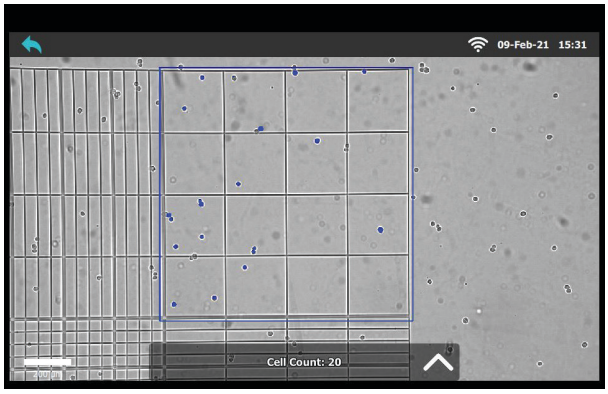
Click on Hemocytometer.



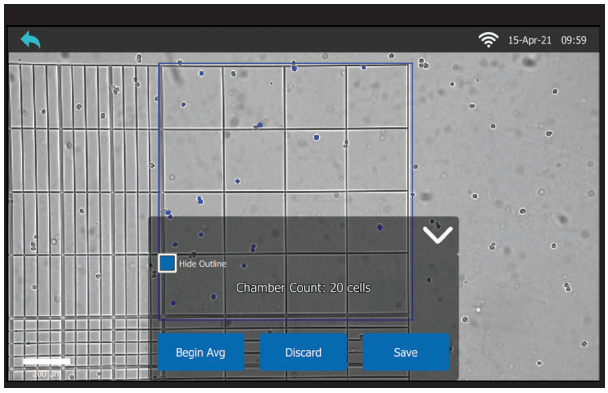
Place a hemocytometer on the stage and position the quadrant within the field of view. Click the Capture icon. Cell count will automatically be determined.



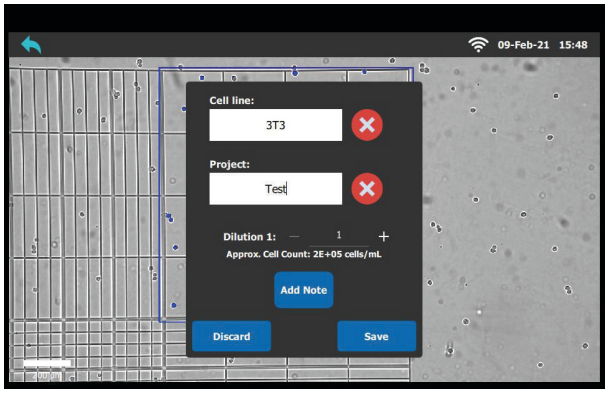
Total number of cells in the quadrant is displayed.



Click Hide Outline to toggle on/off. To calculate the average cell count, move the hemocytometer to the quadrant and click Begin Avg and Capture. Continue until all desired quadrants have been imaged.



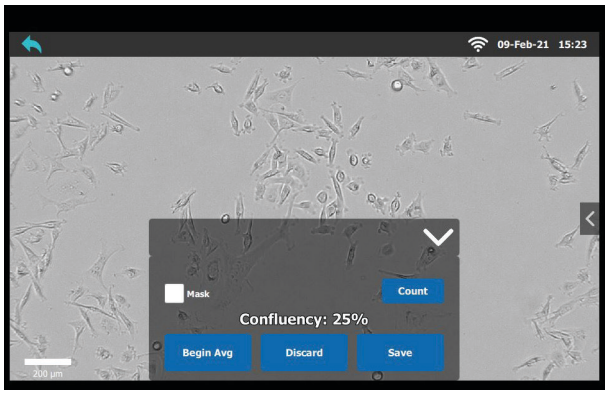
Click +/- to adjust the dilution factor to calculate cells/ml.



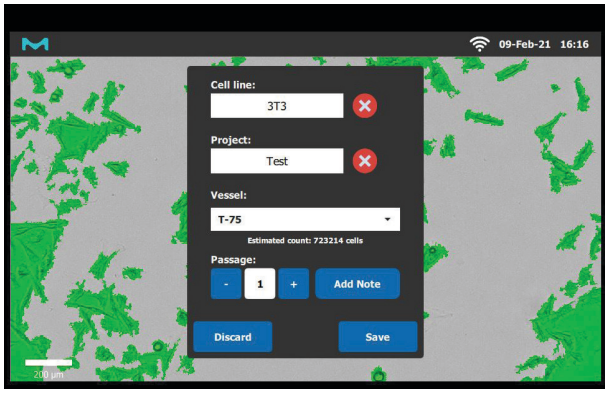
Save an Image

To save an image click Save.

Images will be saved to the device (offline mode) or uploaded to the Cloud (if logged in with a cloud account and the device is connected to the Internet.



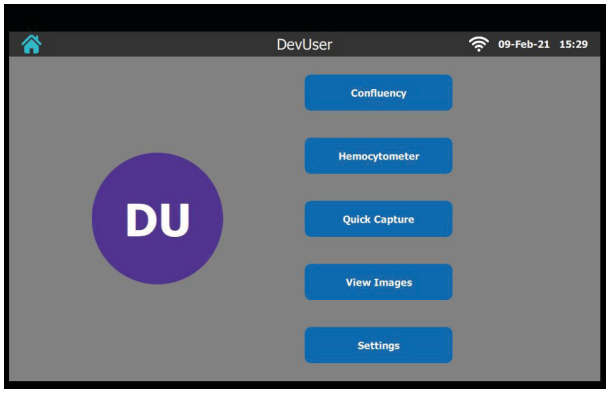
Include a Project Name and input Cell line information by selecting from the drop-down menu, or manually using the on-screen keyboard. Vessel size is optional, passage number is defaulted to 1. Entering the vessel size will generate an estimated total cell count for the entire vessel.



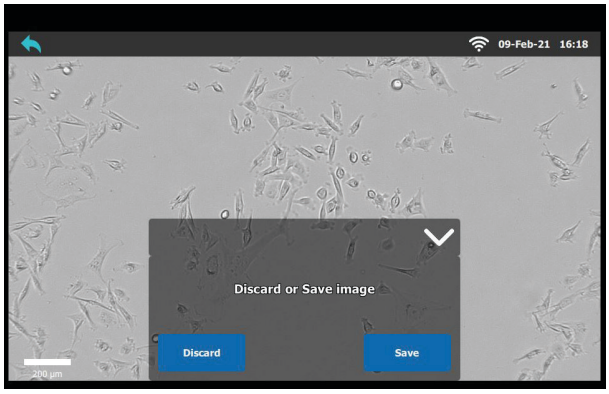
Quick Capture

To visualize and/or image cultures click on Quick Capture. This mode allows for images to be saved at 10x and 20x magnification.

Note: There are no analysis capabilities in Quick Capture mode.

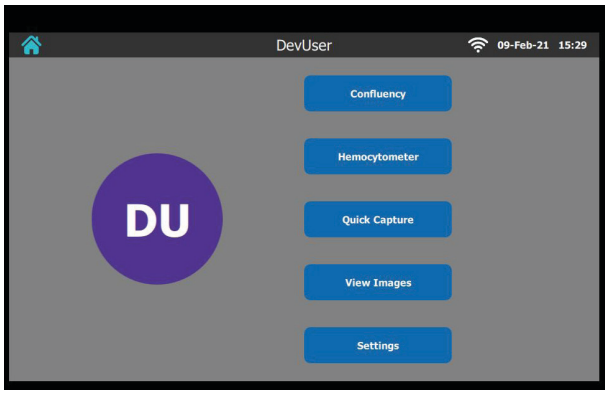


The image can be discarded or saved. See “Save an Image” on page 8.

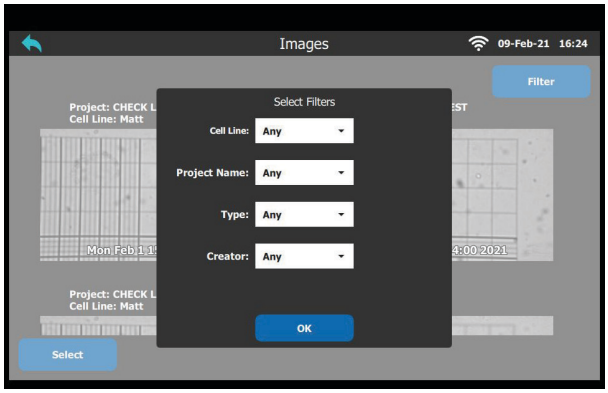


View Images

On the Home Screen click View Images.



Saved images can be searched using the Cell Line, Project Name, Type and/or Creator drop-down menus.

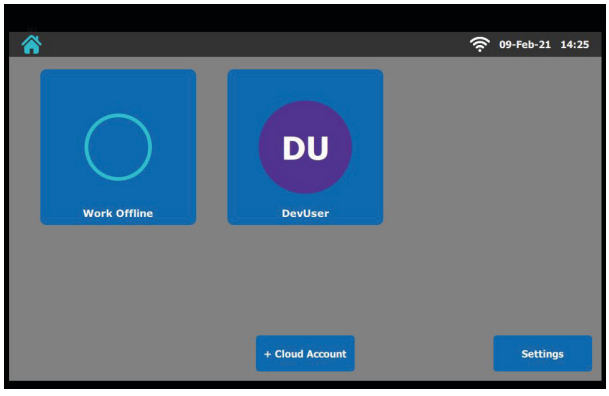


Connecting to WiFi® Network

1. Plug the EdiMax Wireless USB Adapter (included) into a USB port on the back panel of the Millicell® DCI device.

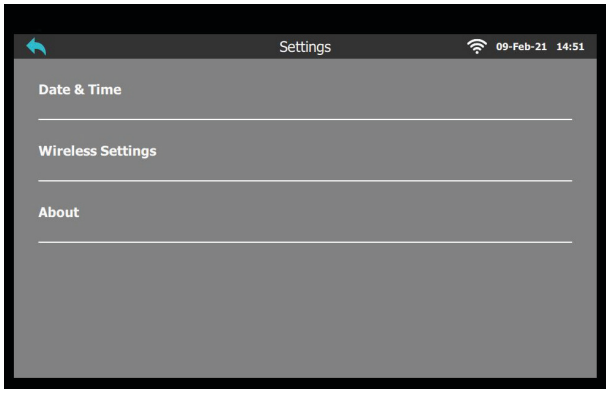
   Note: If using an Ethernet cable, plug one end into the Millicell® DCI port on the back panel and the other end into a working Ethernet port. Nothing needs to be done on the device user interface software.

2. From the Home Screen, choose Settings.



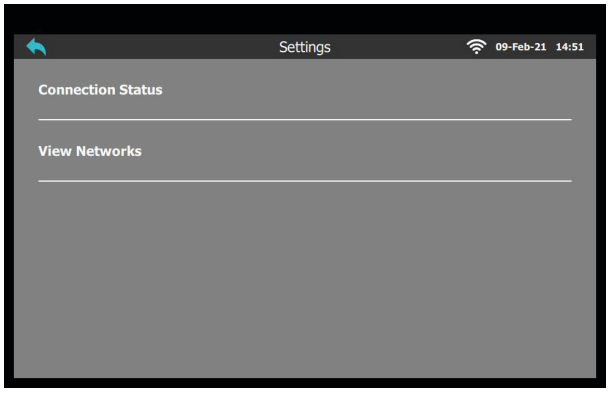
3. Click Wireless Settings.

   Alternative: Connect the Millicell® DCI to the network using an Ethernet cable (not provided).

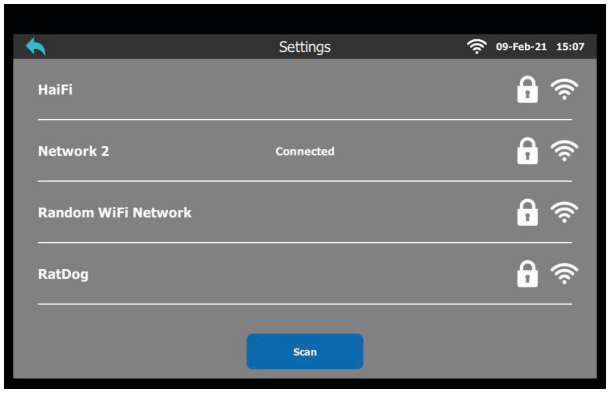


4. Click View Networks.

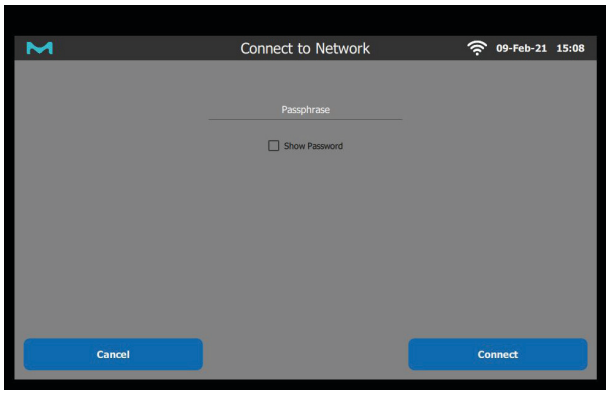
   Note: You may need to contact your IT administrator to setup a network connection to the Millicell® DCI. The Millicell® DCI only supports 2.4GHz networks.



5. Choose Network.



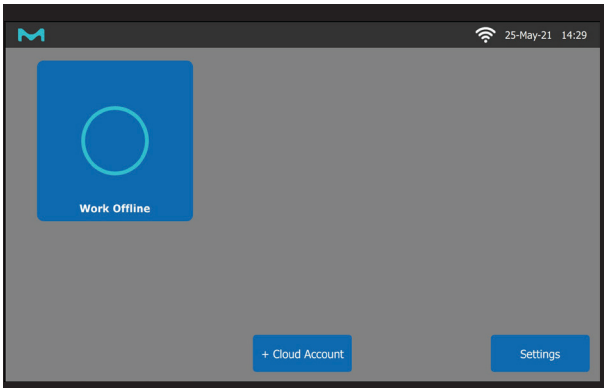
6. Enter password and click Connect.



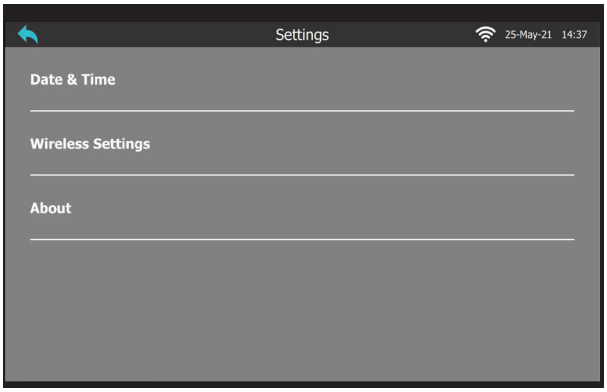
Upgrading Millicell® DCI Software

When a new software update is released, it can be downloaded from the product support page app.millicelldci.com. Installation could take 5-30 minutes. Do not turn the device off or power down during the installation.

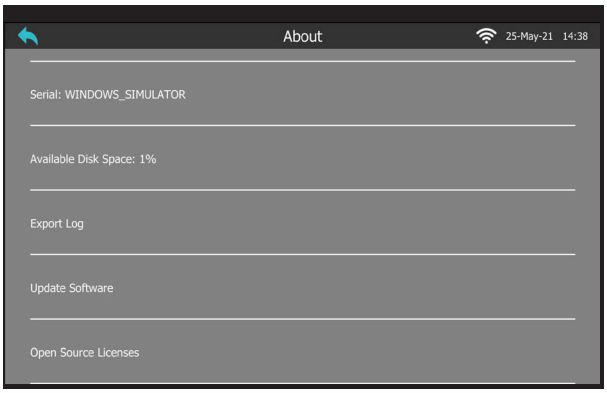
1. Download the update file to your computer and drag the file onto a USB Flash drive that is FAT32 formatted.
2. Power on the Millicell® DCI device.
3. On the Millicell® DCI Home Screen click on Settings.



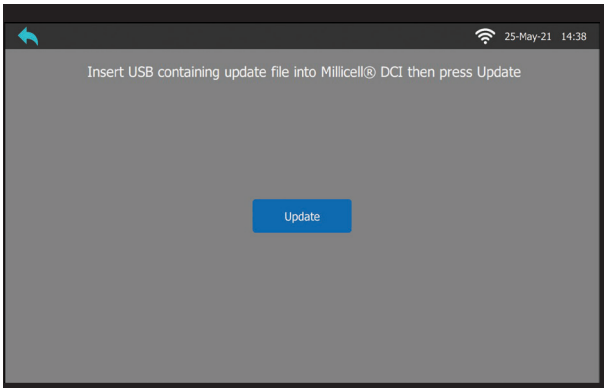
4. Click About.



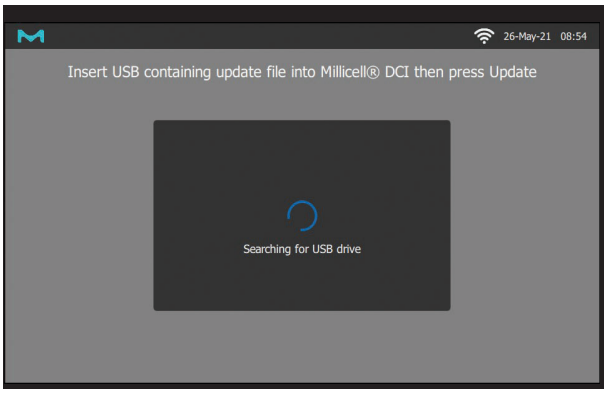
5. Click Update Software.



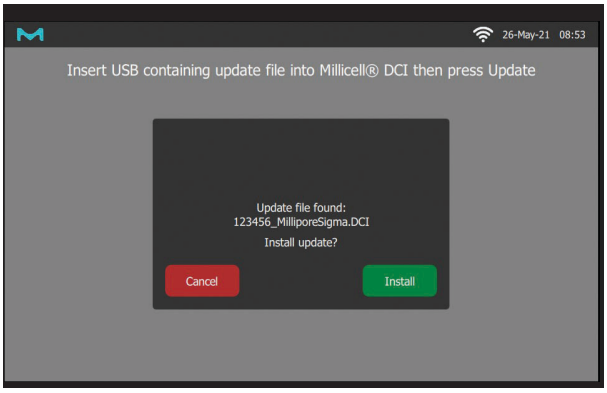
6. Plug in the USB Flash drive into one of the USB ports located on the back of the Millicell® DCI device.
7. Click Update. The Millicell® DCI device will search for the USB Flash drive and begin the update. Follow the on-screen instructions if prompted.



8. If successful, you will be prompted to confirm the found update file



9. If the correct file was found, click the Install button. If the incorrect file was found or an error was shown please refer to the troubleshooting section.
10. While the Millicell® DCI is installing the update, please do NOT power off the device. Once the software has finished installing, you will be prompted with this screen (right).
11. Reboot the Millicell® DCI to complete the update. If an error occurred, please refer to the troubleshooting section.



Millicell® Cloud Account

Subscribing to the Millicell® Cloud Account optimizes your workflow efficiency and enables seamless data collaboration. To subscribe and set up the account for your organization, a primary contact email address must be established. One organization account can accommodate multiple Millicell® DCI devices. After the organization account is established, individual user accounts can be invited to join to collaborate on data.

Once you are logged into your Millicell® cloud organization, you can navigate to the following sections:

- Measurements — View images and measurement data
- Projects — Create and manage Projects
- Cell Lines — Create and manage Cell Lines
- Trends — View charts and plots about your data
- Account — Manage your account
- Organization — Manage organization information and invite others to join your Millicell® Cloud organization

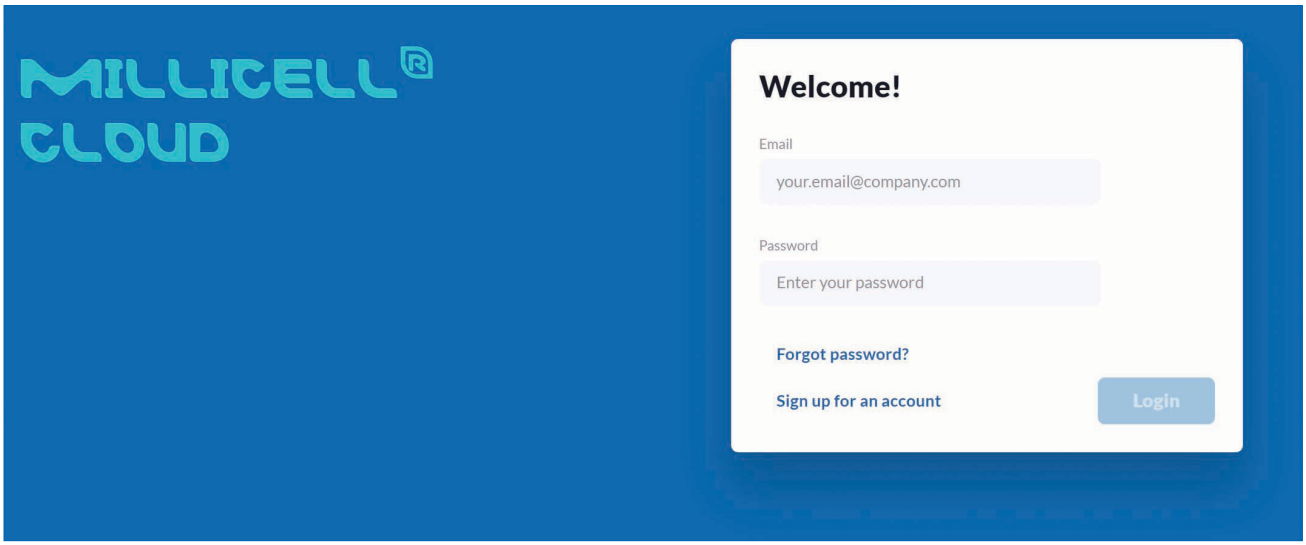
For the best experience we recommend using the latest versions of Google Chrome™, Microsoft Edge®, or Safari® browsers.

Establish the Organization Account

1. The primary contact email address will receive a Welcome email containing a link to create the Millicell® Cloud account for your organization.

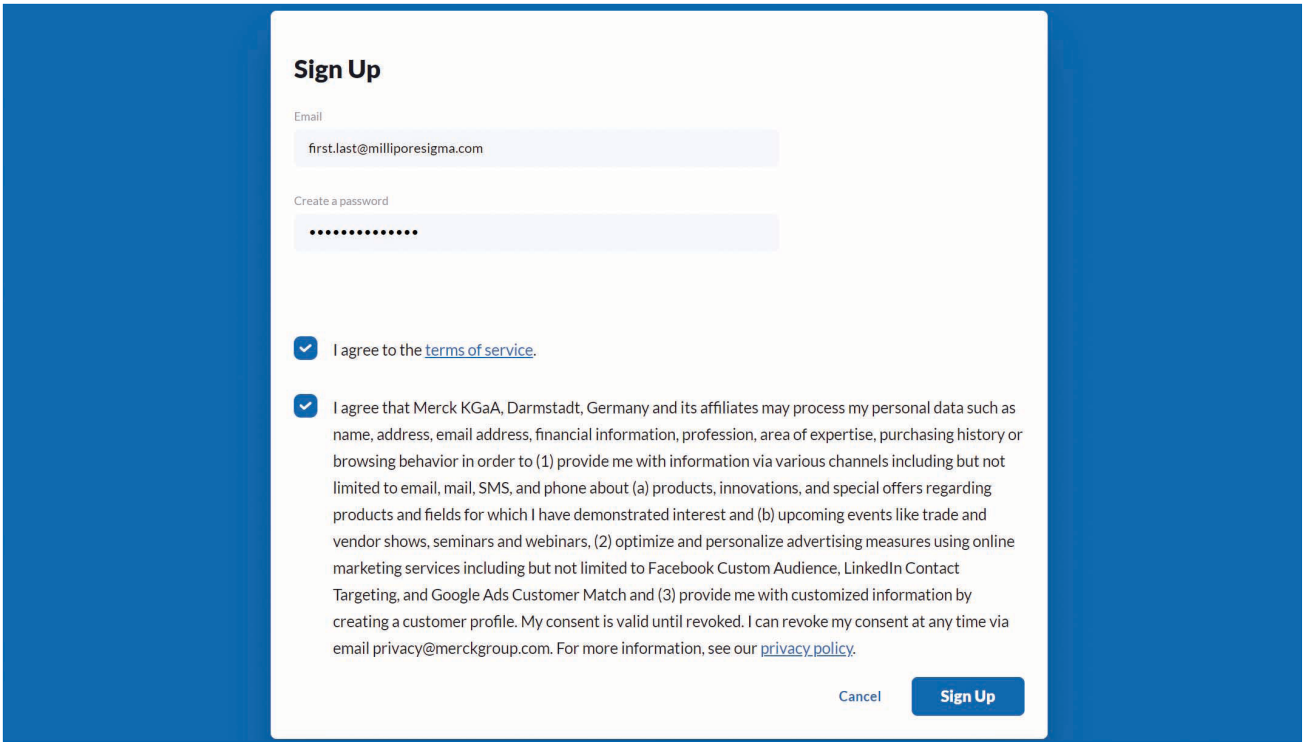
   Save or bookmark the page in your browser for future access.

   Note: If you did not receive an email, someone else may be setting up your organization.



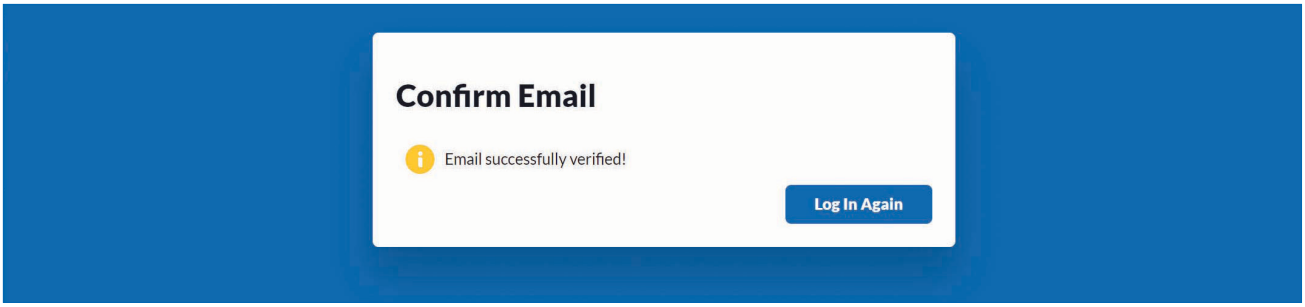
2. Click Sign up for an account.

   Add the email address and password. Read and accept the Terms of Service and Privacy Policy. Click Sign Up.

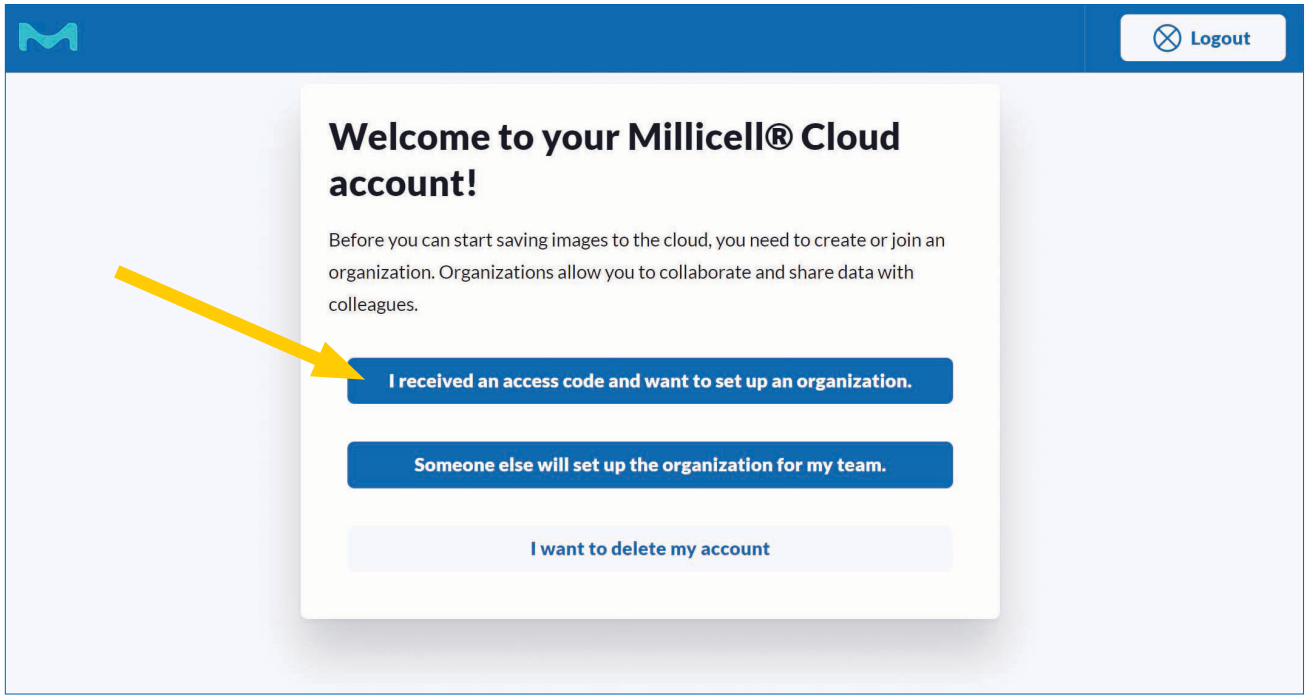


3. A verification code will be emailed. Enter the verification code and click Submit. Click Log in Again and sign in to complete the process.

   If you do not receive a code, click the Resend code link or see "Troubleshooting" on page 16.

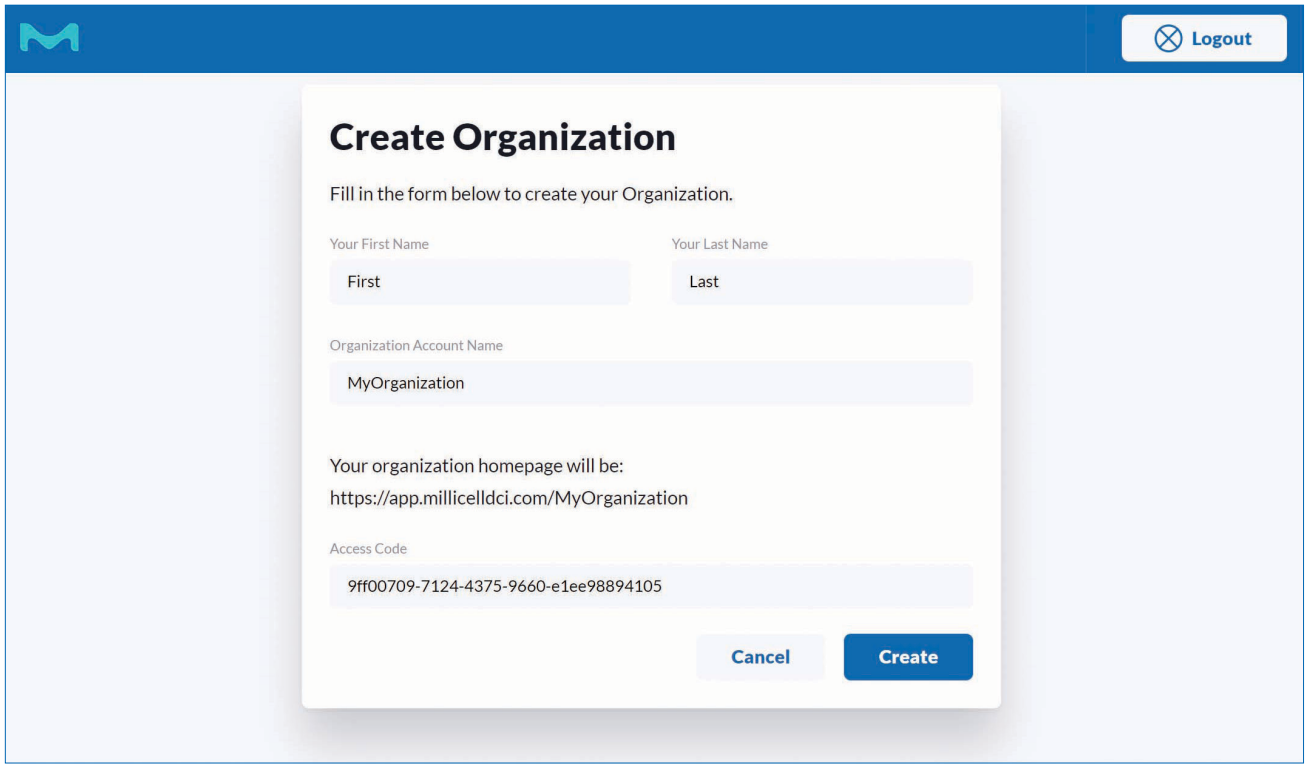


4. Click I received an access code and want to set up an organization.



Note: Once your organization's account is established, the organization owner can invite individuals to the organization account.

5. Complete the form, entering the access code from in the email. Click Create to complete the organization setup process.



Troubleshooting

Problem	Solution
Caution icon appearing on user account	This indicates that the user account has uploads that failed to upload to the cloud. Try moving the Millicell® DCI closer to the desired WiFi® router or plug the Millicell® DCI into an Ethernet port then log back into the user account. When the user account logs in it will retry all failed uploads.
User login timing out	Try moving the Millicell® DCI closer to the desired WiFi® router or plug the Millicell® DCI into an Ethernet port then log back into the user account. If problem persists, it is possible the network security infrastructure is blocking network traffic, please contact your Network/System Administrator for more assistance.
Unable to find desired WiFi® network	The Millicell® DCI currently only supports 2.4GHz networks. Ensure that the desired WiFi® network is broadcasting at 2.4GHz then try again. If issue persists, try moving the Millicell® DCI closer to the desired WiFi® router or use the Ethernet port.
Intermittent WiFi® connectivity	Try moving the Millicell® DCI closer to the desired WiFi® router or plug the Millicell® DCI into an Ethernet port then log back into the user account. When the user account logs in it will retry all failed uploads.
Abnormal confluence mask generated	Discard the image. Move the sample slightly and ensure focus and illumination provide a good image and try again.
Unable to find hemocytometer grid	Ensure the 4x4 counting grid is within the field of view and that it is as straight as possible, then try again.
Unable to mount USB flash drive	Ensure that the USB flash drive being used is a FAT32 formatted flash drive.
No USB flash drive found	Ensure the USB flash drive is properly formatted (FAT32), plug in the USB drive, wait a few seconds, and then try again.
Unable to mount USB flash drive	Ensure the USB flash drive is properly formatted (FAT32), plug in to the back of the Millicell® DCI device, wait a few seconds, and then try again.
No update file found	Ensure the USB is properly formatted (FAT32) and the update file is NOT stored within a folder on the USB drive.
Update file corrupt or invalid	Try deleting the update file from your computer and the USB drive. Re-download the update file and make sure the download completes before copying the file over to the USB drive.
Unable to update	Try deleting the update file from your computer and the USB drive. Re-download the update file and make sure the download completes before copying the file over to the USB drive.
Did not receive Millicell® Cloud invitation email	Contact Tech Support SigmaAldrich.com/techservice to resend.
Did not receive a verification email	Contact Tech Support SigmaAldrich.com/techervice to resend.

Product Ordering

Millicell® Digital Cell Imager	MDCI10000
Includes: • Millicell® DCI device • EdiMax Wireless USB adapter • Millicell® DCI power cord	

Replacement Accessories

Millicell® DCI WiFi® USB Adapter	MDCI1USBD0N
Millicell® DCI Power Supply	MDCI1PWRSUP

Related Products

Millicell® Disposable Hemocytometer High-precision, Neubauer counting chamber "improved", pack of 50	
2 channel	MDH-2N1-50PK
4 channel	MDH-4N1-50PK
Scepter® 3.0 Handheld Automated Cell Counter Kit Includes: Scepter® 3.0 device, test bead vial, charging station, and sensors (see below)	
40 µm sensors, qty 50	PHCC340KIT
60 µm sensors, qty 50	PHCC360KIT

Notice

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Contact Information

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Technical Assistance

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Standard Warranty

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

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