

Mini ELISA Plate Reader™

Instrument and Software Manual

Cat. No. 423555

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It is highly recommended that this manual be read in its entirety before using this product. Do not use this kit beyond the expiration date.

For Research Purposes Only. Not for use in diagnostic or therapeutic procedures. Purchase does not include or carry the right to resell or transfer this product either as a stand-alone product or as a component of another product. Any use of this product other than the permitted use without the express written authorization of BioLegend is strictly prohibited.

General Information

Dear Valued BioLegend Customer

We hope you enjoy your BioLegend Mini ELISA Plate Reader™. As with all of our products, we hope that this instrument will enable your research on your path to legendary discovery.

To make full use of the instrument's performance, please carefully read these instructions in their entirety before using the device. Operate the instrument in accordance with these instructions. The performance and safety of the instrument is only guaranteed if the instructions in this manual are fully regarded.

BioLegend accepts no liability for any damage resulting from the improper use or operation of the instrument. Ensure that this manual is accessible at all times and is read and understood by all persons operating the instrument. The latest version of this manual is available via the Mini ELISA Plate Reader™ App. This document is subject to technical changes and updates.

Warnings

This manual highlights particularly important remarks as follows:

WARNING: Indicates a risk of death or serious injury, or damage to property.

CAUTION: Indicates a risk of moderate or minor injury, or damage to property.

IMPORTANT: Indicates critical information that must be observed.

Liability for Device Performance and Damage

The operation of the device must be performed in accordance with the instructions provided in this manual. The performance guarantee of the device shall be void in all cases where the device is improperly maintained, repaired, or modified by unauthorized service personnel, or if the device is handled in a manner inconsistent with its intended use.

WARNING

- » Operation of the instrument in an improper working environment can lead to measurement errors and may damage the device, or cause a reduction in service life. Please see the explanations and warnings in "Working Environment" on page 6.
- » To avoid measurement errors, it is essential to ensure that the instrument is connected properly and that the experiments are carried out correctly. Please see the explanations and warnings in "Preparing the Product for Use" on page 5.
- » Incorrect cleaning of the instrument can reduce its service life and can cause damage to the instrument. Please see the explanations and warnings in "Cleaning" on page 16.
- » To avoid the risk of electric shock, do not expose the instrument to rain or excessive moisture and do not touch the instrument or USB cable with wet hands.

IMPORTANT

- » Follow all safety instructions on the device and in the attached documents.
- » Follow all general precautions that apply to electrical instruments.

Disposal of Used Electrical and Electronic Equipment



This symbol indicates that the instrument must be disposed of at a recycling collection point for electronic equipment. For further information on how to recycle this product, please contact your local authority or municipal waste disposal companies.

Working with Biological and Harmful Material

Do not use the Mini ELISA Plate Reader™ for the measurement of biohazardous substances.

Always observe the manufacturer's hazard information pertaining to the substances being measured.

The instrument alone does not produce any toxic or harmful gases or substances. During the measurement, make sure that there are no toxic or harmful substances in the microtiter plate.

Overview of the Mini ELISA Plate Reader™

Scope of Application

The Mini ELISA Plate Reader™ is an absorbance-based measurement device with which the absorbance values of the contents of a 96-well microtiter plate can be read, recorded, and further processed. The Mini ELISA Plate Reader™ is intended for research use only. It is to be operated by trained laboratory personnel and is intended for professional use.

The Mini ELISA Plate Reader™ App is a microplate-reader-control software that is intended to be used for the readout and analysis of data produced by the Mini ELISA Plate Reader™.

Measurement Method

The Mini ELISA Plate Reader™ is designed to carry out fast and sensitive absorbance measurements. It measures the optical density (OD) of samples at defined wavelengths.

Absorption

Absorption refers to the amount of light absorbed by a medium. Absorption reduces transmission. Transmission is the ratio of incident to transmitted light. Accordingly, the degree of transmission is calculated as follows: $T = (I/I_0)$ where I is transmitted light and I_0 is incident light.

Optical Density

Optical density is a measure of the attenuation of light radiation after it has passed through a medium. Optical density is the logarithmic quantity that describes the reciprocal of the transmittance T : $OD = \log(I_0/I)$ where I is the transmitted light and I_0 is incident light.

About the Mini ELISA Plate Reader™

The Mini ELISA Plate Reader™ has 96 detection units, which allow for measurement without a scanning mechanism. In the upper part of the measuring instrument there are four light sources with different wavelengths and four interference filters. The four signal lights on the top of the reader show which measuring channel is being used for the current measurement. The microtiter plate is inserted manually into the slot of the device. There are two raised locking-edges at the bottom of the slot, as well as an arrow for visual inspection that becomes wholly visible only after the microtiter plate has been completely inserted.

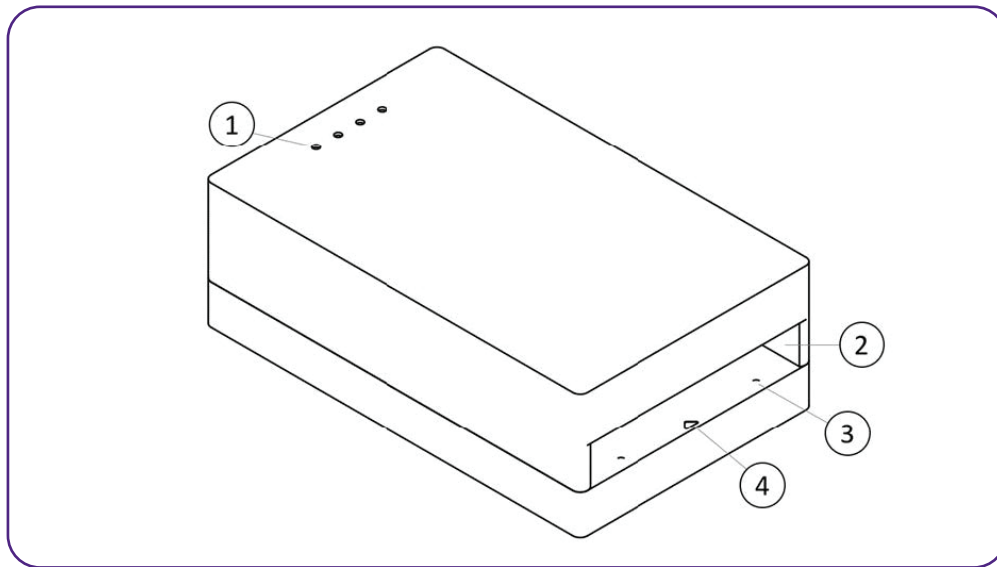


Figure 1. Visual representation of the product from the front, top.
1. Signal lights. 2. Slot for microtiter plate. 3. Raised locking-edges. 4. Arrow.

On the back of the Mini ELISA Plate Reader™ is a USB plug for connecting the instrument to a computer via the included Micro-USB cable. Furthermore, there is an eject button for ejecting the microtiter plate out of the slot.

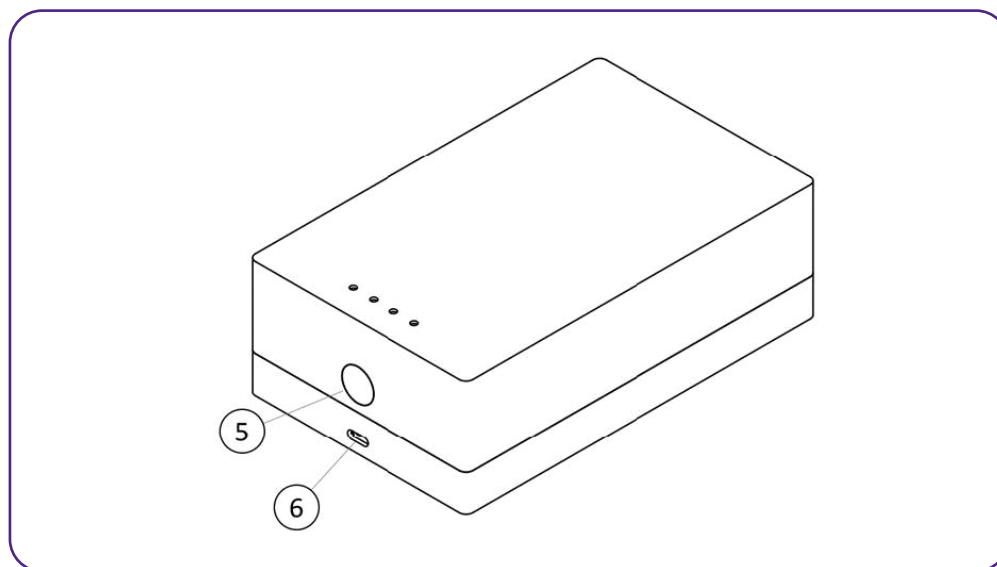


Figure 2. Visual representation of the product from behind, top.
5. Eject button. 6. Micro-USB plug.

Information on Consumables

The Mini ELISA Plate Reader™ can read ANSI/SBS Standard 96-well microtiter plates. When using microtiter plates, always review the specifications provided by the manufacturer. Not all microtiter plates are intended for use in immunoassays.

Power Consumption

The Mini ELISA Plate Reader™ is operated by a Micro-USB cable and the total power consumption is generally less than 2.5 W.

Preparing the Product for Use

Unpacking, Storing and Transporting

Unpacking

Remove the packaging material and carefully place the unit on a firm and level surface.

Check the parts supplied (see “Checking the Supplied Parts” on page 6).

CAUTION

- » Check the product for external damages.
- » Make sure the rubber feet are completely attached to the underside of the device.

The device is packed in a specially designed cardboard box. Keep this packaging material, as it will be required should you need to return the device for repair.

Storing and Protecting During Normal Use

WARNING

- » Protect the device from moisture and dust during prolonged storage.

CAUTION

- » Do not store the device next to heat sources. Protect it from direct sunlight.

Store the device at temperatures between 5-45 °C.

Transporting

Before transporting the device, make sure that it is turned off and disconnected from the computer.

WARNING

- » Before transport, make sure that there is no microtiter plate in the instrument.

CAUTION

- » Always transport the product securely to avoid possible transport damage.

Checking the Supplied Parts

When unpacking the device, please check that the following components are present:

- Mini ELISA Plate Reader™
- Micro-USB cable
- Hex key
- Microfiber cloth
- USB flash drive

Working Environment

Due to its small size, the Mini ELISA Plate Reader™ offers outstanding handling and portability.

However, please note the following warnings. Failure to adhere to these recommendations may lead to inaccurate measurement results or damage to the device:

WARNING

- » Place the device on a level surface, free from dust and vibrations.
- » Do not operate the device near heat sources or under direct sunlight.
- » Operate the device at temperatures between 5-45 °C.
- » Ambient humidity should not exceed 90 %.

Software Installation & Updates

The Mini ELISA Reader™ App can be installed in either a Windows or a MacOS environment.

Windows Installation

To install the Mini ELISA Plate Reader™ App, insert the USB flash drive provided with the Mini ELISA Plate Reader™ into a PC computer and follow the steps below:

1. Locate and select the USB drive in the document browser.
2. Double-click the "BioLegendSetup" file. This will open the BioLegend App Setup Wizard.
3. Follow the steps in the Setup Wizard to complete the installation.

IMPORTANT

- » To install the proper drivers and software on the computer, the user must have administrator access.
- » The computer must have at least Windows 7 or above. Windows 10 and later versions function through plug and play. If an older version is being used, drivers may need to be installed. These are available on the USB flash drive provided with the device.

MacOS Installation

To install the Mini ELISA Plate Reader™ App, insert the USB flash drive provided with the Mini ELISA Plate Reader™ into a MacOS computer and follow the steps below:

- Locate and select the USB DISK under "Locations".
- Double-click the "MiniELISAPlateReaderApp.dmg" file. The application will become visible under "Locations".
- A small window displaying the BioLegend logo and application will appear. Double-click on the BioLegend logo to launch the reader software.

Uninstalling the Software

The Mini ELISA Plate Reader™ App can be uninstalled using the standard uninstall procedure for your computer.

Updates

Software updates will occasionally become available. To check for new updates, the user must click on the update button in the menu bar. If an update is available, this will be shown in a bar on the top of the screen. Follow the prompts to download any updates.

Operation

Before first using the Mini ELISA Plate Reader™, carefully read the entire manual.

Getting Started with the Mini ELISA Plate Reader™ App

Software Homepage

After launching the “Mini ELISA Plate Reader™ App”, a window will appear which consists of the Menu Bar, the Control Bar and the Main Window (see Figure 3). All measurement settings will be set and managed from this main window.

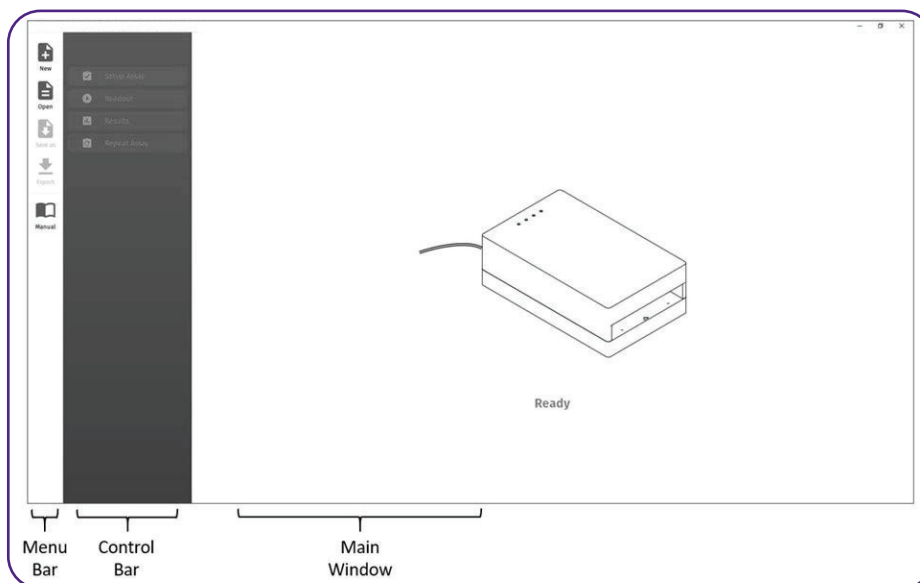


Figure 3. Software Window Description.

“No Reader Found”




This message appears when the Microplate Reader is not connected to the computer. Simply attach the reader to proceed. If the reader is connected but not recognized by the software, you may need to install the drivers present on the USB flash drive provided. See “Software Installation & Updates” on page 6.

Icons

The following is a complete list of all icons used in the Mini ELISA Plate Reader™ App with a description of their function.

Table 1. Icons in the Mini ELISA Plate Reader™ App.

Icon	Function
 New	Create a protocol/create a new measurement
 Open	Open a previously saved protocol or assay
 Save as	Save your current protocol or assay
 Export	Export the results
 Manual	Open the instructions for use
 Update	Check for a new update when connected to the Internet

Icon	Function
	Setup
	Readout
	Results
	Repeat

File Types

The following file types are used by the Mini ELISA Plate Reader™ App (Table 2):

Table 2. File Types in the Mini ELISA Plate Reader™ App.

Quality	Extension
Protocol	.byop
Assay	.byoa
Export	.csv/.pdf

Connecting the Mini ELISA Plate Reader™ to a Computer

The Mini ELISA Plate Reader™ requires a connection to a computer in order to power the device, access the software, and to transfer data.

WARNING

- » Always use the Micro-USB cable for the connection to your computer.

IMPORTANT

- » Place the instrument on a horizontal surface, secured against falling.
- » Connect the instrument directly to your computer; do not use an external USB hub.
- » The device may only be operated with a USB port USB 2/USB 3 with 5 VDC and a maximum of 3 A of a certificated computer (with certification mark of an approved testing laboratory). Use an adapter cable on USB 3.1 with type C plug connection, which ensures the profile 1: 5 V@2.0 A.

Insert the Micro-USB cable into the Mini ELISA Plate Reader™ and into an open USB port on the computer.

The Mini ELISA Plate Reader™ will start automatically after it is connected to the computer via the Micro-USB cable and the software has established a connection.

When the Mini ELISA Plate Reader™ is switched on, the signal lights on the top of the instrument light up. Each time the instrument is switched on, an internal self-test is performed to ensure there are no malfunctions.

If no connection between the instrument and the computer is established, install the driver for the USB connection. You can find it in the supplied USB flash drive. See “Software Installation & Updates” on page 6.

Setting Up an Assay and Creating a Protocol

Select “New” from the menu bar to define experiment parameters.

The screenshot displays the 'Setup' page of the Mini ELISA Plate Reader software. On the left is a dark sidebar menu with icons for 'New', 'Open', 'Save as', 'Export', and 'Manual'. The main area is titled 'Setup' and contains several sections:

- Assay/Protocol Information:** Fields for 'Enter assay name here...', 'Enter protocol name here...', 'Enter protocol description here...', and 'Enter supplier...'. A 'Choose logo...' button is next to the assay name field.
- Wavelength:** A section with a blue information icon. It includes 'Sample (nm)' and 'Reference (nm)' fields, each with a dropdown menu showing options: 405, 450, 492, and 620. A 'None' button is located to the right of the reference dropdown.
- Evaluation:** A section with a blue information icon. It features three radio buttons: 'No Evaluation' (selected), 'Quantitative', and 'Qualitative'.
- Plate layout:** A section with a blue information icon. It shows a 5x12 grid representing a microplate, with rows labeled A through E and columns labeled 1 through 12.
- Method Summary:** A table at the bottom left of the main area:

Method	Absorbance
Signal	None
Reference	None
Evaluation	n/a
Samples	0
Temperature	23.5 °C
- Update:** A circular refresh icon at the bottom left of the sidebar.

Figure 4. Experiment Parameters.

Defining a Protocol

In the first section of the Setup Page you can name your assay/protocol. For each protocol you can add a description, assign a supplier for the assay kit, or choose a logo.

Selecting a Wavelength

Under “Wavelength”, choose a sample and reference wavelength.

The sample wavelength is the wavelength (in nanometers) at which the principal measurement will be run.

The reference wavelength is the wavelength (in nanometers) at which the reference is measured. The values measured at the reference wavelength will be subtracted from the values measured at the sample wavelength.

If no reference wavelength is desired, click the “None” button beside the reference wavelength.

Evaluation

The evaluation section allows you to choose which evaluative method will be used for the readout:

No Evaluation

No evaluation will be used. The raw OD values will later be shown in plate format.

Quantitative

- Upon selection of the Quantitative evaluation method, a second section titled “Regression Analysis” will appear in the evaluation field.
- Click the drop-down menu and select one of the options: 4-parameter regression, linear regression, or point-to-point.
- The selected evaluation method will be used for the standard curve and subsequent data analysis.

Qualitative

Upon selection of qualitative evaluation, the plate layout window will change and a formula for the cut-off definition will appear.

Terms for Cut-Off Definition:

- POS = the mean of the OD values of the positive control wells.
- NEG = the mean of the OD values of the negative control wells.
- CUT = the mean of the OD values of the cut-off control wells.
- 0 OD = zero. User defined value may be entered. See example 3.

Mini ELISA Plate Reader™

- Offset = the offset value for cut-off calculation.
- Range = a percentage value defining a range beyond which the results are interpreted as either positive or negative.

The formula setup for the cut-off definition covers multiple formula types. These are listed below:

- Cut-Off Value = Mean Neg. Controls +(-) k
- Cut-Off Value = Mean Pos. Controls + k
- Cut-Off Value = Mean CO. Controls + k
- Cut-Off Range = [Mean (x)control + k] +/- x %

Where k is an experimentally determined factor normally defined by the laboratory professional or by the kit manufacturer.

Example 1: Subtraction

To replace the minus function, the user must simply enter a negative value. For example, if the cut-off is:

- Cut-off = Mean Neg. Controls -0.2

This must be entered as shown in Figure 5:



The screenshot shows a software interface for defining a cut-off. The formula is displayed as: Cut-off = (POS NEG CUT 0 OD + [-0.2] OD) ± [Range] %. The 'NEG' button is highlighted in blue, and the value '-0.2' is entered in the offset text box.

Figure 5. Entering a negative value.

Example 2: Range Definition

To define a range, you may use the "Range" field in the cut-off editor. This allows you to enter a percentage that will correspond to values above and below a given cut-off value. Experimental values within the range will be deemed intermediate, values above the range will be deemed positive, and values below the range will be deemed negative.

For example:

- Sample is considered positive if: Sample OD > (Mean Pos. + 10 %)
- Sample is considered negative if: Sample OD < (Mean Pos. - 10 %)
- Sample is considered intermediate if: (Mean Pos. - 10 %) < Sample OD < (Sample OD + 10 %)
- This would be entered as shown in Figure 6:



The screenshot shows the cut-off editor interface. The formula is: Cut-off = (POS NEG CUT 0 OD + [Offset] OD) ± [10] %. The 'POS' button is highlighted in blue, and the value '10' is entered in the range text box.

Figure 6. Entering a range.

Example 3: Known Cut-Off Value

It may be the case that the cut-off value is known for a given experiment and need not be calculated. In this case, the "0 OD" option may be selected for the calculation and the desired value entered into the offset.

- For Example: Cut-Off = 0.3

This would be entered as shown in Figure 7:



The screenshot shows the cut-off editor interface. The formula is: Cut-off = (POS NEG CUT 0 OD + [0.3] OD) ± [Range] %. The '0 OD' button is highlighted in blue, and the value '0.3' is entered in the offset text box.

Figure 7. Entering a known cut-off.

IMPORTANT

- » The examples shown in this manual do not represent actual data, rather function to clarify software features, and may not be referenced for experimental methods or procedure.

Plate Layout

In the plate layout section, the microplate can be filled out as desired. Each well may be defined individually using the buttons below the plate.

IMPORTANT

- » The format of the plate layout and the corresponding buttons are defined by the evaluation method. Quantitative and qualitative evaluations have different fields and buttons.
- » Blank values will be subtracted in the readout.
- » The mean value of replicates will be calculated.
- » Once the conditions/parameters of a given experiment have been set, these settings may be saved as a protocol. All parameters, such as wavelength and plate layout, will be saved.
- » Wells without values (concentration or sample ID) are shown with a ring instead of solid colour.

Quantitative Evaluation

When the quantitative evaluation is selected, the window will be as shown in Figure 8.

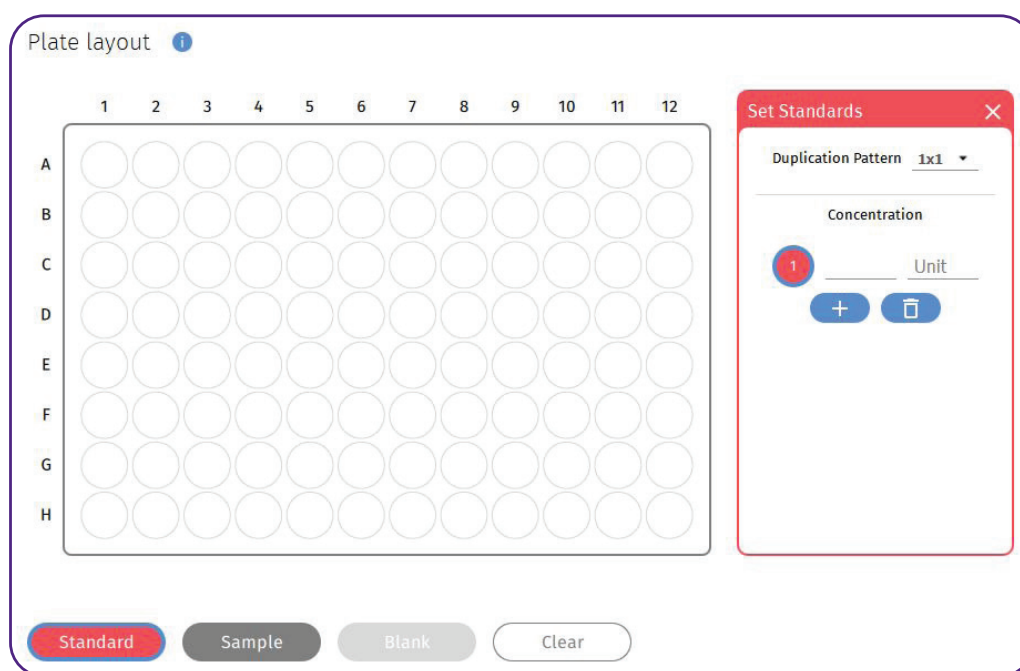


Figure 8. Quantitative plate definition window.

To define a well, click on the desired button below the plate. You may then click and drag, or individually define single wells. The blue ring indicates which field is currently selected; all fields will be defined starting with the selected number.

To enter a concentration or sample ID, type the value in beside the number and press ENTER to move to the next field.

To enter a unit, enter the desired unit in the first field and press ENTER. All fields will be automatically filled out according to the first selection.

To define, for example, two duplicate standard rows, click and drag the desired number of wells, release, then click and drag again in the next row.

To set a blank or to empty a given well, click on the "Blank" or "Empty" button respectively, then click the desired well or drag and drop across the plate.

IMPORTANT

- » Clicking on previously defined wells will overwrite them.
- » When blank wells are selected, the values of these wells will be subtracted in the readout.

Qualitative Evaluation

Upon selection of qualitative evaluation, the plate layout window will look like that shown in Figure 9.

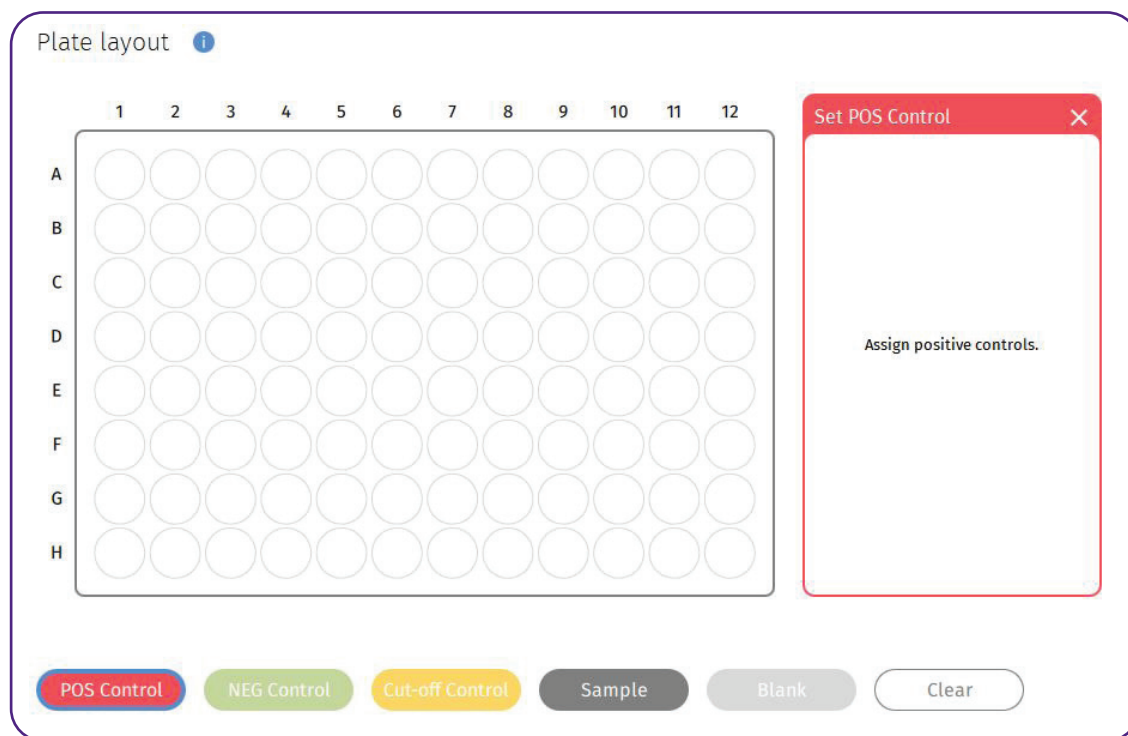


Figure 9. Qualitative plate definition window.

Define the plate according to the description above.

Running the Assay

Procedure Walkthrough

Once all the setup steps have been completed, the "Readout" button in the Control Bar can be clicked (it will be blue). The measurement can now be run.

1. Empty Slot

Ensure the slot is empty for calibration.

2. Calibrate

Click "OK" to start the calibration. The calibration will begin, which is indicated by a short illumination of the respective LEDs.

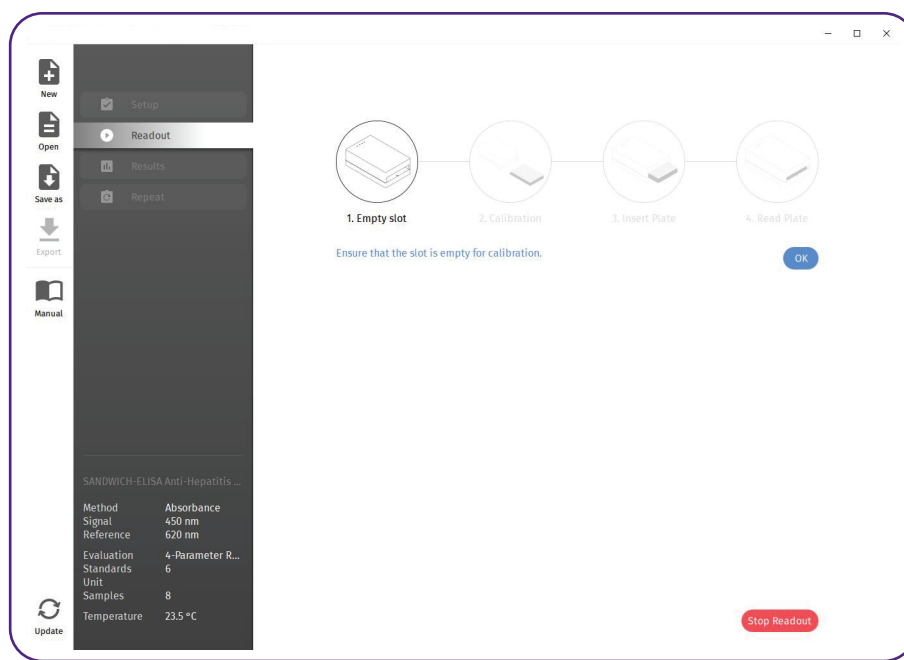


Figure 10. Instrument measurement steps.

3. Insert Plate

After successful calibration, you will be prompted to insert the microtiter plate. Pay attention to the alignment of the microtiter plate. For orientation, a pictogram on the top of the Mini ELISA Plate Reader™ indicates the correct alignment of the microtiter plate. (The pictogram is a schematic representation. The actual shape of the microtiter plate, especially the position of the rounded corner, may vary and differ from the illustration. Base your alignment on the A1 Well).

In order to guarantee correct measurement results, please pay attention to the following:

WARNING

- » When inserting the microtiter plate, pay attention to its alignment.
- » Make sure the microtiter plate is completely inserted into the slot. The arrow at the bottom of the slot should be completely visible.
- » The bottom of the microtiter plate must be dry before it is inserted into the instrument. If the microtiter plate is wet at the bottom, dry it with a paper towel or similar.
- » Shocks to the Mini ELISA Plate Reader™ and of the microtiter plate can cause an unwanted signal. Therefore, neither the Mini ELISA Plate Reader™ nor the microtiter plate should be touched during measurement.
- » Note that the system depends on a clean and dust-free environment. Therefore, do not wear powdered safety gloves.
- » Ensure that no direct sunlight or other strong light sources shine on the Mini ELISA Plate Reader™, especially into its slot.
- » Carefully insert the plate to avoid spills.

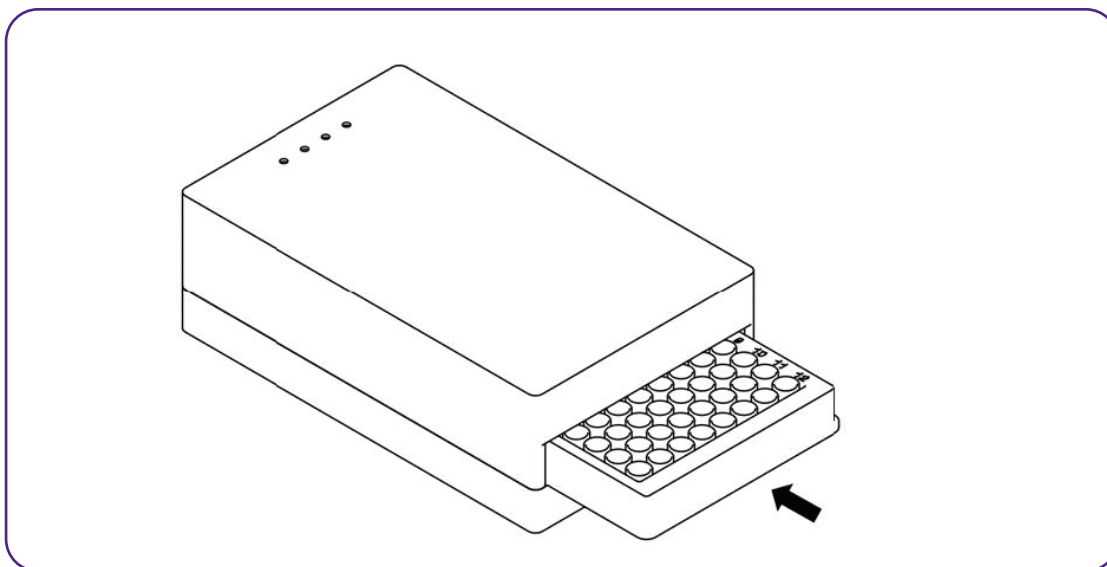


Figure 11. Insertion of the microtiter plate.

After insertion, confirm in the software that the microtiter plate has been inserted by clicking “OK”. The measurement will subsequently be carried out, accompanied by a short illumination of the respective signal lights.

4. Read Plate

When the measurement is complete, the results will be shown.

You may now remove the microtiter plate from the Mini ELISA Plate Reader™. To do this, push the eject button on the rear side of the device.

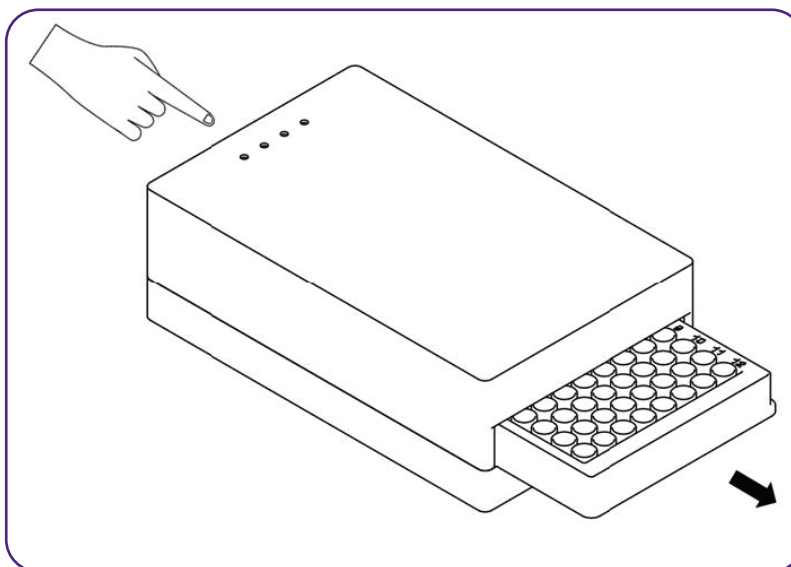


Figure 12. Remove the microtiter plate.

Results and Interpretation

Plate Overview: Provides an overview of the different OD values in their respective wells. Undefined wells are not shown. Click on a given well to see the OD, label and, if applicable, concentration.

Graph Overview: A representation of the data will be shown on the graph. The curve will be dependent on the data analysis method chosen and will be fitted accordingly. By choosing the right regression method, the distance from the curve to each point is minimized. Using the standard curve, the concentration of each sample is calculated. The equation below the graph reflects the regression method applied and offers further data.

Tabular View: Provides an overview of the various samples, wells, ODs and calculations.

Table 3. Overview of terms in results section.

Parameter	Description
ID	The assigned ID of a given standard
Well	The assigned well
Absorbance	The absorbance reading in OD units
Concentration CV	The coefficient of variation between replicates
Standard conc.	The entered concentration values for the standards
Concentration	The calculated concentration values
Mean Absorbance	The mean absorbance of replicate wells
Result*	Pos/Neg/Intermediate result of a qualitative experiment

(*Only appears by qualitative evaluation)

Repeat Assay

After completing the measurement, the “Repeat Assay” button in the Control Bar will be highlighted blue. Click this button to delete the current results and repeat the measurement. This will bring you back to the Main Window.

Additional Instrument Information

Signal Lights

Table 4. Explanation of the signal lights.

Activity of the signal light	Meaning
All signal lights flash simultaneously	Error, software shows error message or self-test after connection fails
No signal lights light up	Device is off
All signal lights light up briefly in sequence	Self-test after connection to power is successful
Signal light of the respective measuring channel flashes/illuminates continuously	Calibration/measurement in progress

Troubleshooting

If there is an error, all four signal lights flash simultaneously. Check the software to determine which type of error has occurred.

In the event of the following errors, a new measurement can be carried out immediately after the error has been corrected.

Table 5. Error messages and solutions.

Type of error	Cause	Solution	Restart necessary?
Calibration failed	There was a microtiter plate in the slot during calibration.	Remove the plate/all objects.	No
	The inside of the slot is dirty	Clean the inside of the slot according to the cleaning instructions in “Cleaning” on page 16.	
Interference due to ambient light that is too bright	Too much ambient light is entering the slot	Make sure the instrument is not exposed to too much ambient light, <i>e.g.</i> direct sunlight, during the measurement process.	No

Type of error	Cause	Solution	Restart necessary?
Temperature out of specification	The ambient temperature was too high or too low	Make sure the ambient temperature is between 5-45 °C.	No
	Defective USB port	Use a different USB port on the computer or a different computer.	Yes
USB Power Supply Defective (< 450 mA or < 4 V)	Using a USB hub	Connect the instrument directly to the computer.	Yes. Remove cable and reconnect it.
	Defective micro-USB cable	Contact Technical Service.	N/A
Irrecoverable hardware error	Irrecoverable hardware error	Contact Technical Service.	N/A

Maintenance and Cleaning

Maintenance

The Mini ELISA Plate Reader™ is maintenance-free. Each time the instrument is switched on, an internal self-test is carried out to ensure there are no malfunctions.

There are no parts within the instrument that can be serviced by the user. It is only necessary for users to ensure that the device is kept clean.

Cleaning

Warnings for Cleaning

When cleaning, pay attention to the following warnings. The non-observance of these warnings may result in damage to the user or to the instrument. This can lead to a reduction of the instrument's service life or in measurement errors:

WARNING

- » Always avoid spraying liquid directly onto the surfaces of the Mini ELISA Plate Reader™. This is especially important for the inside of the slot, where there are optical elements that are very sensitive and essential for the functioning of the instrument.
- » Never clean the inside of the slot with sharp, abrasive, solvent-containing agents.
- » Biological hazard: Always wear gloves during cleaning operations that may be associated with contact with biological or generally hazardous materials or liquids.
- » Ensure that there is no microplate in the instrument prior to any cleaning.

IMPORTANT

- » Remove the Micro-USB cable from the instrument before cleaning.

Cleaning the Housing

The housing surfaces should be cleaned regularly. For this purpose, you can use a cloth, or a sponge lightly wetted in water. For heavier soiling, clean the surface of the housing with a mild soap solution diluted with water or glass cleaner and then wipe with a lightly moistened cloth or sponge to remove any residue. Do not use scouring agents.

Cleaning the Slot

To clean the slot of the Mini ELISA Plate Reader™, first open the four screws on the bottom of the instrument (see Figure 14) using the Hex key provided.

IMPORTANT

- » Do not loosen any screws that are not explicitly marked in the manual, as this can lead to a malfunction and may void the instrument's warranty.

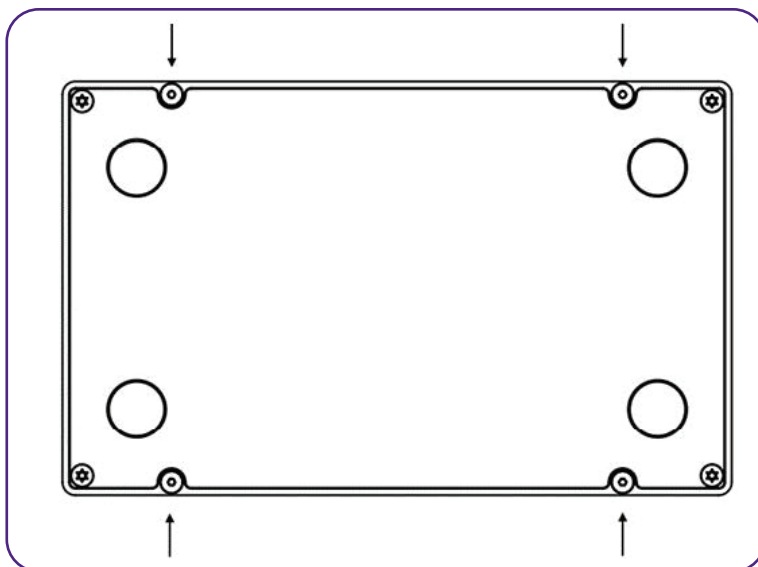


Figure 13. Bottom side of the instrument.

Carefully pull apart the top and the bottom of the instrument to unplug the plug connection on the back of the instrument.

IMPORTANT

- » To avoid damaging the rigid plug connection between the top and bottom of the instrument, grasp the instrument at the back during the pull movement. Avoid any tilting movement.

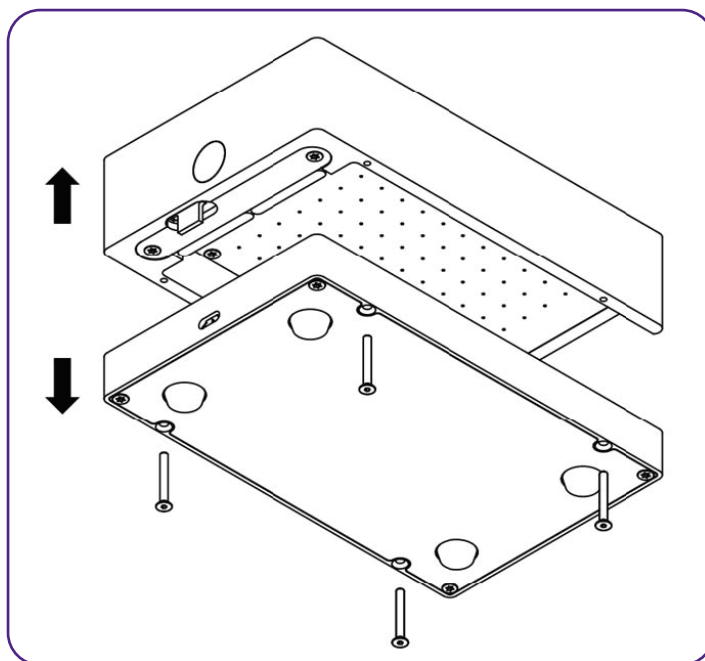


Figure 14. Pulling the instrument apart into its two components.

Use a dry microfiber cloth or a bellows to carefully remove dust or dirt from the surface. If this is not enough, the microfiber cloth can be slightly soaked with 80 % ethanol to carefully remove dust or contamination from the surface.

Do not allow water or other liquids to get inside the instrument.

Technical Support

In case of problems with the instrument, please contact BioLegend technical service at tech@biolegend.com.

WARNING

- » Biological hazard: It is your responsibility to decontaminate the instrument and all accessories before servicing and before

Mini ELISA Plate Reader™

returning the instrument or accessories to the manufacturer.

For decontamination of the Mini ELISA Plate Reader™, follow the government guidelines for inactivation of organisms used in biological laboratories.

Repairs

Repairs on the device may only be carried out by the manufacturer. The product warranty will be voided if the device is modified by unauthorized personnel.

Performance Data and Technical Data

Table 6. Performance & technical data.

Parameter	Value
Type of product	Absorbance reader
Product name	Mini ELISA Plate Reader™
Service life	10 years at an average use of 4 hr/day
Housing material	Aluminium
Place for use	Laboratory
Degree of contamination	2
Temperature for storage/measurement	5-45 °C
Temperature (transport)	-10-50 °C
Relative tolerated humidity (storage/measurement)	0-90 %
Air pressure (measurement)	900-1070 hPa
Air pressure (storage/transport)	600-1070 hPa
Elevation	Max 5100 m
Measurement method	Absorbance
Measuring technique	Endpoint
Light source	4 LEDs: 405 nm, 450 nm, 492 nm, and 620 nm
Filters	4
Detection	96 Photodiodes
Measurement range	0-4.0 OD
Resolution	0.001 OD
Accuracy*	0.000-2.000 OD \leq (1 % + 0.010 OD) 2.000-3.000 OD \leq (1.5 % + 0.010 OD)
Reproducibility**	0.000-2.000 OD \leq (0.5 % + 0.005 OD) 2.000-3.000 OD \leq (1 % + 0.010 OD)
Linearity***	0.000-2.000 OD \leq 1 % 2.000-3.000 OD \leq 1.5 %
Connection to computer	USB 2/USB 3 with 5 VDC and max. 3A
Dimensions	55 x 96 x 154 mm
Power supply	5 VDC
Nominal value/Characteristic of the fuse	1A/very fast-acting
Power input	2.5 W
Weight	900 g
Regulatory status	Research use only, CE marked

*Accuracy is the maximum deviation between the determined value and the true value.

**Reproducibility is the maximum deviation between the determined values when the measurement is repeated directly.

***Linearity is the maximum deviation between the true and the determined increase of the value.

Warranty

The warranty period of the Mini ELISA Plate Reader™ is 18 months. If a defect occurs in your device during this warranty period, please contact BioLegend technical services (tech@biolegend.com) directly. In the event of such defects, the device should only be operated again after it has been repaired.

This warranty does not cover damage caused by improper use or external mechanical influences, transport damage, or modifications to the device by unauthorized service personnel.

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