

ADAM CellIT Plus

A New Standard of Automated Cell Counter

Instruction Manual



All the materials in this user manual are protected by Korean and international copyright laws. They cannot be reproduced, translated, published or distributed without the permission of the copyright owner.

ADAM™ CellT Plus Instruction Manual

Website : www.nanoentek.com

E-mail : sales@nanoentek.com

Manufactured by

NanoEntek, Inc.

851-14, Seohae-ro, Paltan-myeon, Hwaseong-si, Gyeonggi-do, 18531, Korea

Tel. +82-2-6220-7940

Fax. +82-2-6220-7999

NanoEntek America, Inc.

220 Bear Hill Road, Suite 102, Waltham, MA 02451, USA

Tel. +1-781-472-2558

Fax. +2-781-790-5649

The information in this manual is described as accurately as possible.

Firmware and software changes and updates may change without prior consent or notification.

Copyright © 2023 by NanoEntek Inc.

All rights reserved. Published in Korea.

Documentation: **NESMU-ACTP-001E**

Revision history: **V.0.0 DEC 2023**

Table of Contents

Introduction	5
General Description.....	5
Technology.....	6
Basic.....	7
principle of counting	7
Product contents.....	8
ADAM™ CellIT Plus.....	8
AccuPlus Slide & Reagent.....	8
Upon receiving the instrument.....	8
Product Description	9
Front view of ADAM™ CellIT Plus	9
Rear view of ADAM™ CellIT Plus	10
Getting started.....	11
Environmental requirements.....	11
Power on and Initial Display	11
Error messages during booting.....	12
Count setting.....	13
General Operation	14
Instruction	14
Sample preparation.....	15
Cell counting	15
Measure	18
Run sample.....	18
Result analysis.....	19
Result Analysis - Error code	20
QC	21
QC Mode.....	21
QC Slide Edit	22
QC Slide Result Edit.....	23
QC Slide Result.....	24
Data	25
Data list.....	25
EDIT.....	26
IMAGE	27
SAVE	28

MAIL.....	29
Approval.....	30
Requestable	30
Requesting.....	31
Approvable.....	32
Approved.....	33
Setting.....	34
Setting.....	35
Wifi.....	35
Remote support.....	35
Update	36
Auto logout.....	36
Backup	36
Recovery	37
User	38
User	38
User manage.....	39
Privilege	40
Password Option	41
Log manage	42
Document manage.....	43
Deleted list	44
Power off	45
Lock	45
Power off	45
Maintenance and cleaning	46
Trouble shooting	47
Warranty.....	48
Technical specifications	49
Product list	50
Safety precautions	51
Mesures de sécurité.....	52
Safety symbols.....	53
Warnings.....	54
Technical support.....	55

Introduction

General Description

The ADAM™ CellIT Plus is a new standard of highly accurate automated cell counter equipped with bright field and two fluorescence channels (AO/DAPI).



Introduction

Technology

Measuring number of cells and their viability is an essential part of biological experiments.

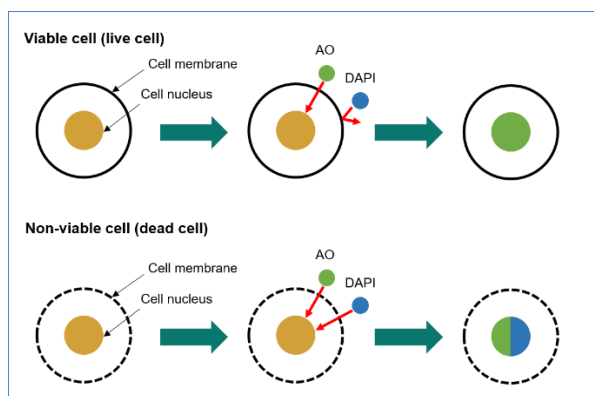
Traditionally, hemocytometer has been used to quantify number of cells and Trypan Blue exclusion method to quantify cellular viability. While this manual method has been widely adopted as a standard method for cell counting, it has some drawbacks. One example is when there are non-cell debris such as dust or tissue residues, they can be counted as cells. Also, Trypan Blue exclusion method has been known to overestimate cellular viability. In addition to these limitations, manual counting can be user-dependent. To address these problems, NanoEntek has developed ADAM™ CellT Plus. ADAM™ CellT Plus is an image-based fluorescence cell counter. It takes bright field image and two color fluorescence images. ADAM™ CellT Plus uses bright field images to quantify cell sizes and two fluorescence images to quantify number of total cells and dead cells. ADAM™ CellT Plus is accurate, simple and reliable.

Introduction

Basic principle of counting

ADAM™ CellIT Plus uses Acridine Orange (AO) and 4',6-diamidino-2-phenylindole (DAPI) to count total number of cells and number of dead cells, respectively. AO is a cell-membrane permeable dye that stains nucleus of every cells regardless of the cell's condition. Therefore, it is used to count total number of cells. DAPI is a cell-membrane impermeable dye that only stains nucleus of cells with damaged membranes or cells with inactive metabolism. Therefore, it is used to count number of dead cells. Schematics of counting principal is shown below. From total cell counts and dead cell counts, viability of cells is calculated as below;

Principle (Total cell count)



$$*Viability(\%) = \frac{(A-B)}{A} \times 100$$

A: Total cell / B: Non-viable cell

Product contents

ADAM™ CellIT Plus

ADAM™ CellIT Plus is shipped in a carton box containing followings;

Item	Quantity
Main device	1
User manual	1
USB hub	1
Wifi dongle	1
Power cord	1
Adapter	1
External Hard disk	1
Test Bead	1
QC slide (optional)	1
PC (only PC Mode)	1
Printer (optional)	1

AccuPlus Slide & Reagent

AccuPlus Slide and reagent has following components:

Item	AccuPlus Slide (Cat. No: AP4S-100)	Cell viability reagent (Cat. No: APAD-400)
Disposable Slice	100 pcs (4 channel)	N/A
Reagent	20 mL x 1 bottle	20 mL x 1 bottle
Available test Q'ty	400 test	

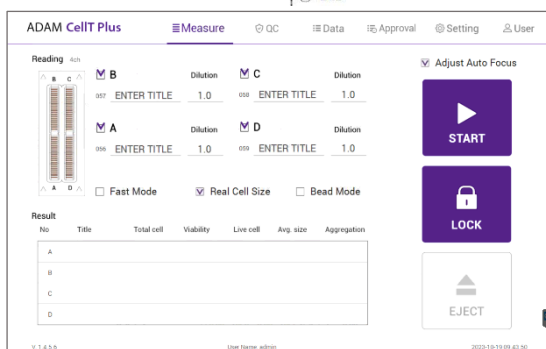
Upon receiving the instrument

- Examine the instrument carefully for any damage incurred during transit.
- Ensure that all parts of the instrument including accessories listed above are included with the product.
- Any damage claims must be filed with the carrier.
- The warranty does not cover in-transit damage.
- Upon receipt, store AccuPlus Slide at room temperature. Cell viability reagent should be stored at 2~8°C

Product Description

Front view of ADAM™ CellIT Plus

The front view showing various parts of the ADAM™ CellIT Plus is shown below:

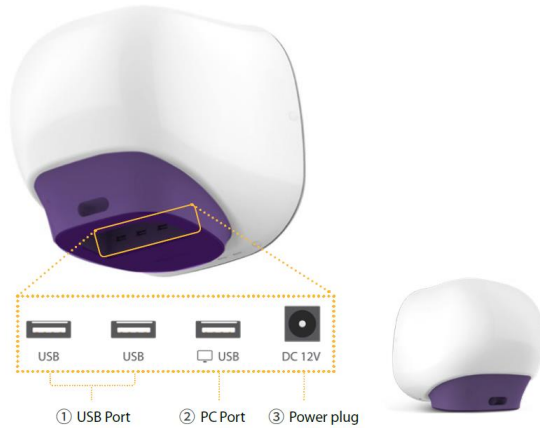


Control buttons	Description
① Door	Slide holder is inserted and ejected.
② Power	Power on / off.
③ LCD	Display processes and results.
④ Auto Focus	Turn on/off the auto focus function. (If the auto focus function is turned off, the autofocus is only activated for the first measurement.)
⑤ START	Performs all procedures of automatic counting.
⑥ LOCK	Protects the alignment of stage from external shock when ADAM™ MC Plus is being moved. Lock ADAM™ MC Plus before turning it off or moving it.
⑦ EJECT	Ejects the slide holder from ADAM™ MC Plus. Functions as unload.
⑧ Sample	Check the sample to be measured and enter the name. Also enter the dilution factor.
⑨ Mode	Select the measurement mode. The default mode is 13 frames for fluorescence and the Fast mode is 6 frames. Real cell size mode is a mode for measuring bright field images. Bead mode is for QC.

Product Description

Rear view of ADAM™ CellIT Plus

The rear view showing various parts of the ADAM™ CellIT Plus.:



Port	Description
① USB Port	Port for software update and save the data.
② PC port	Connects with PC (Only PC Mode).
③ Power Plug	Connects ADAM™ CellIT Plus power cord to wall outlet.

ⓘ **CAUTION**

Do not use the ② PC port. This port does not recognize USB.

Getting started

Environmental requirements

⚠ CAUTION

At low temperature (≤ 10 °C), allow the device to warm up for 10 minutes at ambient temperature before use.

To ensure correct operation and stable performance, install the ADAM™ CellIT Plus in a location which meets the following conditions:

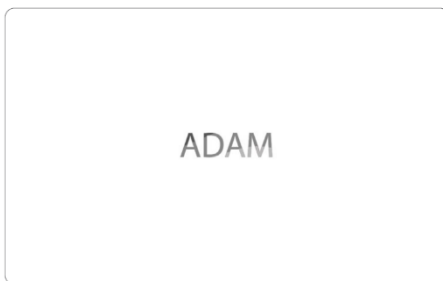
1. Use at room temperature between 20 and 35 °C
 - Not recommended for cold room use (≤ 4 °C).
2. Do not expose the device to direct sunlight.
3. Do not subject the device to direct or continuous vibration.
4. Do not subject the device to intense magnetic or electromagnetic fields.
5. Do not install the device in high-humidity environment.
6. Location of device should be free from corrosive gases or other corrosive substances.
7. Ensure minimal contact with dust or other airborne particles.
8. Allow a 10 cm (4 inches) minimum space around the device for proper airflow.
9. Do not place any objects on the device.

Power on and Initial Display

1. Check the connection of ADAM™ CellIT Plus and power cord.
2. Press the power button for 2–3 seconds. (PC Mode: Double click the “ADAM CellIT icon” to execute the software)

If you get an error message, please contact your local distributor or sales@nanoentek.com.

If booting is successful and no errors are detected, the home screens will be displayed as below.



⚠ CAUTION

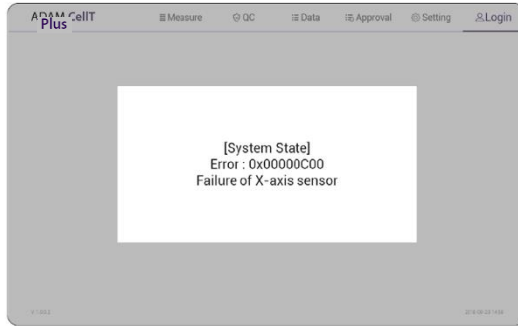
- Do not tilt the device too much in the forward when connecting the power cord.
- Do not move the device after connecting power cord.

When you connect the power cord to ADAM™ CellIT Plus even without power on the device, it will go through self diagnostic tests.

Getting started

Error message during booting

[System State]



It appears when booting is not working properly. Turn off main power and restart device.

If this message still appears after restarting, contact your local distributor or sales@nanoentek.com.

Error code	Cause
0x0000C00	Failure of X-axis sensor
0x00007000	Failure of Y-axis sensor
0x00008000	Failure of Z-axis sensor
0x06000000	Failure of Locking module sensor

Getting started

Count setting

[Cell size]

Set the minimum and maximum size of cell.

Cell size

Min

3

Max

100

[Dilution factor]

When diluting sample, set the Dilution factor.

! CAUTION

Factor values for the Cell viability reagent is already applied.

Dilution factor

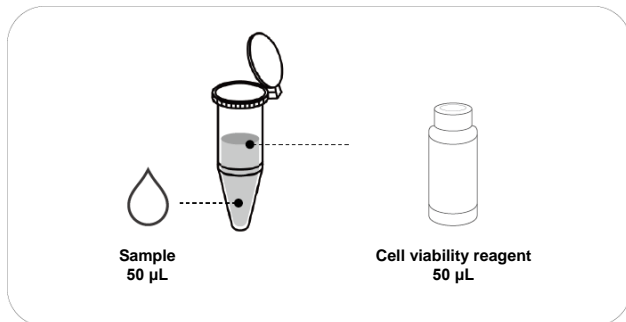
1.0

General Operation

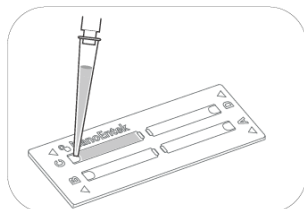
Instruction

Instruction is provided in this section for preparing the sample with Cell viability reagent for use with disposable AccuPlus Slide for automated cell count using the ADAM™ CellT Plus. Please check the procedure of sample preparation and testing below. For more detailed information, please refer to the next page.

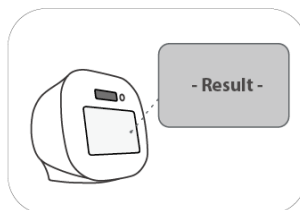
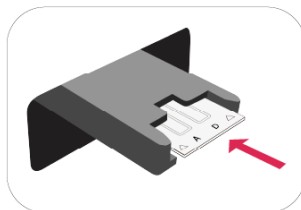
1. Mix the sample with Cell viability reagent.



2. Load 15 μ L of mixed sample. Then, wait 1 minute for the sample settling.



3. Insert AccuPlus Slide. Get the result.



General Operation

Sample preparation

1. Cultivate the required number of cells.

NOTE

Concentration out of this range will result in errors. Refer to page 20 for more information about errors.

2. Thoroughly mix the cell pellet by vortexing or pipetting.
3. Check visually if any cell clumps or agglomerates remain.

Cell counting



[AccuPlus Slide 4 ch]

Counting cell

- 1) Add 50 μ L of your sample to 50 μ L supplied Cell viability reagent.
- 2) Vortex the tube vigorously.
- 3) Load 15 μ L sample mixture to the AccuPlus Slide A,B,C or D channel.
Then, wait 1 minute for the sample settling.

NOTE

When you load of the sample mixture to the AccuPlus Slide, please be careful not to make bubbles.

General Operation

Cell counting

! WARNING

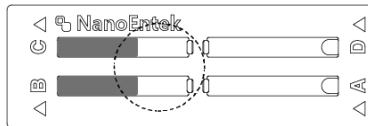
[Sample loading error]

Be cautious of loading the correct volume of the sample into AccuPlus Slide. The instrument will not detect low or high sample volumes.

Correct volume

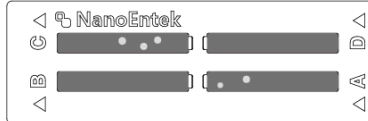


Low volume



! CAUTION

Avoid bubbles which may negatively affect the result.



General Operation

Cell counting

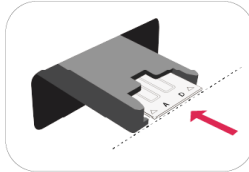


WARNING

[AccuPlus Slide insert error]

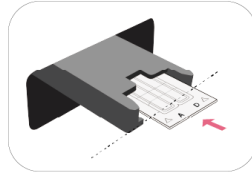
Completely insert AccuPlus Slide face up, in the direction of the arrow on the slide. The instrument will not detect if slides are inserted incorrectly.

See pictures below for proper insertion.



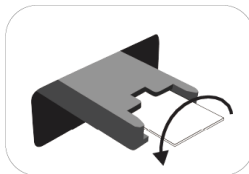
(O)

Correctly inserted



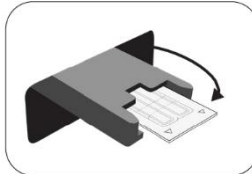
(X)

Not fully inserted



(X)

Upside down inserted



(X)

Wrong direction inserted

WARNING

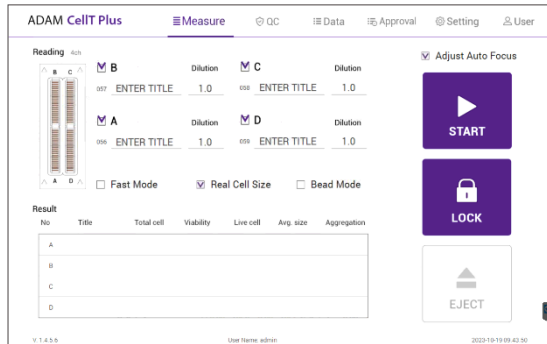
- Please insert or remove the AccuPlus Slide when the slide holder is fully ejected.
- When the test is finished, please remove the AccuPlus Slide from the slide holder.

Measure

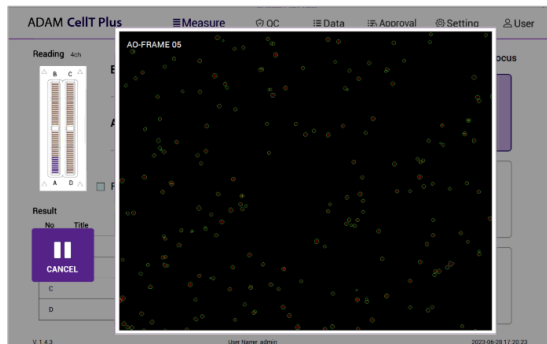
Run sample

Start counting process by pressing 'START'.

It may take about 2 minutes longer for auto focus at the initial test.



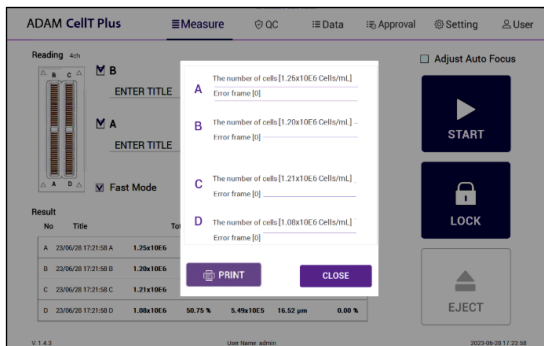
While the test is in progress, you can check the cell images of each channel.



Measure

Result analysis

The result will be displayed after being automatically calculated by ADAM™ CellIT Plus software.



Title	Number of Total cell	Number of Non-Viable cell	Viability
Viability 01	1.10E6	5.50E5	50%
Viability 02	2.20E6	5.50E5	75%

- The viability will be automatically calculated by the ADAM™ CellIT Plus software after each measurement of the total cells and the non-viable cells.
- First, the total cell number and second, non-viable cell number are measured and then the cell viability is calculated as subtracting

NOTE

'Print' button will be automatically activated when portable printer (optional) is connected.

Measure

Result Analysis

Error code

ADAM CellIT Plus Measure QC Data Approval Setting User

Data List 2023/09/19 ~ 2023/09/19

All	No	CH	Slide	Sample	Exp. Name	Date/Time	Total	Viability	Live	Dead	Avg. sz.	Start Date
<input type="checkbox"/>	0001	C34	D	055 23/10/13 14 41	admin	2023-10-13 14:41:00	2.95e1187 (G)	98.60%	1.83e1167	7.55e1106	9.79µm	2023 / 09 / 19
<input type="checkbox"/>	0002	C34	C	094 23/10/13 14 41	admin	2023-10-13 14:41:00	1.20e1182 (F)	98.60%	6.17e1108	3.81e1105	9.79µm	2023 / 10 / 19
<input type="checkbox"/>	0003	C34	B	053 23/10/13 14 41	admin	2023-10-13 14:41:00	3.21e1105	71.20%	2.29e1105	6.21e1105	9.80µm	
<input type="checkbox"/>	0004	C34	A	052 day1	admin	2023-10-13 14:41:00	3.29e1105	98.96%	3.39e1105	6.52e1105	9.79µm	
<input type="checkbox"/>	0007	C34	D	051 23/10/13 14 34	admin	2023-10-13 14:34:10	3.22e1105	70.80%	2.26e1105	9.56e1105	9.79µm	
<input type="checkbox"/>	0006	C34	C	050 23/10/13 14 34	admin	2023-10-13 14:34:10	3.22e1105	70.80%	2.26e1105	9.41e1105	9.79µm	
<input type="checkbox"/>	0005	C34	B	049 23/10/13 14 34	admin	2023-10-13 14:34:10	3.16e1105	98.96%	2.21e1105	6.25e1105	9.77µm	
<input type="checkbox"/>	0004	C34	A	048 day1	admin	2023-10-13 14:34:10	3.24e1105	71.80%	2.33e1105	9.14e1105	9.75µm	
<input type="checkbox"/>	0003	C34	D	047 23/10/13 14 27	admin	2023-10-13 14:27:41	3.15e1105	71.60%	2.26e1105	9.15e1105	9.79µm	
<input type="checkbox"/>	0002	C34	C	046 23/10/13 14 27	admin	2023-10-13 14:27:41	3.24e1105	71.60%	2.30e1105	9.41e1105	9.79µm	
<input type="checkbox"/>	0001	C34	B	045 23/10/13 14 27	admin	2023-10-13 14:27:41	3.15e1105	71.60%	2.21e1105	9.81e1105	9.78µm	

V. 1.2.3.0 User Name: admin 2023-10-19 11:30:34

Error code	Cause
E	Frames with errors are over 50% of total counting frame.
O	Cells are more than 2×10^7 cells/mL.
H	Cells are more than 1×10^7 cells/mL.
L	Cells are less than 4×10^5 cells/mL.
U	Cells are less than 5×10^4 cells/mL.
Error frame [#]	Frame with error that contains cells whose diameter is larger than 100µm. When this error shown in result window, please check the image.

QC

QC Mode

The QC Mode uses QC Slide (optional) to check equipment QC status by date at a glance.

[Activation of QC mode]

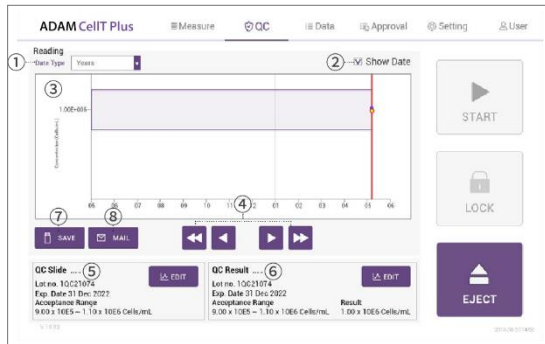
To activate 'QC' mode, an activation code must be entered.

1. Select 'QC' tab from top menu.
2. Enter lot no. and activation code. Then, click 'APPLY' button. Slide lot no. and activation code can be found on the plastic package label. See below for details.



NOTE

A unique activation code is given for each instrument, and its authenticity can be checked by registering activation code.

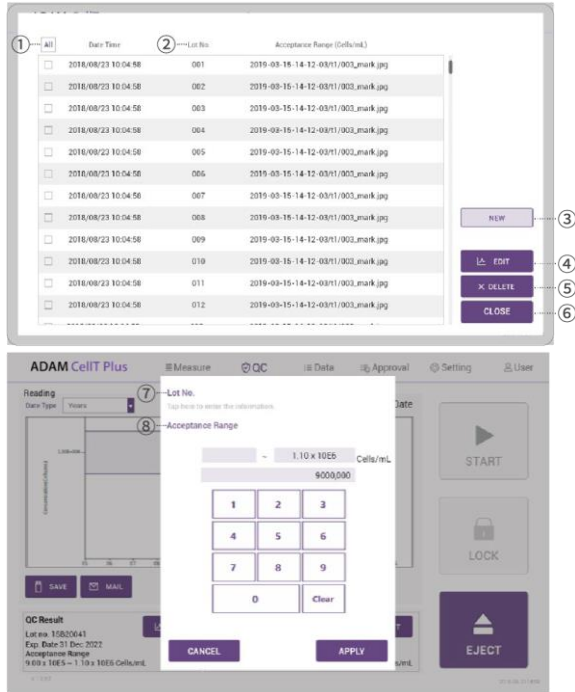


Control buttons	Description
① Data Type	QC result graph unit (Years, Months, Days, No. [Index])
② Show Data	Displays the date of QC progress on the graph
③ QC Result Graph	Graph left/right (QC date, number) movement button
④ Arrow Button	Graph left/right (QC date, number) movement button
⑤ QC Slide	QC Slide Lot. information and editing (create, edit, delete) functions
⑥ QC Result	QC result information and editing (whether or not graph is displayed, deleted) function
⑦ SAVE	Saves the QC Result Report to USB
⑧ MAIL	Sends the QC Result Report to e-mail

WARNING

QC Mode must use the QC Slide (optional), and the result without using the QC Slide is unreliable.

The QC Mode uses QC Slide (optional) to check equipment QC status by date at a glance.



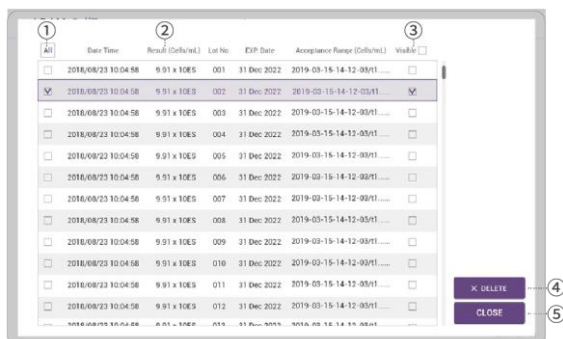
Control buttons	Description
① All	Selects all QC Slide lot to delete from the QC Slide lot List
② QC Slide List	Provides registered QC Slide lot information list
③ New	Registers new QC Slide lot
④ Edit	Edits selected QC Slide lot
⑤ Delete	Deletes selected QC Slide lot
⑥ Apply/Close	Applies function or closes selected QC Slide lot
⑦ Lot No. (New/Edit)	QC Slide Lot No. input field to create new or edit lot number
⑧ Acceptance Range (New/Edit)	QC Slide acceptance range input field to enter new or edit range values

NOTE

- The QC Slide lot and Acceptance Range can be found at the top of the QC Slide.
- Expired QC Slide cannot be selected.

QC

QC Slide Result Edit

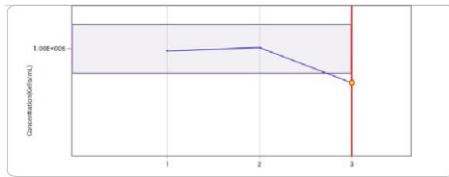


Control buttons	Description
① All	Selects all QC result to delete from the QC result List
② QC Slide List	QC result information list
③ Visible	Selects all QC result to display graph from the QC result List.
④ Delete	Deletes selected QC result
⑤ Apply/Close	Applies visible function or closes QC result

QC

QC Slide Result

QC result acceptance criteria:



Experiment Date Time :	2022-07-05, 03:26 PM
Slide Lot :	1858988
Exp date :	2022-07-06, 03:30 PM
Acceptance Range :	$9.00 \times 10^5 - 1.10 \times 10^6$ Cells/mL
Acceptance Slide Peak Size :	13-16 μ m
Concentration :	0.45×10^6 Cells/mL
Slide Peak Size :	15 μ m
Result :	Fail

•The QC Slide result acceptance criteria include the acceptance range (different for each QC Slide lot) and the acceptance slide peak size (13 ~ 16 μ m)

NOTE

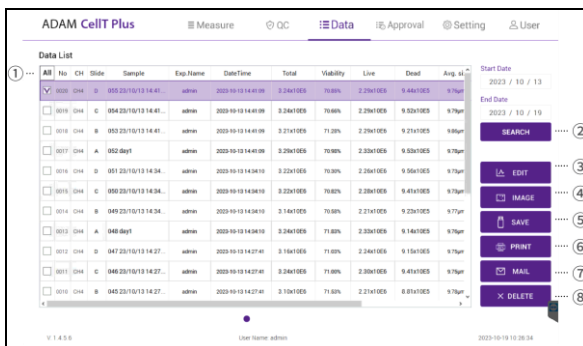
- The acceptance range of the selected QC slide lot is displayed on the graph as a purple area.
- Acceptance slide peak size results can be found in the ADAM™ CellIT Plus Test report.

WARNING

Contact sales@nanoentek.com or your local distributor if the QC result does not come within the acceptance criteria.

Data

Data list



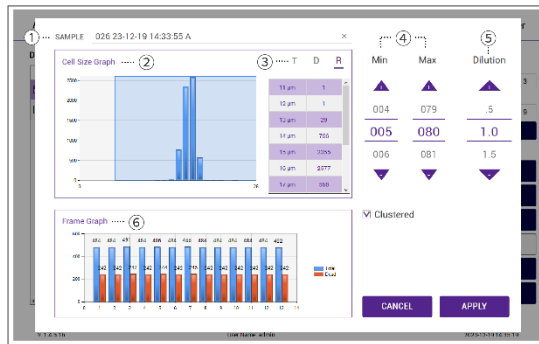
Control buttons	Description
① ALL	Select all data in Data List.
② SEARCH	Display the data of the selected date.
③ EDIT	View and edit the data. Multiple data can be edited with the same settings.
④ IMAGE	Check the cell images of each channel.
⑤ SAVE	Save the selected data to USB (PDF, Excel, Image).
⑥ PRINT (optional)	Prints the selected data.
⑦ MAIL	Send the Excel, PDF, and Image files of selected data to e-mail. Delete the selected data.
⑧ DELETE	Delete the selected data.

① **NOTE**

'PRINT' button will be automatically activated when portable printer (optional) is connected.

Data

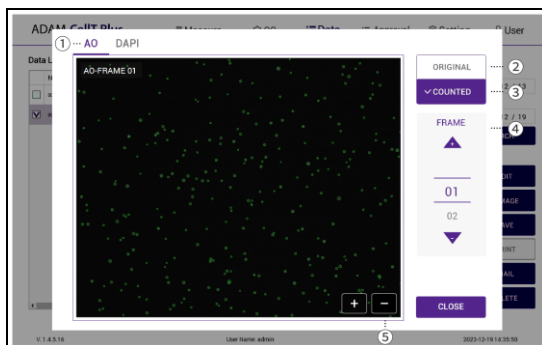
EDIT



Control buttons	Description
① Sample	Edit the sample name.
② Cell size graph	Allows to view the cell size graph for each channel.
③ Cell size table	Allows to view the number of cells in each cell size. T=Total cell (AO), D=Dead cell (DAPI), R=Real cell size(Bright)
④ Cell size setting	Set the min/max size of the cell.
⑤ Dilution Factor	Set the dilution factor of sample. (Factor values for the Cell viability reagent is already applied.)
⑥ Frame graph	Allows to view the counted cell number of each frame.

Data

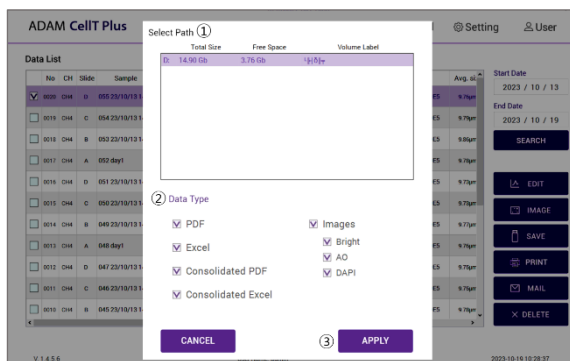
IMAGE



Control buttons	Description
① Channel	Select a channel.
② Original	Check the original image.
③ Counted	Check the counted cell image.
④ Frame	Select a frame number of the channel.
⑤ Zoom-in/out	Zoom in and out to check the cell image.

Data

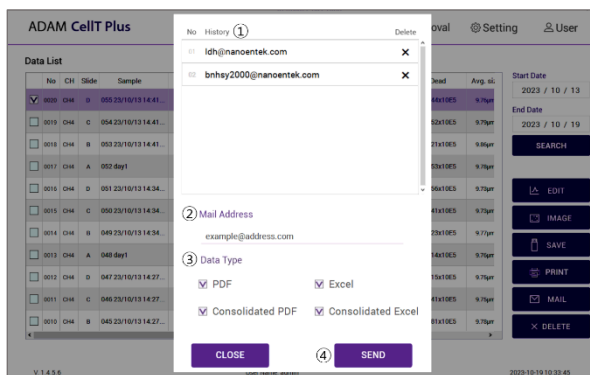
SAVE



Control buttons	Description
① Select Path	Selects a save path from the list to send the selected data.
② Data Type	Selects which data type to save.
③ Apply	Exports the files to a selected save path Files can be sent to only one save path at a time.

Data

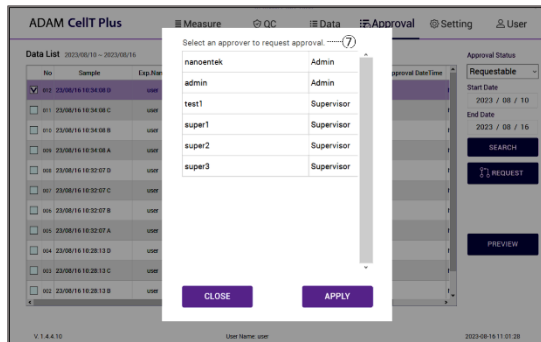
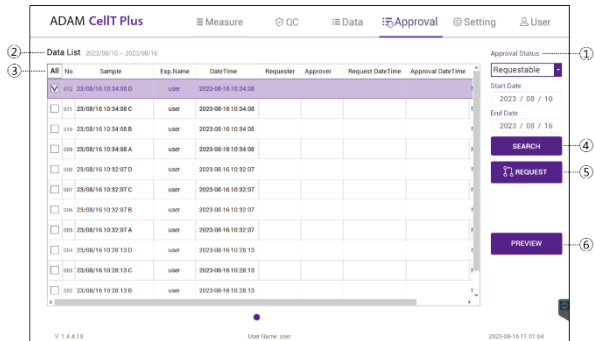
MAIL



Control buttons	Description
① History	Selects e-mail address from the list to send data The e-mail address where data has been sent will be saved.
② Mail Address	To send files to new e-mail, enter the applicable e-mail address.
③ Data Type	Selects which data type to send via e-mail
④ Send	Send the files to a selected e-mail address. Files can be sent to only one e-mail at a time.

Approval

Requestable

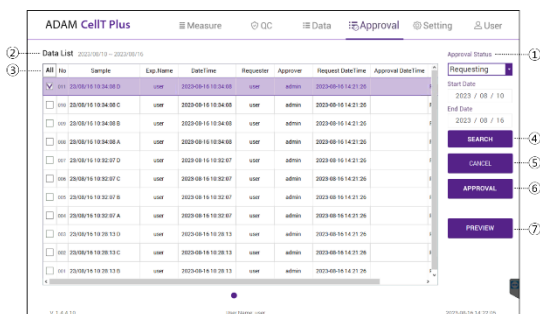


Control buttons	Description
① Approval Status	Settings tab related to data approval such as Requestable, Requesting, Approvable, and Approved.
② Data List	List of data that can check status information related to approval.
③ All	Select all data in Data List
④ Search	Display the data of the selected date.
⑤ Request	Request approval of selected data.
⑥ Preview	Select Preview to check the results before approval or requesting approval. (Providing preview in a PDF format)
⑦ Select approval	Select an approval to request approval.

NOTE

- Approval can only be done by an approver who has been granted Approval authority in the Privilege setting.
- Approved data displays approval status on Data Tab. (Approval: O / Approval in progress: △ / Not approved X).
- Data in the process of approval cannot be edited or deleted.
- Approved data cannot be edited.

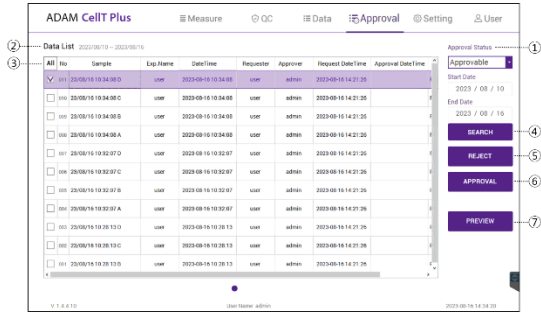
Approval Requesting



Control buttons	Description
① Approval Status	Settings tab related to data approval such as Requestable, Requesting, Approvable, and Approved.
② Data List	List of data that can check status information related to approval.
③ All	Select all data in Data List
④ Search	Display the data of the selected date.
⑤ Cancel	Cancel approval of selected data in the process of approval.
⑥ Approval	Direct approval by only entering the approver's password without approver login.
⑦ Preview	Select Preview to check the results before approval or requesting approval. (Providing preview in a PDF format)

Approval

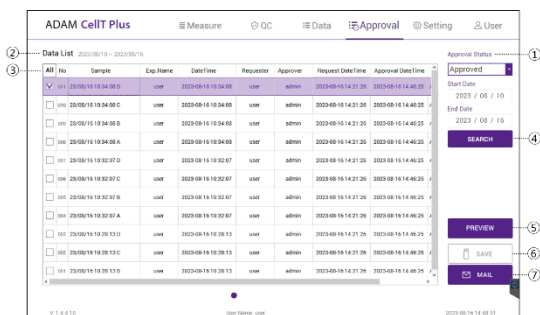
Approvable



Control buttons	Description
① Approval Status	Settings tab related to data approval such as Requestable, Requesting, Approvable, and Approved.
② Data List	List of data that can check status information related to approval.
③ All	Select all data in Data List
④ Search	Display the data of the selected date.
⑤ Reject	Reject approval of selected data in the process of approval.
⑥ Approval	Approval of the data selected during the approval process.
⑦ Preview	Select Preview to check the approvable approval results. (Providing preview in a PDF format.)

Approval

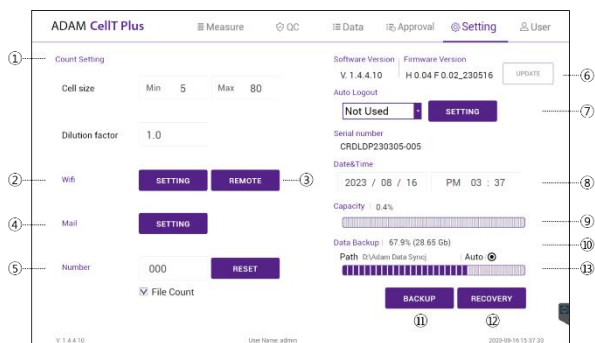
Approved



Control buttons	Description
① Approval Status	Settings tab related to data approval such as Requestable, Requesting, Approvable, and Approved.
② Data List	List of data that can check status information related to approval.
③ All	Select all data in Data List
④ Search	Display the data of the selected date.
⑤ Preview	Select Preview to check the requesting approval results. (Providing preview in a PDF format)
⑥ SAVE	Save the selected approval data to USB.
⑦ MAIL	Send the selected approval data to e-mail.

Approval

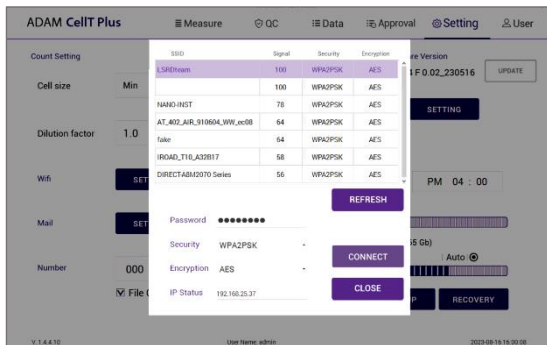
Setting



Control buttons	Description
① Count setting	Set the conditions in the setting tap before counting. <i>Refer to page 14 for more information.</i>
② Wifi	Sets the wifi to use the e-mail or remote support function.
③ Remote support	Connects to remote support software.
④ Mail	DO NOT change the setting in mail.
⑤ Number	Selects auto-numbering.
⑥ Update	Updates firmware or software through USB.
⑦ Auto Logout	Sets auto logout time.
⑧ Date&Time	Sets current date and time.
⑨ Capacity	Checks remaining capacity.
⑩ Data Backup	Allows to view the storage path of additional data backup.
⑪ Backup	Sets backup (automatic, manual) function.
⑫ Recovery	Runs recovery (automatic, manual) function.
⑬ Auto Backup Informations	Allows to view the working automatic backup information. (Sync=O, SDMS=., Sync+SDMS=○)

Setting

Wifi



1. Click the 'Refresh' button.
2. Select the wifi.
3. Insert the password of selected wifi.
4. Click the 'Connect' button.

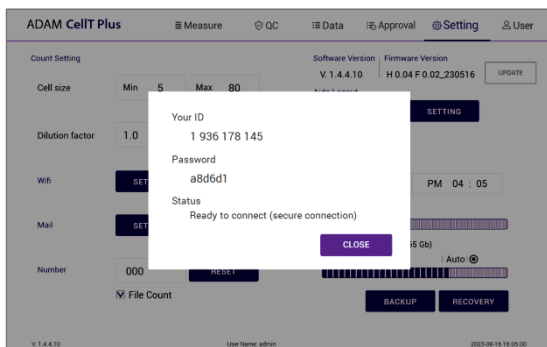
! CAUTION

If connection error occurs, please contact a laboratory facility manager.

! NOTE

In PC Mode, please use internet (Windows).

Remote support



1. Connect to wifi.
2. Click 'Remote support' button.
3. Share your ID and password to NanoEntek.

! NOTE

The remote support feature is to be used for maintenance only by request of NanoEntek.

! WARNING

If you do not see your Remote Support ID and Password, click the 'Close' and 'Remote Support' button again until they appear.

Setting

Update

1. Prepare the USB with update file.
2. Insert the USB.
3. Click the UPDATE button.

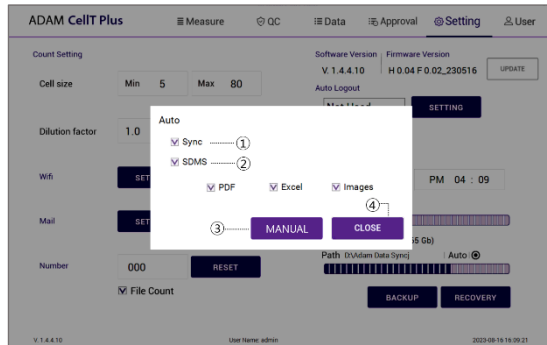
! CAUTION

- The 'AdamUpdate' folder must exist in the root path of the USB folder.
- ADAM™ CellT Plus can be updated only when the firmware or software file exists in the 'AdamUpdate' folder. The 'ADAM™ CellT Plus.exe' file should be in the 'AdamUpdate' folder.
- Do not rename the 'AdamUpdate' folder. The folder name should be 'AdamUpdate'.

Auto logout

The auto logout time can be set to 5, 15, 30, 45, or 60 minutes.

Backup



Control buttons	Description
① Auto-Sync	Real-time automatic backup of counted data required for automatic recovery
② Auto-SDMS	Real-time automatic backup of counted data required for SDMS (Scientific Data Management System) interworking
③ Manual	To manually back up the counted data required for manual recovery
④ Apply/Close	Applies function or closes selected QC Slide lot

! NOTE

Auto-SDMS backup is available only for approved data.

! CAUTION

Please be cautious as data may be lost when Auto Backup (Sync) is turned off.

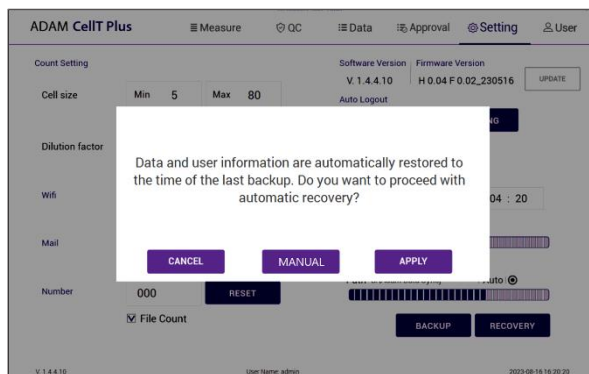
! WARNING

- DO NOT remove an external hard drive for backup at any time as it may cause data loss.
- If you change backup data path, auto backup function becomes inactive. DO NOT change data path as it may cause backed up data loss.

We are NOT responsible for such error or problem mentioned above.

Setting

Recovery



- Restore counted data to the point of the last automatic backup (Sync).
- Manual recovery restores manually backup counted data.

! **NOTE**

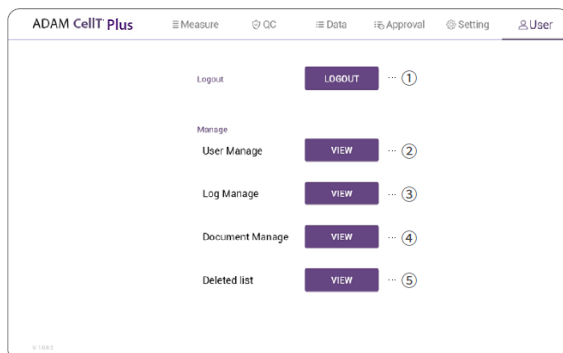
The automatic backup function is turned off after recovery, please re-enable the automatic backup function.

! **CAUTION**

Please be careful with manual recovery, because counted data that is not manually backed up will be lost.

User

User



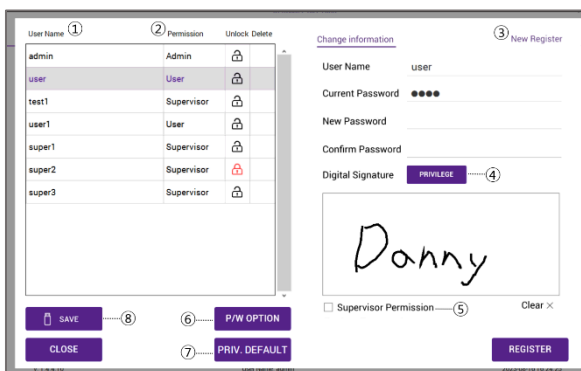
Control buttons	Description
① Logout	To logout
② User manage	To register user
③ Log manage	Tracks user access records
④ Document manage	Tracks management document records
⑤ Deleted list	Tracks deleted data records

ADAM™ CellT Plus provides a comprehensive solution to comply with the requirements of the 21 CFR Part 11 rule.

Please see the appendix for more information on these features.

User

User manage

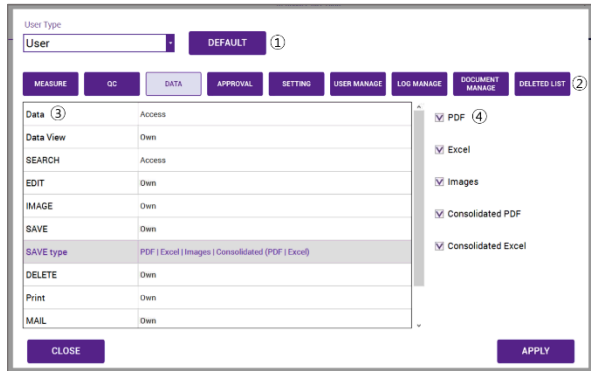


Control buttons	Description
① User Name	To view the registered user list.
② Permission	To view the user access authority
③ New Registration	To register new user
④ Privilege	Option for permission setting
⑤ Supervisor Permission	To register as a supervisor
⑥ Password Option	To set password
⑦ Privilege Default	Option for default permission setting (supervisor, User)
⑧ Save	Download the permissions of users in the user list as an Excel file.

User

Privilege

The Admin can grant or release access to functions when creating or editing new users (Supervisor, User).



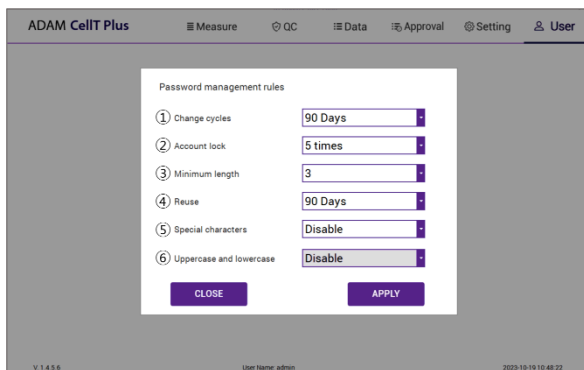
Control buttons	Description
① User Type&Default	Selects account level and sets default permissions
② Tab	Tab for permission Settings
③ Function list	Detailed functions for each permission setting tab
④ Detailed function	List of possible permission settings for each function

NOTE

Granting basic access rights for each user (For the default access rights for each user, refer to the ADAM™ CellIT Plus SW 21 CFR PART11 requirement support appendix).

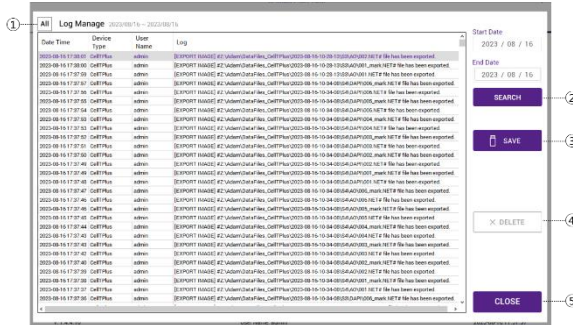
User

Password Option



Control buttons	Description
① Change cycles	Set password change interval (30, 90, 180 days).
② Account lock	Number of incorrect passwords in account lockout ($\leq 3, 5, 10, 15$).
③ Minimum length	Minimum length of password ($\leq 3, 5, 10, 15$).
④ Reuse	Prohibition of using the same password for a certain period of time ($\leq 30, 90, 180, >180$ days).
⑤ Special characters	Use at least one special character.
⑥ Uppercase and lowercase	Use at least one uppercase letter.

User Log manage



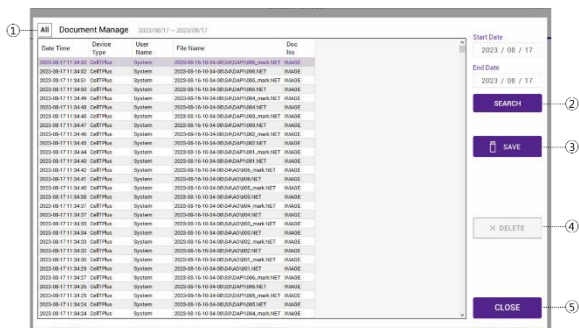
Control buttons	Description
① ALL	Select all data in Data List.
② SEARCH	Display the data of the selected date.
③ SAVE	Save the selected data to USB.
④ DELETE	Delete the selected data.
⑤ CLOSE	Close the log manage.

NOTE

The search period is limited to 90 days (Except PC Mode).

User

Document manage

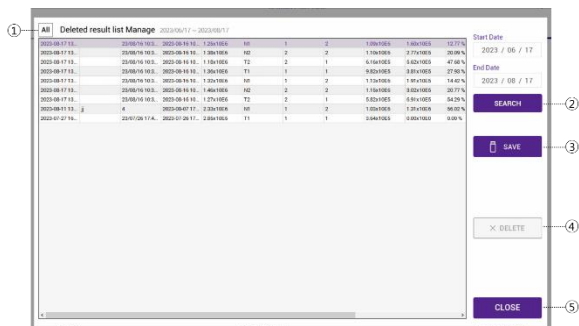


Control buttons	Description
① All	Select all data in Data List.
② SEARCH	Display the data of the selected date.
③ SAVE	Save the selected data to USB.
④ DELETE	Delete the selected data.
⑤ CLOSE	Close the log manage.

① NOTE
The search period is limited to 90 days (Except PC Mode).

User

Deleted list



Control buttons	Description
① All	Select all data in Data List.
② SEARCH	Display the data of the selected date.
③ SAVE	Save the selected data to USB.
④ DELETE	Delete the selected data.
⑤ CLOSE	Close the deleted list.

NOTE
The search period is limited to 90 days (Except PC Mode).

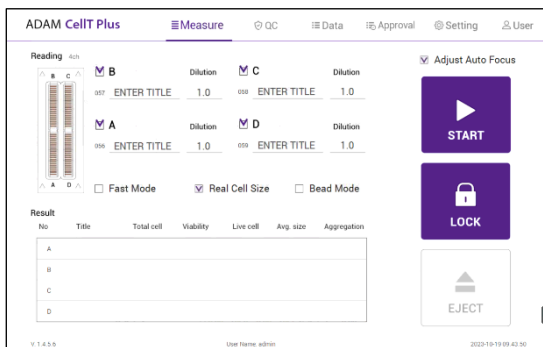
Power off

Lock

Press  LOCK before turning off the device.

If there is no operation for 1 minute, the lock function will be activated automatically.

When the device is locked, the screen will be changed as shown below.



Power off

If you press the power button 2~3 seconds, then 'Slide to shut down your PC' message will appear. Slide down the screen to turn off the power.



NOTE

In PC mode, press the 'X button (quit)' to turn off the power.

Maintenance and cleaning

Maintenance and cleaning

1. ADAM™ CellIT Plus does not need regular maintenance.
2. ADAM™ CellIT Plus has no replacement of consumable materials.
3. Please clean the exposed surface of ADAM™ CellIT Plus frequently or before testing, using a soft cloth and isopropyl alcohol or deionized water.

ⓘ CAUTION

Dispose of wipes in an appropriately labeled solvent contaminated waste container.

Trouble shooting

Trouble shooting

Problem	Description	Solution
ADAM™ CellT Plus does not power up	No power from outlet Bad power cord.	Check power source. Replace.
Inaccurate result	Cell number may be out of range. Cell viability reagent has expired. Too high clumped cells.	Adjust the number of cells to recommended concentration (refer to page 49). Discard Cell viability reagent that have expired. Purchase the Cell viability reagent (refer to page 49). Try again after vortexing the cells.
When error message is shown (For information on each error message, see page 20)	When frames with errors are over 50% of total counting frame. (Error message: E)	Check the suspension of cells if all cells are fully dissociated into single cells. If contaminants except cells are found, prepare sample again.
	High concentration of cells (Error message: H) Over detection range (Error message: O)	Check if concentration of cell is too high. Dilute the sample and count again.
	Low concentration of cells (Error message: L) Under detection range (Error message: U)	Check if concentration of cell is too low. Use concentrated sample and count again.

Warranty

Warranty

If any defects occur in the ADAM™ CellIT Plus during one (1) year warranty period, NanoEntek will repair or replace the defective parts at its discretion without charge. The following defects, however, are specifically excluded:

1. Defects caused by improper operation.
2. Repair or modification done by anyone other than NanoEntek or an authorized agent.
3. Damage caused by substituting alternative parts.
4. Use of fittings or spare parts supplied by anyone other than NanoEntek.
5. Damage caused by accident or misuse.
6. Damage caused by disaster.
7. Corrosion caused by improper solvent or sample.

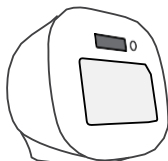
For your protection, items being returned must be insured against possible damage or loss. NanoEntek cannot be responsible for damage incurred during shipment of a repair instrument. It is recommend that you save the original packing material in which the instrument was shipped. This warranty should be limited to the replacement of defective products.

For any inquiry or request for repair service,
Contact sales@nanoentek.com or your local distributor.

For extended warranty purchase, contact sales@nanoentek.com.

Technical specifications

Technical Specifications



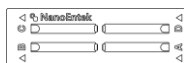
ADAM™ CellIT Plus	
Measuring range	5x10 ⁴ ~ 2x10 ⁷ cells/mL
Optimal range	4x10 ⁵ ~ 1x10 ⁷ cells/mL
Analysis time*	Please refer to following table.
Voltage	DC12V
Current	5A
Objective lens	4X
LED	Green, Blue, UV
Camera	CMOS camera
Filter	Excitation filter, Dichroic filter, Emission filter
Weight	7 kg
Size (WxLxH)	277 × 276 × 270 mm
Degree of protection	IPX0

► Analysis time*

Mode (channel)	Auto Focus (on)	Auto Focus (off)	Frame of capture
Bead mode (BF/AO/DP)	80 sec/test		13 frames
Accuracy mode (AO/DP, Default)	35 sec/test	17 sec/test	13 frames
Real + Accuracy (BF/AO/DP)	65 sec/test	35 sec/test	13 frames
Fast mode (AO/DP)	28 sec/test	10 sec/test	6 frames

Operating environment condition

Temperature	5 °C ≤ Temperature ≤ 40 °C
Humidity	20 % ≤ Humidity ≤ 80 %
Altitude	Altitude ≤ 2,000 m



AccuPlus Slide	
Loading sample vol.	15 µL/test
Measuring sample vol.	3.2 µL/test

Solutions

Cell viability Reagent	20 mL / bottle
------------------------	----------------

Storage temperature

AccuPlus Slide	0 ~ 30 °C
Cell viability reagent	2 ~ 8 °C

Expiration date

AccuPlus Slide	2 years
Cell viability reagent	1 year 2 months after opening

Product list

Product list

Cat. No.	Description	Contents
ADAM CellIT Plus	Fluorescence cell analyzer	<ul style="list-style-type: none">• Main device• User manual
APAD-400	Cell viability reagent	<ul style="list-style-type: none">• 20 mL x 1 bottle (400 Tests)• Acridine orange (AO) & 4',6-diamidino-2-phenylindole (DAPI) stain
AP4S-100	AccuPlus Slide 4ch.	<ul style="list-style-type: none">• 4ch. Slide 100ea

► Accessories

Cat. No.	Description	Q'ty
ADAM CellIT PC	PC (Only PC mode)	1
QCS-002	QC slide (Optional)	1
ADAM CellIT Printer	Portable printer (Optional)	1

Safety precautions

Review and follow the safety instructions below:

- If water or other material enters the instrument, the adaptor, or power inlet, disconnect the power cord and contact a service person. For operating environment, refer to Product Specifications.
- Do not touch the main plug or power cord with wet hands.
- Always ensure that the power supply input voltage matches the voltage available at your location.
- This instrument is air-cooled and its surfaces may become hot during operation. When installing, leave a space of more than 10 cm (4 inches) around the instrument and do not place any objects between the instrument and walls.
- Do not install an instrument on a slant or a place prone to vibrations, which induces the risk of malfunction or damage of the instrument.
- Never insert any objects into the air vents of the instrument as this can result in electric shock, personal injury, and equipment damage.
- Plug the power cord firmly into the wall outlet and AC adapter.
- To avoid potential shock hazard, make sure that the power cord is properly grounded.
- Be sure to position the instrument such that it is easy to disconnect.
- Turn off an instrument before unplugging the power cord and/or moving the instrument.
- If an instrument is dropped or broken, disconnect the power cord and contact a service person. The warrant will be void in case of disassembly.
- Use only authorized accessories (adaptor, power cord, and USB drive).



WARNING

Class A equipment is intended for use in an industrial environment. In the documentation for the user, a statement shall be included drawing attention to the fact that there may be potential difficulties in ensuring electromagnetic compatibility in other environments, due to conducted as well as radiated disturbances.

Mesures de sécurité

Examiner et suivre les instructions en matière de sécurité ci-dessous:

- Si de l'eau ou d'autres matières entrent dans l'instrument, l'adaptateur, ou l'entrée de la prise, débrancher le cordon d'alimentation et contacter un technicien de service. Pour l'environnement d'exploitation, se reporter aux Spécifications du Produit.
- Ne pas toucher la prise principale ou le cordon d'alimentation avec les mains mouillées.
- S'assurer toujours que la tension d'alimentation correspond à la tension disponible à votre localisation.
- Cet instrument est refroidi à l'air et ses surfaces peuvent devenir chaudes pendant le fonctionnement. Lors de l'installation, laisser un espace de plus de 10 cm (4 pouces) autour de l'instrument et ne placer aucun objet entre l'instrument et les murs.
- Ne pas installer d'instrument sur une pente ou un endroit sujet aux vibrations, qui entraînent un risque de défaillance ou de détérioration de l'instrument.
- Ne jamais insérer d'objets dans les événements d'air de l'instrument, car cela peut causer des chocs électriques, des blessures corporelles et des dommages de l'instrument.
- Mettre le cordon d'alimentation fermement dans la prise murale et l'adaptateur courant alternatif.
- Pour éviter tout risque de choc, s'assurer que le cordon d'alimentation est correctement mis à la terre.
- S'assurer de positionner l'instrument de telle sorte qu'il soit facile à débrancher.
- Éteindre l'instrument avant de débrancher le cordon d'alimentation et/ou de le déplacer.
- En cas de chute ou de rupture d'un instrument, débrancher le cordon d'alimentation et contacter un technicien de service. La garantie sera annulée en cas de démontage.
- Utiliser uniquement les accessoires autorisés (adaptateur, cordon d'alimentation et clé USB).












AVERTISSEMENT

L'équipement de classe A est destiné à être utilisé dans un environnement industriel. Dans la documentation pour l'utilisateur, une déclaration doit être incluse pour attirer l'attention sur le fait qu'il peut y avoir des difficultés à assurer la compatibilité électromagnétique dans d'autres environnements, en raison de perturbations aussi bien conduites que radiées.

Safety symbols

Safety symbols

The following symbols are found on the instrument and this document. Always use the equipment in the safest possible manner.

Symbol	Meaning
	Caution & Warning
	Protective earth (Ground)
	Power On/Off
	The moving parts symbol indicates areas of the medical device in which moving parts can cause injuries. Do not operate the medical device with the door open.
	This instrument has been tested and found to comply with the limits for a Class A digital medical device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the instrument is operated in a commercial environment. This instrument generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this instrument in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
	This instrument and consumables conforms to the EC Declaration of Conformity.
	Authorized representative in the European community
	USB Connection
	This product conforms to UL 61010-1, CAN/CSA C22.2 No.61010-1 "Safety Requirements for Electrical Instrument for Measurement, Control, and Laboratory Use, Part I: General Requirements." This instrument bearing the TÜV symbol are certified by TÜV Product Services to be in conformance with the applicable safety standard for the US and Canada.

Warnings

Warning

1. After using device, please turn off main power.

If not, it may cause malfunction or may reduce product life.

2. When turning off the device, be sure to lock the device with Lock button.

If not, it may cause mechanical problem or error message when device is booting.

Item	Warning
Battery inside device	<ul style="list-style-type: none">• Risk of explosion if battery is replaced incorrectly.• This battery is not replaceable by user. Refer to an authorized service person.
Cover	<ul style="list-style-type: none">• Do not remove cover or disassemble case. There are no adjustable components inside the instrument.• If a malfunction is found, refer to an authorized service person.
Manual	<ul style="list-style-type: none">• Do not attempt to service the equipment.• This manual is only available in English.• Failure to heed warnings may result in injury to service provider or operator.
Sample handling	<ul style="list-style-type: none">• Wear personal protective equipment during sampling and testing.• Sample may contain infectious or bio-hazardous agents.• Use capped tubes and lint free wipes. Lint free wipes to be used one time and discarded.
Waste	<ul style="list-style-type: none">• After using AccuPlus Slide, appropriately dispose as bio-hazardous waste.• Do not reuse AccuPlus Slide.

Technical support

Visit our Website at www.nanoentek.com for:



- Technical resources, including manuals, FAQs, etc.
- Technical support contact information
- Additional product information and special offers

For more information or technical assistance, please call or email.

NanoEntek, Inc.

851-14, Seohae-ro, Paltan-myeon, Hwaseong-si,
Gyeonggi-do, 18531, Korea
Tel: +82-2-6220-7940
Fax: +82-2-6220-7999

NanoEntek America, Inc.

220 Bear Hill Road, Suite 102, Waltham, MA 02451, USA
Tel: +1-781-472-2558
Fax: +1-781-790-5649

Email

sales@nanoentek.com

Website

www.nanoentek.com

ADAM™ CellT Plus

NESMU-ACTP-001E (V.0.0)



NanoEntek, Inc.

851-14, Seohae-ro, Paltan-myeon, Hwaseong-si

Gyeonggi-do, 18531, Korea

Tel: +82-2-6220-7940

Fax: +82-2-6220-7999

US Corporation

NanoEntek America, Inc.

220 Bear Hill Road, Suite 102, Waltham, MA 02451, USA

Tel: +1-781-472-2558

Fax: +1-781-790-5649

E-mail

sales@nanoentek.com

Website

www.nanoentek.com