KANOMAX
The Ultimate Measurements

Microbial Air Sampler

MODEL 3080 / 3081

User's Manual

List of Components

■Standard

Items	MODEL	Functions
Microbial Air Sampler Main Unit	3080 / 3081	Measurement sampling
AC Adapter	3081-10	Exclusive AC adapter
USB Cable	3080-20	Connects between a PC, the main unit and a printer
RS485 Communication Terminal	3080-21	Communication connecting terminal between the PC and the main unit
USB Memory	3080-40	Stores measurement data
Remote Control	3080-01	Operates the main unit from a distance (Measurement start/stop)
Quick Start Guide	-	Quick guide to the main unit operations
Carrying Case	3080-70	Stores the main unit
Petri Dish Base Adjustment Tool	3080-71	Attaches/detaches a petri dish

■Options

Items	MODEL	Functions
External Printer	DPU-S245-00C-E	Prints measurement data
Printer Roll Paper	TP-202L	10 rolls
Compressed Air Unit	3080-72	Decompresses compressed air and releases atmospheric air

Warning types and classifications are defined as follows in this manual.

Classification

Warning

Warnings in this classification indicate risks that may result in serious injury or death if not observed.

Caution

Warnings in this classification indicate risks that may result in injury or damage to the surrounding objects if not observed.

Notice

Warnings in this classification indicate risks of damage to the product that may void the product warranty if not observed.

Description of Symbols

This symbol indicates a condition that requires caution (including warning). The subject of each caution is illustrated inside the triangle (e.g. the high temperature caution symbol is shown on the left).

This symbol indicates a prohibition. Do not take the prohibited action shown inside or near this symbol (e.g. the disassembly prohibition symbol is shown on the left).

This symbol indicates a mandatory action. A specific action is given near the symbol.

Warning

(Forbidden) Do not use any AC adapter other than the provided one with the instrument.

Using an inappropriate adapter may damage the instrument.
It may generate heat and cause fire.

(Do not remodel/disassemble) Do not disassemble, modify, or attempt to repair the instrument.

This may result in a short circuit and/or a malfunction.

(Proper Handling) Handle the instrument properly in accordance with the instructions provided in this manual.
Failure to do so may cause electric shock, fire, or sensor damage.

(Caution) If abnormal noise, smell, or smoke is observed, or if liquid has entered the instrument, turn off the power immediately, remove the batteries or pull out the plug.
Failure to observe the above may cause electric shock, fire hazard, or damage.
Please contact your local distributor or KANOMAX service center for repair.

Caution

(Proper Handling) Pull out the plug when the instrument is not in use.
Failure to do so may cause electric shock, fire hazard, and circuit damage.

(Proper Handling) Handle the batteries properly in accordance with the following instructions.
Do not use the instrument and batteries in high temperature environments and/or near heat sources. This may cause battery leakage, overheating, explosion and/or fire.

Notice

(Forbidden) Do not use or keep the instrument in hot, humid, and/or dusty environment. Do not expose the instrument to direct sunlight for a prolonged period of time.
The instrument may not function properly out of the specified operational temperature range.

(Forbidden) Do not subject the instrument to strong impact.
Dropping or hitting the instrument may cause damage and malfunction.

(Forbidden) Do not touch the LCD screen with a sharp-pointed object or with excessive pressure.
It may cause distortion of the screen or a malfunction.
A rapid temperature change may cause a malfunction of the screen.

(Proper Handling) When storing the instrument, keep it in a place with an ambient temperature of -10 to 50℃ and no condensation.

(Forbidden) Do not dispose of the instrument as household waste.

Please note that the disposal of the instrument and the AC adapter should be in line with your local or national legislations. For details, please consult with your local distributor.

(Proper Handling) Be sure to use the provided AC adaptor properly.

1. Check that the voltage of the power supply outlet is within the range of the power supply voltage specifications.
2. Use only grounded electrical outlets.
3. When the product is not used for a long period of time, or when the product has to be powered off in urgent cases, remove the AC adapter from the outlet.
4. Do not use the AC adapter in high temperature/humidity environments. Use the adapter under indoor environments at the altitude of 2,000 m or lower.
5. When the power cord or the AC adapter is/are broken, please contact your local distributor or KANOMAX service center for repair.

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1. Part Names and Functions

Name	Functions
1. Dustproof cap	Prevents the entry of dust/foreign matters
2. Sampling head	Collects sampling particles
3. Power switch	Turns the power ON/OFF
4. Handle	For carrying the unit
5. USB port (for PC)	Connects to the PC with the USB cable
6. USB port (for Printer or USB memory)	Connects to a printer with the USB cable Storing measurement results in a USB memory
7. Communication terminal	RS-485
8. DC power terminal	Connect the exclusive AC adapter to this terminal

2. Preparation before Measurement

Charging Batteries

- The instrument operates on the built-in rechargeable battery or an AC adapter. Connect the provided AC adapter to start charging. Recharge time is 2 to 3 hours.

Warming up the Instrument

- A sudden temperature change may cause a measurement error. When bringing in the instrument from a colder place to a warmer place, allow the instrument warm up at least for 10 minutes before measurement.

Cleaning and Disinfection (For more information, please see Chapter 7)

- Remove the dustproof cap and the sampling head. Clean the cap and the head in an ultrasonic cleaning machine and disinfect them in a high pressure sterilizer.
- Wipe the surface of the instrument with sterile paper dampened with disinfectants.
- Wipe the petri dish with sterile paper dampened with disinfectants.
- Dry the dustproof cap, the sampling head, the surface of the instrument and the petri dish at an ambient room temperature.

Attaching a Petri Dish

- Put the petri dish on a designated part and to tighten 3 screws with the Petri Dish Base Adjustment Tool to fix the petri dish.
- Set the sampling head to the designated part and turn the head clockwise to fix.

Power ON/OFF

- To start the instrument, push and hold the power switch. A language on the screen shown when login is a language used on a previous measurement.
- By pushing and holding the power switch at least for 2 seconds on any screen, the power will be turned off.

3. Measurement Procedure

Power ON

- To start the instrument, push and hold the power switch. A language on the screen shown when login is a language which was used on a previous measurement.

Measurement

- Set any required parameters on the setting menu or the measurement menu.
- Select a measurement mode and set measurement parameters.
- Go back to the main screen and tap the measurement start button to start measurement.
- A measurement usually ends automatically. To end a measurement during a measurement, tap the measurement stop button.
- To check measurement results, use the history menu.

Power OFF

- By pushing and holding the power switch at least for 2 seconds on any screen, the power will be turned off.

Error

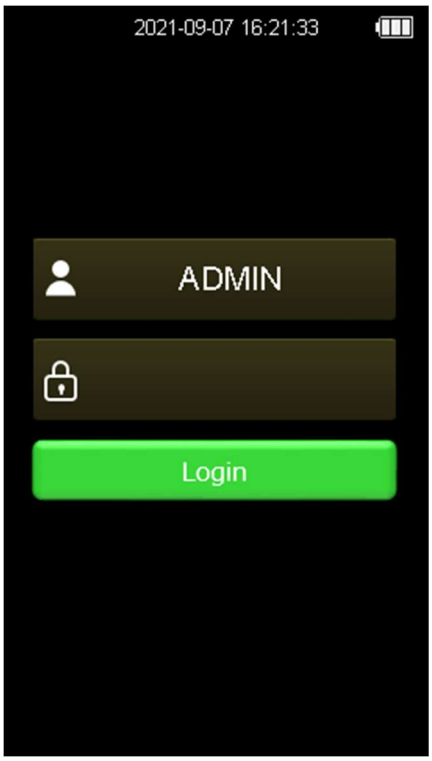
- A flow error will be detected by the self-diagnostic function. But an ongoing measurement will continue.

Flow rate	Do not put anything, including the dustproof cap, on the sampling head. If the error is still shown, the fan might be broken or reach the end of its life.

4. User Screen

Log-in Screen

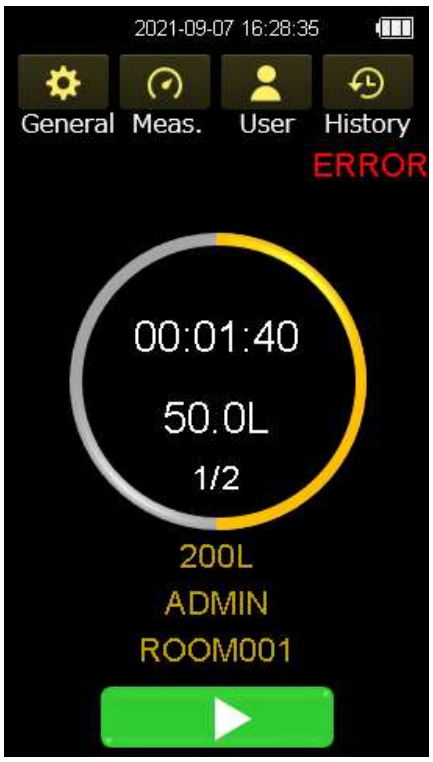
- Input your user name and password and tap the Login button to show the main screen.

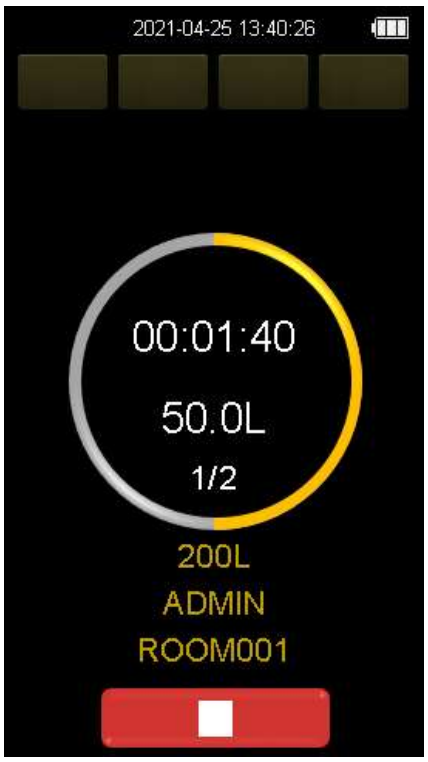


Main Screen

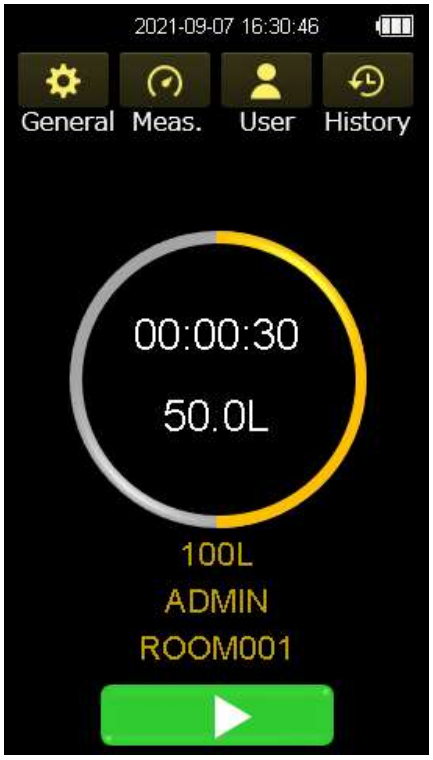
- There are 2 main screens on the measurement mode.

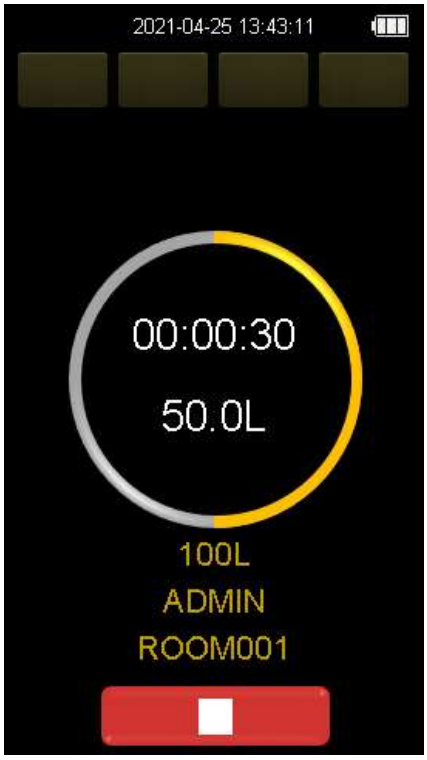
Repeat Mode





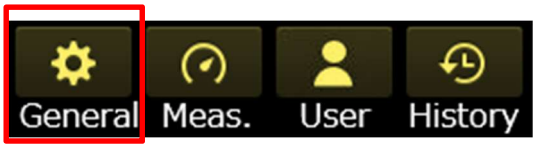
Single Mode

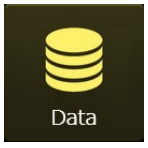


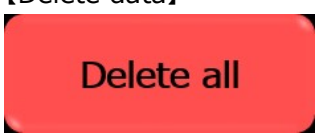


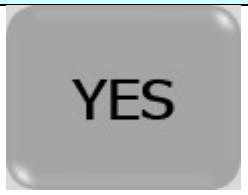
Icon	Name	Functions
	General Setting	Sets Language, Calendar, Data, Sound and Authorization and displays the Information screen.
	Measurement Setting	Sets Mode, RS485, Remote and Save
	User	Creates and/or selects a new user
	History	Logs: Displays operation logs Data: Displays measurement results
	Measurement Start	Starts measurement
	Measurement Stop	Stops measurement
	Measurement Parameter	Real time measurement time : Remaining time until the end of a measurement is displayed. Real time measurement volume : Total measured volume is displayed in a real-time manner. Repeat count: The number of measurement counts you have set and which set of measurement is being conducted are displayed.
	Error	Flow error
	Remaining Battery Level	The indication shows remaining battery levels as below: 100% ⇒ 70% ⇒ 40% ⇒ 10% The icon of the AC adapter
	Measurement Parameter	The total of measurement volume : Operating user : Measurement place :

- Select the General on the main screen to set Language, Calendar, Data, Sound and Authorization. Information displaying is also available.



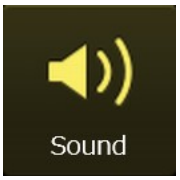
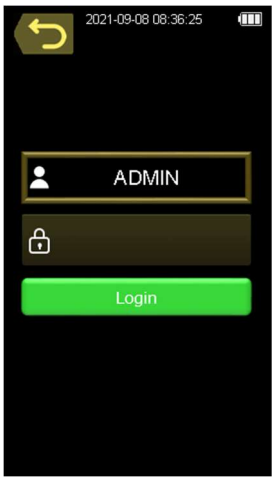
<table>
<tr><th>Icon</th><th>Name</th><th>Functions</th></tr>
<tr><td>
</td><td>Language</td><td>Language
• English, Japanese, Chinese</td></tr>
<tr><td>
</td><td>Calendar</td><td>Calendar setting
• Tap the setting button to display the numeric keyboard and input numbers in the date and time fields.
• 20□□year□□month□□day□□time□□minute□□second</td></tr>
<tr><td>
</td><td>Data</td><td>Checking stored data
• Remaining (%): Displays the free space to the whole memory capacity.
• Number of records: Displays the number of data stored currently.
• Copy all: Copies all data to a USB memory.
• Delete all: Deletes all data. Prior to delete all data, be sure to copy data as needed.
<table>
<tr><th>Step 1</th><th>Step 2</th><th>Step 3</th></tr>
<tr><td>General
↓
Data
 
</td><td>【Copy to a USB memory】

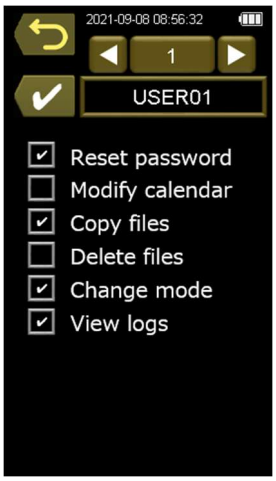
Insert a USB memory into the main unit and tap the Copy all button.
【Delete data】
 

Tap the Delate all button.</td><td> 

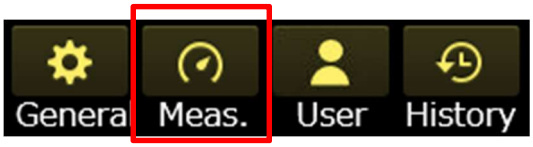
Tap the YES button to execute.

Tap the NO button to exit.</td></tr>
</table></td></tr>
</table>

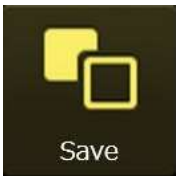
<table>
<tr><th>Icon</th><th>Name</th><th>Functions</th></tr>
<tr><td> 
</td><td>Sound</td><td>Touch screen: Set the operation sounds.
Error status: Set the alarm sounds.</td></tr>
<tr><td rowspan="2">
</td><td rowspan="2">Authorization</td><td>To open the authorization setting screen, enter the registered administrator password. This enables you to set 6 authorizations.
<table><tr><td>Reset password</td><td>Modify calendar</td><td>Copy files</td></tr><tr><td>Delete files</td><td>Change mode</td><td>View logs</td></tr></table></td></tr>
<tr><td>Tap ■ and save the settings with ✓ mark.
 


</td></tr>
<tr><td>
</td><td>Information</td><td>Displays the instrument information.
Last calibration: The last calibration date will be displayed.
Calibration cycle depends on the actual condition of its use. In general, 12-month calibration cycle is recommended.
Version: The version information of the firmware of the main unit will be displayed.</td></tr>
</table>

- Select the Meas. on the main menu to set Mode, RS485, Remote and Save.

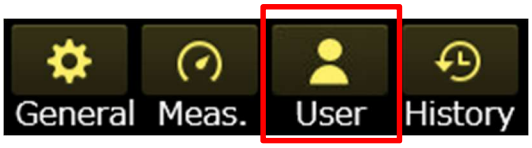


<table>
<tr><th>Icon</th><th>Name</th><th>Functions</th></tr>
<tr><td rowspan="3">
</td><td rowspan="3">Mode</td><td>There are two measurement modes. A measurement is performed in the selected mode in the previous measurement.
• Repeat: Repeats measurements the set number of measurement in accordance with a set delay time.
• Single: Performs a measurement once in accordance with a set delay time.</td></tr>
<tr><td>Setting items required for each measurement mode
<table>
<tr><th></th><th>Location</th><th>Volume</th><th>Delay time</th><th>Interval time</th><th>Repeat count</th></tr>
<tr><td>Repeat</td><td>Set</td><td>Set</td><td>Set</td><td>Set</td><td>Set</td></tr>
<tr><td>Single</td><td>Set</td><td>Set</td><td>Set</td><td>—</td><td>—</td></tr>
</table></td></tr>
<tr><td>Tap indication [redacted] to display a numeric keyboard.
</td></tr>
</table>

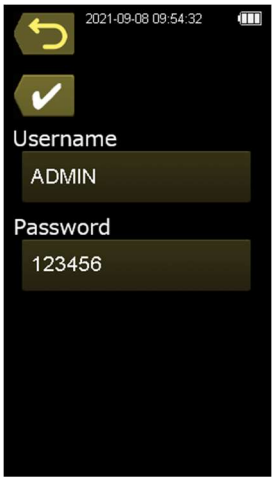
<table>
<tr><th>Icon</th><th>Name</th><th>Functions</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><th>Setting item</th><th>Description</th><th>Range</th></tr>
<tr><td>Location</td><td>Sets the location name to be measured.</td><td>—</td></tr>
<tr><td>Volume</td><td>Sets the total volume of measurement.</td><td>20 to 6,000 L</td></tr>
<tr><td>Delay time</td><td>Sets waiting time until a measurement starts.</td><td></td></tr>
<tr><td>Interval time</td><td>Sets waiting time for measurement.</td><td>10 seconds to 1 hour</td></tr>
<tr><td>Repeat count</td><td>Sets the number of measurement.</td><td>2 to 300</td></tr>
</table>
</td></tr>
<tr><td>
</td><td>RS485</td><td>Performs measurements by operating through the PC.
• Setting: The connection method is RS485. Set communication parameters. ID is the identification number of the instrument.
• Connection: Connect the PC.</td></tr>
<tr><td rowspan="2">
</td><td rowspan="2">Remote</td><td>Performs measurement using the remote.
Setting: The connection method is the Remote.
ID is the same with the identification number of the instrument and the ID of the Remote.</td></tr>
<tr><td>Tap the indication [redacted] to display a numeric keyboard. (The range of input is 1 to 5.)
</td></tr>
<tr><td> 
</td><td>Save</td><td>Toggles between saving and not saving measurement data.</td></tr>
</table>

User

- Tap the User on the main screen.

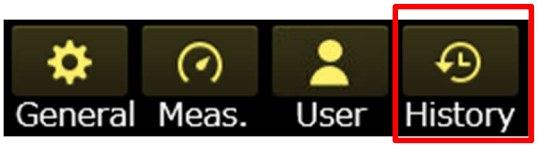


- The number of registered users is 64 in all. Their input data can be changed as needed.

Step 1	Step 2	Step 3	Step 4
Select the User button.	Select a user on the list.	Enter the password for a user to be changed. (The default is 123456.)	Enter the user name and the password. Tap the ✓ button to save a new setting.
			

History

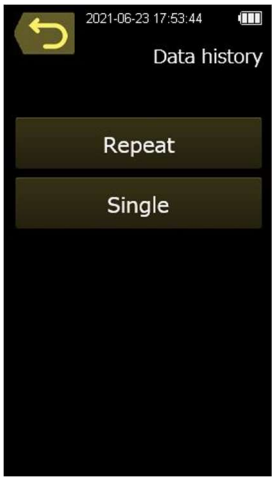
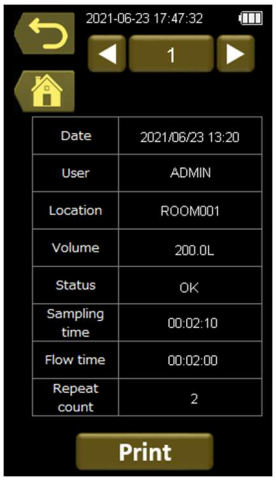
- Tap the History on the main screen to check measurement results.



<table>
<tr><th>Step 1</th><th>Step 2</th><th>Step 3</th><th>Step 4</th></tr>
<tr><td>Select the History button</td><td>Select a measurement mode.</td><td>Display the operation log or measurement mode.</td><td>Perform data checking or printing.</td></tr>
<tr><td rowspan="2">
</td><td>-</td><td>
</td><td rowspan="2">
Displays the history of the previous number.

Displays the history of the next number.

Select a required number to display its history.

Print data.</td></tr>
<tr><td>
</td><td> 
</td><td> 
</td></tr>
</table>

Print Example

- Operating logs are printed by the Print.

2021 / 04 / 30	11: 00
Number	1
User	ADMIN
Operation	Delete file

- Measurement data are printed by the Print.

(1) Repeat mode

2021 / 04 / 30	11: 02
Number	1
Location	ROOM001
User	ADMIN
Volume	200.0L
S-Time	00:02:10
F-Time	00:02:00
Cycles	2
Status	OK

(2) Single mode

2021 / 04 / 30	11: 05
Number	2
Location	ROOM001
User	ADMIN
Volume	100.0L
S-Time	00:01:00
Cycles	1
Status	OK

Remote Control

The Microbial Air Sampler can control to start/stop/pause measurements using the radio frequency Remote Control.

E

Radio Frequency Remote Control

Radio Frequency Remote Control:

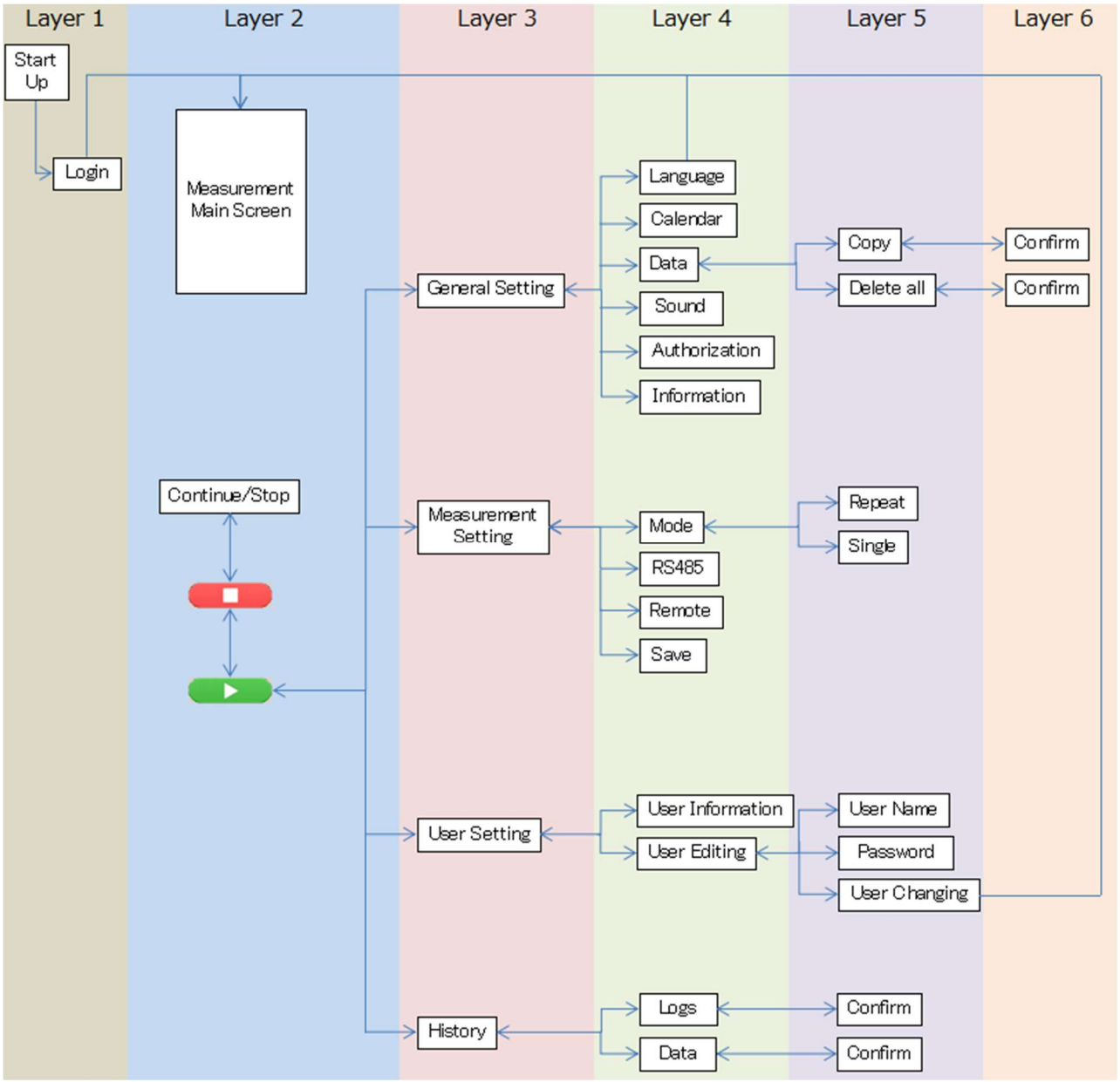
Button	Name	Uses
▶ ||	Measurement Start/Pause	Measurement Start/Pause/Resume
■	Measurement Stop/Exit	Measurement Stop/Exit
1	No. 1	ON/OFF and Pause/Resume for No. 1.
2	No. 2	ON/OFF and Pause/Resume for No. 2.
3	No. 3	ON/OFF and Pause/Resume for No. 3.
4	No. 4	ON/OFF and Pause/Resume for No. 4.
5	No. 5	ON/OFF and Pause/Resume for No. 5.

When a measurement starts with the Remote Control, a measurement can be paused after 5 seconds. A measurement can be resumed after 5 seconds after pausing.

1. The range of the radio frequency Remote Control ID of the Microbial Air Sampler is 1 to 5.
2. Based on the setting ID, tap the Measurement start button of a required ID No. to start a measurement.
3. During the measurement, pause the measurement to tap the Pause button of the ID No.
4. While the measurement is paused, tap the measurement start button of the ID to resume the measurement.
5. Tap the Measurement stop button to stop measurement.

Screen Transition

- The screens are structured by 6 layers and the operations are mainly performed from the Layer 2 and less.
- The Main screen for ready to measure is displayed when the instrument is not in the measuring process. The Main screen for measurement is displayed when performing measurements.
- The General, Meas., User, History menu can be selected on the Main screen.



5. Specifications

Product Name		Microbial Air Sampler
Model		3080, 3081
Measurement	Principle of measurement	Andersen collision principle (inertial impingement separation)
	Flow rate	100 LPM (Accuracy: ±2.5%)
	Delay time	Waiting time for measurement start time
	Interval time	10 seconds to 1 hour (Starting time and waiting time of a measurement in the repeat mode)
	Repeat count	2 to 300 cycles, or continuous measurement
	Measurement location	The names of location places are editable
	Measurement mode	Single, Repeat (Multiple-cycle measurements)
	Sampling volume	20 to 6,000 L
	Display of reading	Measurement volume and measurement time
	Minimum particle size	0.6 um
	Collision flow rate/the number of holes	20 m/s, 300 pcs. (0.6 mm)
	Authorization	Administrator/General users
	Petri dish	90 to 100 mm / 55 to 84 mm
	Exhaust filter	ISO class 3 (3080)
Display, Operation		4.3 inch, Liquid crystal display(LCD), Resistive touch panel
Communication function	Standard	USB (Host is for the connection with a printer and a USB memory, Device is for the connection with the PC)
	RS 485	9600, 19200, 38400 baud
Storage method	Memory	Built-in memory
	Storage capacity, format	Maximum 10,000 pcs., CSV format
Languages		Japanese, English, Chinese
Power supply	Internal power source	Li-ion chargeable battery
	External power source	AC adapter Input: from 100 ro 240 V
	Battery usage time between charges	3080 7h 3081 7h
	Recharge time	2 to 3 hours
Operating environment		0 to 40℃, 0 to 90%RH with no condensation
Dimensions		W136 mm x H235 mm x D133 mm
Weight		3080 3.2kg 3081 3.0kg

6. Troubleshooting

Symptom	Possible Causes → Solutions
Power is turned on, but the display is blank.	The AC adapter may not be properly connected. → Check the AC adapter or the power cord. The battery becomes low. → Recharge the battery.
The battery is consumed quickly.	The battery is deteriorated. → Change the battery.
The reading is too high.	The device may be faulty.
The reading is too low.	There is the dustproof cap or something on the sampling head. → Take them out. If the error is still ON, the fan will be fault or reach the end of its life.
Data cannot be printed.	Incorrect printer connection → Check that the USB (Type-A) terminal connects to the USB HOST of the main unit. Connect the mini USB (Type-B) terminal to the printer.
Data cannot be saved.	Check the data storage setting. The number of recorded data (the number of data) has already been reached 10,000 data.

7. Cleaning and Disinfection

When the instrument is turned off and the AC adapter is not attached, perform cleaning and disinfection.

Dustproof Cap and Sampling Head

- Clean the dustproof cap and the sampling head in an ultrasonic cleaning machine.
- Disinfect the dustproof cap and the sampling head in a high pressure sterilizer; or
  Wipe the dustproof cap and the sampling head with a sterile paper dampened with disinfectants.

The Surface of the Instrument

- Ammonium salts disinfectants of 1,000 to 2,000 mg/L can be used as a disinfectant. The effective time is 15 to 30 minutes. Ethanol solutions (Volume ratio: 70 to 80%) also can be used. The effective time is 3 minutes.
- Attach a sterile paper dampened with the above disinfectants to the surface of the instrument. Do not use any liquid splay.
- DO NOT use any other solvents including water and gasoline to wipe the instrument.

Prior to use the instrument again, dry the instrument at a room temperature and check not to remain any disinfectant liquids on its surface.

8. Warranty and After-Sales Service

The limited warranty set below is given by KANOMAX USA, Inc. (hereafter referred to as “KUI”) with respect to this instrument, its attachment parts including standard accessories (hereafter referred to as “PRODUCT”) that you have purchased. PRODUCT you have purchased shall be the only one that the limited warranty stated herein applies to.

Your PRODUCT, when delivered to you in new condition in its original container, is warranted against defects in materials or workmanship as follows: for a period of two (2) years from the date of original purchase, defective parts or a defective PRODUCT returned to KUI, as applicable, and proven to be defective upon inspection, will be exchanged for a new or comparable rebuilt parts, or a refurbished PRODUCT as determined by KUI. Warranty for such replacements shall not extend the original warranty period of the defective PRODUCT.

To obtain service under this warranty, you must notify Kanomax USA, Inc. on or before the expiration of the warranty period to obtain directions for returning the defective product. You are responsible for all return shipping charges to the authorized Kanomax service center.

This limited warranty covers all defects encountered in normal use of the PRODUCT, and does not apply to the following cases:
(1) Use of parts or supplies other than the PRODUCT sold by KUI, which cause damage to the PRODUCT or cause abnormally frequent service calls or service problems.
(2) If any PRODUCT has its serial number or date altered or removed.
(3) Loss or damage to the PRODUCT due to abuse, mishandling, improper packaging by the owner, alteration, accident, electrical current fluctuations, failure to follow operating, maintenance or environmental instructions prescribed in the PRODUCT's instruction manual provided by KUI, or service performed by other than KUI.

NO IMPLIED WARRANTY, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, APPLIES TO THE PRODUCT AFTER THE APPLICABLE PERIOD OF THE EXPRESS LIMITED WARRANTY STATED ABOVE, AND NO OTHER EXPRESS WARRANTY OR GUARANTY, EXCEPT AS MENTIONED ABOVE, GIVEN BY ANY PERSON OR ENTITY WITH RESPECT TO THE PRODUCT SHALL BIND KUI. KUI SHALL NOT BE LIABLE FOR LOSS OF STORAGE CHARGES, LOSS OR CORRUPTION OF DATA, OR ANY OTHER SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES CAUSED BY THE USE OR MISUSE OF, OR INABILITY TO USE, THE PRODUCT, REGARDLESS OF THE LEGAL THEORY ON WHICH THE CLAIM IS BASED, AND EVEN IF KUI HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN NO EVENT SHALL RECOVERY OF ANY KIND AGAINST KUI BE GREATER IN AMOUNT THAN THE PURCHASE PRICE OF THE PRODUCT SOLD BY KUI AND CAUSING THE ALLEGED DAMAGE. WITHOUT LIMITING THE FOREGOING, THE OWNER ASSUMES ALL RISK AND LIABILITY FOR LOSS, DAMAGE OF, OR INJURY TO THE OWNER AND THE OWNER'S PROPERTY AND TO OTHERS AND THEIR PROPERTY ARISING OUT OF USE OR MISUSE OF, OR INABILITY TO USE, THE PRODUCT NOT CAUSED DIRECTLY BY THE NEGLIGENCE OF KUI. THIS LIMITED WARRANTY SHALL NOT EXTEND TO ANYONE OTHER THAN THE ORIGINAL PURCHASER OF THE PRODUCT, OR THE PERSON FOR WHOM IT WAS PURCHASED AS A GIFT, AND STATES THE PURCHASER'S EXCLUSIVE REMEDY.

9. Contact Information

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