228-93177C
Oct. 2020

Optional for Shimadzu Ultra High Performance Liquid Chromatograph

Mobile Phase Monitor

MPM-40

Instruction Manual

Read this manual thoroughly before you use the product.
Keep this manual for future reference.

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Introduction

Read this Instruction Manual thoroughly before using the product.

Thank you for purchasing this product.

This manual describes the operation, and accessories and options for this product. Read this manual thoroughly before using the product and operate the product in accordance with the instructions in this manual.

This product also includes the following operation guide in a booklet or PDF document format. The operation guide CD-ROM (part number 228-93089-41) contains the PDF document.

Document Name	Document No.	Description
Operation Guide (PDF)	228-93177	This instruction manual.
Nexera series Safety Guideline (Booklet)	228-92326	This manual describes the precaution instructions to ensure safe operation.

Keep this manual for future reference.

IMPORTANT

- If the user or usage location changes, ensure that this manual is always kept together with the product.
- If this manual or a product warning label is lost or damaged, immediately contact your Shimadzu representative to request a replacement.
- To ensure safe operation, read all "Safety Instructions" before using the product.
- To ensure safe operation, contact your Shimadzu representative if product installation, adjustment, re-installation (after the product is moved), or repair is required.

Original version is approved in English.

Notice

- Information in this manual is subject to change without notice and does not represent a commitment on the part of the vendor.
- Any errors or omissions which may have occurred in this manual despite the utmost care taken in its production will be corrected as soon as possible, although not necessarily immediately after detection.
-
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Indications Used in This Manual

Precaution symbols are indicated using the following conventions:

Indication	Meaning
⚠ WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in serious injury or possibly death.
⚠ CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in minor to moderate injury or equipment damage.
NOTE	Emphasizes additional information that is provided to ensure the proper use of this product.

The following symbols are used in this manual:

Indication	Meaning
Prohibition	Indicates an action that must not be performed.
Instruction	Indicates an action that must be performed.
Hint	Indicates information provided to improve product performance.
Reference	Indicates the location of related reference information.

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1 Overview

1.1 Overview

This device is a Mobile Phase Monitor for the Shimadzu liquid chromatography system. It monitors the volume of mobile phase and cleaning solution, which prevents LC system problems due to insufficient mobile phase and rinse solution levels.

1.2 Features

■ Monitors the volume of mobile phase and prevents problems due to insufficient mobile phase

3.9.

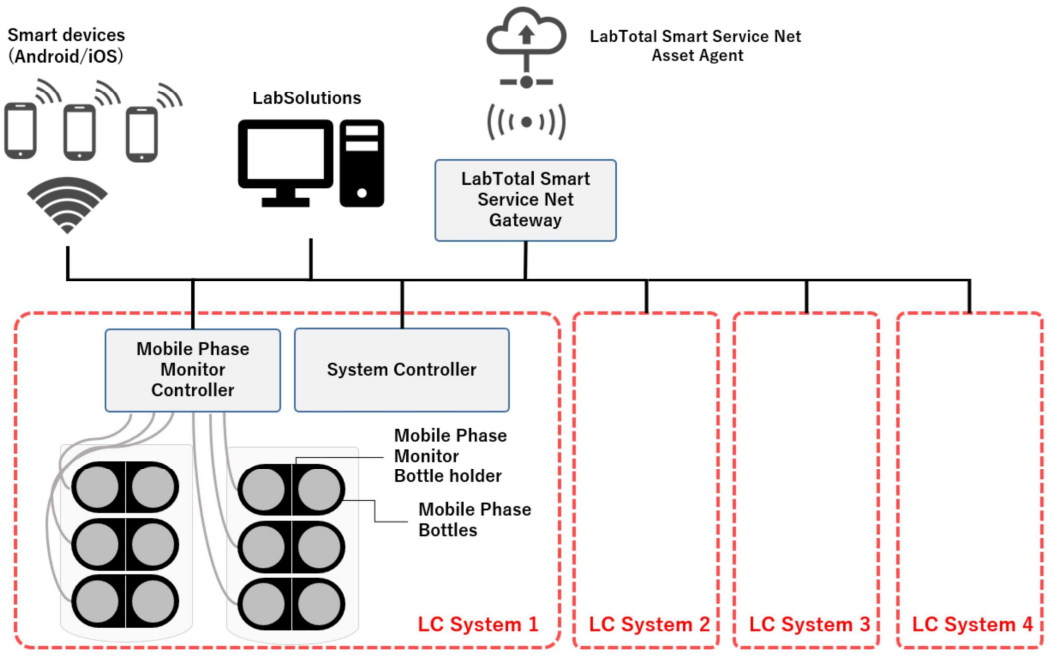
It is possible to check the volume of mobile phase by installing the dedicated "MPMChecker" application on a smartphone or computer. The software will notify the user when the volume is low.
Furthermore, you can also check if there are any problems with the mobile phase quantity before analysis by linking to the LC workstation LabSolutions. If there is not enough mobile phase during analysis or during liquid delivery, the solvent delivery pump will stop automatically to prevent problems.

■ Monitors the operating status of the device

It is possible to monitor the operating status of the device by using the device in combination with LabTotal Smart Service Net Asset Agent. Refer to the LabTotal Smart Service Net Asset Agent Instruction Manual for details.

1.3 System Configuration

3.9. This product connects to the LC system network to link to LabSolutions and Shimadzu LC system for operation.



1.4 Component Parts

The instrument consists of the following parts. Check that all parts are included in the packaging and the quantities are correct when unpacking.
Note that a Shimadzu service personnel will install the instrument. For safety reasons, customers are suggested to avoid performing installation work.

■ Mobile Phase Monitor Controller (228-65525-58)

No.	Part name	Part number	Quantity	Remarks
1	The controller	-	1	
2	USB cable	088-50825-50	1	Connect to an AC adapter (*) and use.
3	CD-ROM,MPM	228-93089-41	1	Contains the operation guide and MPMChecker (PC version).
4	Clamp UL-18	072-60314-02	6	Use when securing the bottle holder cables.
5	LAN cable	228-61083-41	1	
6	Remote cable	228-28253-91	1	Connect to an external output terminal.
7	Marking band set	228-76032-41	1	Install on bottle holder cables to identify port numbers for the bottle holder.
8	Bottle number label	228-76026	1	Affix on the weighing plates to identify bottle numbers.

* Prepare the AC adapter separately.
Refer to "Power supply" on page 95 in section "7.4.1 Product Specifications" P.132 for the AC adapter.

■ Bottle Holder

There are two types of bottle holders: one for 1 liter bottles and the other for a large bottle. Purchase the appropriate bottle holder to suit the size of the mobile phase bottles used.

No.	Part name	Part number	Remarks
1	1 L bottle holder	228-65526-58	This is the bottle holder dedicated to 1 liter bottles. • A single bottle holder can monitor the remaining volume of two 1 liter bottles. • A maximum of six bottle holders can be connected to one mobile phase monitor controller.
2	Large bottle holder	228-65549-58	This is the bottle holder accommodating a large bottle with 130 to 186 mm diameter. • A single bottle holder can monitor the remaining volume of one large bottle. • A maximum of four bottle holders can be connected to one mobile phase monitor controller. *Do not use any bottles other than those with 130 to 186 mm diameter.

3.9.

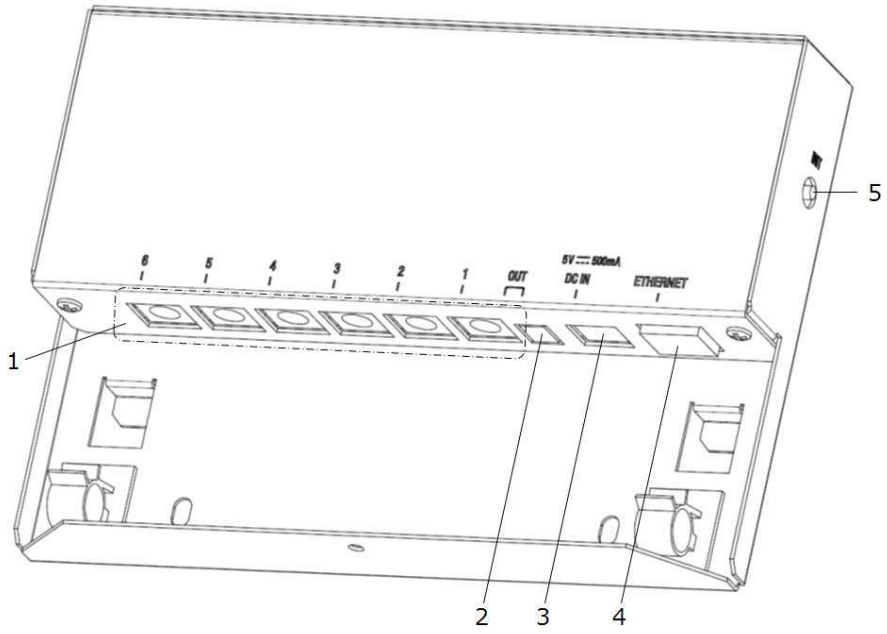
1.5 Optional Parts

The table below shows the optional parts available for the instrument.
Contact your Shimadzu representative about optional parts not shown in the table below or for details on optional parts.

Option name	Part number	Features
Reservoir tray	228-65508-41	This is the reservoir tray for the Nexera series.
MPM controller installation kit	228-76011-41	Required to secure the 20A series reservoir tray or reservoir tray manufactured by another company when installing these items. This kit is unnecessary when installing the large bottle holder to either reservoir tray manufactured by another company.
Anti-earthquake bottle fixing kit (1 L bottle)	228-77027-41	Prevents mobile phase bottles from falling off the 1 L bottle holder in case of an earthquake, etc.
Anti-earthquake bottle fixing kit (Large bottle)	228-76081-41	Prevents the mobile phase bottle from falling off the large bottle holder in case of an earthquake, etc.
Anti-earthquake bottle fixing kit (for i-Series)	228-77284-41	Prevents mobile phase bottles from falling off the bottle holder in case of an earthquake, etc., when using the i-Series equipped with a mobile phase monitor.
AC adapter, mobile phase monitor	074-83019-02	Use to connect the USB cable to the power supply.
Bottle holder extension cable	228-76080	This cable (approx. 1 m) extends the length of the bottle holder cable.
Large bottle holder alteration kit	228-65550-41	This kit is used to alter the 1 L bottle holder to the large bottle holder.
1 L bottle holder alteration kit	228-65551-41	This kit is used to alter the large bottle holder to the 1 L bottle holder.
Mobile phase monitor installation kit, i-Series	228-77283-41	This kit is used to install the mobile phase monitor to the i-Series 2050/2060 series. This is not available for the Plus series and preceding models.

2 Parts Name and Function

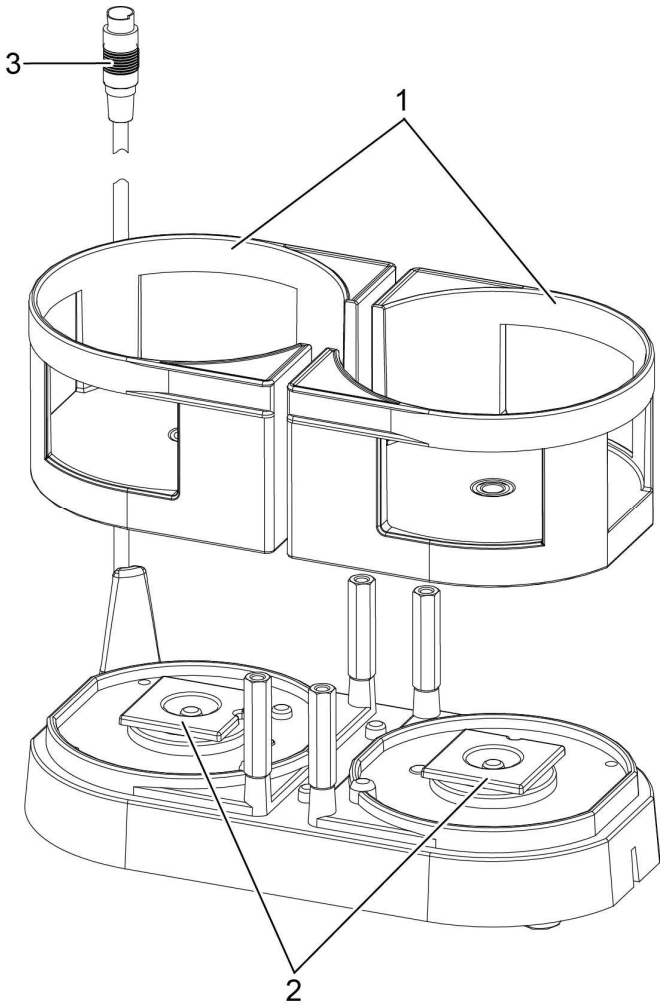
2.1 Mobile Phase Monitor Controller



No.	Name	Function
1	Bottle holder connector	Connects bottle holder cables. A maximum of 6 bottle holders can be connected.
2	External output terminal	Terminal for connecting external equipment.
3	Power supply connector	Use the included USB cable to connect to a USB-AC power supply adapter.
4	Ethernet connector	Connect a LAN cable to connect to the network.
5	Reset switch	Press and hold the switch while connecting the USB cable to the power supply connector. Continue pressing for a minimum of 10 seconds to initialize the network settings. Press and hold the switch while connecting the USB cable to the power supply connector. Continue pressing for a minimum of 30 seconds to initialize all settings. Refer to "7.3 Initialization Parameter List" for parameters that are initialized.

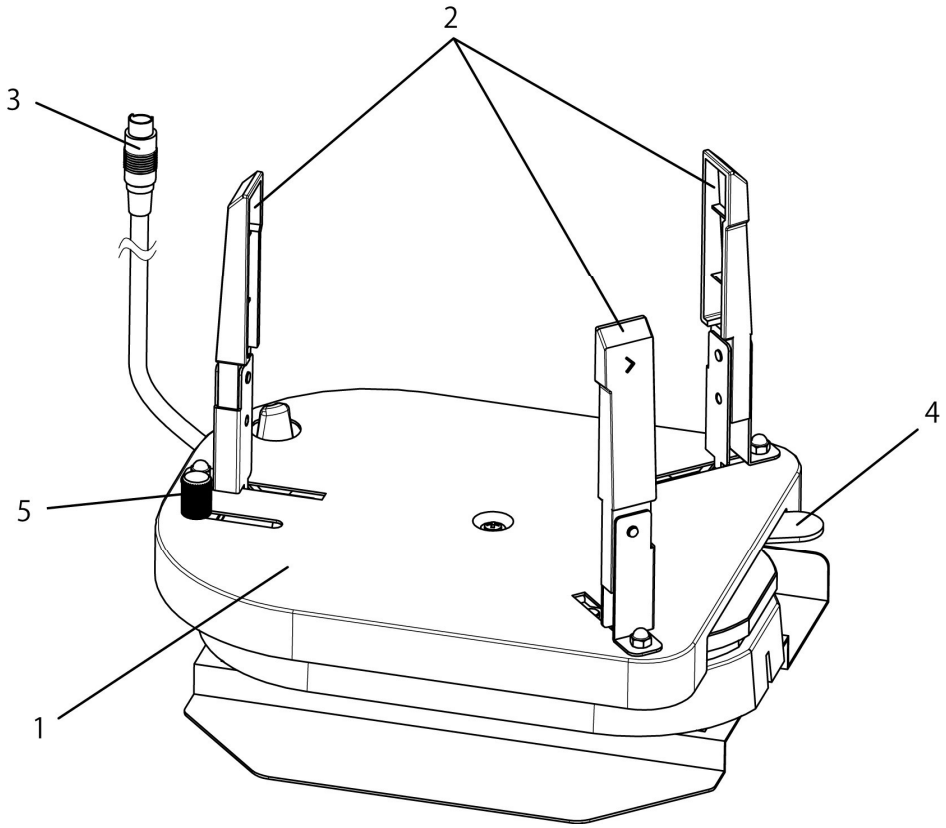
2.2 Bottle Holder

■ 1 L Bottle Holder



No.	Name	Function
1	Weighing plate	Place mobile phase bottles here.
2	Plate platform	Place the weighing plate here. NOTE Do NOT apply a strong load to this part because it will damage the unit.
3	Bottle holder cable	The cable is used to connect to the controller.

■ Large Bottle Holder



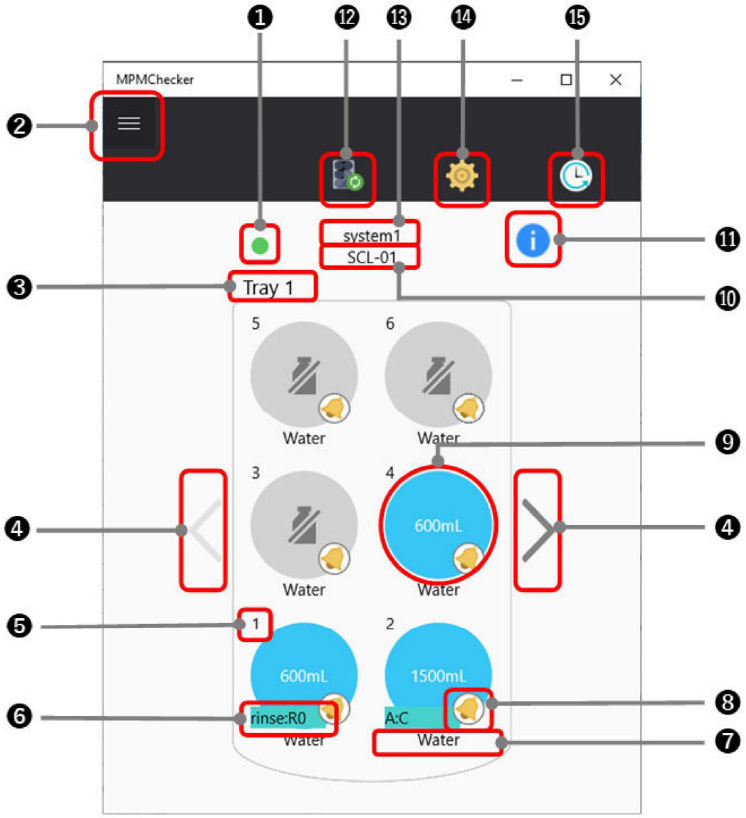
No.	Name	Function
1	Weighing plate	Place the mobile phase bottle here. Be sure to place the provided non-slip mat on the plate. NOTE To avoid failure, do NOT apply a heavy load to this part.
2	Bottle fixing pillars	Fasten the bottle by adjusting the pillar position with the lever.
3	Bottle holder cable	Connect this cable to the controller.
4	Lever	Use this lever to adjust the pillar position.
5	Knurled screw	After adjusting the pillar position, tighten this screw to fix the pillar position.

2.3 MPMChecker

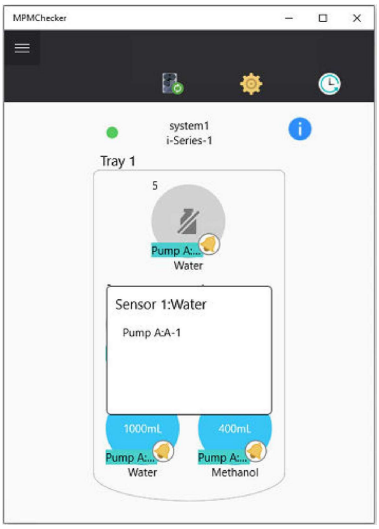
All of settings and operations are performed from the dedicated software "MPMChecker". The used captures are taken from PC app but the UI / operations are the same on iOS/Android apps.

2.3.1 Names and Descriptions of Screen Parts

■ Monitor Screen



No.	Name	Description
❶	Mobile phase monitor status	Displays the unit status of the mobile phase monitor. • Green: Operating properly • Orange: Abnormal sensor(s) • Gray: The app is disconnected from the mobile phase monitor. ▶▶ Reference "List of Mobile Phase Monitor Statuses" P.12
❷	Menu button	Displays the IP address of the connected mobile phase monitor.
❸	Tray No.	Displays the tray number. Displays sensors 1 to 6 in tray 1, and sensors 7 to 12 in tray 2.
❹	Switch tray button	Switches between tray 1 and 2. Displayed if bottle holders are connected to the MPM controller connectors No. 4 to 6.

No.	Name	Description
❺	Sensor No.	Displays the sensor number. The sensor number displayed on the screen changes depending on the position of the mobile phase monitor controller port that the bottle holder is connected to. ▶▶ Reference "7.2 Bottle Holder Connection Position and Resulting Screen Display" P.129
❻	Line setting display	Displays the name of the mobile phase line set to the sensor. This is displayed only when the line setting has been made. The information is displayed as follows, depending on the line associated with the sensor. • For pump "Pump name: Mobile phase symbol name" is displayed in this order. When the i-Series is used, the pump name is always "A" since the i-Series employs only one pump. The mobile phase symbol name is displayed only when the flow channel selection valve used for the pump. The display may differ depending on the combination of the firmware version of the MPM controller and system controller, and the version of MPMChecker. Display example of Sensor 1 when using FCV-11AL on i-Series Pump: A (always A for i-Series), LPGE: Port A, FCV-11AL: 1-Side  • For sampler The rinse solution symbol name is displayed. If the unit set to the line is disconnected, "*" is displayed at the end. ▶▶ Reference "4.1.4 Line Settings" P.76
❼	Mobile phase name	Displays the name of the mobile phase.
❽	Notification settings icon	Displays the details of notification settings. Click this to turn the notification settings OFF temporarily, or to return to the original settings. ▶▶ Reference "Notification Setting Icons" P.13

No.	Name	Description
❾	Sensor status	Displays the current remaining volume at the center. The status of the sensor is indicated in color. Click this to display the details screen for the mobile phase. Reference "List of Sensor Statuses" P.12 "Mobile Phase Details Screen" P.14
❿	System controller name	Displays the name of the linked system controller. Nothing is displayed when no system controller is linked. Reference "3.2.7 Linking the System Controller" P.40
⓫	Display legend button	Click this to display the legend that indicates the status meaning.
⓬	Scan button	Click this to detect bottle holders connected to the mobile phase monitor controller. Use this during installation after purchasing the system, or if the number of bottle holders has been changed.
⓭	MPM controller name	Displays the name of the connected MPM controller. The IP address is displayed when no MPM controller name has been set. Reference "3.2.1 Initializing the Network" P.23
⓮	Settings button	Click this to display the settings menu of the connected mobile phase monitor. See the sections below for the settings that can be configured with this menu. Reference "4.1.2 Setting the Warning/Error Volume" P.68 "3.2.7 Linking the System Controller" P.40 "3.2.8 Link Settings" P.47
⓯	Log button	Click this to display the error log and calibration log.

■ List of Mobile Phase Monitor Statuses

The list of the mobile phase monitor statuses is described below.

Icon	Status	Description
	Ready	The remaining volume is properly measured.
	Not Ready	At least one sensor among those set to be notified is unavailable for remaining volume measurement, due to waiting status for stabilization, zero point out of range, etc.
	Disconnected	MPMChecker is disconnected from the mobile phase monitor.

Reference "5.1 Abnormal Status is Displayed" P.94

■ List of Sensor Statuses

The list of sensor statuses meanings is displayed below.

Reference If a status other than those outlined below is displayed, see "5 Troubleshooting" P.94.

Icon	Status	Description
	Normal	Sufficient volume remaining.
	Less than warning volume	The mobile phase volume is less than the warning volume. Replacing the mobile phase is recommended.
	Less than error volume	The mobile phase volume is less than the error volume. The system will force the solvent delivery pump and column oven to stop operating in this condition.
	No bottle	The mobile phase bottle is not in place.

■ Notification Setting Icons

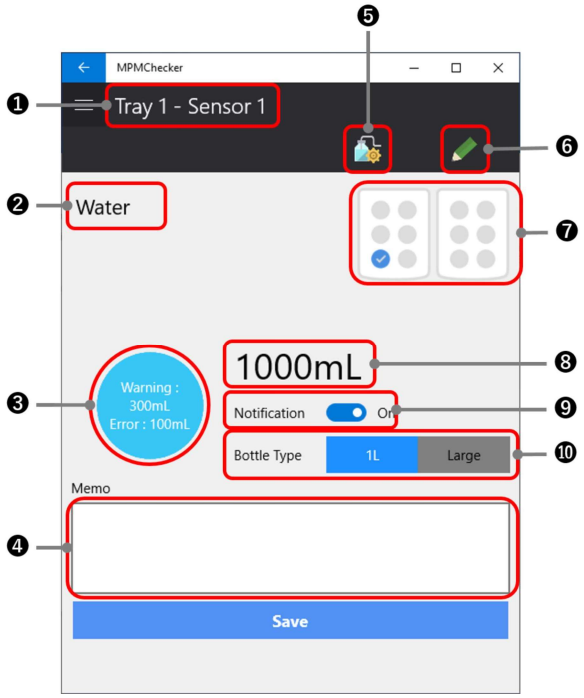
A badge showing the details of notification settings is displayed for each bottle at the bottom right of the status icon. Click this to turn notifications OFF temporarily, or to return to the original settings.

Icon	Notification Settings	Description
	Notification Settings ON	Notifications are turned ON. With this setting, notifications will be sent when the mobile phase volume is low or there is a device error. Click this to turn notifications OFF temporarily. Reference "Turn Notification Settings OFF Temporarily/Cancel" P.74
	Notification settings temporary OFF	Notifications are temporarily turned OFF due to settings made by the system controller/MPMChecker. With this setting, notifications will not be sent when the mobile phase volume is low or there is a device error. This setting is canceled when an analysis starts. Click this to return notifications to its original setting. Reference "Turn Notification Settings OFF Temporarily/Cancel" P.74
	Notification settings OFF	Notifications are turned OFF. With this setting, notifications will not be sent when the mobile phase volume is low or there is a device error, regardless of whether the system is conducting an analysis.

Reference
- Click the "Mobile Phase" icon of the monitor screen of SCL-40 to check the status of the Mobile Phase Monitor. Please refer to "Mobile Phase Monitor Screen" in the SCL-40/CBM-40/CBM-40lite Instruction Manual.
- You can check the status of the Mobile Phase Monitor on the Mobile Phase/Rinse Solution Level screen, displayed by pressing the mobile phase level check button on the menu of the i-Series compatible with the Mobile Phase Monitor. Please refer to "2.3.1 Mobile Phase & Rinse Reserve Volume Setting Screen" in the i-Series Operation Guide.
- Click the "Mobile Phase Monitor" icon on LabSolutions to check the status of Mobile Phase Monitor. Please refer to the help of LabSolutions about Mobile Phase Monitor.

■ Mobile Phase Details Screen

Clicking the sensor status in the monitor screen displays the detailed sensor information.



No.	Name	Description
❶	Sensor number	Displays the tray number and sensor number.
❷	Mobile phase name	Displays the name of the mobile phase.
❸	Sensor status	Displays the status of the sensor in color. The set warning/error volume is also indicated at the center. Reference "List of Sensor Statuses" P.12 "4.1.2 Setting the Warning/Error Volume" P.68
❹	Memo	Enter a memo of up to 100 characters as necessary.
❺	Line settings icon	Click this to associate each mobile phase bottle with the corresponding suction tube (line) of each solvent delivery pump/autosampler. Reference "4.1.4 Line Settings" P.76
❻	Mobile phase edit icon	Click this to register the mobile phase information or to calibrate sensors. Reference "4.1.1 Registering a Mobile Phase" P.58
❼	Sensor position	Displays from which sensor on the trays the information currently displayed is obtained.
❽	Remaining volume display	Indicates the remaining volume of the mobile phase.
❾	Notification settings switch	Turns ON/OFF the notifications. Reference "4.1.3 Notification Settings for Each Mobile Phase" P.72

No.	Name	Description
⑩	Select bottle button	Switches between the large bottle mode/1 L bottle mode. *This item is displayed only on the details screens of odd numbered sensors (i.e. left-side sensor of each bottle holder). Reference "4.3 Large Bottle Holder Operation" P.91

3 Initial Settings

Configure all settings using the mobile phase monitor app "MPMChecker."
This chapter outlines the details of settings and procedures, as well as daily operations.
See "7.1 Installation" P.113 for hardware installation.

3.1 MPMChecker Installation and System Requirements

Download and install MPMChecker as outlined below.

3.1.1 iOS App

■ Installing the app

Search the App Store for "MPMChecker" and install the app.

Hint An Apple ID is required to download the app.

■ System requirements

iOS11 or later

3.1.2 Android App

■ Installing the app

Search the Google Play Store for "MPMChecker" and install the app.

Hint A Google account is required to download the app.

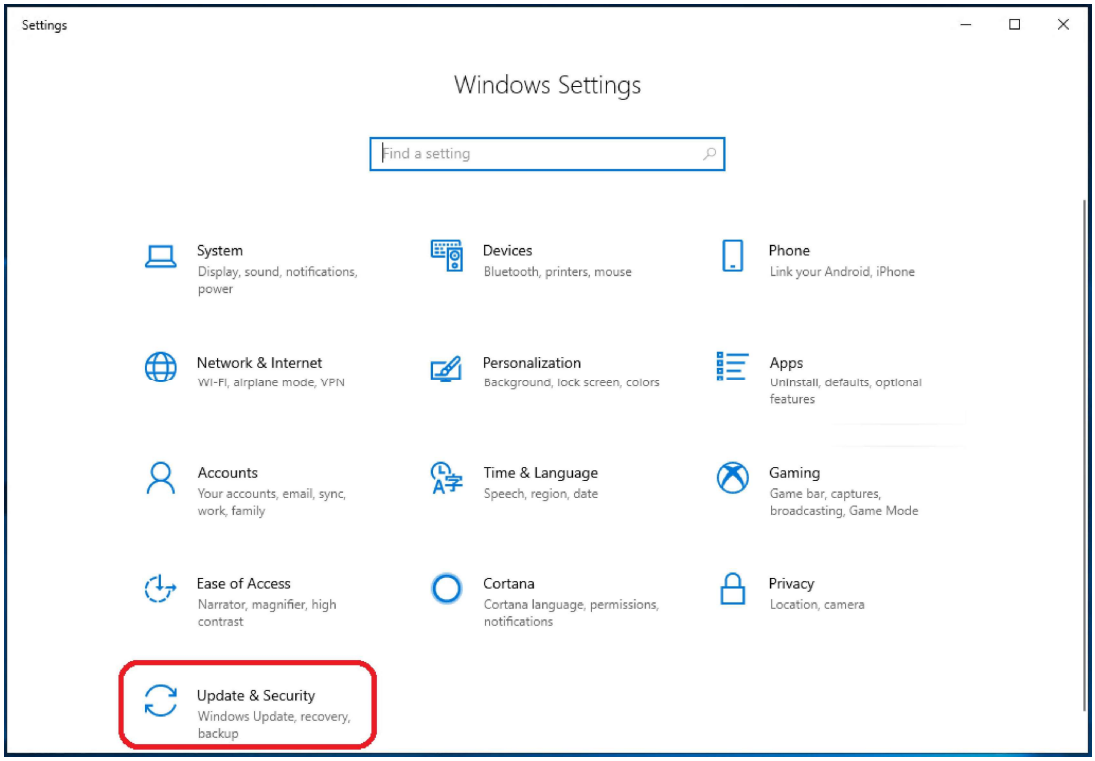
■ System requirements

Android 7.0 or later

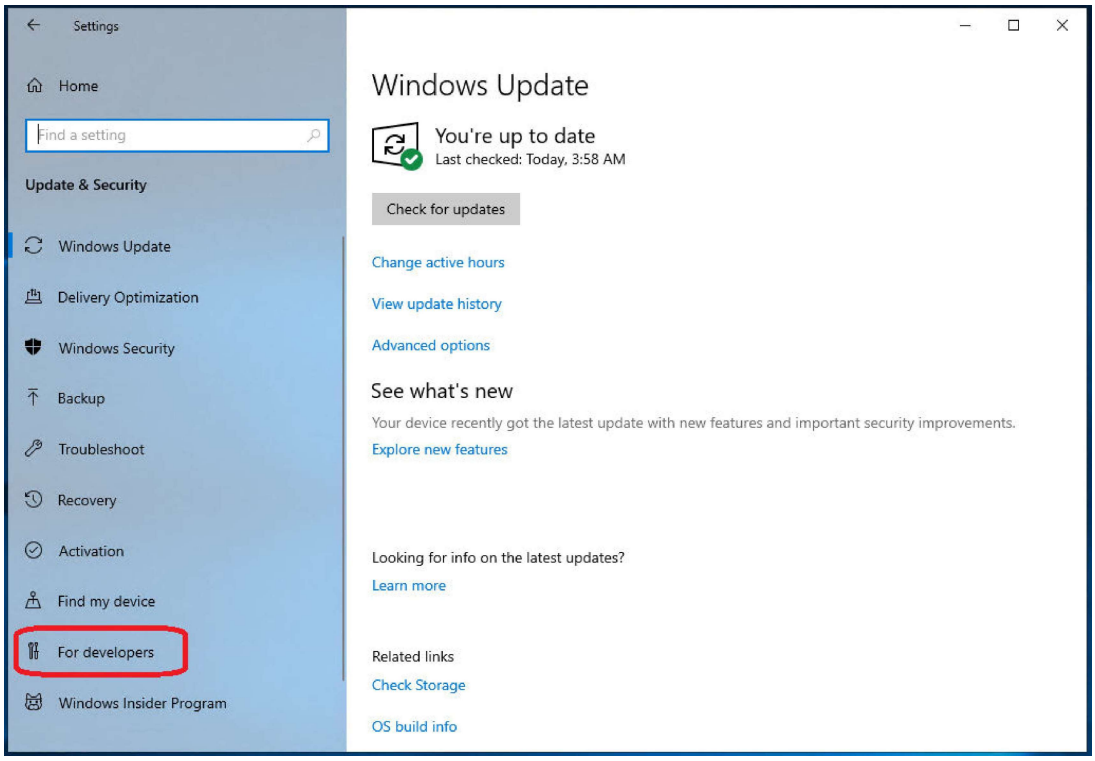
3.1.3 PC App

Hint This software is compatible with Windows10 (Version 1709, OS build 16299) or later.

1 **Click the [Start] menu and [Settings] to open [Windows Settings]. Click [Update & Security].**

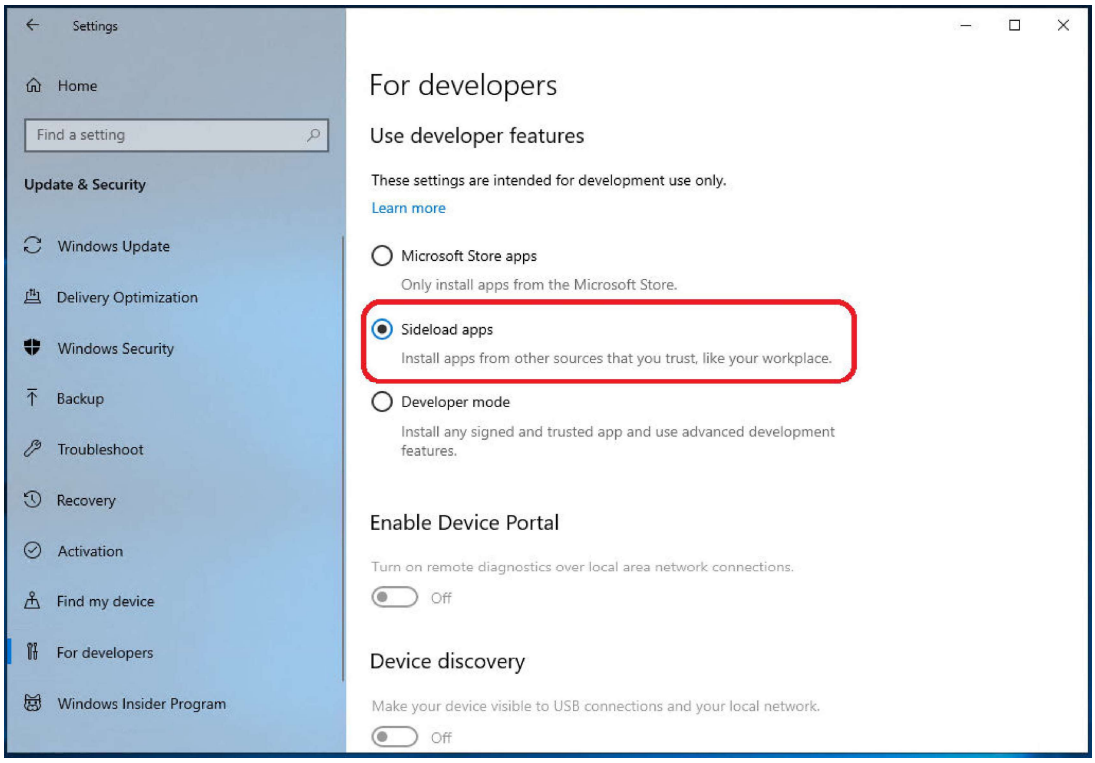


2 **Click the [For developers] menu.**

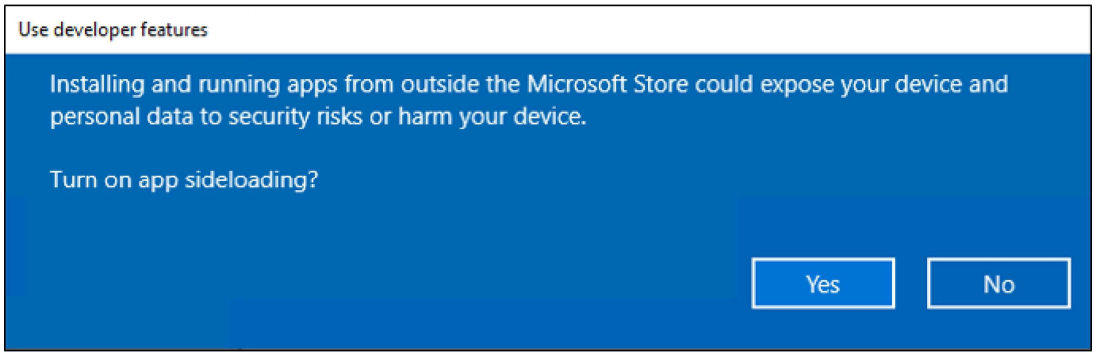


3 Click [Sideload apps].

Hint This feature is used for installing apps from outside the Microsoft Windows store.



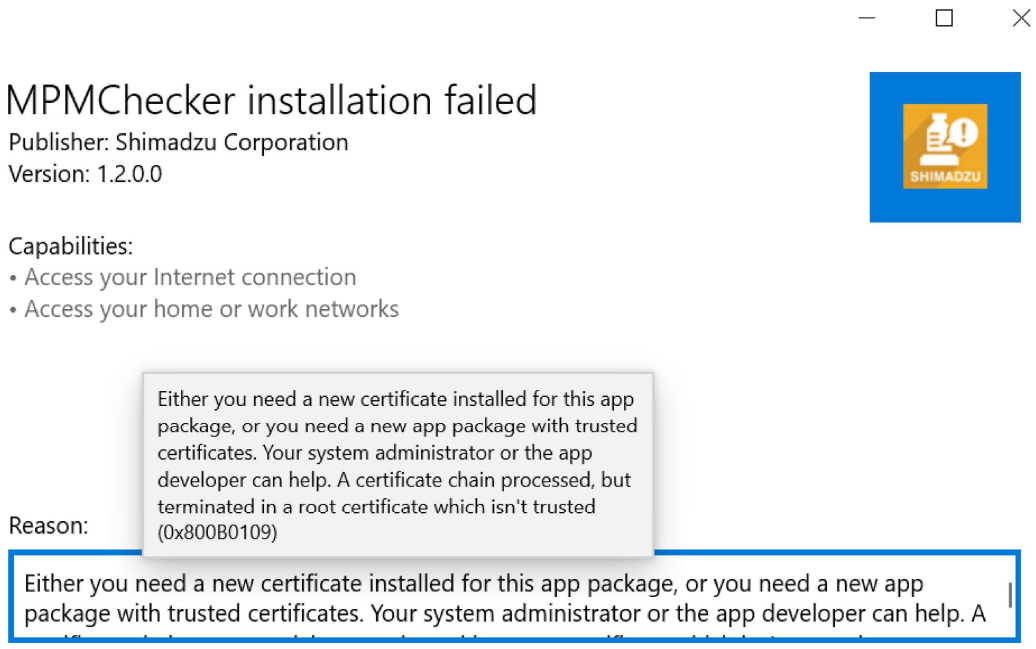
4 Click [Yes] when the message below is displayed.



5 Import the certificate.

> **NOTE** If you have already imported a valid certificate, you do not need to perform this procedure.
> See "5.4 Import Certificate" for detailed instructions.

Hint If the following dialog appears during installation in Step 7, perform this procedure.



6 Insert the CD supplied with this product into the drive, and double-click the Microsoft.NET.Native.Framework.2.0.appx file in the [Dependencies] folder of the CD to install the runtime package. Similarly, please install Microsoft.NET.Native.Runtime.2.0.appx and Microsoft.VCLibs.x64.14.00.appx.

Please select the runtime package to be installed as follows according to your PC.

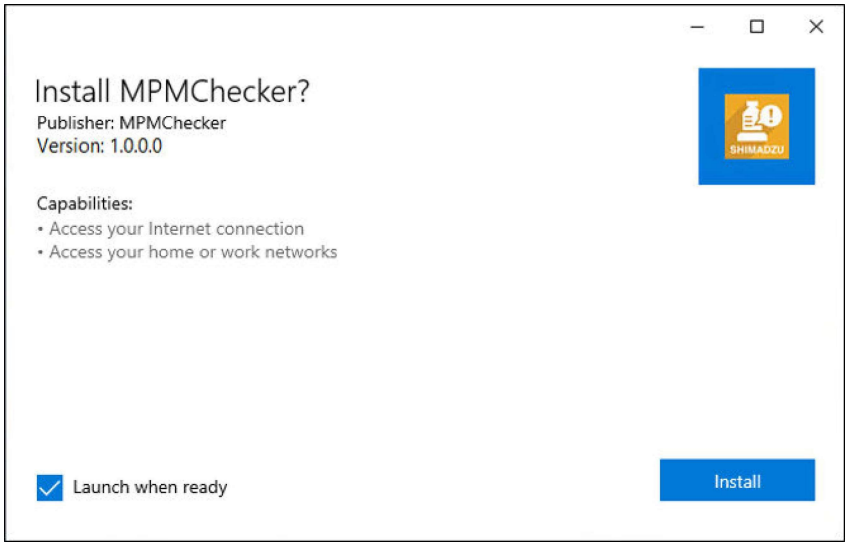
PC	Runtime package
64 bit	x64 folder

PC	Runtime package
32 bit	x86 folder

Hint

- If the runtime package has been installed, installation is not necessary. Please proceed to the next step.
- When performing an installation that overwrites the runtime, an error screen (0x80073D02) indicating that there is an application that uses the runtime can not be installed, or a screen for uninstalling the currently installed runtime package (0x80073D06) may be displayed. In this case, the runtime is already installed, so proceed to the next step.

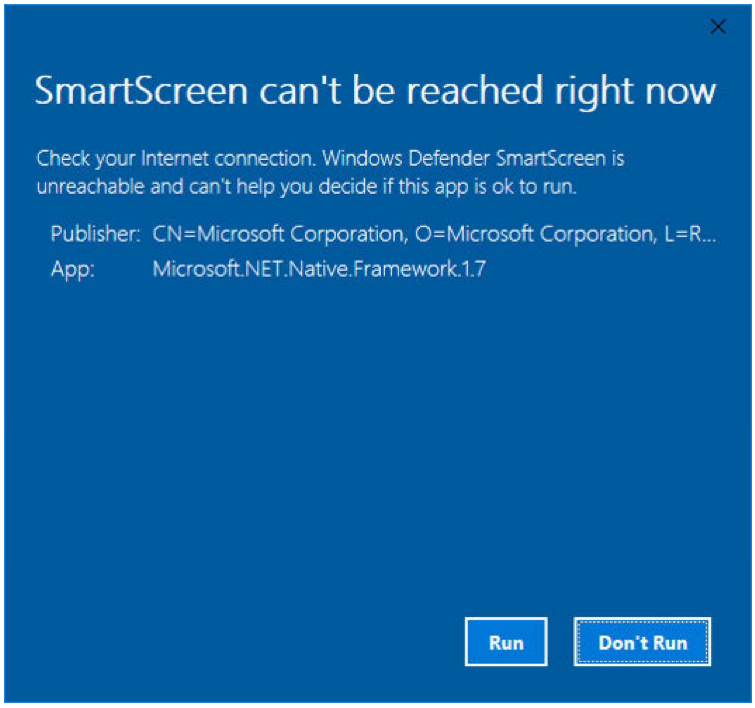
7 Double-click the .appxbundle file in "MPMChecer" folder on the CD. Click [Install] when the message below is displayed.



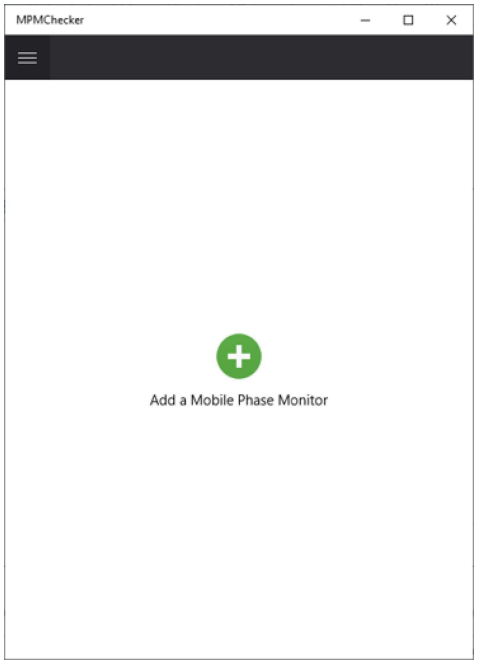
Hint

Depending on the network environment or PC, installation may fail, and installation may not be completed. In this case, disconnect the LAN cable (disconnect the LAN) and install.

8 **If the message below is displayed, click [Run]. Installation will continue automatically.**



9 **MPMChecker launches automatically when installation is complete.**



Hint A shortcut to MPMChecker is added to the Start menu. Pin the tab to the Taskbar if required.

3.2 Settings and Operation of Mobile Phase Monitor

All of the settngs and operations are performed from the dedicated software "MPMChecker". The used captures are taken from the PC app but the UI / operations are the same on iOS/Android apps.

3.2.1 Initializing the Network

If the default IP address, subnet mask or default gateway settings need to be changed, do so in this step.
This step is not required when keeping the default settings. See "7.3 Initialization Parameter List" P.130 for the details of the network initial settings.

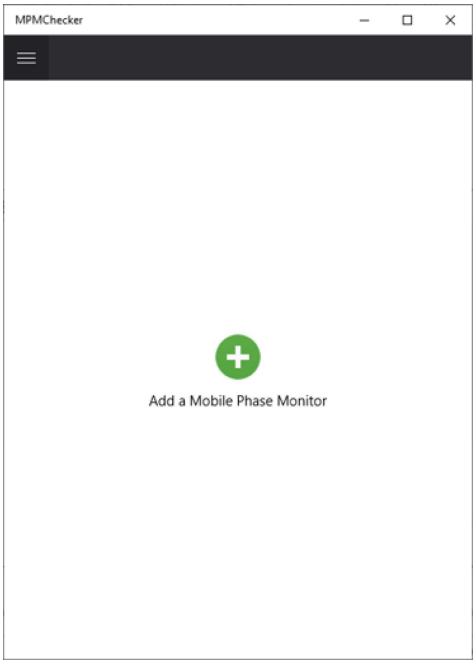
> **NOTE** USB connection to the PC is required only when changing the IP address of the mobile phase monitor.

1 **Connect the mobile phase monitor controller power connector to the USB port of the PC using the supplied USB cable.**

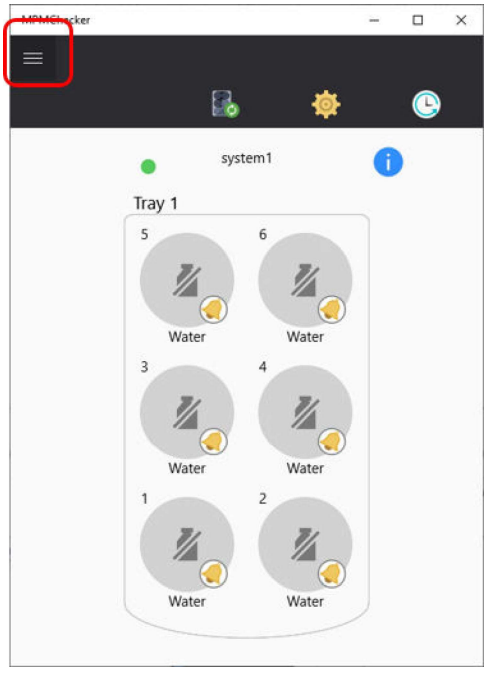
> **⚠ CAUTION**
>
> Instruction
>
> **Be sure to supply the power of the mobile phase monitor from the electrical outlet.**
>
> Please supply the power from the outlet using an AC adapter continually. Do not supply power from the PC.

2 **Launch MPMChecker.**

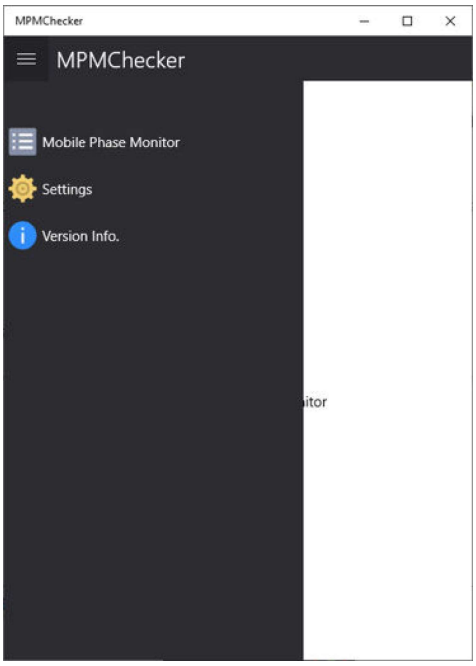
3 Click the "+" button if it is displayed in the middle of the screen. (→ Go to 7.)



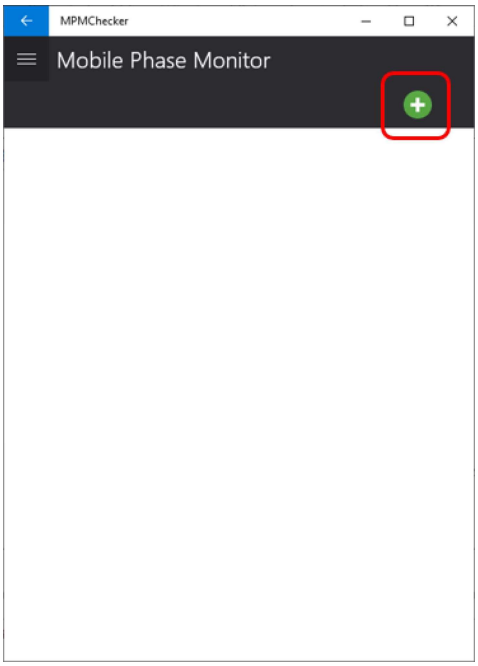
4 If the monitor screen is displayed, click the menu button at the top left.



5 **Click the "Mobile Phase Monitor List" in the menu.**

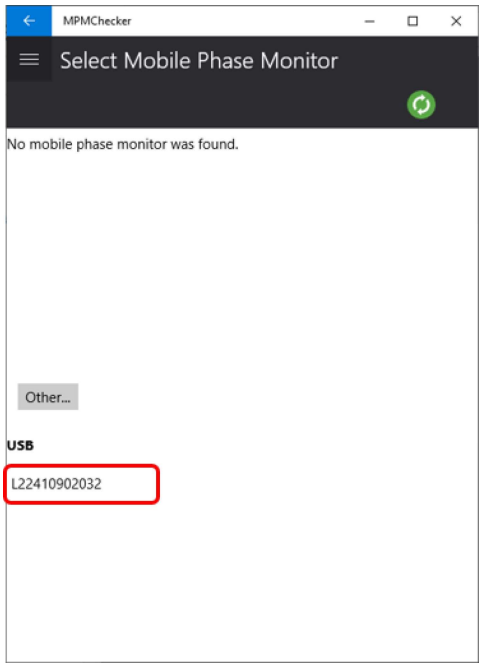


6 **Click the "+" button at the top right of the list screen.**



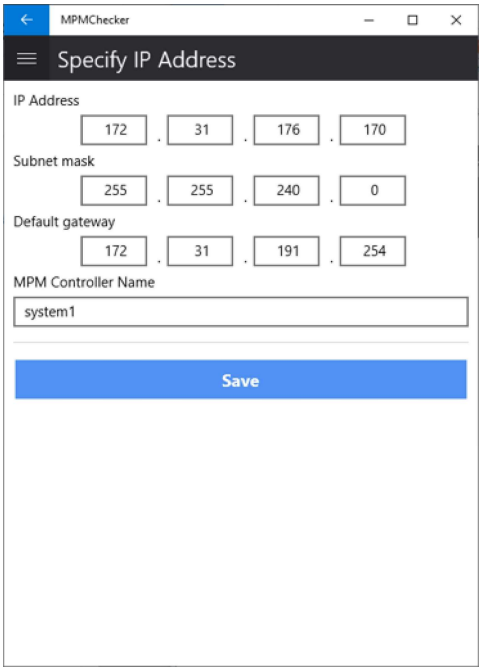
Hint Enter the administrator password if it is required. The default password is "00000."

7 **The Select Mobile Phase Monitor screen is displayed.**
Click the serial number of the mobile phase monitor connected to the PC when it is displayed in the "USB" section.

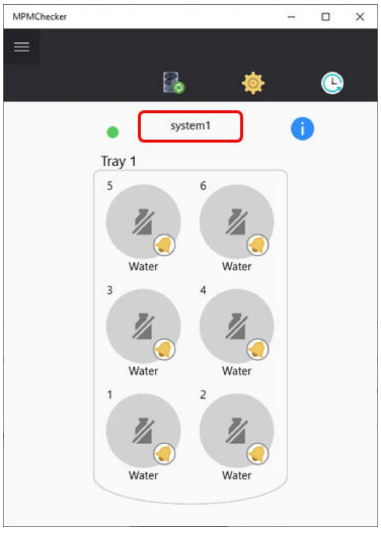


Hint If the serial number is not displayed, close MPMChecker and connect the mobile phase monitor to the PC again before repeating these steps.

8 **The [Specify IP Address] screen is displayed. Enter the settings for the IP address, subnet mask, default gateway, and MPM controller name and click [Save] button.**



Setting the MPM controller name displays it at the upper part of the monitor screen. If no MPM controller name has been set, the IP address is displayed.



9 **Remove the USB cable from the PC and connect the mobile phase monitor and the power supply.**

⚠ CAUTION

Instruction

Be sure to supply the power of the mobile phase monitor from the electrical outlet.

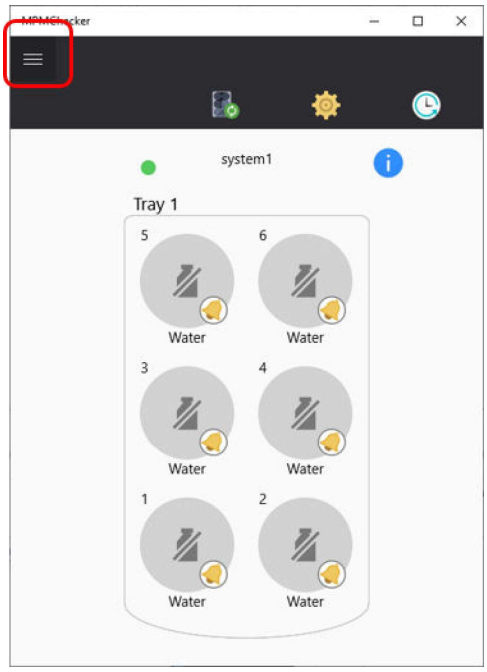
Please supply the power from the outlet using an AC adapter continually. Do not supply power from the PC.

3.2.2 Connecting a Mobile Phase Monitor

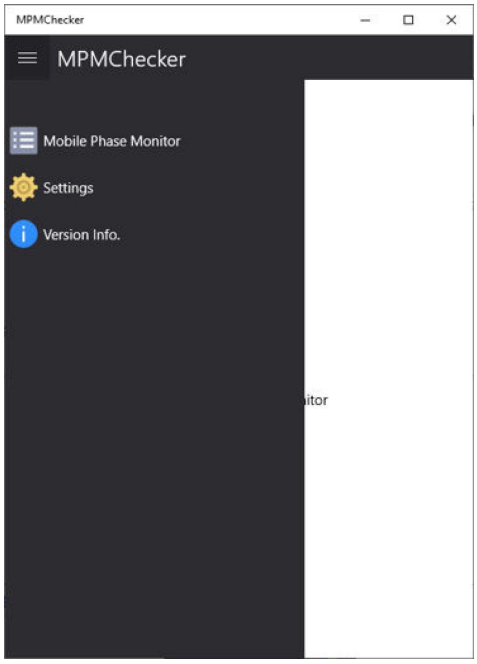
1 **Launch MPMChecker.**

2 **Click the "+" button if it is displayed in the middle of the screen. (→ Go to 6.)**

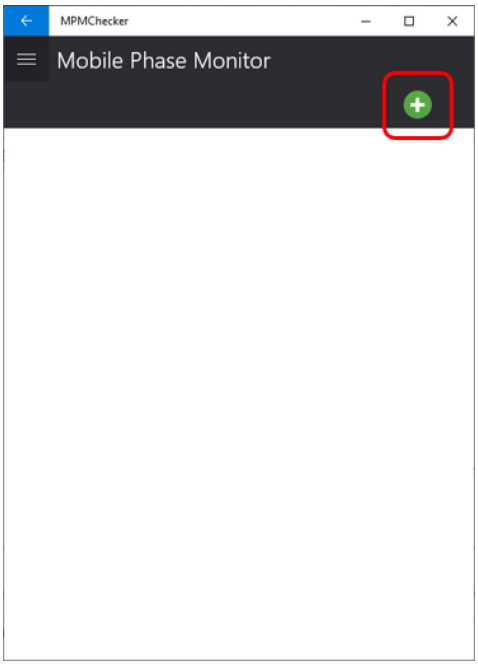
3 If the monitor screen is displayed, click the menu button at the top left.



4 Click the "Mobile Phase Monitor List".

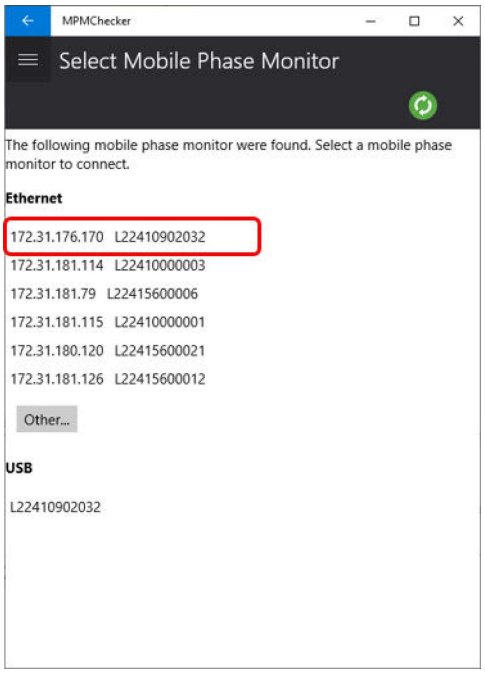


5 **Click the "+" button at the top right of the screen.**



Hint Enter the administrator password if it is required. The default password is "00000."

6 **The Select Mobile Phase Monitor screen is displayed.**
A list of IP addresses of mobile phase monitors connected to the network is displayed in the "Ethernet" section.
Click the IP address of the mobile phase monitor to connect to.



Hint [Other] is used to directly input the mobile phase monitor IP address. For example, if the mobile phase monitor is in a different network, you can not display it in the mobile phase monitor list, so enter the mobile phase monitor IP address directly in [Other].

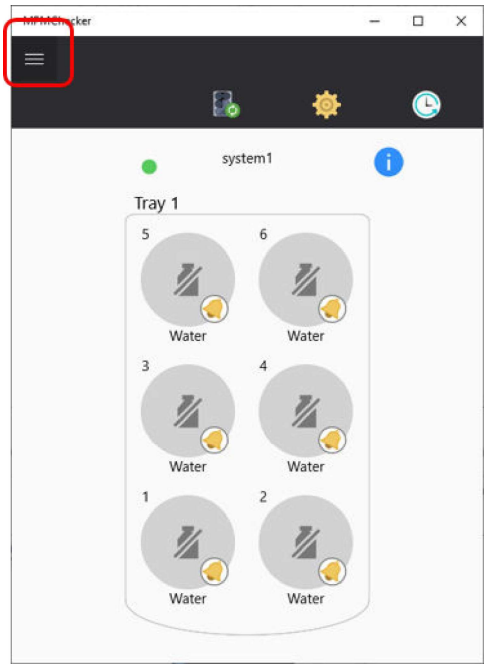
7 **Start the mobile phase monitor after establishing a connection.**
This is all that is required if the initial settings have been completed for the connected monitor.

Hint If the mobile phase monitor is being used for the first time, the bottle holders need to be scanned.

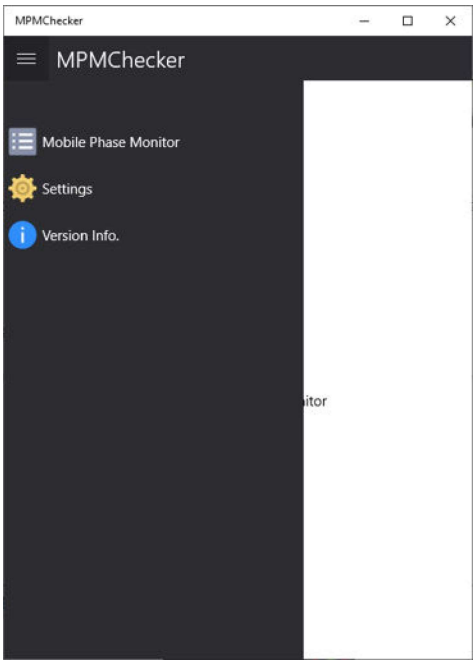
Reference "3.2.5 Connecting a Bottle Holder" P.35

3.2.3 Deleting a Mobile Phase Monitor

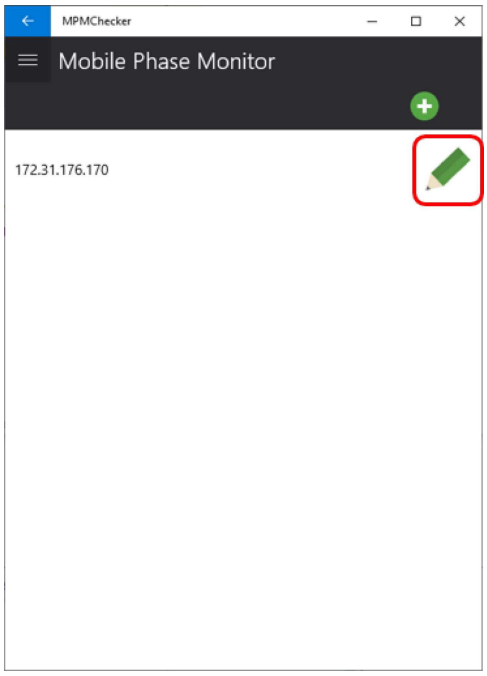
1 **Click the menu button at the top left of the monitor screen.**



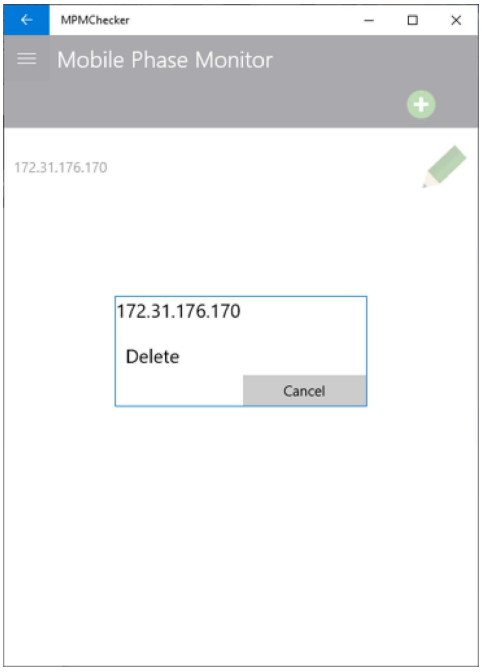
2 **Click the "Mobile Phase Monitor List".**



3 Click the pencil icon of the mobile phase monitor to delete.



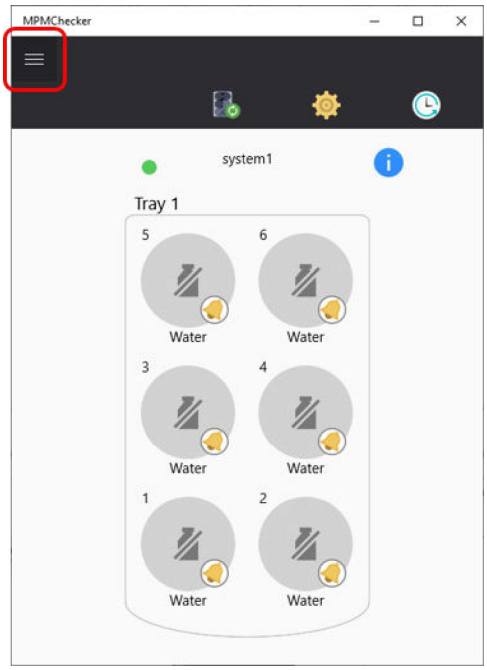
4 Click [Delete].



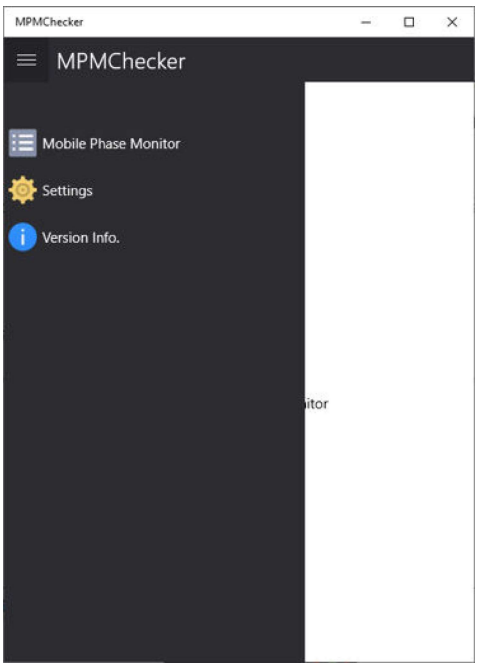
3.2.4 Switching Mobile Phase Monitor to Check

Up to 10 mobile phase monitors can be registered with MPMChecker. See "3.2.2 Connecting a Mobile Phase Monitor" P.28 the mobile phase monitor registration method.

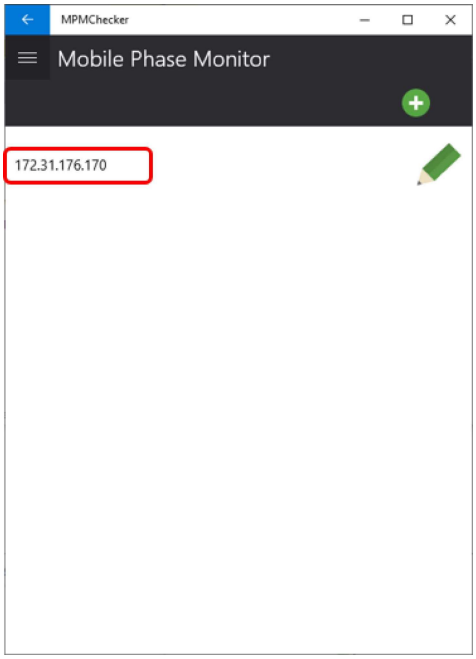
1 **Click the menu button at the top left of the monitor screen.**



2 **Click [Mobile Phase Monitor List].**



3 **A list of IP addresses of registered mobile phase monitors is displayed. Click the desired mobile phase monitor to check the mobile phase volume.**



3.2.5 Connecting a Bottle Holder

MPMChecker operation is required to increase / decrease the number of bottle holders. Scan the bottle holders by the procedure below.

Hint If reducing the number of bottle holders used and there is no need to remove the bottle holders, turning the notification settings for the corresponding sensor OFF is sufficient.

Reference "4.1.3 Notification Settings for Each Mobile Phase" P.72

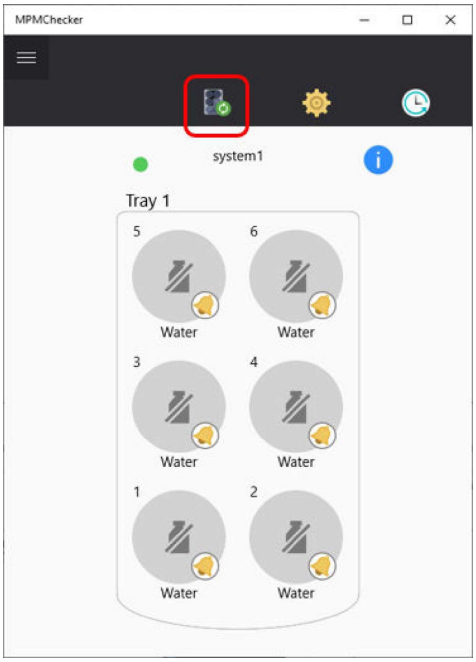
NOTE If removing the bottle holders, be sure to use the procedures outlined in this chapter.

⚠ CAUTION

Instruction

When connecting / removing the bottle holder, be sure to unplug the power cable of the mobile phase monitor controller.

1 Remove all mobile phase bottles from the bottle holders, and click the "Scan Bottle Holders" button on the monitor screen.

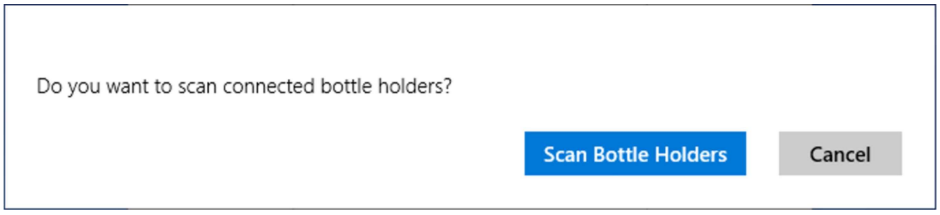


Hint

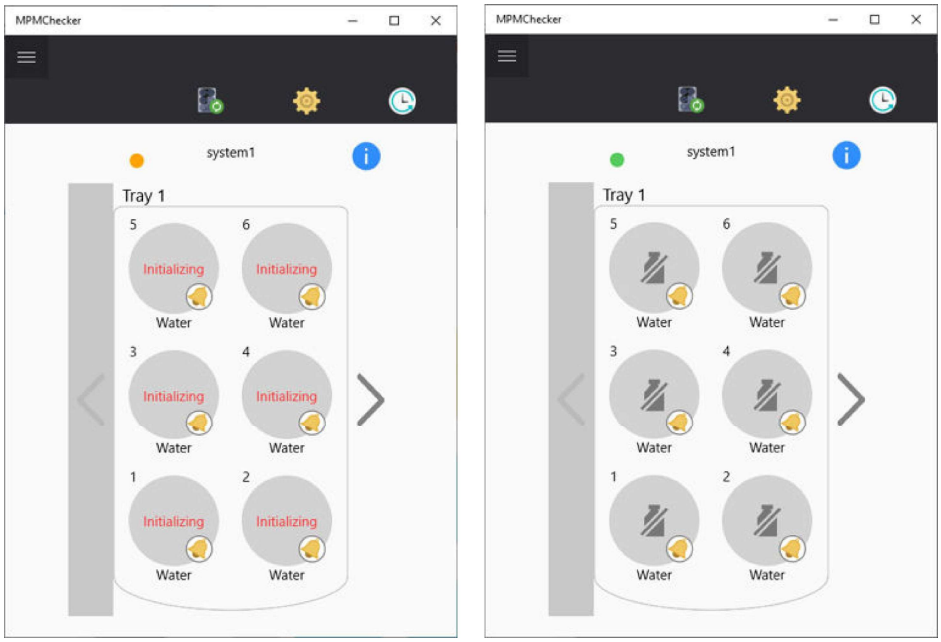
- Bottle holders only need to be scanned when connecting the monitor for the first time after installation, or if the number of bottle holders has been changed. There is no need to repeat this step each time the mobile phase is being monitored.
- Placing mobile phase bottles or other items on the bottle holders during scans will result in a "Zero point value error" status. Remove the mobile phase bottles, and run the scan again.
- Enter the administrator password if it is required. The default password is "00000."

NOTE Complete these steps with LabSolutions disconnected. Settings cannot be changed when LabSolutions is connected.

2 A confirmation message is displayed, so click [Scan Bottle Holders].



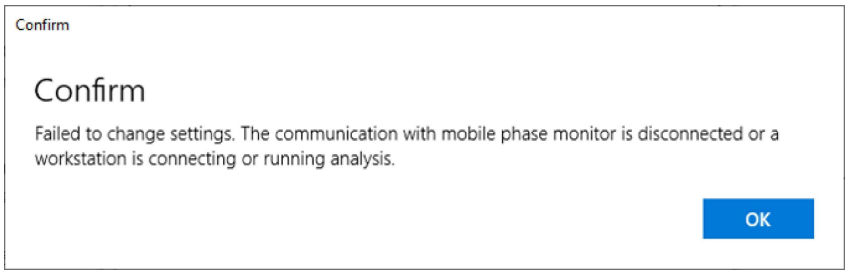
3 **Connected bottle holders will be found, and their status will change from "Initializing" → "Zero point value error" or "No bottle."**



Hint After the bottle holder connection is changed, the status "Zero point value error" may be displayed. In such case, perform zero point registration.

Reference "4.1.1 Registering a Mobile Phase" P.58

Hint If the following message is displayed, the mobile phase monitor is communicating with LabSolutions. Disconnect LabSolutions and run the scan again.

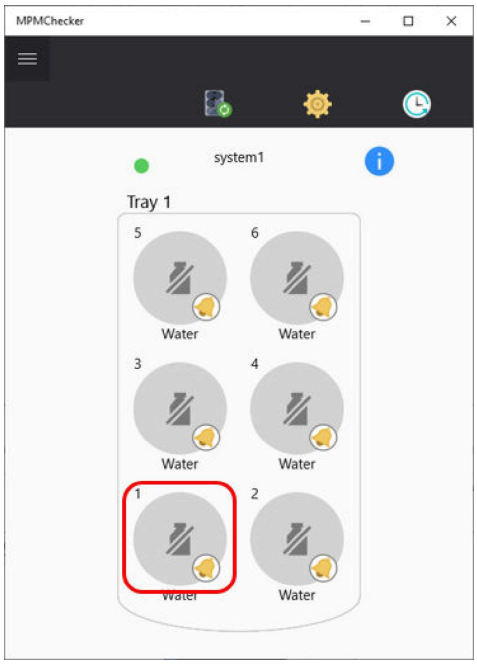


3.2.6 Switch between Large Bottle Mode / 1 L Bottle Mode

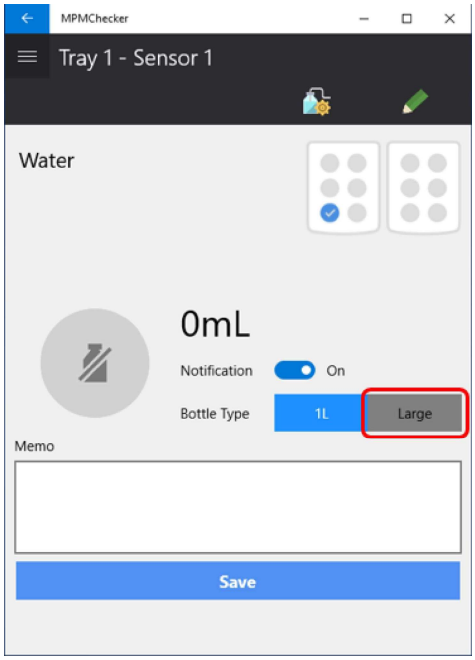
When using a large bottle holder, it is required to switch the setting to the large bottle mode on MPMChecker.
This section describes the procedure to switch the 1 L bottle mode to the large bottle mode.

1 **On the bottle holder for which to change the setting, click the sensor with the smaller number (i.e. left-side sensor).**

Hint When a cable is connected to the MPM controller connector No. 1, click sensor 1.



2 Click [Large Bottle].

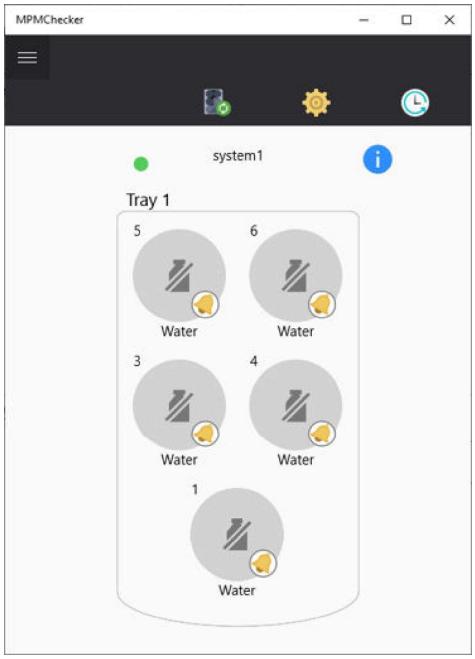


Hint

- Click [1 L bottle] to switch the large bottle mode to the 1 L bottle mode.
- Enter the administrator password if it is required. The default password is "00000".

3 Click [Save] at the lower part of the screen.

4 **When the large bottle mode is selected, the monitor screen is displayed as follows.**



5 **Calibrate the sensor of which bottle type was changed.**

Reference "4.1.1 Registering a Mobile Phase" P.58

NOTE Be sure to perform calibration each time the bottle type is changed. Correct weighing will be obstructed if no calibration is performed.

3.2.7 Linking the System Controller

Linking the mobile phase monitor to a Nexera series system controller (SCL-40/CBM-40/CBM-40lite) enables the operations below.

Conditions	System Operation
Mobile phase volume drops below the warning volume	Warning displayed on the SCL-40 or i-Series touch panel and LabSolutions.
Mobile phase volume drops below the error volume	Stops the solvent delivery pump and column oven. Error displayed on the SCL-40 or i-Series touch panel and LabSolutions.

<table>
<tr><th>Conditions</th><th>System Operation</th></tr>
<tr><td>Procedures below with the mobile phase volume less than the warning/error volume.
• Pump ON
• Rinse ON
• Start auto-purge</td><td>Check the volume of the mobile phase corresponding to the procedure again. If the volume was less than the warning/error volume, the operation is the same as above.
<table>
<tr><th>Procedure</th><th>Mobile Phase to Check</th></tr>
<tr><td>• Pump ON
• Start auto-purge for the solvent delivery pump</td><td>Mobile phase of corresponding solvent delivery pump</td></tr>
<tr><td>• Rinse ON
• Start purge for the autosampler</td><td>Rinse phase of corresponding autosampler</td></tr>
</table></td></tr>
</table>

NOTE Make this setting with the system controller and LabSolutions disconnected. The settings can not be changed with LabSolutions connected.
Be sure also to redo the system configuration settings on LabSolutions after you change any link settings.

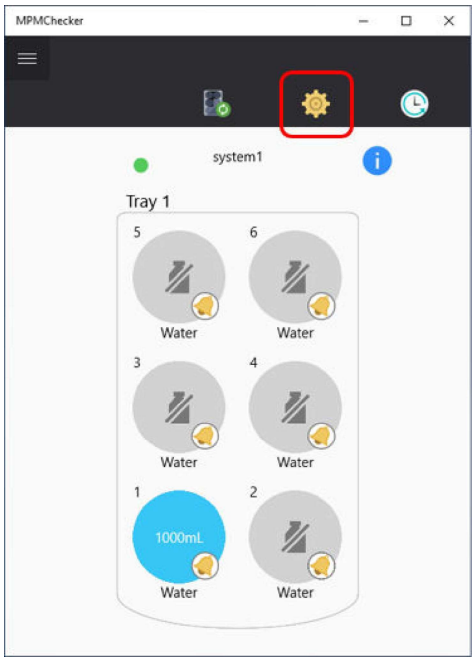
NOTE The monitor cannot be linked to system controllers previous to the CBM-20A/CBM-20Alite, i-Series previous to the LC-2030 Plus/LC-2040 Plus, or LC systems made by other companies. However, if the remote cable provided with the mobile phase monitor controller is used, you can stop the system in case of an error due to insufficient mobile phase.

Reference "4.1.5 Stop System When Mobile Phase is Low" P.81

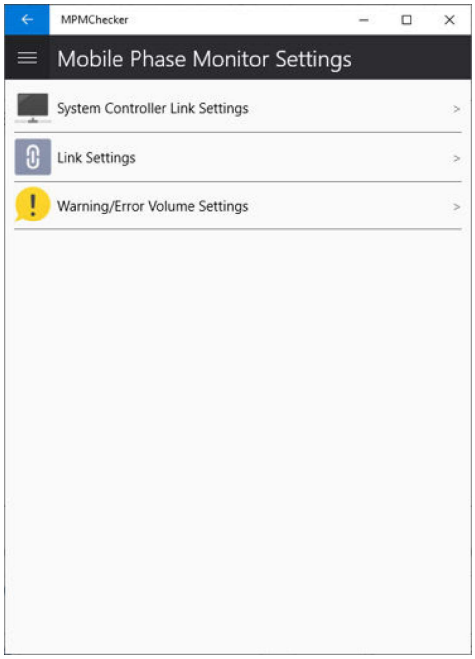
Hint
- This setting is not necessary when using this product standalone.
- When changing the linked system controller, cancel the current linkage and then link with the new system controller.

1 Connect the System Controller to the network.

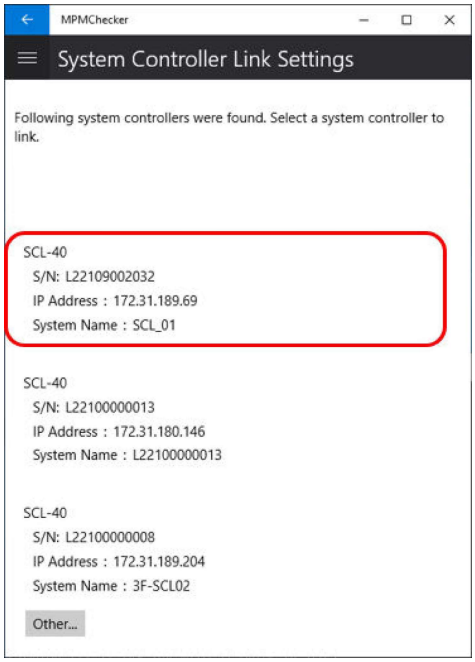
2 Click the gear icon at the top of the MPMChecker monitor screen.



3 Click [System Controller Link Settings].



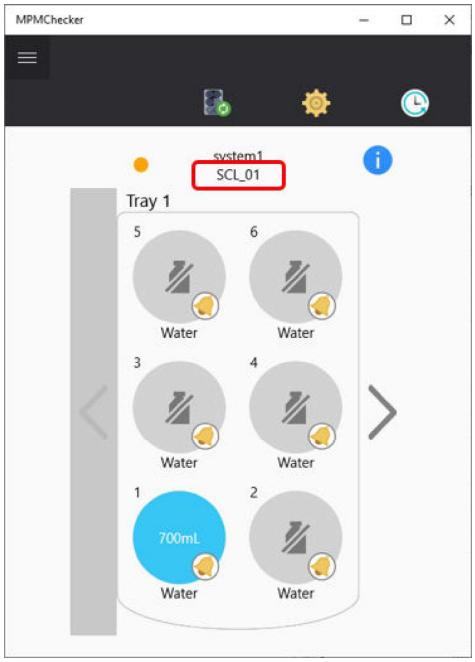
4 **The app begins searching for system controllers located on the same network. A list of model names, serial numbers, IP addresses, and the system name of system controllers that have been found is displayed.**
System controllers that are currently running an analysis or connected via LabSolutions are displayed as [Unavailable status].



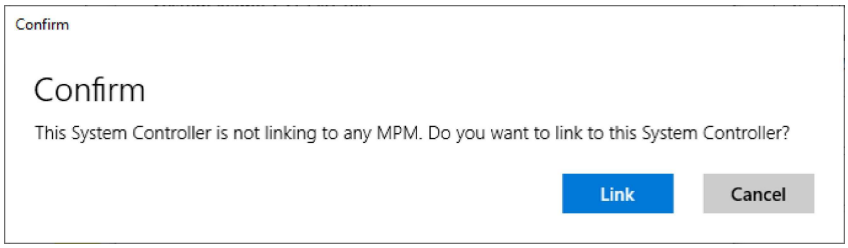
Hint

- Searching for system controllers takes several seconds.
- [Other] is used to directly enter the system controller's IP address. For example, if the system controller is in a different network, you can not display it in the system controller list, so enter the IP address of the system controller directly in [Other].

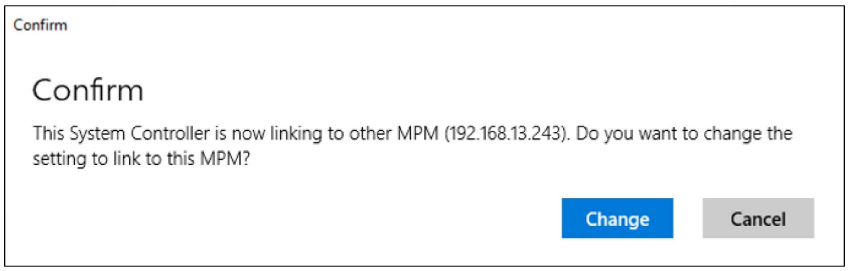
When the monitor is linked to the system controller, the monitor screen displays the [system name] of the system controller.



5 **Click the system controller you want to link. A confirmation message is displayed, so click [Link].**

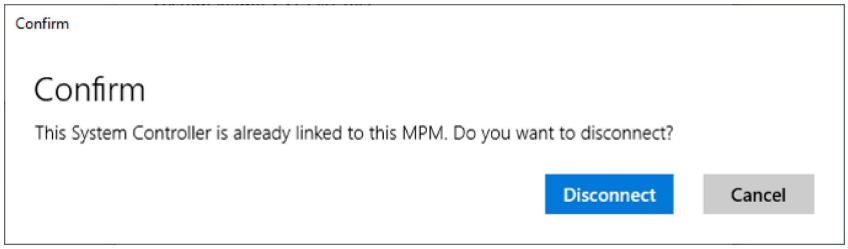


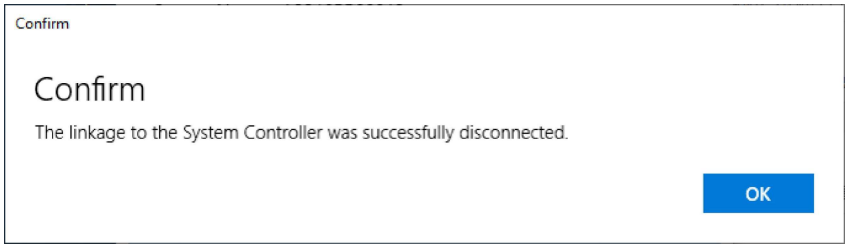
NOTE If the selected system controller is already linked with another mobile phase monitor, the message below is displayed.
Click [Change] to disconnect the linked mobile phase monitor and link the mobile phase monitor currently being configured.



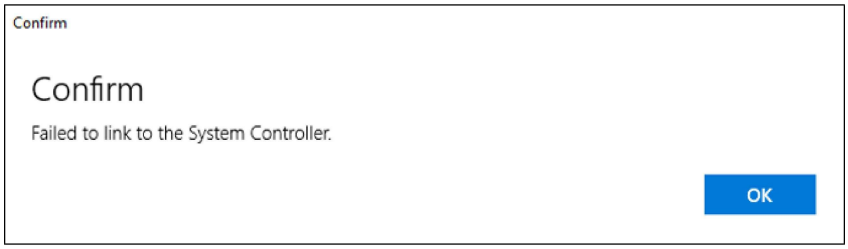
6 **The message below is displayed when the monitor is successfully linked to the system controller.**

7 **If the selected system controller is already linked to the monitor, the message below is displayed.**
Click [Disconnect] to disconnect the link.





8 **If the linking procedure fails, the message below is displayed.**



NOTE If the monitor fails to link to the system, the mobile phase monitor or the system controller may have become disconnected from the network during the linking procedure. Check the connection and repeat the steps in this section again from the start.

9 **Check the status of the mobile phase monitor by clicking the "Mobile Phase" icon on the SCL-40 or i-Series monitor screen.**

Reference "Mobile Phase Monitor Screen" in the SCL-40/CBM-40/CBM-40lite Instruction Manual
"2.3.1 Mobile Phase & Rinse Reserve Volume Setting Screen" in the i-Series Operation Guide

10 **Check the linkage setting of the system controller and mobile phase monitor in the [System Controller] screen of the LabSolutions [System Configuration] screen.**

Make sure that the serial number of the system controller and the serial number of the mobile phase monitor are the values you have linked in MPMChecker.

Reference "3.2.9 Connecting to LabSolutions" P.54

3.2.8 Link Settings

Use the Link Settings screen to configure communications between the mobile phase monitor and M2M gateway, synchronize time with the NTP sync settings and configure daylight saving settings.

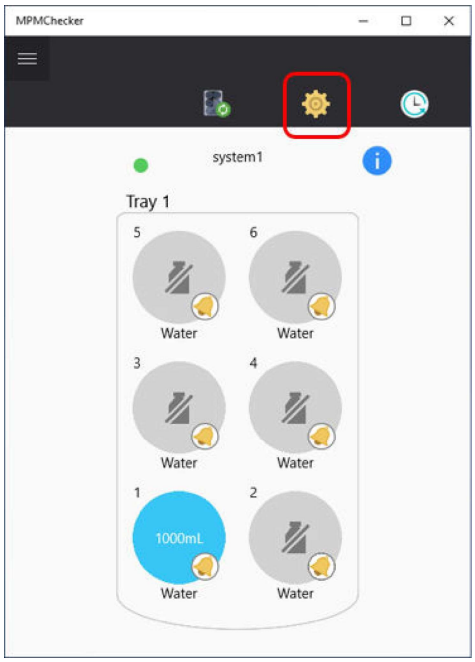
Setting Item	Description
M2M Gateway settings	When using the mobile phase monitor as a standalone unit without linking to a system controller, set whether to send monitor information to the LabTotal Smart Service Net Asset Agent, and the transmission destination and transmission interval. Linking the monitor and LabTotal Smart Service Net Asset Agent allows data on the LC system operating efficiency and the amount of mobile phase consumed over time to be acquired. Reference Refer to the "LabTotal Smart Service Net Asset Agent" Instruction Manual for details. NOTE Perform this M2M Gateway settings when linking with the LabTotal Smart Service Net Asset Agent using i-Series.
NTP Sync Settings	Set whether to sync the time, and configure the sync server. Hint If the time is not being synced, the time displayed in the calibration log and error log is the number of seconds elapsed since the unit was shipped from the factory.
Daylight Saving Settings	Set whether to adjust the time for daylight savings, and configure the start and end time, and the time offset.

■ M2M Gateway settings

This setting is required when sending data to the Smart Service Net Asset Agent when using this product standalone, or when linking this product with i-Series. When linked with a system controller, the system controller automatically sends data of this product to the Smart Service Net Asset Agent, so no configuration is necessary.

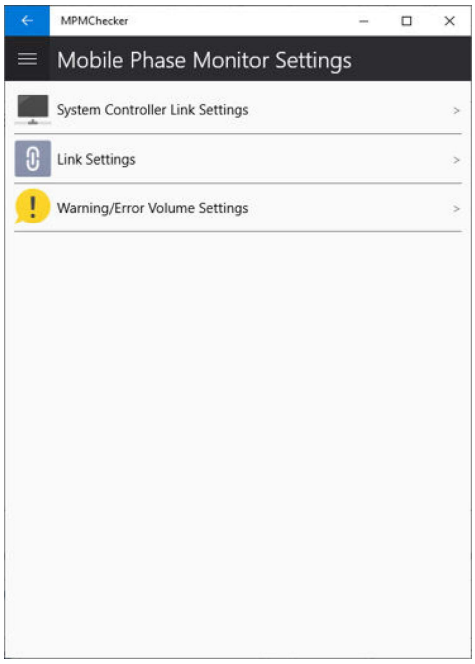
NOTE Complete these steps with LabSolutions disconnected. Settings cannot be changed when LabSolutions is connected.

1 Click the gear icon at the top of the MPMChecker monitor screen.

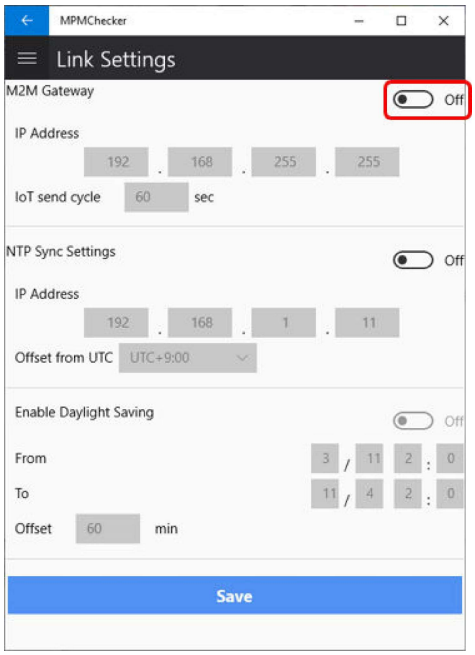


Hint Enter the administrator password if it is required. The default password is "00000."

2 Click [Link Settings].



3 If sending information to the M2M gateway, turn the toggle switch On.



4 Set the IP address of the data destination communication box, and the transmission interval.

5 Click [Save] at the bottom of the screen.

6 **The message below is displayed when the settings have been successfully changed.**

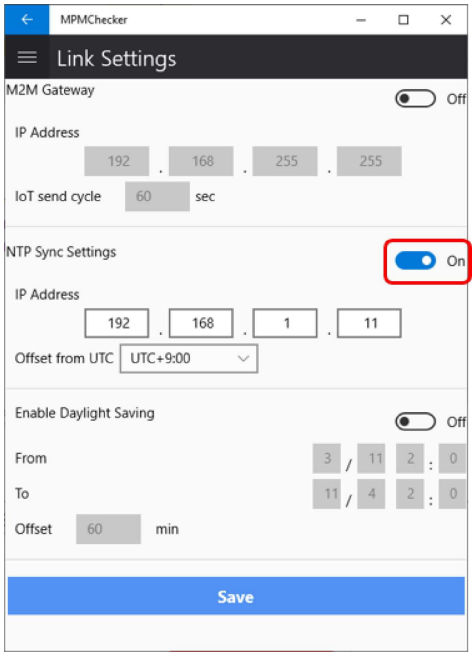
NOTE If changing the settings fails, the mobile phase monitor may have become disconnected from the network. Check the connection and repeat the steps in this section again from the start.

■ NTP Server Sync Settings

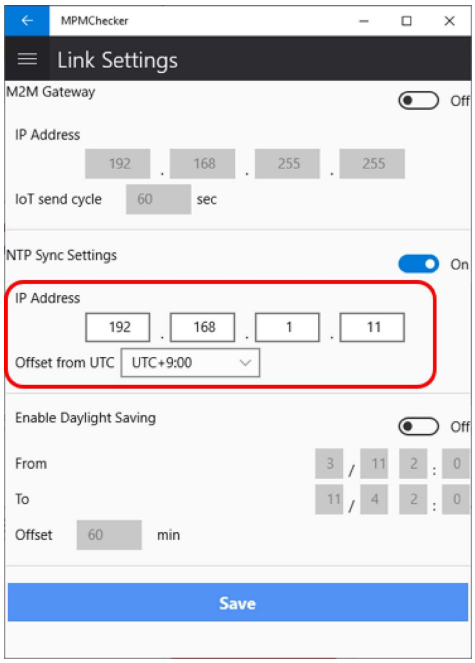
NOTE Complete these steps with LabSolutions disconnected. Settings cannot be changed when LabSolutions is connected.

1 **Open the Link Settings screen in the same way as the "M2M Gateway settings" P.47.**

2 **If turning NTP sync settings ON, turn the toggle switch On.**



3 **Set the NTP server IP address, and select the time offset from UTC.**



4 **Click [Save] at the bottom of the screen.**

5 **The message below is displayed when the settings have been successfully changed.**

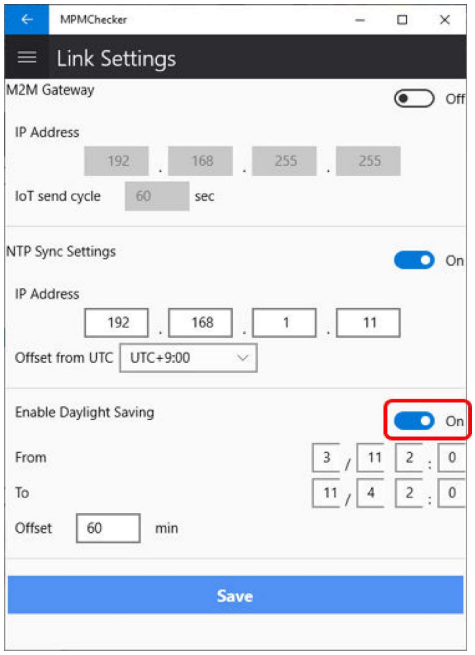
NOTE If changing the settings fails, the mobile phase monitor may have become disconnected from the network. Check the connection and repeat the steps in this section again from the start.

■ Daylight Saving Settings

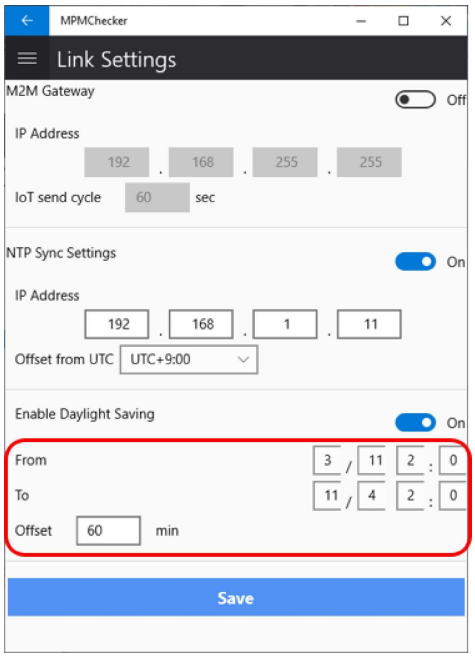
> **NOTE** Complete these steps with LabSolutions disconnected. Settings cannot be changed when LabSolutions is connected.

1 **Open the Link Settings screen in the same way as the "M2M Gateway settings" P.47.**

2 **If enabling daylight saving, turn the toggle switch On.**



3 **Set the start and end time of daylight saving, and the time offset.**



4 **Click [Save] at the bottom of the screen.**

5 **The message below is displayed when the settings have been successfully changed.**

NOTE If changing the settings fails, the mobile phase monitor may have become disconnected from the network. Check the connection and repeat the steps in this section again from the start.

3.2.9 Connecting to LabSolutions

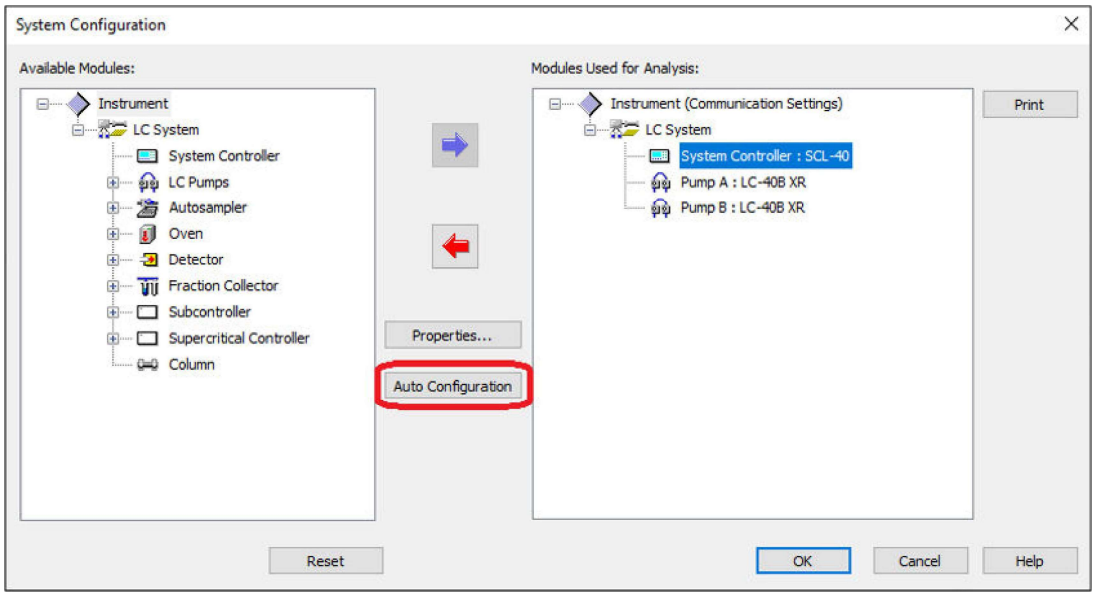
When the system controller linked with the mobile phase monitor is connected to LabSolutions, you can check if the mobile phase is sufficient before starting analysis, or stop analysis in case of insufficiency. You can also monitor the remaining volume of mobile phase via LabSolutions.

Hint This setting is not necessary when using this product standalone.

1 **Connect to a system controller that is already linked to a mobile phase monitor.**

Reference "3.2.7 Linking the System Controller" P.40

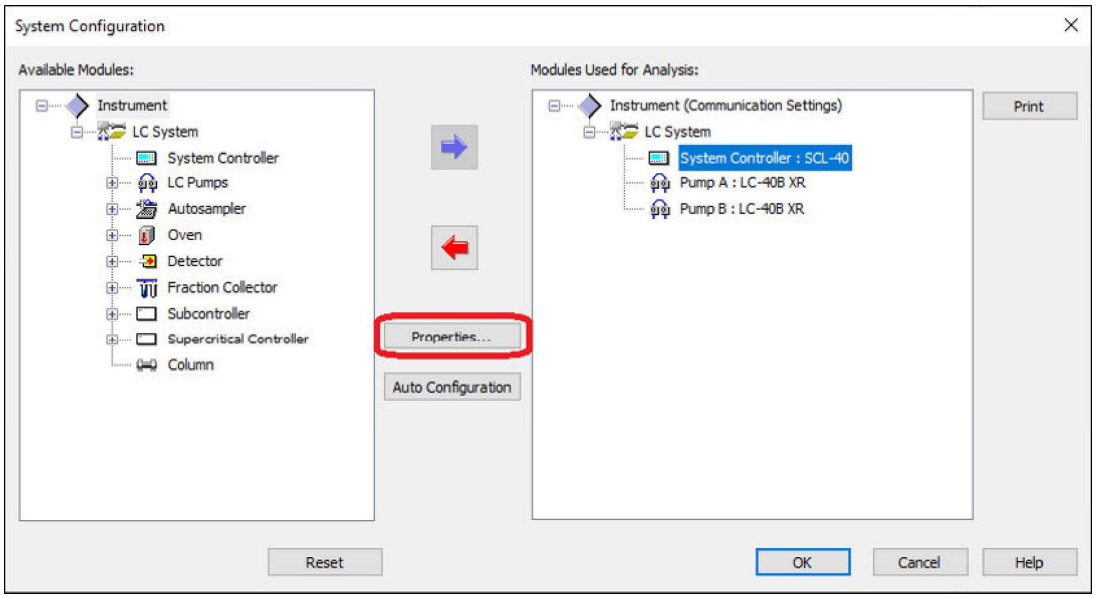
2 **Click [Auto Configuration] in the LabSolutions [System Configuration] screen.**



NOTE If you removed a bottle holder, or started LabSolutions after line settings are changed, connection to LabSolutions may be impossible due to discrepancy between the current system configuration and that of the last operation in LabSolutions. In such case, click the [Auto Configuration] button in the LabSolutions [System Configuration] screen to update the configuration settings.
* If you have removed the mobile phase monitor from the system, or canceled the link between the monitor and the system controller, click [Reset] first before clicking [Auto Configuration] in the LabSolutions [System Configuration] screen.

Hint During auto configuration of the system configuration settings, unit ID and some other items will lose their previous settings. To check and record the content of the current settings, create a system configuration report beforehand by clicking the [Print] button in the [System Configuration] screen.

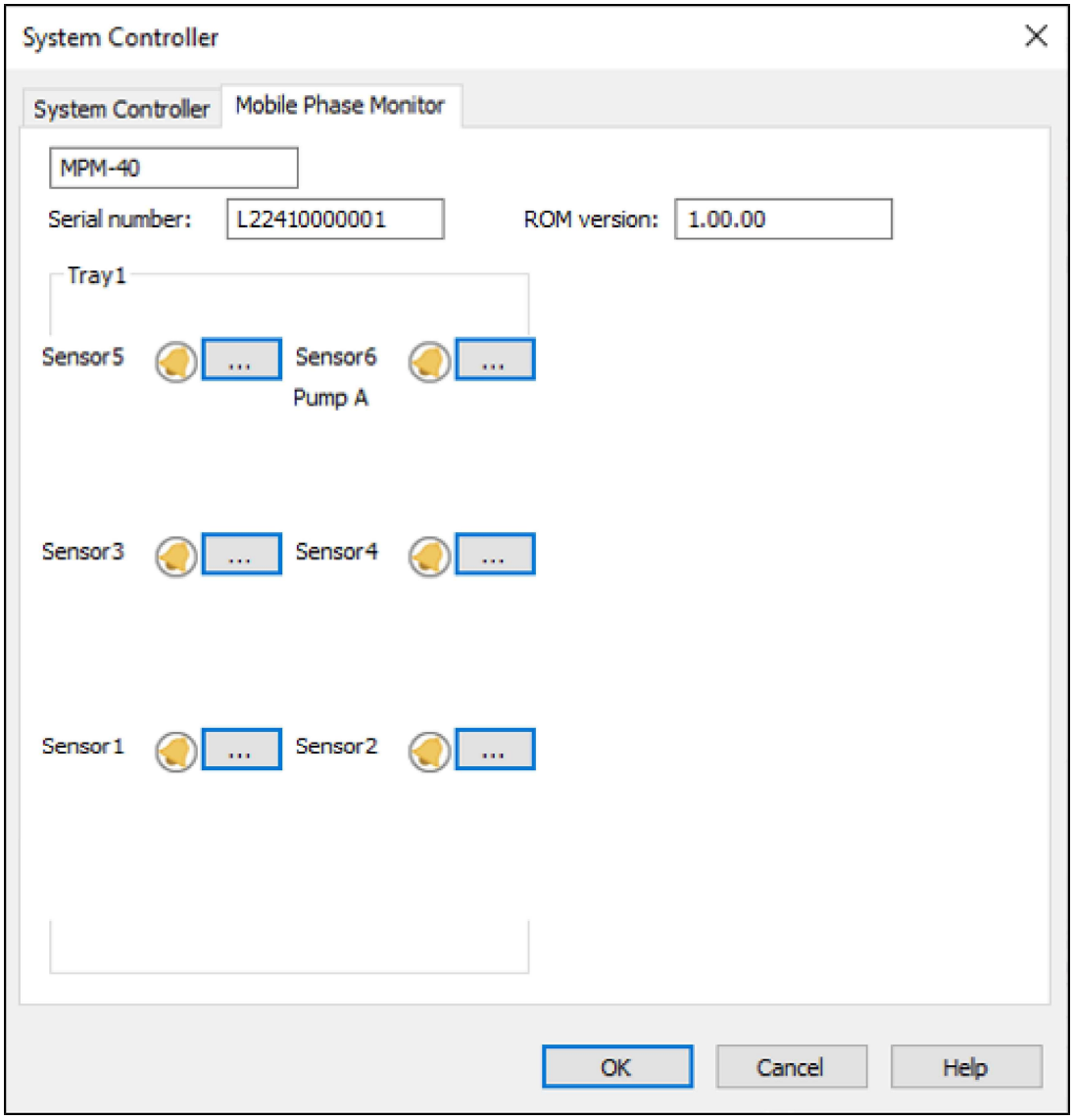
3 **Select the "System Controller" item and click [Properties].**



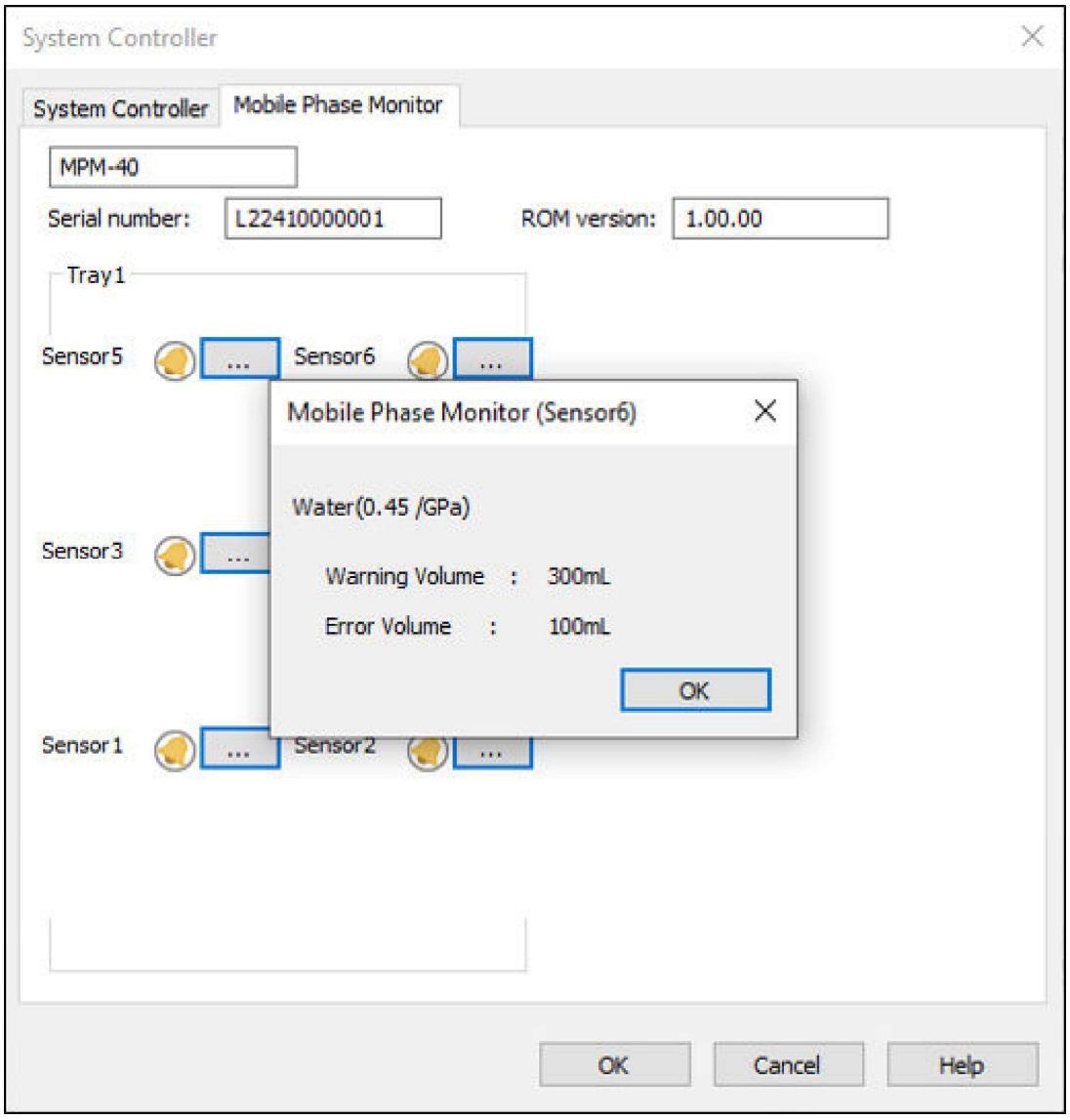
4 **Check that there is a [Mobile Phase Monitor] tab in the [System Controller] screen.**

Check that the number of sensors displayed, notification settings, and details of line settings are correct.

Reference Refer to the LabSolutions Help section for detailed explanations of each screen item.



5 **Check the mobile phase name and compressibility of each sensor by clicking [...].**



4 Operation

This chapter outlines the daily operations.
See "7.1 Installation" P.113 for hardware installation.

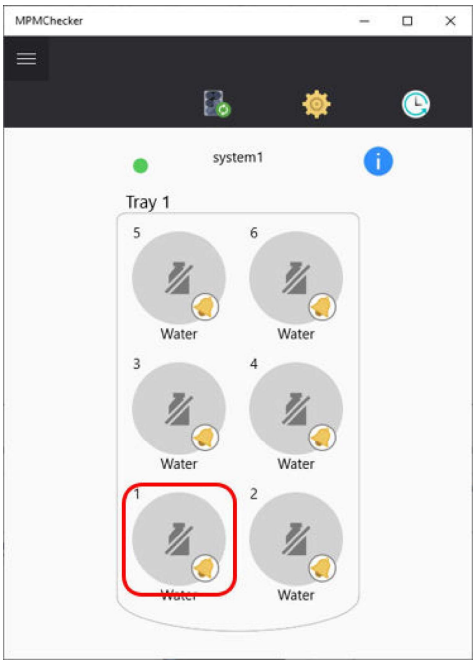
4.1 Daily Operation

4.1.1 Registering a Mobile Phase

NOTE Complete these steps with LabSolutions disconnected. Settings cannot be changed when LabSolutions is connected.

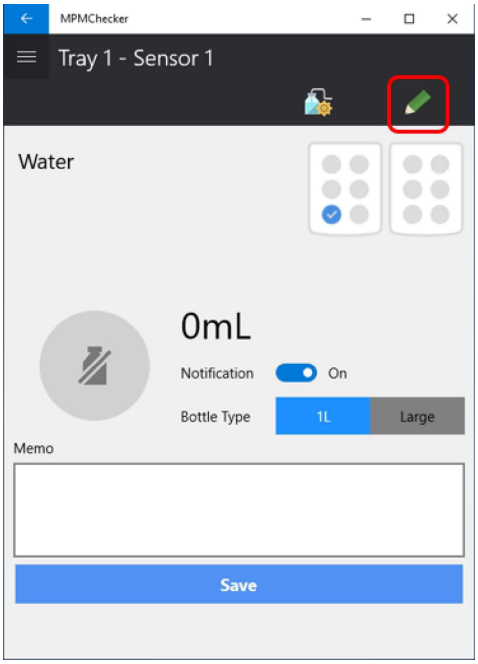
1 **Prepare a mobile phase bottle to use for daily analysis (do not fill with mobile phase).**

2 **Click the sensor of the mobile phase to register in the MPMChecker monitor screen.**

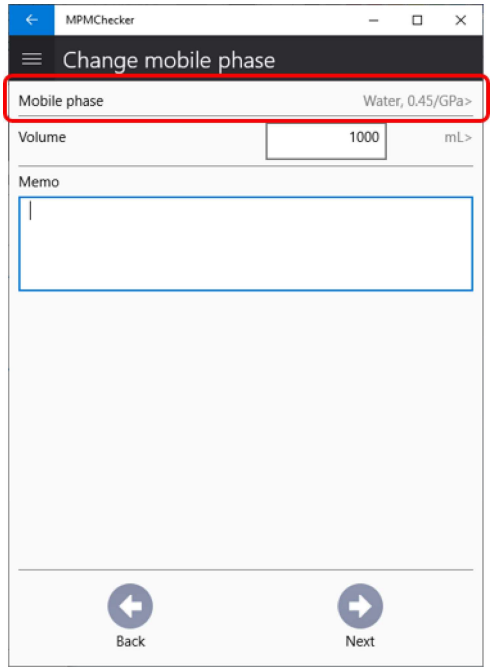


Hint Enter the administrator password if it is required. The default password is "00000."

3 The details screen for the mobile phase is displayed. Click the edit icon at the top right.

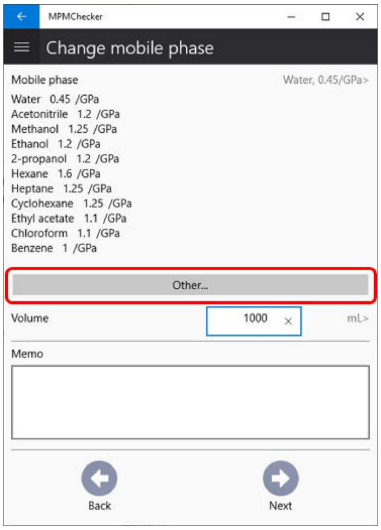


4 Click the "mobile phase name".



5 Select the name of the mobile phase to be used from the list. If the name is not in the list, configure the mobile phase using the procedure below.

1 Click [Other].

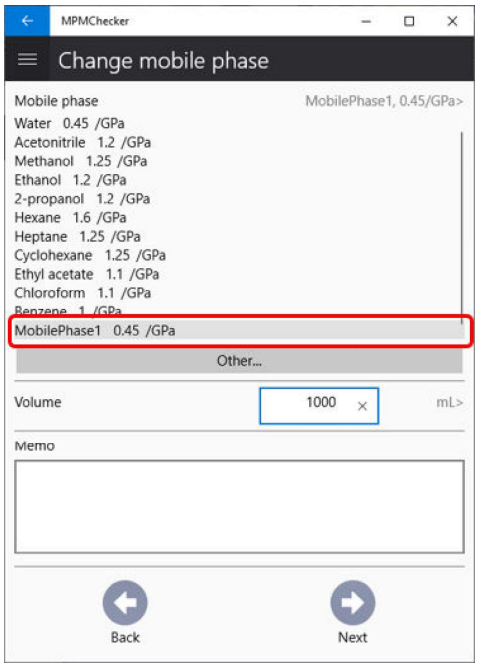


2 Enter the mobile phase name and compressibility, click [OK].

Hint

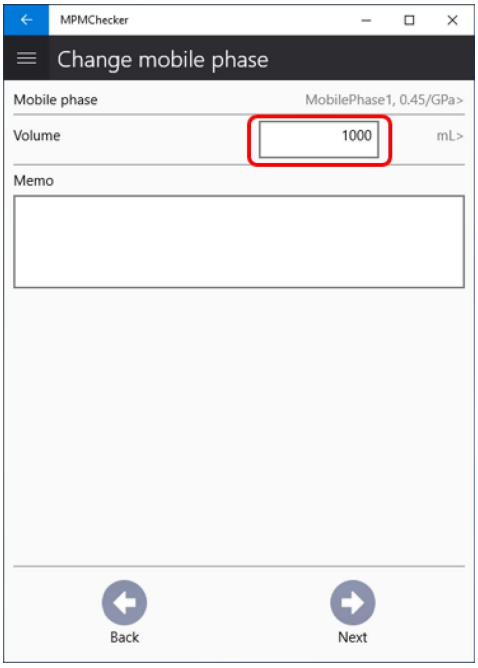
- Up to 60 characters can be entered for a mobile phase name.
- The mobile phase name and compressibility entered in this step is loaded as mobile phase settings when LabSolutions is connected.

3 Select the newly entered mobile phase name.



4

6 **Enter the volume (mL) of the mobile phase put in the mobile phase bottle into [Volume].**



7 Enter a memo if required.

Hint

- Up to 100 characters can be entered for the memo.
- Memo content is only visible in MPMChecker.

8 Click [Next].

9 **The zero point registration screen is displayed. Remove the mobile phase bottle from the bottle holder, and click [Next].**

Clicking [Next] will register the zero point weight.

Hint It may take several seconds until [Next] can be clicked as the system waits for the weight to stabilize immediately after removing the mobile phase bottle from the bottle holder.

The zero point weight is saved on the device, so there is no need to repeat this step each time the type of mobile phase is changed. Weighing the zero point is only required during initial installation or if there is a zero point error. Click [Skip] to skip this step if weighing is not required.

10 **The empty bottle weight registration screen is displayed. Place an empty bottle on the bottle holder, and click [Next].**

Clicking [Next] will register the empty bottle weight.

Hint

- It may take several seconds until [Next] can be clicked as the system waits for the weight to stabilize immediately after placing the empty bottle on the bottle holder.
- The weight of bottles must be at least approx. 200 g. Lightweight bottles such as plastic containers or 250 mL bottles cannot be used.
- The weight of the suction tube or lid of the mobile phase bottle may delay the determination of the remaining amount. When making a judgment taking into consideration the suction tube or lid, attach the suction tube or lid and calibrate.

The weight of the empty bottle is saved on the device, so there is no need to repeat this step each time the mobile phase is changed. Weighing the zero point is only required during initial installation or if changing the type of empty bottle. Click [Skip] to skip this step if weighing is not required.

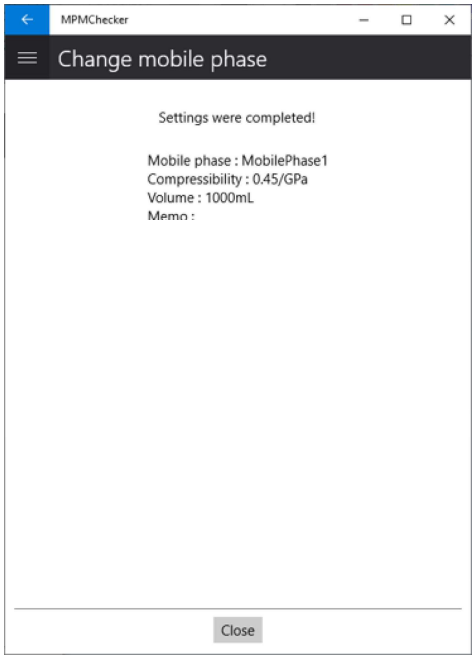
11 **Put the mobile phase of the volume entered in step 6 into an empty bottle.**

> **NOTE** You can use a different bottle from the one used for the empty bottle weight registration if it is a bottle with the same model number, but individual differences in the bottle weight may cause measurement errors.

12 **The weight registration screen for the filled mobile phase bottle is displayed. Place the bottle containing the mobile phase on the bottle holder and click [Next].**

Hint The weight of the suction tube or the lid of the mobile phase bottle may delay the detection of insufficient remaining volume. To make a judgment concerning the weight of the suction tube or lid, calibrate the sensor with those items attached.

13 **A summary of the registered mobile phase information is displayed. Click [Close] to return to the details screen for the mobile phase.**



14 **Repeat the steps above for all sensors to be used.**

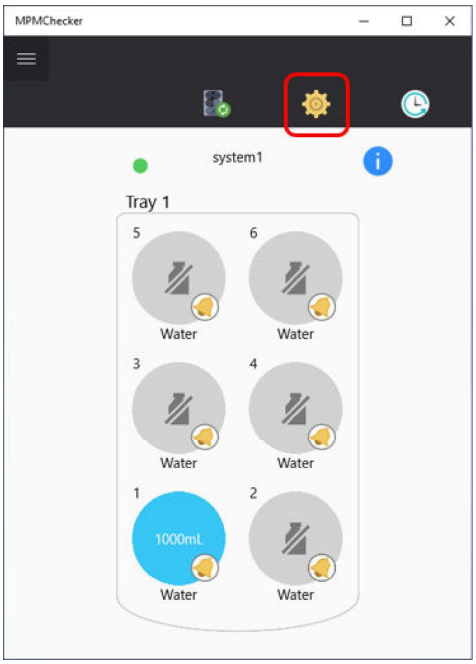
4.1.2 Setting the Warning/Error Volume

Set the volumes for sending notifications of low mobile phase levels. The app sends a notification when the mobile phase volume drops below the set value. The color of the status indicator also changes to suit the set value.

Hint Notifications for each mobile phase can be turned ON/OFF. See "4.1.3 Notification Settings for Each Mobile Phase" P.72 for details.

NOTE Complete these steps with LabSolutions disconnected. Settings cannot be changed when LabSolutions is connected.

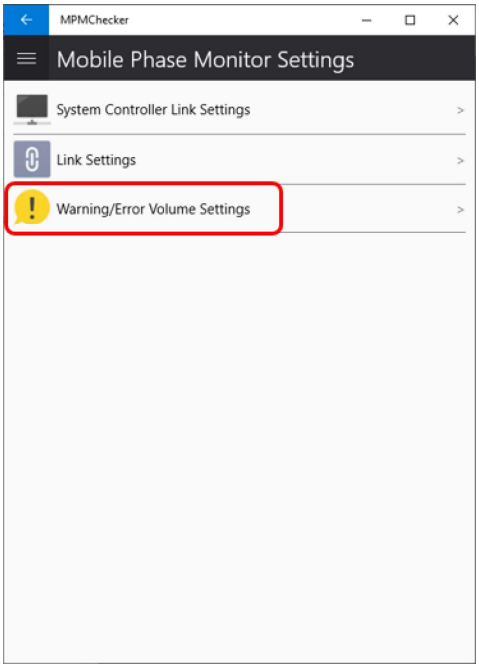
1 Click the gear icon at the top of the MPMChecker monitor screen.

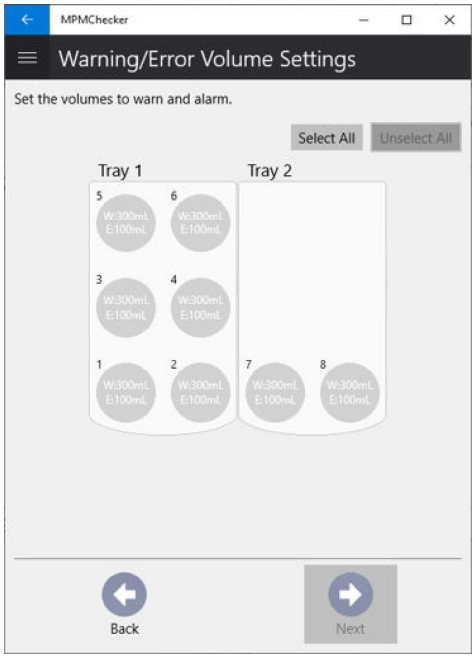


Hint Enter the administrator password if it is required. The default password is "00000."

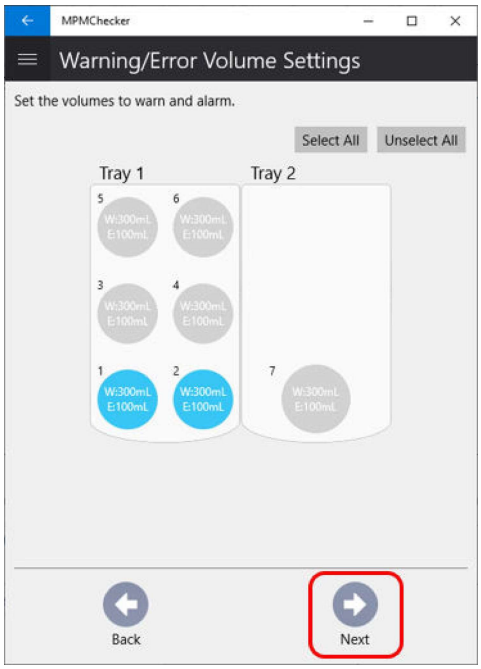
2 Click [Warning/Error Volume Settings].

The warning and error volumes currently set for all bottles are listed.

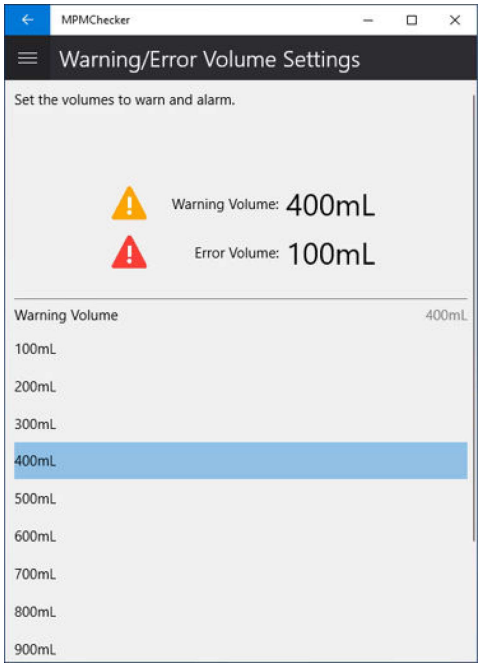




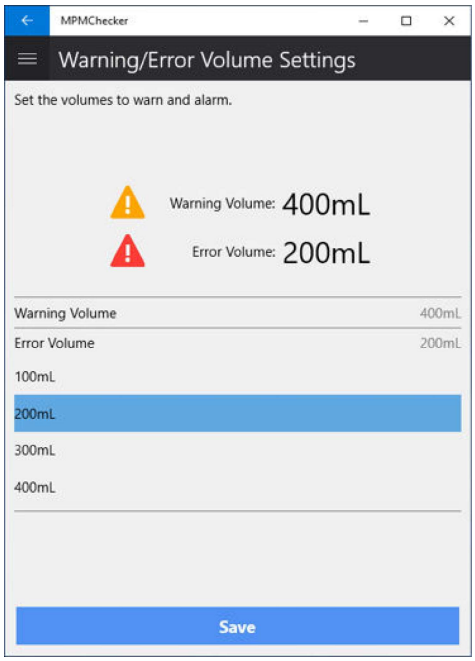
3 **Click the sensor (multiples allowed) for which to set the warning and error volumes.**
Clicking [Select all] selects all sensors in a batch. After selection, click [Next].



4 **Set the mobile phase volume used to issue a warning (100 mL increments).**



5 **Set the mobile phase volume used to issue an error (100 mL increments).**



Hint

- Setting the error volume to the same value as the warning volume only sends the error notification when the mobile phase volume drops below the set value.
- A contact signal is output when the mobile phase volume continues to drop below the error volume.

Reference "4.1.5 Stop System When Mobile Phase is Low" P.81

6 **Click [Save].**

7 **The message below is displayed when the settings have been successfully changed.**

NOTE If changing the settings fails, the mobile phase monitor may have become disconnected from the network. Check the connection and repeat the steps in this section again from the start.

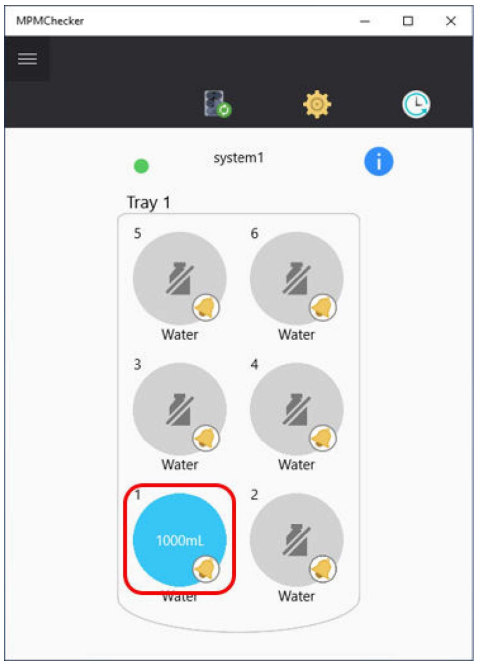
4.1.3 Notification Settings for Each Mobile Phase

Notifications for each mobile phase can be turned ON/OFF. If the mobile phase volume drops below the value set in "4.1.2 Setting the Warning/Error Volume" P.68 for mobile phases with notifications turned ON, a warning or error notification is sent. No notification is sent if notifications are turned OFF.

If the mobile phase volume is only measured, or if there are bottle holders that are left in place but not being used, turn notifications OFF.

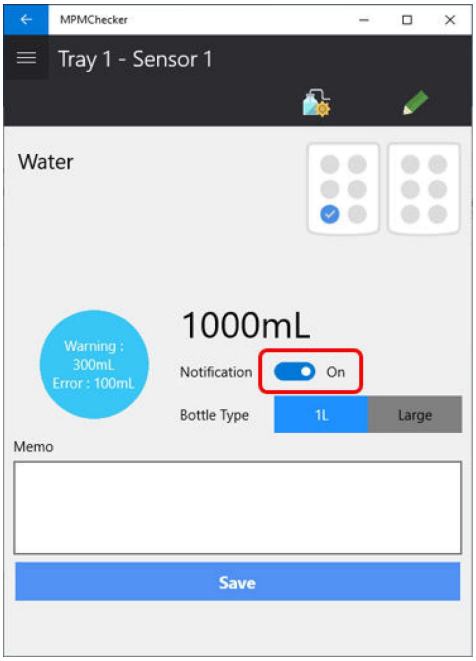
NOTE Complete these steps with LabSolutions disconnected. Settings cannot be changed when LabSolutions is connected.

1 **Click the sensor of the mobile phase to change notification settings in the MPMChecker monitor screen.**



Hint Enter the administrator password if it is required. The default password is "00000."

2 **The details screen for the mobile phase is displayed. Change notification settings using the toggle switch in the middle of the screen.**



3 **Click [Save] at the bottom of the screen.**

4 **The message below is displayed when the settings have been successfully changed.**

NOTE If changing the settings fails, the mobile phase monitor may have become disconnected from the network. Check the connection and repeat the steps in this section again from the start.

■ Turn Notification Settings OFF Temporarily/Cancel

Notifications can be turned OFF temporarily to prevent the solvent delivery pump and column oven from stopping if there is a volume error.

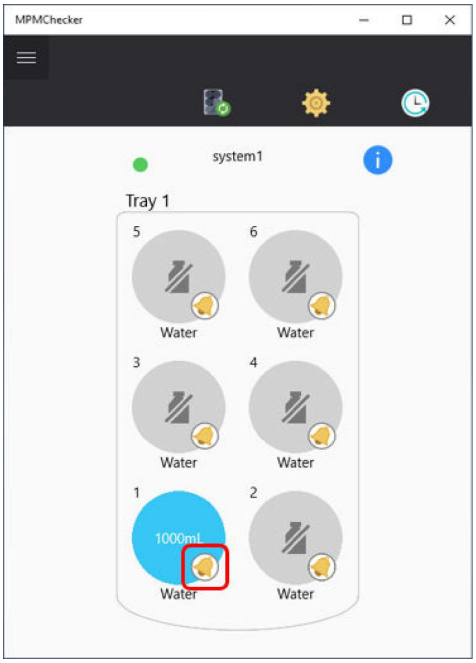
Hint

- This setting is canceled when an analysis starts.
- This procedure can be used even when connected to LabSolutions.
- Settings cannot be changed during an analysis.
- If the monitor is linked to the system controller, this setting can be changed using the system controller touch panel.

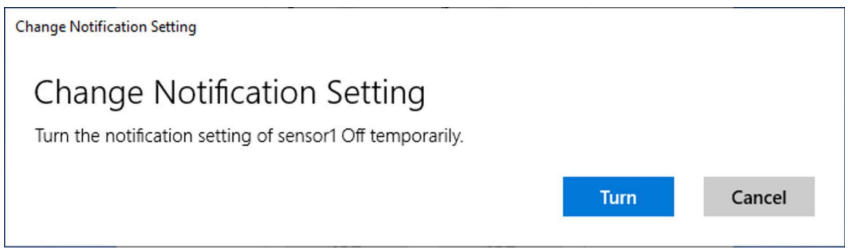
Reference

- "Mobile Phase Monitor Screen" in the SCL-40/CBM-40/CBM-40lite Instruction Manual
- "2.3.1 Mobile Phase & Rinse Reserve Volume Setting Screen" in the i-Series Operation Guide

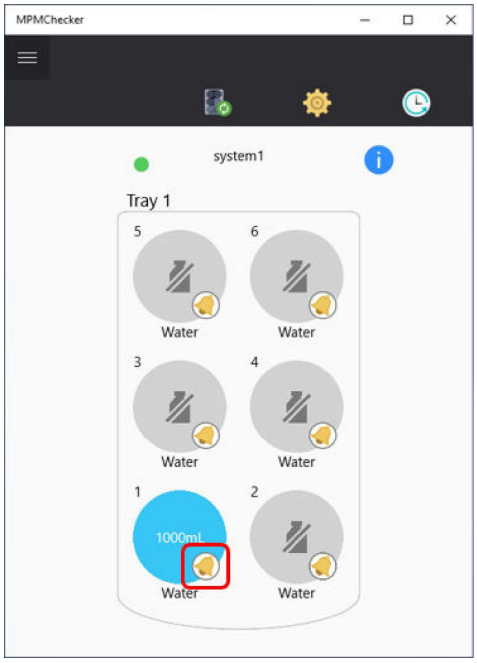
1 Click the bell icon of the sensor to turn notifications OFF temporarily in the MPMChecker monitor screen.



2 A confirmation message is displayed, so click [Turn].

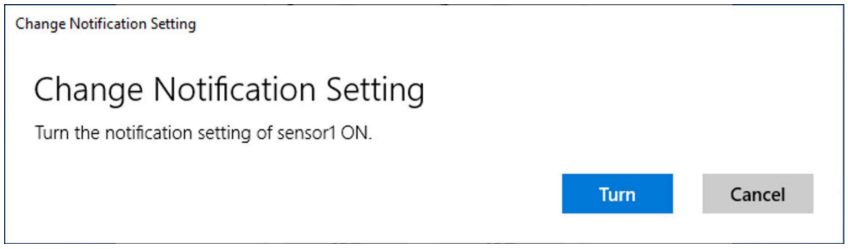


3 **A diagonal line appears over the bell icon when the setting has been successfully changed.**



4 **Click the bell icon again to cancel the setting.**

5 **A confirmation message is displayed, so click [Turn].**



6 **The diagonal line disappears from the bell icon when the setting has been successfully changed.**

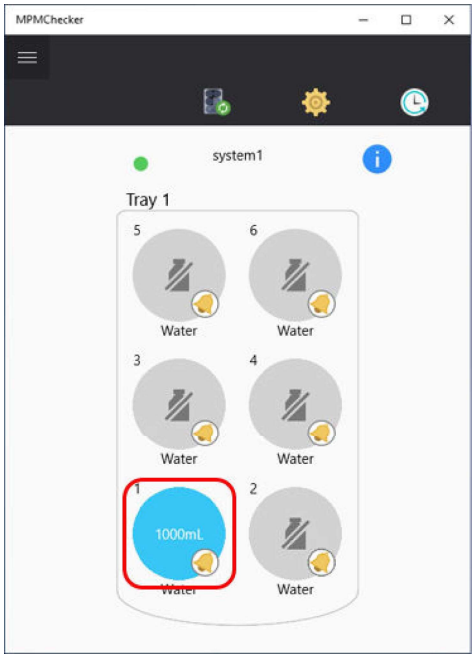
4.1.4 Line Settings

Use line settings to configure each mobile phase bottle with the corresponding suction tube (line) of each solvent delivery pump/autosampler. These settings make predicting insufficient mobile phase to be completed when starting analysis with LabSolutions. It also allows only the required mobile phases to be monitored during liquid feed operations such as pump ON and rinse ON.

NOTE

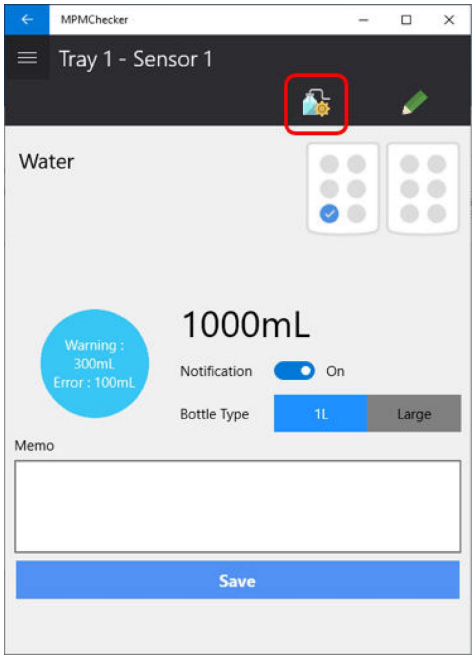
- Line settings are not required when the monitor is used as a standalone unit.
- Complete these steps with LabSolutions disconnected. Settings cannot be changed when LabSolutions is connected.
- After line settings are changed, open the method file used for analysis in the analysis screen (in the most recent status after the change) of LabSolutions, and save it. If you register a batch analysis specifying a method file not saved under the most recent system configuration, the use volume of mobile phase may not be calculated correctly.

1 **Click the sensor of the mobile phase to register in the MPMChecker monitor screen.**



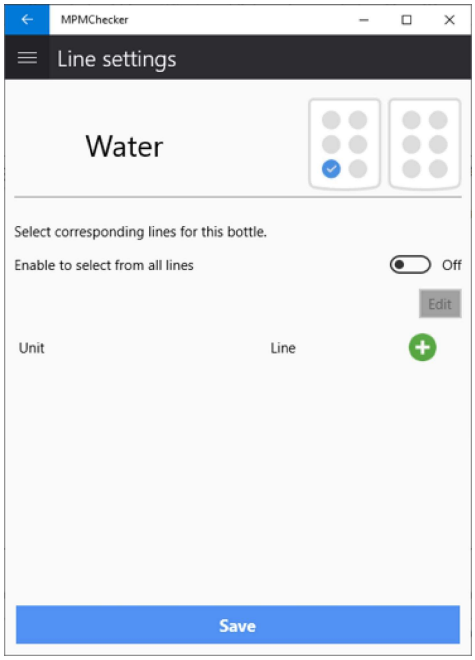
Hint Enter the administrator password if it is required. The default password is "00000."

2 **The details screen for the mobile phase is displayed. Click the Line Settings icon at the top of the screen.**

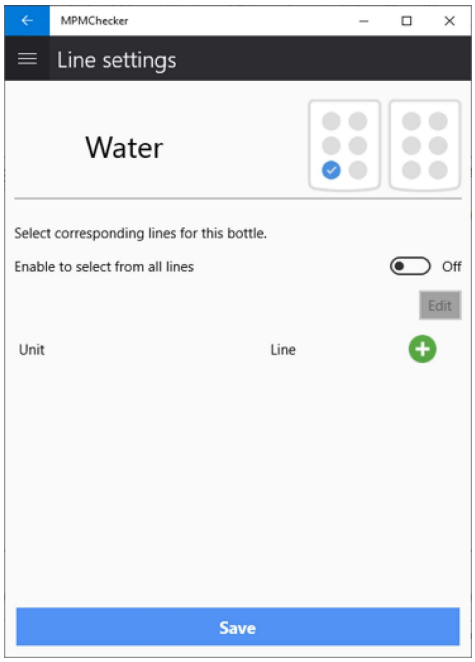


3 **The Line settings screen is displayed. If the monitor is linked to a system controller, it automatically starts acquiring the unit configuration from the system controller.**

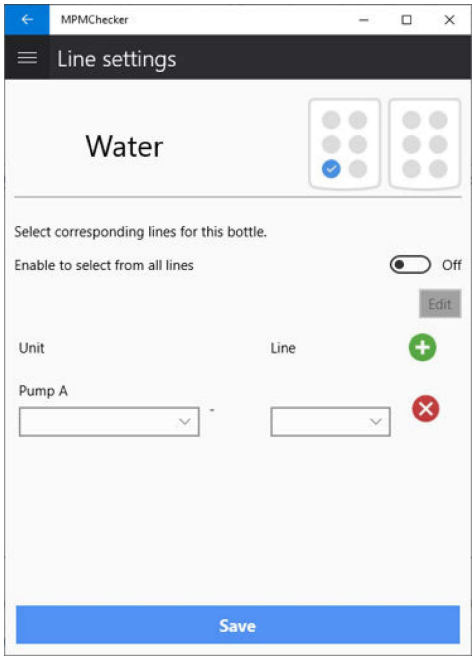
Hint Operations are not available while the progress bar is displayed at the top left of the screen as the unit configuration is being acquired.



4 Click [Edit]. The monitor switches to edit mode, then click the "+" button.

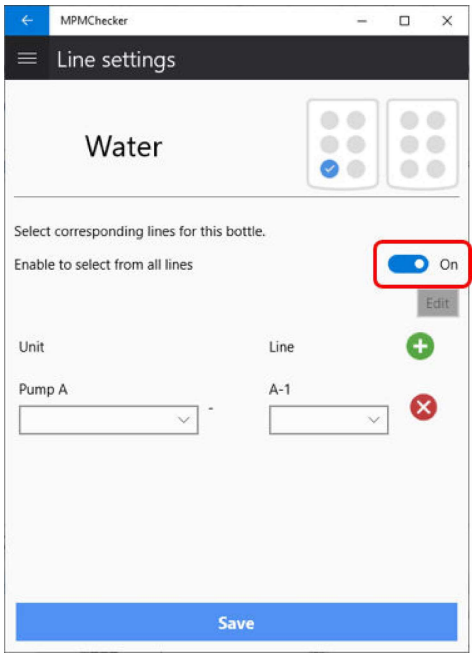


5 Select the solvent delivery pump and line (suction tube) corresponding to the mobile phase. A list of items that can be configured is displayed based on the unit configuration acquired from the system controller.



6 **If all the required setting items are not displayed, turn [Enable to select from all lines] On.**

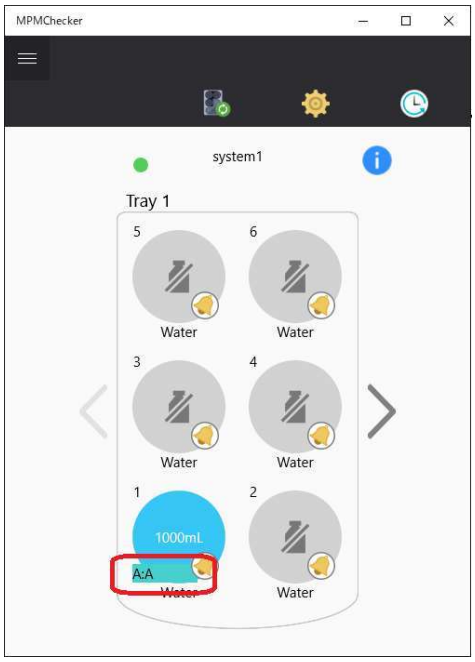
Hint Use this option if the unit configuration cannot be acquired properly from the system controller due to factors such as communication conditions.



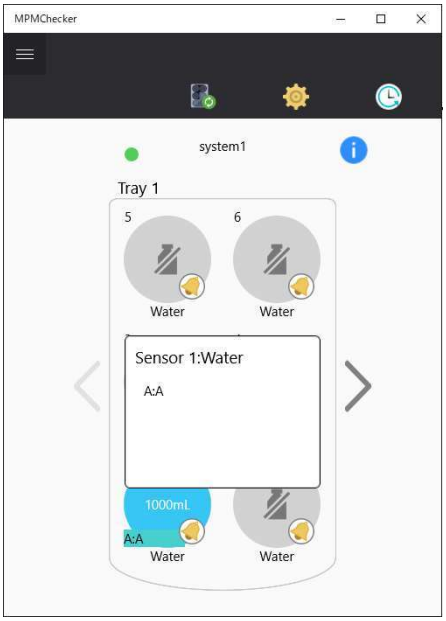
7 Click [Save] to save the settings.

After the line settings are configured, the set line is displayed on the monitor screen.

Reference "Monitor Screen" P.9



Hint Clicking the line name displays the details of the set line. When multiple lines are set up for a single mobile phase bottle, you can see which line is currently set. For the displayed content, see "2.3.1 Names and Descriptions of Screen Parts" P.9.



4.1.5 Stop System When Mobile Phase is Low

Linking the system controller with the mobile phase monitor enables the system to perform the operations below automatically.

<table>
<tr><th>Conditions</th><th>System Operation</th></tr>
<tr><td>Mobile phase volume drops below the warning volume</td><td>Warning displayed on the system controller touch panel and LabSolutions.
Check the displayed value after replacing the mobile phase. If there is a significant difference between the mobile phase volume and displayed value, register the weight again.</td></tr>
<tr><td>While the remaining amount of mobile phase decreased, it fell below the error remaining amount</td><td>Stops the solvent delivery pump and column oven. Error displayed on the system controller touch panel and LabSolutions. Only in this operation, a contact signal is output from the external output terminal of the mobile phase monitor controller. Replace the mobile phase and check the displayed value. If there is a significant difference between the mobile phase volume and displayed value, register the weight again.
When using the CBM-20A or another company's LC system, connecting the remote cable provided with the mobile phase monitor controller to the error input terminal allows the system operation to be stopped when the mobile phase level drops below the error volume.

NOTE The contact signal output is made only when the remaining amount of mobile phase decreases and falls below the error remaining amount.
No contact signal is output even if you place a bottle below the error residual level from the bottle-less status.</td></tr>
<tr><td>Procedures below with the mobile phase volume less than the warning/error volume.
• Pump ON
• Rinse ON
• Start auto-purge</td><td>Check the volume of the mobile phase corresponding to the procedure again. If the volume was less than the warning/error volume, the operation is the same as above.

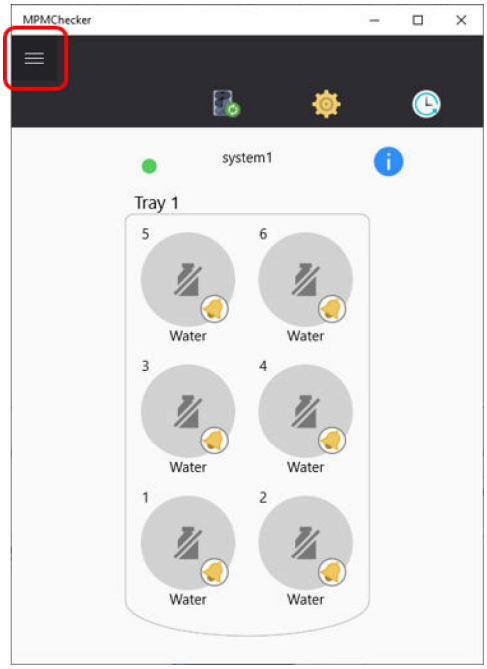
<table><tr><th>Procedure</th><th>Mobile Phase to Check</th></tr><tr><td>• Pump ON
• Start auto-purge for the solvent delivery pump</td><td>Mobile phase of corresponding solvent delivery pump</td></tr><tr><td>• Rinse ON
• Start purge for the autosampler</td><td>Mobile phase of corresponding autosampler</td></tr></table></td></tr>
</table>

4.2 Other Settings

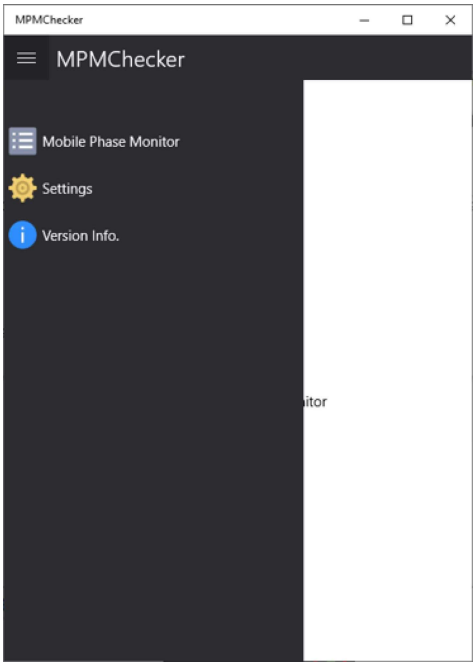
4.2.1 Changing the Time Out

If the app has not been used for operations after the set time has elapsed, using procedures that need administrator rights again requires administrator authentication.

1 **Click the menu button at the top left of the monitor screen.**



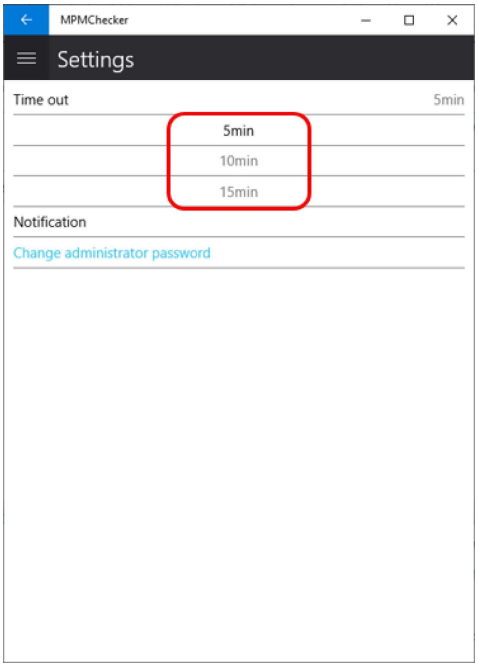
2 Click the Settings in the menu.



Hint Enter the administrator password if it is required. The default password is "00000."

3 Click [Time out].

4 The time out can be selected from 5, 10, or 15 minutes.



4.2.2 Changing App Notification Settings

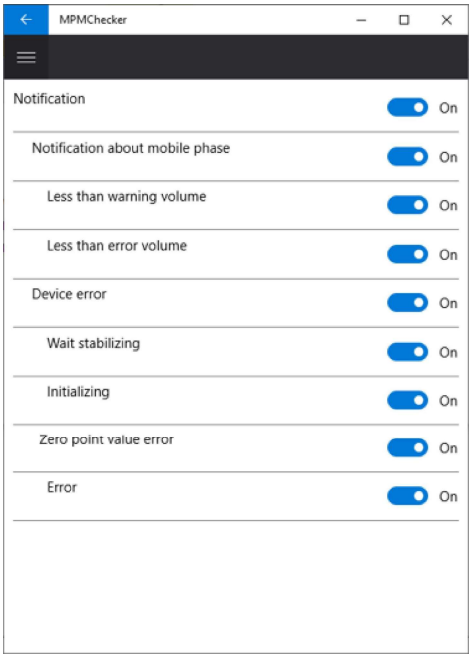
You can set the ON/OFF of the display of Action Center*. Please set this setting according to the application in each installed MPMChecker like PC1 and PC2. See "4.1.3 Notification Settings for Each Mobile Phase" P.72 for warning and error Notification settings ON / Notification settings OFF / Notification settings temporarily OFF for the mobile phase monitor itself.

* Action Center
A balloon displayed temporarily at the bottom right of Windows or a notification displayed at the top of a smart device. In the smart device, it is displayed from the top, and it is also called notification center or notification bar.

Hint If you do not see the Action Center, notification settings for Windows, iOS, and Android may be turned off. Please check the notification settings of Windows, iOS, Android itself.

1 **Open the settings screen in the same way as "4.2.1 Changing the Time Out" P.82, and click [Notification].**

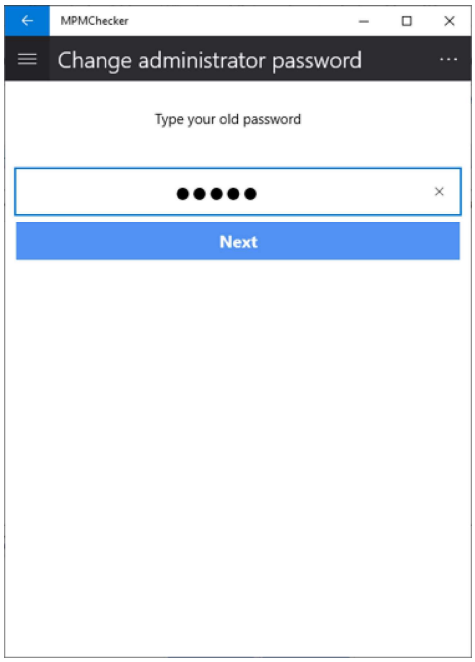
2 Select the statuses for notifications by turning the toggle switch On.



4.2.3 Changing Administrator Password

1 Open the settings screen in the same way as "4.2.1 Changing the Time Out" P.82, and click [Change Administrator Password].

2 **Enter the current password and click [Next].**



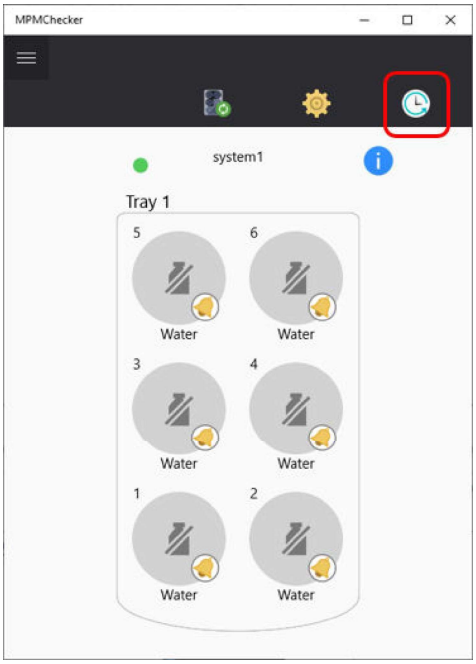
3 **Enter a new password and click [Confirm].**

Hint Use a password that contains five numbers.

4.2.4 Checking Error Log and Calibration Log

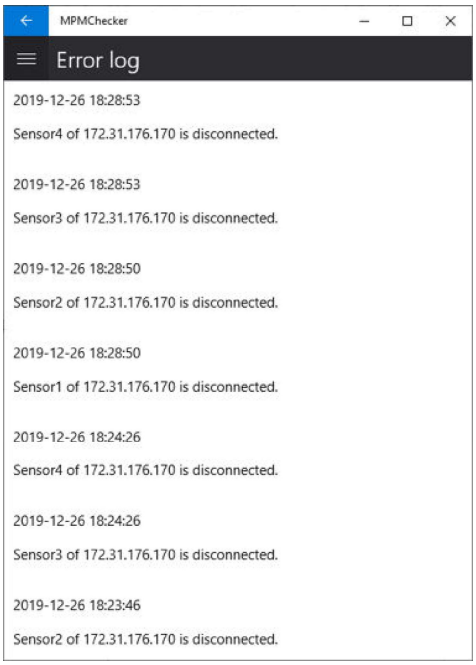
■ Check Error Log

1 **Click the log button on the monitor screen.**



2 **The log screen is displayed. Click [Error log].**

The error log is displayed.

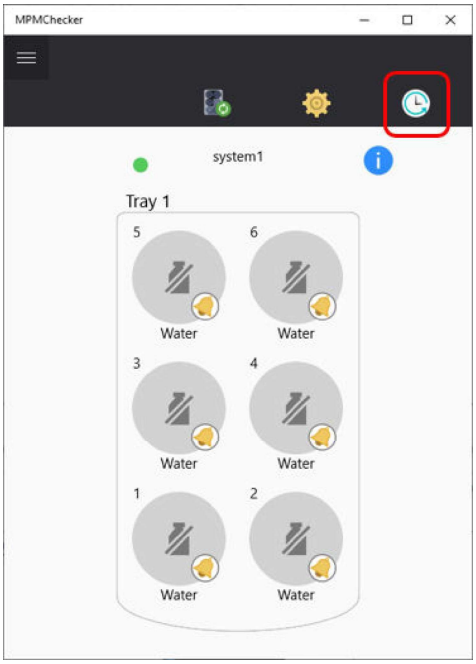


Hint If it has not been connected from MPMChecker at all, or if the monitor has never been linked with a system controller, or if it is not synced with an NTP server, the date and time in the error log is displayed as "0-0-0."This is because the time has not been set for the mobile phase monitor.

Reference "5.1 Abnormal Status is Displayed" P.94

■ Check Calibration Log

1 **Click the log button on the monitor screen.**



2 **The log screen is displayed. Click [Calibration log].**

The calibration log is displayed.
Up to 10 calibration logs are displayed for each sensor.

4.3 Large Bottle Holder Operation

This section describes the procedure for operating the large bottle holder.

When using the large bottle holder, see "3.2.6 Switch between Large Bottle Mode / 1 L Bottle Mode" P.38 and change the relevant setting in MPMChecker to the large bottle mode.

4.3.1 Installing the Large Bottle

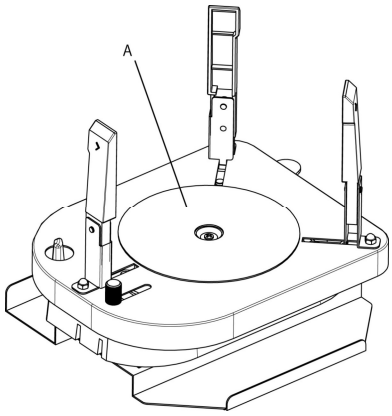
⚠ WARNING

Prohibition

Do NOT use any bottles with a diameter of less than 130 mm.

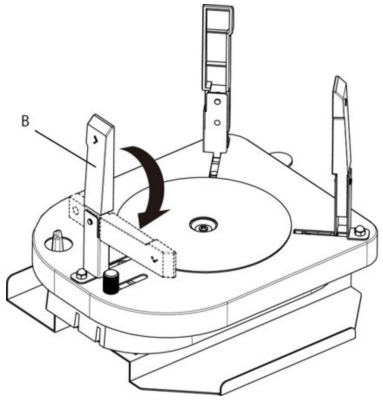
The diameter of bottles available on the large bottle holder is from 130 to 186 mm. Use of any other size bottles is dangerous and prohibited.

1 **Stick the provided non-slip mat (A) on the weighing plate.**



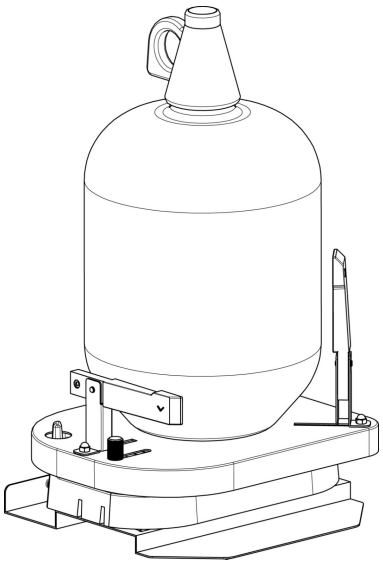
2 **Tilt the pillar (B) to the side.**

Hint Tilting the pillar allows you to easily place or remove the bottle.

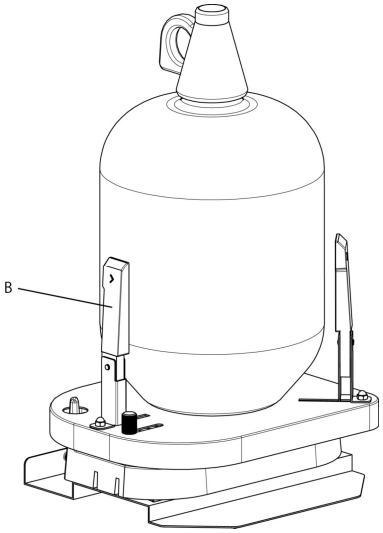


3 Place the bottle on the bottle holder.

NOTE Carefully place the bottles to avoid strong impact on the bottle holder.



4 Return the pillar (B) to the original position.



⚠ WARNING

Prohibition

Do NOT use the bottle holder with pillars tilted down.

To reduce the risk of the bottle accidentally falling, be sure to raise up the pillars before analysis.

Instruction

Make sure that the knurled screw is firmly tightened before analysis.

4.3.2 Operation When Changing the Bottle Size

⚠ WARNING

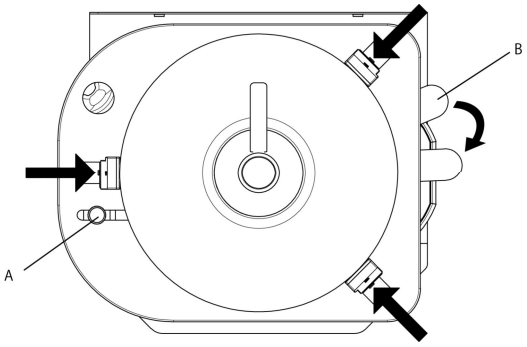
Prohibition

Do NOT use any bottles with a diameter of less than 130 mm.

The diameter of bottles available on the large bottle holder is from 130 to 186 mm. Use of any other size bottles is dangerous and prohibited.

1 **Loosen the knurled screw, M5X6 (A) by turning 90° to 180° by hand.**

2 **While holding the bottle, adjust the pillar position by sliding the lever (B) on the right side towards you, so that the bottle is settled at the center.**



3 **Tighten the knurled screw, M5X6 (A) by hand to fix it.**

NOTE When using the large bottle holder, be sure to adjust the position of the bottle holder pillars to securely fix the bottle (with no gap between the pillars and the bottle).

⚠ WARNING

Instruction

Adjust the position of the bottle before use so that it comes to the center and is firmly secured by the pillars.

If the bottle is not placed at the center, correct weighing may be obstructed.

Instruction

Make sure that the knurled screw is firmly tightened before analysis.

5 Troubleshooting

5.1 Abnormal Status is Displayed

Indicates solutions for when the screens shown below are displayed on MPMChecker. If the solutions listed in the table do not resolve the problem, the problem is probably due to hardware. Remove the USB cable from the controller, turn off the power and contact your Shimadzu representative.

Hint

- Mobile Phase Monitor only sends a warning to the system for these statuses. The system will not stop due to these statuses.
- These statuses are also displayed on the system controller and LabSolutions.

Mobile phase monitor status	Sensor status	Description/Solution
Not Ready	Stabilizing	This status may occur immediately after power on, or during the time when measured values are unstable immediately after a bottle is placed at the sensor with a “No bottle” status. Wait for several seconds. Reference "3.2.5 Connecting a Bottle Holder" P.35
	Initializing	This status may occur immediately after power on, or while scanning. Wait for several seconds. If the initializing status intermittently occurs, check the bottle holder cable connection and scan the bottle holders. Reference "3.2.5 Connecting a Bottle Holder" P.35
	Communication error	This status occurs when connection is lost between the mobile phase monitor controller and bottle holder. Check the connection with bottle holders, and scan the bottle holders. Reference "3.2.5 Connecting a Bottle Holder" P.35
	Zero point value error	The detected zero point weight has significantly deviated from the value recorded last time. This error occurs when performing a scan with a mobile phase bottle set in the bottle holder. Unload the mobile phase bottle from the bottle holder and perform the scan again. Reference "3.2.5 Connecting a Bottle Holder" P.35 If scanning the bottle holders does not resolve the problem, the zero point weight may not have been registered. Make sure to complete zero point registration. Reference "4.1.1 Registering a Mobile Phase" P.58
	Out of range	The problem occurs due to hardware and when the measured value is abnormal. The measured value may be outside of the upper or lower limit. In the error log, the values out of the upper and lower limits are recorded separately. Remove the USB cable from the mobile phase monitor controller and then reconnect it. If this does not resolve the problem, remove the USB cable from the controller and contact your Shimadzu representative.

Mobile phase monitor status	Sensor status	Description/Solution
Disconnected	—	MPMChecker is disconnected from the mobile phase monitor. • Check that the power is supplied from the electrical outlet to the mobile phase monitor with a USB cable. Check also that the LAN cable is connected to the mobile phase monitor and the HUB. • Select the mobile phase monitor in the [Mobile Phase Monitor List] screen. Reference "3.2.2 Connecting a Mobile Phase Monitor" P.28 "3.2.4 Switching Mobile Phase Monitor to Check" P.34

5.2 "No sensor is connected" is Displayed in the Middle of the Screen

The above is displayed in the following situations.

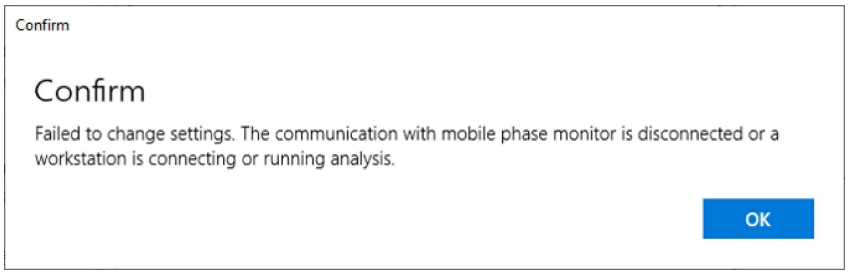
- When the controller is started for the first time
- When all cables for bottle holders were removed from the controller and a scan was performed

Perform a scan after checking the connection between the bottle holders and the controller.

Reference "3.2.5 Connecting a Bottle Holder" P.35

5.3 Cannot Change/Cannot Operate Settings from MPMChecker

The following dialog box may be displayed when attempting to change the settings, indicating that the action has failed.



The following dialog box is displayed when bottle holder scanning failed.

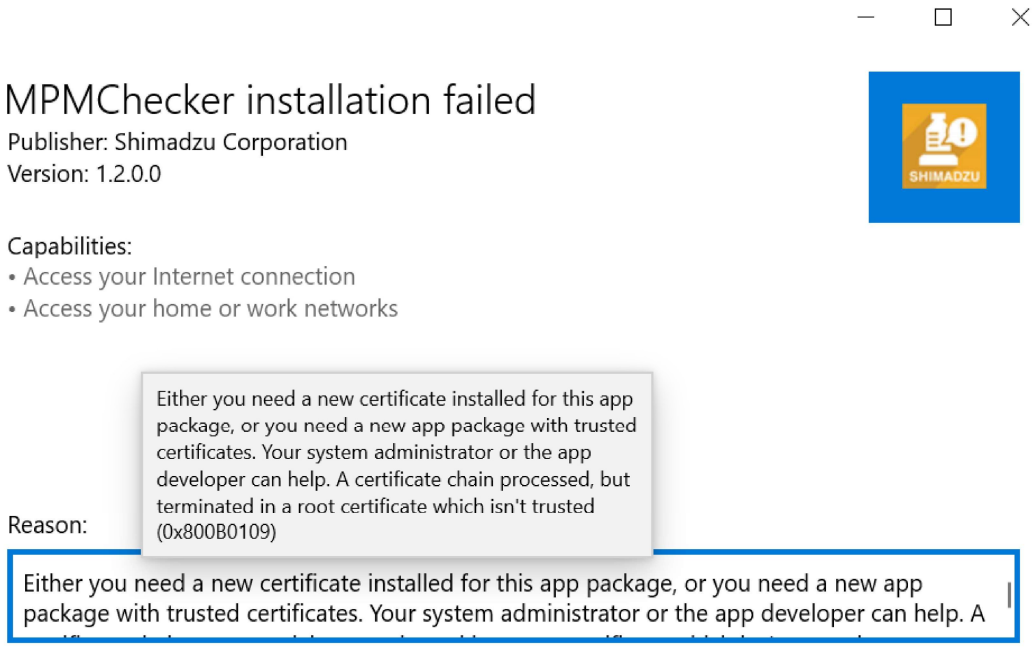
The following table shows a list of operations and whether they can be used based on the situation. If an X is shown, the above dialog box is displayed. Up to three MPMCheckers can be connected to the mobile phase monitor controller simultaneously.

Parameters you want to change/operations you want to perform	In use standalone	System controller linking	In connection with LabSolutions	Analyzing with System Controller or LabSolutions
Status check	○	○	○	○
Bottle holder scan	○	○	×	×
Temporary notification ON/OFF at status screen	○	○	○	×
Settings relating to mobile phase (Name, compressibility, line settings, memo, zero point weight registration, empty bottle weight registration, mobile phase fill bottle weight registration, notification ON/OFF)	○	○	×	×
System controller - link settings	○	○	×	×
Link settings	○	○	×	×
Warning/Error volume settings	○	○	×	×
Adding Mobile Phase Monitor	○	○	○	○
MPMChecker settings (Language, time out time, notification settings, change administrator password)	○	○	○	○

5.4 Import Certificate

This section provides instructions for importing certificates during MPMChecker installation.
If the certificate has expired, the following dialog may appear during installation.

If so, import the certificate that came with the installer, update the expiration date, and then install MPMChecker.

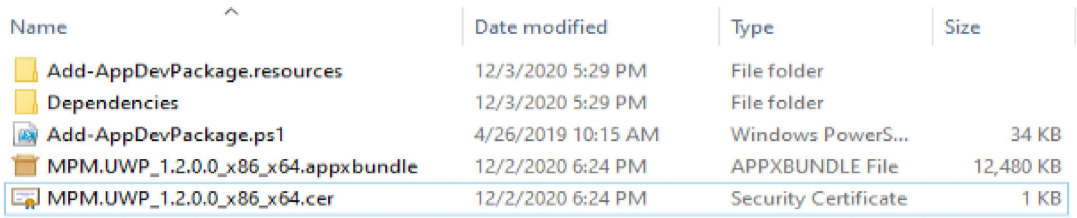


NOTE The instructions are as of Windows 10 version 1909 (OS Build 18363).

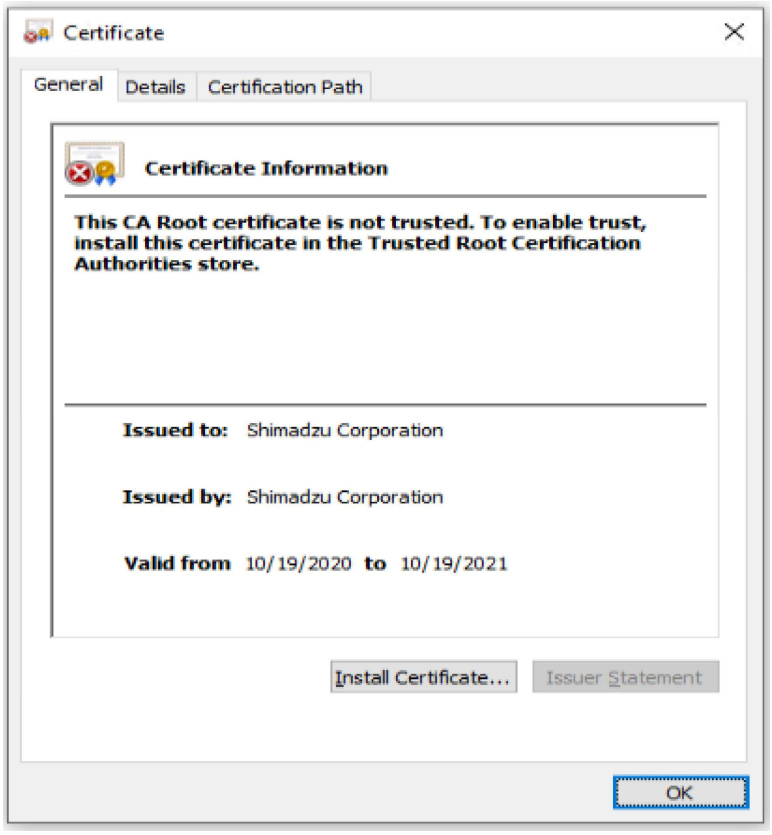
5

1 **Insert the CD that came with the product into the drive and double-click the cer file on the CD.**

NOTE The image below is an example.

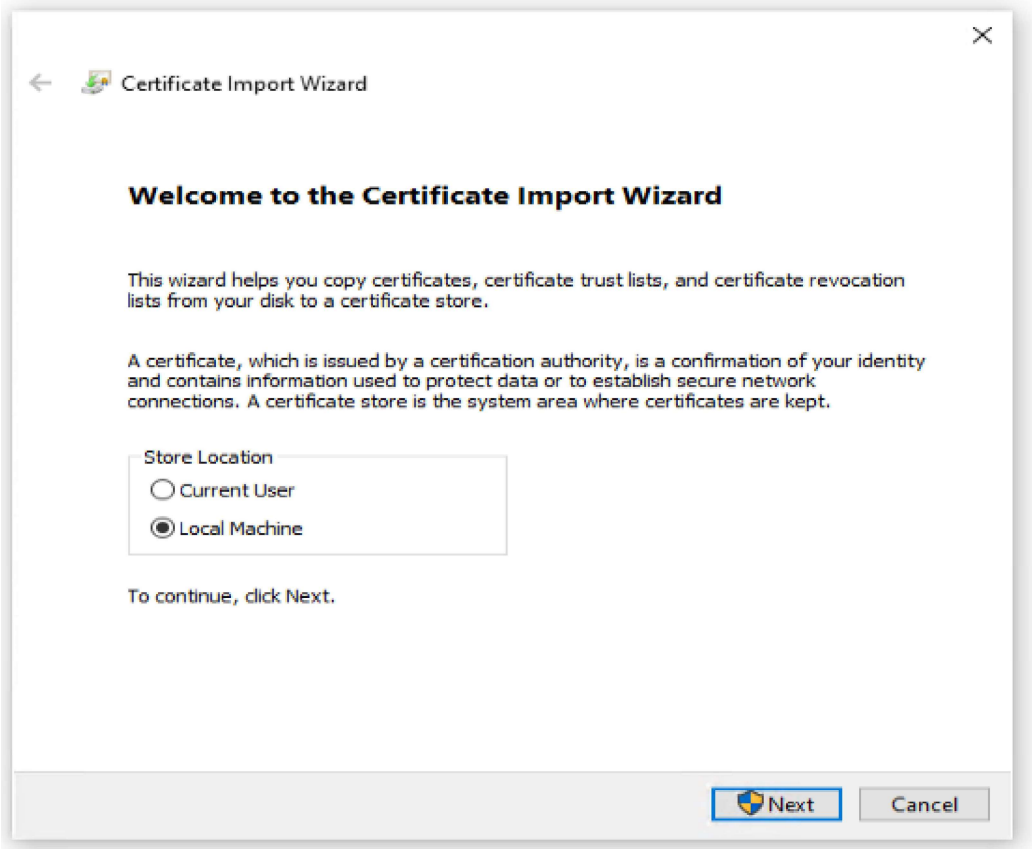


2 On the "General" tab, click "Installing a Certificate".

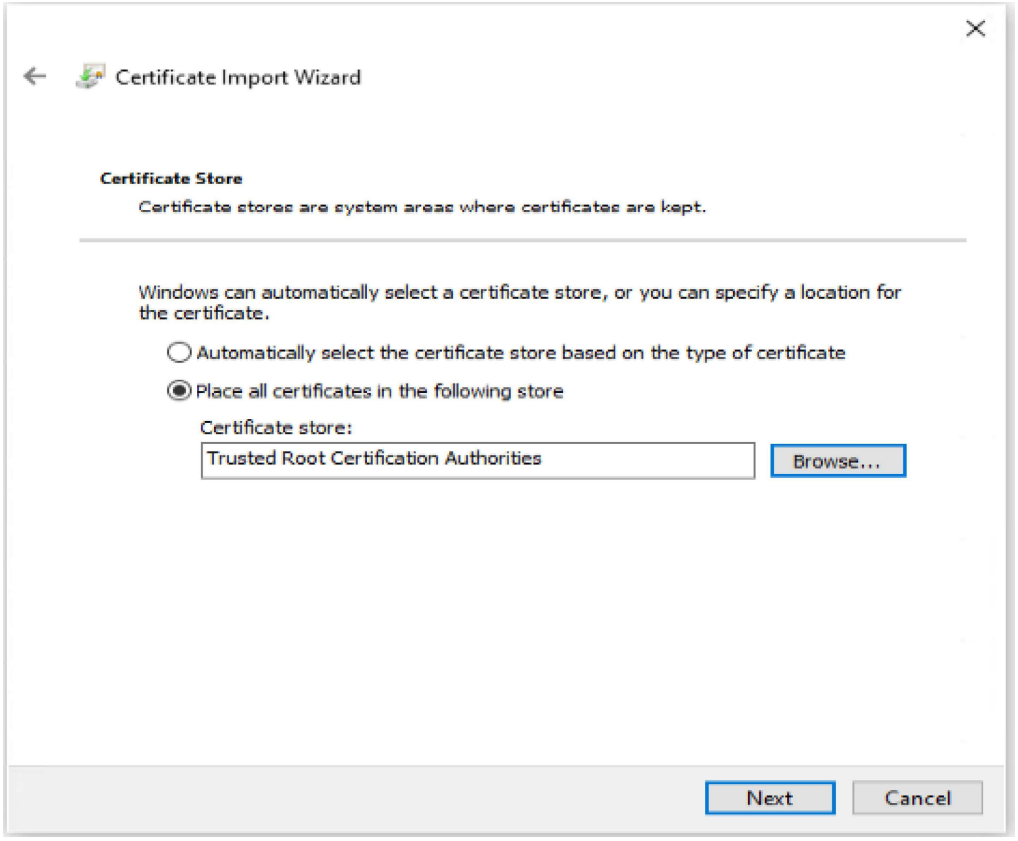


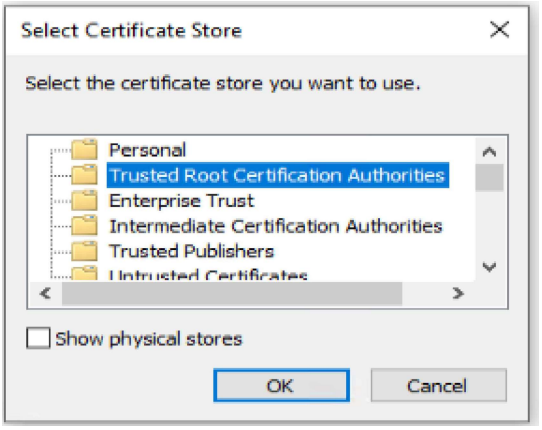
3 **Select "local computer" as the storage location and click "Next".**

> **NOTE** If the User Control screen appears, click "Yes".

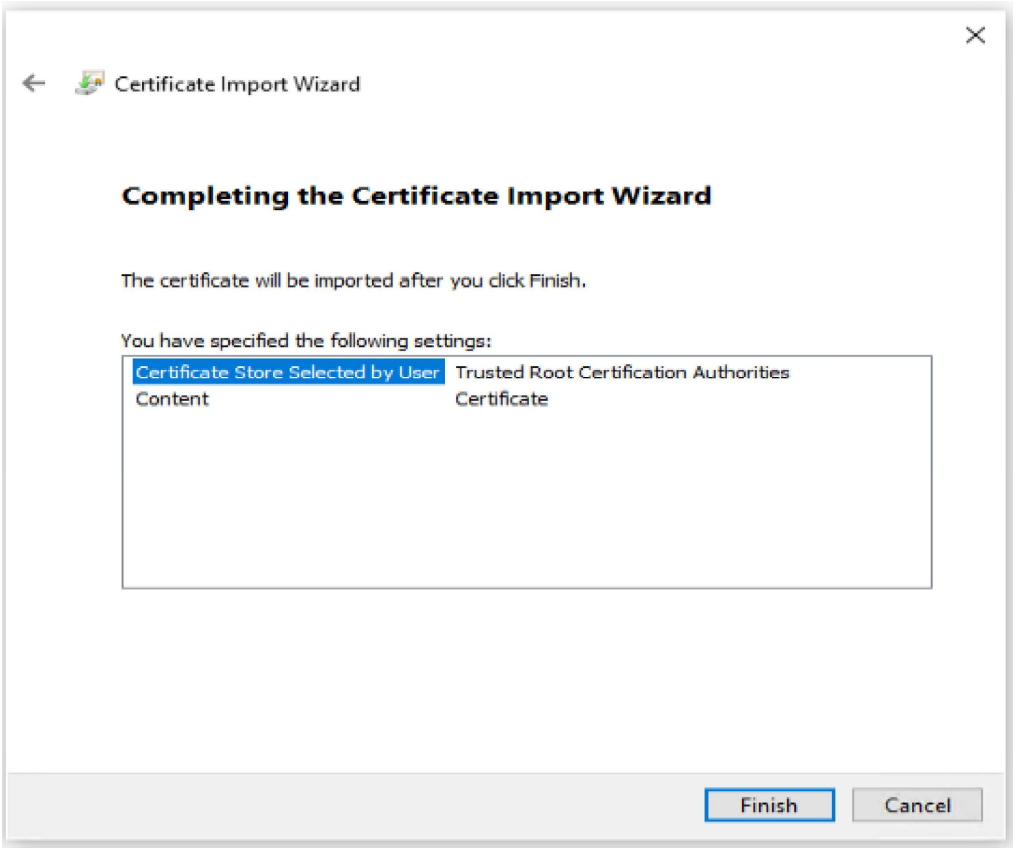


4 **Select "Place all certificates in the following store", click "Browse", and select "Trusted Root Certification Authorities". Then click "Next".**





5 Click "Finish". When the message "Successfully imported." appears, click "OK".



5.5 Other Troubleshooting

Symptoms	Cause/Corrective Action
The volume (remaining level) value is too low or too high.	An incorrect weight may have been registered. Set the mobile phase again. Reference "4.1.1 Registering a Mobile Phase" P.58
No error occurs even when the remaining level dropped below the warning/error volume.	The weight of the suction tube or lid of the mobile phase bottle may delay detection that the remaining level drops below the warning/error volume. To avoid it, please attach the suction tube or lid and register a mobile phase. Reference "4.1.1 Registering a Mobile Phase" P.58
Contact signal is not output even when the mobile phase remaining level is less than the error remaining volume.	The contact signal is output only when the mobile phase continues to decrease and the error level is less than the remaining level. For example, even if the error residual amount is set, contact signals are not output even if an empty bottle is placed on a sensor without a bottle. Reference "4.1.5 Stop System When Mobile Phase is Low" P.81

Symptoms	Cause/Corrective Action
Mobile phase monitor does not appear on the system controller or LabSolutions after changing network settings.	The operating network settings may not be updated. Restart the mobile phase monitor and system controller with the main power supply, and restart the LabSolutions analysis application.
Mobile phase monitor is not displayed on mobile phase monitor registration screen.	If the system controller is in a different network, it can not be displayed in the system controller list. Please enter the IP address of the system controller directly in [Other] at the bottom of the system controller linkage setting screen and perform linkage settings. Reference "4.1.1 Registering a Mobile Phase" P.58
System controller is not displayed on the system controller cooperation setting screen.	If the system controller is in a different network, it can not be displayed in the system controller list. Please enter the IP address of the system controller directly in [Other] at the bottom of the system controller linkage setting screen and perform linkage settings. Reference "3.2.7 Linking the System Controller" P.40
• Cannot connect LabSolutions to the instrument. • The [Mobile Phase Monitor] tab remains displayed in the [System Controller] screen of the LabSolutions [System Configuration] screen.	If you removed a bottle holder, or started LabSolutions after line settings are changed, connection to LabSolutions may be impossible due to a discrepancy between the current system configuration and that of the last operation in LabSolutions. In such case, click the [Auto Configuration] button in the LabSolutions [System Configuration] screen to update the configuration settings. * If you have removed the mobile phase monitor from the system, or canceled the link between the monitor and the system controller, click [Reset] first before clicking [Auto Configuration] in the LabSolutions [System Configuration] screen. **Hint** During auto configuration of the system configuration settings, unit ID and some other items will lose their previous settings. To check and record the content of the current settings, create a system configuration report beforehand by clicking the [Print] button in the [System Configuration] screen. Reference "3.2.9 Connecting to LabSolutions" P.54
• When a batch is registered in the batch queue in LabSolutions, the use volume displayed in the screen to check the mobile phase volume significantly differs from the actual volume. • The analysis stops at the beginning of batch analysis in LabSolutions due to an insufficient mobile phase error, even though the use volume displayed in the screen to check the mobile phase volume is less than the remaining volume.	When you keep using a method file saved before changing line settings after the change, open the file in the analysis screen (in the most recent status after the change) of LabSolutions and save it before starting analysis. If you register a batch analysis specifying a method file not saved under the most recent system configuration, the use volume of mobile phase may not be calculated correctly. Reference "4.1.4 Line Settings" P.76

Symptoms	Cause/Corrective Action
The pillars of the large bottle holder do not move.	Contact your Shimadzu representative.

6 Maintenance

6.1 Periodic Inspection and Maintenance

The equipment must be periodically inspected to use it safely.
A Shimadzu service personnel will periodically inspect the equipment as part of the maintenance and inspection contract entered with Shimadzu.
Contact your Shimadzu representative for details about the maintenance and inspection contract.

⚠ CAUTION

When replacing parts, use parts listed in section "1.4 Component Parts" P.3, or parts listed in section "1.5 Optional Parts" P.5.
Using any other parts may cause part damage, injury or a malfunction.

Never remove the main cover.
It may cause an injury or malfunction.
Contact your Shimadzu representative to remove the main cover when it needs to be removed for repairs.

6.1.1 Before Inspection and Maintenance

⚠ CAUTION

Be sure to stop liquid delivery from the solvent delivery pump before performing the work.

6.2 Bottle Holder Cleaning

⚠ CAUTION

Prohibition

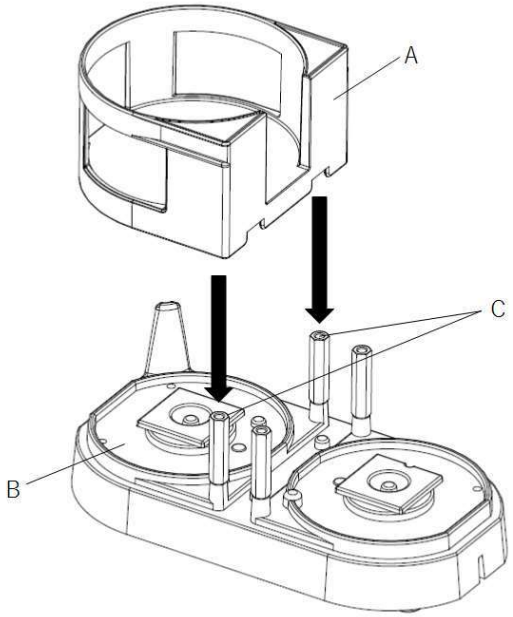
Do NOT push on the plate platform.

It is the place where the weight of the bottle is measured. Do NOT apply a heavy load to this part because it will damage the unit.

If mobile phase solvent spills onto the bottle holder unit and weighing plate, wipe off using the following method.

■ For 1 L bottle holder

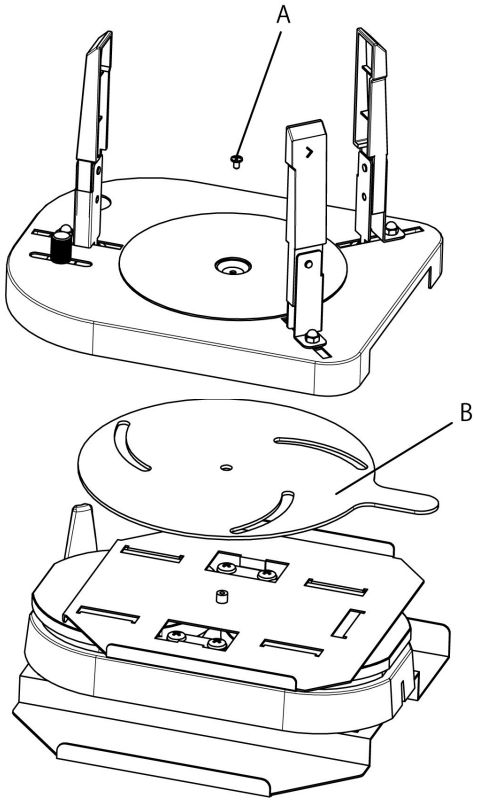
1. Lift and remove the weighing plate (A).
2. Use a soft cloth or tissue paper to wipe the weighing plate (A) and the unit (B)
3. Place the weighing plate onto the plate platform.
   Insert the 2 spacers (C) into the weighing plate.



■ For large bottle holder

1 Remove the screw, SUS bind M3X5 (A) fastening the center of the weighing plate, and remove the plate.

2 Remove the disk, MPM (B).

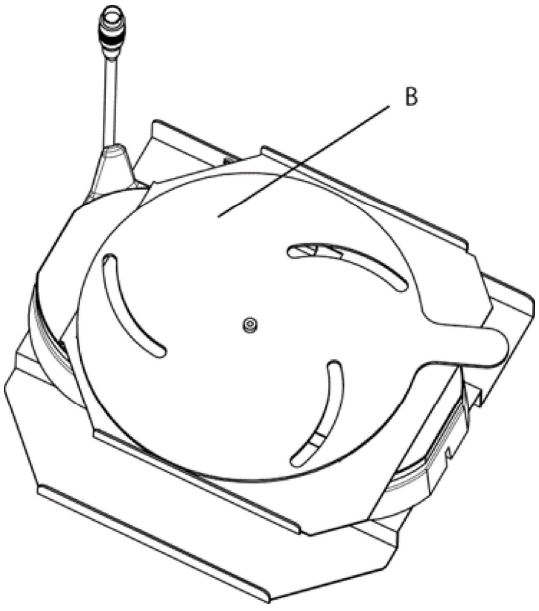


3 Use a soft cloth or tissue paper to wipe the weighing plate and the disk.

> NOTE If you spilled buffer solution, wipe it well with a cloth or tissue paper moistened with water.

4 Place the disk, MPM (B).

> NOTE Make sure to place the disk in the correct direction.

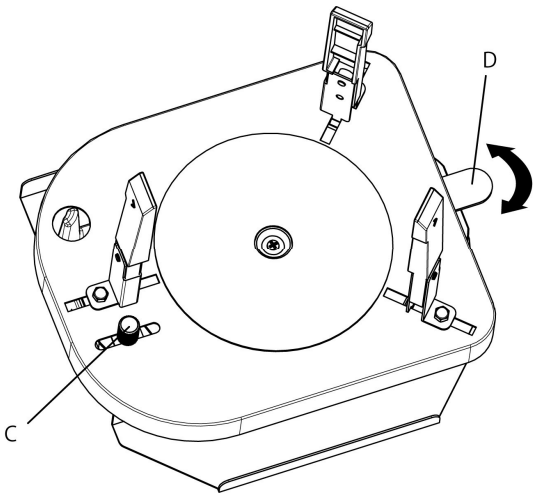


5 Place the weighing plate.

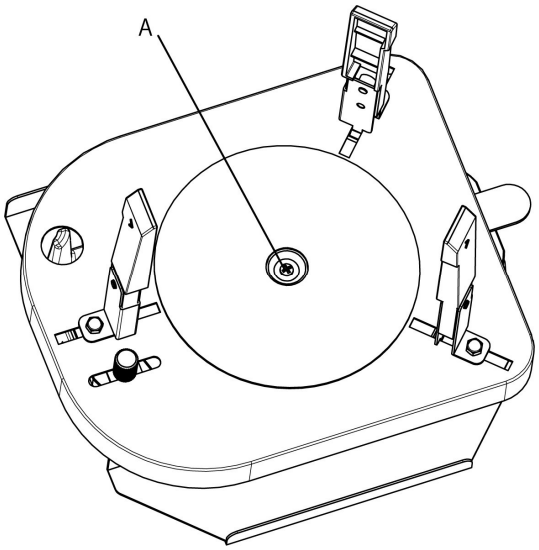
6 Loosen the knurled screw, M5X6 (C) by a half turn.

7 Move the lever (D) back and forth a few times to confirm that the three pillars move in conjunction.

Hint Moving the lever in such a way sets the pillars and the disk in a proper position, allowing them to move along with each other.



8 Fasten the center of the plate with the screw, SUS bind M3X5 (A).



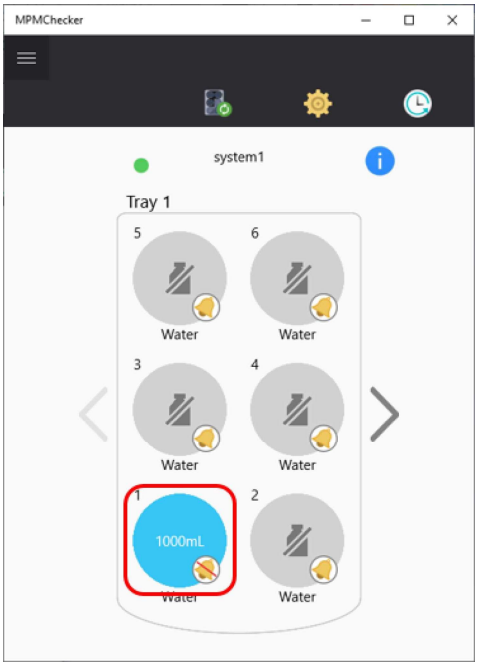
6.3 Re-register/Calibrate the Weight

The weight must be regularly registered again to take accurate weight measurements. We recommend that the weight be registered again every 3 days when using the equipment in an environment with a temperature that exceeds 30 ˚C and humidity that exceeds 80%. Use the procedure shown below.
Be sure to perform weight calibration each time the bottle type (1 L bottle or large bottle) is changed. Correct weighing will be obstructed if no calibration is performed.

Reference "3.2.6 Switch between Large Bottle Mode / 1 L Bottle Mode" P.38
"4.1.1 Registering a Mobile Phase" P.58

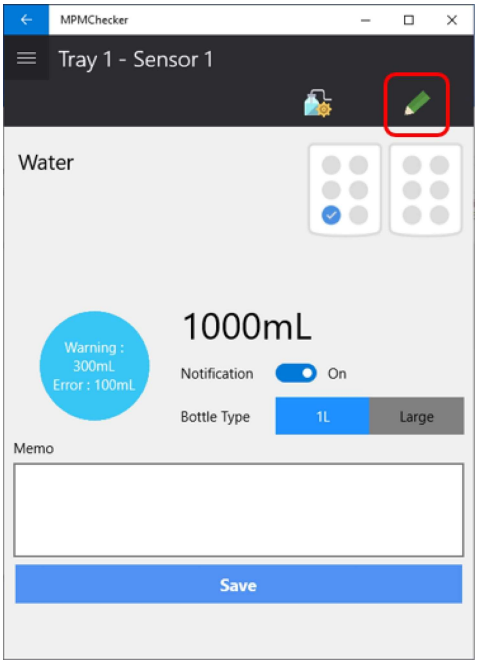
1 **Prepare a mobile phase bottle to use for analysis on a daily basis (do NOT fill it with mobile phase).**

2 **Click the sensor for which you want to register mobile phase on the MPMChecker monitor screen.**

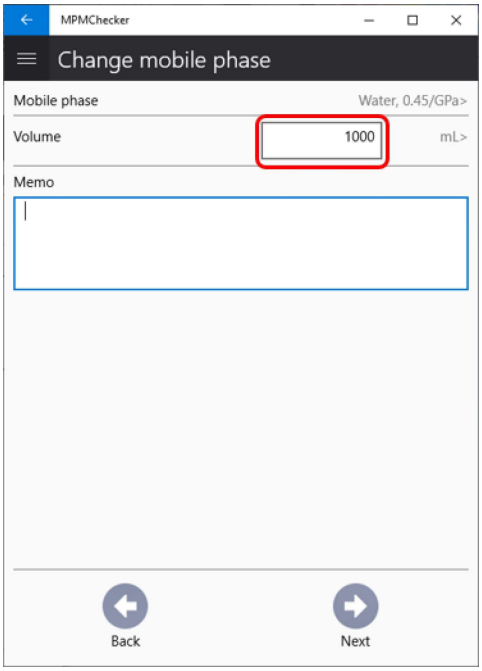


Hint Enter the administrator password if asked to enter it.

3 **A screen showing details for the mobile phase is displayed. Click the edit icon on the top right.**



4 **Check the display value for [Volume]. The volume registered last time is displayed.**
There is no need to edit the value if this volume will also be used this time for registering the weight again. Enter a new volume if it needs to be changed.



5 Click [Next].

6 The zero point registration screen is displayed. Click [Skip].

7 **The empty bottle weight registration screen is displayed. Place an empty bottle on the bottle holder and then click [Next] button.**

Hint

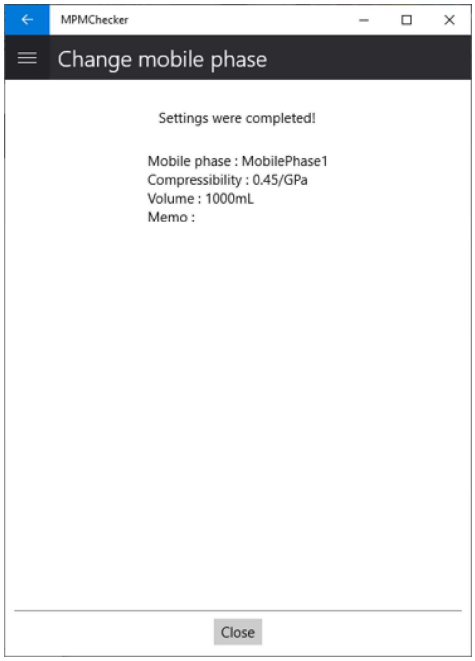
- It may take a few seconds before it is possible to click [Next] because the equipment is waiting for the measured value to stabilize immediately after placing the empty bottle.
- The container must weigh a minimum of approximately 200 g. Lightweight containers such as plastic containers and 250 mL bottles cannot be used.

8 **Put the mobile phase of the volume entered in step 4 into an empty bottle.**

NOTE You may use a different bottle from the one used for the empty bottle weight registration if it is a bottle with the same model number, but individual differences in the bottle weight may cause measurement errors.

9 The screen to register the weight of the bottle containing mobile phase is displayed.
Place a bottle containing mobile phase of the volume specified at step 4 on the bottle holder and then click [Next].

10 Registered mobile phase information is displayed as a summary. Click [Close] to return to the screen showing details for the mobile phase.



11 Repeat the steps above for all sensors for which the information is re-registered.

7 Technical Information

7.1 Installation

⚠ CAUTION

Use only the parts described here.
Be sure to remove the power cable of the mobile phase monitor controller before work.

Avoid splashing a large amount of liquid onto the mobile phase monitor controller or the bottle holders with the weighing plate removed.

This product is not designed to be waterproof. It may be damaged by contact with a large amount of liquid or if submerged in water.

Do NOT allow bottle holders to be submerged.

The bottle holders are not designed to be fully waterproof. There is a risk of failure if they are submerged as much as 1 cm or more. Use a tray with a drain system or take other measures to avoid submersion.

Do NOT place any bottle smaller than 2 liters on the large bottle holder.

The bottle may fall over.

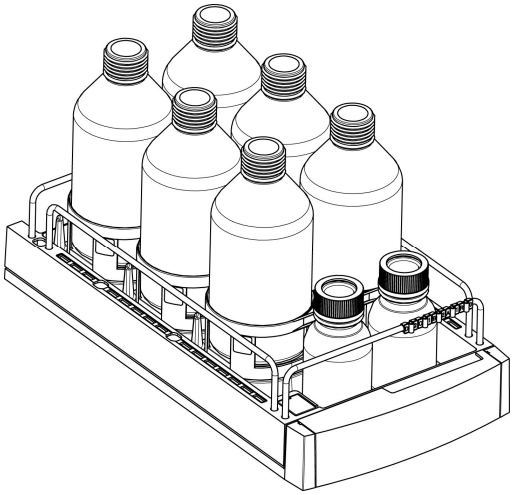
When holding a large bottle holder, do NOT hold the pillars.

If a strong load is applied to the pillars, they may deform and smooth movement be obstructed.

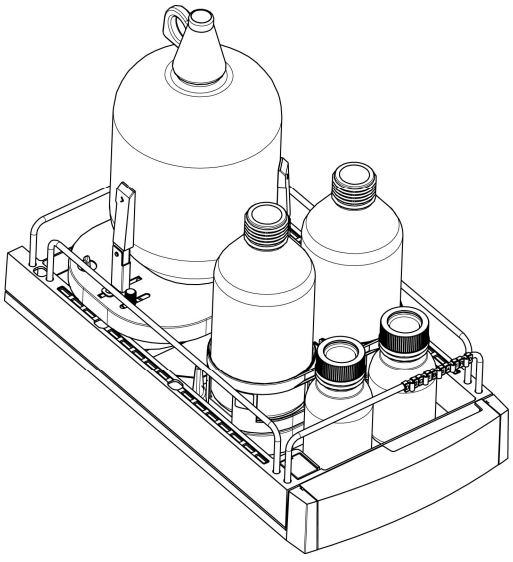
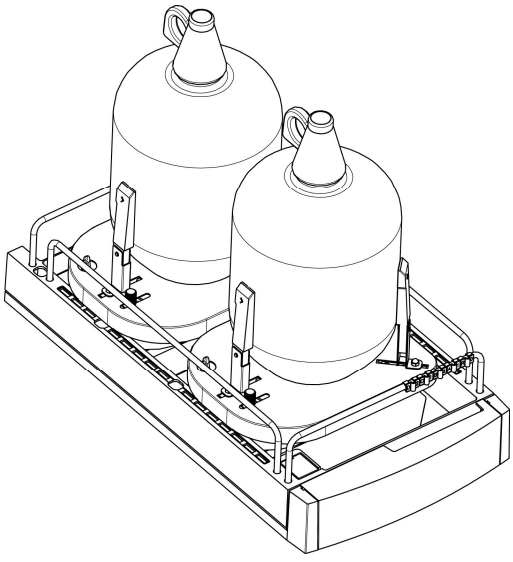
7.1.1 Arrangement Examples

This section shows the examples of the standard arrangement on the reservoir tray.

■ Arrangement example for 1 L bottle holder

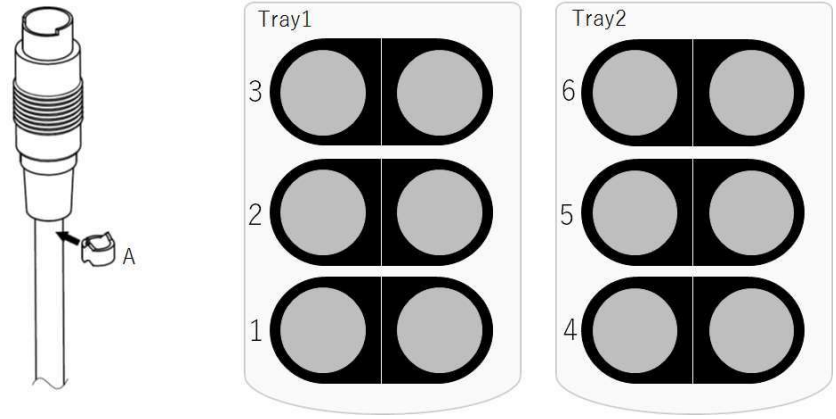
Arrangement Example 1
1 L bottle holder ×3 250 mL bottle (for rinse solution of the solvent delivery pump)


■ Arrangement example for large bottle holder

Arrangement Example 1	Arrangement Example 2
Large bottle holder ×1 1 L bottle holder ×1 250 mL bottle (for rinse solution of the solvent delivery pump)	Large bottle holder ×2
	

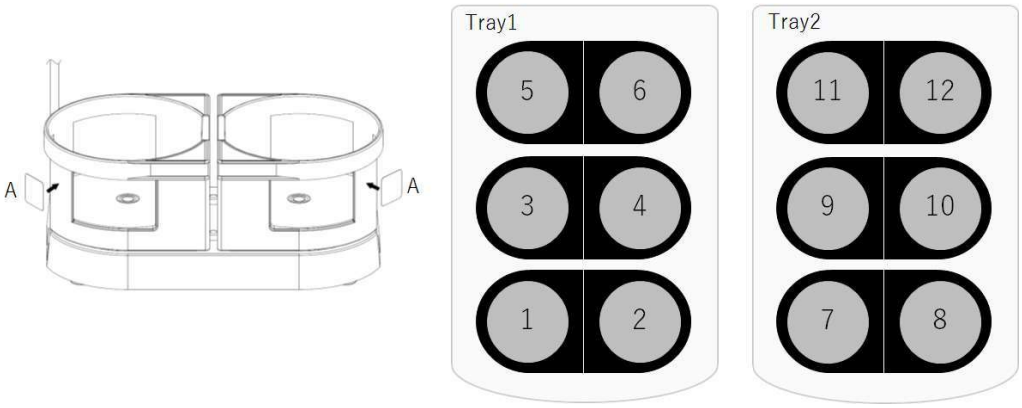
7.1.2 Preparing for Installation

1 **Install a marking band (A) on the bottle holder cable that matches the port number to which it connects.**



2 **Affix bottle number labels on the weighing plates as shown in the diagram to match the bottle numbers.**

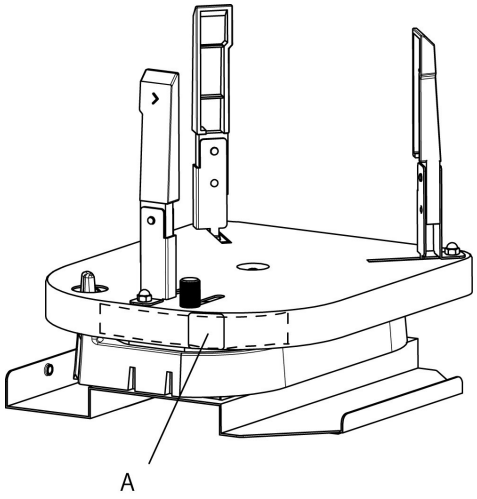
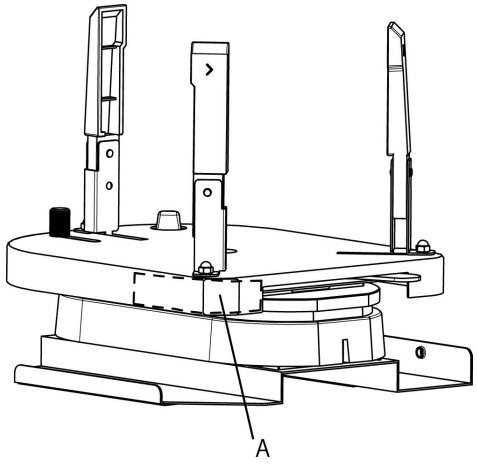
■ **Affixing example for 1 L bottle holder**



7

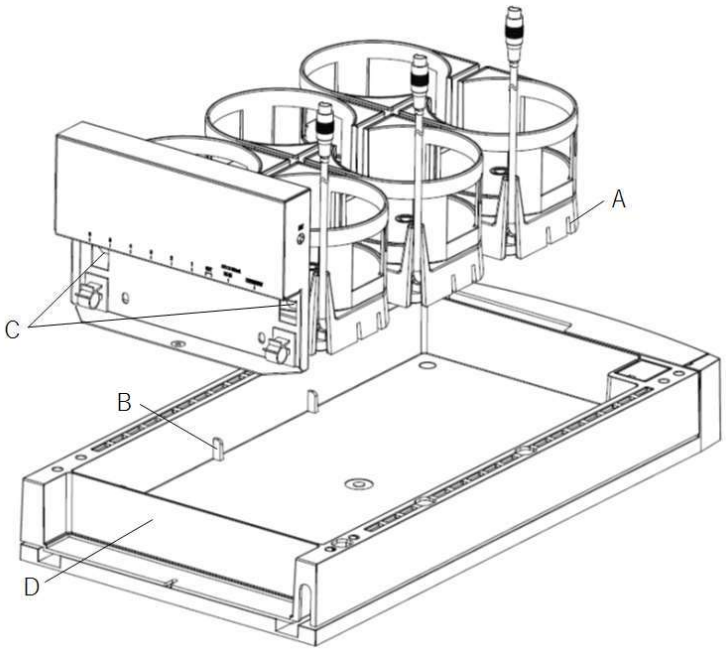
■ Affixing example for large bottle holder

Attach the label in the position indicated with the dotted line in the figure, where the label can be easily recognized when the bottle holder is arranged.

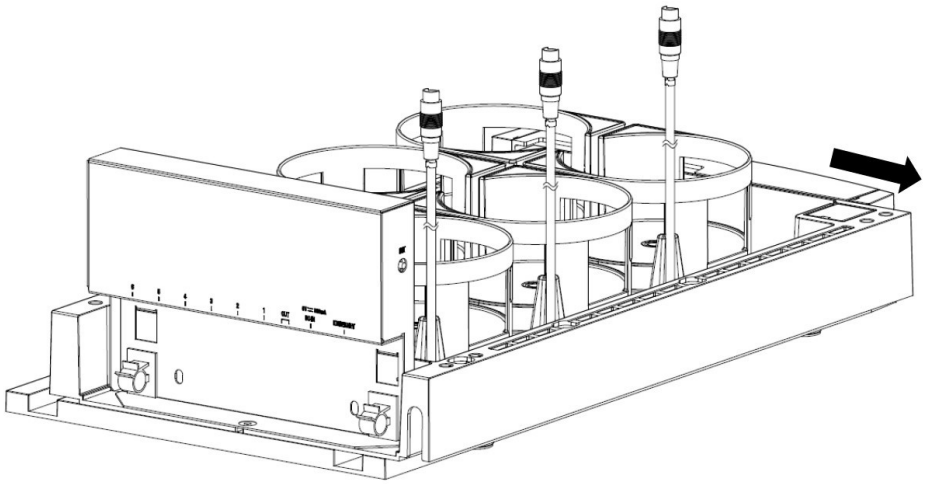
Example of affixing on the left side of the bottle holder	Example of affixing on the right side of the bottle holder
	

7.1.3 Installing the Controller on SCL-40 or Reservoir Tray

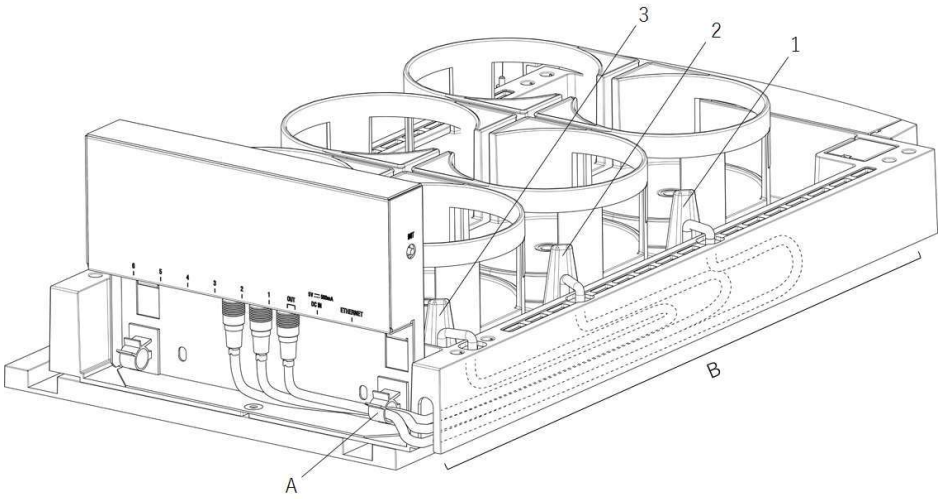
1 **Install the bottle holder and the mobile phase monitor controller on the reservoir tray.**
Position the bottle holder by aligning the grooves (A) on both sides of the bottle holder with the protrusions (B) inside the reservoir tray.
Set the mounting hooks (C) on the controller onto the partition (D) at the rear of the reservoir tray.



2 **Remove the knurled screw at the rear side of the SCL-40 or the reservoir tray, and shift the reservoir tray unit about 30 mm from the bottom cover.**

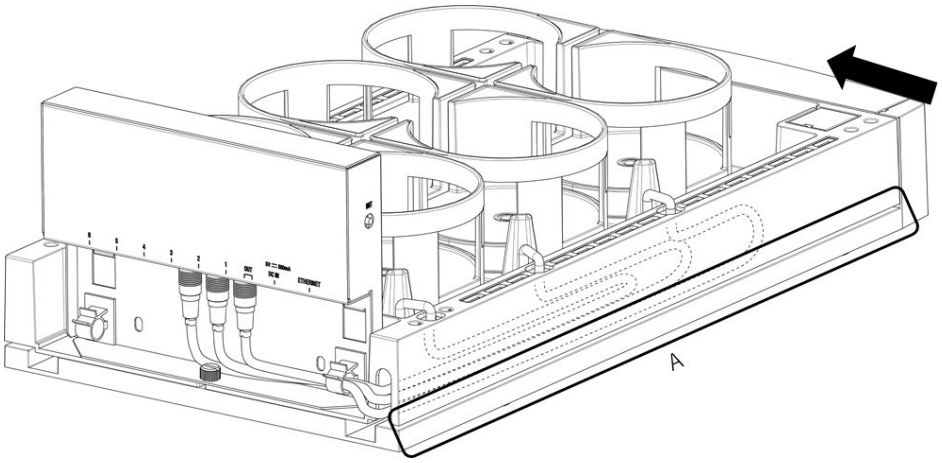


3 **Pass the bottle holder cables through the holes on the reservoir tray and then connect them to the mobile phase monitor controller.**
Connect the bottle holders on the front side of the reservoir tray to port number 1 and the bottle holders on the rear side to port number 3.
Then use the clamp (A) on the right side of the controller to clamp 3 cables and then store any remaining cable in the groove (B) along the side of the reservoir tray.



4 **Return the reservoir tray to its original position, and use the knurled screw removed in step 1 to secure the mobile phase monitor controller to the reservoir tray.**

NOTE Be sure not to trap the cable between the reservoir tray and bottom cover (A).

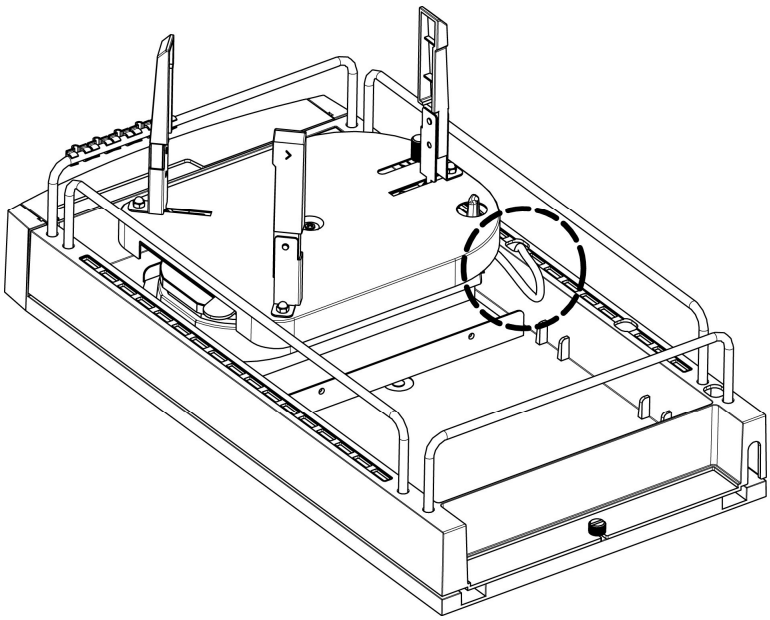


⚠ CAUTION

Instruction

When using a large bottle holder, arrange the holder cable so that it does not contact the weighing plate.

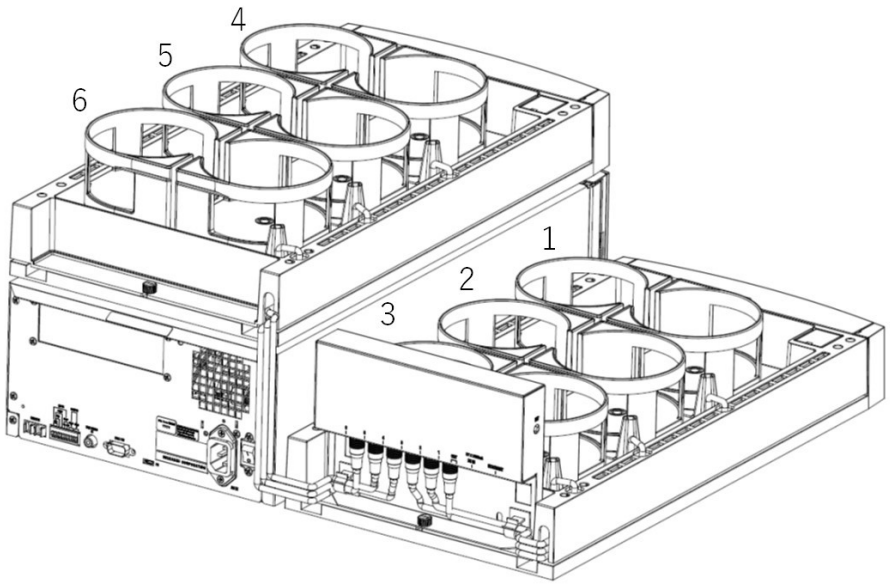
Otherwise, correct weighing will be obstructed. Use the clamp provided with the mobile phase monitor controller as necessary, and arrange the cable so as not to contact the weighing plate.

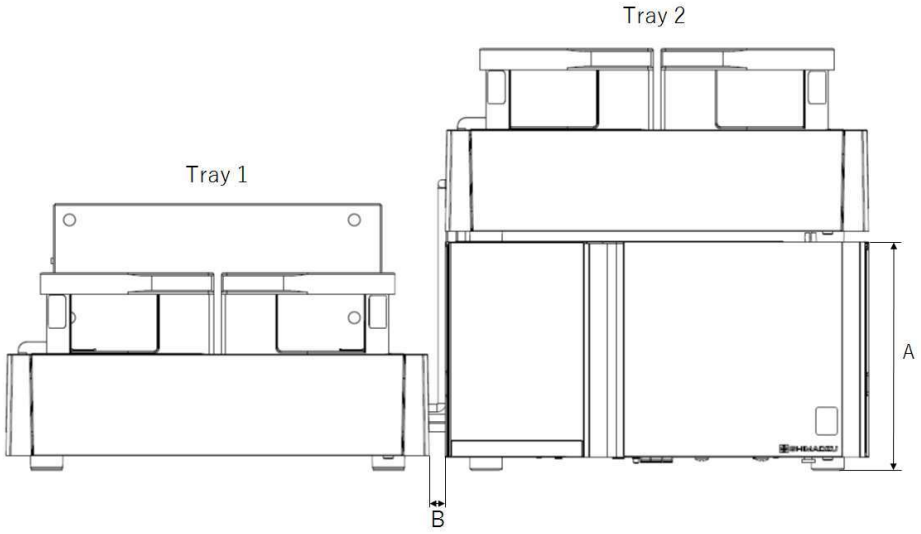


5 **To add more bottle holders, arrange them as follows.**

1. Position the bottle holder in the 2nd reservoir tray using the same procedure in steps 1 to 4.
   When doing so, leave the bottle holder cables lead outside without storing them in the reservoir tray.
2. Place the cables in the 2nd reservoir tray and then connect them to the controller. We recommend that the included clamp is used to secure the rear side cables.
3. Secure the cables to the rear of the controller with the provided clamp.

An example of how they are arranged





NOTE Install reservoir tray 2 (Tray 2) at the same height in the next row of reservoir tray 1 (Tray 1) so that the bottle holder cable can reach the controller of the mobile phase monitor.

7.1.4 Installing the Controller on the i-Series Reservoir Tray

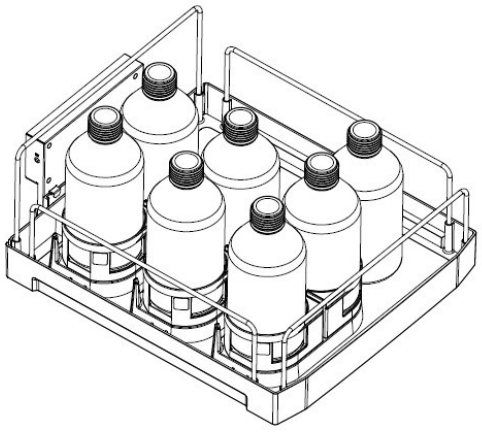
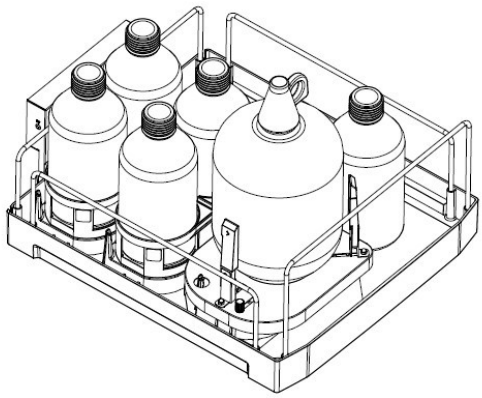
To install the mobile phase monitor on the i-Series reservoir tray, the mobile phase monitor installation kit is necessary.

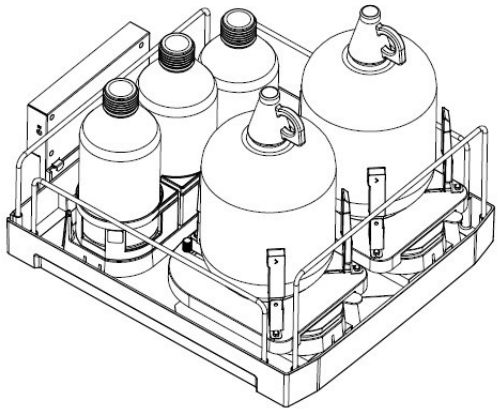
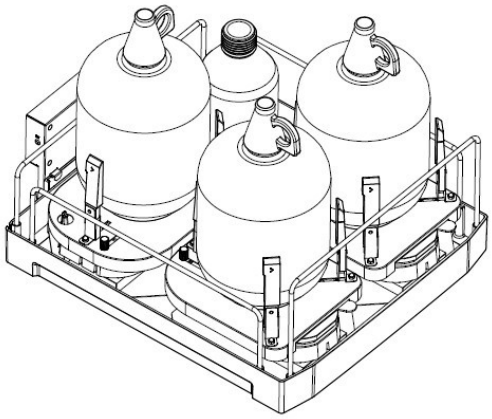
Option name	Part number
Mobile phase monitor installation kit, i-Series	228-77283-41

■ Parts list for the mobile phase monitor installation kit

No.	Part name	Part number	Q'ty	Remarks
1	Guide bar M	228-75146-02	3	Prevents the bottle from falling over or dropping from the tray.
2	Guide bar L	228-68456-02	1	
3	Clamp	072-60658-01	6	Used to fix the cable of the bottle holder.
4	Knurled screw, M3×6	228-63758	1	Used to fix the controller to the reservoir tray.

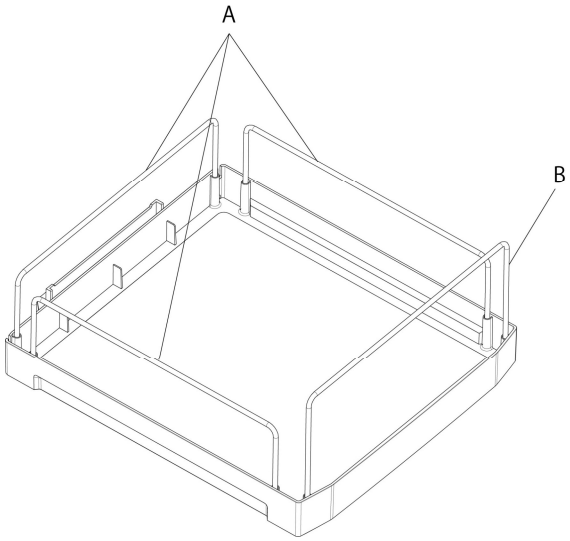
■ Arrangement example for bottle holder

Arrangement Example 1	Arrangement Example 2
1 L bottle holder ×3 1 L bottle ×1 (for rinse solution of the solvent delivery pump)	1 L bottle holder ×2 Large bottle holder ×1 1 L bottle ×1 (for rinse solution of the solvent delivery pump)
	

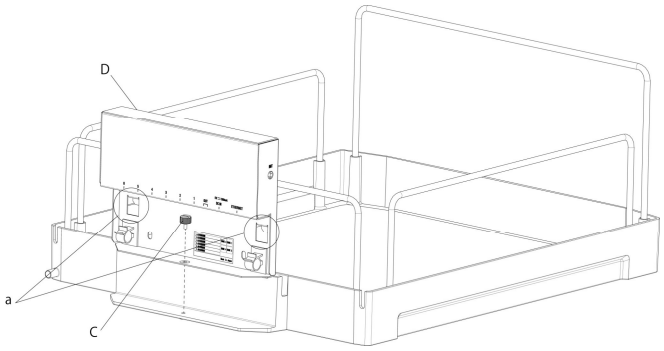
Arrangement Example 3	Arrangement Example 4
1 L bottle holder ×1 Large bottle holder ×2 1 L bottle ×1 (for rinse solution of the solvent delivery pump)	Large bottle holder ×3 1 L bottle ×1 (for rinse solution of the solvent delivery pump)
	

1 **Replace the guide bar attached to the reservoir tray with the guide bar M (A) and guide bar L (B).**
When using the large bottle holder, install the guide bar L to the front side.
When not using the large bottle holder, install the guide bar L to the back side.

Hint The figure below shows an example when arranging the large bottle holder on the front side of the tray.



2 **Fix the controller (D) using the knurled screw, M3×6 (C).**

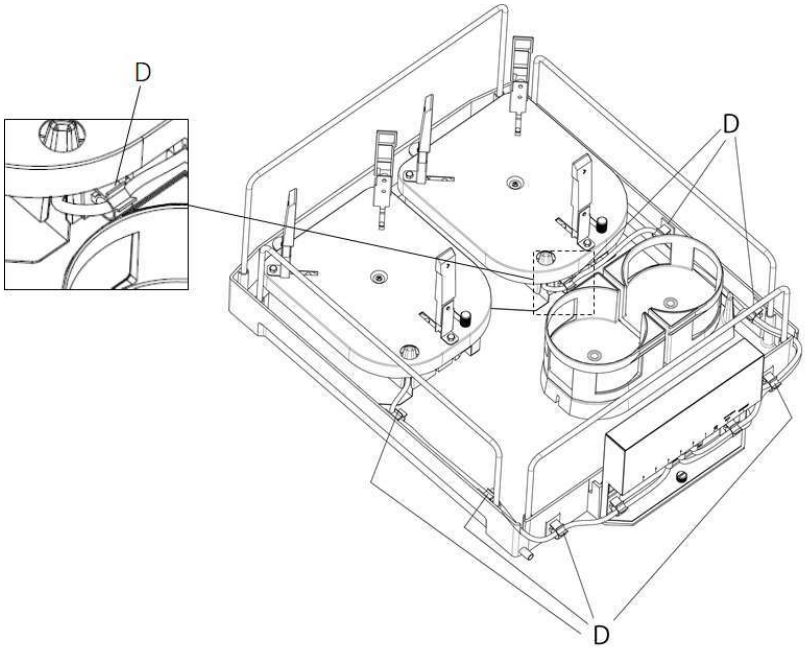


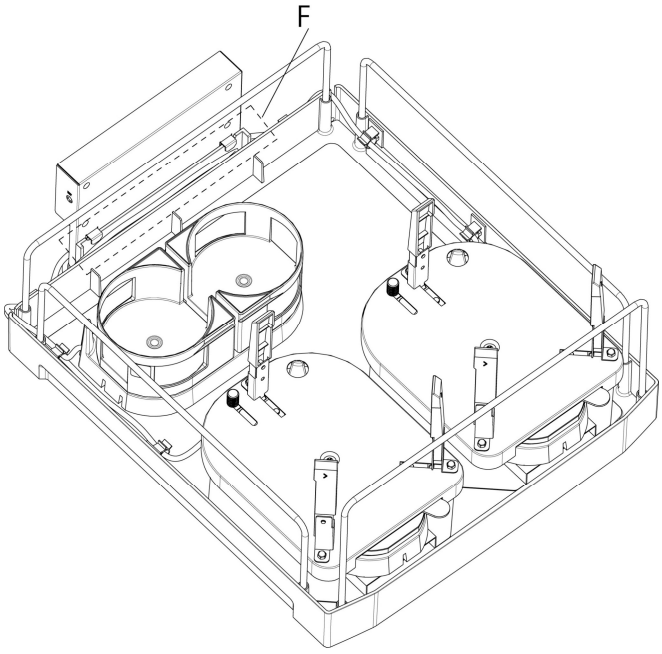
Hint Hook the pawls (a) of the controller on the reservoir tray.

3 **Arrange the bottle holder, referring to "Arrangement example for bottle holder".**

4 **Fix the cable with the provided clamp (D) so that the cable does not contact the weighing plate on the bottle holder.**

■ **Example of arranging the clamp in the case of Arrangement Example 3**





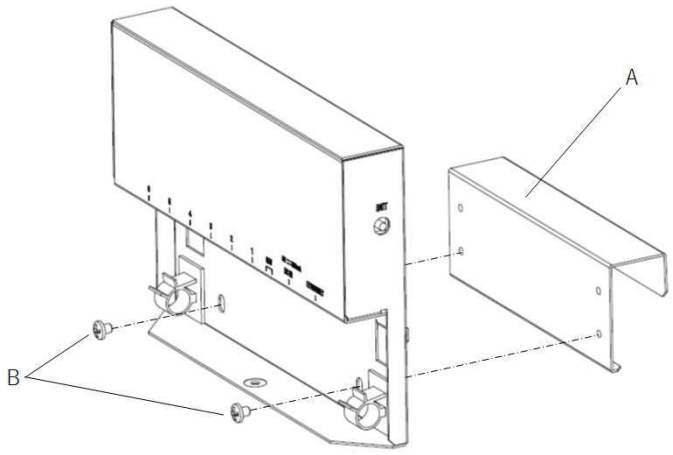
Hint Store the excessive cable in the cable storage (F) of the reservoir tray.

7.1.5 Installing the Controller on the 20A Series Reservoir Tray

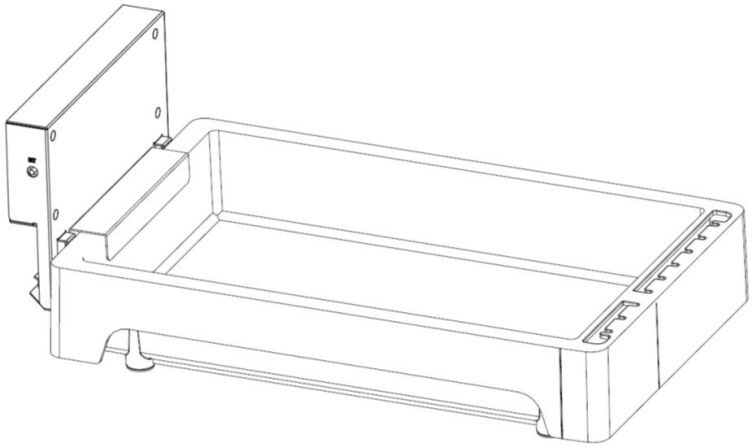
Option name	Part number
MPM controller installation kit	228-76011-41

NOTE The 20A series reservoir tray is not available for the large bottle holder. Use the Nexera series reservoir tray instead.

1 **Use the screws (B) to install the controller installation kit (A) onto the mobile phase monitor controller while being careful of its orientation.**



2 **Hang the sheet metal of the installation kit onto the rear of the reservoir tray.**



3 **Install the bottle holder onto the reservoir tray with the bottle holder cables coming from the right when looking from the controller side (rear side). Then, secure the cables with the provided clamp so that they do not contact the weighing plate.**

4 **Connect the cables to the controller. When doing so, connect the bottle holders on the front side of the reservoir tray to port number 1 and the bottle holders on the rear side to port number 3.**

7.1.6 Installing the Controller on a Reservoir Tray from Another Company

When installing the mobile phase monitor onto another company's instrument, observe the precautions in the table below. To avoid problems described in the following precautions, Shimadzu recommends employing the Nexera series reservoir tray and earthquake kit even when using a system other than the Shimadzu Nexera series.

⚠ CAUTION

Make sure that the cable does not contact the weighing plate.

Otherwise, correct weighing will be obstructed. Use the clamp provided with the mobile phase monitor controller, and arrange the cable so as not to contact the weighing plate.

Avoid splashing a large amount of liquid onto the mobile phase monitor controller or the bottle holders with the weighing plate removed.

This product is not designed to be waterproof. It may be damaged by contact with a large amount of liquid or if submerged in water.

Take adequate measures to keep the mobile phase bottles from falling.

Especially when placing a bottle on analytical instrumentation, take sufficient measures against earthquakes.

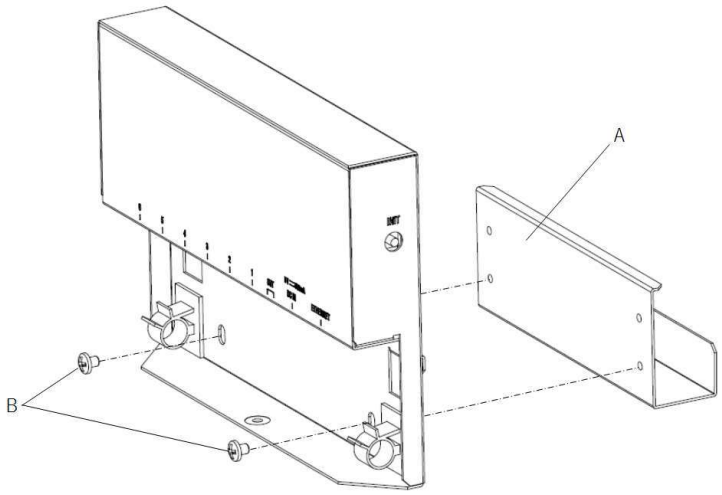
Do NOT allow bottle holders to be submerged.

The bottle holders are not designed to be fully waterproof. There is a risk of failure if they are submerged as much as 1 cm or more. Use a tray with a drain system or take other measures to avoid submersion.

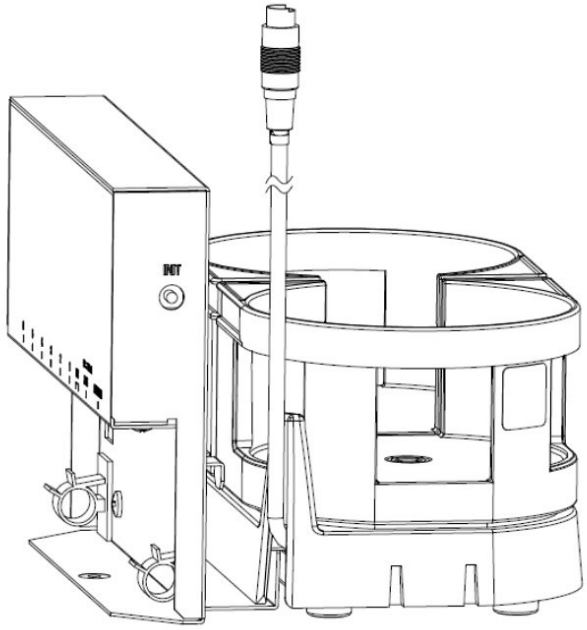
■ When installing the mobile phase monitor controller to the bottle holder

For 1 L bottle holder

1 **Use the screws (B) to install the mobile phase monitor installation kit (A) onto the mobile phase monitor controller while being careful of its orientation.**



2 **Install the bottle holder onto the reservoir tray with the bottle holder cables coming from the right when viewing from the controller side (rear side). When doing so, hang the bottle holder closest to the controller on the sheet metal of the controller installation kit, as shown in the figure.**



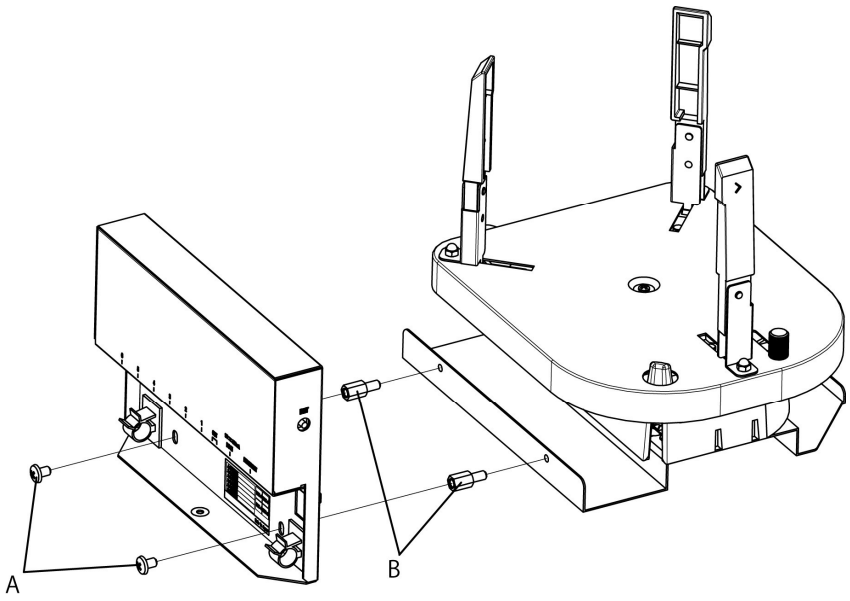
3 **Install the 2nd and later bottle holders onto a position of your choice with the bottle holder cables coming from the right when viewing from the controller side (rear side).**
Then, secure the cables with the provided clamp so that they do not contact the weighing plate.

4 **Connect the cables to the mobile phase monitor controller.**
When doing so, connect the bottle holders on the front side of the reservoir tray to port number 1 and the bottle holders on the rear side to port number 3.

For large bottle holder

When using a reservoir tray from another company, secure the mobile phase monitor controller to the bottle holder by using the procedure below.
The controller installation kit is not necessary.

1 **Use two screws, SUS bind M5X8 (A) and two spacers (B) provided with the large bottle holder to fasten the mobile phase monitor controller to the bottle holder sheet metal.**

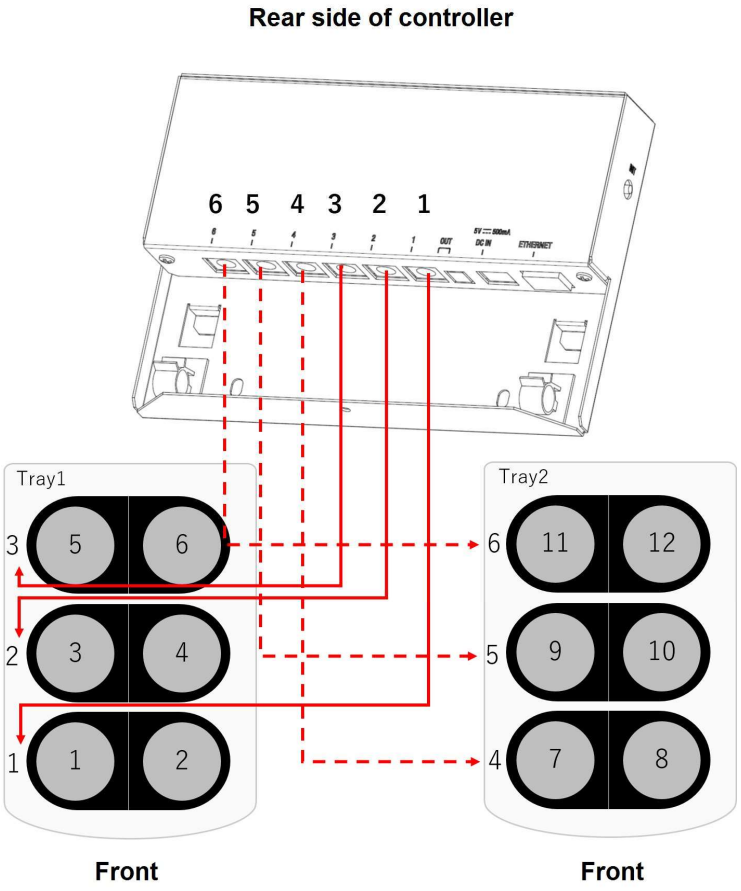


2 **Arrange the bottle holder cables so that they do not contact the weighing plate, and connect the cables' connectors to the controller.**

Hint Use the clamp provided with the mobile phase monitor controller as necessary.

7.2 Bottle Holder Connection Position and Resulting Screen Display

Bottle holders connected to port 1 to 6 on the Mobile Phase Monitor controller are displayed on MPMChecker as the virtually arranged items shown below.
A single bottle holder is supported by 2 sensor numbers.



7.3 Initialization Parameter List

Parameters initialized by operating the reset switch on a side surface of the controller unit are summarized below.

Major item	Item	Initial value	Remarks
Network settings	IP Address	192.168.200.94	This parameter is also initialized when network settings are initialized.
	Subnet mask	255.255.255.0	This parameter is also initialized when network settings are initialized.
	Default gateway	0.0.0.0	This parameter is also initialized when network settings are initialized.
	MPM controller name	(Blank)	
Settings for each mobile phase (sensor)	Mobile phase name	(Blank)	
	Compressibility	0.45 /GPa	
	Memo	(Blank)	
	Line settings	None	
	Notification settings	OFF	
	Temporary notification settings	ON	
	Bottle type	1 L bottle	
Warning/Error volume settings	Warning Volume	300 mL	
	Error Volume	100 mL	
System Controller Link Settings	Link destination system controller IP address	(Blank)	
Log	Calibration log	None	
	Error log	None	

Major item	Item	Initial value	Remarks
Link Settings	Send data to M2M Gateway	OFF	
	M2M Gateway IP address	192.168.255.255	
	IoT send cycle	60	
	Synchronize with NTP server	ON	
	NTP server IP address	192.168.1.11	
	Offset from UTC	+9 hours	
	Enable Daylight Saving	OFF	
	Summertime start date and time	March 11, 2 AM	
	Summertime end date and time	November 4, 2 AM	
	Summertime Offset	60 min	

7.4 Specifications

7.4.1 Product Specifications

<table>
<tr><th>Item</th><th>Specifications</th></tr>
<tr><td>Measurement range</td><td>Bottle holder (for 1 L bottle): Max. 3 kg
Bottle holder (for large bottle): Max. 10 kg (bottle diameter: 130-186 mm)</td></tr>
<tr><td>Range of measurable capacity</td><td>Bottle holder (for 1 L bottle): 0 to 1000 mL (100 mL increments)
Bottle holder (for large bottle): 0 to 5000 mL (100 mL increments)</td></tr>
<tr><td>Measurement error</td><td>±40 mL
Shimadzu recommends registering the weight again after weighing in the following environment sequentially for three days.
Bottle holder (for 1 L bottle): temperature that exceeds 30 ˚C and humidity that exceeds 80 %
Bottle holder (for large bottle): temperature that exceeds 30 ˚C and humidity that exceeds 70 %</td></tr>
<tr><td>Ambient temperature</td><td>4 to 35 ˚C</td></tr>
<tr><td>Usable humidity range</td><td>20 to 85% (without condensation)</td></tr>
<tr><td>External dimensions</td><td>Controller: 202 (W) × 140 (H) × 31 (D) mm
Bottle holder (for 1 L bottle): 210 (W) × 95 (H) × 100 (D) mm
Bottle holder (for large bottle): 228 (W) × 195 (H) × 194 (D) mm (incl. pillars)</td></tr>
<tr><td>Weight</td><td>Controller: 0.6 kg
Bottle holder (for 1 L bottle): 0.9 kg
Bottle holder (for large bottle): 1.8 kg</td></tr>
<tr><td>Power supply</td><td>
<table>
<tr><th>Part number</th><th>Power supply voltage*1</th><th>Current value</th></tr>
<tr><td>228-65525-46
228-65525-58</td><td>DC5V±5%
(when using while connected to an AC adapter)</td><td>500 mA</td></tr>
</table>
*1 Use an approved AC adapter with a power restricted SELV output.
Use an AC adapter with a USB type A connection port.
</td></tr>
<tr><td>Installation environment (IEC)</td><td>Install indoors
Installation category II, contamination level 2, altitude 2000 meters maximum.</td></tr>
</table>

7.5 Maintenance Parts

Part name	Part number	Remarks
MPM controller PCB	228-75060-41	PCB for the controller
Bottle holder PCB	228-75070-41	PCB for the bottle holders. Common to bottle holders for 1 L bottle and large bottle.
Bottle holder cable	228-75620-41	Cables for the bottle holders. Common to bottle holders for 1 L bottle and large bottle.
Weighing plate (for 1 L bottle)	228-75625	Weighing plate on which to place 1 L bottles. Dedicated to the 1 L bottle holder
Weighing plate (for large bottle)	228-69327-04	Weighing plate on which to place large bottles. Dedicated to the large bottle holder
Disk, MPM	228-76054-02	A cam part to drive the pillars. Dedicated to the large bottle holder.
Pillar ASSY	228-68453-41	Equipped with pillars to secure the bottle. Dedicated to the large bottle holder.
Non-slip mat	228-76059-01	A mat to be sticked on the weighing plate of the large bottle holder, preventing the bottle from slipping and falling over.

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