

Test Status Display Software

K2+

K2

K2Sprint

SystemMonitor Instruction Manual

IMV CORPORATION

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English Edition

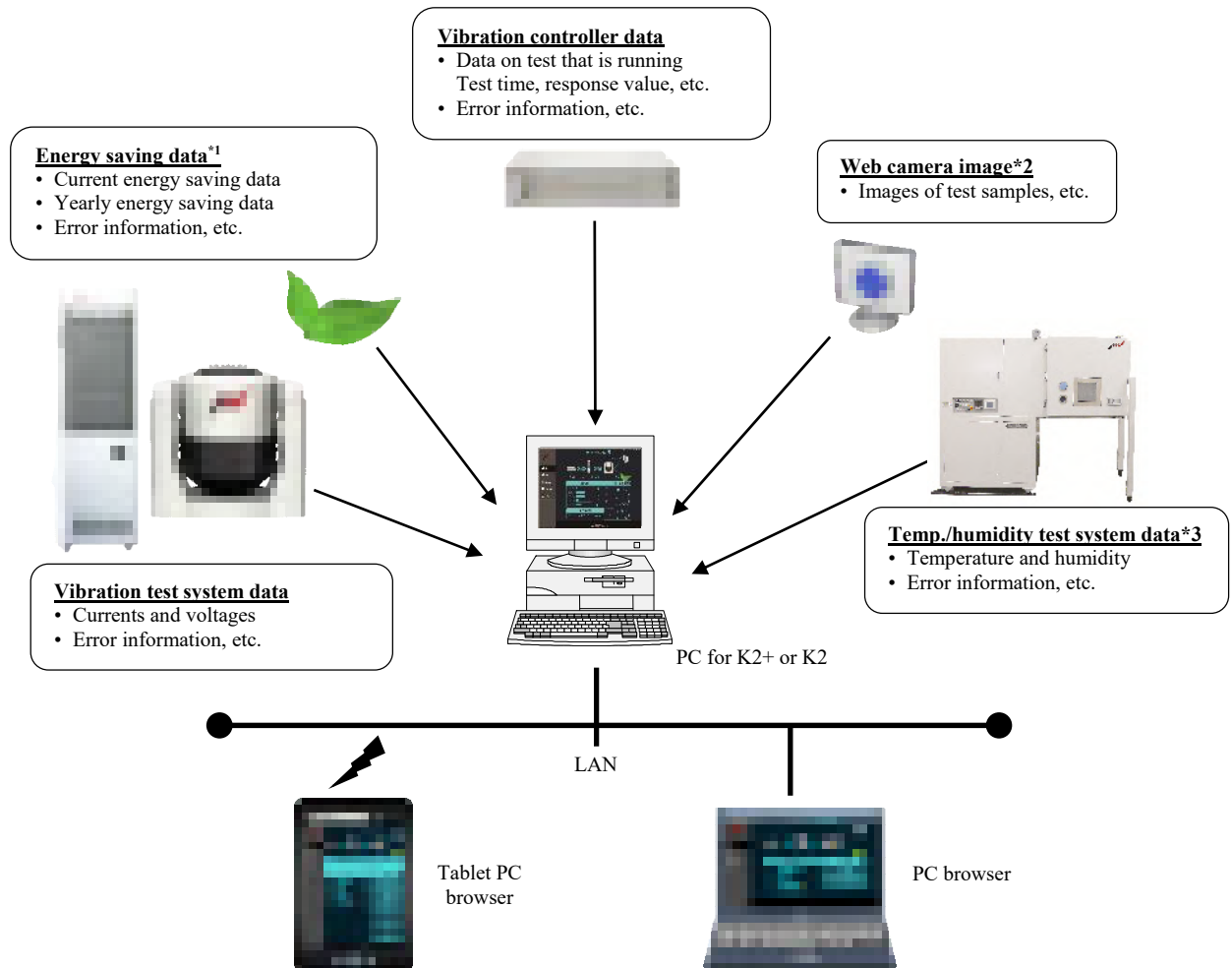
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3.0.0	2016.04.28	First edition
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3.2.1	2018.12.06	Add DVD-ROM as the recording media for installer
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Chapter 1 Overview

System Monitor is a software that displays the status of testing systems on a web browser. By using System Monitor, the user can have a one-stop service station to monitor various information on test systems that are executed through a PC or a tablet PC. Since testing information is displayed on a web browser, it is not required to install any special software on the PC or tablet PC from which testing status is monitored. Shown below is a conceptual diagram of System Monitor.



Vibration test system data, Vibration controller test status, energy saving data^{*1}, web camera image^{*2} and temperature/humidity test system data^{*3} are collected on a PC for the vibration controller K2+ or K2. These data can be monitored on the PC for K2+ or K2 or from a PC or a tablet PC^{*4} that is connected to the PC for K2+ or K2 through a wired/wireless LAN using a web browser.

*1: Effective only for ECO-shaker made by IMV.

*2: Requires a web camera.

*3: Effective only for a temperature/humidity test system with a constant temperature/humidity chamber controller made by IMV.

*4: Setting up the LAN and Wi-Fi is required.

1.1 Specifications

1) Display features

Following information can be displayed.

① Vibration test system

- Current values of the power amplifier outputs
Peak current, rms current, peak voltage, rms voltage, gain
- Error information

② Vibration controller

- Type of test being executed and test status
- Execution status (different data depending on the test type, such as SINE and RANDOM)
Test file, reference/response levels, elapsed test time, etc.
- Error information

③ Energy saving (only for IMV's ECO-shaker)

- Eco data per unit time: Power consumption, electricity bill, CO2 emission
- Cumulative eco data: Power consumption, electricity bill, total CO2 emission
- Annual statistics chart: Power consumption, electricity bill, CO2 emission
- Error information

④ Temperature/humidity test system (only for a temperature/ humidity test system with a constant temperature/humidity chamber controller made by IMV)

- Current temperature and humidity
- Approx. one month worth of temperature and humidity data on a chart
- Error information

⑤ Web camera (only if a web camera is used)

- Camera image

⑥ Instruction manual

- SystemMonitor instruction manual

2) Maintenance notice

A message is displayed if a scheduled system maintenance is approaching.

3) Applicable systems

① Vibration test system

IMV vibration test systems with SA-170, SA-160 or SA-150

SA-160 or SA-150 Ver 1.1.2 or later

ECO-shaker ISM Ver 5.0.0.0 or later

② Vibration controller

IMV K2+ or K2 Ver 20.0.0.0 or later

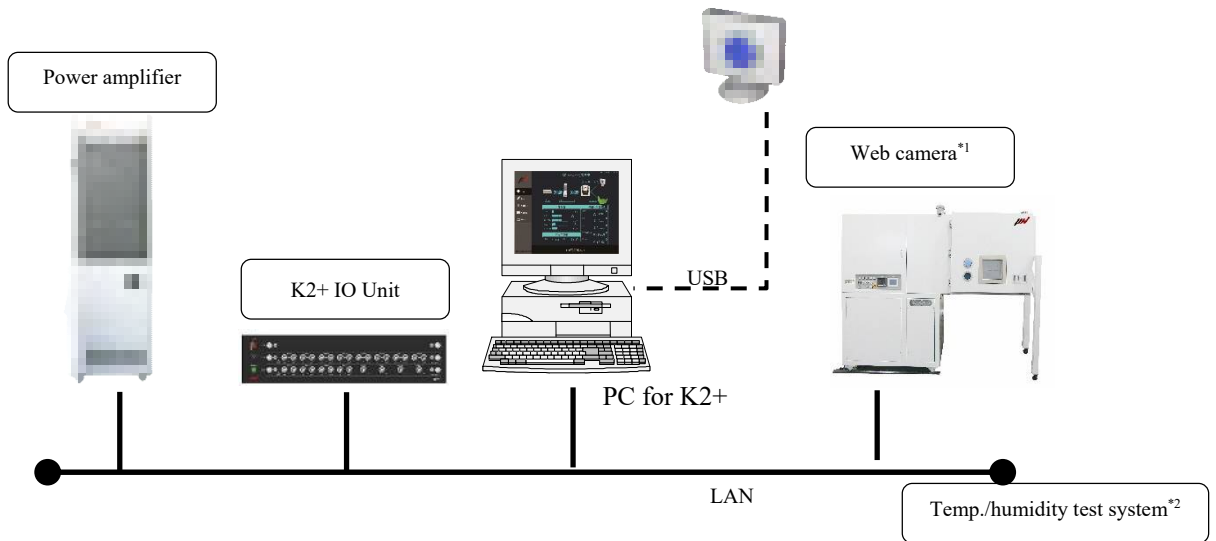
③ Temperature/humidity test system

A temperature/ humidity test system with a constant temperature/humidity chamber controller made by IMV

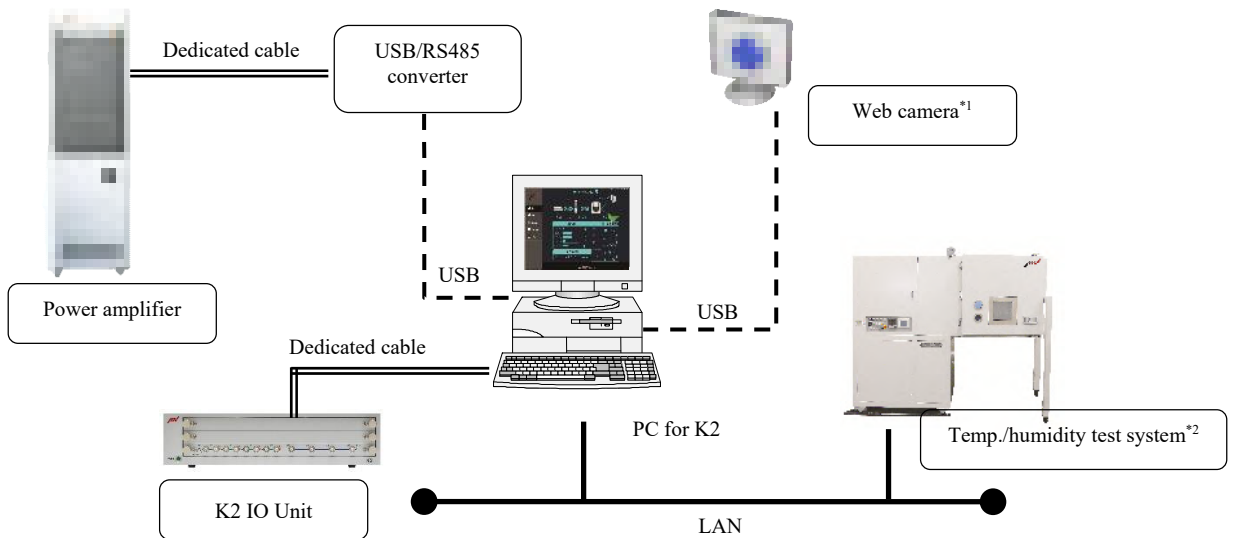
1.2 Hardware

System Monitor hardware connection shall be made as follows.

<K2+ and SA-170>



<K2 and SA-160 or SA-150>



*1: Requires a web camera.

*2: Effective only for a temperature/humidity test system with a constant temperature/humidity chamber controller made by IMV.

1) Required specifications for the PC

Pursuant to specifications for the standard PC for K2+ or K2. However, there are added requirements as follows.

- ① Intel® Core(TM) i5-3550S Processor 3.0GHz or higher CPU
- ② 200GB or more available hard disk space
- ③ For SA-160 or SA-150
One or more USB port available (for USB/RS485 converter)
- ④ For SA-170
One or more LAN port available
- ⑤ If a web camera is used:
One or more USB port available (for the web camera)
- ⑥ If a temperature/humidity test system is used:
One or more LAN port available (for the connection of the temperature/humidity test system)
- ⑦ Microsoft Internet Information Services (IIS) available (refer to the web server service in the following section)

2) USB/RS485 converter (for SA-160 or SA-150)

This is a converter to connect the PC and the power amplifier(SA-160 or SA-150).

The following converter is supported.

- ① UPort 1130 (supplied by Moxa)

* An dedicated cable is required for the connection of this converter and the power amplifier.

3) Web camera

Shall be a USB web camera. However, compatibility with all models is not guaranteed even if the cameras satisfy these requirements.

Number of pixels of a still image: 5 million pixels or less is recommended (depends on the processing power of the PC used).

Recommended model: Logicool HD Webcam C270

1.3 Software

1) Software

SystemMonitor consists of software listed below. These software shall be installed on the PC for K2.

① Data collection software K2_SI_Status

This is a software for collecting data from the vibration test system, vibration controller, energy saving system, web camera and temperature/humidity test system and displaying them on a web browser.

② SA-160 or SA-150 Vibration test system data acquisition software SAMonitor

This is a software to obtain data from the SA-160 or SA-150 vibration test system.

③ Still image capturing software CameraCapture

This is a software for capturing a still image from a web camera and displaying it on a web browser.

④ Temperature/humidity test system data acquisition software ChamberMonitor

This is a software for obtaining data from the temperature/humidity test system.

2) Web server service

SystemMonitor utilizes the standard web server service of Windows 7 or Windows 10, Microsoft Internet Information Services (IIS).

Note) SystemMonitor may not work properly in an environment where IIS is used for purposes other than SystemMonitor. Do not use IIS for purposes other than SystemMonitor.

3) Web browser

The web browser supported by SystemMonitor are listed below (as of 2018/4/27). However, not all browsers are guaranteed to run with the system even if they satisfy this requirement.

- Microsoft Windows: Internet Explorer 10 or later, Microsoft Edge
- Android: Standard browser (Android 4 or later)
- iOS: Safari (iOS 6 or later)

Chapter 2 Setup

2.1 Software Installation

To install the software, **log in to the Windows operating system using the username with the “Administrator” right.**

2.1.1 SystemMonior Installation

Refer to the separate "How to install software" booklet.

2.1.2 USB/RS485 Converter Driver Installation(for SA-160 orSA-150)

This procedure is only required if the amplifier controller is an SA-160 or SA-150.

The UPort 1130 driver shall be installed.

The installation process may differ depending on the driver version provided by the supplier.

Consider the procedure below as a reference information.

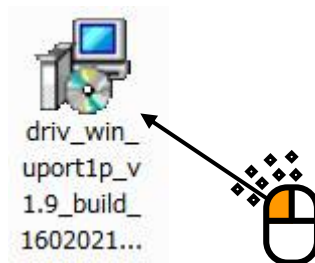
Note) Use the installer program for the UPort 1130 driver provided on the IMV installation DVD
Disk2.

<Procedure>

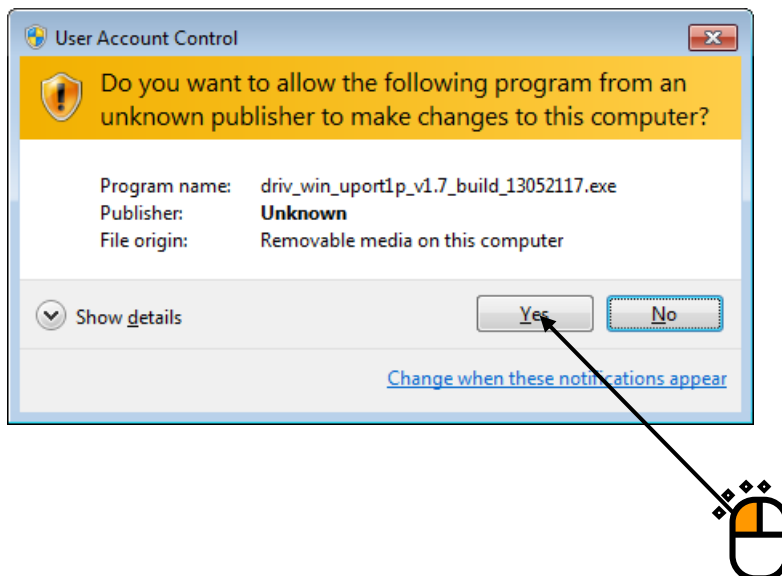
<Step 1>

If the UPort 1130 unit is mounted on a USB port of the PC, disconnect it from the USB port.

Double-click on the UPort 1130 driver installer program icon (in this example, driv_win_uport1p_....exe).

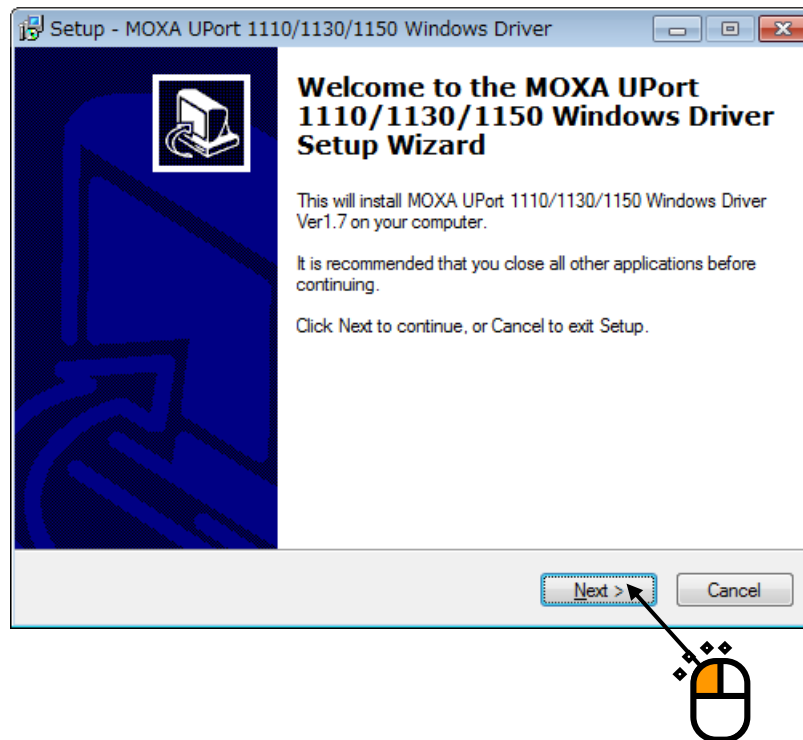


If the user account control window pops up, click on [Yes].



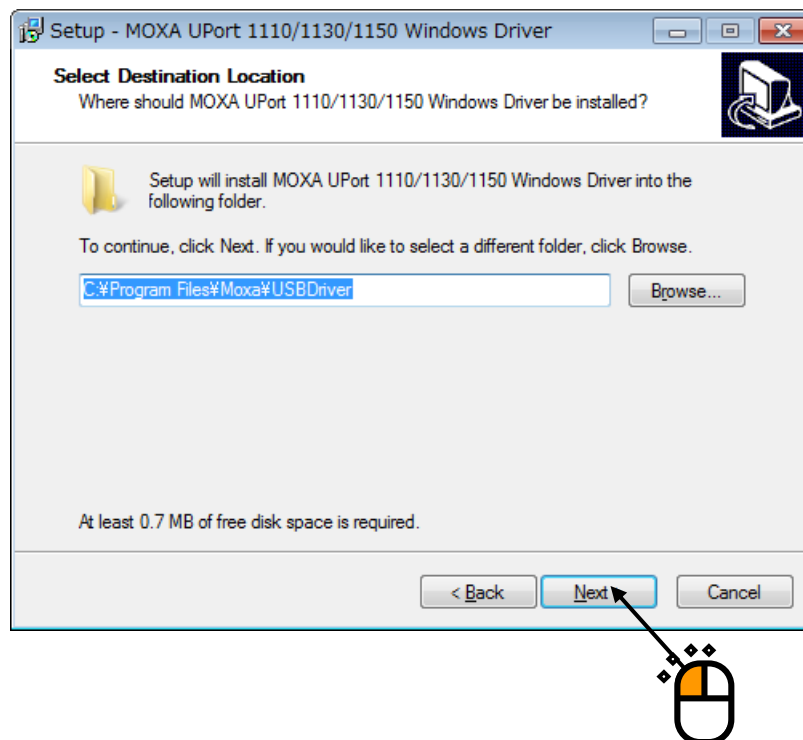
<Step 2>

The initial screen for installation appears. Click on the [Next] button.



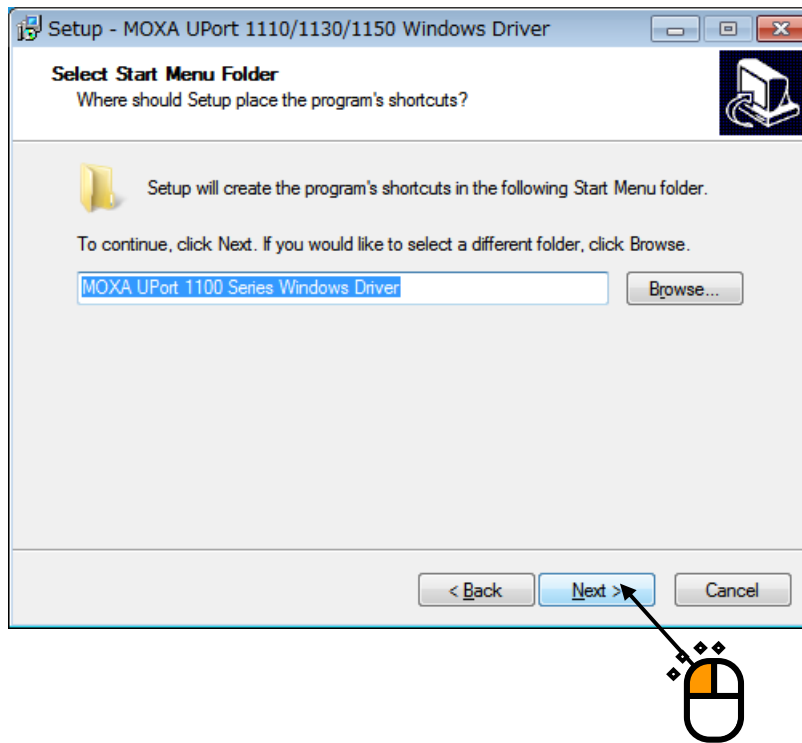
<Step 3>

A screen for selecting the destination folder appears. Click on the [Next] button.



<Step 4>

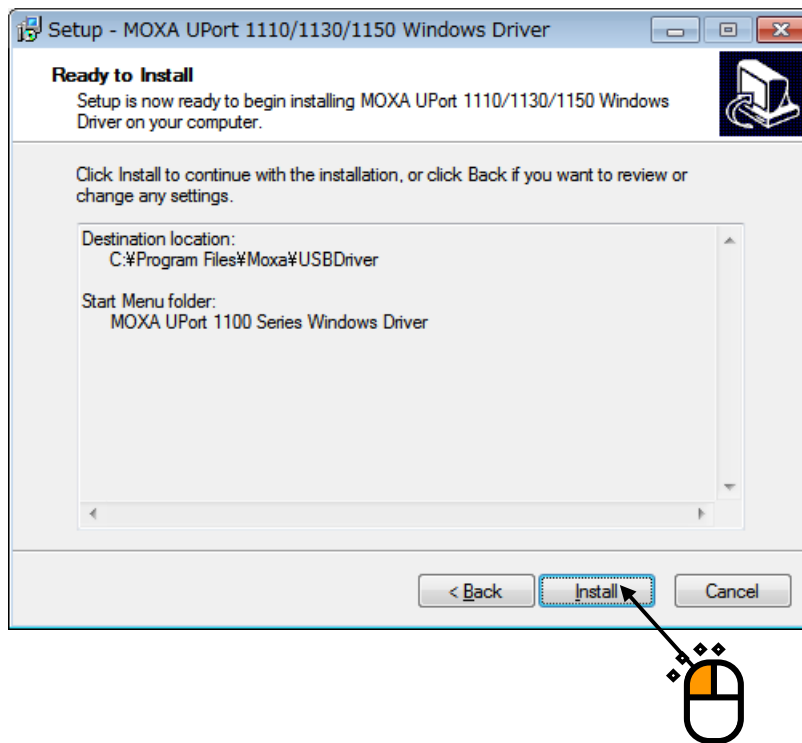
A screen for selecting the Start Menu folder appears. Click on the [Next] button.



<Step 5>

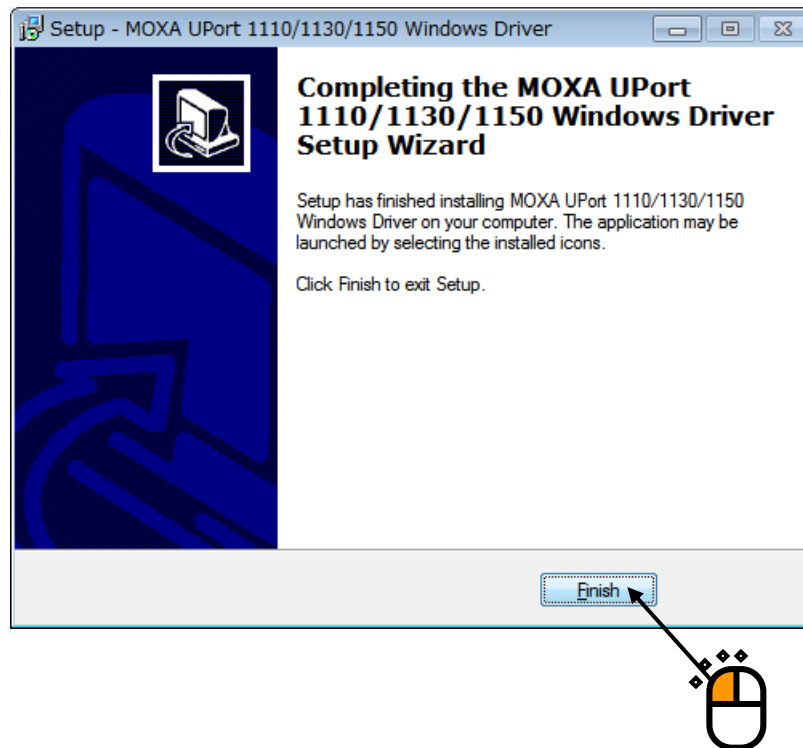
A screen to confirm the installation appears. Click on the [Install] button.

The driver installation will start.



<Step 6>

Upon completion of the installation, the installation complete screen appears. Click on the [Finish] button.



The driver installation is completed.

Once the UPort 1130 unit is mounted on the USB port on the PC, it will be recognized automatically.

2.2 Connecting Various Devices

2.2.1 Connecting a Vibration Test System(SA-160 or SA-150)

This section describes the connections when the amplifier controller is an SA-160 or SA-150.

2.2.1.1 Checking the COM port for the USB/RS485 converter

Check the COM port for UPort 1130. The COM port used depends on the USB port to which the UPort 1130 unit is connected.

Although the procedure for checking the COM port using a software provided by the supplier is described here, it is also possible to use Windows Device Manager.

Also note that the setup process may differ depending on the software version provided by the supplier. Consider the procedure described below as a reference information.

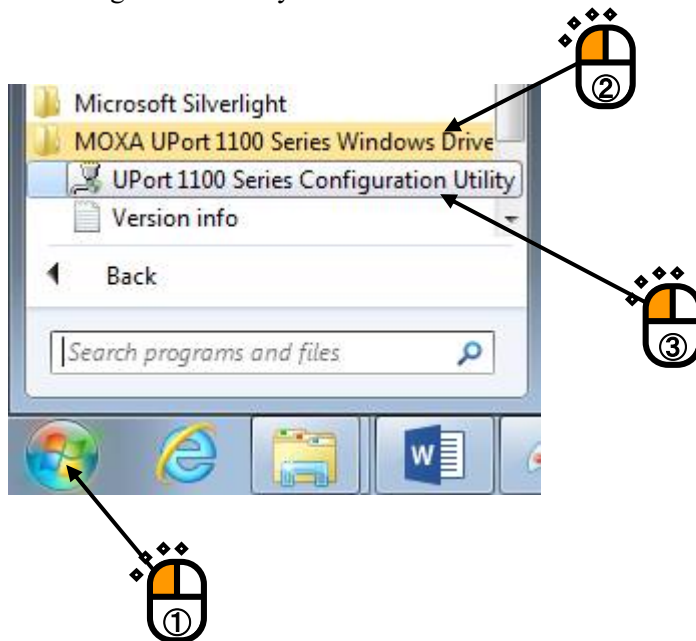
<Procedure>

<Step 1>

After installing the UPort 1130 driver software, connect the UPort 1130 unit to a USB port on the PC. UPort 1130 will be recognized automatically.

<Step 2>

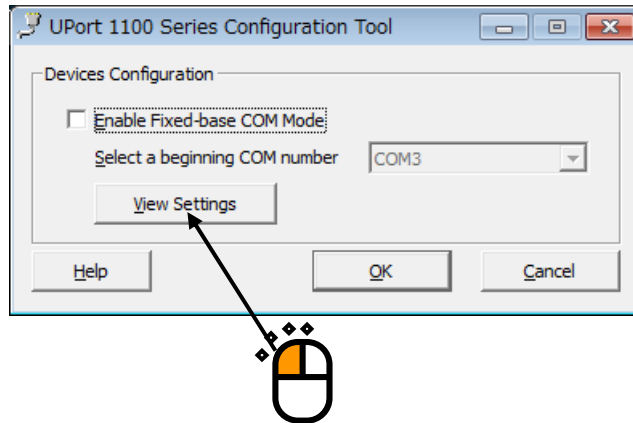
From the Start Menu, select “MOXA UPort 1100 Series Windows Driver” and then “UPort 1100 Series Configuration Utility”.



<Step 3>

The UPort 1130 setup screen appears. Click on the [View Settings] button.

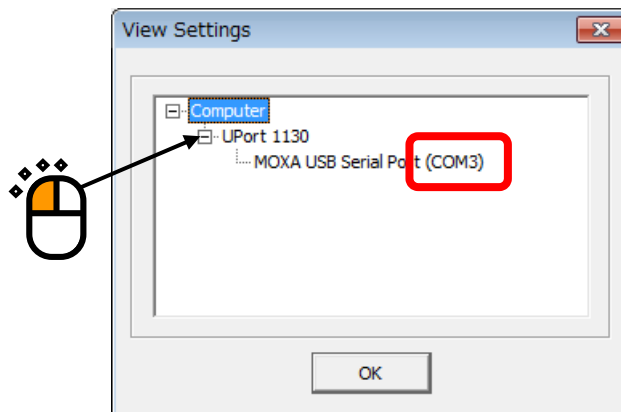
Note) **Do not check the “Enable Fixed-base COM Mode”** as doing so may cause a malfunction.



<Step 4>

By selecting “UPort 1130”, the COM port used by UPort 1130 will be displayed.

In this example, COM3 is used.



Upon checking the COM port, click on the [OK] button to return to the previous screen and click on the [Cancel] button to exit the program.

<Step 5>

Set the COM port used by SAMonitor, the SA-160 or SA-150 vibration test system data acquisition software, as the COM port used by UPort 1130.

For the setup procedure, refer to “3.2.3 SA-160 or SA-150 Vibration Test System Data Acquisition Software SAMonitor”.

2.2.1.2 Connecting a power amplifier and USB/RS485 converter

Connect a power amplifier and a USB/RS485 converter with the exclusive cable.

Since the connection to the power amplifier is made within the power amplifier housing, do not touch it.

2.2.2 Connecting a Vibration Test System(SA-170)

This section describes the connections when the amplifier controller is an SA-170.

Set up the PC as follows and connect the controller with a LAN cable.

2.2.3.1 PC network setting

The PC for K2+ or K2 and SA-170 shall be connected to a LAN. The IP address for the SA-170 is fixed and cannot be modified as a rule of thumb.

The table below lists the IP address of SA-170 and recommended network settings the PC for K2+ or K2.

Item	PC for K2+ or K2	SA-170
IP address	192.168.200.231	192.168.200.10 (fixed)
Subnet mask	255.255.255.0	255.255.255.0

2.2.3 Connecting a Web Camera

It is necessary to have the “Camera” feature selected at the time of installing SystemMonitor.

Once a USB web camera is connected to a USB port on the PC, it will be recognized automatically.

In order to perform a stable test, avoid removing the web camera during a test unless it is absolutely necessary.

2.2.4 Connecting a Constant Temperature/Humidity Chamber Controller

This is applicable only when a temperature/humidity test system with an IMV constant temperature/humidity chamber controller is used.

It is necessary to have the “Chamber” feature selected at the time of installing SystemMonitor.

Set up the PC as follows and connect the controller with a LAN cable.

2.2.4.1 PC network setting

The PC for K2+ or K2 and the IMV constant temperature/humidity chamber controller shall be connected to a LAN.

The IP address for the IMV constant temperature/humidity chamber controller is fixed and cannot be modified as a rule of thumb.

The table below lists the IP address of the IMV constant temperature/humidity chamber and recommended network settings the PC for K2+ or K2.

Item	PC for K2+ or K2	IMV chamber
IP address	192.168.3.231	192.168.3.221 (fixed)
Subnet mask	255.255.255.0	255.255.255.0

2.3 Uninstalling and Updating the Software

Refer to the separate "How to install software" booklet.

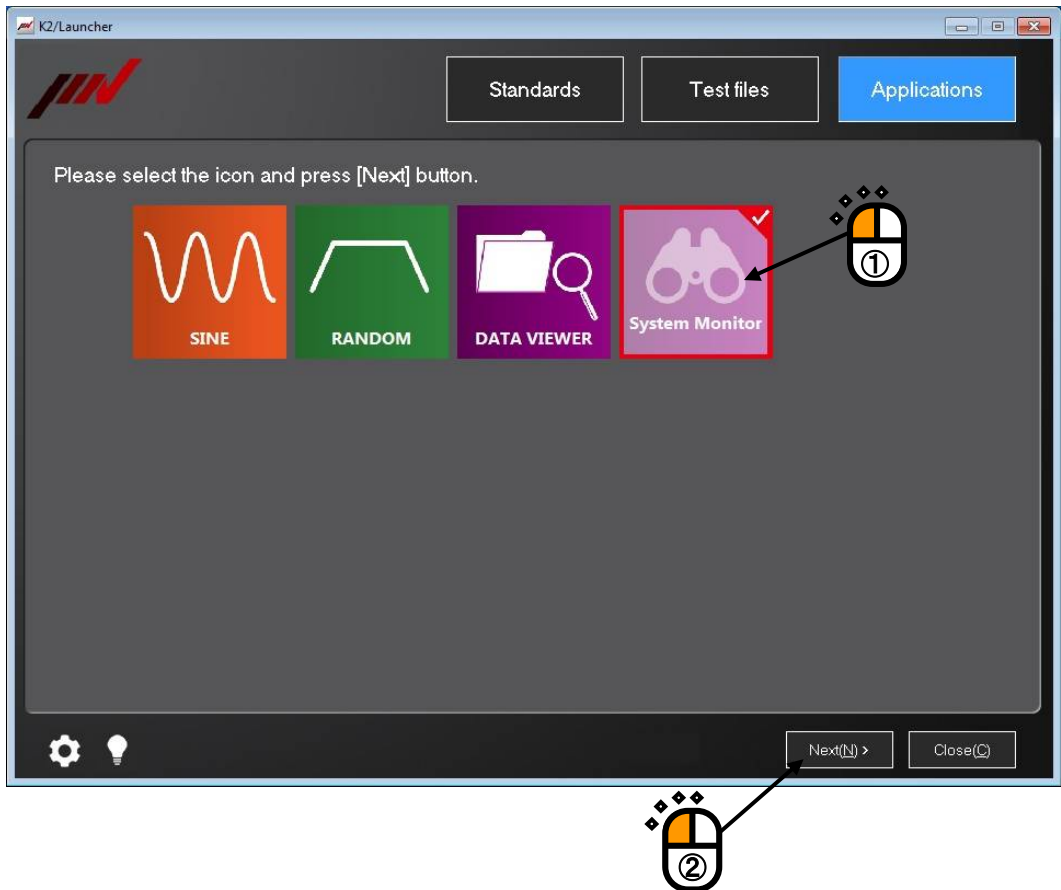
Chapter 3 Operation

3.1 SystemMonitor Display and Operation on a Web Browser

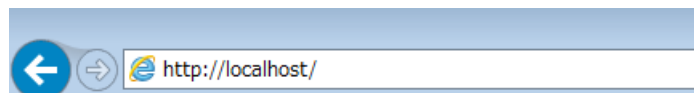
3.1.1 Displaying SystemMonitor

(1) Viewing on the PC for K2+ or K2

Referring to K2 of Ver14.0.0.0 and later, SystemMonitor icon is displayed in K2/Launcher. Select SystemMonitor icon, and press [Next] button. Then, Web browser is booted automatically, and the SystemMonitor screen appears. The web browser address sets to "localhost".



In other case, start a web browser and enter “http://localhost” on the address field.

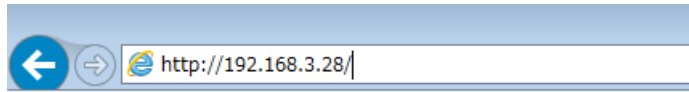


The SystemMonitor screen appears on the web browser.

(2) Viewing on a PC or tablet PC other than the PC for K2+ or K2

Start a web browser and enter the IP address of the PC for K2+ or K2 on the address field.

For example, if the IP address of the PC for K2+ or K2 is “192.168.200.231”, enter “http://192.168.200.231”.



The SystemMonitor screen appears on the web browser.

If the SystemMonitor screen does not appear, check the LAN connection and settings.

3.1.2 Description of Each Screen and Performing Operations

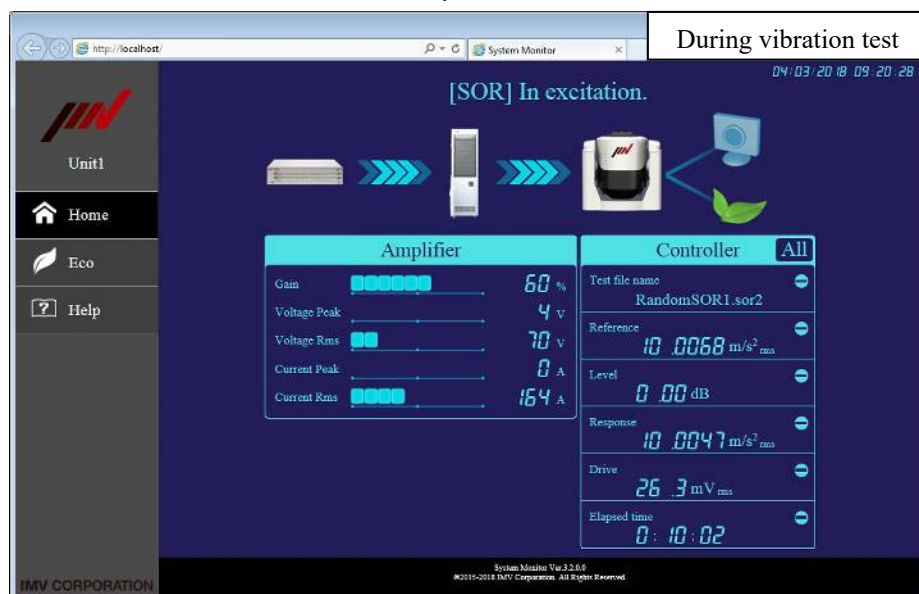
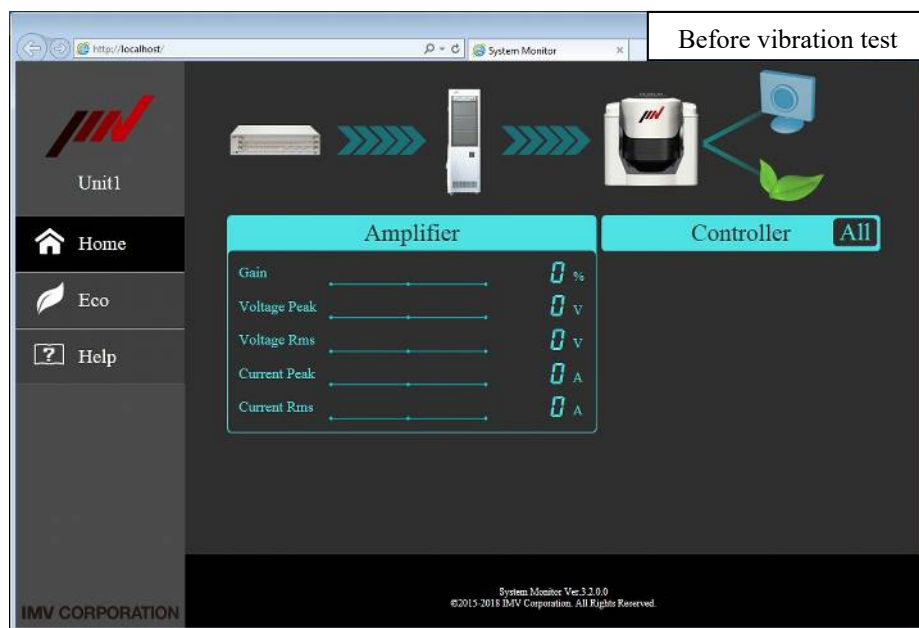
3.1.2.1 Home Screen

On the Home Screen, the status of the entire test system is displayed.

For the Eco-shaker, web camera and temperature/humidity test system displays, each display field is enabled or disabled depending on the system configuration.

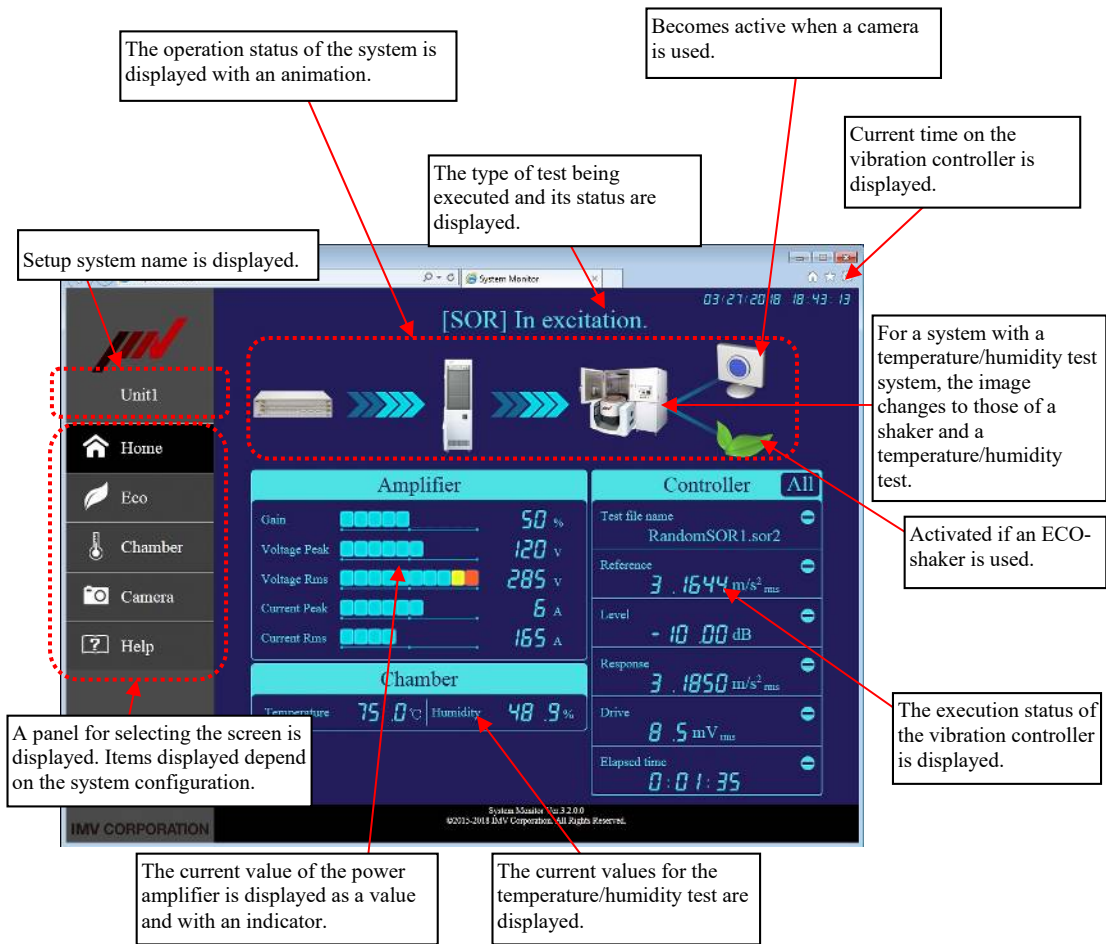
Although the screen is updated with an interval of one to two seconds, this also depends on the condition of the system.

When vibration test is started, the background color in the Home Screen is changed as shown in the picture below. After vibration test is completed successfully, the background color returns to that before the vibration test.



(1) Information displayed during a normal operation

The figure below is an example of the display during a normal operation of a system with an ECO-shaker, a web camera and a temperature/humidity test system attached.



Supplement) Current data of the constant temperature/humidity chamber

The symbols “***” will be displayed if the data cannot be obtained.

The obtained values are displayed even if chamber is not operated.

Setting system name

System name is set with Data Acquisition Software K2_SI_Status. For details, refer to “3.2.2 Data Acquisition Software K2_SI_Status”.

The figure below shows an example of display for a system without any ECO-shaker, web camera and temperature/humidity test system.

The screenshot shows a web-based system monitor interface. At the top, it displays "[SOR] In excitation." and the date/time "03/27/2018 18:33:39". The main area is divided into two panels: "Amplifier" and "Controller".

Amplifier Panel:

Gain	70 %
Voltage Peak	88 V
Voltage RMS	255 V
Current Peak	4 A
Current RMS	363 A

Controller Panel:

Test file name	RandomSOR1.sor2
Reference	3.1644 m/s ² _rms
L-level	-10.00 dB
Response	3.1798 m/s ² _rms
Drive	8.5 mV_rms
Elapsed time	0:00:12

Callouts and annotations:

- A box at the top center says "Not active if a camera is not used." with an arrow pointing to a camera icon.
- A box on the right says "The image switches to that of a shaker for a system without a temperature/humidity test system." with an arrow pointing to a shaker icon.
- A box on the right says "Not active if not an ECO-shaker." with an arrow pointing to a shaker icon.
- A box on the left says "The items 'Eco, Chamber and Camera' do not appear on the selector panel." with a red dotted line around the "Home" and "Help" buttons.
- A box at the bottom center says "The information on the temperature/humidity test system is not displayed." with an arrow pointing to the Controller panel.

(2) Operations during a normal operation

Operations available on the Home Screen are as follows.

The screenshot shows a web-based interface for a System Monitor. The browser address bar shows 'https://localhost/'. The page title is 'System Monitor'. The main content area is titled '[SOR] In excitation.' and features three data panels: Amplifier, Chamber, and Controller. The Amplifier panel displays Gain (50%), Voltage Peak (120 V), Voltage Rms (285 V), Current Peak (6 A), and Current Rms (165 A). The Chamber panel displays Temperature (75.0 °C) and Humidity (48.9%). The Controller panel displays Test file name (RandomSOR1.sor2), Reference (3.1644 m/s² rms), Level (-10.00 dB), Response (3.1850 m/s² rms), Drive (8.5 mV rms), and Elapsed time (0:01:35). A sidebar on the left contains navigation buttons: Home, Eco, Chamber, Camera, and Help. The Controller panel has an 'All' button and several minus signs for hiding data.

Switches the screen.

Selecting the "All" button displays all data.

Selecting the value or information being displayed will switch the font size.

Selecting the "-" button will hide corresponding data.

3.1.2.2 Eco Screen

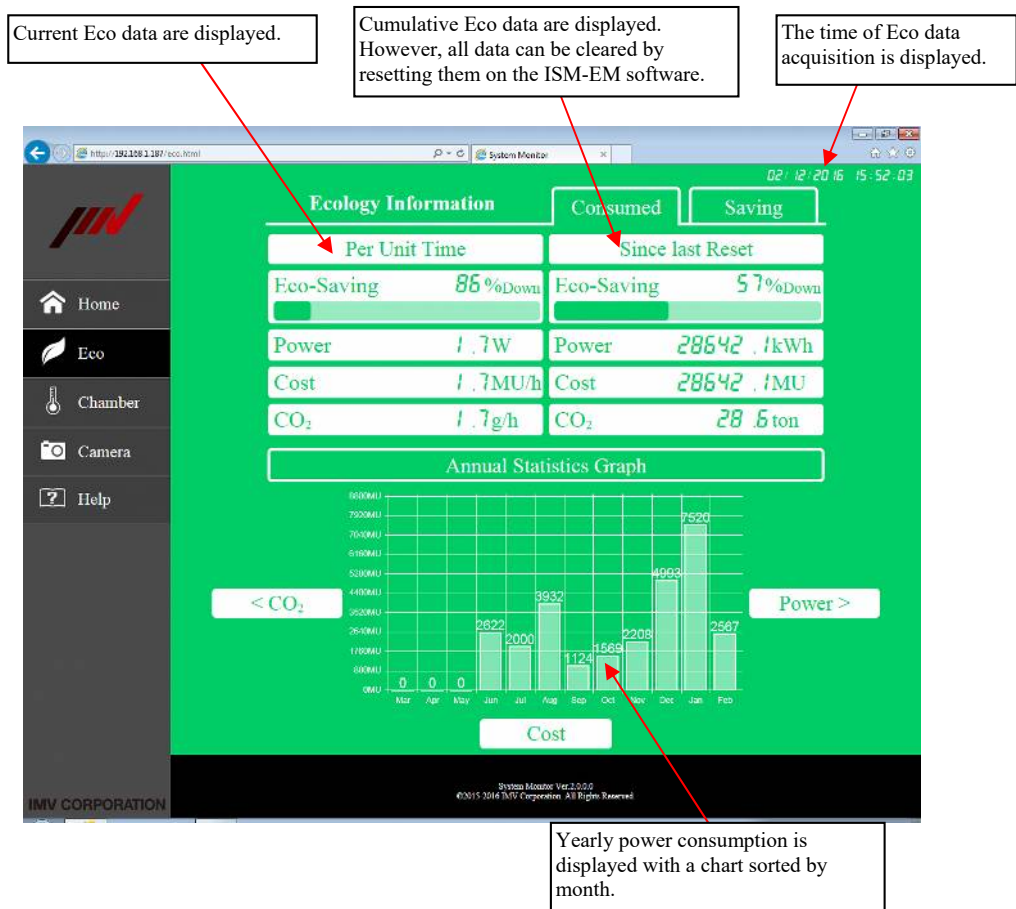
The Eco Screen is available for an IMV ECO-shaker only.

Although the screen is updated with an interval of one to two seconds, this depends on the condition of the system.

The default value for the closing date of monthly charts is the last day of each month. The chart for the current month reflects energy consumption up to the previous day.

(1) Displayed Data

The figure below is an example of the Eco Screen.



(2) Operations

Operations available on the Eco Screen are as follows.

Selecting the “Consumed” button displays the energy consumption.
Selecting the “Saving” button displays the saving energy amounts.



Selecting buttons next to the chart will bring up the chart of the selected item.

3.1.2.3 Chamber Screen

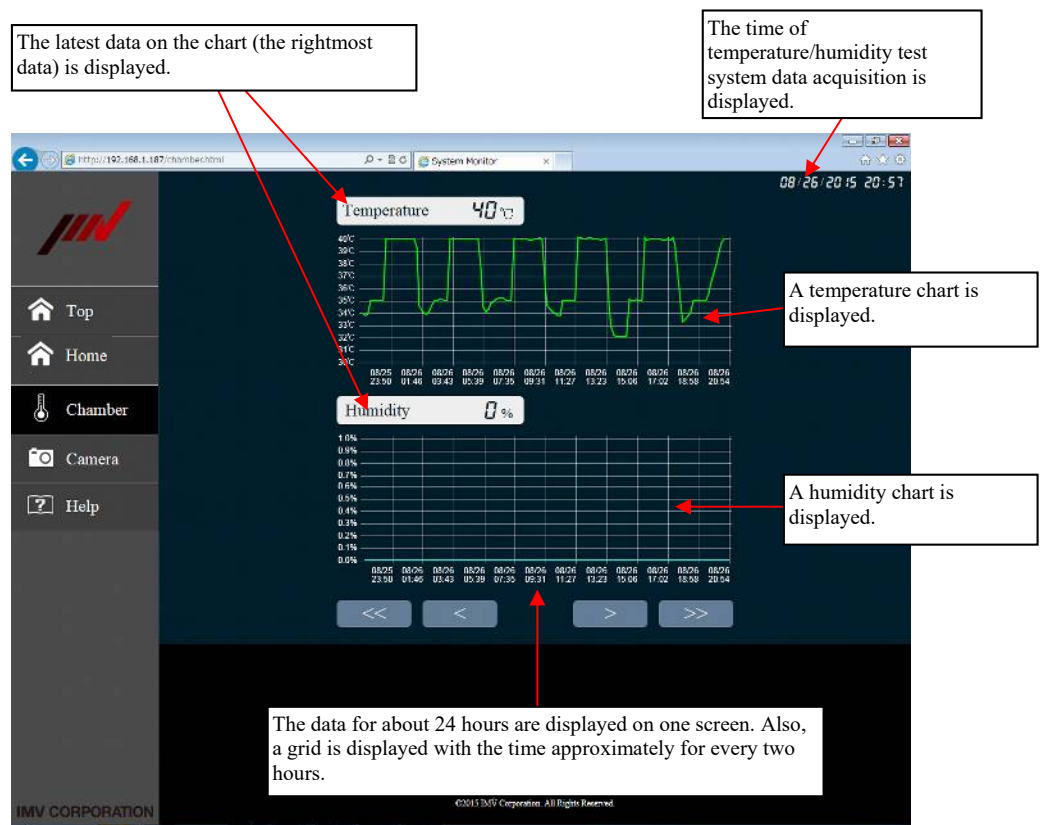
The Chamber Screen can be displayed only for a temperature/humidity test system with an IMV constant temperature/humidity chamber controller.

A chart of temperature and humidity data for about a month can be displayed.

Although the chart is updated with an interval of approximately ten minutes, this interval depends on the condition of the system.

(1) Displayed data

The figure below is an example of the Chamber Screen.



Supplement 1) Types of lines on the chart

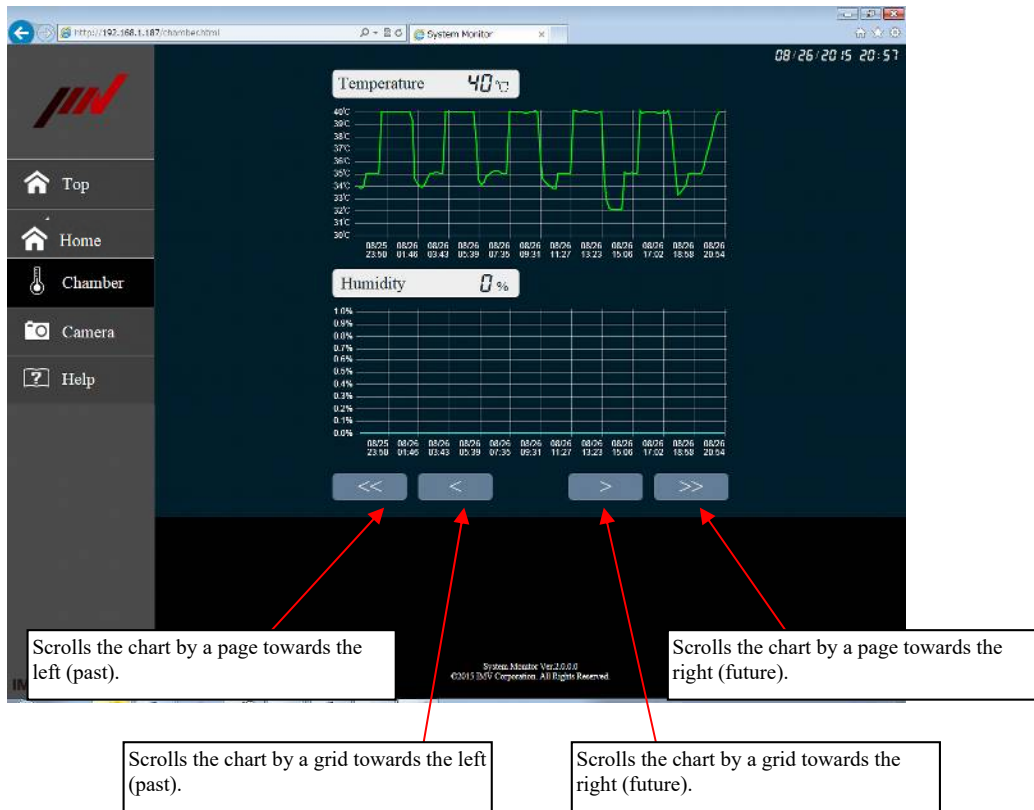
- Green: Temperature data in a normal operation
- Light blue: Humidity data in a normal operation
- Red: Temperature and humidity data in an erroneous operation
- None: Chamber is not operated or temperature/humidity data were not obtained due to a disconnection, etc.

Supplement 2) Latest data

- The symbols “***” will be displayed if the data were not available.

(2) Operations

Operations available on the Chamber Screen are as follows.



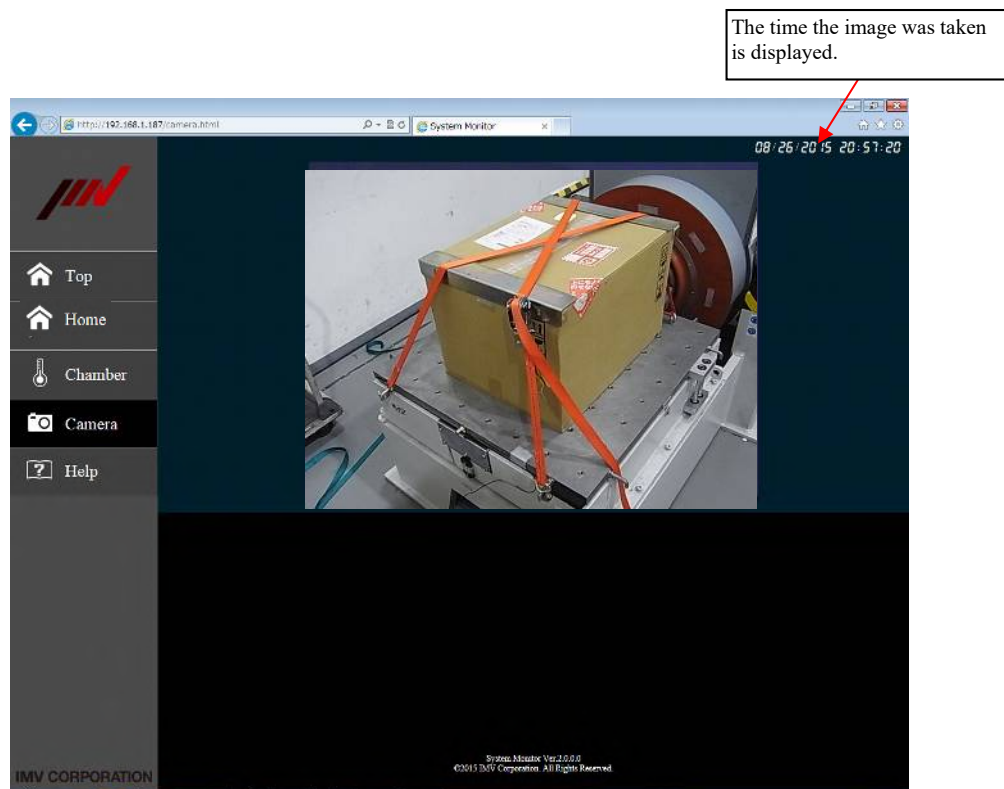
3.1.2.4 Camera Screen

The Camera Screen can be displayed only if a web camera is connected the PC.

Although the image is updated with an interval of about two seconds, this depends on the condition of the system.

(1) Display

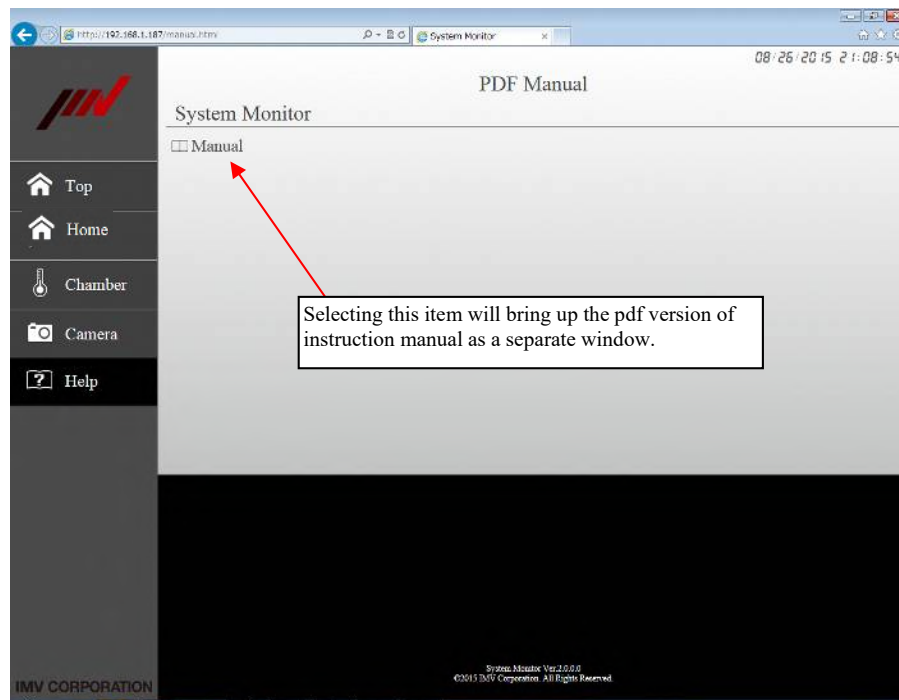
The figure below is an example of the Camera Screen.



3.1.2.5 Help Screen

On the Help Screen, a link to the SystemMonitor instruction manual is displayed.

(1) Display and operation



Note 1) Displaying the instruction manual may increase the load on the PC.

Avoid displaying the instruction manual during a vibration test if possible.

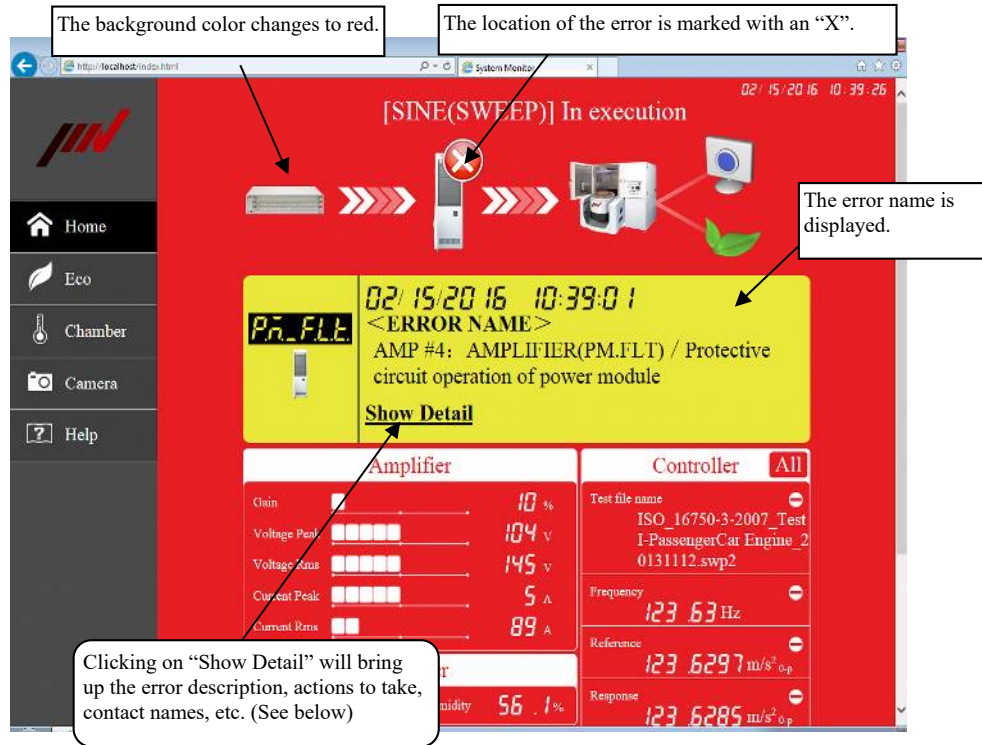
Note 2) To display the instruction manual, it is necessary to install Adobe® Reader® on the PC used in advance.

3.1.2.6 Error Screen

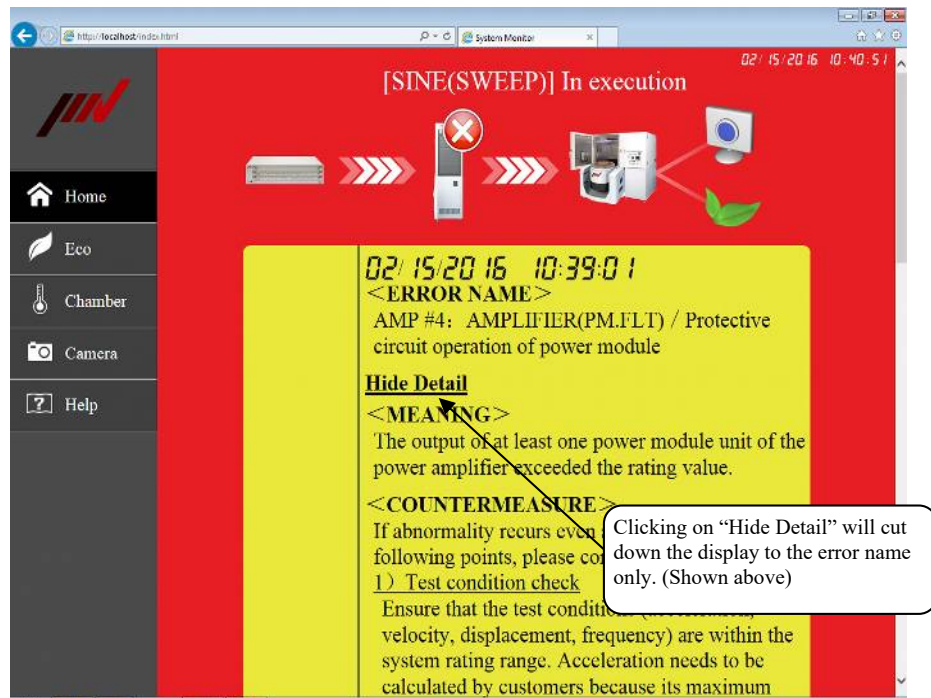
In an event that an error has occurred in the test system, the background of the screen changes to red with the description of the error displayed.

(1) Display and operation

The figure below is an example of the screen with an error on the vibration test system.



• An example screen after pressing "Show Detail"

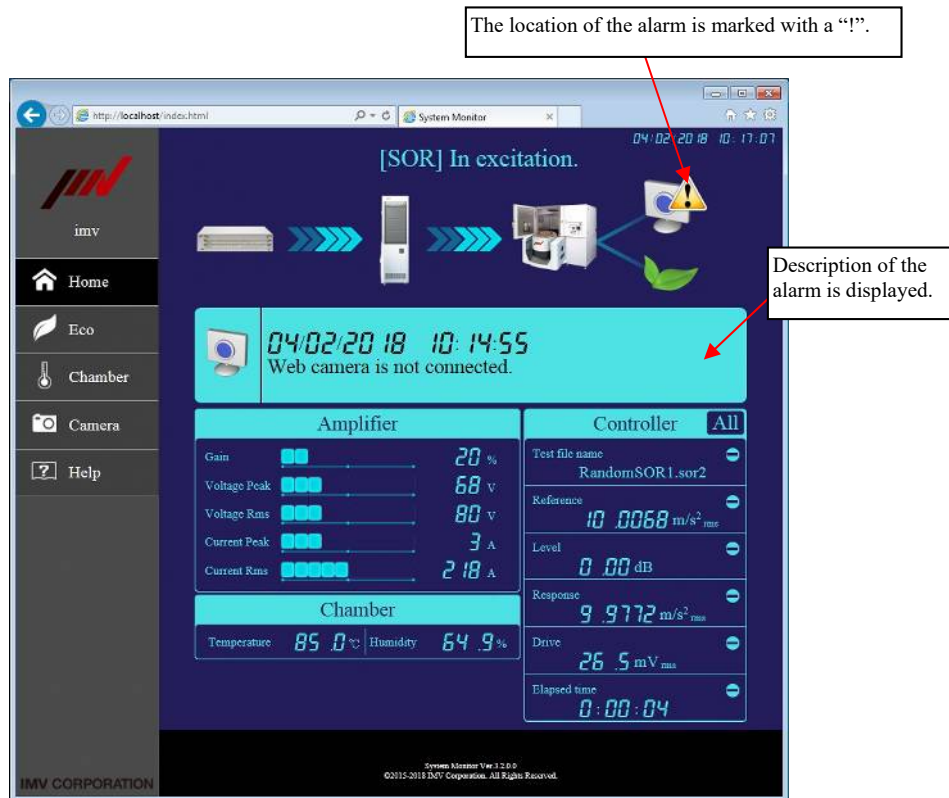


3.1.2.7 Alarm Screen

In an event of an alarm, which does not affect the operation of the test system, an alarm information will be displayed.

(1) Displayed information

The figure below is an example of an alarm screen for disconnected web camera.



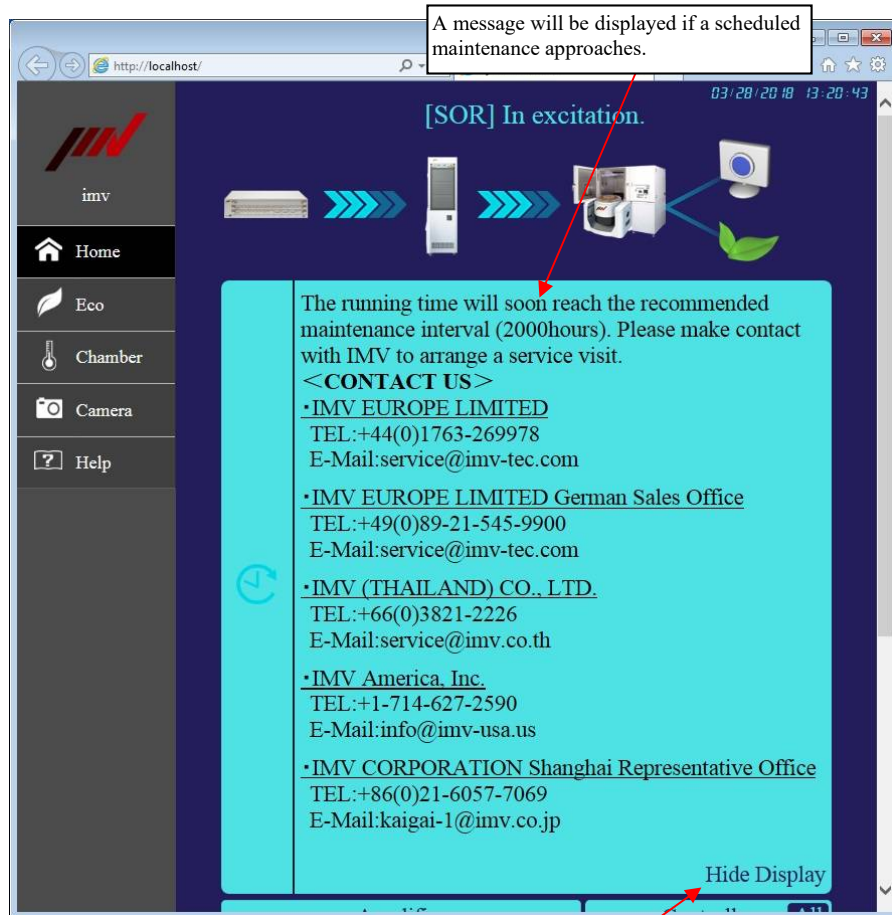
3.1.2.8 Maintenance Notice

If the operating hours of the system approaches to the time of a scheduled maintenance, a message is displayed to provide a notice for the maintenance.

The operating hours of the system is calculated based on the time executing vibration tests. Also, the recommended time for maintenance is set to 2000 hours initially.

(1) Display and operation

The figure below is an example of a maintenance notice.



Click on "Hide Display" clear the message.

3.2 SystemMonitor Software Operation

Installed SystemMonitor software shall be executed automatically at the startup of the PC and will be resident while the PC is running.

Normally, it is not necessary to modify the software settings and make specific operations.

3.2.1 Display of Each Software

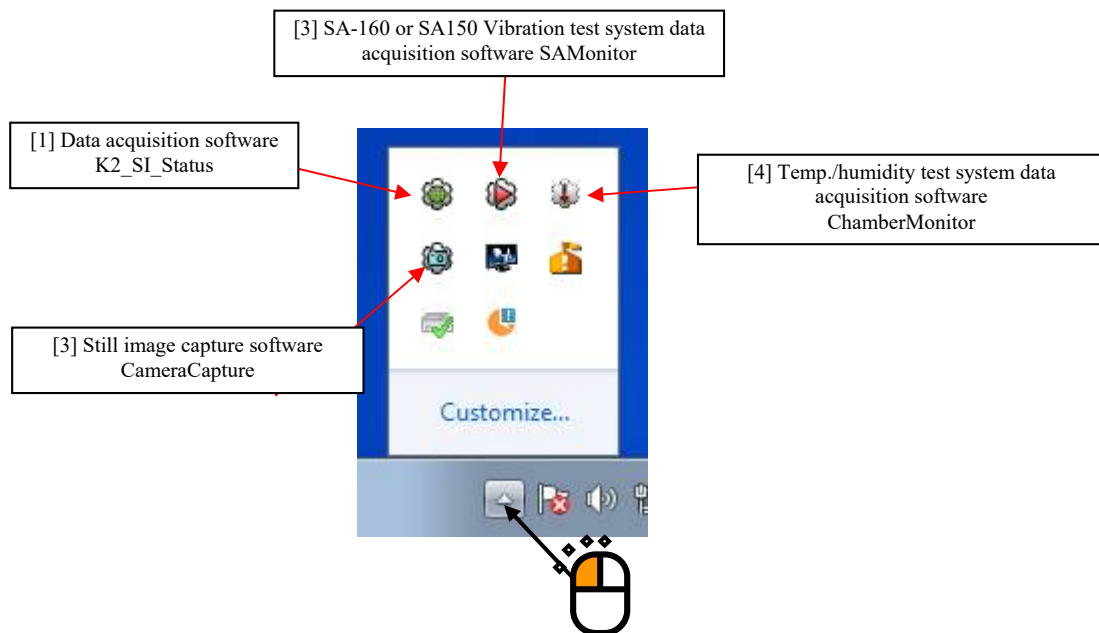
Each software in the SystemMonitor Suite shall be displayed on the task tray.

<Operating Procedure>

To display the task tray, click on the triangle button on the bottom-right corner of the Windows screen.

SystemMonitor software will be displayed on the task tray.

The figure below is an example of the display with the Camera and Chamber features selected at the time of SystemMonitor installation.



3.2.2 Data Acquisition Software K2_SI_Status

The data acquisition software K2_SI_Status is a software that enables the display of system data with a web browser.

This software allows the user to change the closing date used in the monthly chart for the ECO-shaker and the software language*.

* 'Japanese, English or German' can be selected (as of October 16, 2020).

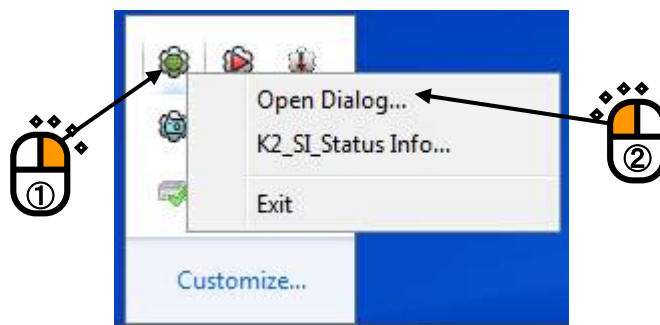
German version is available for Web application only.

<Operation Procedure>

<Step 1>

Right-click on the K2_SI_Status icon on the task tray.

From the menu displayed, select “Open Dialog...”.



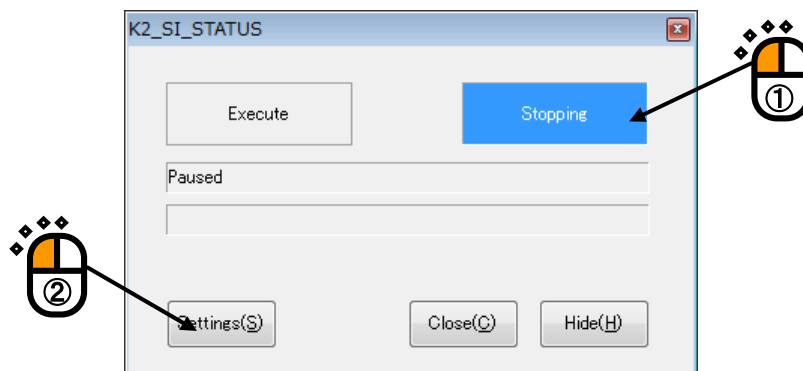
Supplement)Other menu items

K2_SI_Status Info...: Displays the software version.

Exit: Terminates the program execution.

<Step 2>

The K2_SI_Status screen appears. Press the Stop button to stop updating the web browser data and click on the Settings button.



Supplement)Other buttons

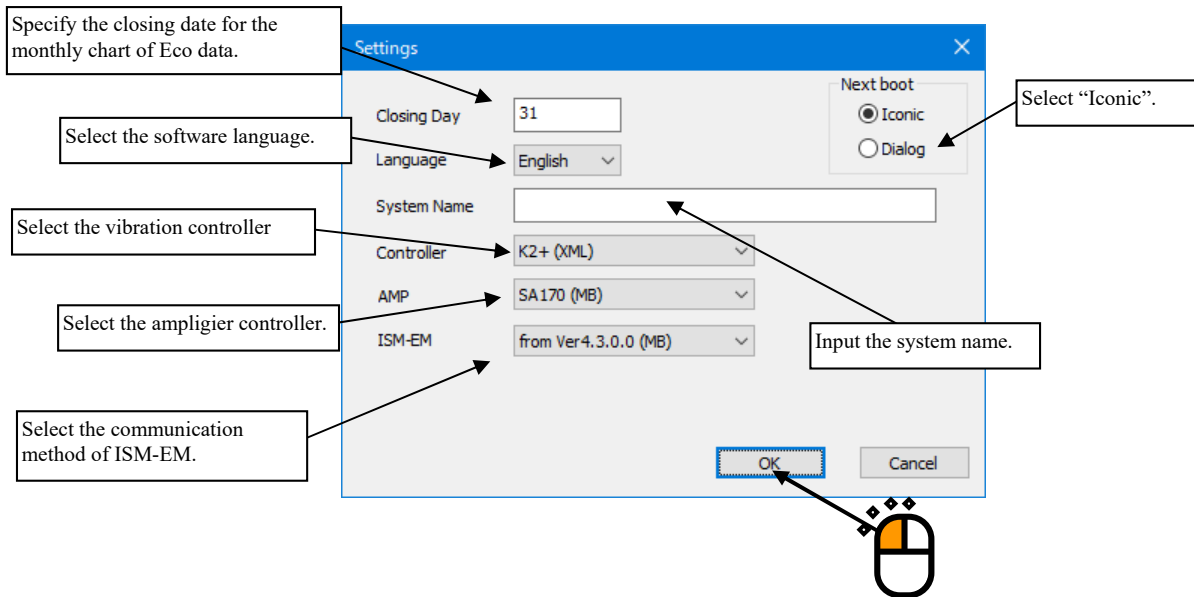
Start: Starts updating the web browser data.

Close: Terminates the program execution.

Hide: Minimizes the screen to a software icon and returns it to the task tray.

<Step 3>

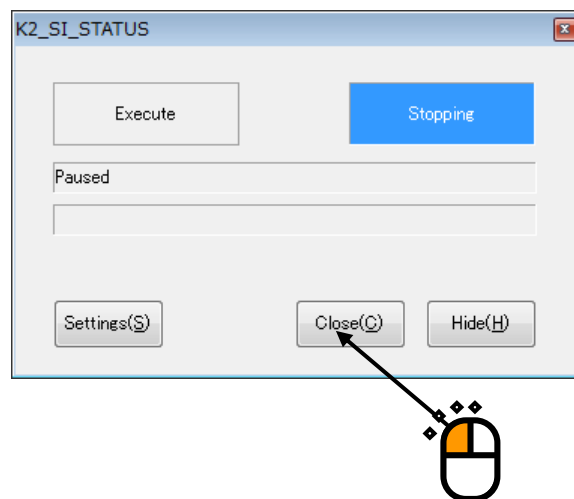
The settings screen appears. Modify settings as necessary and click on the OK button.



<Step 4>

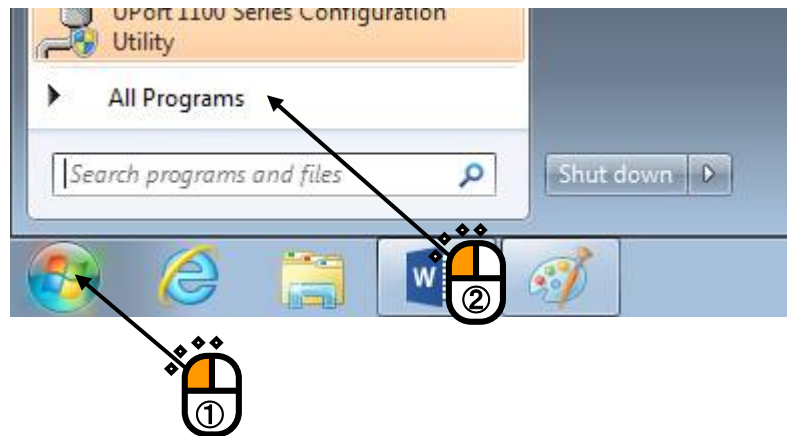
To reflect the new settings, it is necessary to restart the software.

To restart the software, either restart the PC or restart the software following the procedure described below. On the K2_SI_Status screen, click on the [Close] button.



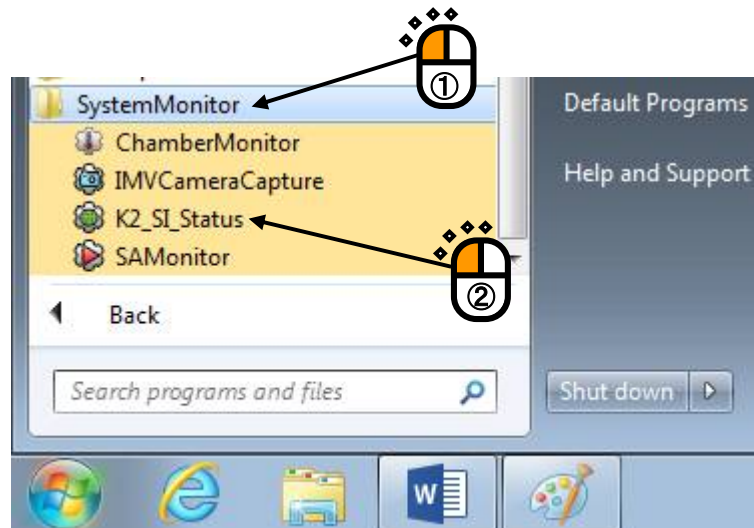
<Step 5>

Select “All Programs” on the Start Menu.



<Step 6>

Select “SystemMonitor” and then “K2_SI_Status”.



K2_SI_Status will be executed. The software appears on the task tray.

3.2.3 SA-160 or SA-150 Vibration Test System Data Acquisition Software SAMonitor

The SA-160 or SA-150 vibration test system data acquisition software SAMonitor is a software for collecting data on the vibration test system.

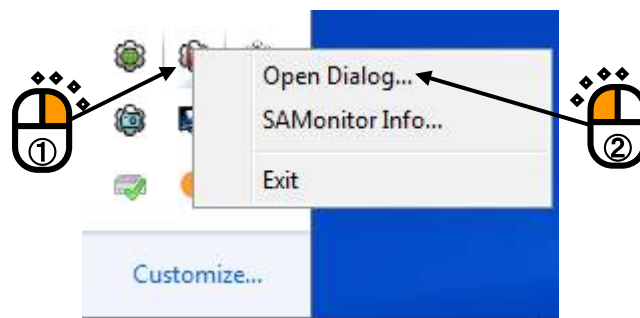
This software performs a serial communication with the power amplifier SA-160 or SA-150 for the IMV vibration test system. This software allows the user to change the COM port and the communication speed used for the serial communication.

<Operation Procedure>

<Step 1>

Right-click on the SAMonitor icon displayed on the task tray.

From the menu displayed, select “Open Dialog...”.



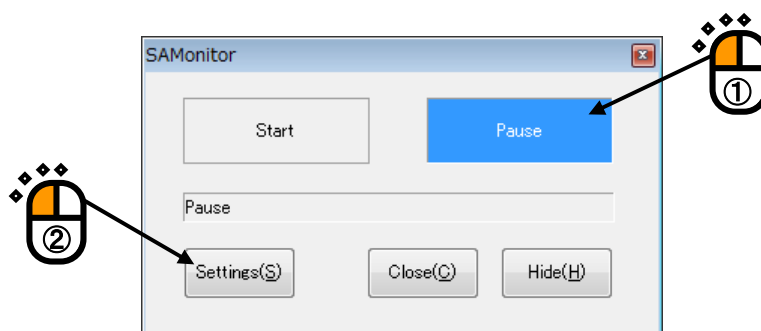
Supplement) Other menu items

SAMonitor Info...: Displays the software version.

Exit: Terminates the program execution.

<Step 2>

The SAMonitor screen appears. Press the Stop button and then click on the Settings button.



Supplement) Other buttons

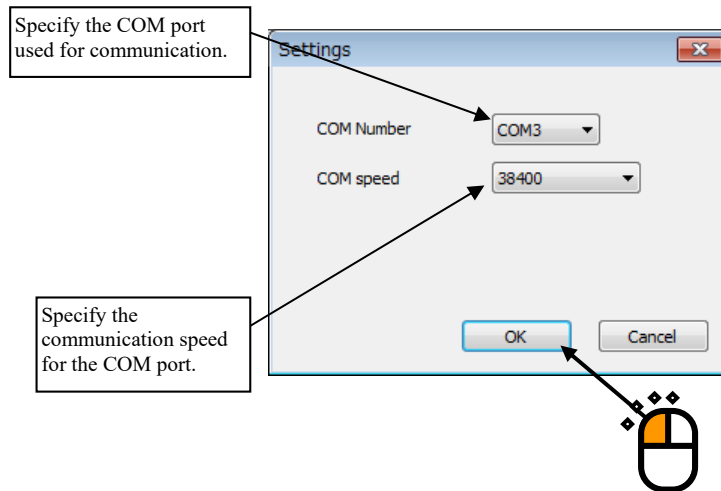
Start: Starts communication.

Close: Terminates the program execution.

Hide: Minimizes the screen to a software icon and returns it to the task tray.

<Step 3>

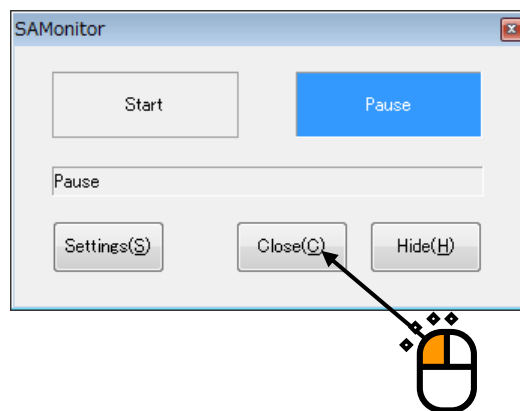
The settings screen appears. Modify the settings as necessary and click on the OK button.



<Step 4>

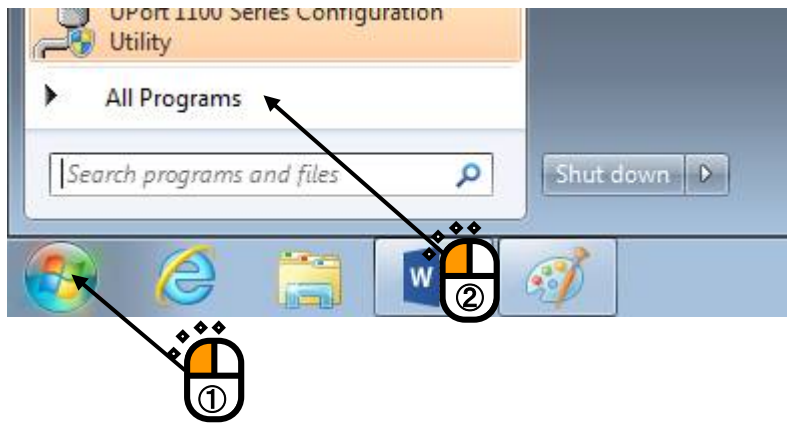
To reflect the new settings, it is necessary to restart the software.

To restart the software, either restart the PC or restart the software following the procedure described below. On the SAMonitor screen, click on the [Close] button.



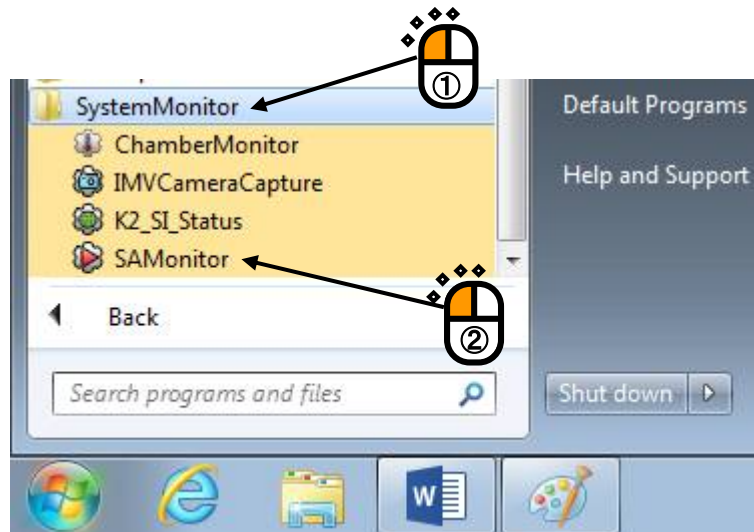
<Step 5>

Select “All Programs” on the Start Menu.



<Step 6>

Select “SystemMonitor” and then “SAMonitor”.



SAMonitor will be executed. The software icon appears on the task tray.

3.2.4 Still Image Capture Software CameraCapture

The still image capture software CameraCapture is a software for capturing the web camera still image and makes it available on a web browser. This software is installed only when the Camera feature is selected at the time of installing SystemMonitor.

In order to use this feature, a web camera is required.

Normally, it is not necessary to operate this software. Here, how to close and restart the software is explained.

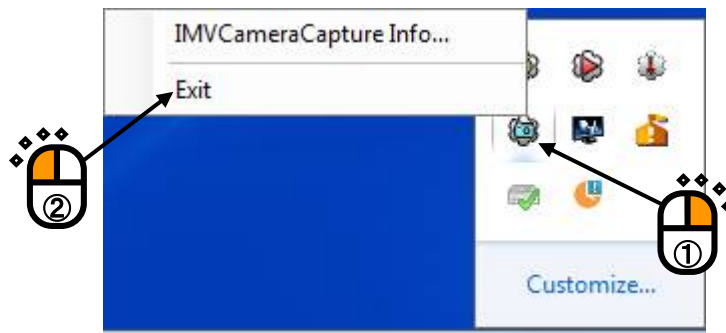
<Operation Procedure>

<Step 1>

Right-click on the CameraCapture icon on the task tray.

From the menu displayed, select “Exit”.

The software stops running.



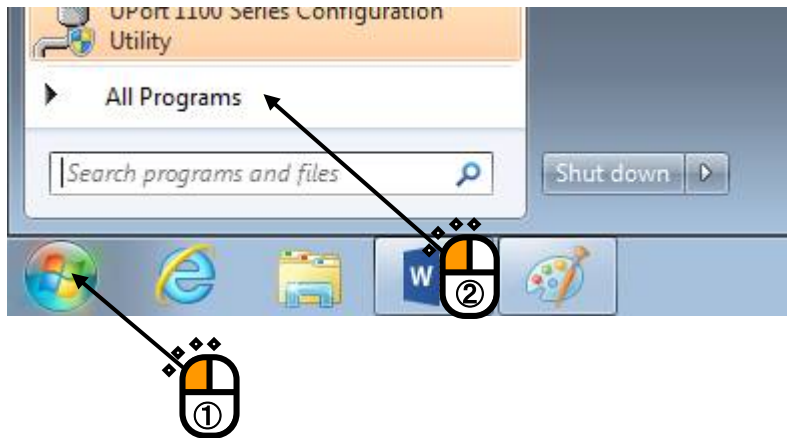
Supplement) Other menu items

CameraCapture Info...: Displays the software version.

<Step 2>

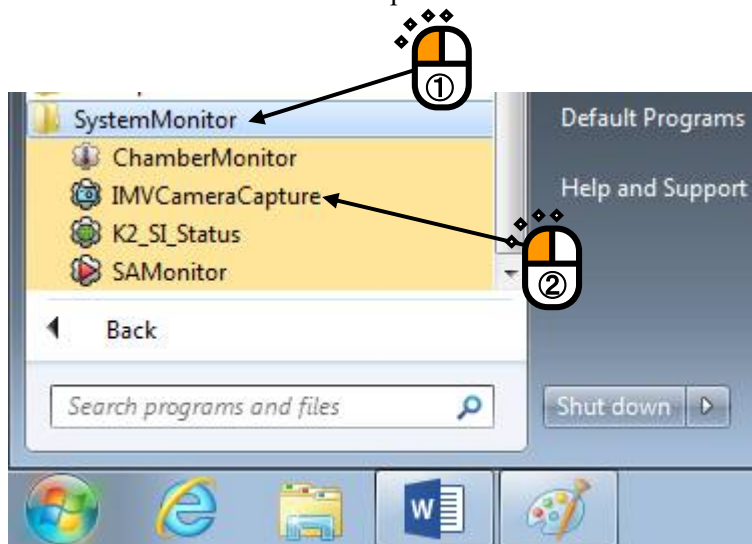
To run the software, perform following operations.

Select “All Programs” on the Start Menu.



<Step 3>

Select “SystemMonitor” and then “CameraCapture”.



CameraCapture will be executed. The software icon appears on the task tray.

3.2.5 Temperature/Humidity Test System Data Acquisition Software ChamberMonitor

The temperature/humidity test system data acquisition software ChamberMonitor is a software for collection data on the temperature/humidity test system. This software is installed only if the Chamber feature is selected at the time of installing SystemMonitor.

In order to use this feature, a temperature/humidity test system with IMV constant temperature/humidity chamber controller is required.

This software performs a communication over an Ethernet connection with the IMV constant temperature/humidity chamber controller.

Normally, it is not necessary to operate this software. Here, how to terminate and restart the software is explained.

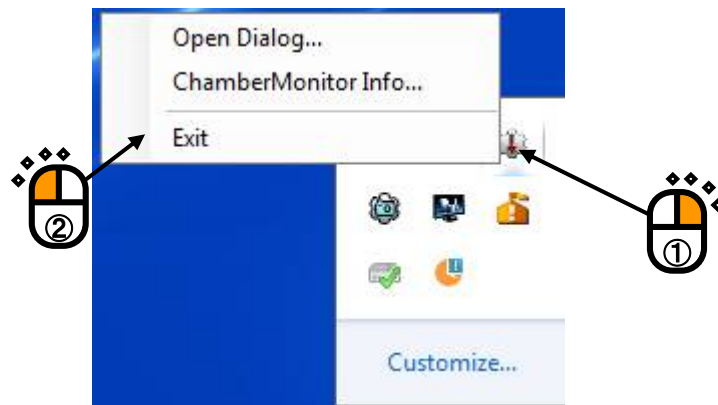
<Operation Procedure>

<Step 1>

Right-click on the ChamberMonitor icon on the task tray.

From the menu displayed, select “Exit”.

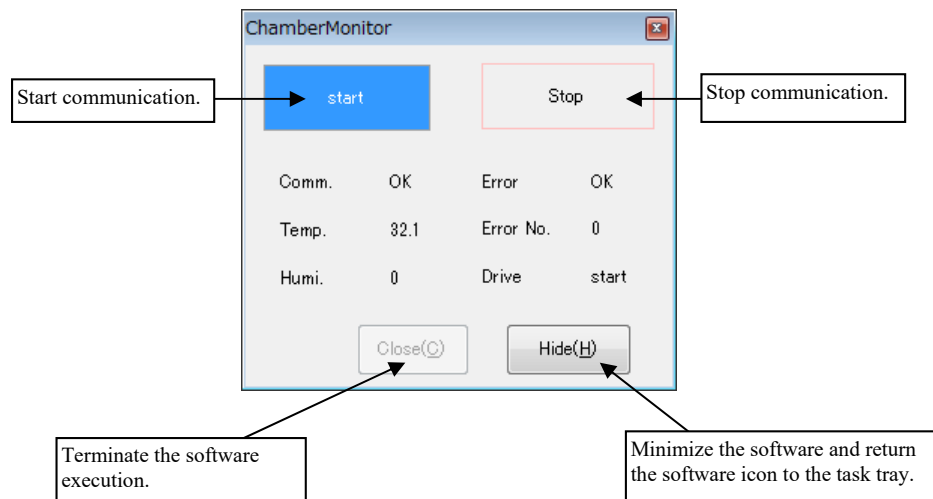
The software stops running.



Supplement) Other menu items

ChamberMonitor Info...: Displays the software version.

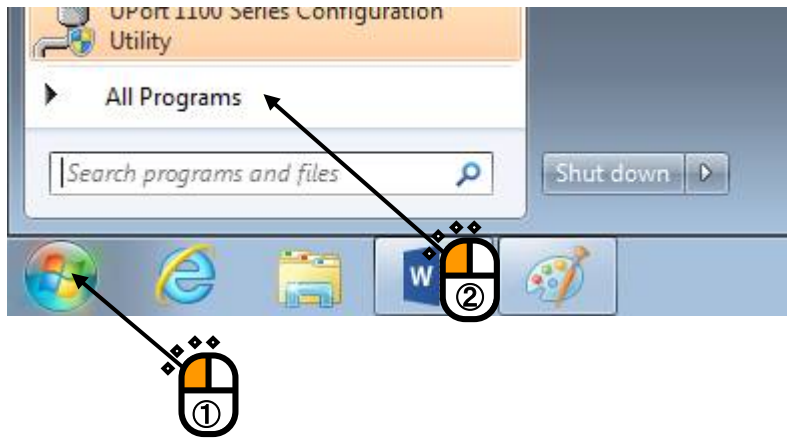
Open Dialog...: Displays the communication status (see the figure below).



<Step 2>

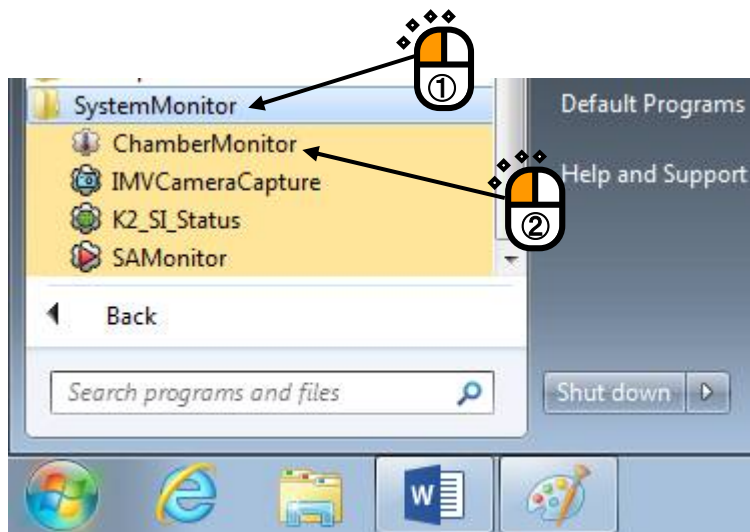
To run the software, perform following operations.

Select “All Programs” on the Start Menu.



<Step 3>

Select “SystemMonitor” and then “ChamberMonitor”.



ChamberMonitor will be executed. The software icon appears on the task tray.