

Mold marshalling system for  
In-mold measurement

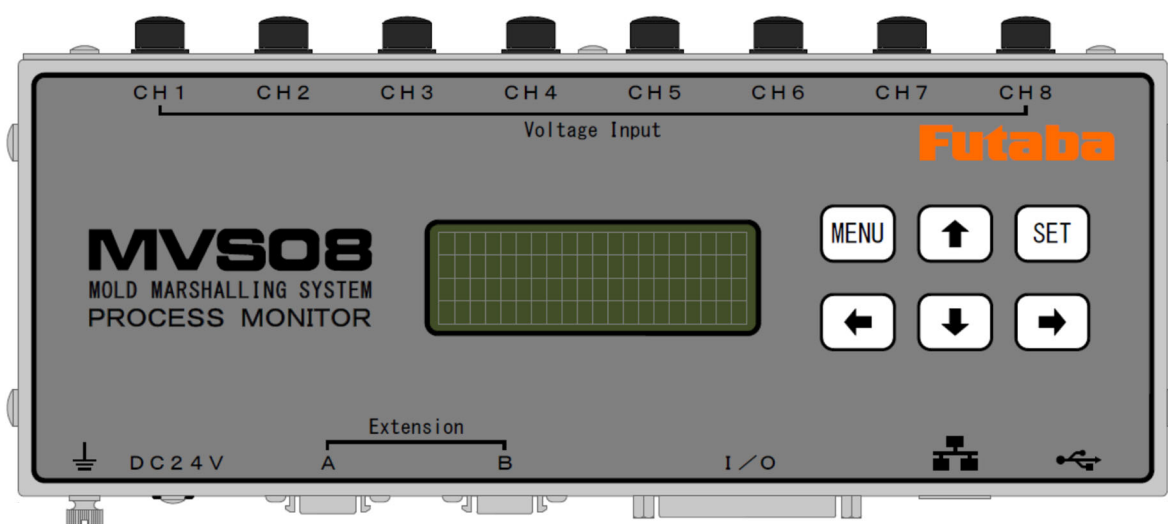
Injection molding monitoring system

# MVS08

## Instruction Manual

Thank you for your purchasing a product of Futaba Corporation.  
Please read this instruction manual carefully and patronize the  
product for many years to come.

Do not use the product in any way other than explained in this  
instruction manual



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# Safety precautions (Be sure to read before use)

## ■ Before Use

Before using the product, read this “Safety precautions” and the instruction manual carefully.

After reading the manual, keep it in a safe place so that it can be used whenever needed.

When using the product, be sure to observe the following safety precautions.

Futaba Corporation assumes no liability for the injury caused by using the product contrary to these precautions.

## ■ This manual uses the following alert symbols for safe use of the product.



**Warning**

**Failure to observe the instructions with this symbol could result in death or serious personal injury.**



**Caution**

**Failure to observe the instructions with this symbol could result in injury or only damage to property.**

## ■ General precautions

- When starting product operation, make sure in advance that the functions of the product are normally working with normal performance.
- If the product fails, use adequate safety measures to prevent various types of damage.
- Note that we cannot guarantee the functionality and performance for use of the product not conforming to the specifications or any remodeled product.
- When using the product in combination with other equipment, evaluate it thoroughly because the functionality and performance may not be satisfactory depending on the use conditions and environment

## ■ Precautions



**Warning**

**When installing the product or connecting cables, be sure to disconnect the power cable from the outlet in advance.  
Failure to do so could result in electric shock or malfunction.**



**Warning**

**Do not use a broken cable or a cable with a damage in the covering.  
Doing so could result in fire, electric shock, or device damage or failure.**



**Warning**

**Use the power to the AC adaptor within the range (100 to 240V) stipulated in the specifications. Using the power outside the range could result in fire or device damage or failure**



**Warning**

**Use the AC adaptor that comes with the product.  
Using any other AC adaptor could result in device damage or failure.**



**Caution**

**Keep the sensor, amplifier, junction box, and junction cable away from water.  
Failure to do so result in electric shock or device damage.**

# Introduction

“Mold Marshalling System MVS08” is an injection molding monitoring system that allows you to display various information to “visualize the conditions inside the mold” such as the resin pressure, resin temperature and mold surface temperature on a PC.

You can also capture the information from the injection molding machine and other manufacturers’ measuring devices and combine all the information to build an ideal system that can measure, observe, monitor and record various molding conditions in real time.

Major features are as follows.

- A standard system can measure voltage up to eight channels concurrently. Connecting three units of the system enables 24-point measurements.
- We offer cable accessories that allows for an easy connection of resin pressure, resin temperature and mold surface temperature measuring systems.
- Waveforms and historical data of each shot is automatically saved in the PC. When the system is operating standalone with no PC connected, these data is automatically saved in the USB memory connected.
- Data is saved in CSV format and can be easily read with commercially available spreadsheet software.
- Seven alarm monitoring items can be set for each channel.
- When an alarm occurs, it is possible to output a signal to the robot to sort the defective products.
- Even the system running standalone without a PC enables alarm monitoring.
- The waveforms being measured can be overwritten on the waveforms saved in the past.

Please read this instruction manual carefully and use the product correctly.

If you have any questions, please contact our sales department.

## Standard accessories

### ■The following standard accessories are available for this unit.

After unpacking, make sure that all accessories are included.

- Injection Molding Monitoring System "MVS08"..... 1
- AC adapter 「ES0024007 N-MVS08」 ..... 1  
(One ferrite core for noise suppression is included)
- Input/output cable (3m) 「WCI0030 N-MVS08」 ..... 1
- LAN cable (2 m) 「WCL 0020」 ..... 1
- Software. 「PVS N-MVS08 Windows version」 ..... 1  
(CD-ROM, the most recent Ver. at the time of shipment)
- Instruction Manual (This Booklet) ..... 1
- Installation Manual ..... 1
- Warranty and user registration..... 1

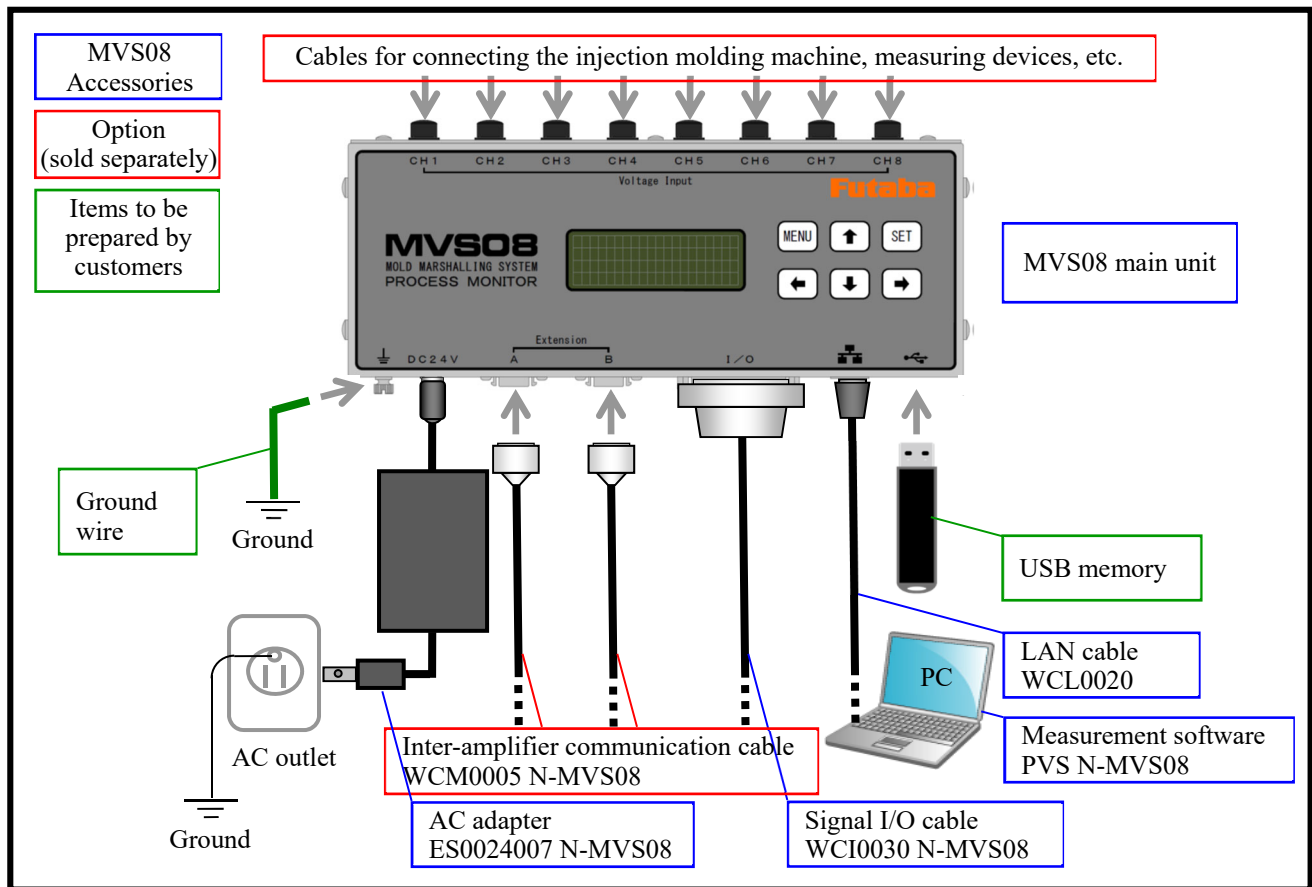
# Handling precautions

- Turn on the power to the injection molding monitoring system (hereinafter, referred to as the MVS08 main unit) after connecting between the systems. Be sure to connect the power cable of the MVS08 main unit to the AC outlet. Do not turn on/off the power supply by plugging/unplugging the AC adaptor into/from the jack. It could damage the main unit and the AC adaptor.
- When the power is once turned off, wait for at least 5 seconds before turning it on again. If the power is turned on within 5 seconds or turned on and off repeatedly, power failure may be caused by rush current generated at power on.
- Warm up the system before use, for about 30 minutes after power on.
- Before turning off the power to the MVS08 main unit, be sure to exist the measurement software. If the power is turned off with the software running, communication operation may not be terminated normally, and an unexpected failure may occur.
- When the MVS08 is used standalone, disconnect the LAN cable only after exiting the measurement software and turning off the power to the MVS08 main unit. If the LAN cable is disconnected with the software running or with the MVS08 power on, communication operation may not be terminated normally, and an unexpected failure may occur.
- After operating the settings, wait at least about 3 seconds before turning off the power. The setting is stored in the non-volatile memory in the MVS08 main unit but is not stored correctly if the power is turned off soon after the setting operation.
- This system stores the data measured by the MVS08 main unit in the storage device (such as a hard disk) of PC. To prevent the degradation of PC performance or unexpected failure, the system is designed to stop saving data when the amount of stored data exceeds a certain level. Move the data frequently.
- When performing measurement in maintenance mode, be sure to execute “offset”. Without doing “offset”, measurement cannot be performed correctly.
  - \* When measurement is performed in monitor mode, “offset” is executed when the signal (IN1) is input from the molding machine or when the “SET” key on the main unit is pressed.
- Avoid using the system in an environment subject to remarkably high or low temperature. The allowable range of operating temperature is 0 to 50°C. If it is unavoidable to use the system at a place subject to direct sunlight or in a cold area, protect it from sunlight or keep it warm.
- Use the system in the relative humidity range from 35 to 85%. Using it out of the humidity range or in an environment subject to water splashes could result in performance deterioration or failure.
- Do not use the system in a dusty place. Performance degrades if the dust gets inside. Prevent dust from getting inside not only during operation but also during storage. Use the system in an environment in which PCs can be used.
- If the environment changes drastically, do not operate the system soon. Leave the system in the new operating environment to adapt it to the environment and then use it. If the ambient temperature or humidity is changed drastically due to movement, condensation may cause performance degradation or failure.
- Do not use the system in an environment subject to vibration or impact. Continuous vibration or large impact could cause performance degradation or failure.
- Do not use the system in strong electromagnetic fields. Use it in an environment in which PCs can be used. Using it in the vicinity of a radio, microwave oven, or electric furnace that generates a strong electromagnetic field could cause performance degradation, malfunction or failure.
- Do not use the system in locations with poor power supply conditions. Use it with a power supply at AC100 to 240V, 50/60 Hz, free from momentary power failure and noise.
- Do not pull connection cable. Connect each connection cable with a margin so that excessive force is not applied to the connection. Pulling the cable or applying excessive force to it could cause failure, measurement interruption or abnormal measurements.

# System configuration

## (1) System configuration of the injection molding system “MVS08 set”

The following figure shows a basic configuration that measures resin behavior inside a mold such as resin pressure, resin temperature and mold surface temperature, etc. For the connection of each measuring device, refer to “Connections in systems” on page 12



As shown in the above figure, “MVS08” is structured to connect measuring devices with dedicated cables.

For the pressure measuring system, we offer “Pressure pre-amplifier UPP01” that can be directly connected to the “MVS08”. We also offer cables for connecting “MPS08”, “MPS08B”, “MPV04”, and “MPS01A”.

For the resin temperature measuring system, we offer “Resin temperature pre-amplifier UPI01” that can be directly connected to the “MVS08”. We also offer cables for connecting “EPT001” and “Test probe ATPZ01 [simplified operation confirmation device for resin temperature sensor (EPSSZL, EPSSZT series)]”.

For the measurement of mold surface temperature, we offer “Mold surface temperature pre-amplifier UPT01” that can be directly connected to the “MVS08”. We also offer cables for connecting “OMRON couple convertor (thermocouple convertor) K3FP-TS-UI”.

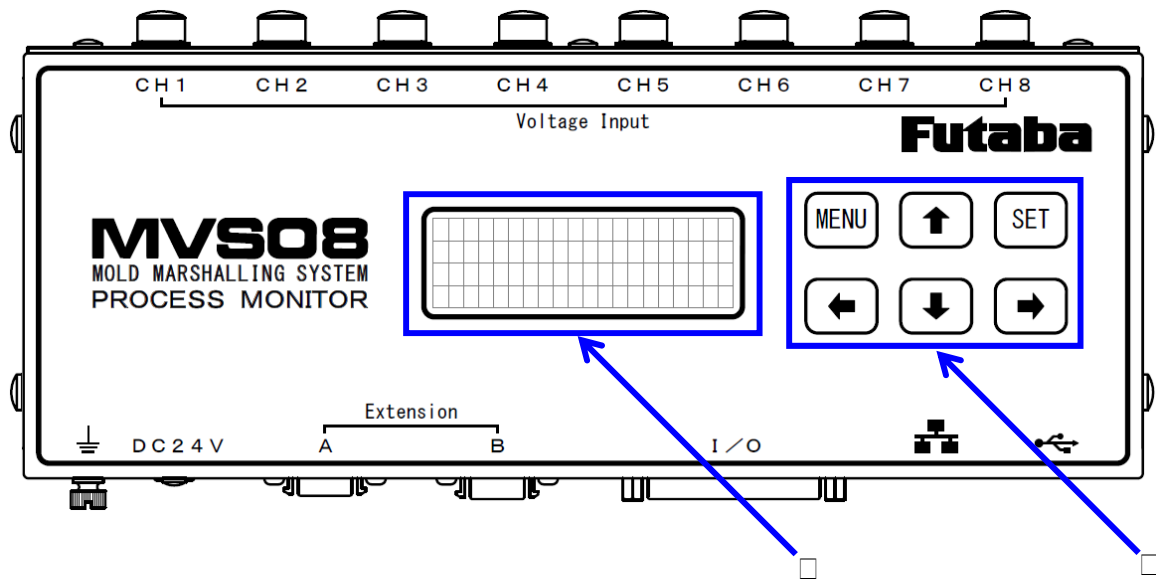
The main unit and PC exchange data via the LAN cable. The measurement software that comes with the system needs to be installed in advance in PC. Pressure waveform data and historical data are saved in the PC.

The “MVS08” can operate standalone. After the PC is connected and the set conditions are saved in the main unit, the monitoring function works even with the PC disconnected. Waveform data and historical data are saved in the USB memory connected.

Connect the system to the molding machine and peripheral control equipment using the signal I/O cables that comes with the system. Doing so enables automatic start of measurement, output of alarm signals, and clearing alarm signals.

# 1.Names and function of parts

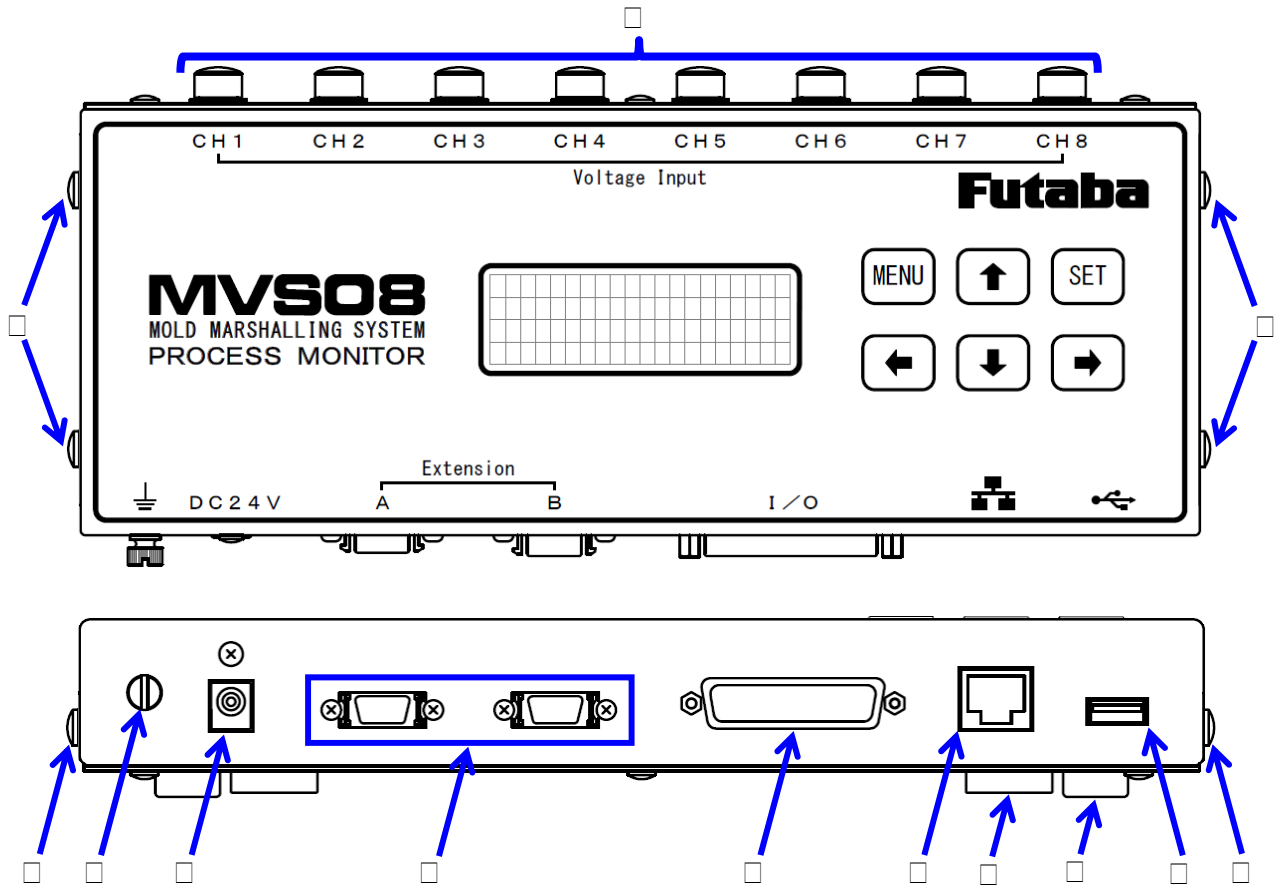
## 1-1 Front view



- ① Display panel ..... Display the status of measurement, setting file name, shot counter, set conditions, file name and setting status in main unit, etc.  
 Refer to P.23, 3-2-2 Check the display on LCD screen.

- ② Operation key 「MENU」、 「SET」、 「←」、 「→」、 「↑」、 「↓」

| Key  | Operation    | Function  |
|------|--------------|---|
| MENU | Single press | Switch the screens<br>Cancel the input mode   |
|      | Long press   | Repeat switching the screen (switch the screen after 2 seconds)   |
| SET  | Single press | Capturing the parameter values and release the input mode at the same time<br>Input a trigger signal manually |
| ←、 → | Single press | Shift to the input mode<br>Move the cursor  |
|      | Long press   | Repeat moving the cursor  |
| ↑、 ↓ | Single press | Switch the screens  |
|      | Long press   | Repeat parameter value increment/decrement  |



- ① **Bracket fixing bolt**.....Can be used in combination with optional brackets (ABMVS08) to fix MVS08.
- ② **Ground terminal**.....Terminal for ground.
- ③ **AC-adaptor jack**.....Connect AC adaptor.
- ④ **Inter-amplifier communication connector**.....Used for 9 to 24 points measurement with additional MVS08 main units connected.
- ⑤ **Input/output cable connector**.....Input of trigger signal, alarm clear signal and output of alarm signal.
- ⑥ **LAN port**..... Connect to PC using LAN cable..
- ⑦ **Mounting magnet** ..... Magnets located at four places can be used to fix the main unit.
- ⑧ **Rubber feet**..... Prevents scratches when the main unit is fixed with the magnets.
- ⑨ **USB port**..... Connect a USB memory to save data when the main unit operates stand-alone without PC connected.
- ⑩ **Voltage input connector**.....A 0 to 10V voltage input for eight channel measurements. They can also be used to supply 24 VDC power to other devices connected or for trigger output.



# 2.Preparation

This section describes the preparation required before turning on the power.

---

## 2-1 Network settings

---

■ PC networking settings are required to connect MVS08 unit to PC.

**\* For the network connection procedure, refer to the “Measurement Software (PVS) Installation Manual”.**

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## 2-2 PC Software installing

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### 2-2-1 Operating environment

#### ■ Operating system

This software has been checked normal operation with the following operation systems.

Windows 7(32bit)、 Windows 7(64bit)、 Windows 8(32bit)、 Windows 8(64bit)

Windows 8.1(32bit)、 Windows 8.1(64bit)、 Windows 10(32bit)、 Windows 10(64bit)

For the operation of the measurement software for MVS08, .NET Framework4.0 or above is required.

#### ■ Capability

The following specifications are recommended.

CPU : Corei5 or higher

Memory : 4GB or more memory

\* As a rough guide, it may be a PC with 4GB or more memory released in 2009 or later.

### 2-2-2 How to install

**\*For the installation procedure, refer to the “Measurement Software (PVS) Installation Manual”.**

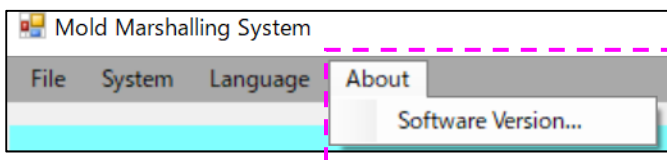
### 2-2-3 Checking the version

The version of the software currently used can be checked.

**\*The latest version and updated version can be downloaded from our HP. See URL below.**

**<https://mms.mtb.futaba.co.jp/en/>**

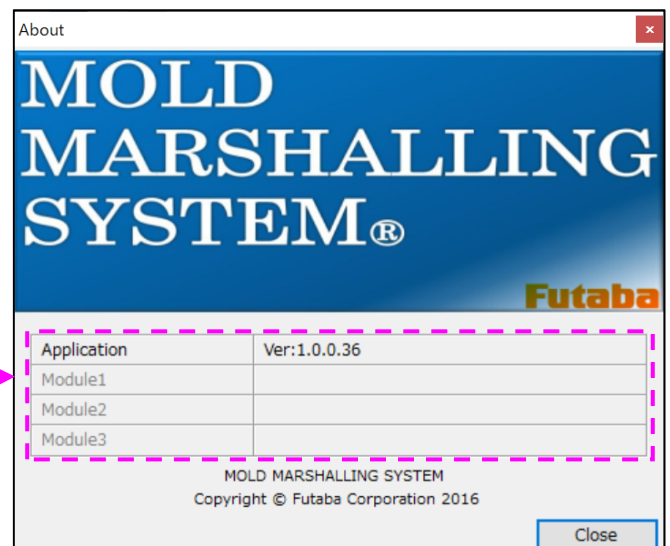
Select "About"→ "Software Version" from the main menu.



PC software version is displayed on the upper

Application row whereas the main unit firmware version on the lower row.

When any additional MVS08 units (up to three units) are connected, their firmware versions are displayed on the Module 2 to 3 rows.



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## 2-3 Software update

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- This section describes how to update the software of PC and the software in the main unit (hereinafter referred to as "firmware").

\*For information about how to obtain the latest software, contact nearest Futaba sales office.

### 2-3-1 PC software updating

Execute the installer file. It is no need to uninstall the old version software since it is overwritten with the new version.

\*For more information, refer to the "Measurement Software (PVS) Installation Manual".

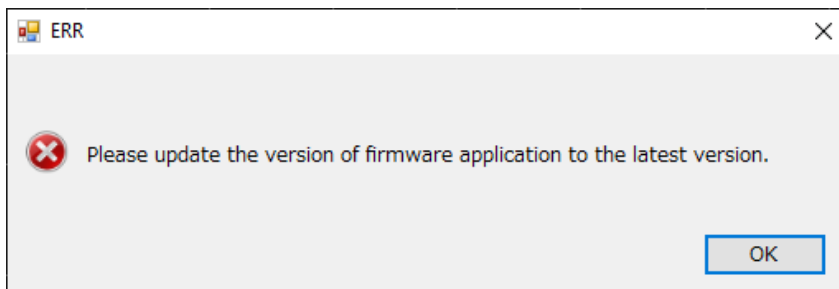
### 2-3-2 Firmware updating

To update the firmware, it is necessary to turn off the Windows firewall.

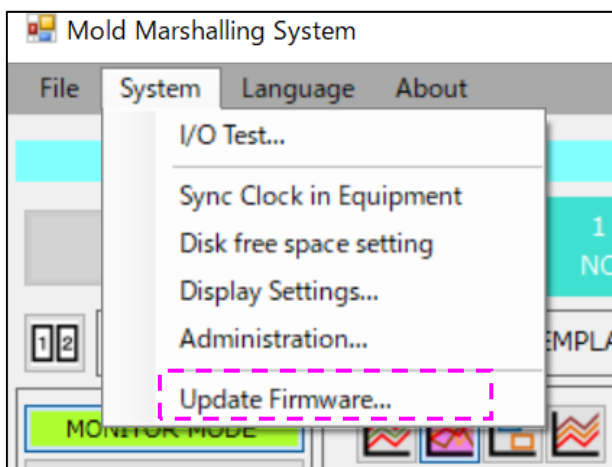
If the firmware update fails or you are logging in the PC under a username without administrator authority required to change the setting, contact your PC administrator or network administrator.

Further, even if changing the firewall setting, the change may not be reflected to some antivirus software. If the firmware is not updated successfully even after following the steps described in this manual, consult your PC administrator or network administrator.

After the PC software is updated successfully, when the PC communicates with the MVS08, the following message appears to prompt you to update the firmware. Be sure to update the firmware. Failure to use a correct combination of software and firmware versions may result in a failure to obtain correct data.

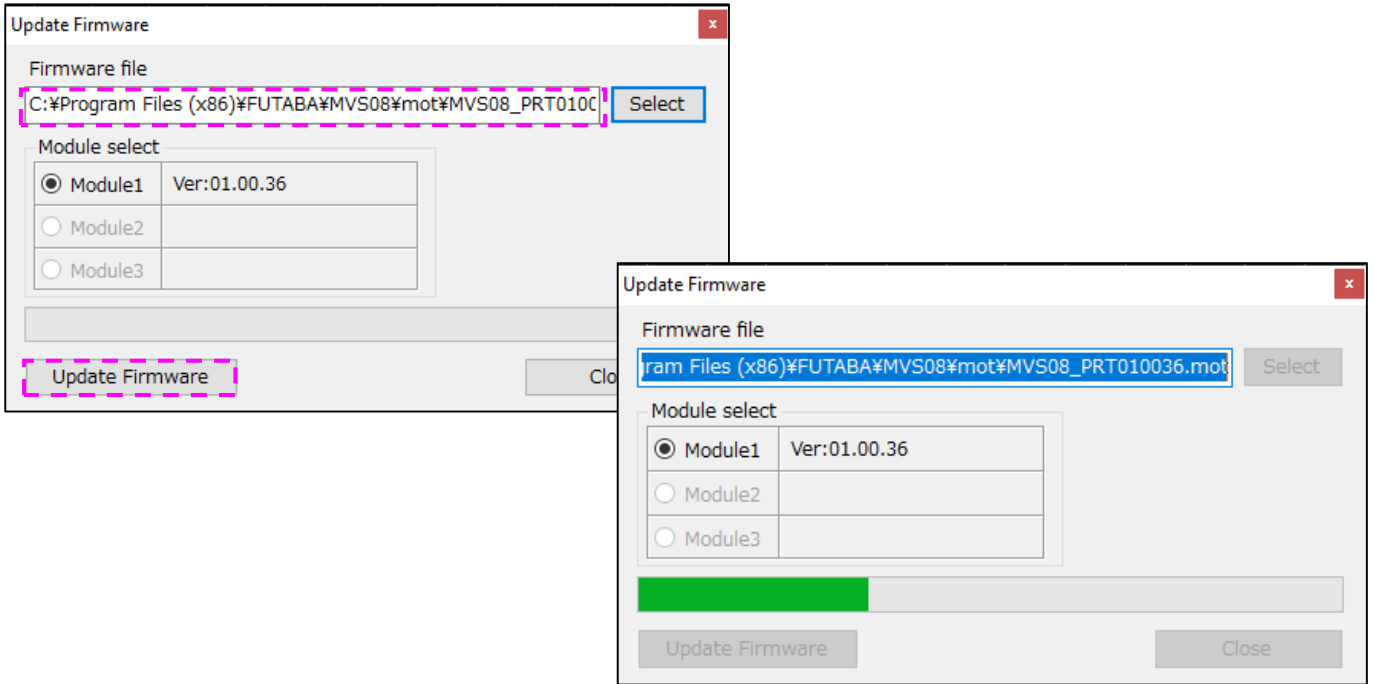


Step 1: Form the main menu, select "Update Firmware" from "System".

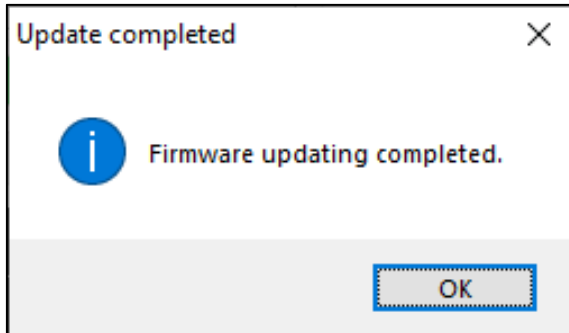


Step 2: The file specification screen is displayed. Select the file and press “Update Firmware.”

The firmware update begins.



Step 3: When the firmware is updated successfully, the message shown below is displayed. Press OK to finish.



Step 4: After the firmware is updated, the MVS08 restarts automatically.

If you would like to initialize parameters, hold down the “MENU” and “SET” buttons at the same time for at least 5 seconds. Select “PARAMETER INIT”. At this time, you will be prompted to enter a password. The default password is “0000”. Enter the password and press the “SET” button to start the initialization. Parameters will return to the factory default values. Refer to 3-2-2 (2) ② on Page 25.

■ In the case of the failure of firmware updating

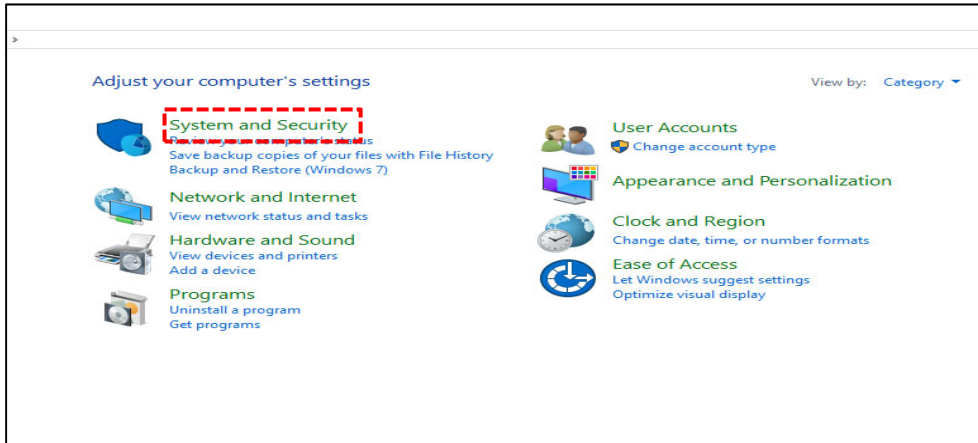
There is possibility to cause the failure of firmware updating when the firewall is working. In this case, you can perform the firmware updating by either method shown below.

- ① Turning off Windows firewall
- ② Turing off Firewall application filter for FTP client.

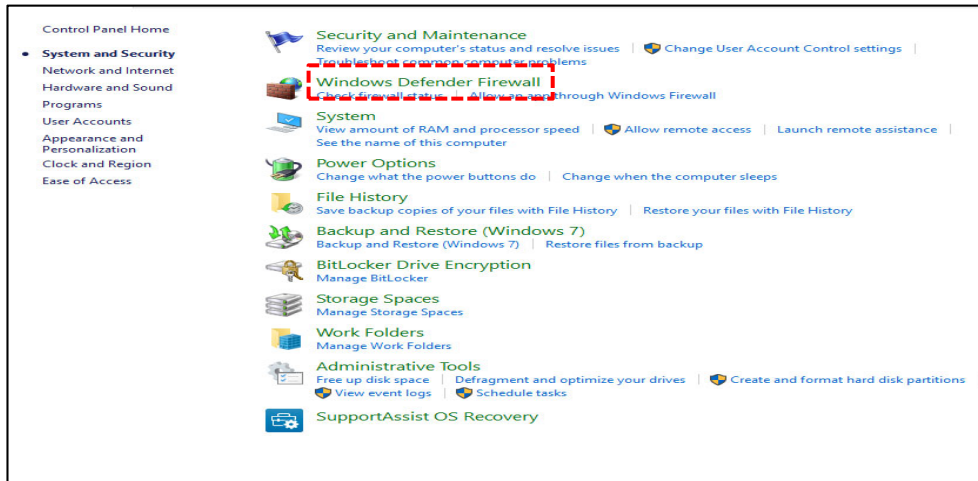
# (1)How to Disable Windows Firewalls

Step 1: Click the [Start] button, and then click [Control Panel] in the displayed menu.

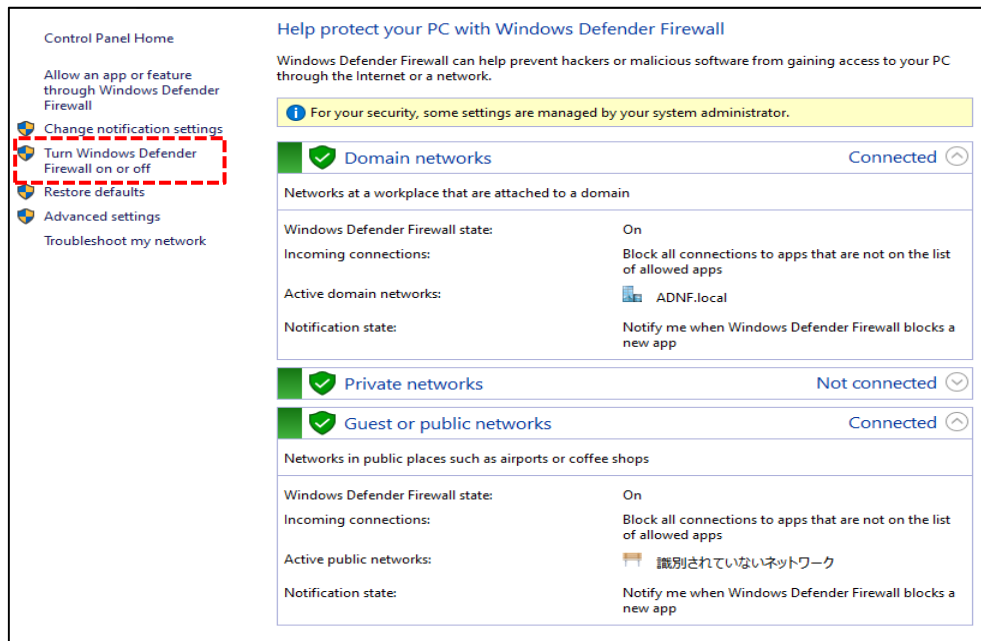
Step 2: Click [System and Security].



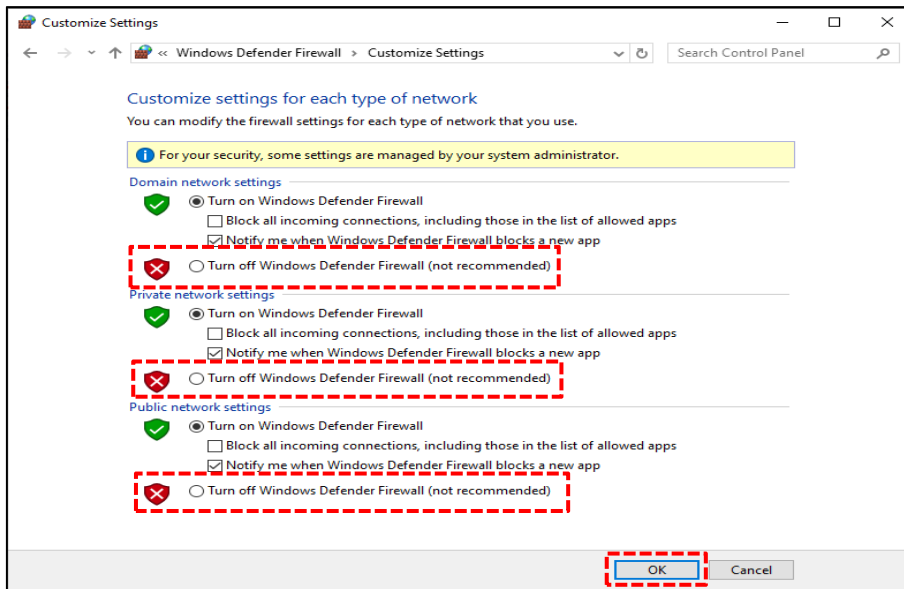
Step 3: Click [Windows Defender Firewall].



Step 4: Click [Windows Defender Firewall on or off].



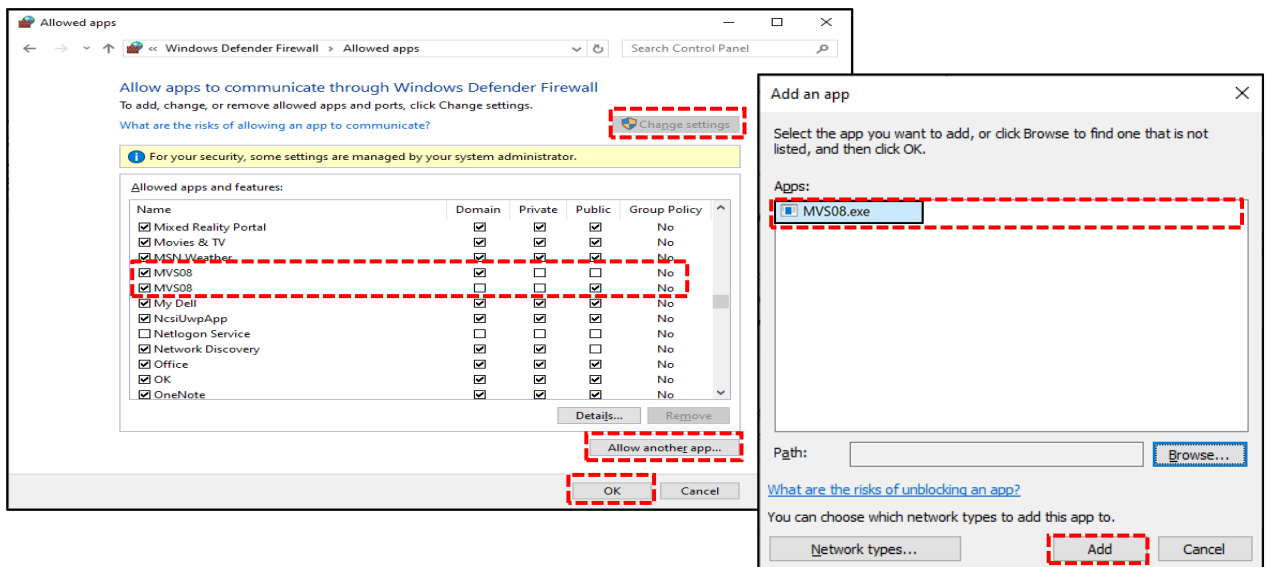
Step 5: Select [Turn off Windows Defender Firewall (not recommended)] and click [OK].



Step 6: After completing the steps described in Section 2-3-2 “Updating the firmware” on Page 8, be sure to make the settings shown below.

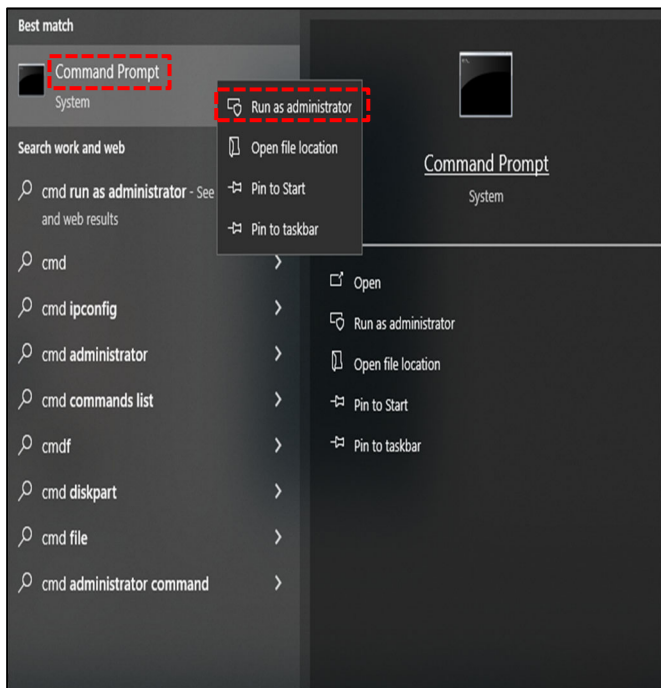
Click [Windows firewall], [Allow a program through Windows firewall]. Click [Allow another program (R)...], select “MVS08.exe” and click [Add].

Select the “MVS08.exe” displayed, press the “Change setting (N)” button, place a checkmark in the checkbox and then click [OK]. After making the setting, click [Allow a program through Windows firewall] once again, and confirm that the setting is reflected.

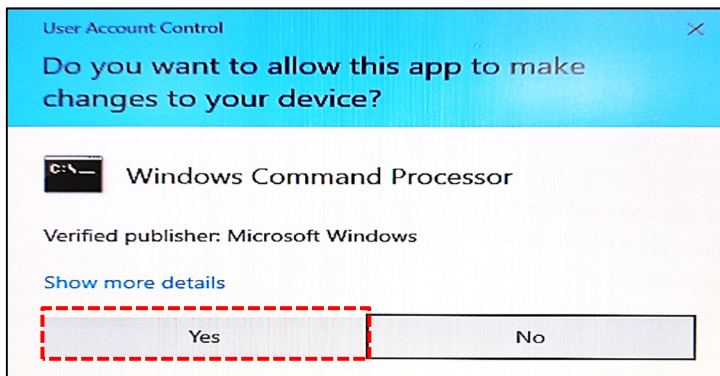


## (2) How to turn off Firewall Application Filters for FTP Clients

Step 1: Click the [Start] button and select [Accessories]. By right-clicking [Command Prompt] Click [Run as administrator].

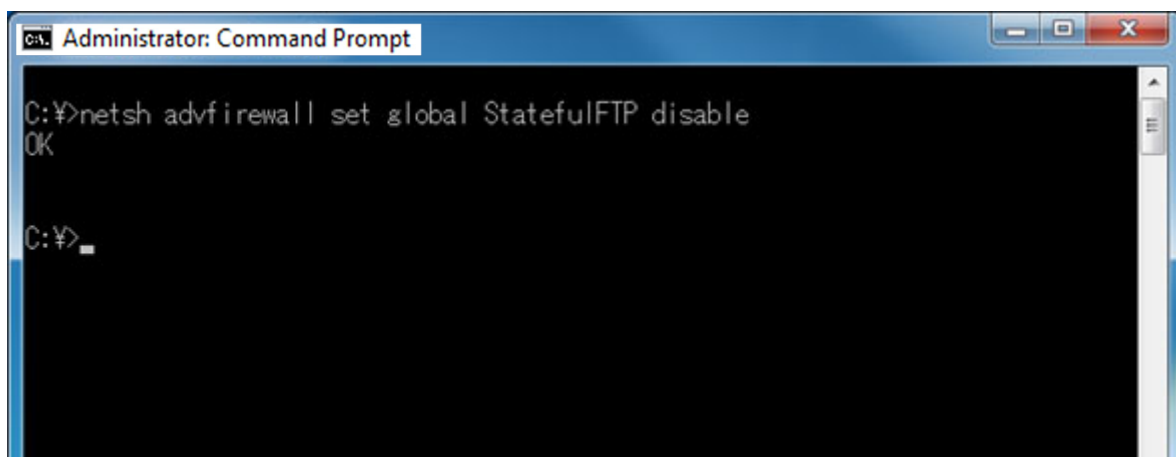


When the User Account Control (UAC) window appears, click [Yes].



Step 2: Execute the following command on the command prompt.

**netsh advfirewall set global StatefulFTP disable**



## 2-4 Installation of the system

Using the magnets attached on the back side of the MVS08 main unit or optional bolt-fixing brackets (product code: ABMVS08), install the MVS08 at a location where the display can be easily viewed. Allowable range of operating temperature is 0 to 50°C. Install other Futaba measuring devices according to respective instruction manuals provided at the time of purchase.

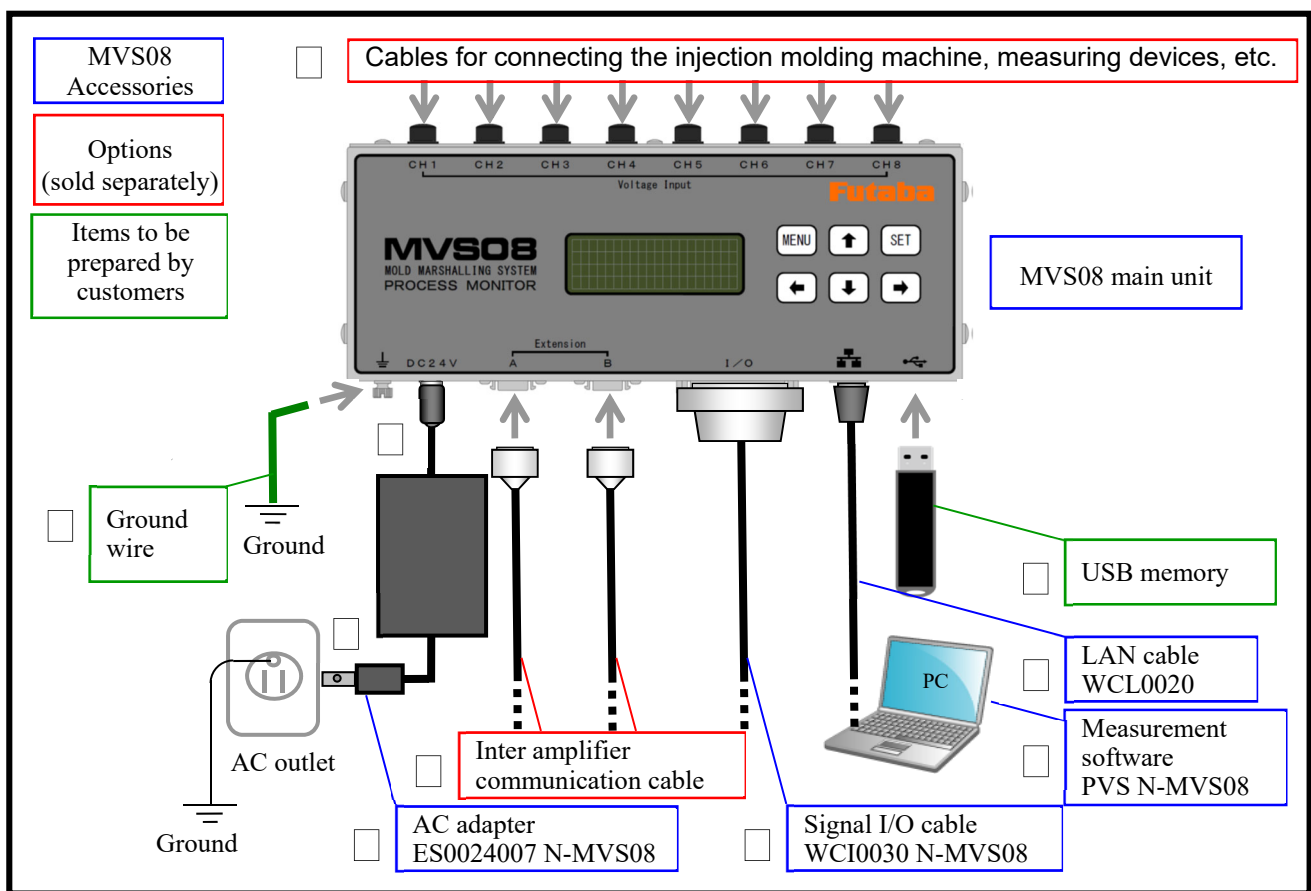
Install any other manufacturers' measuring devices and injection molding machine according to the manufacturers' instructions or instruction manuals.

## 2-5 Connections in systems

### (1) Injection Molding Monitoring System "MVS08 Set"

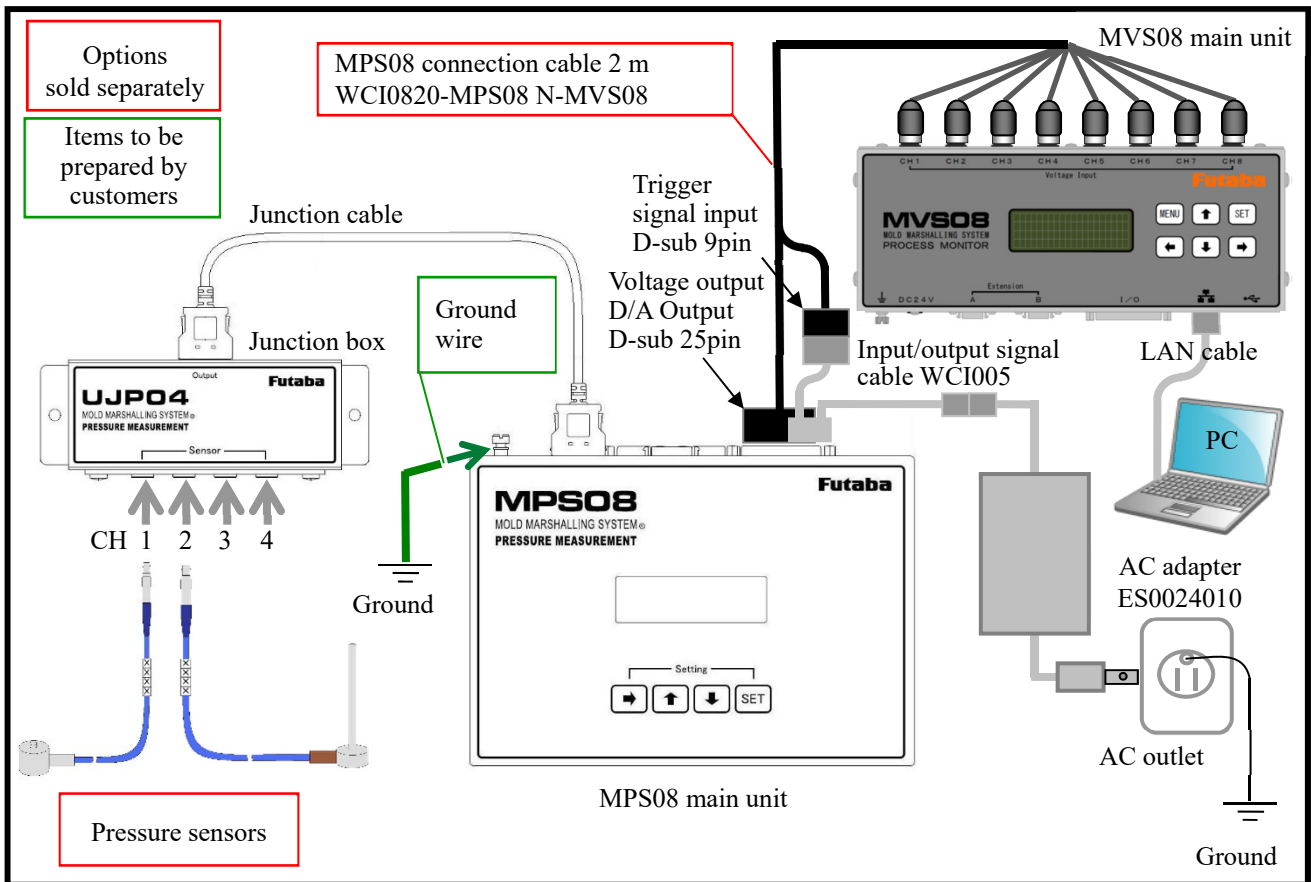
Connect the components in order of the numbers shown in the following figure.

Connect the power supply ⑩ after completing the connections ① to ⑨.



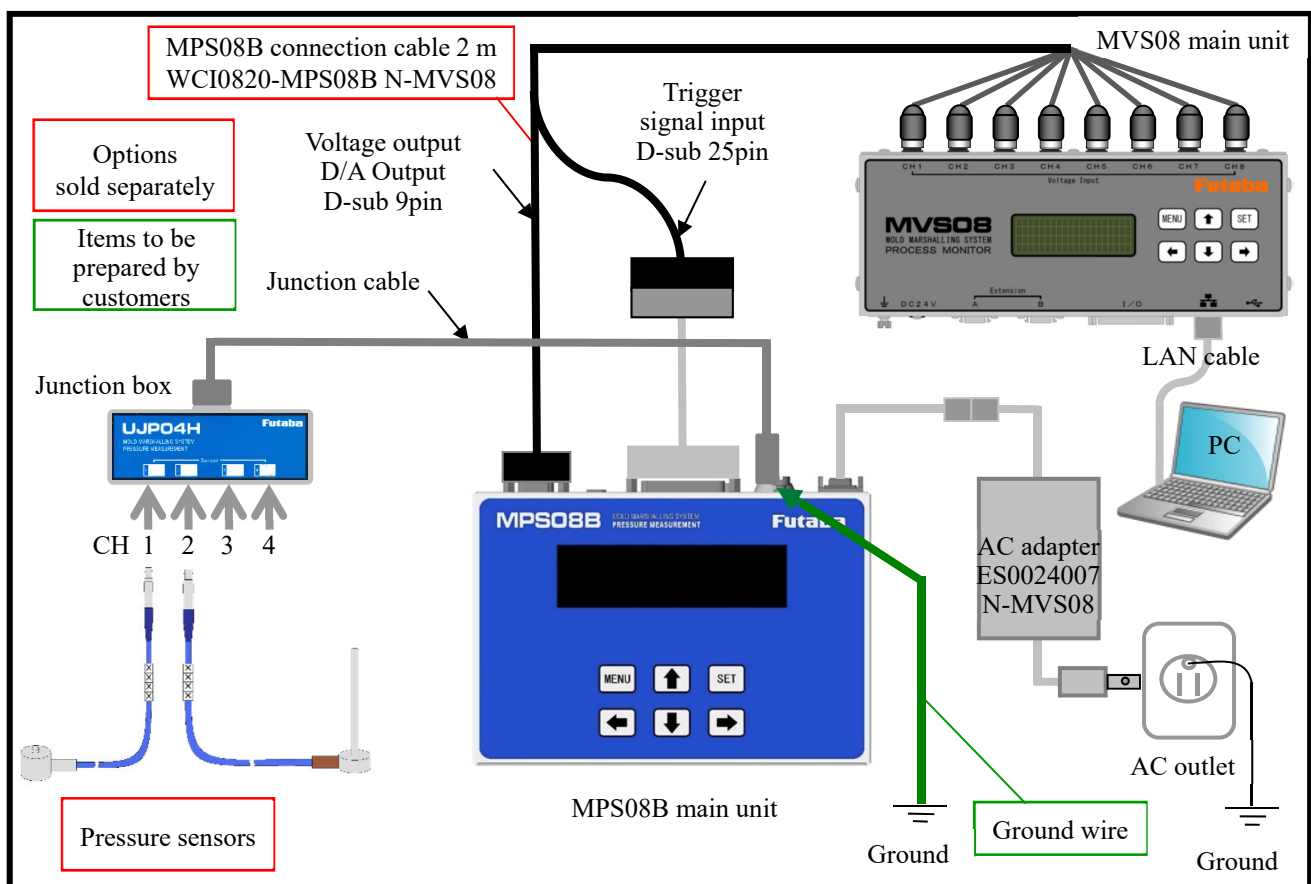
- Install the measurement software. Connect the LAN cable.  
Refer to "2. Preparation" (Page 6) and the "Measurement Software (PVS) Installation Manual".
- Connect the cables for connecting the injection molding machine, measuring devices, etc.  
For the system configurations of respective types of measuring devices connected, refer to the following paragraphs (2) through (9).
- Connect the signal I/O cable.  
Refer to "2-6 Connecting I/O signals" on Page 18.
- Connect the inter amplifier communication cable.  
In the case of 9- to 24-point measurements, use multiple MVS08 units by connecting them. Refer to paragraph (10).
- Connect USB memory: Saves the measurement data to USB memory only when PC is not connected.
- Install a ground wire: Be sure to use the system by grounding it for safe operations.
- Connect the power supply: Refer to "2-7 Connecting to the power supply" on Page 21.

(2) When the resin pressure measuring “MPS08 set” is connected... For the connection of the MVS08 side, refer to paragraph (1) on Page 12.



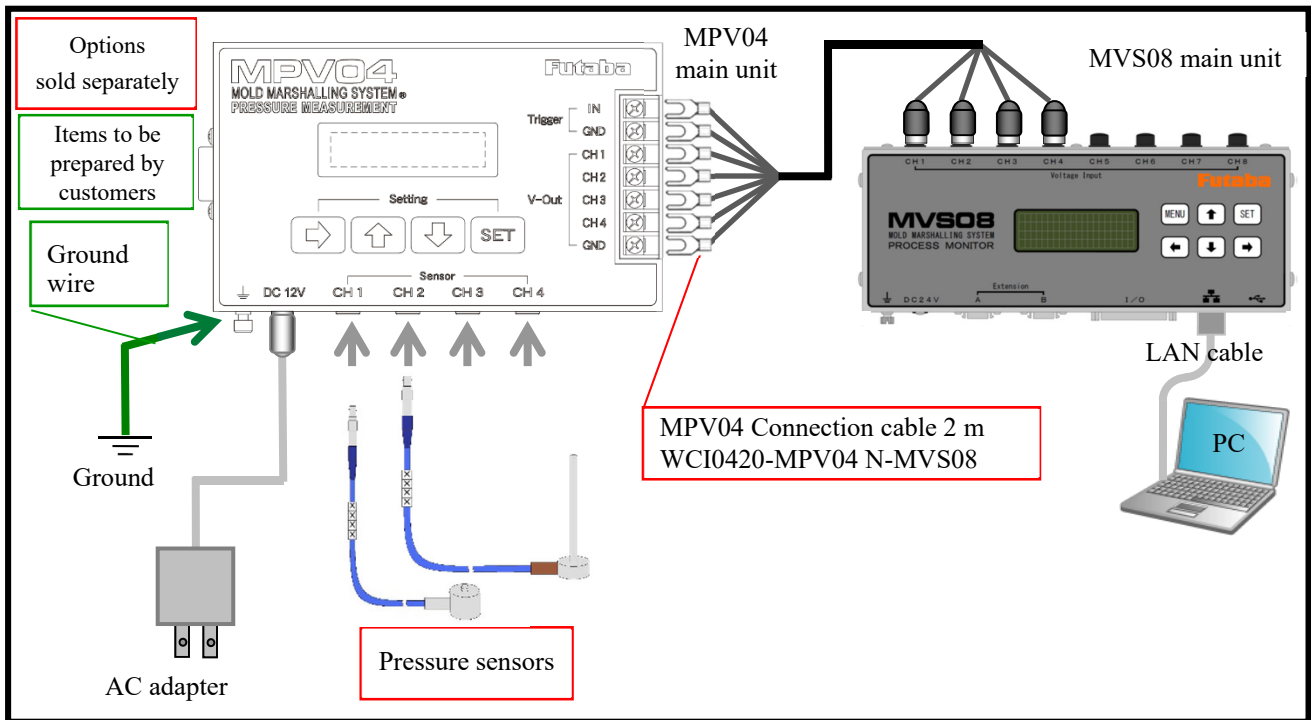
[NOTE] It is assumed that the MPS08 shown in this figure operates standalone. For PC-connected operation, a PC is required separately. The MPS08 can store measurement condition setting files. To change the measurement conditions, however, it needs to be connected to a PC.

(3) When the resin pressure measuring system “MPS08B set” is connected ... For the connection of the MVS08 side, refer to paragraph (1) on Page 12.

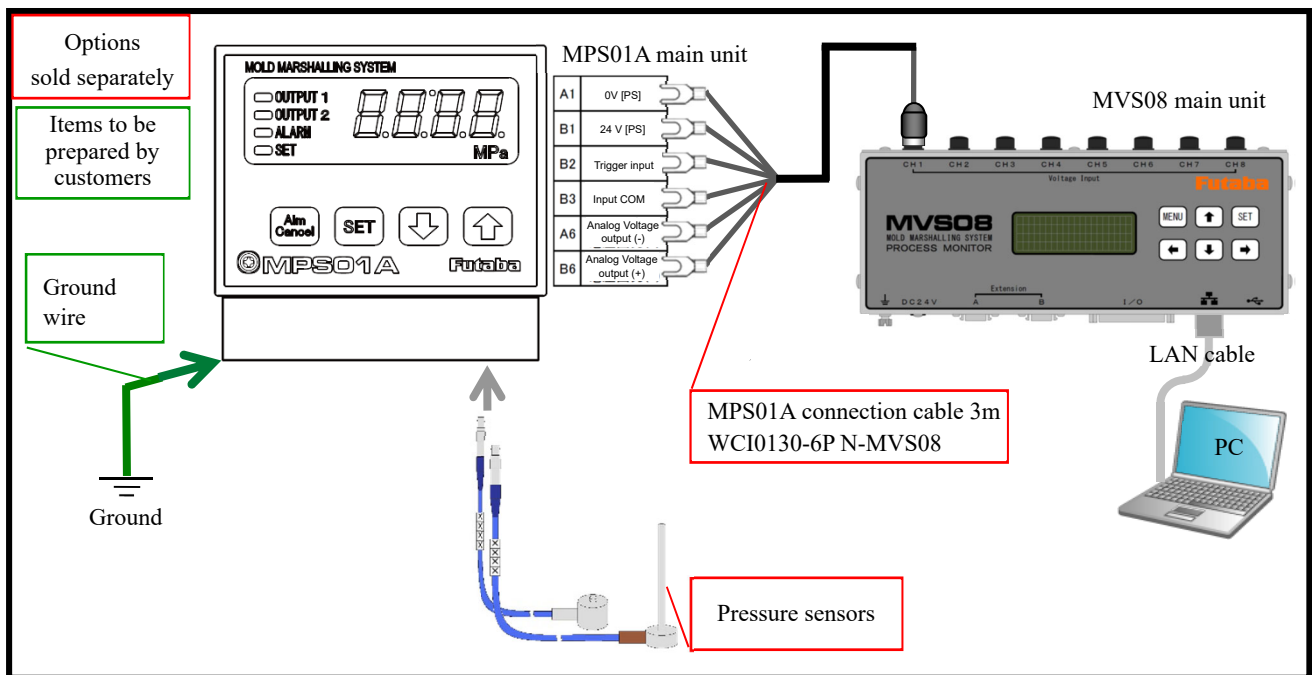




(4) When the resin pressure measuring system “MPV04 set” is connected ... For the connection of the MVS08 side, refer to paragraph (1) on Page 12.

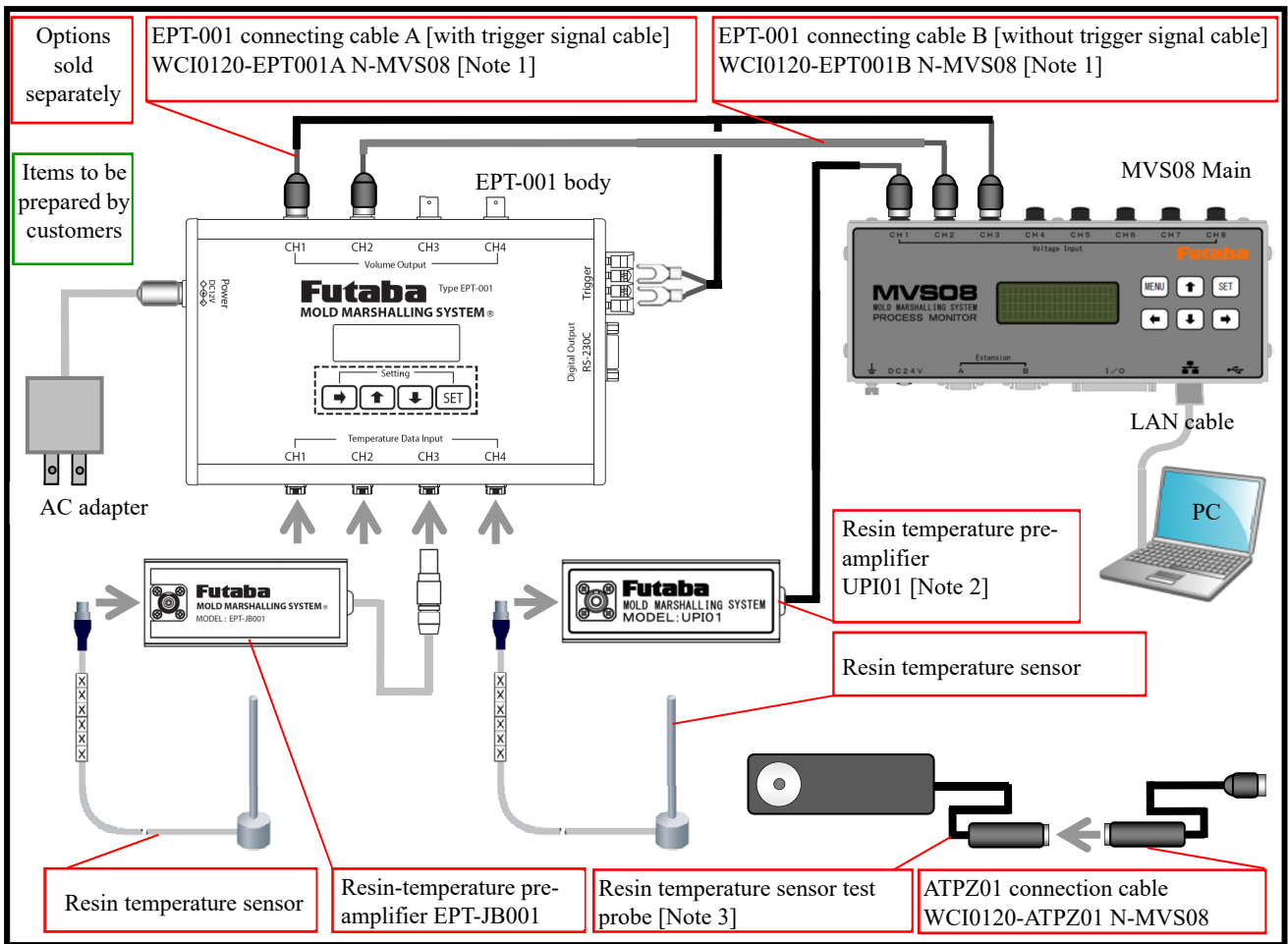


(5) When the inline injection resin pressure measuring unit “MPS01A” is connected ... For the connection of the MVS08 side refer to paragraph (1) on Page 12.



[NOTE] No power cable nor AC adaptor is required as power is supplied from MVS08 via MPS01A connection cable

(6) When the resin temperature pre-amplifier “UPI01”, resin temperature measuring system “EPT-001T”, and resin temperature sensor test probe “ATPZ01” are connected ... For the connection of the MVS08 side, refer to paragraph (1) on Page 12.

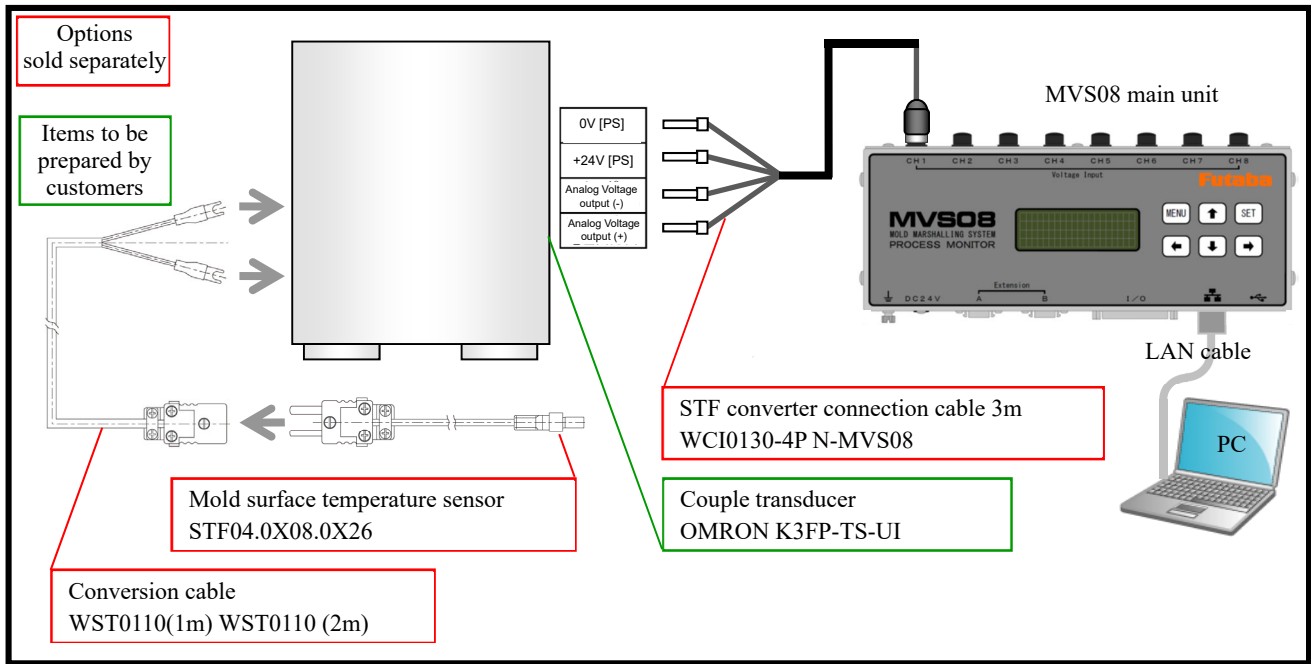


[Note 1] EPT-001 connection cable A is used for the connection of EPT-001 CH1. Trigger signals can be captured. EPT-001 cable B is used for the connection of EPT-001 CH2 to CH4. Only voltage signal can be captured.

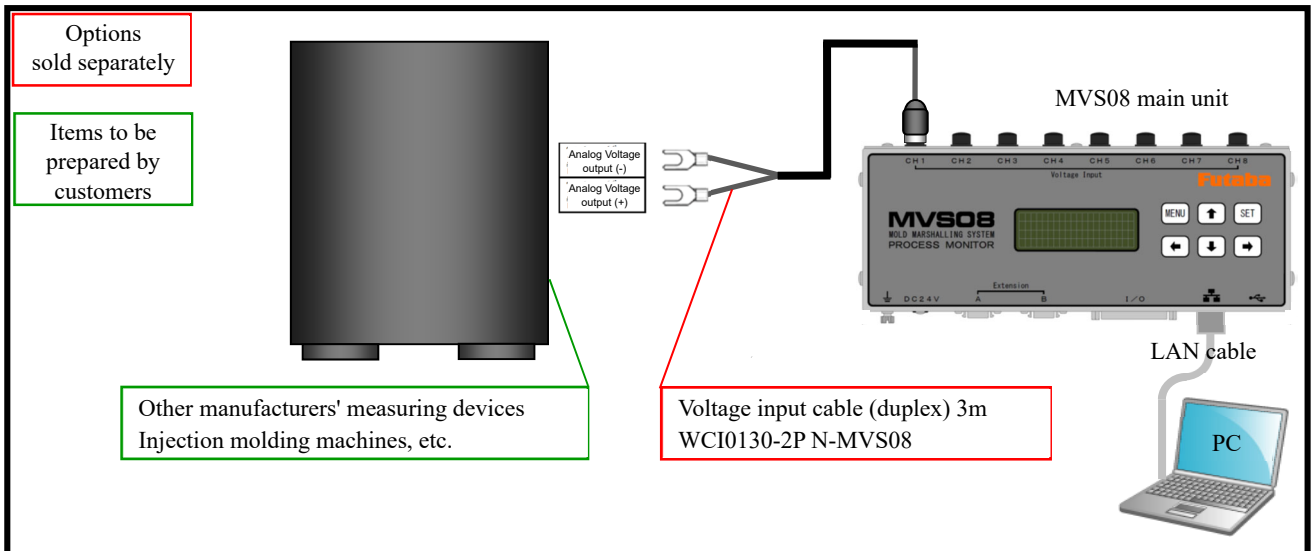
[Note 2] UPI01 can be directly connected to the MVS08. No amplifier (EPT-001, etc.) is required. One UPI01 is required for each resin temperature sensor.

[Note 3] Resin temperature sensor test probe (ATP01) is a simplified operation confirmation device for resin temperature sensors. Customers can check sensor failure on their own. ATPZ01 connection cable is used for the power supply from the MVS08.

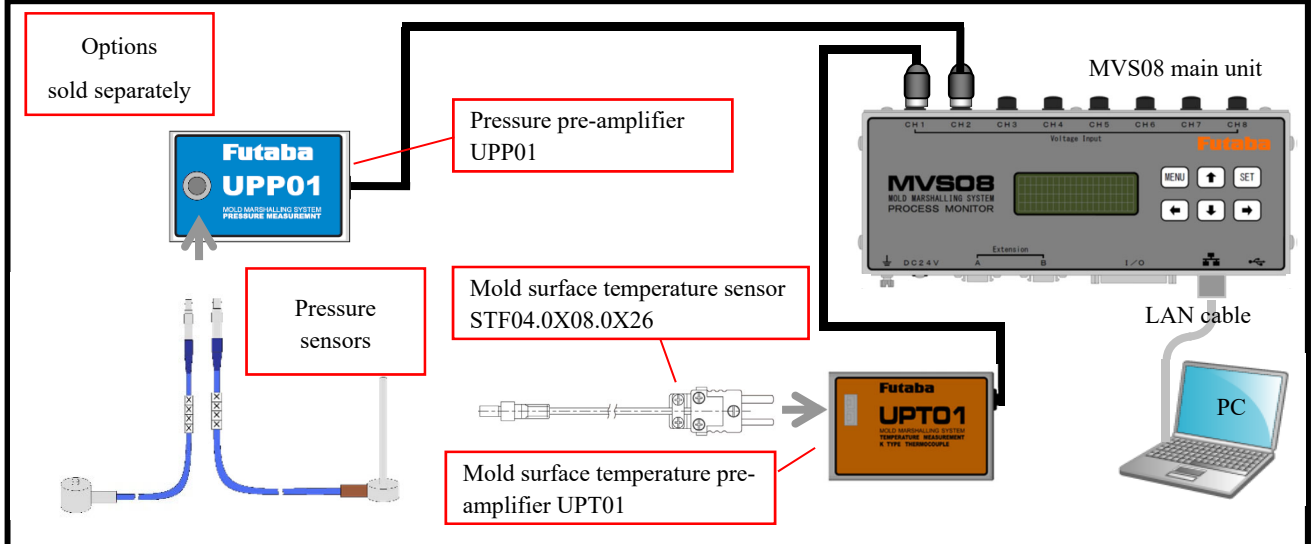
(7) When the mold surface temperature sensor “STF” is connected... For the connection of the MVS08 side, refer to paragraph (1) on P 12.



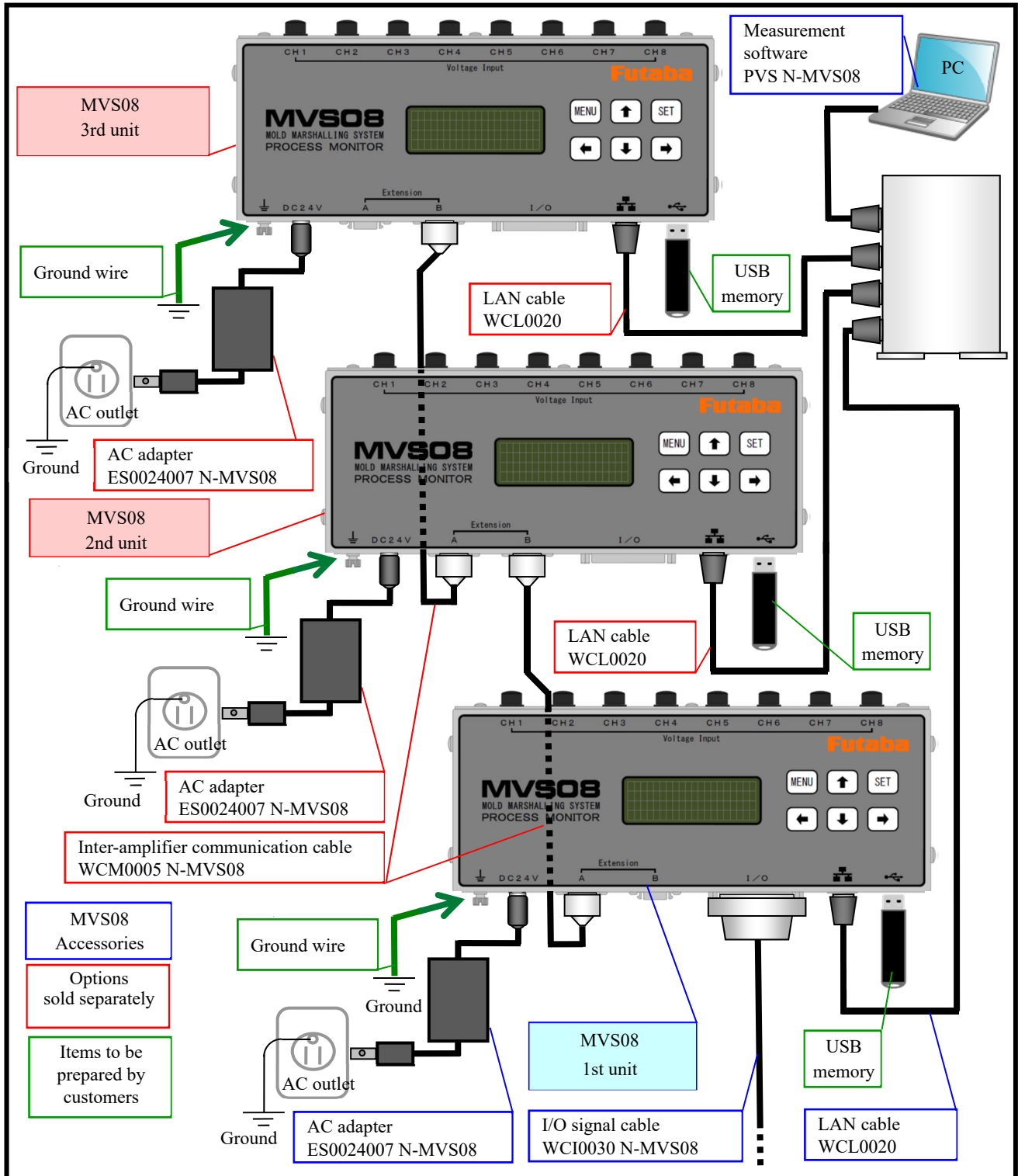
(8) When other manufacturers’ measuring devices and an injection molding machine, etc. are connected ...For the connection of the MVS08 side, refer to paragraph (1) on P 12.



(9) When MVS08 dedicated pre-amplifier UPP01, mold surface temperature pre-amplifier UPT01 is connected



(10) When additional injection molding monitoring system “MVS08” is connected



<What is an input signal>

An input signal means a signal input to the main unit from an external device such as a molding machine or take out machine.

**Trigger signal** Required to start measurement. Upon input of the trigger signal, “Offset” is performed. “Offset” is performed using the value entered in “4-4 Setting the conditions”.

Input the trigger signal under the condition with no pressure loaded to the sensor.

Unless there is any specific reason, connect the “mold close complete signal”.

- \* It takes about 0.1 second for “Offset”. If the injection start signal is used as a trigger signal, “Offset” may not be finished in time and accordingly normal measurement may not be performed.

**Alarm clear signal** Connected to clear (release) the alarm signal being output from the main unit.

Connect them if necessary.

- \* The alarm signal can be cleared automatically by specifying the time in the software settings. (→ P.30□) If there is no problem in operation due to the auto release by the specified period, the alarm clear signal can be omitted.

<What is an output signal>

An output signal means a signal output from the main unit to an external device such as a molding machine or take out machine.

**Alarm signal** An alarm signal is output when the monitoring range defined by software is exceeded. This signal is used to check for defective products and control devices such as to stop the molding machine.

- \* Alarm monitoring can be set for eight channels individually, but the alarm output signal is one for all channels.

■D-sub25pin connectors of the I/O signal cable is shown below.

Input signal type and output signal type can be assigned to 10 channels of ports respectively.


For assigning the signal types, refer to “4-4-3 Setting of I/O signals” on Page 32.

\*In order to continuously monitor the waveform in the mold, at least the wiring of the trigger signal (e.g. mold close signal) is required.

- D-sub25pin connector pin connection

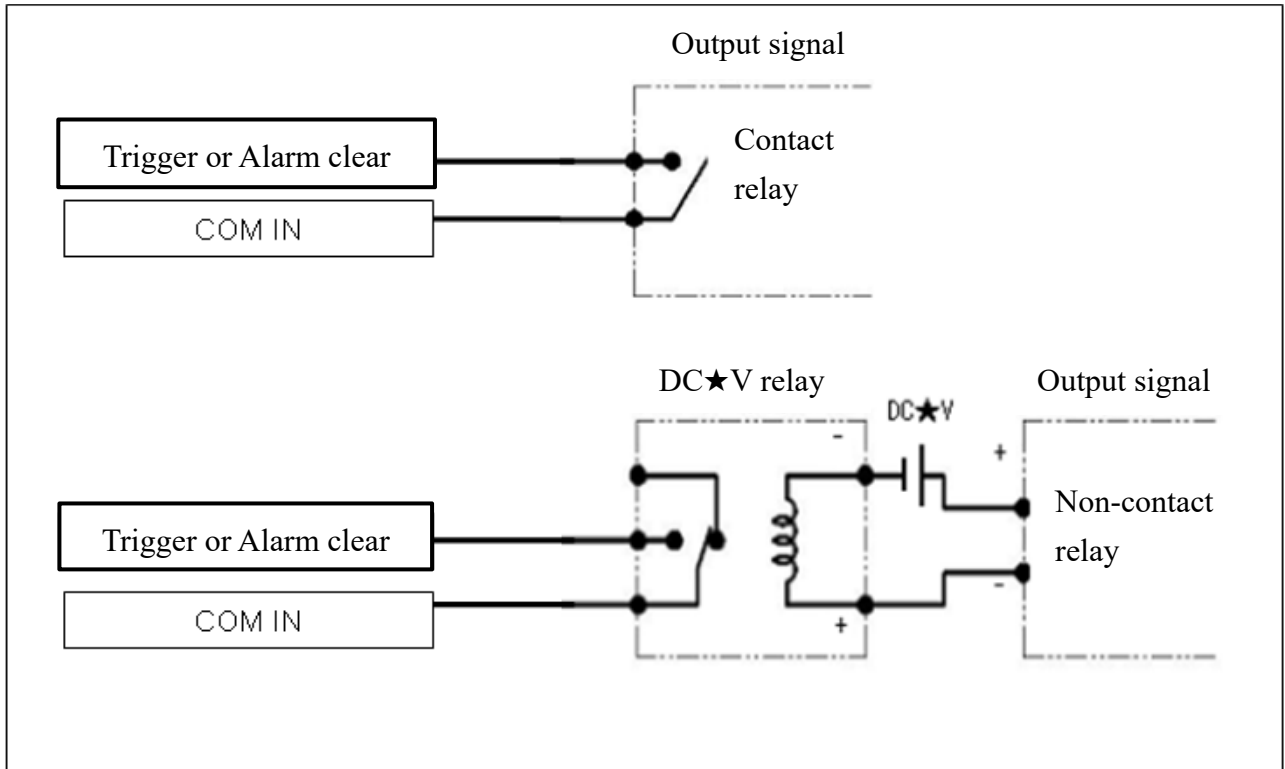
| Pin No. | Signal name                            | Input/output | Pin No. | Signal name    | Input/output | Pin connection |
|---------|--|--------------|---------|----------------|--------------|----------------|
| 1       | Input port 1<br>[Default → Triggers]   | In           | 14      | Output port 3  | Out          |                |
| 2       | Input port 2<br>[Default: Alarm clear] | In           | 15      | Output port 4  | Out          |                |
| 3       | Input port 3                           | In           | 16      | Output port 5  | Out          |                |
| 4       | Input port 4                           | In           | 17      | Output port 6  | Out          |                |
| 5       | Input port 5                           | In           | 18      | Output port 7  | Out          |                |
| 6       | Input port 6                           | In           | 19      | Output port 8  | Out          |                |
| 7       | Input port 7                           | In           | 20      | Output port 9  | Out          |                |
| 8       | Input port 8                           | In           | 21      | Output port 10 | Out          |                |
| 9       | Input port 9                           | In           | 22      | Not connected  | -            |                |
| 10      | Input port 10                          | In           | 23      | Not connected  | -            |                |
| 11      | GND                                    | Common       | 24      | GND            | Common       |                |
| 12      | Output port 1<br>[Default: Alarm]      | Out          | 25      | Not connected  | -            |                |
| 13      | Output port 2                          | Out          | -       | -              | -            |                |

(1) Input signal circuit specifications (Trigger signal, Alarm clear signal)

|   |   |
|---|---|
|  | The input signal to the amplifier should be input with a contact.<br>Do not load the voltage. |
|---|---|

Example 1: When the output of the molding machine connected to the main unit is “relay output”

Example of connection of input signal when the molding machine output signal is contact output.

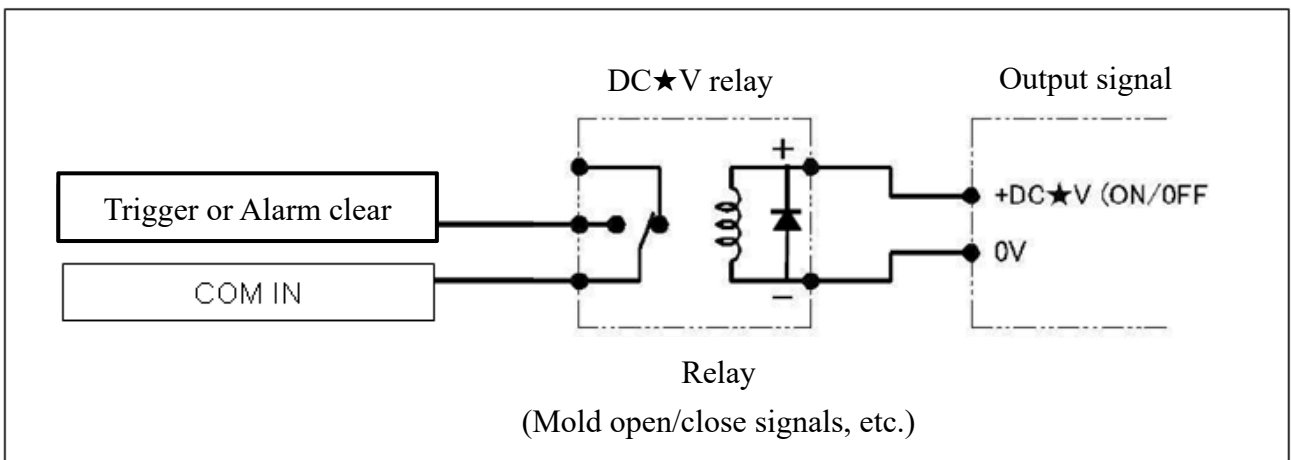


Example 2: When the output of the molding machine connected to the main unit is “voltage output”

Connect the signal by using a relay adaptable to the output voltage of the output signal from the molding machine.

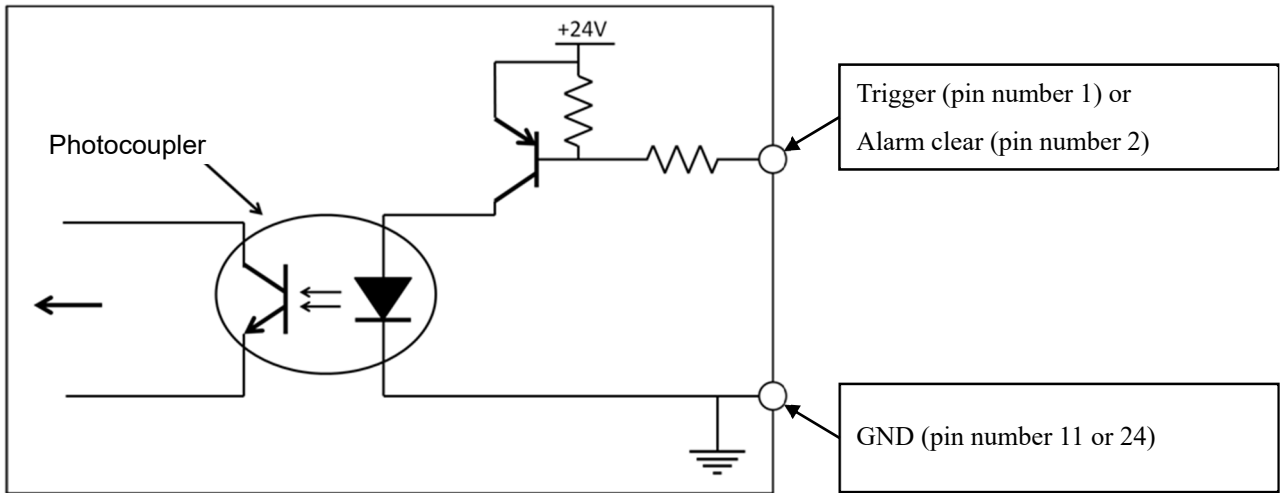
\* When using a contact relay, use a relay equipped with the coil surge absorption circuit.

Example of connection of input signal using a relay when the molding machine output signal is DC★V ON/OFF output.



■ Pin numbers of trigger and alarm clear signals (display)

The setting of ports can be changed freely according to “4-4-3 Setting of I/O signals” on Page 32. When connecting the signal, be careful to connect it to the port with the set number. After connecting the signal, check the operation of the signal according to “7-2 Check I/O signals” on Page 51.



Default pin numbers are shown in the figure.

Creating a short circuit between “Trigger” and “Trigger GND” ports input a trigger signal and starts the measurement. Creating a short circuit between “Alarm clear” and “Alarm clear GND” ports clear the alarm signal output.

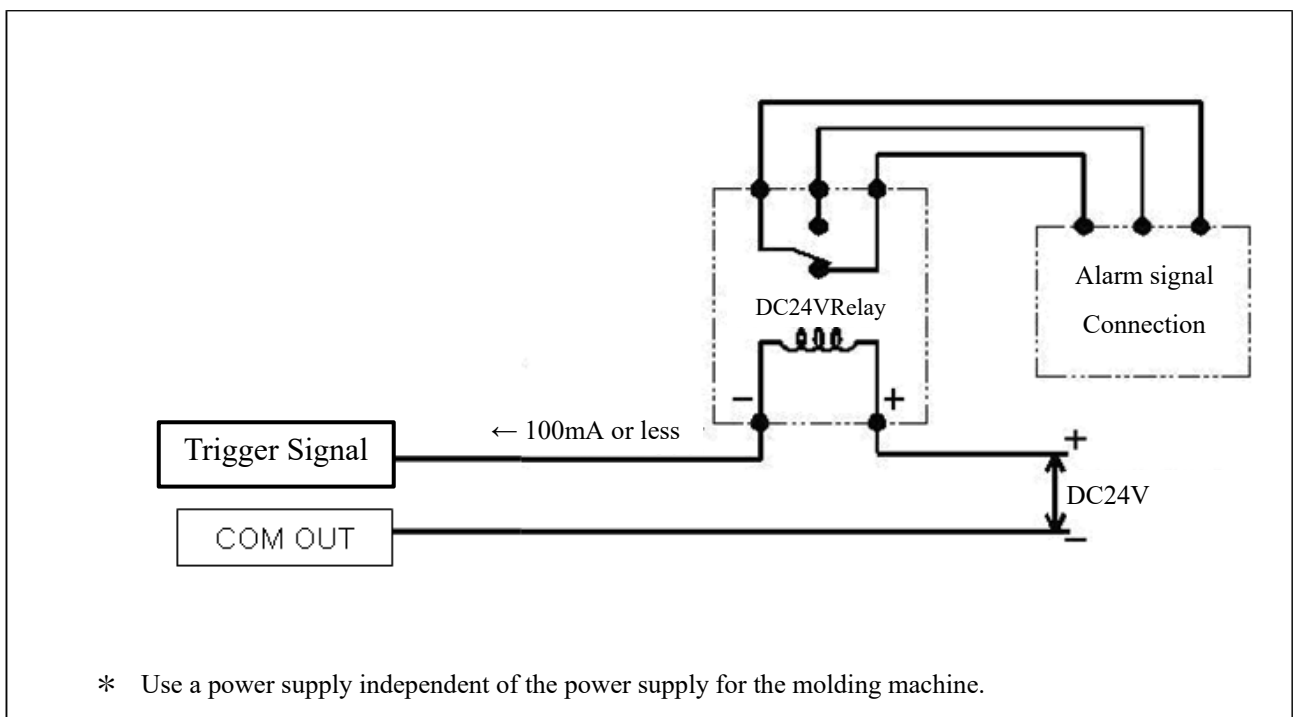
Alarm signal can also be cleared automatically after a specified time elapsed. When automatic clear is used, the connection of the Alarm clear signal can be omitted. See Section 4-4-1 “Setting measurement conditions” on Page 29.

(2) Output signal circuit specifications (Alarm signal output)

Alarm output from the amplifier is NPN open collector 100mA max (30V or less).  
Use a power supply with the negative pole connected to GRD.

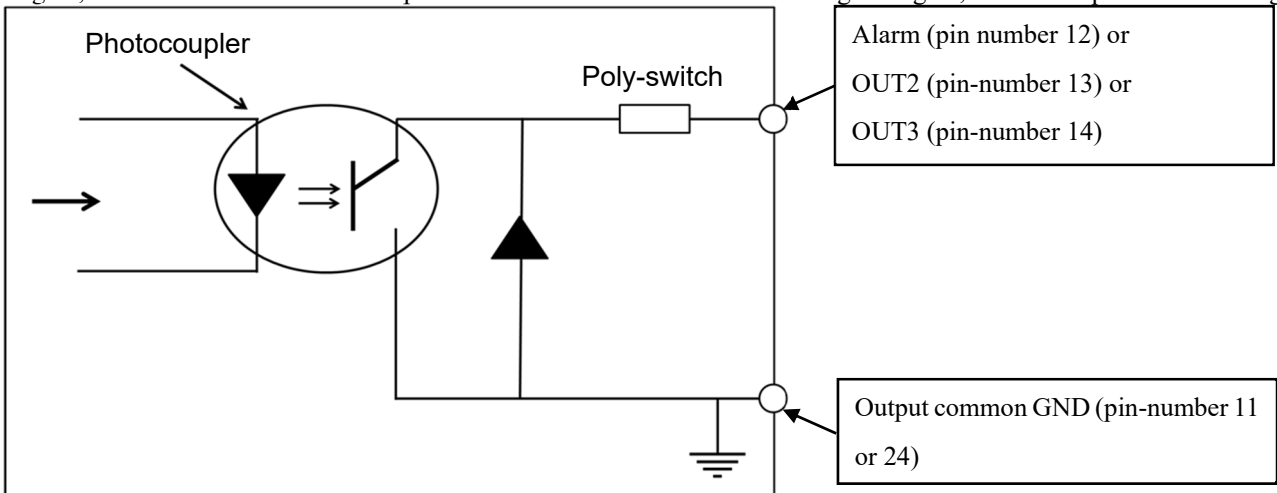
Example: When the output of the molding machine connected to the main unit is “relay output”

Example of connection of input signal when the molding machine output signal is contact output.



■ Pin numbers of alarm output signal (display)

The setting of ports can be changed freely according to “4-4-3 Setting of I/O signals” on Page 32. When connecting the signal, be careful to connect it to the port with the set number. After connecting the signal, check the operation of the signal



Default pin numbers are shown in the figure.

The alarm output, OUT2 and OUT3 are all same output circuit. The GND is common for all output signals. The alarm output is the NPN open collector output with a maximum capacity of 100mA (30 V or less).

## 2-7 Connecting to the power supply

- Supply power to this equipment through the AC adaptor that comes with this equipment.

**\* The main unit does not have a power switch. Never turn power on or off by plugging or unplugging the AC adaptor into or from the jack. It could damage not only the main unit and AC adaptor, but also other devices connected.**

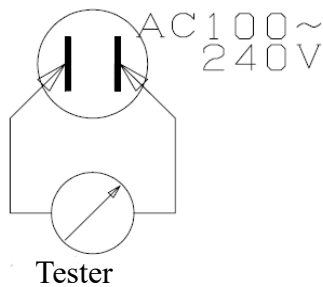
- Check the supply voltage before connecting the AC adaptor to the AC power source.

The operating voltage of the AC adaptor is AC100 to 240V.

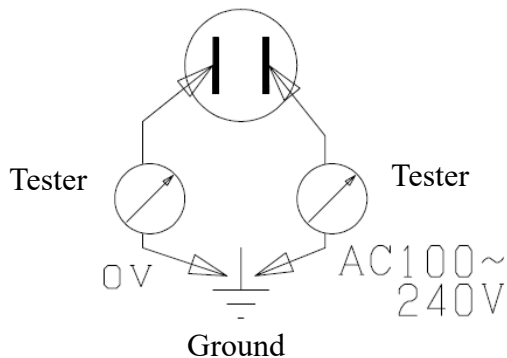
- \* If the supply voltage is out of the above voltage range or each terminal voltage of the power source has higher potential than the supply voltage against the ground, never connect it to this equipment. It could cause failure or accidents.

- Check the supply voltage as follows.

- ① Using a tester, measure the voltage between the terminals of the AC power outlet to make sure that it is AC100 to 240V.



- ② Using a tester, measure the voltage between each terminal of the AC power outlet and the ground to make sure that one is 0 V, and the other is AC100 to 240V .



- ③ In the field where equipment that generates noise such as an induction motor or electric welder is used, the power condition is expected to be bad with much noise. Take measures against noise by using commercially available isolation transformer or noise cut transformer.



- Warm up the system for 30 minutes or more after power on. Insufficient warmup could make measurements unstable.

# 3. Basic operations of MVS08

This section describes the basic operation of MVS08.

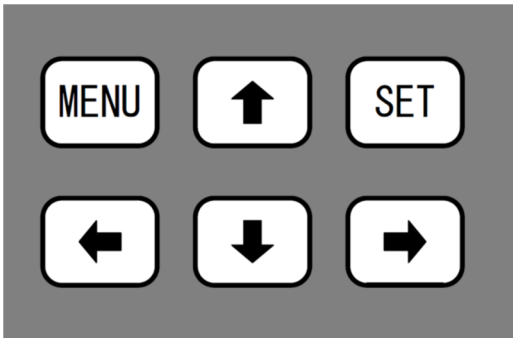
## 3-1 Power ON/OFF

- **Turning power on** To turn on the power, refer to "P.21, 2-7 Connecting to the power supply".
- **Turning power off** Disconnect AC plug of AC adaptor from AC outlet.
  - \* **The main unit does not have a power switch. Never turn power on or off by plugging or unplugging the AC adaptor into or from the jack. It could damage not only the main unit and AC adaptor, but also other devices connected.**

## 3-2 Basic operations of MVS08 main unit

### 3-2-1 Operation of the key switch

- Operate the keys on the MVS08 main unit as needed in the following cases.
  - Checking or changing the conditions saved on the main unit (such as when using the MVS08 standalone)
  - Starting measurement manually (pressing the SET key in monitor mode starts measurement)
  - Checking measured values of each channel (such as when using the MVS08 standalone)

| Layout   | Key  | Operation    | Function   |
|--|------|--------------|--|
|  | MENU | Single press | Switch the screens<br>Cancel the input mode  |
|  |      | Long press   | Return to the screen before switching<br>(switch the screen after 2 seconds)                         |
|  | SET  | Single press | Capture parameter values and release Input mode at the same time<br>Input a trigger signal manually. |
|  | ←、→  | Single press | Shift to the input mode<br>Move the cursor   |
|  |      | Long press   | Move cursor back   |
|  | ↑、↓  | Single press | Switch the screens<br>Shift to the input mode<br>Change the parameters                               |

### 3-2-2 Check the display on LCD screen

Turning on the power displays the following LCD screen (The figure below shows the default screen when shipped.)

|                                   |  |  |  |                 |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|--|--|--|-----------------|--|--|--|--|--|--|--|--|--|--|--|
| F U T A B A C O R P O R A T I O N |  |  |  |                 |  |  |  |  |  |  |  |  |  |  |  |
| M O L D M A R S H A L L I N G     |  |  |  |                 |  |  |  |  |  |  |  |  |  |  |  |
| S Y S T E M                       |  |  |  |                 |  |  |  |  |  |  |  |  |  |  |  |
| T Y P E                           |  |  |  | M V S 0 8       |  |  |  |  |  |  |  |  |  |  |  |
| V E R                             |  |  |  | 0 1 . 0 0 . 2 8 |  |  |  |  |  |  |  |  |  |  |  |

← MVS08 Unit Firmware Version No.

|   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| M E A S : S T O P M O D E : T R G       |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| N G : 0 1 2 3 4 5 6 7 / 8 9 0 1 2 3 4 5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| S e t t i n g s 0 1                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

← Left 2nd row: Measurement status (RUN/STOP)

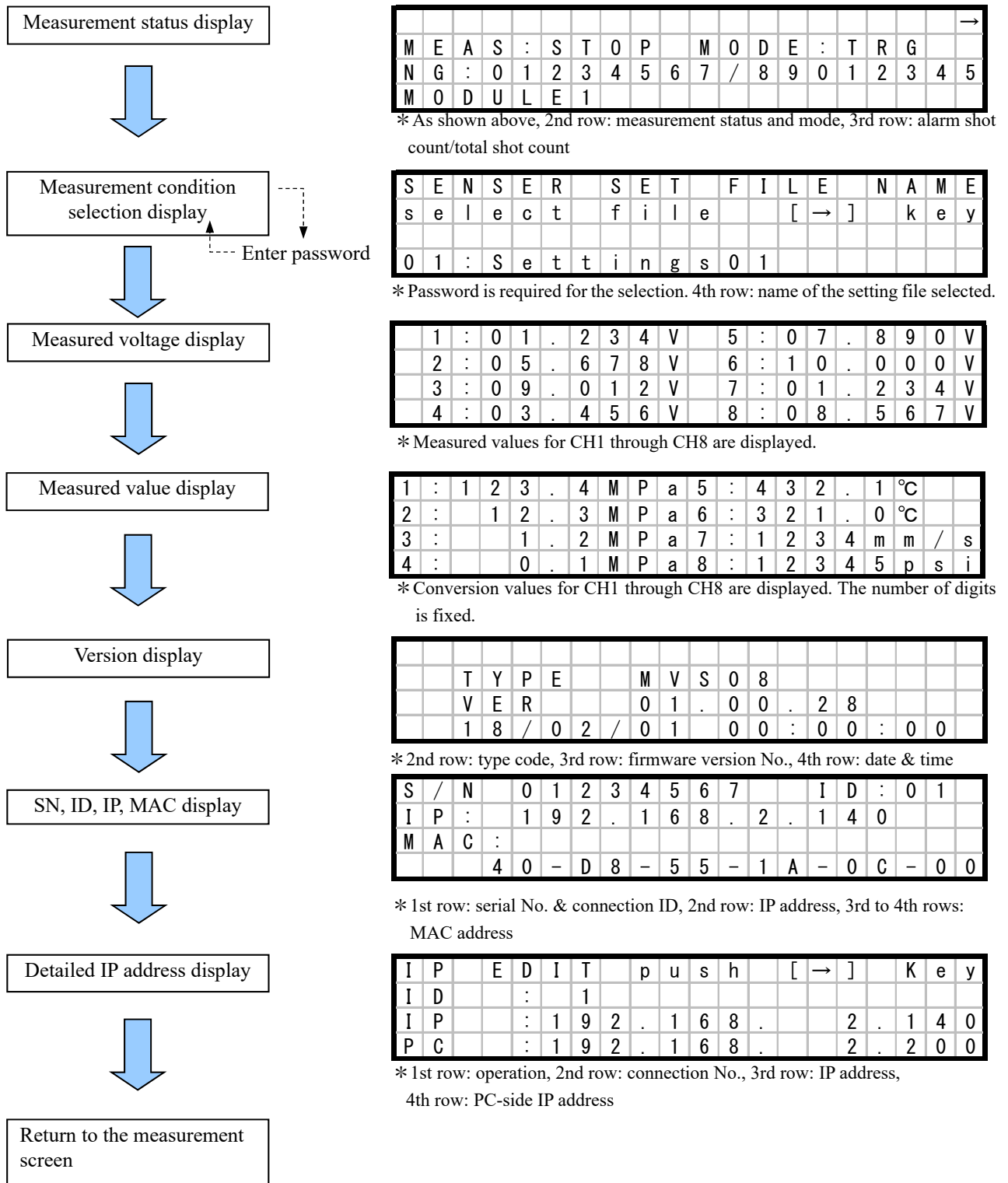
← 1st row: Communication status, ("→" under comm., "!" when comm. is lost)

← Right 2nd row : Measurement mode. (TRG/MTRG/AUTO)

← 3rd row: Alarm shots count/Total shots count

← 4th row: MVS08 main unit number □ Name of setting file

(1) Screen transition...Using the “MENU” button or “↑↓” buttons, select the screen.



(2)Details of each screen

□ Measurement condition selection


|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S | E | N | S | E | R | S | E | T | F | I | L | E | N | A | M | E |
| s | e | l | e | c | t | f | i | l | e | [ | → | ] | k | e | y |   |
| 0 | 1 | : | S | e | t | t | i | n | g | s | 0 | 1 |   |   |   |   |

| Display | Description   |
|---------|---|
| 2nd row | Press "→" button to moves to the password input screen.   |
| 4th row | Control No. (2 digits): Name of setting file<br>The file name must be entered with up to 20 half-width alphanumeric characters with no extension. If the limit on the type and number of the characters is exceeded when the file name is saved, an error message is displayed. |

**[NOTE]** A password must be entered to change the setting file.

- a. To switch the screen to the password setting screen, long-press the “Menu” button and “SET” button at the same time (for more than 5 seconds) in normal operation condition. Using the “↑↓” buttons, move the “→”. Press the “SET” button to confirm the selection.

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|
| → | P | A | S | S | W | O | R | D | S | E | T | T | I | N | G |  |  |  |
| S | / | N | M | A | C | S | E | T |   |   |   |   |   |   |   |  |  |  |
| P | A | R | A | M | E | T | E | R | I | N | I | T | . |   |   |  |  |  |



|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|
| P | A | S | S | W | O | R | D | S | E | T | T | I | N | G |  |  |  |
| O | L | D | P | A | S | S |   | 1 | 2 | 3 | 4 |   |   |   |  |  |  |
| N | E | W | P | A | S | S |   | 5 | 6 | 7 | 8 |   |   |   |  |  |  |

| Display | Description  |
|---------|--|
| 2nd row | Old password input field   |
| 3rd row | New password input field   |
| 4th row | Pressing the “SET” button displays the confirmed change result.<br>UPDATED PASSWORD<br>PASSWORD IS INCORRECT |

- b. Password is required when changing a managed parameter.

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|
| P | L | E | A | S | E | I | N | P | U | T | P | A | S | S |   |  |  |  |
| A | N | D | P | U | S | H | S | E | T | B | U | T | T | O | N |  |  |  |
|   |   |   | P | A | S | S | 0 | 0 | 0 | 0 |   |   |   |   |   |  |  |  |


| Display | Description  |
|---------|--|
| 3rd row | New password input field   |
| 4th row | Pressing the “SET” button displays the confirmed change result. After the result is displayed, the screen goes back to the original screen.<br>CHANGE THE SETTING<br>INCORRECT |

□ Initialization of parameter

Restores the MVS08 settings to the factory default settings. Note that performing this operation will erase all the files saved in the unit.

- a. To switch the screen to the parameter initialization screen, long-press the “Menu” button and “SET” button at the same time (for more than 5 seconds) in normal operation condition. Using the “↑↓” buttons, move the “→”. Press the “SET” button to confirm the selection.

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|
| → | P | A | S | S | W | O | R | D | S | E | T | T | I | N | G |  |  |  |
| S | / | N | M | A | C | S | E | T |   |   |   |   |   |   |   |  |  |  |
| → | P | A | R | A | M | E | T | E | R | I | N | I | T | . |   |  |  |  |



|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|
| P | L | E | A | S | E | I | N | P | U | T | P | A | S | S |   |  |  |  |
| A | N | D | P | U | S | H | S | E | T | B | U | T | T | O | N |  |  |  |
|   |   |   | P | A | S | S | 0 | 0 | 0 | 0 |   |   |   |   |   |  |  |  |

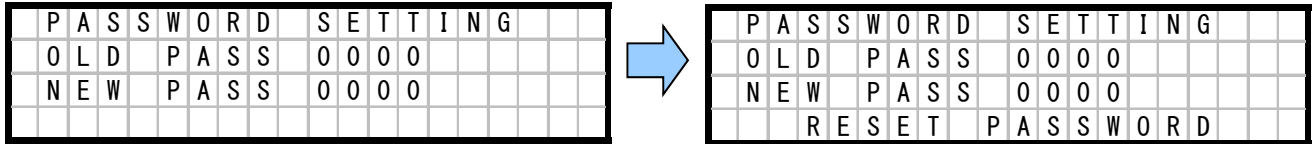
| Display  | Description   |
|----------|---|
| 2nd line | Operation   |
| 3rd line | Enter the password set in ①a. The default password is 0000. |

- b. Entering the password and pressing the “SET” button starts the initialization. After the initialization completes, the screen goes back to the measurement status screen.

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|--|--|
| I | n | i | t | . | P | a | r | a | m | e | t | e | r |  |  |  |  |  |
|   |   |   | [ | > | > | > | > | > |   |   |   |   |   |  |  |  |  |  |

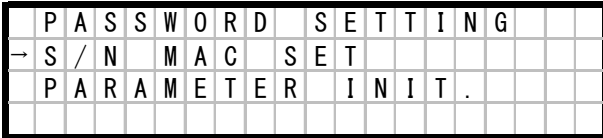
c. If the password is forgotten, it can be restored to the factory default value “0000”.

Follow the procedure in Step ①a to display the password setting screen. Long-press the “MENU” button for 10 seconds.



□ Other settings

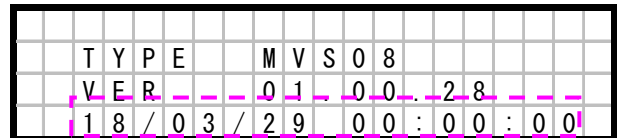
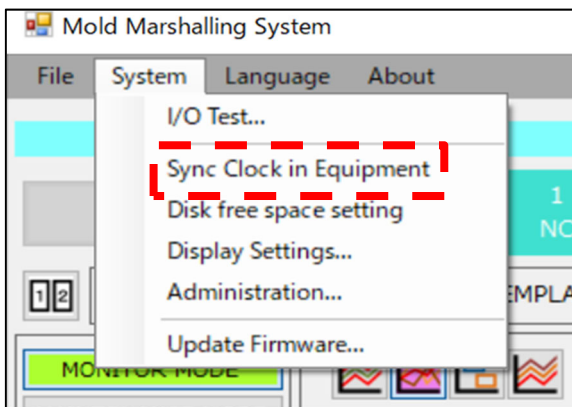
Do not change other settings. Doing so could disable network connection.



□ Change the time (clock) on the MVS08

The date & time (clock) on the version display screen can be synchronized with the clock of the PC.

From the main menu, select the “System”, and then select [Sync Equipment Clock].



The clock of measuring devices is also synchronized automatically when any measuring condition is overwritten.

### 3-2-3 Use with MVS08 alone

The MVS08 can operate standalone. Once the set conditions are saved to the main unit by operating the connected PC, the monitor functions even after the PC is separated from the main unit.

■ To do so, follow the procedure below.

Step 1: Connect a PC and make necessary settings. (Refer to “4-4 Setting the conditions” on Page 29.)

Step 2: Save the set conditions into the main unit. (Refer to “4-5 Saving settings Save As” and “4-6 Saving settings” on Page 39.)

Step 3: Exit the measurement software. (Refer to “4-1 Starting and exiting software” on Page 27.)

Step 4: Turn off the power to the main unit. (Refer to “3-1 Power ON/OFF” on Page 23.)

Step 5: Disconnect the LAN cable. Connect a USB memory.

Step 6: Turn on the power to the main unit. (Refer to “3-1 Power ON/OFF” on Page 23.)

\* If no PC is connected, a USB memory is required to save data.

# 4. Basic operation of measurement software

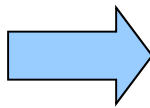
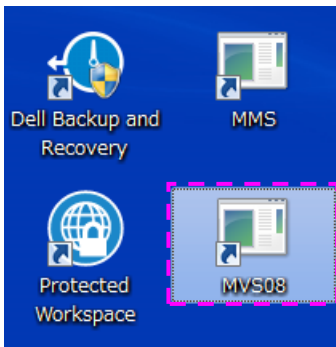
This section describes the basic operation of the measurement software.

## 4-1 Starting and exiting software

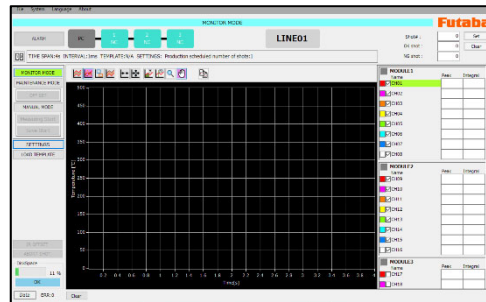
### Starting the software

Double-click the shortcut “MVS08” on the desktop.

\* If the shortcut “MVS08” is not found, specify the “MVS08” executable file in “c:\Program Files\FUTABA\MVS08” and click “Create Shortcut” to create a shortcut.

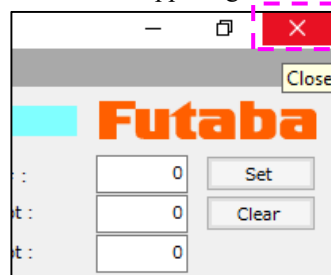
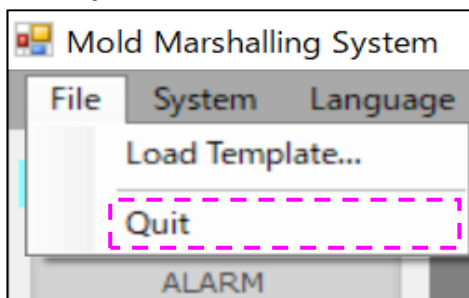


The main screen appears.

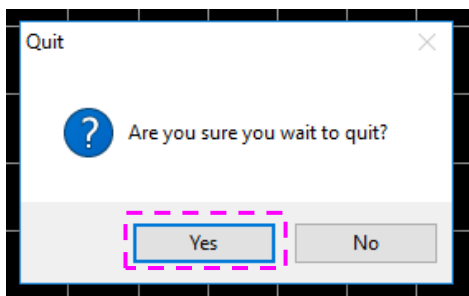


### Exiting the software

Select “Quit” from the main menu or click the close button “×” on the upper right corner of the screen.

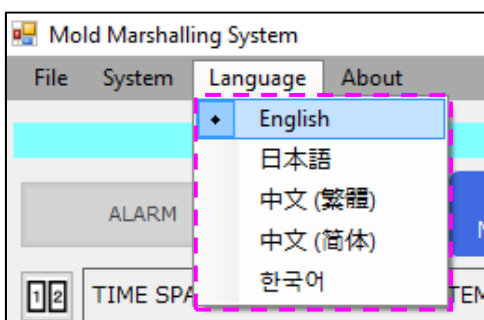


The following confirmation message is displayed. To exit, select Yes.



## 4-2 Switching languages

The language can be switched by selecting “Language” from the main menu.



\* English, Japanese, Traditional Chinese, Simplified Chinese, or Korean can be selected.

## 4-3 Names and functions of display parts

This section describes the basic screen parts and operations that are often used.

### ■ Operation screen

When software starts up, the screen shown below appears. This screen is referred to as the operation screen. Please remember the contents and outline of each part of the screen.

**Operation mode switching button**

Monitor mode : Mainly used mode. If it causes no particular problem, use this mode for capturing accurate data and monitoring mass production.

Maintenance mode : This mode is used for checking sensor behavior and communication between MVS08 and management PC. In this mode, the system only communicates and plots the values measured by the sensors.

Manual mode : This mode is used when a trigger signal (mold closing complete signal from the molding machine, measurement start signal) cannot be captured but the measurement must be performed immediately. You can perform the measurement and save data manually by pressing the [Start Saving] button at the same timing with the mold closing complete signal from the molding machine.

**Dual window switching button**  
Switch between single-window and dual-window display. "Right-left split screen"⇒ "up-down split screen"⇒Back

**Menu bar**  
Execute the command  
Display the menus.

**Toolbar**  
Button to execute the commands.

**Measurement mode bar**  
Displays the selected mode (Monitor mode, Maintenance mode, Manual mode).

**Minimize button**

**Maximize button**

**Close button**

**Counter display**

**Channel information**

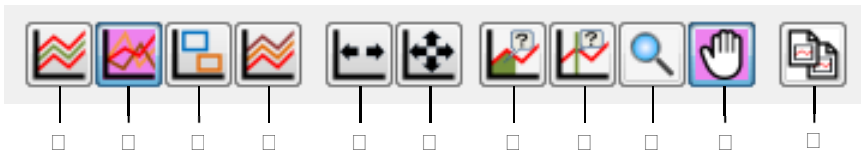
**Free disk space**  
Displays the usage data storage area

**UPI01 Offset button**  
This is valid when "Resin Temperature Offset Mode" is set to MANUAL in the settings. Offsetting of UPI01 is executed.

**Frame screen**  
Displays pressure waveforms being measured, template waveforms, and alarm monitoring frame.

### ■ Toolbar

Frequently used commands are set as buttons. The functions of each button are described below.



|                          |                                     |   |
|--------------------------|-------------------------------------|---|
| <input type="checkbox"/> | Show/Hide Monitoring waveform       | Shows or hides the upper and lower limits of the waveforms when monitoring the entire area of the waveforms.  |
| <input type="checkbox"/> | Show/Hide Template waveform         | Shows or hides the Template waveforms read into the frame screen.   |
| <input type="checkbox"/> | Show/Hide Monitoring Zone           | Shows or hides the alarm monitoring zone that has been set.   |
| <input type="checkbox"/> | Show/Hide Overwrite                 | Shows or hides waveform overwrite every shot.   |
| <input type="checkbox"/> | Zoom out Horizontally to Full Scale | After enlarging the view, zooms out only in the time axis direction.  |
| <input type="checkbox"/> | Zoom out to Full Scale              | Zooms out along both the time axis and measured value axis (according to the measurement conditions).   |
| <input type="checkbox"/> | Integration cursor tool             | Displays the integral of the measured value (area) at the cursor position.  |
| <input type="checkbox"/> | Cursor tool                         | Displays the measured value at the cursor position.   |
| <input type="checkbox"/> | Zoom                                | Enlarges the specified view. Selecting a channel name on the right side of the measurement screen enlarges only the measurement type that is set for the CH selected. |
| <input type="checkbox"/> | Hand tool                           | Drags and moves the enlarged view.  |
| <input type="checkbox"/> | Save image data                     | Save the frame screen.  |

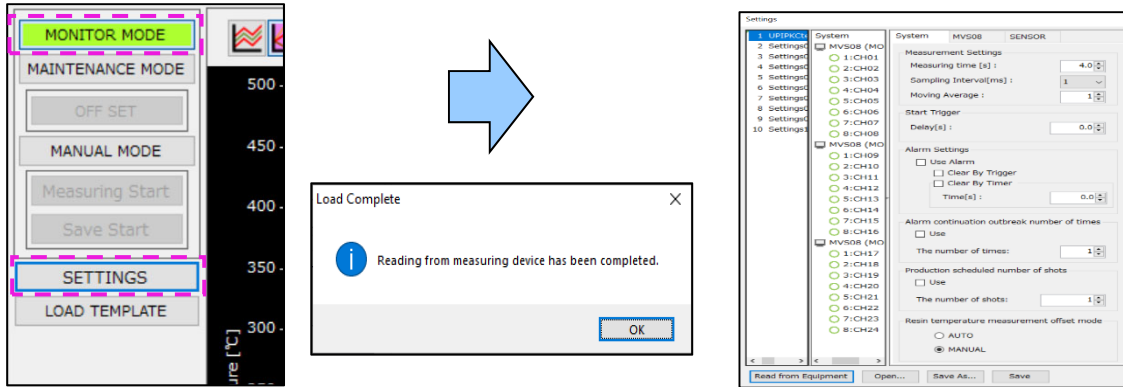
## 4-4 Setting the conditions

This section describes how to set the conditions for data capture. Once the conditions have been set, they can be saved as a setting file, so the same conditions can be set only by loading the setting file the next time.

- Set “measurement condition”, “sensor sensitivity”, and “alarm monitoring condition” sequentially in this order.
  - \* ”Measurement conditions” and sensor sensitivity” must be set. Set “alarm monitoring condition” as needed.

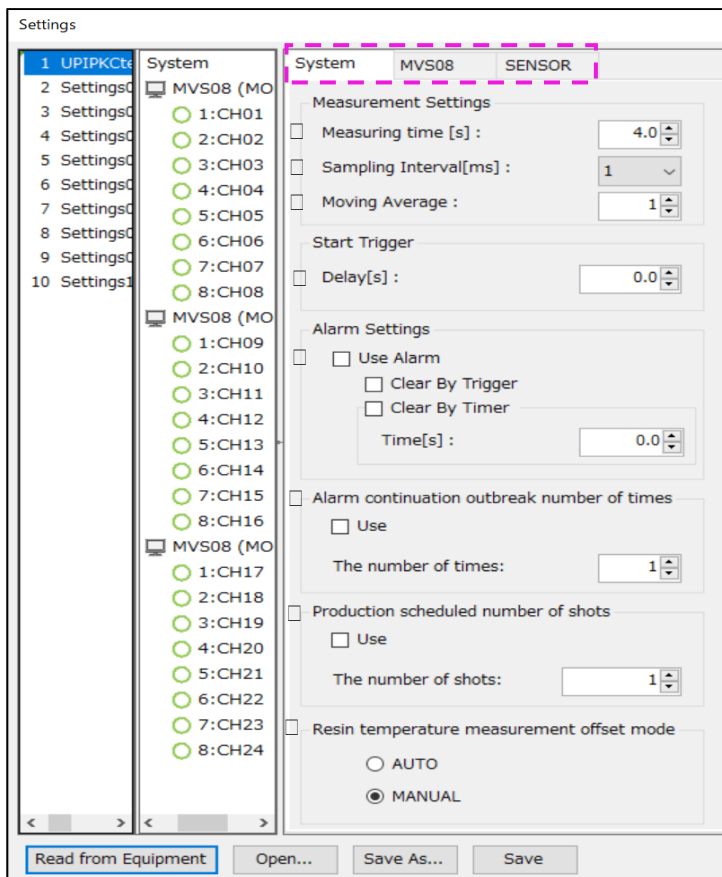
### 4-4-1 Setting the measurement conditions

- Click the "Setting" button to go to the measurement condition setting screen.



\*Monitor mode must be selected.

Measurement settings can be made.

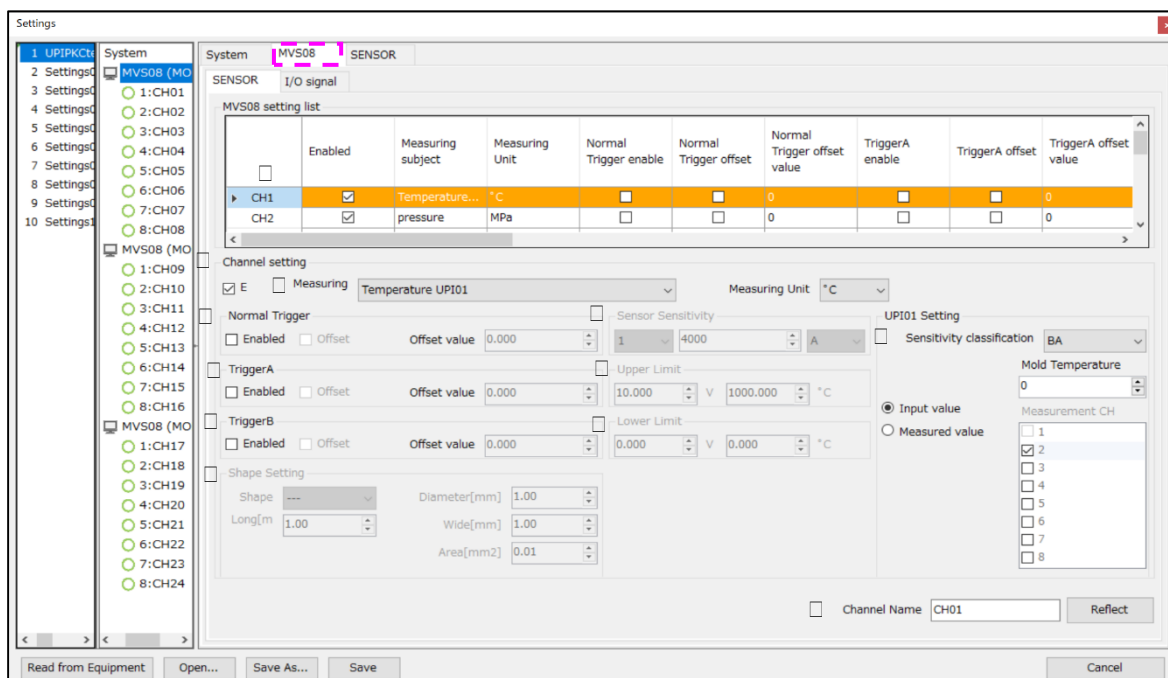
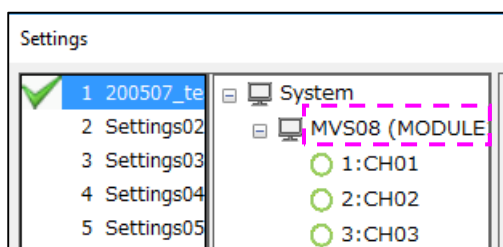




|                          |   |   |
|--------------------------|---|---|
| <input type="checkbox"/> | Measuring time                              | Data collected from up to 120,000 data points can be saved. Up to 120 seconds can be set for 1 msec sampling, and up to 1,200 seconds can be set for 10 msec sampling. Set a shorter time than the molding cycle time.  |
| <input type="checkbox"/> | Sampling interval                           | Select one from among 1ms, 5ms, 10ms, 50ms, 100ms and 1000ms.   |
| <input type="checkbox"/> | Moving average                              | Set the number of values to be averaged when outputting the moving average of measured values.  |
| <input type="checkbox"/> | Start trigger delay                         | Measurement starts the lapse of the specified time after input of the trigger signal. When the mold close complete signal is connected, set 0 second.   |
| <input type="checkbox"/> | Alarm settings                              | Check this box if you would like to enable alarm signal output.<br>Also change this setting if you would like to clear the alarm signal at the time of external trigger input or if you would like to set the time until the alarm signal is cleared.               |
| <input type="checkbox"/> | Alarm continuation outbreak number of times | If an alarm occurs continuously for the set number of times, a stop signal can be output to the molding machine. To use this function, set "Stop signal" to signal 1 and "Continuum alarm output of the specified number of times " to signal 2 of the output port. |
| ⑦                        | Production scheduled number of shots        | When the specified number of shots (OK number of shots) is reached, the signal is output. When using this signal, it is necessary to assign "Control signal" to signal 1 of the output port and " Complete production " to signal 2.                                |
| ⑧                        | Resin temperature measurement offset mode   | When using the UPI01 resin temperature pre-amplifier, the offset timing of measured values can be set to AUTO /MANUAL. when set to MANUAL, the offset is performed using the "IR OFFSET" button in the measurement screen.  |

#### 4-4-2 Settings input for each channel

■ Following the setting of measurement conditions, set each channel. Click the inside of the dotted frame shown in the figure below.

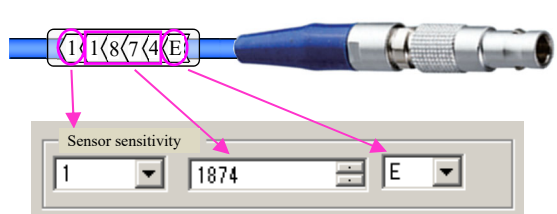


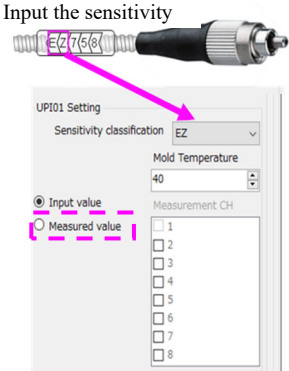
(1) The set results are displayed in a list at the top. (Use the slide bar to move in the horizontal direction.)

MVS08 setting list

|       | Shape | Diameter mm | Long mm | Wide(mm) | Area mm <sup>2</sup> | Upper limit V | Upper limit | Lower limit V | Lower limit | CH  |
|-------|-------|-------------|---------|----------|----------------------|---------------|-------------|---------------|-------------|-----|
| ▶ CH1 |       | 1           | 1       | 1        | 1                    | 10            | 200         | 0             | 0           | CH0 |
| CH2   |       | 1           | 1       | 1        | 1                    | 10            | 200         | 0             | 0           | CH0 |
| CH3   |       | 1           | 1       | 1        | 1                    | 10            | 200         | 0             | 0           | CH0 |
| CH4   |       | 1           | 1       | 1        | 1                    | 10            | 200         | 0             | 0           | CH0 |
| CH5   |       | 1           | 1       | 1        | 1                    | 10            | 200         | 0             | 0           | CH0 |

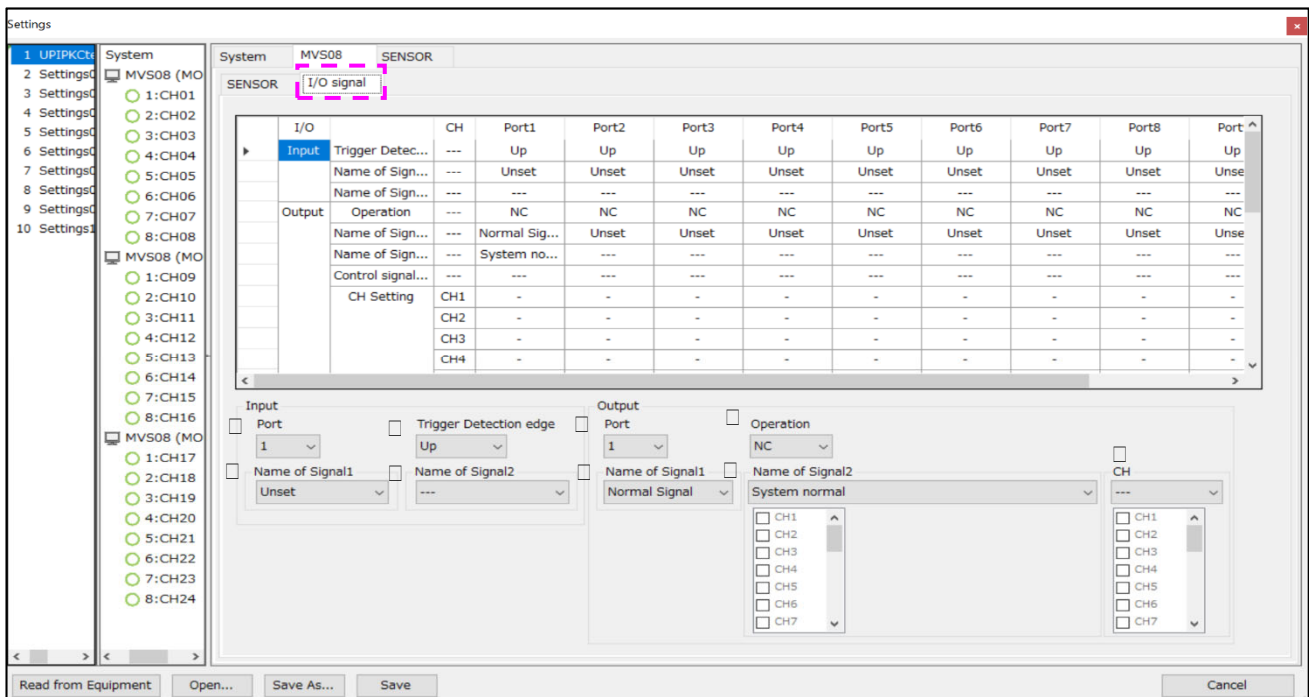
(2) Set the following for each CH.

| ①  | MVS08 setting list                | Click any of CH1 to CH24 to select the channel to be input.<br>The setting results of ② through ⑫ are displayed for each CH on the list for confirmation.<br>The hidden items can be confirmed by moving the slider on the bottom.   |                     |      |                 |  |                                |                                |   |         |         |          |         |         |      |           |           |          |      |      |           |       |       |
|--|-----------------------------------|--|---------------------|------|-----------------|--|--------------------------------|--------------------------------|---|---------|---------|----------|---------|---------|------|-----------|-----------|----------|------|------|-----------|-------|-------|
| <input type="checkbox"/>   | CH setting                        | Check “Enable” checkbox for the channel to be measured. Unchecking the checkbox makes the unit unable to display waveforms even with sensors connected. If “Reflect” is checked, the settings of CH1 will be reflected.  |                     |      |                 |  |                                |                                |   |         |         |          |         |         |      |           |           |          |      |      |           |       |       |
| <input type="checkbox"/>   | Type of measurement               | Select the type of measurements, unit, and unit conversion.<br>[Note]<br>Pressure MPV04 Sensitivity input: MPV04...Select this when sensitivity has been input in the MPV04 amplifier.<br>Pressure MPV04 Sensitivity input: PC software...Select this when sensitivity is input with MVS08’s PC software. <u>Use this option with the sensitivity classification for all the CHs on the MVS04 side set to 15000A.</u><br>Pressure MPS08 Sensitivity input: MPS08...Select this when sensitivity has been input in the MPS08 amplifier.<br>Pressure MPS08 Sensitivity input: PC software...Select this when sensitivity is input with MVS08’s PC software. <u>Use this option with the sensitivity classification for all the CHs on the MPS08 side set to 15000A.</u><br>Temperature EPT-001...Select this when sensitivity has been input in the EPT-001 amplifier. |                     |      |                 |  |                                |                                |   |         |         |          |         |         |      |           |           |          |      |      |           |       |       |
|  |                                   | <table border="1"> <thead> <tr> <th>Type of measurement</th> <th>Unit</th> <th>Unit conversion</th> </tr> </thead> <tbody> <tr> <td>Pressure<br/>Pressure MPV04 Sensitivity: MPV04<br/>Pressure MPV04 Sensitivity: PC software<br/>Pressure MPS08Sensitivity: MPS08<br/>Pressure MPS08Sensitivity: PC software</td> <td>MPa kg/cm<sup>2</sup> psi bar</td> <td>MPa kg/cm<sup>2</sup> psi bar</td> </tr> <tr> <td>Temperature<br/>Mold temperature<br/>Temperature-classification EPT-001</td> <td>°C °F K</td> <td>°C °F K</td> </tr> <tr> <td>Position</td> <td>mm inch</td> <td>mm inch</td> </tr> <tr> <td>Load</td> <td>Kgf N lbf</td> <td>Kgf N lbf</td> </tr> <tr> <td>Velocity</td> <td>mm/s</td> <td>mm/s</td> </tr> <tr> <td>Flow rate</td> <td>L/min</td> <td>L/min</td> </tr> </tbody> </table>   | Type of measurement | Unit | Unit conversion | Pressure<br>Pressure MPV04 Sensitivity: MPV04<br>Pressure MPV04 Sensitivity: PC software<br>Pressure MPS08Sensitivity: MPS08<br>Pressure MPS08Sensitivity: PC software | MPa kg/cm <sup>2</sup> psi bar | MPa kg/cm <sup>2</sup> psi bar | Temperature<br>Mold temperature<br>Temperature-classification EPT-001 | °C °F K | °C °F K | Position | mm inch | mm inch | Load | Kgf N lbf | Kgf N lbf | Velocity | mm/s | mm/s | Flow rate | L/min | L/min |
| Type of measurement  | Unit                              | Unit conversion  |                     |      |                 |  |                                |                                |   |         |         |          |         |         |      |           |           |          |      |      |           |       |       |
| Pressure<br>Pressure MPV04 Sensitivity: MPV04<br>Pressure MPV04 Sensitivity: PC software<br>Pressure MPS08Sensitivity: MPS08<br>Pressure MPS08Sensitivity: PC software | MPa kg/cm <sup>2</sup> psi bar    | MPa kg/cm <sup>2</sup> psi bar   |                     |      |                 |  |                                |                                |   |         |         |          |         |         |      |           |           |          |      |      |           |       |       |
| Temperature<br>Mold temperature<br>Temperature-classification EPT-001  | °C °F K                           | °C °F K  |                     |      |                 |  |                                |                                |   |         |         |          |         |         |      |           |           |          |      |      |           |       |       |
| Position   | mm inch                           | mm inch  |                     |      |                 |  |                                |                                |   |         |         |          |         |         |      |           |           |          |      |      |           |       |       |
| Load   | Kgf N lbf                         | Kgf N lbf  |                     |      |                 |  |                                |                                |   |         |         |          |         |         |      |           |           |          |      |      |           |       |       |
| Velocity   | mm/s                              | mm/s   |                     |      |                 |  |                                |                                |   |         |         |          |         |         |      |           |           |          |      |      |           |       |       |
| Flow rate  | L/min                             | L/min  |                     |      |                 |  |                                |                                |   |         |         |          |         |         |      |           |           |          |      |      |           |       |       |
| <input type="checkbox"/>   | Normal Trigger                    | Input a trigger from the molding machine. Check “Enable” checkbox to set this option.  |                     |      |                 |  |                                |                                |   |         |         |          |         |         |      |           |           |          |      |      |           |       |       |
| <input type="checkbox"/>   | Trigger A                         | Input an A side trigger signal from the rotary molding machine. Check “Enable” checkbox to set this option.  |                     |      |                 |  |                                |                                |   |         |         |          |         |         |      |           |           |          |      |      |           |       |       |
| <input type="checkbox"/>   | Trigger B                         | Input an B side trigger signal from the rotary molding machine. Check “Enable” checkbox to set this option.  |                     |      |                 |  |                                |                                |   |         |         |          |         |         |      |           |           |          |      |      |           |       |       |
| <input type="checkbox"/>   | Sensor sensitivity classification | <p>In the case of selecting the following for measurement type, input the sensor sensitivity classification.</p> <p>Pressure<br/>※Pressure MPV04,<br/>sensitivity input: PC software<br/>※Pressure MPS08,<br/>sensitivity input: PC software</p>  <p>※When inputting sensor sensitivity classification on the PC software side, use this option with the all the sensitivity classification for all the CHs on the MPV04 or MPS08 side set to 15000A. However, the measurement carried out under this method has a disadvantage of poor resolution. Therefore, it is recommended to set the sensitivity classification on the MPV04 or MPS08 side, and then select “Pressure” and use 0 to 10V as 0 to 200MPa.</p>   |                     |      |                 |  |                                |                                |   |         |         |          |         |         |      |           |           |          |      |      |           |       |       |

|                                     |  |  |
|-------------------------------------|--|--|
| <input type="checkbox"/>            | <b>UPI01 setting</b>                       | <p>In the case of selecting the following for measurement type, input the sensor sensitivity classification of the resin temperature sensor, and the mold temperature.</p> <ul style="list-style-type: none"> <li>• Temperature UPI01</li> <li>• Input the sensitivity</li> </ul> <p>When measurement is performed by the mold surface temperature in another CH, the measured values by the sensor can be used as mold temperature (here, “another CH” is regarded as in the same MVS08.) In this case, select “Measured value” and then select the measurement CH to which the mold surface temperature sensor is connected.</p>  |
| <input type="checkbox"/>            | <b>Shape of pressure receiving surface</b> | <p>In the case of selecting the following for measurement type, inputs the shape of the pressure receiving surface of the pressure sensor.</p> <p>Pressure</p> <p>Pressure MPV04 Sensitivity input: PC software<br/>Pressure MPS08 Sensitivity input: PC software</p>  |
| <input type="checkbox"/>            | <b>Upper limit</b>                         | <p>In the case of selecting the following for measurement type, inputs the values measured when the upper limit of voltage is output from the measuring device.</p> <p>Pressure, position, load, velocity, flow rate</p> <p>[Examples]</p> <p>200MPa is input when the upper limit of 10V is output.<br/>500°C is input when the upper limit of 5V is input.</p>   |
| <input checked="" type="checkbox"/> | <b>Lower limit</b>                         | <p>In the case of selecting the following for measurement type, input the values measured when the lower limit of voltage is output from the measuring device. Pressure, position, load, velocity, flow rate</p> <p>[Examples]</p> <p>20MPa is input when the lower limit of 1V is output.<br/>100°C is input when the lower limit of 1V is output.</p>  |
| <input type="checkbox"/>            | <b>Channel name</b>                        | <p>Input the channel name as necessary. The name will be displayed in the Channel name filed on the right of the measurement screen.</p>   |

### 4-4-3 Setting of I/O signals

■Following "Input setting", set the I/O signals. Click the input/output signal tab in the figure below to display the following setting screen.



| I/O        | CH                | Port1 | Port2         | Port3 | Port4 | Port5 | Port6 | Port7 | Port8 | Port9 |
|------------|-------------------|-------|---------------|-------|-------|-------|-------|-------|-------|-------|
| Input      | Trigger Detec...  | ---   | Up            | Up    | Up    | Up    | Up    | Up    | Up    | Up    |
|            | Name of Sign...   | ---   | Unset         | Unset | Unset | Unset | Unset | Unset | Unset | Unset |
|            | Name of Sign...   | ---   | ---           | ---   | ---   | ---   | ---   | ---   | ---   | ---   |
| Output     | Operation         | ---   | NC            | NC    | NC    | NC    | NC    | NC    | NC    | NC    |
|            | Name of Sign...   | ---   | Normal Sig... | Unset | Unset | Unset | Unset | Unset | Unset | Unset |
|            | Name of Sign...   | ---   | System no...  | ---   | ---   | ---   | ---   | ---   | ---   | ---   |
|            | Control signal... | ---   | ---           | ---   | ---   | ---   | ---   | ---   | ---   | ---   |
| CH Setting |                   | CH1   | -             | -     | -     | -     | -     | -     | -     | -     |
|            |                   | CH2   | -             | -     | -     | -     | -     | -     | -     | -     |
|            |                   | CH3   | -             | -     | -     | -     | -     | -     | -     | -     |
|            |                   | CH4   | -             | -     | -     | -     | -     | -     | -     | -     |

Both input signal and output signal can be allocated to any port up to 10 ports.

Select a port in “Port” field (①) to set an input signal and an output signal. Selecting a channel in “CH” field (⑥) to specify the channel for which to output the alarm. Selecting multiple “CH” checkboxes makes the alarm common to the channels.

Be sure to perform a measurement with “Trigger” input.

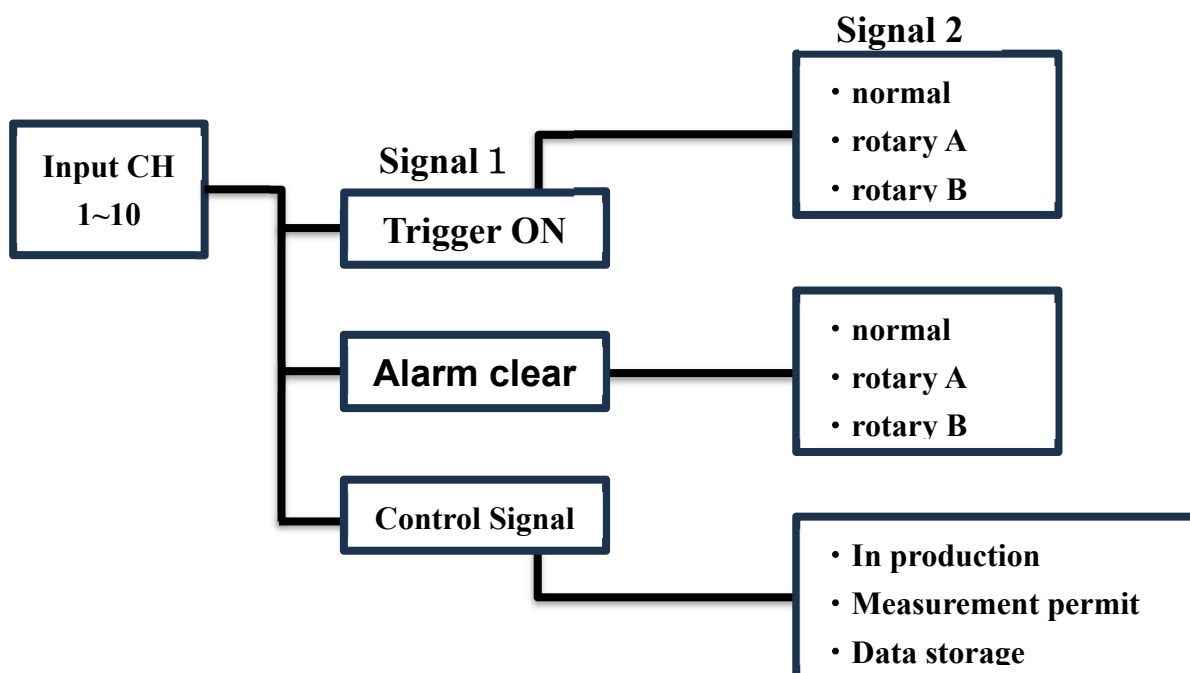
For input signal, either Up (rising) edge or Down (falling) edge can be selected in “Detection edge” (⑦) field.

For output signal, either NO (Normal open contact) or NC (Normal closed contact) operation can be selected in “Operation” field (⑧).

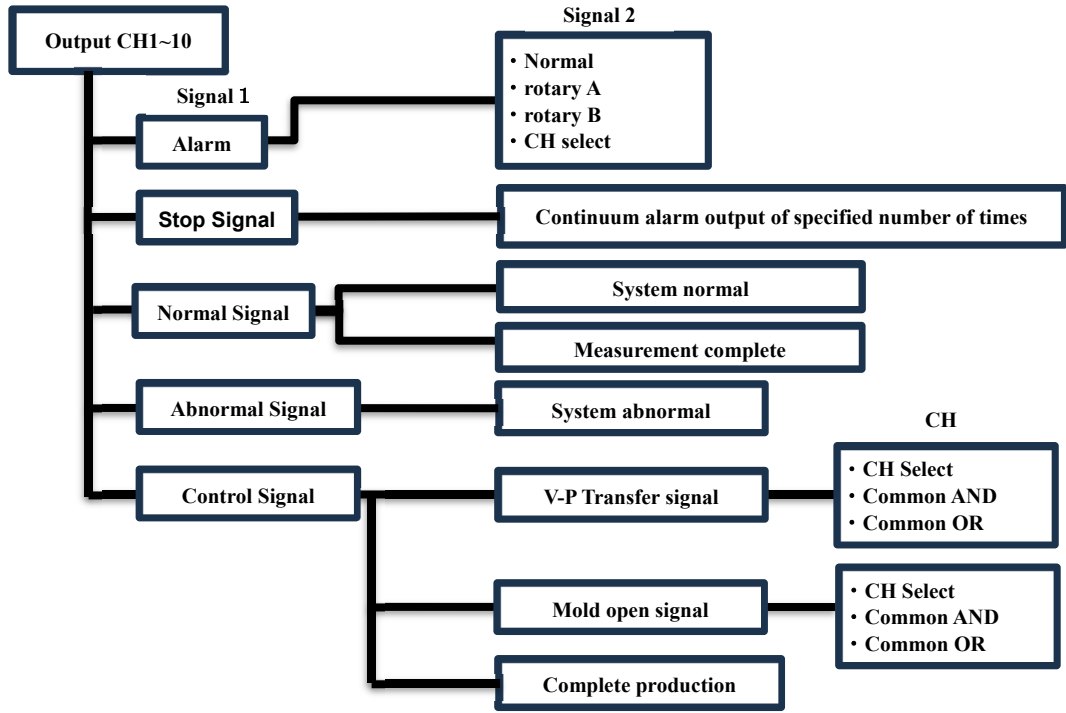
| Input signal      |                             | Output signal     |   |
|-------------------|-----------------------------|-------------------|---|
| □Name of Signal 1 | □Name of Signal 2           | □Name of Signal 1 | □Name of Signal 2   |
| Trigger           | Normal                      | Alarm             | Normal  |
| Trigger           | Rotary A side               | Alarm             | Rotary A side   |
| Trigger           | Rotary B side               | Alarm             | Rotary B side   |
| Alarm clear       | Normal                      | Alarm             | CH selection (Individual CH can be specified.)  |
| Alarm clear       | Rotary A side               | Stop signal       | Specified number of times of continuous alarms occurred   |
| Alarm clear       | Rotary B side               | Normal signal     | System normal   |
| Control input     | Mass production in progress | Abnormal signal   | System error  |
| Control input     | Measurement permit          | Control signal    | V-P transfer signal (output immediately when a measured value exceeds the threshold), common      |
| Control input     | Data storage                | Control signal    | V-P transfer signal (output immediately when a measured value exceeds the threshold), CH1 - CH24  |
|                   |                             | Control signal    | Mold open signal (output immediately when any measured value falls below the threshold), OR       |
|                   |                             | Control signal    | Mold open signal (output immediately when all the measured values fall below the threshold), AND  |
|                   |                             | Control signal    | Mold open signal (output immediately when a measured value falls below the threshold), CH1 - CH24 |
|                   |                             | Control signal    | Complete production   |

- Hierarchy of input/output signal selection

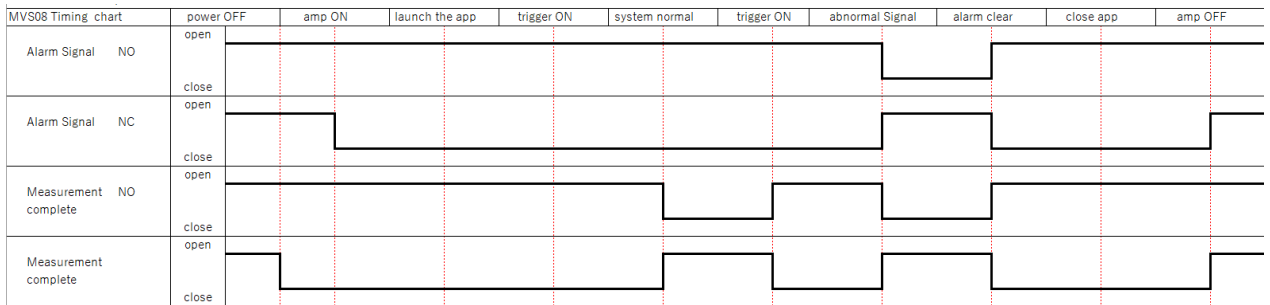
Input



Output



• Timing chart



• D-sub25pin connector pin connection

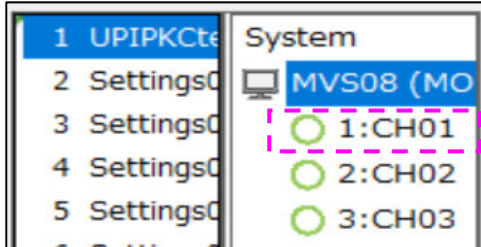
| Pin No. | Signal name                            | Input/output | Pin No. | Signal name    | Input/output | Pin connection |
|---------|--|--------------|---------|----------------|--------------|----------------|
| 1       | Input port 1<br>[Default → Triggers]   | In           | 14      | Output port 3  | Out          |                |
| 2       | Input port 2<br>[Default: Alarm clear] | In           | 15      | Output port 4  | Out          |                |
| 3       | Input port 3                           | In           | 16      | Output port 5  | Out          |                |
| 4       | Input port 4                           | In           | 17      | Output port 6  | Out          |                |
| 5       | Input port 5                           | In           | 18      | Output port 7  | Out          |                |
| 6       | Input port 6                           | In           | 19      | Output port 8  | Out          |                |
| 7       | Input port 7                           | In           | 20      | Output port 9  | Out          |                |
| 8       | Input port 8                           | In           | 21      | Output port 10 | Out          |                |
| 9       | Input port 9                           | In           | 22      | Not connected  | -            |                |
| 10      | Input port 10                          | In           | 23      | Not connected  | -            |                |
| 11      | GND                                    | Common       | 24      | GND            | Common       |                |
| 12      | Output port 1<br>[Default: Alarm]      | Out          | 25      | Not connected  | -            |                |
| 13      | Output port 2                          | Out          | -       | -              | -            |                |

#### 4-4-4 Setting alarm monitoring conditions

Alarm setting should be done as necessary. If alarm setting is not required or only measurement is performed, save the settings after setting the measurement conditions and the sensitivity of the sensors. After the settings are saved, the operation screen is restored.

\* For saving the settings, refer to “4-5 Saving settings Save As” on Page 39, and “4-6 Saving settings” on Page 39.

■ To set the alarm monitoring conditions after "Sensor Sensitivity", click inside the dotted line frame in the figure below.



The figure on the left shows an example of setting the alarm of channel 1.

■ The setting screen appears. The following figure shows the screen displaying Template waveform.

\* Reading the Template waveforms in advance in the frame screen displays the Template waveform in the alarm setting screen and makes it easy to set alarm conditions.

\* For reading Template waveform, refer to “6-1 Display the Template waveform” on Page 42.

The screenshot shows the 'SENSOR' settings screen for 'MVS08'. At the top, it displays 'Status: Enabled', 'Channel Name: CH01', and 'Sensor Sensitivity: 14000A'. Below this is a waveform graph showing 'Pressure [MPa]' on the y-axis (0 to 400) and 'Time[s]' on the x-axis (0 to 12). A pink arrow points to a toolbar above the graph, and a pink box highlights the 'Monitoring setting1' tab. A text box on the right says 'Alarm conditions can be easily set using the monitoring range edit tools.' Below the graph are several monitoring settings sections:

- Monitoring setting1** (highlighted with a pink dotted box):
  - Monitoring Zone 1: Method: Peak, Time[s]: 0.23 to 1.29, Value[MPa]: 25.5 to 38.9
  - Time to Peak Monitoring: Time[s]: 0.50 to 0.60
  - Eject Monitoring: Time[s]: 3.00 to 4.00, Value[MPa]: 3.0 to 15.0
- Monitoring setting2**:
  - Monitoring Zone 2: Method: Area, Time[s]: 3.22 to 3.42, Value[MPa]: 16.9 to 40.0
  - Integral Monitoring: Value[MPas]: 400 to 450
  - Integral to Peak Monitoring: Value[MPas]: 55 to 75
  - Point Monitoring: Time[s]: 3.88, Value[MPa]: 6.7 to 16.1
  - V-P Transfer: Value[MPa]: 10.0
- Monitoring setting1** (bottom section):
  - Rising time: Time[s]: 2.50 to 3.50, Value[°C]: 12.0
  - Falling time: Time[s]: 6.50 to 7.50, Value[°C]: 8.0
  - Average: Value[°C]: 5.0 to 20.0
  - Section Average value: Time[s]: 3.00 to 7.00, Value[°C]: 3.0 to 10.0
  - Section Integral value: Time[s]: 3.00 to 7.00, Value[°Cs]: 5 to 10

A 'Reflect' button is located at the bottom right of the screen.

|                          |                             |  |
|--------------------------|-----------------------------|--|
| <input type="checkbox"/> | Monitoring Zone 1           | Monitors whether the maximum value in the set range of the monitoring time is within the set range. (Judgment: Peak)<br>Monitors whether all measured values in the set range of monitoring time are within the set range. (Judgement: Area) |
| <input type="checkbox"/> | Monitoring Zone 2           | Same as above (two monitoring zones can be set in the same CH.)  |
| <input type="checkbox"/> | Point Monitoring            | Monitors whether the measured value at the set elapsed time is within the set range.   |
| <input type="checkbox"/> | Time to Peak Monitoring     | Monitors whether the maximum measured value (peak value) within the set time is within the set monitoring time.  |
| <input type="checkbox"/> | Integral Monitoring         | Monitors whether the area of the entire waveform area (an area enclosed by the waveform and time axis) is within the set range of integral value.  |
| <input type="checkbox"/> | Eject Monitoring            | Monitors whether all measured values in the set range of the monitoring time are within the set range. Same as Monitoring zone (Judgment: Area).   |
| <input type="checkbox"/> | Integral to Peak Monitoring | Monitors whether the integral value up to the maximum value (peak value) in the set period is within the set range of integral values.   |
| <input type="checkbox"/> | V-P Transfer                | Outputs a control signal at the moment when the measured value reached the set value (MPa) within the set period.  |
| <input type="checkbox"/> | Rising time                 | Outputs a control signal at the moment when the measured value raised to the set value (MPa) within the set period.  |
| <input type="checkbox"/> | Falling time                | Outputs a control signal at the moment when the measured value fell to the set value (MPa) within the set period.  |
| <input type="checkbox"/> | Average                     | Calculates the average (MPa) of all values measured during the measurement time and monitors whether the average is within the upper and lower limits set.   |
| <input type="checkbox"/> | Section Average value       | Specifies the start and end of the measurement time and monitors whether the average of the measured value (MPa) for the period is within the upper and lower limits set.  |
| <input type="checkbox"/> | Section Integral value      | Specifies the start and end of the integral value calculation time and monitors whether the integral of the measured values (MPa) for the period is within the upper and lower limits set.   |

## ■ Supplementary Material for Alarm Monitoring Settings

### ① Monitoring Zone (peak)

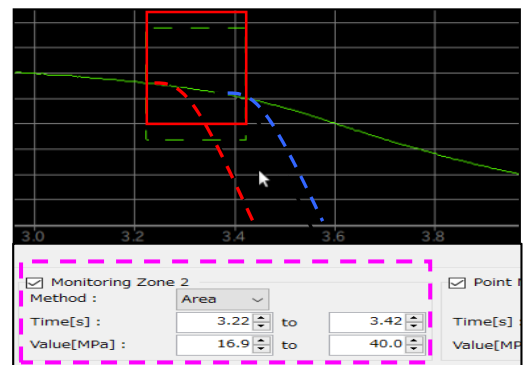


<Peak judgment>

Blue dotted line waveform: OK

Red dotted line waveform: Alarm

### Monitoring Zone (area)

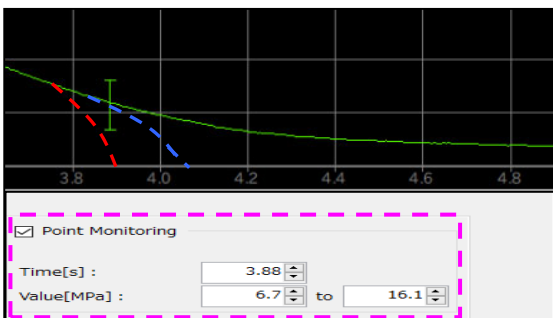


<Area judgment>

Blue dotted line waveform: OK

Red dotted line waveform: Alarm

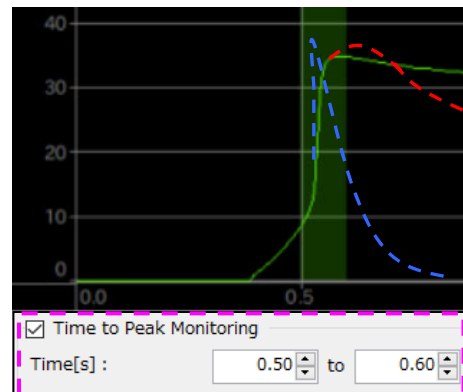
### Point Monitoring



Blue dotted line waveform: OK

Red dotted line waveform: Alarm

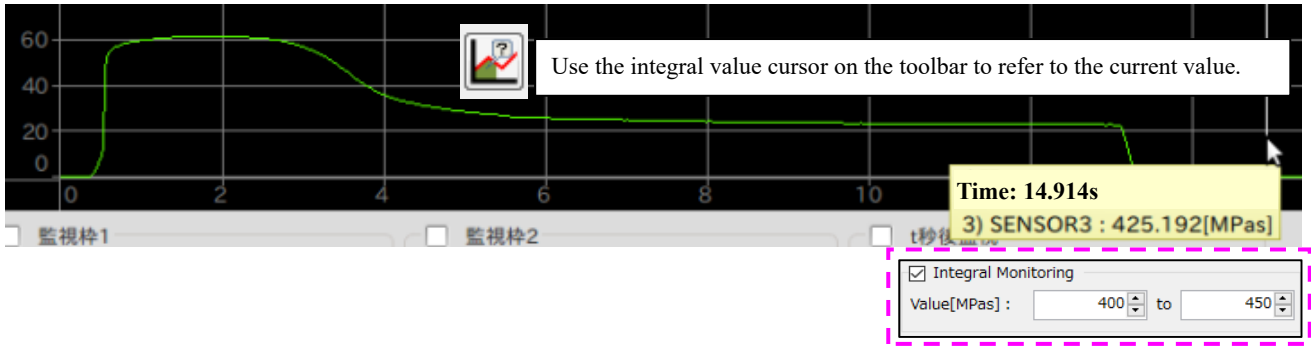
### Time to Point Monitoring



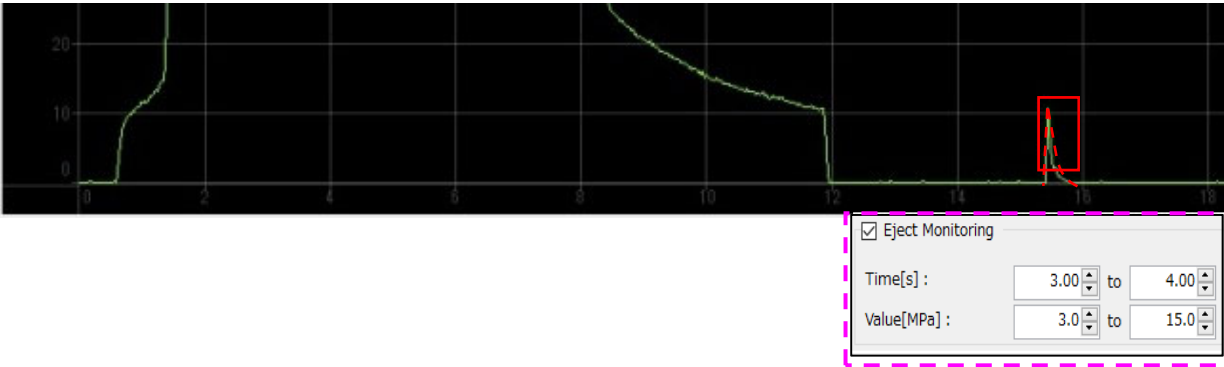
Blue dotted line waveform: OK

Red dotted line waveform: Alarm

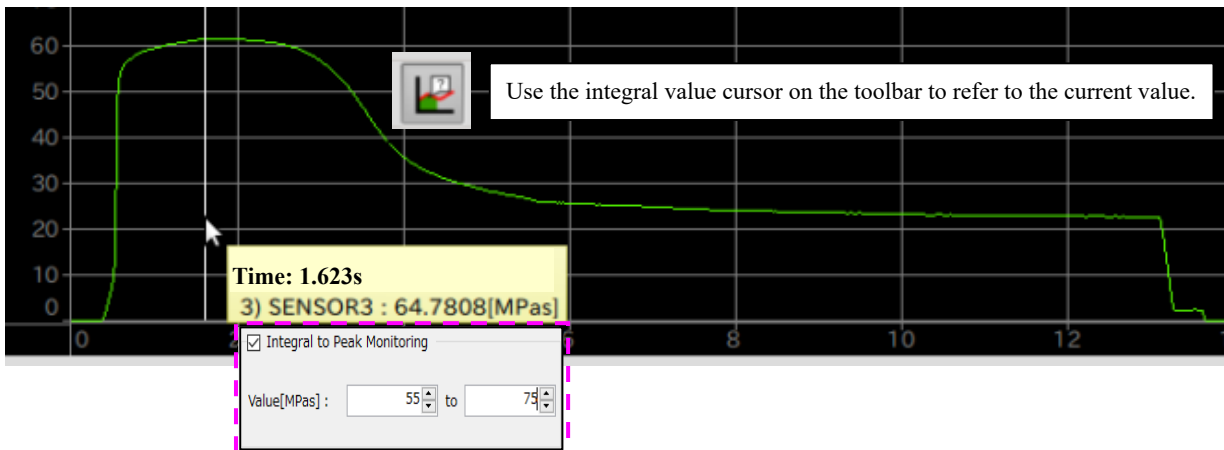
□ Integral Monitoring



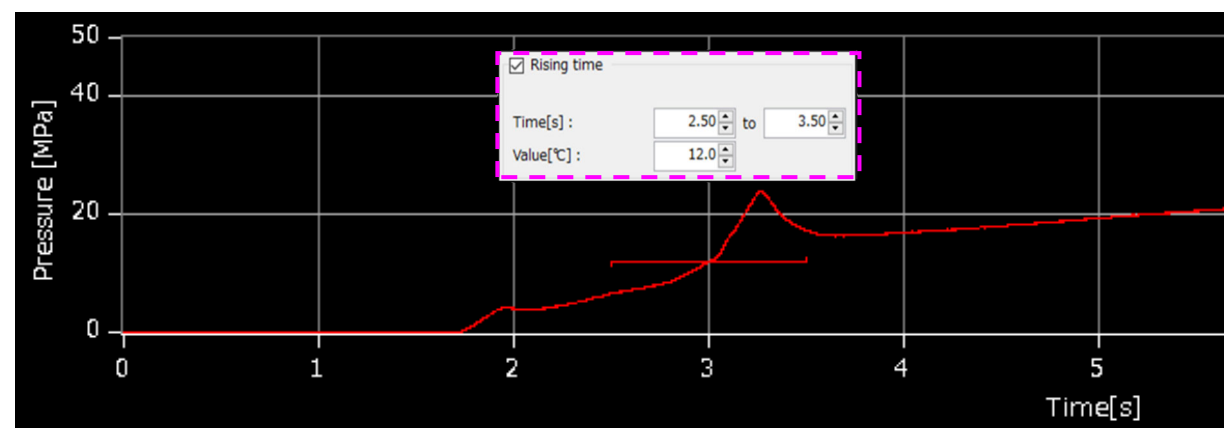
□ Eject Monitoring



□ Integral to Peak Monitoring

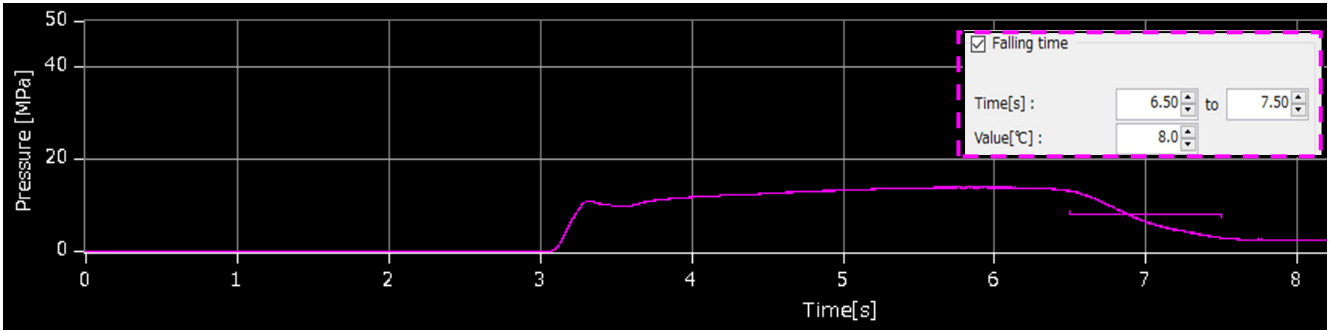


□ Rising time

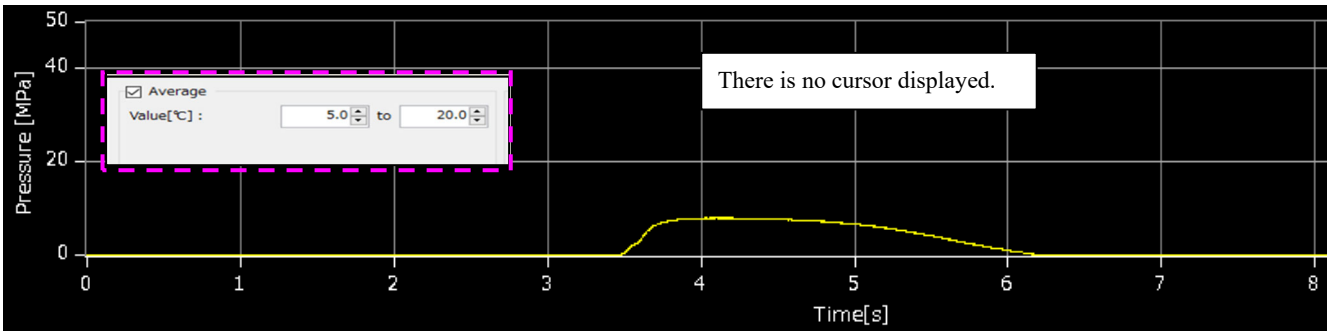




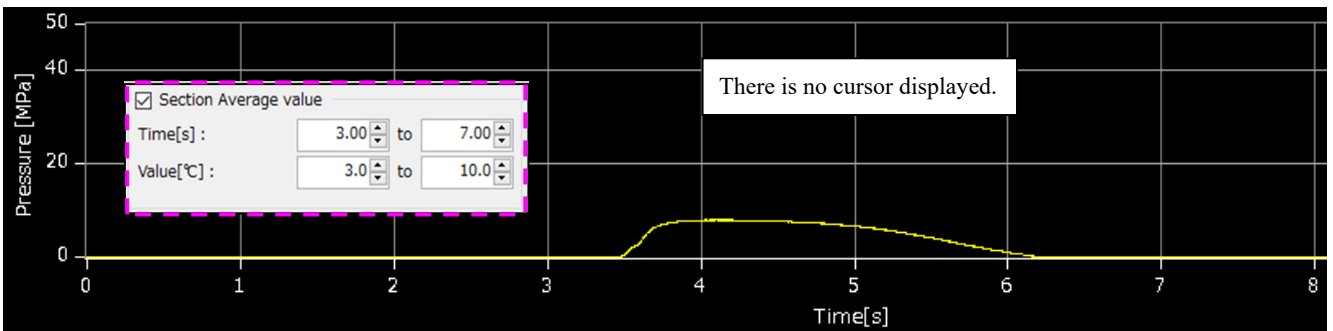
□ Falling time



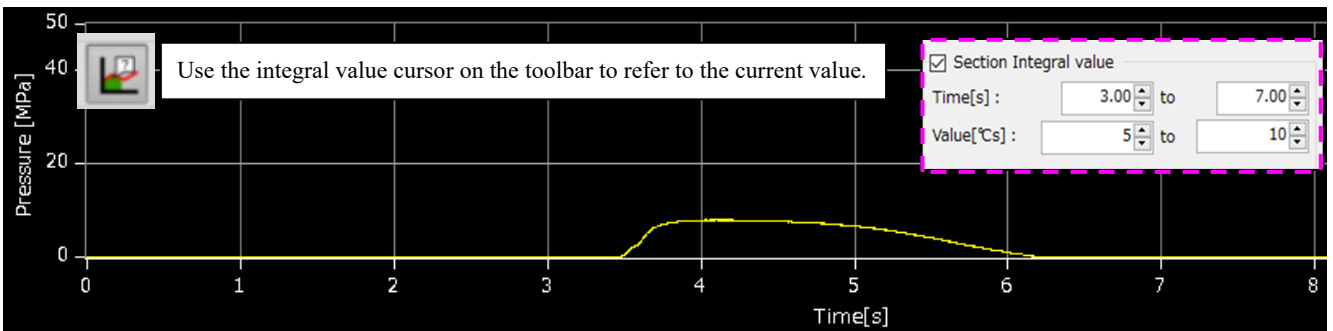
□ Average



⑫ Section Average value



⑬ Section Integral value



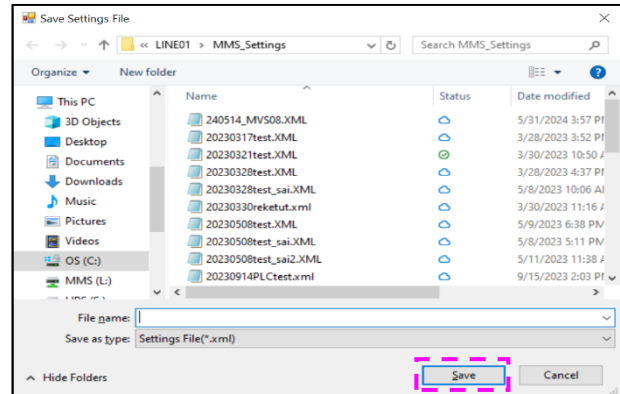
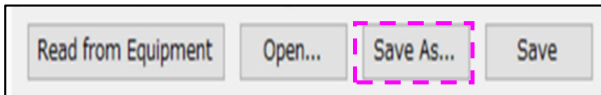
---

## 4-5 Saving settings Save As

---

After completion of setting the measurement conditions, sensitivity of sensors, and alarm monitoring conditions, save the new settings. To save the settings by assigning a name as a new file and replace the current setting file stored in the amplifier, press the “Save As” button.

- Press the “Save As” button.
- The file name input window appears.  
Enter a file name with up to 20 single-width alphanumeric characters (can contain symbols but no file extension) and press “Save As”. The screen automatically returns to the operation screen.



The setting file selected on the amplifier is replaced with the newly saved one.

The newly saved setting file is also saved to PC simultaneously.

**\* The setting file storage destination can be changed using “Administration setting” in the main menu.**

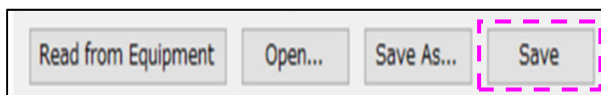
---

## 4-6 Saving settings

---

To overwrite the setting file selected on the amplifier, press “Save”.

- Press the “Save” button. The screen automatically returns to the operation screen.



The content of the setting file selected in the amplifier is updated.

At the same time, setting file with the same name saved on PC is also updated.

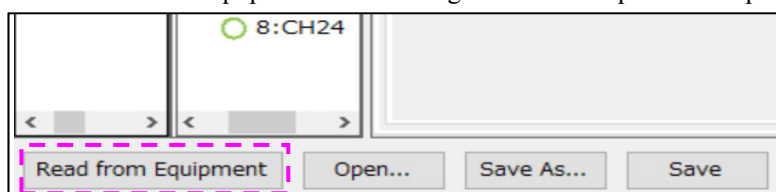
---

## 4-7 Reading settings from amplifier

---

The setting conditions saved in the amplifier can be read and checked.

- Press “Read from Equipment”. The setting data in the amplifier is displayed.



# 5.Using the system

Previous operation has finished the necessary preparation. Now, you can run the system and observe the waveforms representing in-mold conditions.

## 5-1 Select the measurement mode

This software has three measurement modes: Monitor mode, Maintenance mode and Manual mode.

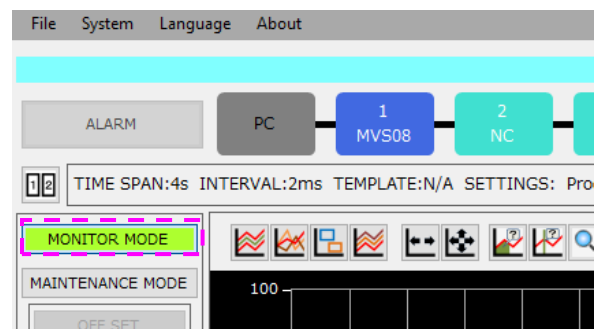
This section describes the observation of waveforms in Monitor mode which is used for normal operation.

\*For observing waveforms in "Maintenance mode", refer to " 7-3-2 Check in a simplified manner" on Page 52.

\*Manual mode is an emergency mode which allow you to perform a measurement and save data sequentially in order by pressing the “Start Measurement” or “Start Saving” button at the same timing with the mold closing complete signal from the molding machine.

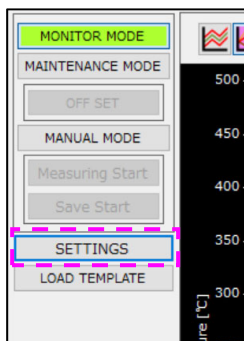
■ Press the "MONITOR MODE" button.

The system is waiting for a trigger signal (measurement start signal) from the molding machine.



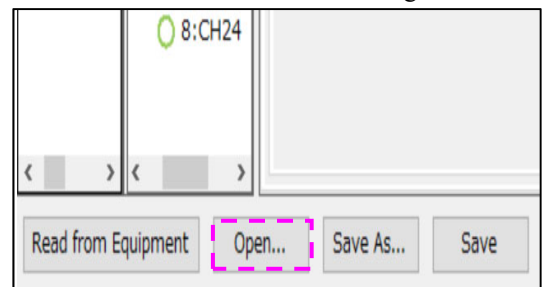
## 5-2 Select the setting file

■ Press the "SETTINGS" button.

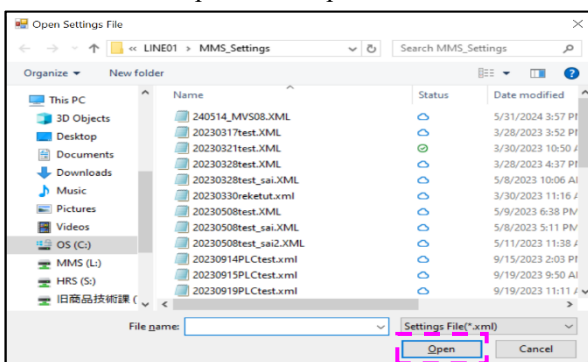


■ Press the “Open” button.

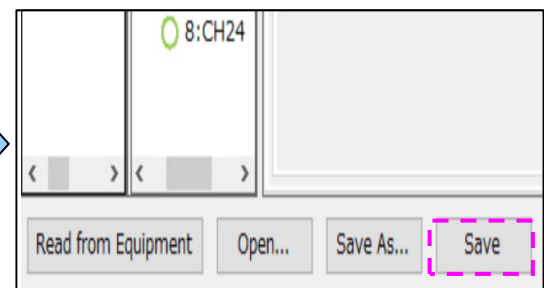
\*It is located at the lower left of the setting screen.



■ Select the file and press the "Open" button.



■ Press "Save" button.



The setting file is saved in the amplifier.

The conditions of the selected setting file are displayed.

\* At shipment, the default setting file (Default\_Setting.xml) is stored in the amplifier and PC.

\* For creating and saving the setting file, refer to “4-4 Setting the conditions” on Page 29.

## 5-3 Start measurement

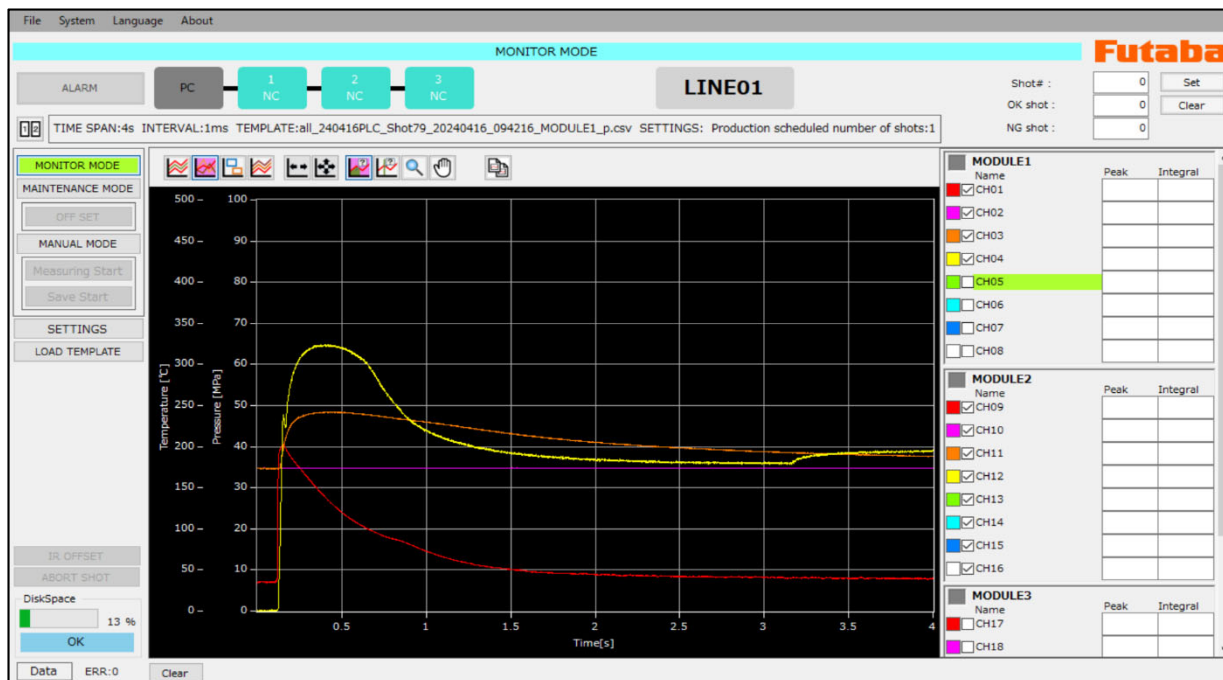
Waveforms can be observed at any time.

■ When a trigger signal (measurement start signal) is input from the molding machine, measurement of the pressure waveform starts.

\* The trigger can be entered manually by pressing the "SET" key on the amplifier. However, it is difficult to press the "SET" key every time the molding machine operates. Please consider this as an emergency measure only.

## 5-4 Observe waveforms

■ When the molding starts, the waveform is displayed.



\*If the waveform is not displayed, check the following.

① Has resin reached the sensor?

→ Check the condition of the molded products and the sensor mounting position.

② Is a checkmark placed in the checkbox for the channel to be displayed?

→ Confirm that the checkmark is placed in the checkbox on the left of the channel name in the channel information display area (on the right of the operation screen).

③ Is the system connected properly? (sensor, junction box, junction cable, amplifier, power supply, LAN, trigger signal)

→ Check the connections again by referring to “2-5 Connections in systems” on Page 12

④ Are the network settings correct?

→ Check the network settings again by referring to “2-1 Network settings” on Page 6.

⑤ Isn't the sensor damaged?

→ Using a pressure sensor tester connector cable (sold separately) and a resin temperature sensor test probe (sold separately), cable disconnections and a short-circuit can be easily checked.

# 6.Function description

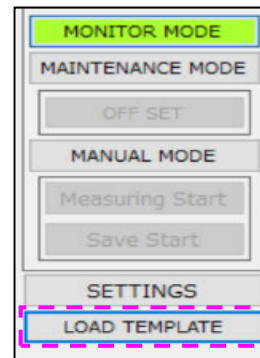
This section describes specific functions and advanced application operations.

## 6-1 Display the Template waveform

■Displays the pressure waveform saved in the past on the frame screen.

Overwriting the Template waveform on the waveforms being measured makes it possible to visually check “pressure transition at molding condition adjustment”, “pressure variation during mass production” and “pressure change when the molding conditions are changed”.

■Press the “LOAD TEMPLATE” button.



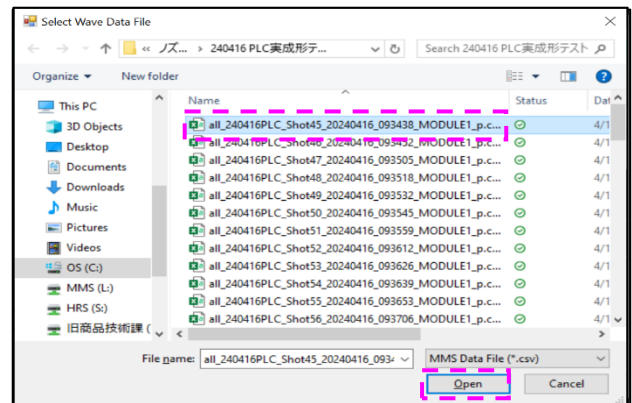
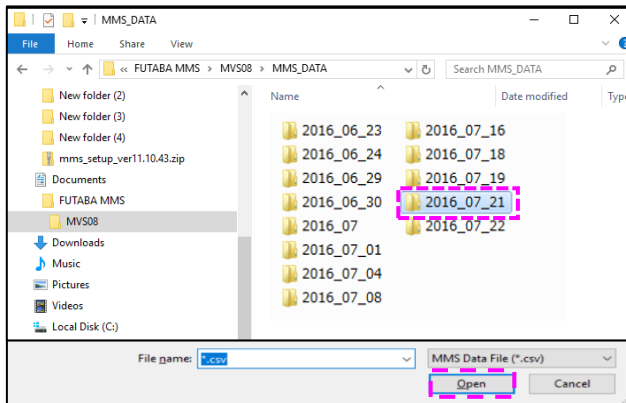
■The file name selection screen is displayed.

Select a file from the folder displayed with the date and press "Open".

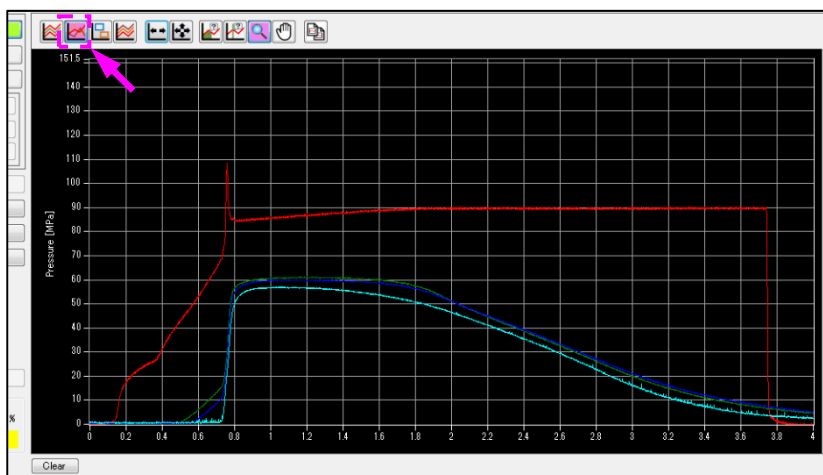
\*The Template waveform file is stored in the following locations:

"C:\Users\login username\Documents\FUTABA\_MMS\MVS08\MMS\_DATA\year, month, day folder"

\*The Template waveform file is automatically saved with the name, the shot number, date, and time.



■ The Template waveform is displayed on the frame screen.



\* If the Template waveform is not displayed, check whether the “Show/Hide Template Waveform” button on the toolbar is set to “Hide”.

\* The density of the display color of the Template waveform can be adjusted by selecting [System] → [Display Settings] → [Opacity of Template Waveform] from the main menu. (→ Page 46 ④).

## 6-2 Overwrite the waveforms

- The waveform can be overwritten up to 99 times.

\* The overwrite count can be set by selecting [System] → [Display Settings] → [Overwrite]. (→ Page 46 ②)

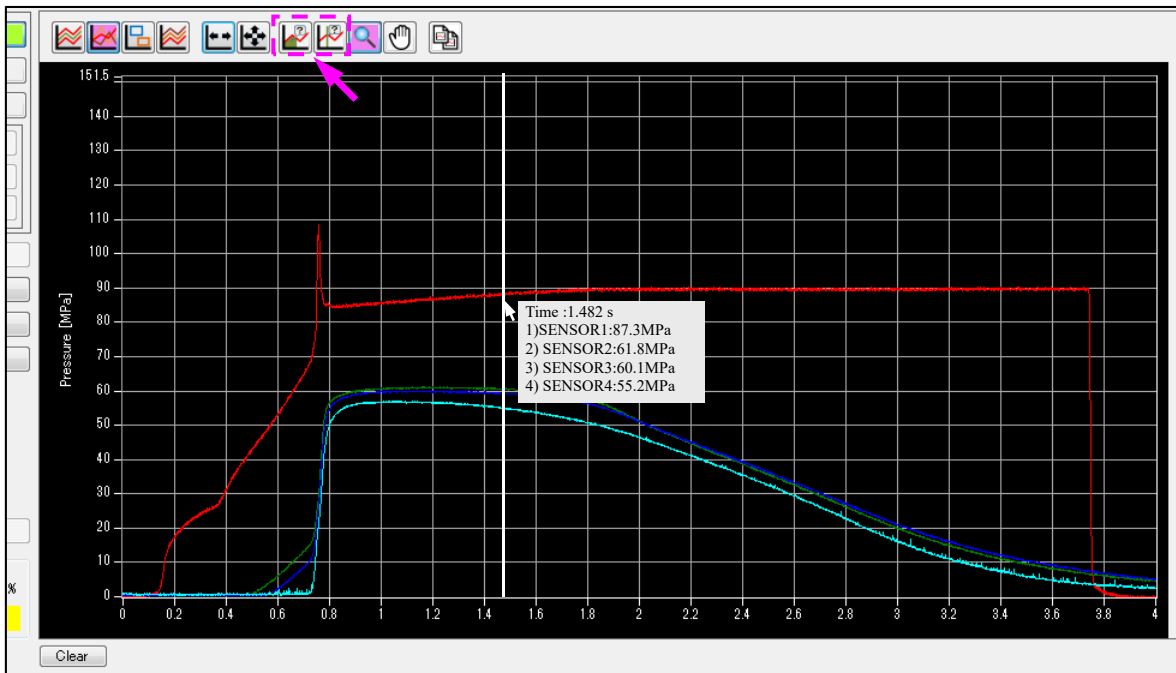


\* If the overwritten waveforms are not displayed, check whether the “Show/Hide Overwrite” button on the toolbar is set to “Hide”

## 6-3 Use the cursor function

- Pressure values or pressure integral values can be displayed by setting the cursor to the waveform being measured.

Use the "Cursor tool" and "Integral cursor tool" on the toolbar.

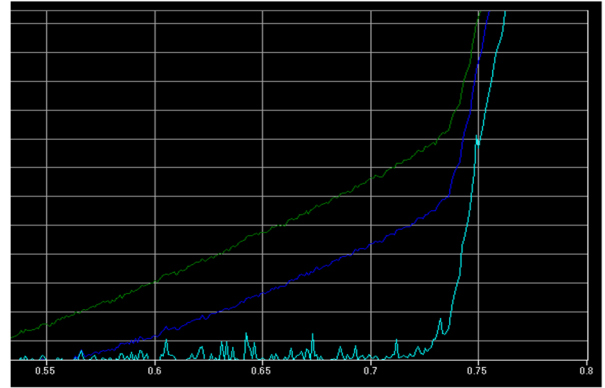
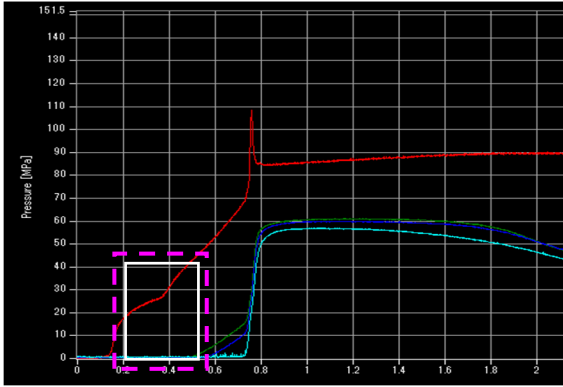


\*The above figure shows the cursor display when the Cursor tool is used.

## 6-4 Waveform display settings

### 6-4-1 Enlarge the waveform (Zoom)

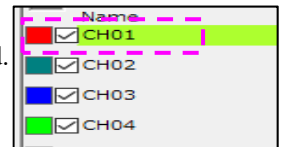
■ Use the Zoom button on the toolbar to select the part you would like to enlarge.



\* Select the "Channel name" to be enlarged (■).

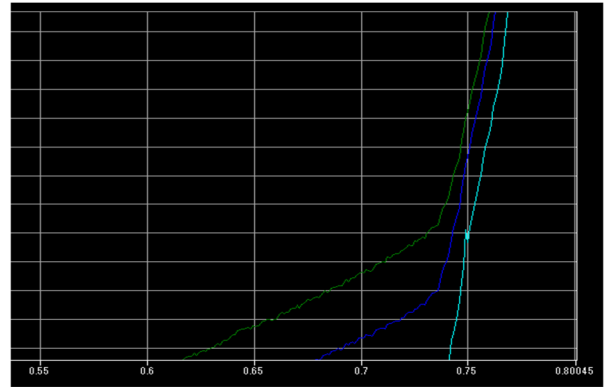
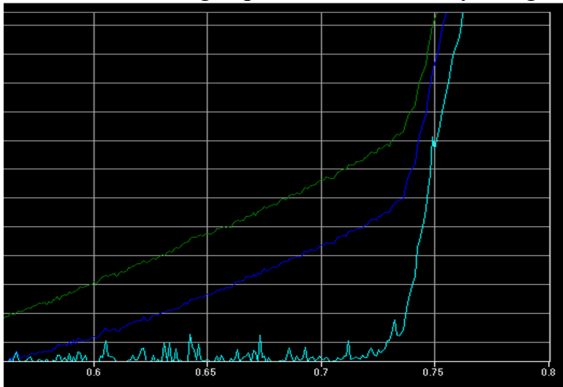
Enclose the start point to the end point of the part to be enlarged and release the mouse button.

The selected measurement type is enlarged. For example, only pressure waveform can be enlarged.



### 6-4-2 Move the position of the waveform

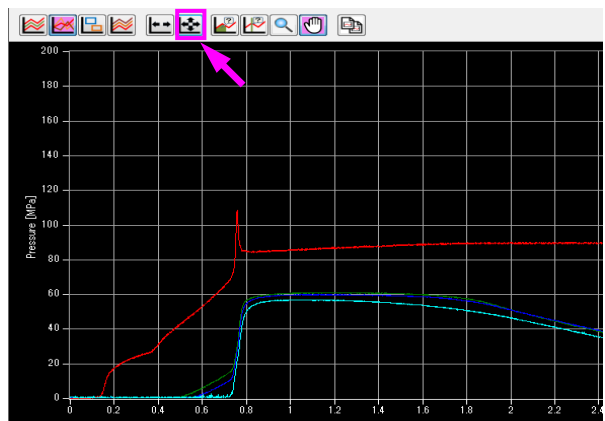
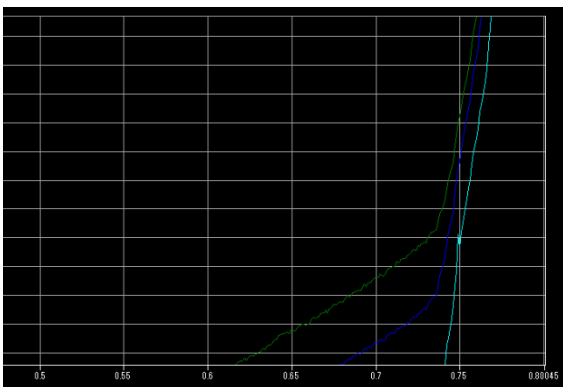
■ A position in the enlarged part can be moved by using the "Hand" button on the toolbar.



\* Mouse operation: Drag the position to be moved to the target position and then release the mouse button.

### 6-4-3 Display the entire waveform (Zoom out)

■ The entire waveform display can be restored by using the "Zoom out to Full Scale" button.






\* The full scale of the pressure display can be set by selecting [System] → [Display Settings] → [Full Scale] from the main menu.

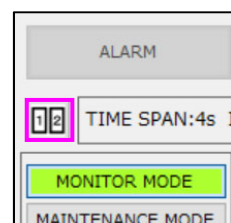
\* To zoom out in only the direction of time axis, press the [Zoom Out Horizontally to Full Scale] button. (→ Page 28 ⑤)

### 6-4-4 Displaying waveforms in dual window

■ Using the "Dual Window" button on the measurement screen, waveforms can be split into two windows and displayed for comparison.

Press  to display "left-right split screen" and  to display up-down split screen".

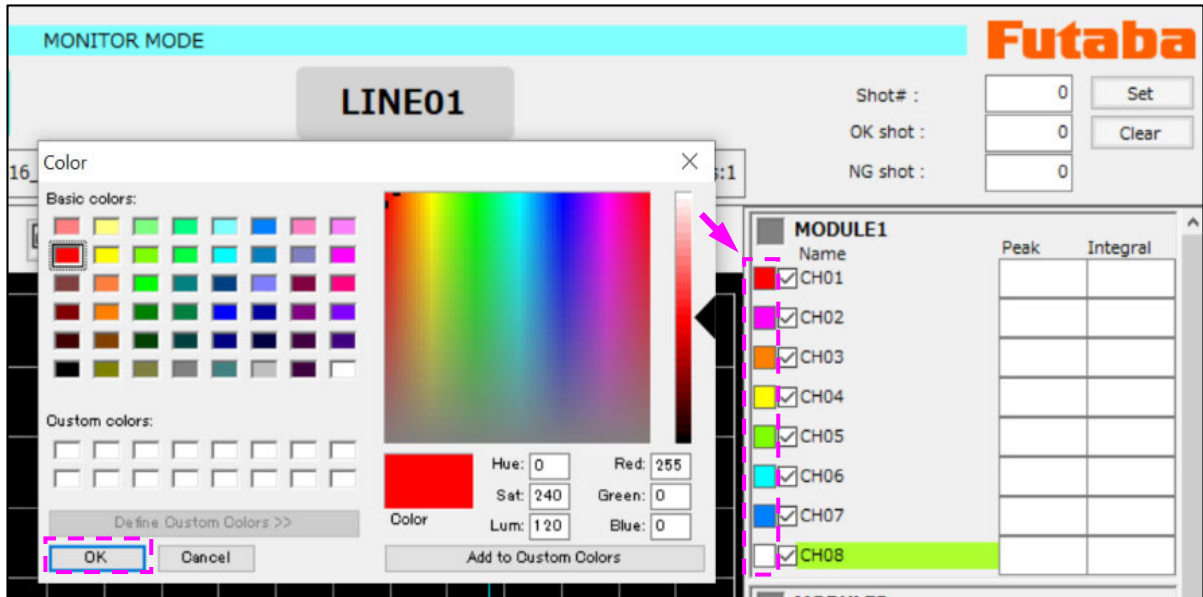
Press  to return to the previous screen.



## 6-4-5 Change the waveform color

- Click the color box in the channel information display area.

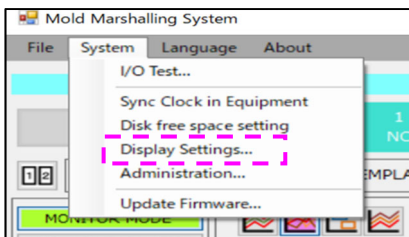
Select the desired drawing color and press "OK".



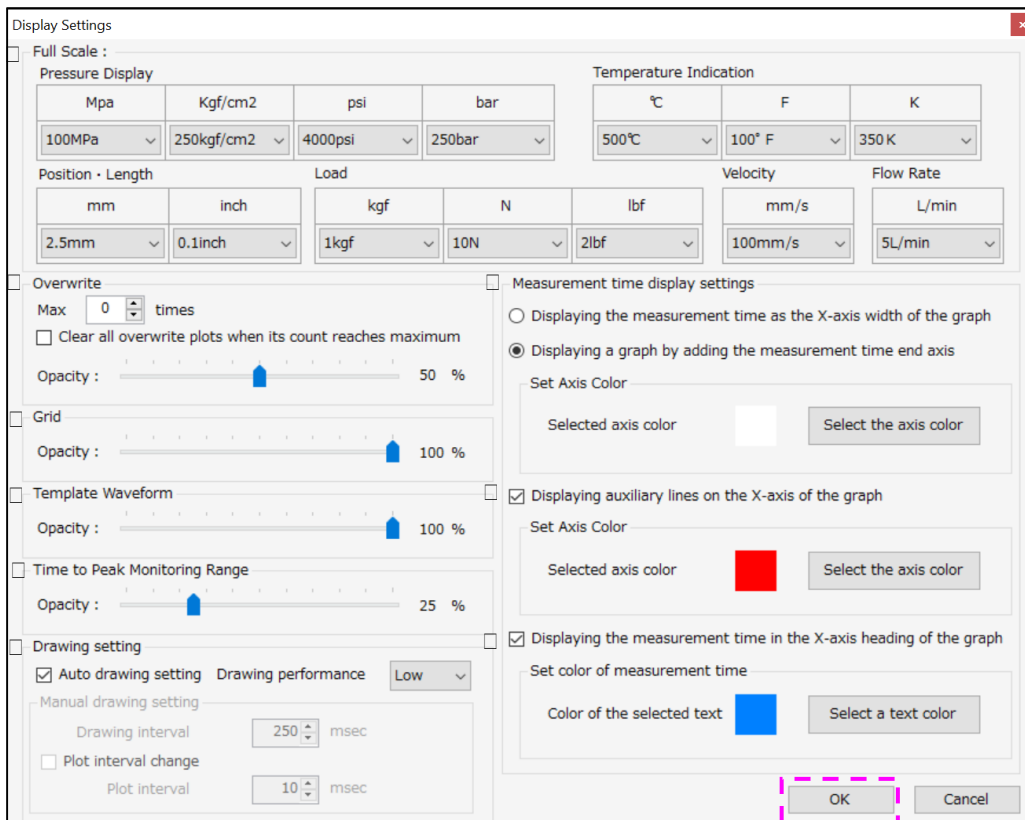
## 6-5 Other display settings

This section describes the display settings.

- From the main menu, select [System] → [Display Settings].



- The "Display Settings" screen is displayed. Set necessary items and click [OK].






|                          |  |  |
|--------------------------|--|--|
| <input type="checkbox"/> | Full scale   | <p>Sets the full scale (vertical axis) of each unit to adjust the waveform for easier viewing.</p> <p><b>Pressure display</b><br/> MPa :25 MPa, 50 MPa, 100 MPa, 200 MPa, 400 MPa<br/> Kgf/cm<sup>2</sup> :250 Kgf/cm<sup>2</sup>, 500 Kgf/cm<sup>2</sup>, 1000 Kgf/cm<sup>2</sup>, 2000 Kgf/cm<sup>2</sup>, 4000 Kgf/cm<sup>2</sup><br/> Psi :4000 psi, 8000 psi, 16000 psi, 32000 psi, 64000psi<br/> Bar :250 bar, 500 bar, 1000 bar, 2000 bar, 4000 bar</p> <p><b>Temperature display</b><br/> °C :100 °C, 200 °C, 250 °C, 350 °C, 500 °C, 1000 °C<br/> °F :100 °F, 200 °F, 400 °F, 1000 °F, 2000 °F<br/> K :350 K, 700 K, 1400 K, 3500 K, 7000 K</p> <p><b>Position • Length</b><br/> Mm :10 mm, 100 mm, 1000 mm<br/> Inch :1 inch, 5 inch, 50 inch</p> <p><b>Load</b><br/> Kgf :1 kgf, 5 kgf, 10 kgf, 50 kgf, 100 kgf, 500 kgf, 1000 kgf, 5000 kgf<br/> N :10 N,50 N,100 N,500 N,1000 N,5000 N,10000 N,50000 N<br/> Ibf :2 Ibf, 10 Ibf, 20 Ibf, 100 Ibf, 200 Ibf, 1000 Ibf, 2000 Ibf, 10000 Ibf</p> <p><b>Velocity</b><br/> mm/s :100 mm/s, 200 mm/s, 500 mm/s, 1000 mm/s</p> <p><b>Flow rate</b><br/> L/min :5 L/min, 10 L/min, 25 L/min, 50 L/min</p> |
| <input type="checkbox"/> | Overwrite  | <ul style="list-style-type: none"> <li>• The maximum number of times of the overwrite is input with a value. (0 to 99 times)</li> <li>• If this checkbox is checked, when the maximum number is reached, all overwritten waveforms are erased.<br/>If it is unchecked, overwritten waveforms are erased in order from the old one.</li> <li>• Indicates the opacity in %. The higher the value, the darker the overwritten waveform will be.</li> </ul>  |
| <input type="checkbox"/> | Grid   | Indicates the opacity of the vertical and horizontal scale lines in %.   |
| <input type="checkbox"/> | Template Waveform  | Indicates the opacity in %. The higher the value, the darker the Template waveform is.   |
| <input type="checkbox"/> | Time to Peak Monitoring Range                                      | Indicates the opacity in %. The higher the value, the darker the monitoring range is.  |
| <input type="checkbox"/> | Drawing setting  | Checking the Auto drawing setting sets Drawing performance "Low, Medium, High".<br>Set the plot interval change.   |
| <input type="checkbox"/> | Measurement time display settings                                  | You can set whether the measurement time end axis is displayed on the horizontal axis of the graph.<br>To set, check the box for displaying the axis at the end of the measurement time.   |
| <input type="checkbox"/> | Displaying auxiliary line on the X-axis of the graph               | You can set whether to display auxiliary lines on the graph horizontal axis.<br>Check the box to set. To change the color of the auxiliary line, select a color from "Select the axis color".  |
| <input type="checkbox"/> | Displaying the measurement time in the X-axis heading of the graph | You can set whether the measurement time [s] is displayed at the end of the title on the horizontal axis of the graph.<br>To set this option, check the checkbox. To change the color of the text to match, click "Select a text color" and choose a color.  |

## 6-6-1 Types of saved data

This software can save setting files, waveform data, and numerical data.

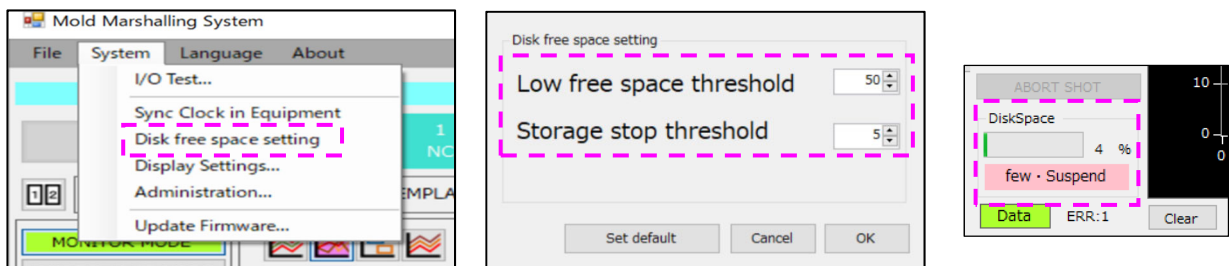
| Data type                            | Item  | Extension | Save destination folder<br>(default)<br>In the case of Windows7              | Remarks  |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |
|--------------------------------------|---|-----------|--|--|------|---------|------|----------|----|----------------------------|----|----------------------------|----|--------------|---|------------------|---|-------------------------|----|------------------------------|----|---------------------------|---|----------------------|---|-----------------------|---|------------------------|----|--------------------------------|----|---------------------------------|
| Setting file                         | Condition settings  | .xml      | C:\Users\Login username\Documents\FUTABA MMS\MVS08\MMS_Settings              | <ul style="list-style-type: none"> <li>Setting conditions for measurement and monitoring. Select from the save folder in PC and save it in MVS08 unit for use.</li> </ul>  |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |
| Waveform data                        | Pressure waveform   | .csv      | C:\Users\Login username\Documents\FUTABA MMS\MVS08\MMS_DATA\yyyy_mm_dd       | <ul style="list-style-type: none"> <li>It is saved by each shot number.</li> <li>The data can be read as the template waveform data on MVS08 software.</li> <li>Data can be edited by reading with spreadsheet software.</li> </ul>  |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |
| Numerical data<br>(Monitoring items) | <ul style="list-style-type: none"> <li>Storage date, time (Time)</li> <li>Time to peak (Time at Peak)</li> <li>Trigger interval (Interval)</li> <li>Point monitoring (Value at point)</li> <li>Shot number (Shot)</li> <li>Ejection monitoring (Peak over eject)</li> <li>Alarm judgment result (Result)</li> <li>Integral (Integral)</li> <li>Peak-value (Peak)</li> <li>Integral to peak monitoring (Integral to peak)</li> <li>VP transfer (Vp_Time)</li> <li>Rising time (Rising_Time)</li> <li>Falling time (Falling_Time)</li> <li>Average (Average)</li> <li>Section average (Average at section)</li> <li>Section integral (Integral at section)</li> </ul> | .csv      | C:\Users\Login username\Documents\FUTABA MMS\MVS08\MMS_DATA\yyyy_mm          | <ul style="list-style-type: none"> <li>It is saved by date.</li> <li>Data can be edited by reading with spreadsheet software.</li> <li>The details of the alarm judgment (which monitoring items are turned NG in NG) are recorded with the codes in the table below.</li> </ul> <table border="1"> <thead> <tr> <th>Code</th> <th>Meaning</th> </tr> </thead> <tbody> <tr> <td>None</td> <td>No alarm</td> </tr> <tr> <td>Z1</td> <td>Monitoring zone 1 judgment</td> </tr> <tr> <td>Z2</td> <td>Monitoring zone 2 judgment</td> </tr> <tr> <td>PT</td> <td>Time to peak</td> </tr> <tr> <td>T</td> <td>Point monitoring</td> </tr> <tr> <td>I</td> <td>Integral value judgment</td> </tr> <tr> <td>PI</td> <td>Peak integral value judgment</td> </tr> <tr> <td>EJ</td> <td>Eject monitoring judgment</td> </tr> <tr> <td>U</td> <td>Rising time judgment</td> </tr> <tr> <td>D</td> <td>Falling time judgment</td> </tr> <tr> <td>A</td> <td>Average value judgment</td> </tr> <tr> <td>AS</td> <td>Section average value judgment</td> </tr> <tr> <td>IS</td> <td>Section integral value judgment</td> </tr> </tbody> </table> | Code | Meaning | None | No alarm | Z1 | Monitoring zone 1 judgment | Z2 | Monitoring zone 2 judgment | PT | Time to peak | T | Point monitoring | I | Integral value judgment | PI | Peak integral value judgment | EJ | Eject monitoring judgment | U | Rising time judgment | D | Falling time judgment | A | Average value judgment | AS | Section average value judgment | IS | Section integral value judgment |
| Code                                 | Meaning   |           |  |  |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |
| None                                 | No alarm  |           |  |  |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |
| Z1                                   | Monitoring zone 1 judgment  |           |  |  |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |
| Z2                                   | Monitoring zone 2 judgment  |           |  |  |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |
| PT                                   | Time to peak  |           |  |  |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |
| T                                    | Point monitoring  |           |  |  |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |
| I                                    | Integral value judgment   |           |  |  |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |
| PI                                   | Peak integral value judgment  |           |  |  |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |
| EJ                                   | Eject monitoring judgment   |           |  |  |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |
| U                                    | Rising time judgment  |           |  |  |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |
| D                                    | Falling time judgment   |           |  |  |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |
| A                                    | Average value judgment  |           |  |  |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |
| AS                                   | Section average value judgment  |           |  |  |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |
| IS                                   | Section integral value judgment   |           |  |  |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |
| Screen data                          | Buttons in the toolbar<br>   | .png      | C:\Users\Login username\Documents\FUTABA MMS\MVS08\MMS_DATA\yyyy_mm_dd\Image | <ul style="list-style-type: none"> <li>The setting file name is reflected.</li> <li>The screen displayed is saved when the "Save image data" button is pressed.</li> </ul>   |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |

The saved data is saved in the folder specified in advance.

\*For details on saving destination settings, refer to "P.49, 6-7 Administration settings".

### 6-6-2 Display storable capacity

The storage capacity can be set from "System" → "Disk free space setting".



When the free disk space becomes less than the "Low free space threshold" setting, the free space status changes to "Low", but the results are saved. Please note that when the free disk space becomes less than the "Storage stop threshold", saving of both log data and waveform data will be stopped.

| Free space   | Status display    | Operation                                    |
|--|-------------------|--|
| Low free space threshold [%] to 100 [%]                    | "OK"              | Continue saving data                         |
| Storage stop threshold [%] to Low free space threshold [%] | "Low"             | Continue saving data                         |
| 0[%] to Storage Stop Threshold [%]                         | "few · Suspended" | Stop saving data (for both waveform and log) |

\*As for the storage capacity (disk space), the software automatically calculates the storage capacity. Please move the data regularly before "Low" is displayed.

### 6-6-3 Saving data to USB memory

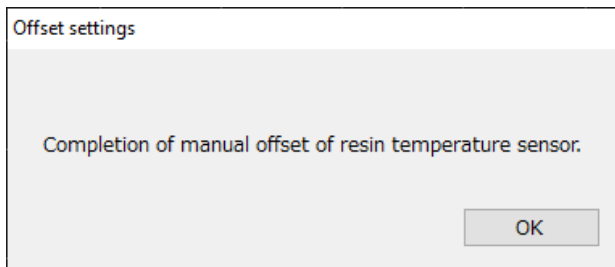
When MVS08 is used in stand-alone operation, a USB memory can be installed to save data.

| Data Type                         | Item  | Extension | Save destination folder | Remarks   |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |
|-----------------------------------|---|-----------|-------------------------|---|------|---------|------|----------|----|----------------------------|----|----------------------------|----|--------------|---|------------------|---|-------------------------|----|------------------------------|----|---------------------------|---|----------------------|---|-----------------------|---|------------------------|----|--------------------------------|----|---------------------------------|
| Waveform data                     | Pressure waveform   | .csv      | (USB thumb ¥yyyyymmdd   | <ul style="list-style-type: none"> <li>It is saved by shot number.</li> <li>File name ALhmmss.csv</li> <li>The data cannot be read as the template data in MVS08 software.</li> <li>Data can be edited by reading with spreadsheet software.</li> </ul>   |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |
| Numerical data (Monitoring items) | <ul style="list-style-type: none"> <li>Storage date, time (Time)</li> <li>Time to peak (Time at Peak)</li> <li>Trigger interval (Interval)</li> <li>Point monitoring (Value at point)</li> <li>Shot number (Shot)</li> <li>Ejection monitoring (Peak over eject)</li> <li>Alarm judgment result (Result)</li> <li>Integral (Integral)</li> <li>Peak-value (Peak)</li> <li>Integral to peak monitoring (Integral to peak)</li> <li>VP transfer (Vp_Time)</li> <li>Rising time (Rising_Time)</li> <li>Falling time (Falling_Time)</li> <li>Average (Average)</li> <li>Section average (Average at section)</li> <li>Section integral (Integral at section)</li> </ul> | .csv      | (USB) ¥ yyyyymm         | <ul style="list-style-type: none"> <li>It is saved by date.</li> <li>File name LGyymmdd.csv</li> <li>Data can be edited by reading with spreadsheet software.</li> <li>The details of the alarm judgment (which monitoring items are turned NG in NG) are recorded with the codes in the table below.</li> </ul> <table border="1" style="width: 100%;"> <thead> <tr> <th>Code</th> <th>Meaning</th> </tr> </thead> <tbody> <tr> <td>None</td> <td>No alarm</td> </tr> <tr> <td>Z1</td> <td>Monitoring zone 1 judgment</td> </tr> <tr> <td>Z2</td> <td>Monitoring zone 2 judgment</td> </tr> <tr> <td>PT</td> <td>Time to peak</td> </tr> <tr> <td>T</td> <td>Point monitoring</td> </tr> <tr> <td>I</td> <td>Integral value judgment</td> </tr> <tr> <td>PI</td> <td>Peak integral value judgment</td> </tr> <tr> <td>EJ</td> <td>Eject monitoring judgment</td> </tr> <tr> <td>U</td> <td>Rising time judgment</td> </tr> <tr> <td>D</td> <td>Falling time judgment</td> </tr> <tr> <td>A</td> <td>Average value judgment</td> </tr> <tr> <td>AS</td> <td>Section average value judgment</td> </tr> <tr> <td>IS</td> <td>Section integral value judgment</td> </tr> </tbody> </table> | Code | Meaning | None | No alarm | Z1 | Monitoring zone 1 judgment | Z2 | Monitoring zone 2 judgment | PT | Time to peak | T | Point monitoring | I | Integral value judgment | PI | Peak integral value judgment | EJ | Eject monitoring judgment | U | Rising time judgment | D | Falling time judgment | A | Average value judgment | AS | Section average value judgment | IS | Section integral value judgment |
| Code                              | Meaning   |           |                         |   |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |
| None                              | No alarm  |           |                         |   |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |
| Z1                                | Monitoring zone 1 judgment  |           |                         |   |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |
| Z2                                | Monitoring zone 2 judgment  |           |                         |   |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |
| PT                                | Time to peak  |           |                         |   |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |
| T                                 | Point monitoring  |           |                         |   |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |
| I                                 | Integral value judgment   |           |                         |   |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |
| PI                                | Peak integral value judgment  |           |                         |   |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |
| EJ                                | Eject monitoring judgment   |           |                         |   |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |
| U                                 | Rising time judgment  |           |                         |   |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |
| D                                 | Falling time judgment   |           |                         |   |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |
| A                                 | Average value judgment  |           |                         |   |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |
| AS                                | Section average value judgment  |           |                         |   |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |
| IS                                | Section integral value judgment   |           |                         |   |      |         |      |          |    |                            |    |                            |    |              |   |                  |   |                         |    |                              |    |                           |   |                      |   |                       |   |                        |    |                                |    |                                 |

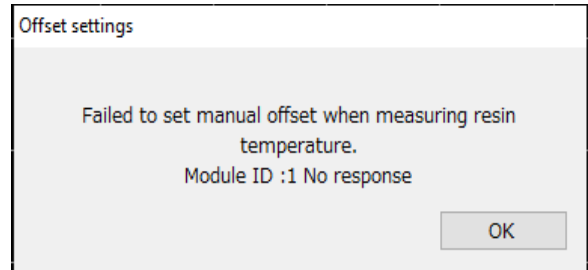
## 6-6-4 Resin temperature measurement offset mode

When the measurement amplifier type UPI01 is included and "MANUAL" is selected in the setting "Resin temperature measurement offset mode", manual offsetting can be performed. When manual offsetting is completed, a completion message is displayed, and the window closes after 5 seconds or by pressing the OK button.

If communication with the MVS08 is disconnected after the offset starts, a timeout occurs after 10 seconds, and an offset failure message is displayed.



Offset complete message

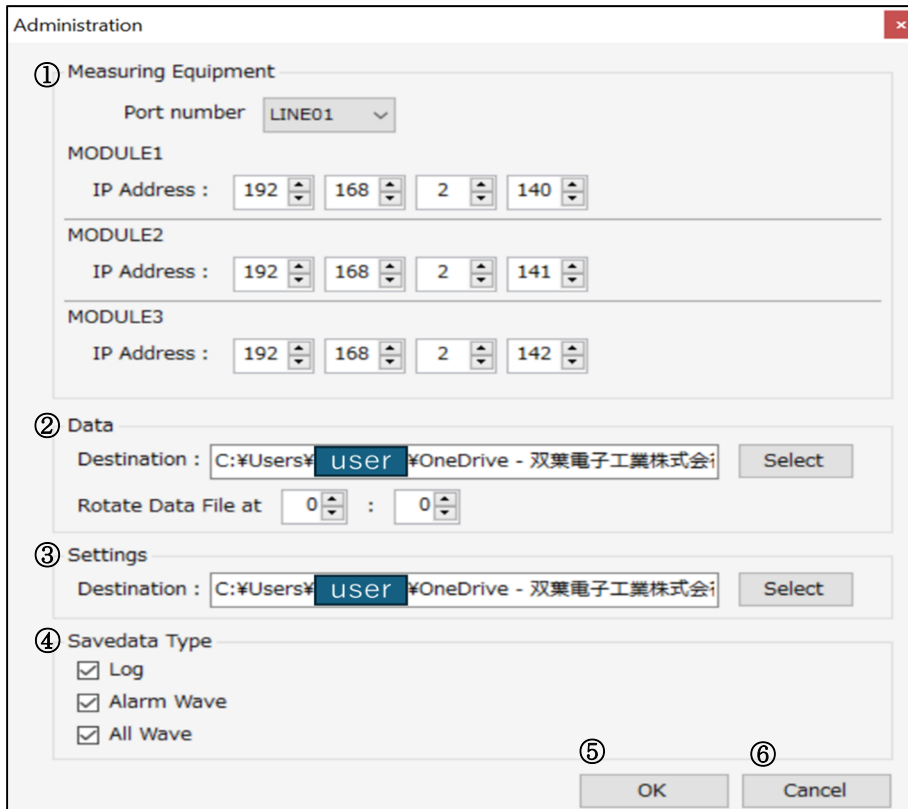
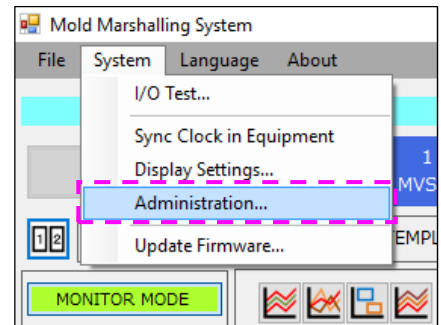


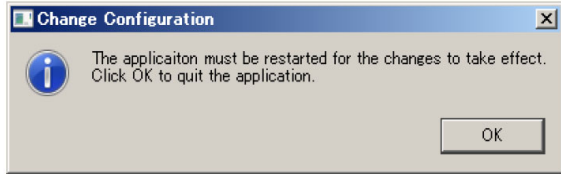
Offset fail message

## 6-7 Administration settings

From the main menu, select [System] → [Administration].  
The Administration screen is displayed.

In the administration menu, it is possible to set the IP address of the MVS08 and storage destination (paths) of measured data and setting files.



| No.                      | Name                | Function   |
|--------------------------|---------------------|--|
| <input type="checkbox"/> | Measuring equipment | <ul style="list-style-type: none"> <li>Set the IP address of MVS08. The set IP address will be valid after rebooting the application.</li> <li>If additional MVS08 units are connected to make 9-to-24-point measurements, set MODULE2 and 3 as well.</li> </ul>   |
| <input type="checkbox"/> | Data                | <ul style="list-style-type: none"> <li>Set the path for saving measured data. The set path will be valid after rebooting the application.</li> <li>Default settings are as follows.<br/> <b>&lt;In the case of Windows 7, Windows 8&gt;</b><br/>           C:\Users\login use name\Documents\FUTABA MMS\MVS08\MMS_DATA</li> <li>Rotation time: Set the start time at which you would like the system to begin creating a folder and log file.</li> </ul> |
| ②                        | Settings            | <ul style="list-style-type: none"> <li>Set the path for saving setting data in the MVS08 main unit. The set path will be valid after rebooting the application.</li> <li>Default settings are as follows.<br/> <b>&lt;In the case of Windows 7, Windows 8&gt;</b><br/>           C:\Users\login use name\Documents\FUTABA MMS\MVS08\MMS_Settings</li> </ul>  |
| <input type="checkbox"/> | Saved data type     | <ul style="list-style-type: none"> <li>Data to be saved can be selected from among Logs (peak file), Alarm waveforms (data measured when an alarm occurred), All waveforms (measured data).</li> <li>By default, all the checkboxes for Logs, Alarm waveforms, and All waveforms are turned ON. If Alarm waveforms and All waveforms are turn ON, both are saved.</li> </ul>   |
| <input type="checkbox"/> | OK                  | <ul style="list-style-type: none"> <li>Save the changes and show the following message. Click [OK] and then application will exit.</li> </ul>   |
| <input type="checkbox"/> | Cancel              | <ul style="list-style-type: none"> <li>Cancel the change to the setting to exit the Administration setting.</li> </ul>   |

See the table below for the naming conventions of the above stored data files. In addition, the dates of these data files change after the set rotation time. If you would like to change the setting, please go to "System" > "Administration" and change the Rotate Date. The file naming examples listed in the table below are based on a rotation time of 1:00.

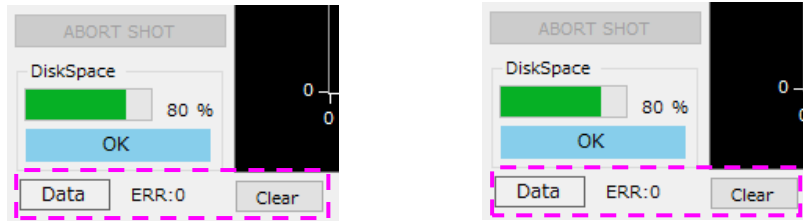
| Target file          | File naming convention   |
|----------------------|--|
| Log files            | Log_setting-file-name_measurement-start-date_module-name_P.csv <ul style="list-style-type: none"> <li>When the measurement start date is 2024/1/1 0:59:50<br/>               Log_Settings01_20231231_MODULE1_p.csv</li> <li>When the measurement start date is 2024/1/1 1:00:01<br/>               Log_Settings01_20240101_MODULE1_p.csv</li> </ul>  |
| Alarm waveform files | Alm_setting-file-name_measurement-start-date_measurement-start-time_module-name_P.csv <ul style="list-style-type: none"> <li>When the measurement start date is 2024/1/1 0:59:50<br/>               Alm_Settings01_Shot1_20231231_005950_MODULE1_p.csv</li> <li>When the measurement start date is 2024/1/1 1:00:01<br/>               Alm_Settings01_Shot1_20240101_010001_MODULE1_p.csv</li> </ul> |
| All waveform files   | All_setting filename_measurement start date_measurement start time_module_P.csv <ul style="list-style-type: none"> <li>When the measurement start date is 2024/1/1 0:59:50<br/>               All_Settings01_Shot1_20231231_005950_MODULE1_p.csv</li> <li>When the measurement start date is 2024/1/1 1:00:01<br/>               All_Settings01_Shot1_20240101_010050_MODULE1_p.csv</li> </ul>       |

# 7. Check operation

This section describes how to check whether the system is operating normally.

## 7-1 Check communication between amplifier and PC

The amplifier communicates with the PC through LAN connection. Whether the communication is implemented normally can be checked with the color of [Data] mark at the lower left of the operation window. (Green: Normal, Red: Abnormal)



\* [ERR: ] indicates the number of times of self-recovery performed when communication was suspended. Clicking the [Clear] button clears the count to 0.

## 7-2 Check I/O signals

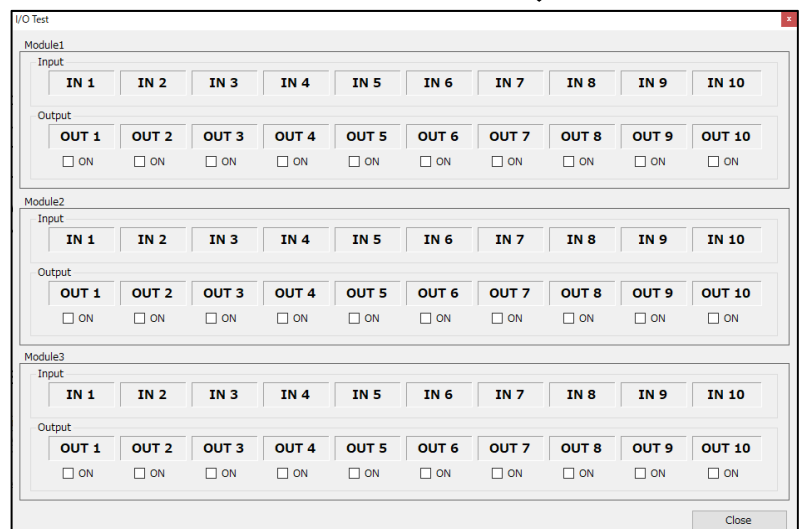
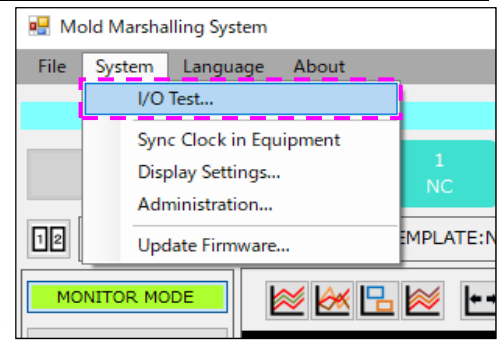
Check whether the connected I/O signals work properly.

■ From the main menu, select [System] → [I/O Test...]

■ Assigning I/O signals

10 signal types for input and 10 signal types for output can be assigned to any port.

For assigning the signal types, refer to “4-4-3 Setting I/O signals” on Page 32.



■ Check the operation of input signal

Input a signal (trigger signal or alarm clear signal). If it is input normally, the name of the port assigned for the signal illuminates in green.

■ Check the operation of output signal

Check the “ON” checkbox. The signal name illuminates in green, and an alarm signal is forcibly output. Check whether the signal operates normally at the output signal connection destination.

## 7-3 Check the operation of sensor

### 7-3-1 Calibration of the sensor

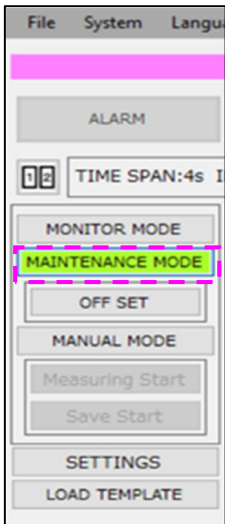
If there is any sign of a suspected faulty condition in a sensor such as “waveforms are not displayed” or “the measured value is too low (or too high)”, it is recommended to calibrate the sensor. Sensor calibration is available for a fee.

Please contact Marketing & Sales Center, Machinery & Tooling (written on the back cover).

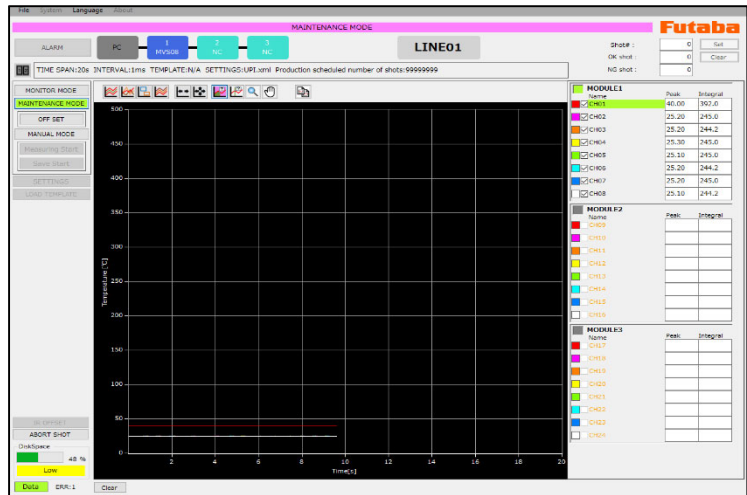
### 7-3-2 Check in a simplified manner

Follow the procedure below to simply check the operation of a sensor.

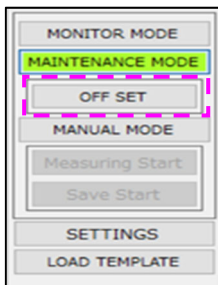
- Select "MAINTENANCE MODE".



- Measurement starts.

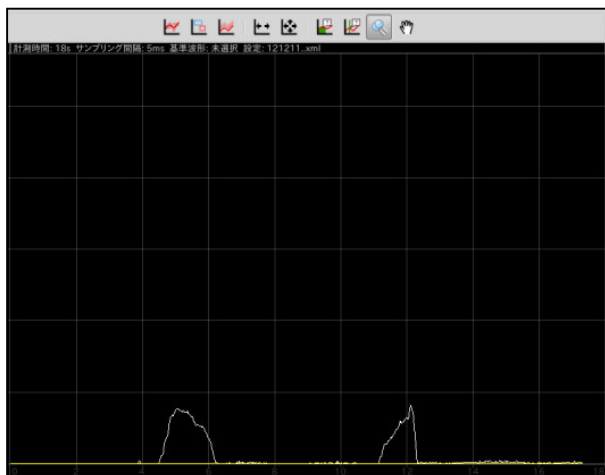


- Press the " OFF SET" button.



\* The sensor output is forcibly reset (the resin temperature sensor becomes the mold temperature). Be sure to press "OFF SET" when there is no load on the sensor.

- To check a pressure sensor, press the tip of the sensor to check whether waveforms are displayed. To check a resin temperature sensor, shine a light on the tip of the sensor to check whether waveforms are displayed. (This is only a simple test to check whether the sensor works.)



\* When applying a load to the tip of the sensor, use a soft object, etc. so as not to damage the sensor or mold (scratches, corrosion, etc.).

\* When applying a load to the tip of the sensor, never apply a load exceeding the ratings or a shock load. It could damage the sensor.

\* Perform a simple check of sensor operation at the customer's own risk.

# 8. Trouble shooting

|                              |  |
|------------------------------|--|
| <p>Noise countermeasures</p> | <p>① Connect the ground to the MVS08 main unit.<br/>If the MVS08 main unit is not connected to ground, noise may appear in the waveform. The waveform can be normalized by connecting ground to the ground wire connection port on the MVS08 main unit and removing static electricity.<br/>(Refer to the overall diagram of the device on P.5 for connection points.)</p> <p>② Check for abnormalities in the connecting cable.<br/>Damaged cables used for connection or unorganized wiring may cause noise. This may be improved by replacing the connection cables or reviewing the layout by separating the power supply cable from the wiring for measurement.</p>   |
| <p>PC connection</p>         | <p>① Check IP address<br/>PC and MVS08 main unit must not be the same IP address. Instead, the last three digits must be set to different numbers.<br/>Check the respective IP addresses. PC address can also be confirmed by "Start"-&gt; "Command Prompt"-&gt; "ipconfig"-&gt; "Enter".<br/>If you cannot connect a second unit or later, check each address from the Administration screen to see if it is correct for each unit.</p> <div data-bbox="743 725 1458 1279" data-label="Code-Block"> <pre> Command Prompt Microsoft Windows [Version 10.0.19045.4651] (c) 2019 Microsoft Corporation. All rights reserved.  C:\Users\%Username% &gt; ipconfig  Windows IP Configuration  Ethernet adapter イーサネット:      Connection-specific DNS Suffix  . : ADNF.local     Link-local IPv6 Address . . . . . : fe80::8002:4900:b49e:98a4%17     IPv4 Address. . . . . : 172.20.150.196     Subnet Mask . . . . . : 255.255.255.0     Default Gateway . . . . . : 172.20.150.254  Ethernet adapter イーサネット 2:      Connection-specific DNS Suffix  . :     Link-local IPv6 Address . . . . . : fe80::2e78:ff95:bd9e:e0e%12     IPv4 Address. . . . . : 192.168.2.200     Subnet Mask . . . . . : 255.255.255.0     Default Gateway . . . . . : </pre> </div> <p>② Check the connection<br/>In some cases, the MVS08 main unit and PC may not be connected. If this is the case, check the communication speed between the MVS08 and the PC from the Command Prompt.</p> <div data-bbox="679 1368 1458 1845" data-label="Code-Block"> <pre> Command Prompt Microsoft Windows [Version 10.0.19045.4651] (c) 2019 Microsoft Corporation. All rights reserved.  C:\Users\%Username% &gt; Ping 192.168.2.140  Pinging 192.168.2.140 with 32 bytes of data: Reply from 192.168.2.140: bytes=32 time&lt;1ms TTL=80 Reply from 192.168.2.140: bytes=32 time&lt;1ms TTL=80 Reply from 192.168.2.140: bytes=32 time&lt;1ms TTL=80 Reply from 192.168.2.140: bytes=32 time&lt;1ms TTL=80  Ping statistics for 192.168.2.140:     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),     Approximate round trip times in milli-seconds:         Minimum = 0ms, Maximum = 0ms, Average = 0ms </pre> </div> <p>Check method</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Search "Command Prompt" from "Start" at the bottom left of the screen and open it.</li> <li><input type="checkbox"/> Enter "Ping192.168.2.140" (IP of MVS08, defaults above)</li> </ul> |



# 9. Specifications

## ■ Specifications

<Injection molding monitoring system MVS08>

|   |  |   |
|---|--|---|
| Product name  | MVS08A-S (Set product)   |   |
| Number of measurement points                            | 8 points (Max. 24 points: when 3 units are connected)  |   |
| Compatible sensors                                      | Resin pressure: SSB series, SSE series (Measuring amplifier is sold separately)<br>Resin temperature: EPSSZL series, EPSSZT series (pre-amplifier is sold separately)<br>Mold surface-temperature: STF Series. (Commercially available signal-converter is required.)<br>Others: 0 to 10V power measuring device |   |
| Measurement range                                       | 0 to 10V (Withstanding voltage: damaged by an input voltage of 17V for approx. 160ms)  |   |
| Accuracy  | ± 0.25%F.S. (Voltage)  |   |
| Input impedance   | 20kΩ   |   |
| Display unit  | Pressure: MPa, kg/cm <sup>2</sup> , psi, bar<br>Temperature : °C, °F, K<br>Position: mm, inch  | Load: kgf, N, lbf<br>Velocity: mm/s<br>Flow rate: L/min   |
| Sampling interval                                       | 1ms/ 5ms/ 10ms/ 50ms/ 100ms/ 500ms/ 1000ms   |   |
| Measurement time<br>(120,000 points)                    | Sampling interval 1ms : Max. 120s<br>Sampling interval 5ms : Max. 600s<br>Sampling interval 10ms : Max. 1200s<br>Sampling interval 50ms : Max. 6000s<br>Sampling interval 100ms : Max. 12000s<br>Sampling interval 500ms : Max. 60000s<br>Sampling interval 1000ms : Max. 120000s                                |   |
| Resolution (typical examples)                           | Pressure: 0.1MPa, Temperature: 1°C (16bitAD converters)  |   |
| Control input   | 10 points: No-voltage contact input  |   |
| Control output  | 10 points: NPN open collector  |   |
| Saving of measurement data                              | When PC is connected   | The data is saved to PC memory connected (including the data of measurement conditions and alarm conditions)  |
|   | When PC is not connected (Standalone)  | The data is saved to a USB memory connected.  |
| Power supply specifications                             | Power supply   | DC24V (Dedicated AC Adaptor, Input AC100~240V, 50Hz/60Hz)   |
|   | Maximum power consumption  | 50W   |
| Environmental resistance                                | Ambient temperature  | 0~+50°C   |
|   | Ambient humidity   | 35~85%RH (non-condensing)   |
| Mass  | About 1,100g   |   |
| Accessories   | Injection molding monitoring system (1 unit), Measurement software (CD-R), LAN cable (2m), AC adaptor (3.2m), Signal-input/output cable (3m)   |   |
| Recommended Operating Environment of PC for Measurement | PC for measurement is not supplied with this system.   | OS (Japanese compatible) : Windows7(32bit・64bit)<br>Windows8(32bit・64bit), Windows8.1(32bit・64bit)<br>Windows10(32bit・64bit)<br>Requires more than.NET Framework4.0<br>Processor : Intel-manufactured CPU Corei5 or higher<br>Required memory : More than 4GB<br>Other : Must be provided with Ethernet port. |

<LAN cable>

|                             |           |
|-----------------------------|-----------|
| Product name                | WCL0020   |
| Standards                   | CAT 7     |
| Overall length              | 2m        |
| Operating temperature range | 0~+40°C   |
| Mass                        | About 90g |

<Signal input/output cable>

|                             |                 |
|-----------------------------|-----------------|
| Product name                | WCI0030 N-MVS08 |
| Overall length              | 3m              |
| Operating temperature range | 0~+40°C         |
| Mass                        | About 350g      |

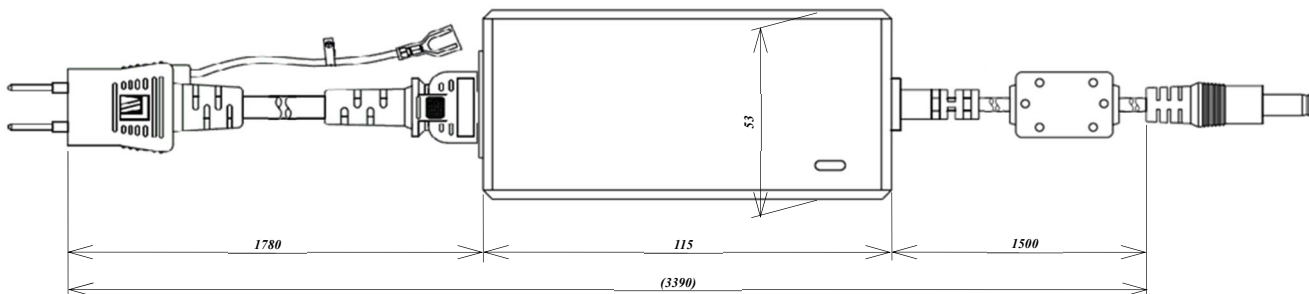
<AC adaptor>

|                             |   |
|-----------------------------|---|
| Product name                | ES0024007 N-MVS08                                     |
| Overall length              | 3.2m  |
| Dimensions (body)           | 115×53×38[mm]   |
| DC24V Out Plug              | φ5.5 x φ2.1×9.5mm (straight), center-positive         |
| Operating temperature range | 0~+40°C   |
| Power supply specifications | Input: AC100~240V max. 1.4A, Output: DC24V max. 2.71A |
| Mass                        | About 510g  |

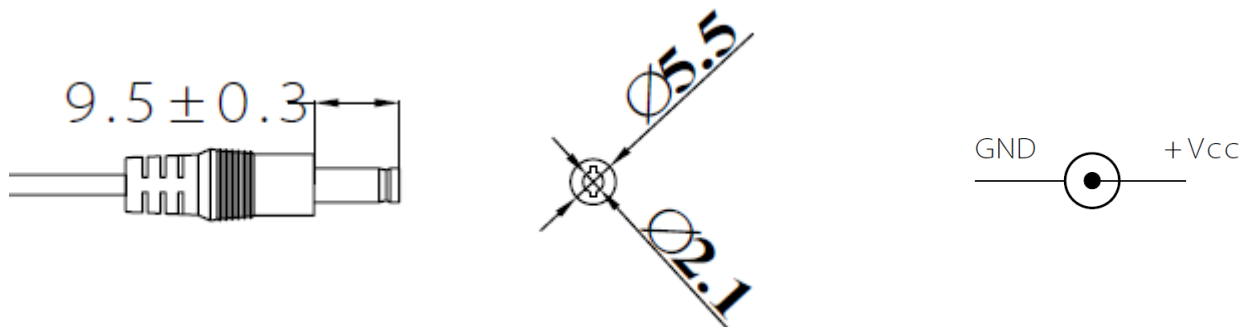
■ External dimensions [mm]

<AC adaptor>

ES0024007 N-MVS08



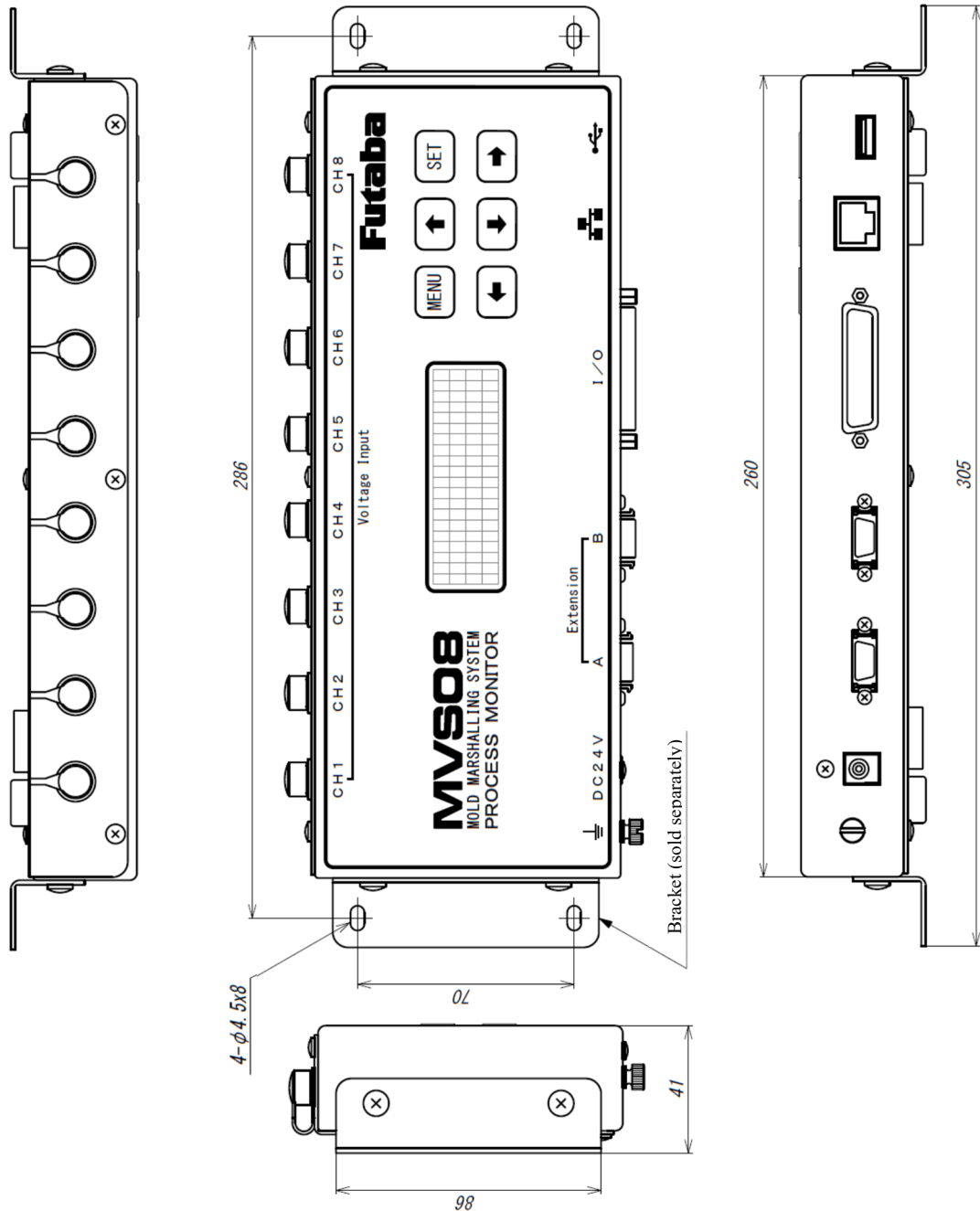
< Shape of DC plug >



■ External dimensions [mm]

<Injection molding monitoring system>

MVS08



Futaba Corporation

<https://mms.mtb.futaba.co.jp/en/>

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The specifications may be changed for improvement without prior notice.

MVS08-2409W-A1E