

In-mold measurement

Mold marshaling system

Injection molding monitoring system

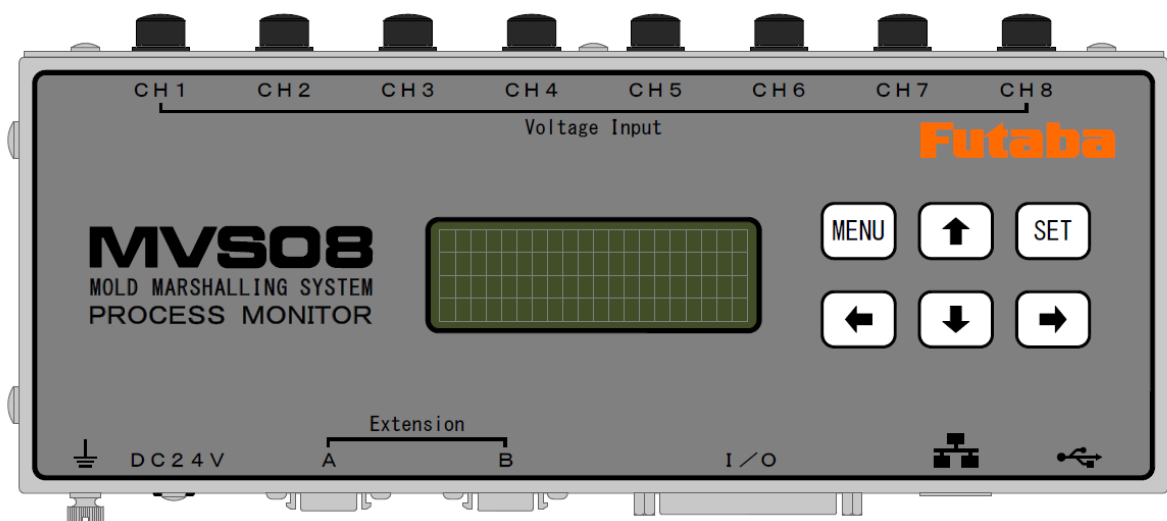
MVS08

Expansion manual

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Please read this instruction manual thoroughly and use it for a long time.

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Preface

Up to three injection molding monitoring systems (MVS08) can be connected as an expanded function, with up to 24 points of sensors can be connected for measurement.

A system of three MVS08 units connected together can be managed by a single PC and measurement software, and viewed and measured on the same screen.

This manual describes the default settings and connectivity for connecting MVS08.

For more information on operating MVS08, refer to the Injection Molding Monitoring System MVS08 Instruction Manual.

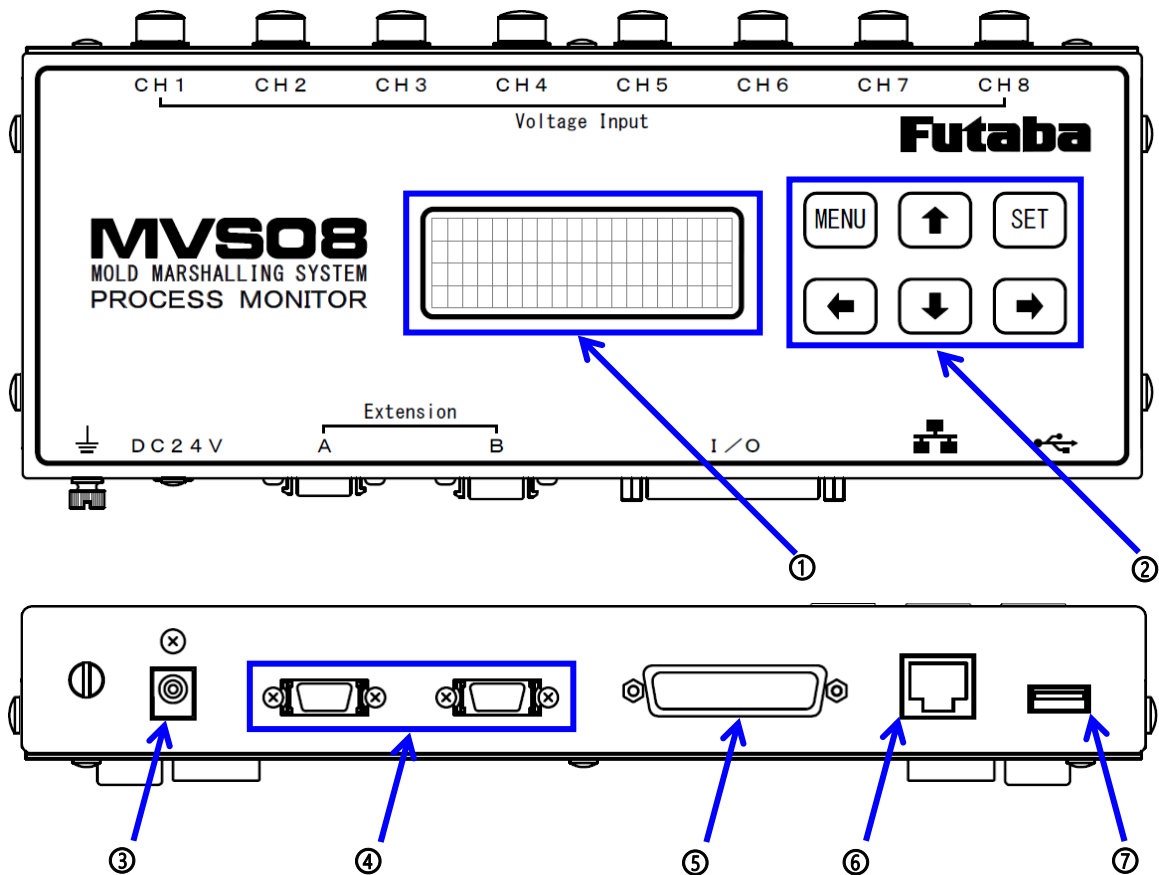
There are three operating instructions.

Please read carefully before use. Keep this manual in a safe place for future reference.

- Injection Molding Monitoring System MVS08 Instruction Manual
This is the main edition of the instruction manual.
- MVS08 Measurement Software PVS Installation Manual
Provides instructions for installing the measurement software PVS on a PC.
- [Injection Molding Monitoring System MVS08 Expansion manual](#)
[Simultaneous measurement of 9 to 24 points with three MVS08 connected is shown.](#)

1. Names and Functions of Parts Used during Expansion

This section explains the names and functions of parts used when setting up an expansion.



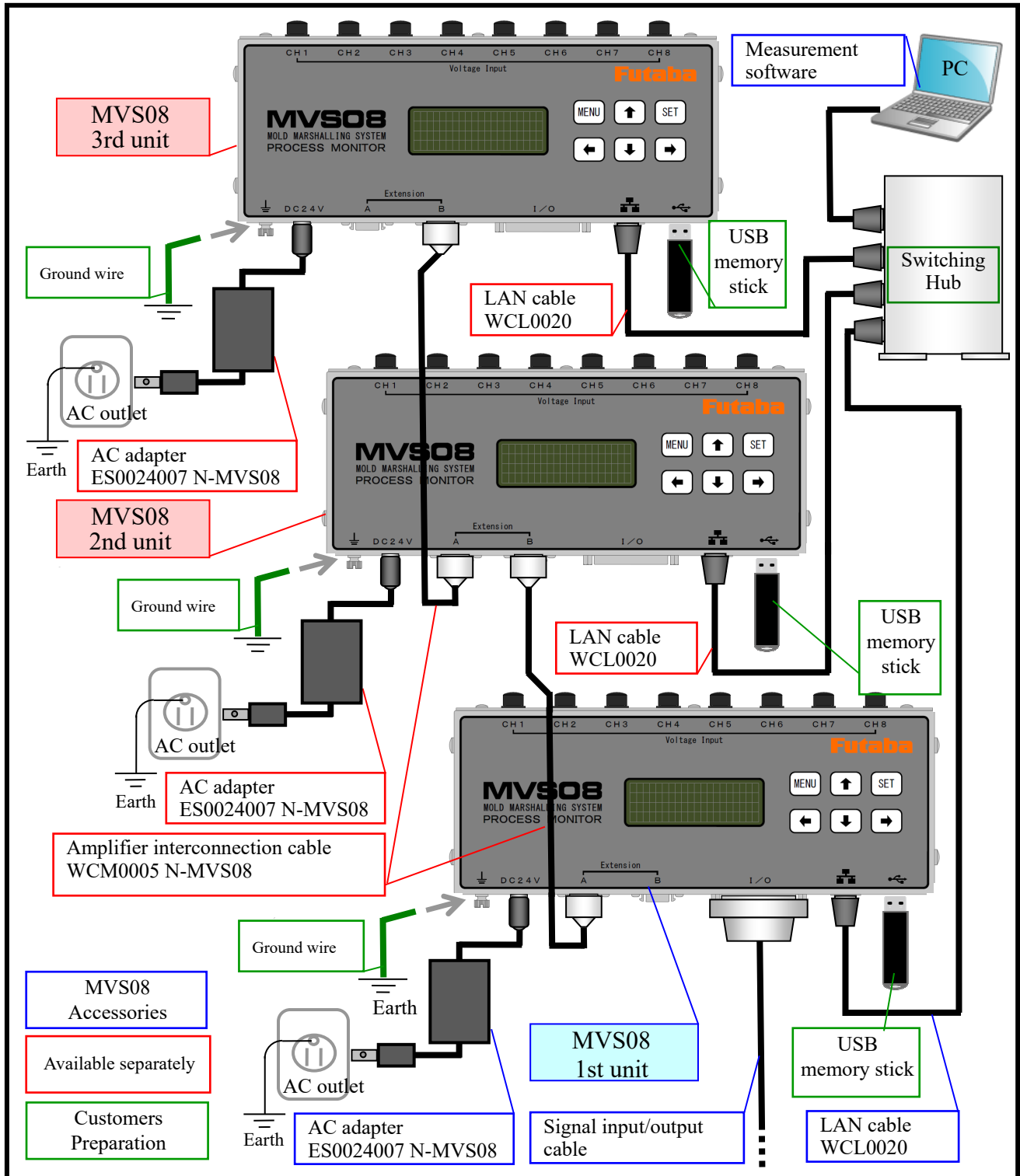
- ① Display panel.....Displays various information.
- ② Operation keys.....Switch the screen and enter the setting on the main unit side for the connection operation.
- ③ AC adapter jack Connect the AC adapter for each main unit to be connected.
- ④ Inter-amplifier communication connectorConnect the optional cable required for connecting MVS08.
Inter-amplifier communication cable: WCM0005 N-MVS08.
- ⑤ Connector for signal input/output cable connection.....Connect I/O signals (trigger signal, alarm signal, alarm clear signal) for linking with the machine.
- ⑥ LAN port Three MVS08 units operating in conjunction with a PC are connected to a switching hub using LAN cables for communication.
- ⑦ USB port You can save data to a connected USB memory stick in stand-alone operation when the PC is not connected. Connect a USB memory stick of the required memory capacity to each MVS08 unit to be connected.

2. Connection diagrams

This section shows how three MVS08 units are connected.

***Do not perform various wiring while MVS08 power is on. Failure to do so may cause an electric shock or malfunction.**

2-1 Connection Diagram with Three Units



"When three MVS08 are connected", the first unit is called MODULE1, the second unit is called MODULE2, and the third unit is called MODULE3.

"Synchronization between MVS08 units" is performed by connecting the "Amplifier interconnection cable" of the optional accessory.

"Communication between PC" and "MODULE1 to 3" is performed via switching hub using LAN cable (optional item).

Connect the I/O signals to the machine using the signal I/O cables connected to MVS08 on MODULE1.

"AC-adapter connection for power supply" and "USB-memory connection for stand-alone" are required for all MODULE1 to 3.

3. Connection

Prepare what is required to connect MVS08. In addition, MVS08 are connected to each other.

***Turn on the power to MVS08 after all parts have been connected. Be careful not to supply power from the AC adapter until the connection is complete, otherwise, it may cause damage.**

3-1 Items to be prepared

■The items listed below are listed for measuring 24 points by combining three MVS08 units.

Name	Quantity	Model	
① Injection molding monitoring system	3 units ※1	MVS08A	※2
② AC adapter	3 pcs. ※1	ES0024007 N-MVS08	※2
③ Signal input/output cable	1 pc.	WCI0030 N-MVS08	※2
④ LAN cable	4 pcs. ※1	WCL0020	※2
⑤ Measurement software	1 pc.	PVS N-MVS08	※2
⑥ Amplifier interconnection cable	2 pcs. ※1	WCM0005 N-MVS08	
⑦ PCs for management and measurement	1 unit	Operating system is Windows7 or later, and the LAN jack is included.	※3
⑧ USB memory stick (USB2.0)	3 pcs. ※1	For stand-alone operation without a PC connection.	※3
⑨ Switching hub	1 pc.	Number of ports 4 or more.	※3

※1 Required quantity when measuring 24 points. The required quantity varies depending on the number of measurement points.

※2 ①~ ⑤ is supplied with each 1. Each for the set product (MVS08A-S).

※3 To be obtained separately by the customer.

Select an appropriate capacity for the USB memory according to the amount of data to be acquired standalone.

The operation of the switching hub is checked using the Buffalo BS-GU2008 (No. of ports: 8).

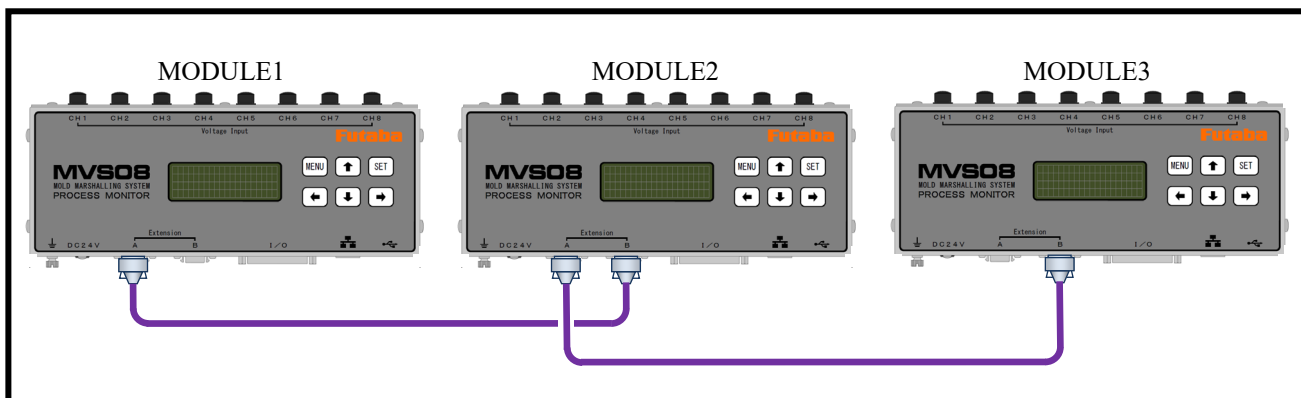
3-2 Connecting the amplifier interconnection cable

Connect the “amplifier interconnection cable “as follows.

Place three units of MVS08 base on a stable surface such as a table.

Connect "1st unit Extension A" and "2nd unit Extension B".

Connect the "second Extension A" and the "third Extension B".



4. Main unit setting and communication

Connect the required equipment for measurement to MVS08, and set the communication.

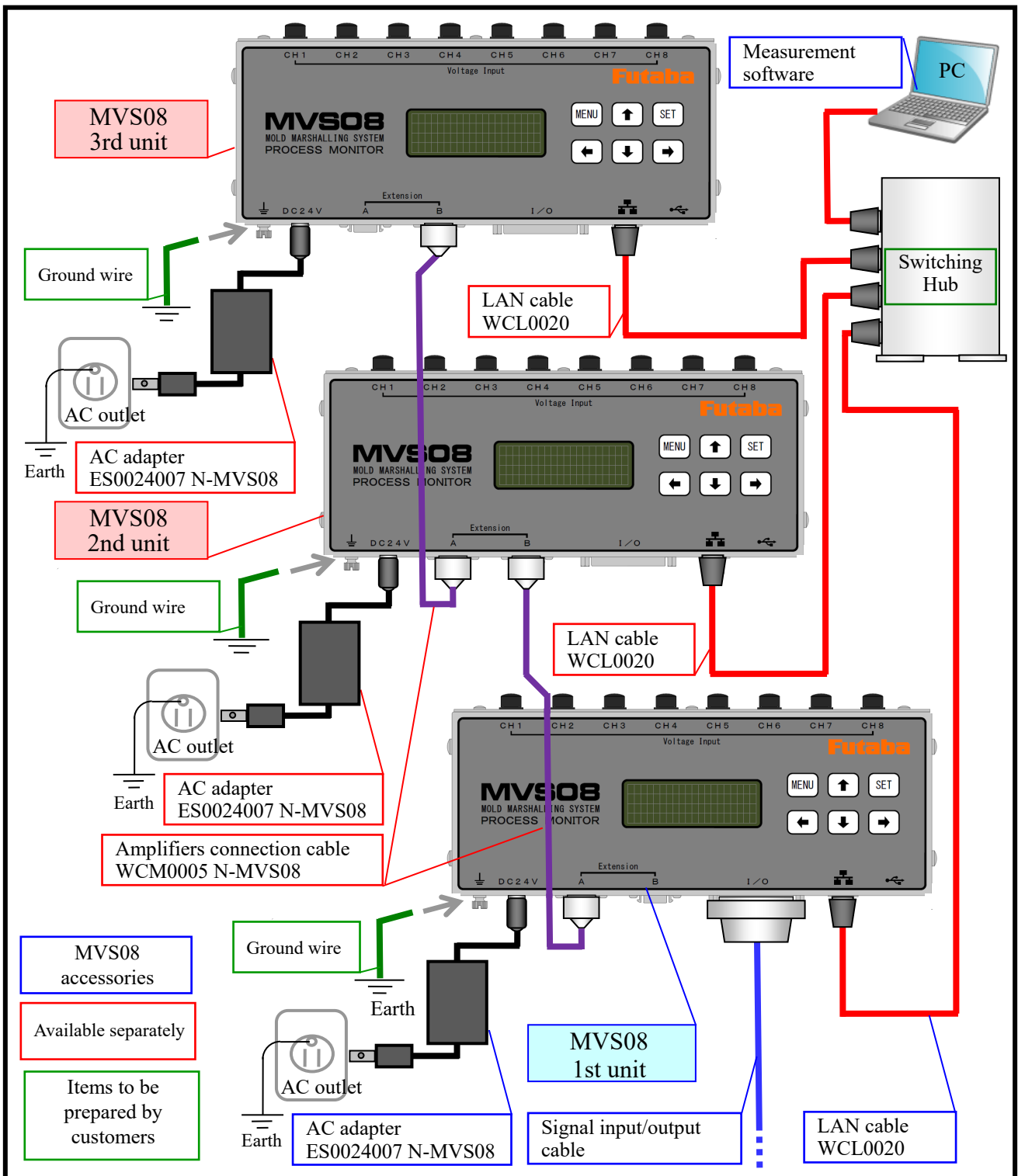
4-1 Connecting the required equipment.

- Prior to powering on MVS08, connect the devices required for communication and measurement with the PC.

Connect PC, MVS08 units, switching hubs, resin-temperature preamplifiers, measurement amplifiers, connecting cables, sensors, signal I/O cables, and LAN cables. The illustration shows connections for linking operation.

For the PC for management and measurement, the dedicated measurement software is installed and the network settings are used.

For installation and network configuration, refer to the "Instrumentation Software PVS Installation Manual."



4-2 Connecting the AC adapter and turning on the power

Connect the "AC-adapter" to MVS08 (MODULE1 to 3). Do not connect the PC to the power supply yet. After confirming that there are no loose or incorrect wires up to this point, plug the AC adapter of each MVS08 (MODULE1-3) into the power outlet and turn on the power.

※ After the power is turned on, the three connected MVS08 start and the "Default" window appears.

4-3 Setting for MVS08 expansion

(1) Set the internal settings for connecting operation of MVS08 main unit that has already been started.

① Use ↑↓ button to select MVS08 display.

```

M E A S : S T O P   M O D E : T R G
N G : 0 0 0 0 0 0 0 0 / 0 0 0 0 0 0 0 0
M O D U L E   d e f a u l t   1
    
```

Press "→" on MVS08 unit.

```

I P   E D I T   p u s h   [ → ]   K e y
I D   :   1
I P   : 1 9 2 . 1 6 8 .   2 . 1 4 0
P C   : 1 9 2 . 1 6 8 .   2 . 2 0 0
    
```

② Enter password using the "↑" and "→" buttons.

```

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
    
```

Password ⇒ Instruction Manual P.25,

Press "SET" on MVS08 unit to confirm.

```

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
P A S S W O R D   O K
    
```

② Enter ID: 2, IP: 141 for MODULE2.

```

I P   E D I T
I D   :   2
I P   : 1 9 2 . 1 6 8 .   2 . 1 4 1
P C   : 1 9 2 . 1 6 8 .   2 . 2 0 0
    
```

Enter ID: 3, IP: 142 for MODULE3.

```

I P   E D I T
I D   :   3
I P   : 1 9 2 . 1 6 8 .   2 . 1 4 2
P C   : 1 9 2 . 1 6 8 .   2 . 2 0 0
    
```

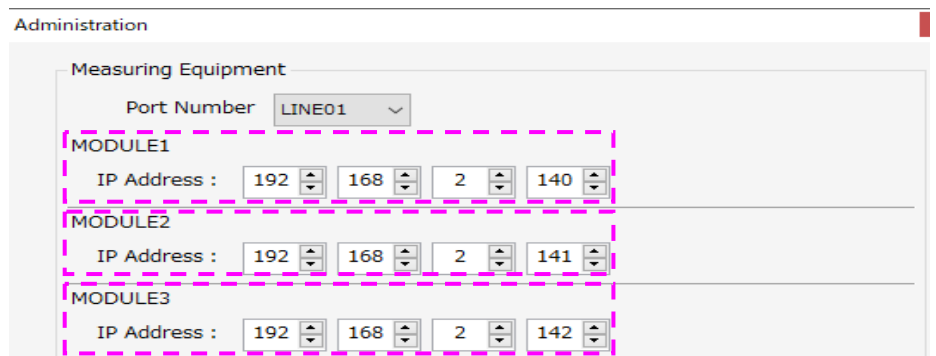
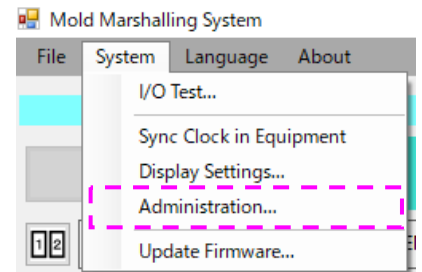
④ After entering, press "SET" on MVS08 unit to confirm. After "Save..." is displayed, it restarts automatically.

(2) Checking Administrator Settings

① Go to the main menu under "System" → "Administration".

② Administration screen is displayed.

③ Check IP-addresses for each MVS08 (MODULE1 to 3) as follows.



(3) Checking MVS08 Unit Indications

When the setting is normal, MVS08 will be displayed after the power is turned on as shown below.

<Second Unit>

```

M E A S : S T O P   M O D E : T R G
N G : 0 0 0 0 0 0 0 0 / 0 0 0 0 0 0 0 0
M O D U L E   d e f a u l t   2
    
```

<Third unit>

```

M E A S : S T O P   M O D E : T R G
N G : 0 0 0 0 0 0 0 0 / 0 0 0 0 0 0 0 0
M O D U L E   d e f a u l t   3
    
```

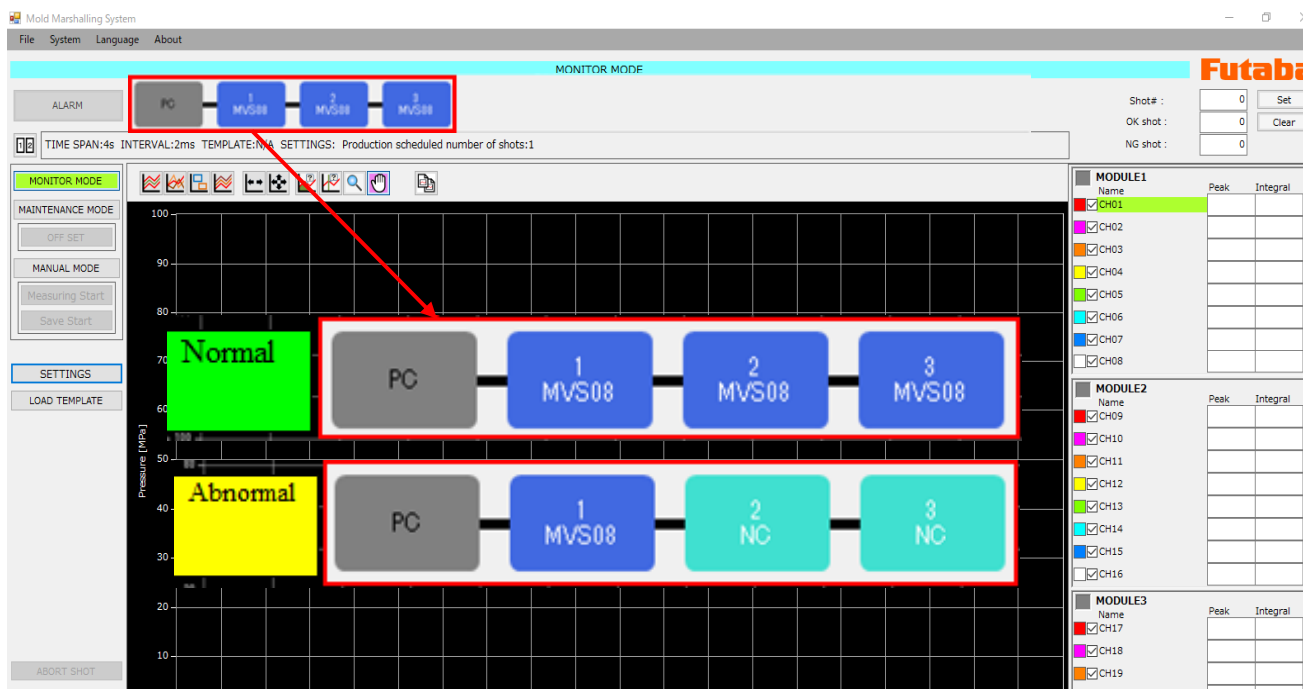

4-4 Start measurement software

- Connect the power supply to the PC, start the measurement software, and check the connection status.

Start the dedicated measurement software from a shortcut on the desktop.



<Startup Screen>



When communication is successful, the three MVS08 icons on the upper left of the screen are activated.

If it is abnormal, check each part by following the procedure below.

- "About" on the main menu
Check the "Version" of Module1 to 3.
For "Non-identical", refer to "2-3-2" on page 8 of the Instruction Manual.
Perform "Updating the Firmware".

When the version is the same, perform the following.

- Exit the measurement software.
- Turn off MVS08.
- Check P.5 "3. Connection and Expansion Settings" again.
- Referring to "Measurement Software PVS Installation Manual"
Check the PC network setting.
- Turn on the power to MVS08 and try communication again.



4-5 Screen samples

■ Samples of the screen are shown below.

<Setting screen of measurement conditions>

Three connected MVS08s are displayed in the measurement condition setting window as shown below. The measurement setting, sensor sensitivity, and alarm setting methods do not differ from those used with a single unit. For more information, refer to the Injection Molding Monitoring System MVS08 Operation Manual.

Settings

System MVS08 SENSOR

Measurement Settings

Measuring time [s] : 10

Sampling Interval[ms] : 1

Moving Average : 1

Start Trigger

Edge : Down

Delay[s] : 0.0

Alarm Settings

Use Alarm

Clear By Trigger Clear By Timer

Edge : Down Time[s] : 2.0

Alarm continuous

Use

The number of channels : 1

Production schedule

Use

The number of channels : 1

1st unit MODULE1

2nd unit MODULE2

3rd unit MODULE3

<Measurement Screen>

Mold Marshalling System

File System Language About

MONITOR MODE

ALARM PC 1 NC 2 NC 3 NC

LINE01

Shot# : 0 Set

OK shot : 0 Clear

NG shot : 0

TIME SPAN:4s INTERVAL:2ms TEMPLATE:N/A SETTINGS: Production scheduled number of shots:1

MONITOR MODE

MAINTENANCE MODE

OFF SET

MANUAL MODE

Measuring Start

Save Start

SETTINGS

LOAD TEMPLATE

ABORT SHOT

DiskSpace

Data ERR:0 Clear

Pressure [MPa]

Time[s]

Three units are normally recognized.

The PC is communicating normally.

MODULE2

Name

CH02

CH03

CH04

CH05

CH06

CH07

CH08

Peak Integral

MODULE3

Name

CH17

CH18

CH19

CH20

CH21

CH22

CH23

CH24

Peak Integral

5. File formats

There are two types of storage data: waveform data and peak data.

※Refer to the "Injection Molding Monitoring System MVS08 Operation Manual" for the data storage destination and folder setting.

5-1 Waveform data

- Save the data of each shot after molding as a CSV file.

The file is saved with a different file name for each data acquired by each MVS08, "all_MODULE default1_Shot□_year, month, day, hour, minute, second p.csv", "all_MODULE default2_Shot□_year/month/day_hour/minute/second p.csv" and "all_MODULE default3_Shot□_year/month/day_hour/minute/second p.csv". The measured data is displayed side-by-side by the number of connected channels.

<Format>

Time: Acquisition time (year/month/day/hour/second) Number of Module: ID of MVS01 (1 to 3)
 Ap: Application version.
 Interval: Shot interval (sec) Trigger: Shot interval (sec)
 Observation Period: Measurement time (s) Sampling Interval (ms)
 Shot: Shot number
 Module 1: Module name [Setting file name.XML of measurement conditions used for measurement]

```
=====
Elapsed Time,           CH01 (channel name),CH01 (channel name),           . . .           CH08 (Channel Name)
Unit (units)           Measurement unit           Measurement unit           . . .           Measurement unit
Elapsed time ↓         Measured data ↓           Measured data ↓           . . .           Measured data ↓
```

5-2 Peak data

- Save the data of each shot after molding as a CSV file.

For each MVS08 acquired, "log_MODULE default1_year/month/day date p.csv", "log_MODULE default2_year/month/day p.csv" and "log_MODULE default3_year/month/day p.csv".

It is saved with a different filename from

The measured data in each file is displayed side-by-side by the number of connected channels according to the data type.

<Format>

Header line (from left to right)
 Time (time), Interval (cycle time), Trigger (trigger), Shot (shot number), Result (total judgment), Error (error), CH□_Result (result of each CH1 ~ 8 · channel), CH□_Peak (CH1 ~ 8 · Peak value), CH□_Time at peak(CH1 to 8 · Peak Reach Time), CH□_Value at point(CH1 to 8 · value after t seconds) CH□_Peak over eject(CH1 to 8·eject value), CH□_Integral (CH1 to 8·Integral value), CH□_Integral to peak (CH1 to 8 · Peak integral value), CH□_Vp_Time (CH1 to 8 · V-P switching), CH□_Rising_time (CH1 to 8 · rise time), CH□_Falling_time (CH1 to 8 · fall time), CH□_Average (CH1 to 8 · average value), CH□_Average at section(CH1 to 8 · interval average value), CH□_Integral at section(CH1 to 8/segment integral)

"CH□_Result (Result per CH1 to 8 channels)" indicates the monitoring setting that caused the alarm.

Z1: Monitoring frame 1, Z2: Monitoring frame 2, PT: Time at peak, T: Time at point, I: Integral, PI: Integral to peak, EJ: Peak over eject, W: Waveform whole area monitor

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The specifications are subject to change without prior notice for product improvement.

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