

In-mold measurement
Mold marshaling system

MVS08 direct pressure preamplifier

UPQ01

Instruction Manual

Thank you very much for purchasing the products of Futaba Corporation.

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

Do not use the product in any way other than that described in the instruction manual.



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SAFETY PRECAUTIONS (Be sure to read these precautions before using our products.)

■BEFORE USE

Read this "Safety Precautions" and the instruction manual carefully before use.

After reading this manual, keep it in a safe place for future reference.

Be sure to observe the following safety precautions when using the product.

Futaba Corporation assumes no responsibility or warranty for injuries caused by the use of the product contrary to these precautions.

■To ensure safe use of this product, the following warning messages are used in this manual.



Warning In the column of this indication "the possibility of death or serious injury, etc. is assumed."



Caution In the column of this indication, "only possible injury or property damage is assumed".

■General notes

- Before and during operations, be sure to check that this product functions properly.
- Provide adequate safety measures to prevent damage in the unlikely event that our products should fail.
- Use outside indicated specifications or purposes and modification of our products will void any warranty of the functions and performance as specified of our products.
- Use this product in combination with other devices only after careful consideration, as the product may fail to satisfy its functionality and performance capabilities as a result of the conditions and environment in which it is used.

■Precautions



Warning Be sure to unplug the power cable from the outlet when installing or connecting the cable. Failure to do so may cause an electric shock or malfunction.



Warning Do not use a cable that is broken or has a damaged cable coating.
Failure to do so may cause a fire, electric shock, damage to the equipment or malfunction.



Caution Do not splash water on the sensors, amplifiers, relay amplifiers, or connection cables. Failure to do so may result in electric shock or damage to the equipment.

Preface

The Mold Marshalling System UPQ01 is a dedicated accessory that connects to the Injection Molding Monitoring System MVS08 to measure the in-mold pressure. One preamplifier is required per direct pressure sensor for measurement.

Refer to MVS08 Operator's Manual for more information on the injection molding monitoring system.

Please read this instruction manual thoroughly to ensure correct use.

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

Standard accessories

■ This instrument has the following standard accessories.

After unpacking, check that all accessories are included.

- Direct pressure preamplifier main unit "UPQ01"..... 1 unit
- Instruction manual (this booklet)..... 1 pc.

Handling Precautions

- Turn on the injection molding monitoring system (hereafter abbreviated as MVS08) after connecting the systems. Be sure to power MVS08 from an AC outlet. Never plug in or unplug the AC adapter jack to operate the power supply. Doing so may damage the unit and the AC adapter.
- Wait at least 5 seconds before turning the power on again after turning it off. If the power is turned on within 5 seconds or ON/OFF is repeated, it may fail due to the rush current (inrush current) that occurs when the power is turned on.
- Warm up the unit before use. Provide a warm-up time of about 30 minutes after the power is turned on.
- Avoid using the product in environments where temperatures are extremely high or low. The operating temperature range is 10 to 50°C. If it is unavoidable to expose the product to direct sunlight or use it in cold climates, shade the product or keep it warm.
- Use within the relative humidity range of 35 to 80%RH or less. If the product is used outside the operating humidity range or in an environment exposed to water droplets, performance may drop or malfunction may result.
- Do not use the product in dusty places. If dust gets into the connector part or the inside of the main unit, the performance will deteriorate. Do not allow dust to enter not only during use but also during storage.
- Do not use the product immediately if the environment changes suddenly. Leave the product in the operating environment and use it after spreading it. Condensation may occur if the ambient temperature and humidity change suddenly due to movement, etc., and this may cause a drop in performance or malfunction.
- Do not use the product in an environment subject to vibration or impact. Continuous vibration or large impact may cause a drop in performance or malfunction.
- Do not use the product in a strong electromagnetic field. Use the product in an environment where the PC can be used. Use in the vicinity of wireless devices, microwave ovens, electric furnaces, and other devices that generate strong electromagnetic fields may cause performance degradation, malfunction, or failure.
- Do not use the product in locations with poor power supply conditions. Use a power supply with AC100 ~240V, 50/60Hz, and no instantaneous power failure or noise.
- Do not pull on the connection cable. Connect the connection cable with sufficient margin so that excessive force is not applied to the connection part. Pulling or applying excessive force may cause failure, interruption of measurement or abnormal measurement value.

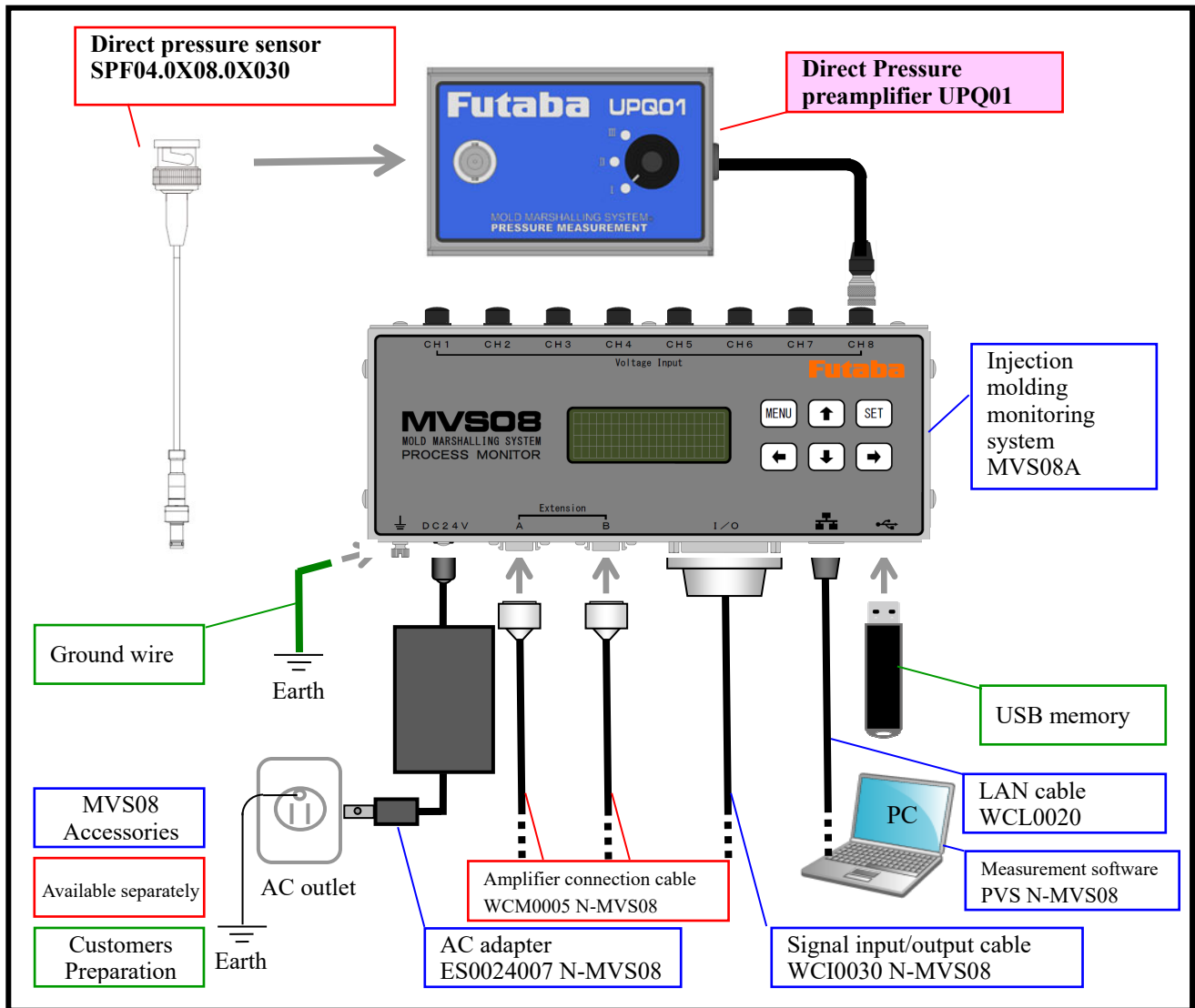
Instruction Manual for MVS08 Direct Pressure Sensor UPQ01

1. System configuration

■ System Configuration with Injection Molding Monitoring System "MVS08 Set"

The following shows the basic configuration when measuring the pressure in the mold using a direct pressure preamplifier (UPQ01).

One UPQ01 is required per direct pressure sensor.

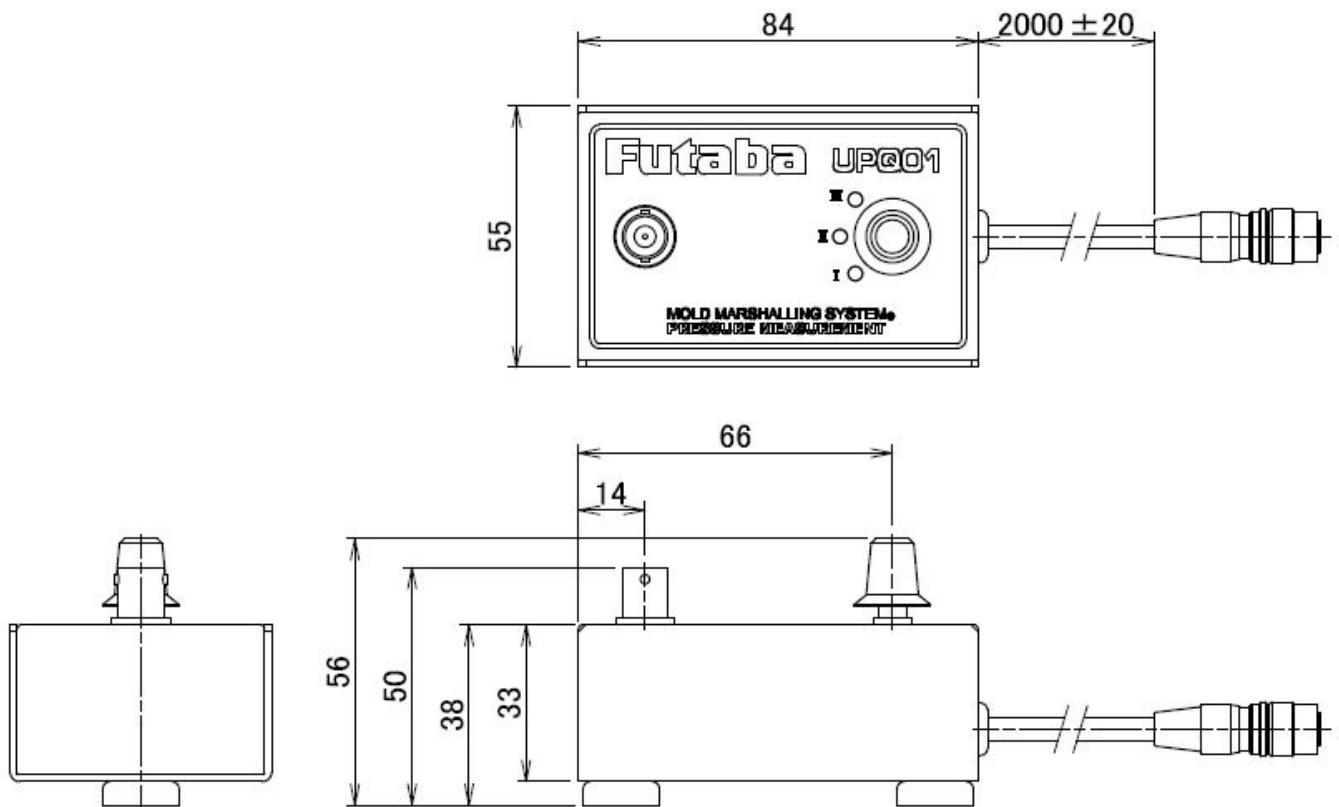


2. Specifications

■ List of Specifications Direct Pressure preamplifier UPQ01>

Product code	UPQ01A	
Number of measurement points	1	
Applicable sensor	SPF04.0X08.0X030	
Input range	I: -20pC/MPa, II: Spare, III: Spare (3-step switching)	
Input charge	I: 0-4,000pC, II: spare, III: spare	
Output voltage	DC 0~+10V	
Accuracy	±1.5%F.S.	
Mounting method	Installed with two magnets at the bottom	
Cable length	2m	
Weight	Approx. 350g	
Environmental resistance	Operating temperature	+10~+50°C
	Operating humidity	35 to 80%RH (non-condensing)

3. Main body size (Unit: mm)



4. Preparation

4-1 Installation of the system

A magnet is attached to the back of the preamplifier UPQ01. Install on a flat surface near the mold.

When installing the sensor on the movable side, determine the position of UPQ01 so that excessive force is not applied to the sensor cable in the mold open/close operation.

The operating temp. range of the preamplifier UPQ01 is +10°C to +50°C. For stable measurement, do not install it on the mold body.

4-2 Connecting MVS08 Unit and the preamplifier UPQ01

Connect the preamplifier UPQ01 to MVS08 main unit.

Insert the plug of UPQ01 into the connector of MVS08. There is a rotation-stop.

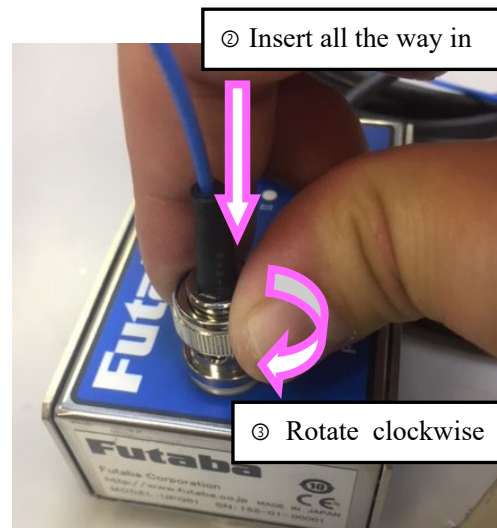
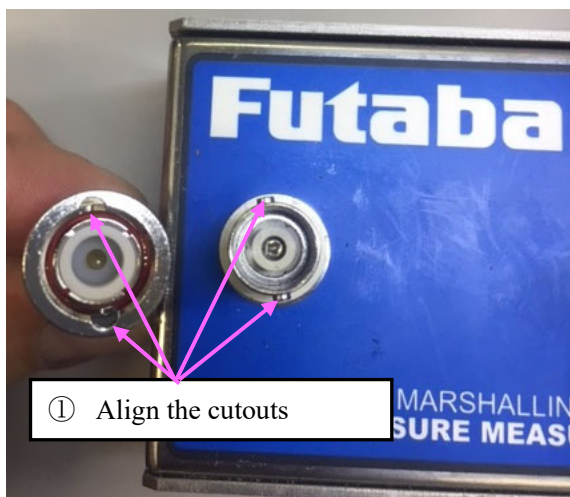
Therefore, twist the plug left and right to find the fitting position, and then insert it all the way in.



4-3 Connecting the preamplifier UPQ01 and Direct Pressure Sensor

Connect the pressure sensor to the preamplifier UPQ01.

Insert the notched part of the sensor side connector (BNC male) into UPQ01 connector part (BNC female) as far as it will go, and turn it clockwise to fix it.



4-4 Setting input range

When connecting the direct pressure sensor SPF04OOC, set the range selector switch of the preamplifier UPQ01 to the "I" position.

※The ranges "II" and "III" are reserved and should not be used.



4-4 MVS08 PC software condition settings

4-4-1 About Software Versions

UPQ01 are available from the versions below.

PC Software : Ver 1.0.0.23

Firmware : Ver 01.00.34

<How to update>

Refer to P8 of MVS08 Instruction Manual for how to update the software.

4-4-2 Conditioning

From the setting screen, set the following parts.

	Enabled	Measuring subject	Measuring Unit	Normal Trigger enable	Normal Trigger offset	Normal Trigger offset value	TriggerA enable	TriggerA offset	TriggerA of value
CH1	<input checked="" type="checkbox"/>	Pressure UPQ...	MPa	<input type="checkbox"/>	<input type="checkbox"/>	0	<input type="checkbox"/>	<input type="checkbox"/>	0

Channel setting

Enab Measuring subject: Pressure UPQ01 Measuring Unit: MPa

Normal Trigger: Enabled Offset Offset value: 0.000

TriggerA: Enabled Offset Offset value: 0.000

TriggerB: Enabled Offset Offset value: 0.000

Sensor Sensitivity: I 2.101

Upper Limit: 10.000 V 200.000 MPa

Lower Limit: 0.000 V 0.000 MPa

UPI01 Setting: Sensitivity classification: BA

Mold Temperature: 0

Input value / Measured value: Measurement CH: 2

Channel Name: CH01

Shape Setting: Shape: Round Diameter[mm]: 1.00 Long[m]: 1.00 Wide[mm]: 1.00 Area[mm2]: 0.01

Reflect

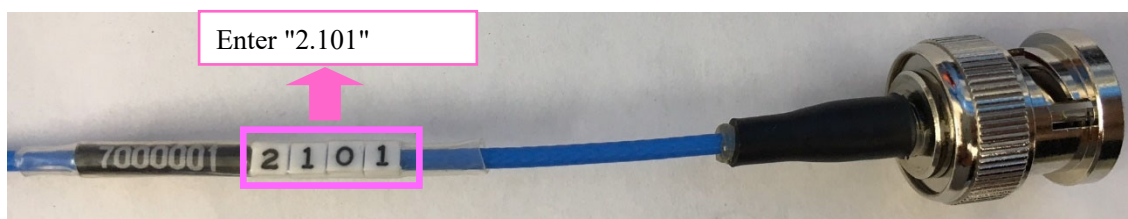
① Select the input channel.

② Select measuring subject "Pressure UPQ01".

③ Enter the sensor sensitivity. Select "I" for the range and input "Mark band value of sensor"

※For the mark band value of the sensor, insert a decimal point "." between the first digit and the second digit as shown in the figure below.

(Example) When a sensor is connected as shown in the figure below, enter "2.101" in the sensor sensitivity of the software.



Press "Save" after the setting is completed.

FUTABA CORPORATION

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

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