

# “Button-Type Pressure Sensor (Large Capacity Type)” Instruction Manual

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## 1. Before use

To use 4kN and 16kN type sensors with your measuring amplifier, a software update is necessary.

If you use a PC-connected type equipment, pressure measuring amplifier “MPS08” or injection molding monitoring system “MVS08”, download the latest version of software from our homepage and update the software.

Latest software download URL: [http://www.futaba.co.jp/precision/mold\\_marshall/software](http://www.futaba.co.jp/precision/mold_marshall/software)

- Latest version of MPS08 pressure measurement software Ver.11.10.43
- Latest version of MVS08 injection molding monitoring system software Ver.1.0.0.11

If you use pressure measuring amplifier (analog voltage output type) “MPV04” or Inline type pressure measuring unit “MPS01A”, please check the serial number of the product. If the serial number is earlier than the following numbers, we collect and update the product. So, please contact your nearest sales office. When collecting your equipment, we will make available a replacement equipment as needed.

- Pressure measuring amplifier (analog voltage output) MPV04 S/N:131-01-00182
- Inline type pressure measuring unit MPS01A S/N:161-01-00046

## 2. Precautions for use

- Use this product within the range of rated capacity.
- Never apply a current to the main unit of the sensor.
- Do not connect the sensor to amplifiers other than compatible Futaba amplifiers.
- Never disassemble the product as doing so could degrade the performance or compromise safety of the product.
- In order to ensure accurate measurement, output sensitivity must be set. For the procedure for setting the output sensitivity, see the instruction manual of our pressure measuring amplifier.
- Do not pull connection cables. 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.
- The allowable range of operating temperature is 200°C or lower. Use the product within the range.
- At the end of its useful life, dispose of the product in an environmentally safe way.

### • Mounting example (Unit: mm)

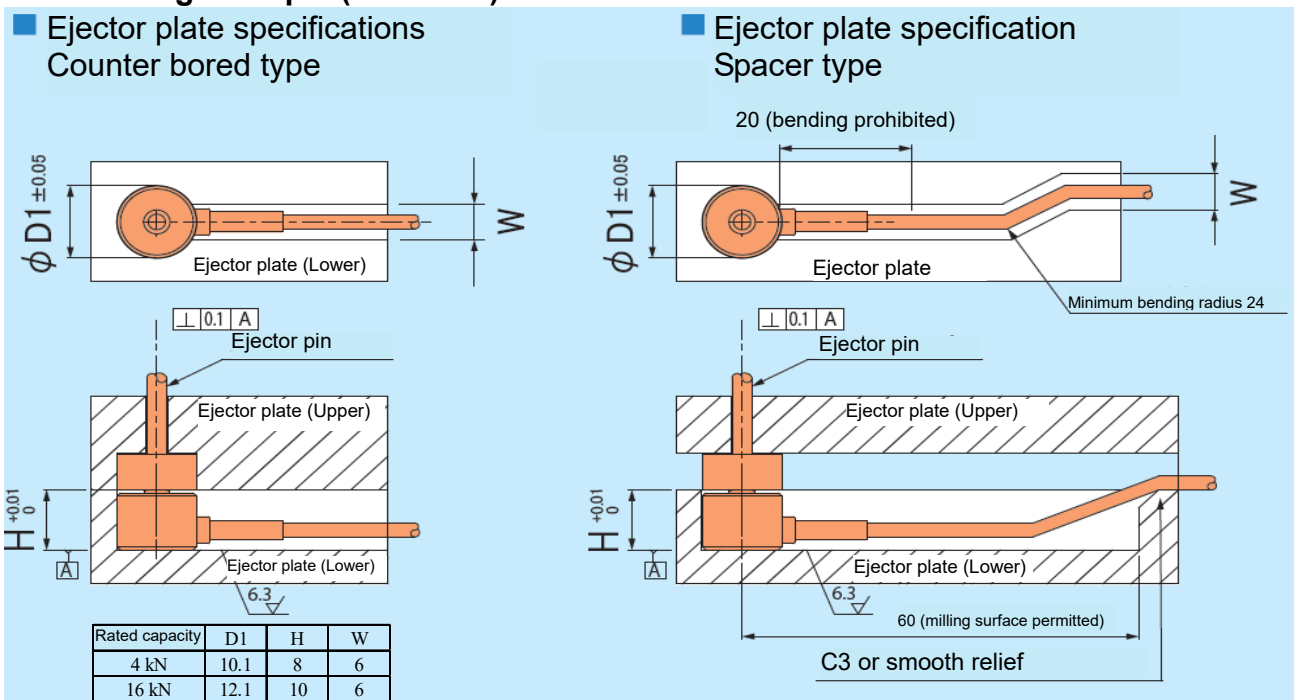
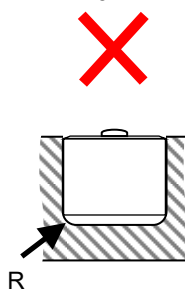


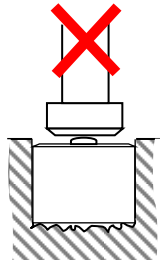
Figure 1. Mounting examples and dimensions of sensors

## 3. Wrong mounting examples

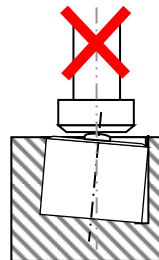
The bottom outer circumference area should be R0.4 or less.



Machined surface must be smooth.



Install the sensor aligned with the pin shaft.



Do not install the sensor upside down.

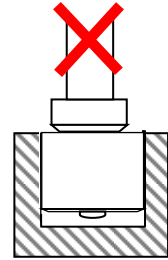


Figure 2. Wrong mounting example

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## 4. Setting sensitivity according to the operating temperature

The button-type pressure sensor large capacity type provides a heat resistance of up to 200°C. Because of the characteristics of a strain gauge used in this product, however, the sensitivity fluctuates depending on the temperature of the installation environment (※). As in the past, the sensitivity classification labeled on the sensor can be set in the measurement software and measuring amplifier. However, in order to perform more accurate measurements, it is necessary to make the setting according to the installation environment. This document explains how to make this setting.

※Installation environment temperature: means operating ambient temperature of the place in which button-type pressure sensor chassis is installed.

### 4-1. Setting method

- ① Check the sensitivity classification of 6 digits (figure at right).
- ② Calculate the setting value of sensor sensitivity.

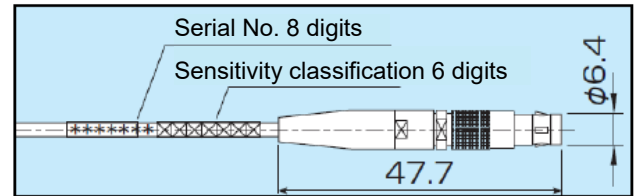


Figure 3. Sensitivity label on the connector(Unit: mm)

Table 1. Conversion factor

Operating temperature (°C)	Factor	Operating temperature (°C)	Factor
25	0.999	115	1.008
30	0.999	120	1.008
35	0.999	125	1.009
40	1.000	130	1.011
45	1.000	135	1.012
50	1.000	140	1.013
55	1.000	145	1.014
60	1.001	150	1.015
65	1.001	155	1.017
70	1.001	160	1.018
75	1.002	165	1.019
80	1.002	170	1.021
85	1.003	175	1.022
90	1.004	180	1.024
95	1.004	185	1.026
100	1.005	190	1.027
105	1.006	195	1.029
110	1.007	200	1.031

Calculation example)

<Assumptions for calculation example>

- Pressure sensor sensitivity classification 71200A
- Operating ambient temperature 190°C (The factor at this time is 1.027 shown in the above table)

< Calculation >

Use “1200” of 71200A and “1.027”, the factor of 190°C operating temperature shown in Table 1.

$$1200 \div 1.027 \doteq 1168$$

Apply this calculated 1168 to the location of 1200 which was used for the calculation, and change the sensitivity classification to be set in the software and amplifier for measurements as follows.

(Before conversion) → (After conversion)

$$71200A \quad \rightarrow \quad 71168A$$

### 4-2. Setting the Sensor Sensitivity

Enter the converted sensor sensitivity value by following the procedure described in the “Setting Sensor Sensitivity” section in the instruction manual of each measuring amplifier.

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