

Resin temperature measurement of in molds  
Mold marshaling system

Resin temperature sensor test probe

# ATPZ01

# 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 Instructions

(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.

## ■ The following warning signs are used in this "Safety Precautions" to ensure safe use.



**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.

## ■ Precautions



**Warning**

When connecting the connector of the test probe, be sure to connect the power cable of the amplifier to an outlet.



**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 test probe. Potential electric shock or damage to equipment

## **1. Introduction**

Check for damage during transportation, etc.

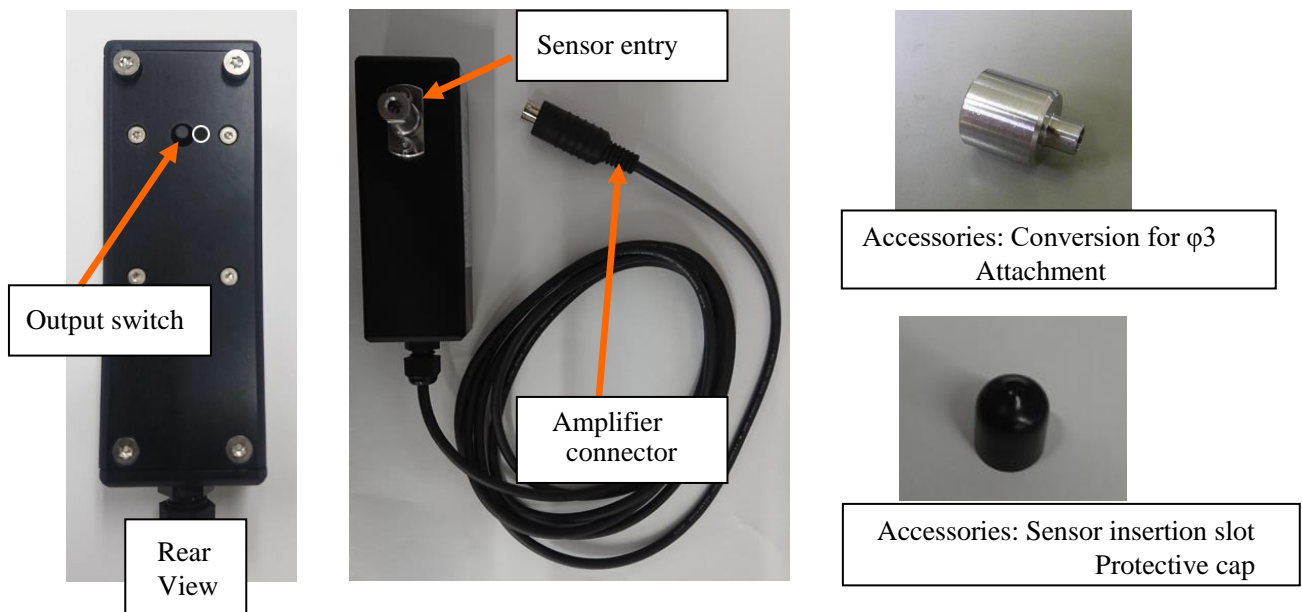
If there are any defects, contact your dealer or our sales office.

## **2. Overview**

This test probe is a device for checking simple operation for resin-temperature sensors (EPSSZL, EPSSZT series). The customer can check the sensor for failure. ※Compact resin-temperature sensor EPSSZLB series is not supported.

The test probe can also be used during startup and shutdown inspections to record detected values for daily inspection of temperature sensors.

## **3. Appearance and Each Section**



## **4. Handling Precautions**

- Do not connect to other than our amplifier EPD-001, EPT-001, MVS08 (with dedicated cables).
- Do not disassemble the internal parts. Doing so will impair the performance and safety of the product.
- Sensitivity must be set for accurate measurement. Refer to the instruction manual of the resin-temperature measurement amplifier EPD-001, EPT-001 for how to set the sensitivity.
- 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.
- If the product is subjected to a large impact due to dropping, etc. , it may be damaged. Handle with care.
- The heat-resistant temperature is 40°C or less. Operate within the specified operating temperature.
- When disposing of the product, dispose of it in an environmentally friendly manner.

## **5. Operation Method**

This section provides instructions for using EPT-001. When using EPD-001, refer to the following instructions and the instruction manual for EPD-001 and perform the checks in the same way.

## 5-1. Items to be prepared

"Test probe ATPZ01", "Main unit amplifier set EPT-001S",  
"Preamplifier EPT-JB001" and "BNC Voltage-Output Cable"  
"Voltage measuring equipment capable of measuring 0 to +5V  
(e.g. multimeter)"

## 5-2. Connecting Your System

- ① Connect the temperature sensor, EPT-001S, EPT-JB001, BNC voltage output cable, and the voltage measuring instrument to be inspected. (For details, refer to EPT-001 instruction manual.)
- ② Connect the connector of the test probe to the "SENSOR TEST" port of the amplifier (Fig. 2). Insert the connector all the way in.



Figure 2 Test Probe Destination

## 5-3. Starting the measurement amplifier and setting conditions for each item

- ① Start the amplifier and let it warm up for about 20 minutes.
- ② Enter the sensitivity of the sensor to be checked on the initial screen shown in Fig. 3, and confirm it with the [SET] button.
- ③ Press the [SET] button once again to change the mold correction temperature to the current room temperature (when the image is at 20°C), and then press the [SET] button to confirm (Fig. 4).

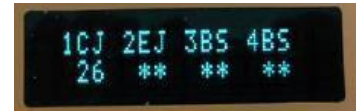


Figure 3 Initial screen



Figure 4 Mold temperature correction

## 5-4. Test probe installation

- ① Remove the protective cap, insert the tip of the sensor into the sensor insertion slot, and push it lightly until the tip of the sensor contacts the wall at the back of the insertion slot (Fig. 5).
- ② When inspecting EPSSZL-03.0X030, after attaching the "Conversion attachment for φ3" to the sensor insertion slot, similarly insert it until the sensor tip comes into contact (Fig. 6).

### <WARNING>

**Check the sensor after it is removed from the mold. When checking with the sensor attached to the mold unavoidably, set the mold temperature to room temperature (20 to 30°C) and leave the sensor protruded sufficiently (10mm or more).**

**If the protrusion amount is insufficient or there is another pin or part of the mold around the sensor, and if the test probe interferes, do not measure as it is attached. Be careful not to damage the mold with the test probe during measurement.**

**Do not forcibly insert the sensor if the tip is deformed or has dust or foreign matter. This may damage the temperature sensor and test probe.**

**Do not insert a thin rod, etc., into the sensor insertion slot. If the internal elements are touched, the elements will be damaged.**



Figure 5  
EPSSZL-03.0X030



Test probe mounted status Figure 6 When attaching

### 5-5. Start of measurement

- ① Pressing the "SET" button again opens the trigger entry window (Fig. 7). Press the "→" button in this condition to set 0.
- ② Press the output switch on the test probe (do not hold it down for more than 5 seconds) and read the value displayed on the voltage measurement device.  
Normally displayed as 100°C = 1V.



Figure 7 Trigger input screen

### 5-6. Judgment for the output value

- Select the type of sensor to be checked from Table 1, and confirm that the measured temperature is output according to the specified values in Table 1.  
The specified values listed in Table 1 are also attached to the sides of the test probe.
- The sensor is normal if the output value is **within ±8°C of the specified value**. If the temperature exceeds ±8°C, the sensor may be damaged or the sensitivity may fluctuate greatly.

Table 1 List of specified values

Sensor type	Cable length	Specified value
EPSSZL	500mm	148°C
	1000mm	150°C
	1500mm	154°C
EPSSZT	1000mm	155°C
	1500mm	156°C
	2000mm	159°C

- If you are unable to determine the damage or change in the sensitivity, we will accept the operation check of the sensor free of charge. Contact our person in charge.  
If you wish to recalibrate the product, you will be charged for it.

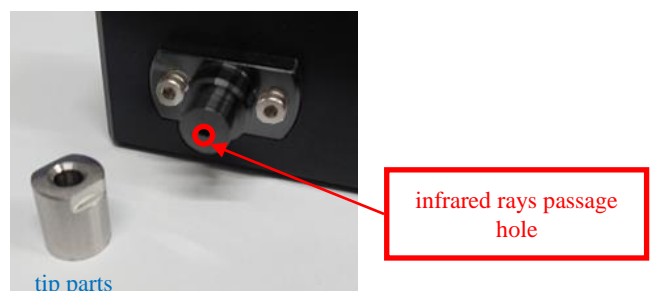
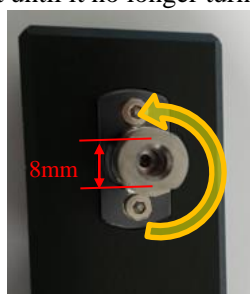
### 6. Method for checking changes in sensitivity (daily inspection)

Sensitivity can be checked by using this product immediately after purchasing the temperature sensor (or immediately after calibration) and recording the measured values. Since the error due to measurement is within ±2°C, if it exceeds ±2°C at the next measurement, the sensitivity may be deviated.

The ambient temperature of the temperature amplifier (including the preamplifier) used for measurement should be the same as the initial temperature as possible.

### 7. About cleaning

If a foreign object gets into the sensor insertion part or it becomes dirty, the measured values may be affected. If any abnormality is observed, use an 8mm wrench to loosen the tip of the sensor insertion part by turning it counterclockwise, and clean the tip or the bottom of the insertion part. **When cleaning the bottom, be careful not to let dirt or thin sticks get into the infrared rays passage hole.** After cleaning, turn the tip part clockwise to install it, and lightly tighten it until it no longer turns.



## **8. Storage**

After use, put the protective cap over the sensor insertion slot and place it sideways so that no load is applied to the switch. Store it in a place with little dust, avoiding high temperature, low temperature and condensation.

## **9. Specifications**

Applicable sensor	Resin temperature sensor made by Futaba Corporation EPSSZL and EPSSZT Series
Connected Amplifier	Resin temperature measuring amplifier manufactured by Futaba Corporation EPD-001, EPT-001, MVS08 (with dedicated connecting cable)
Operating temperature	+10~+40°C
Cable length	2m
External Dimensions (Main Unit)	36X100X44[mm]
Weight	Approx. 260g (including conversion attachment for φ3)

**FUTABA CORPORATION**

<http://www.futaba.co.jp>

[Inquiries about this product](#)

〒299-4395 1080 Yabuzuka, Chosei-mura, Chosei-gun, Chiba Prefecture  
TEL.0475-30-0809 (Cost) FAX.0475-30-0818

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

ATPZ01-2303X-A1J