

1. General

The Model DPAS405 pH Sensor for Small Culture Tanks consists of a pH sensor for the DPAS405-□□□ small culture tank and its cable. The DPAS405 sensor is used for the pH measurement in culture using media containing a lot of protein or of tissue cultures for animals and plants. This pH sensor can be sterilized in an autoclave. The pH sensor can also be sterilized with steam if the sensor is mounted. In addition, as the inside of the sensor is pressurized, the sensor does not require a pressurized holder.

2. Applications

- pH measurement in small culture tanks
- pH measurement in cell tanks for animals and plants
- pH measurement in culture media containing a lot of protein

3. Specifications

Measuring range: pH 0 to 12

Measuring temperature:

0 to 100°C (applicable for autoclave)
max. 130°C for sterilization

Measuring pressure:

Atmospheric pressure to 250 kPa

Internal electrolyte: High-viscosity gel

Temperature compensation sensor:

None (Manual temperature compensation on the converter or transmitter)

Applicable holder: Silicon cap holder

(Note) Use silicon bush or socket (DIN Pg 13.5 female) for an insertion length of 120 mm and 200 mm.

Wetted part materials:

Body; Glass

O-ring; Silicon rubber or Daielperfrow

CAUTION ON USE:

This sensor cannot be used outdoors and with guide-pipe holder.

The sensor must be installed in a vertical position. It cannot be installed from below and in a horizontal position, either.

4. Model and Codes

Model	Suffix Code	Option Code	Specifications
DPAS405	pH sensor for small culture tanks
Insertion Length (*1)	-120	120mm
	-200	200mm
	-325	325mm
Option	For PH200/PH400 Cable Length (*2)	/03	3m
		/05	5m
		/10	10m
		/15	15m
		/20	20m
	For PH202 Cable Length (*3)	/03E	3m
		/05E	5m
		/10E	10m
		/15E	15m
		/20E	20m
	O-ring	/PF	Daielperfrow (*4)

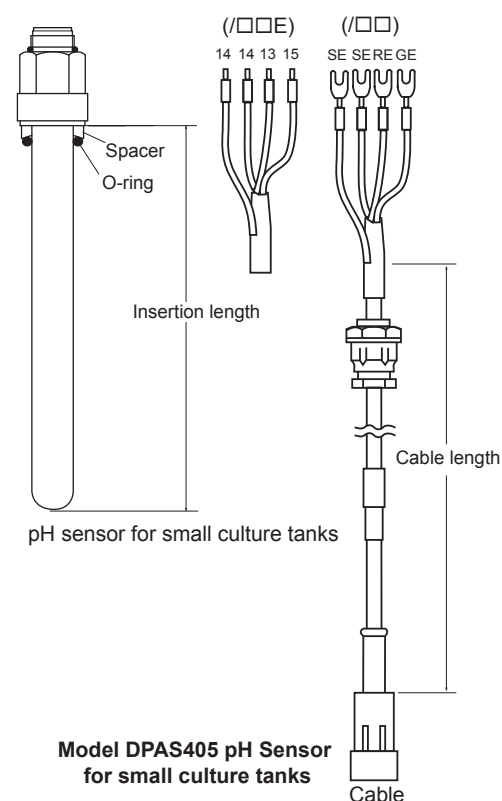
* 1: Use silicon bush or socket (DIN Pg13.5 female) for an insertion length of 120mm and 200mm.

* 2: Mark band is shown by mark and fork terminals are used.

* 3: Mark band is shown by numeral and pin terminals are used.

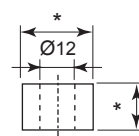
* 4: Choose Daielperfrow when this is used in organic solvent, high alkali or high temperature alkali solution.

T13.ai



Model DPAS405 pH Sensor
for small culture tanks

Silicon bush



The length marked with an asterisk (*) is depending on the insertion port.

5. How to Use the pH Sensor

5.1 Caution on handling the sensor

- Do not let the sensing glass membrane dry out. If the sensor is stored, place it in liquid (about 3.3 mol/l KCl solution).

Note : If the sensor is stored with the cap mounted on the electrode tip, drying out can be prevented.

If pH response becomes slow due to drying out, place the electrode in liquid (about 3.3 mol/l KCl solution) for several hours.

In addition, the sensing glass membrane of the pH sensor gradually deteriorates during storage.

A virgin pH sensor may become unusable because of its deterioration. Avoid storing the sensor for a long time (Use within a year is recommended.)

- The new sensor is pressurized at about 250 kPa. This pressure, one year after removal of sealing material, at the liquid junction, will decrease to about 50 kPa at normal ambient temperatures and atmospheric pressure. If the pressure of a sample solution becomes higher than the inner pressure of the sensor, the solution will permeate gel electrolyte in the sensor. As a result, the sensor can become unusable.

Note: A rough change of the sensor inner pressure can be known by the air layer length of a narrow tube in the sensor. The higher the internal pressure, the shorter the air layer.

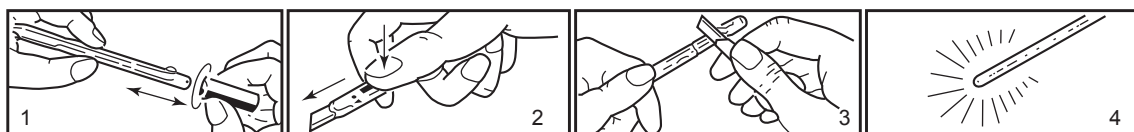
- Do not clean the sensor with ultrasonic instrument which can destroy its internal gel electrolyte. If cleaning the sensor is necessary, use the holder with jet cleaning device.
- If the sensor is installed outdoors, take rainproof measures.
- The pH sensor should be mounted at least 15 degrees below horizontal, with the sensor tip (sensing glass membrane) facing down. Do not mount it in a horizontal position or with the sensor tip facing upward. Air space may be created in the tip of the glass electrode, thus interfering with accurate measurement.

5.2 Removal of material for sealing the liquid junction

Note: Check that there are no air bubbles trapped in the internal electrolyte near the liquid junction, there are bubbles may interfere with accurate measurement. Stand the pH sensor with the glass electrode facing down and leave to stand for a while until air bubbles rise to the top.

A seal material is coated over the liquid junction of the sensor.







Before use, remove the sealing with the attached cutter as shown in the below figures.



Procedure for Removing Sealing Agent at the Liquid Junction

5.3 Wiring

First connect the cable to the pH sensor for small culture tanks. Remove the cap (for transportation or storage) covering the sensor connector and engage the cable connector with the sensor connector. Then lock them (screw connection). Next, connect the cable conductors to terminals of the pH converter or transmitter.

Cable conductor abbreviations	Converter / transmitter terminal abbreviations	
		S (16)
GE (15)		GE (15)
SE (14)		SE (14)
SE (14)		T2 (12)
		T1 (11)
RE (13)		RE (13)

Note :

The pH sensor for small culture tanks does not incorporate a temperature sensor. Thus, there are no connections to the converter / transmitter terminals T2 (12) and T1 (11).

The two cable conductors abbreviated SE (14) are both connected to the SE (14) terminal of the converter / transmitter. (There is no connection to the terminal S (16).)

5.4 Maintenance of pH Sensor for Small Culture Tanks

Be sure to carry out sterilization in autoclaves or steam sterilization in mounting sensor to a culture tank at 130°C or less. If sterilization is to be carried out in an autoclave, cover the pH sensor connector with the protection cap (attached).