

Petri Dish pH and CO₂ Sensor — portable version

Symbols used in this manual



Warning. Information or instructions that are related to safety. Failure to follow these instructions may result in personal or third-party injury.



Caution. Important information or instructions related to the safe use of the equipment. Failure to follow these instructions may result in damage to equipment, samples or data.

Safety instructions



Warnings

- If the equipment is used in a manner not specified within the manual, the protection offered by the equipment may be impaired.
- Indoor use only.



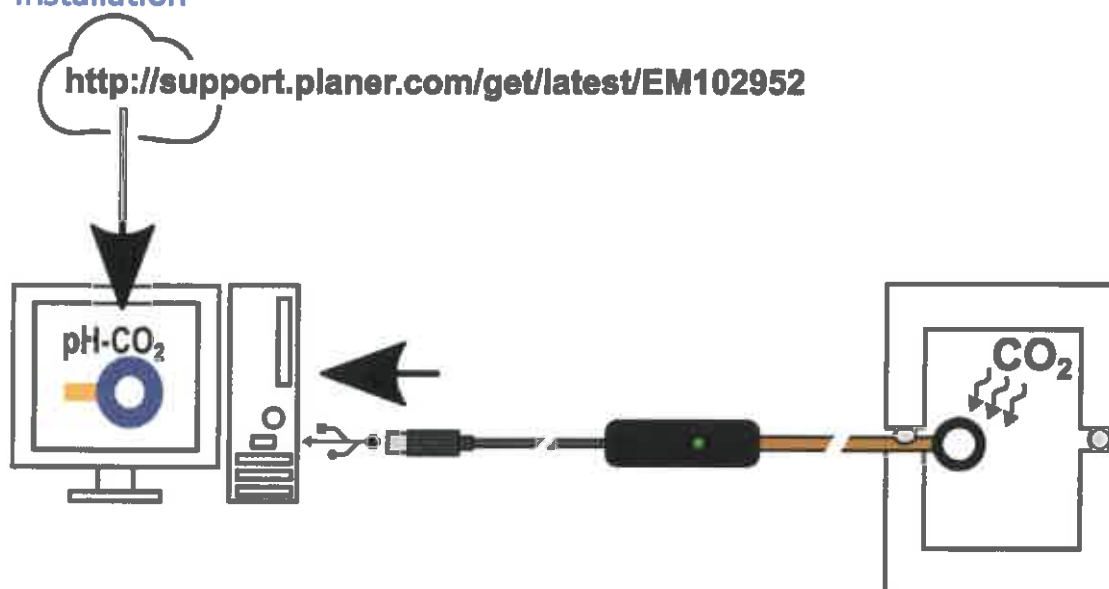
Cautions

- Servicing must be undertaken by suitably trained engineers.
- Maintenance by the user is limited to cleaning and decontamination.

Introduction

The Petri Dish pH and CO₂ Sensor is a small device designed to measure the CO₂ concentration inside incubators and environmental chambers. The portable version is connected to the USB port on your PC. The accompanying application will enable you to monitor the CO₂ levels and also derive the expected pH based upon the Henderson-Hasselbalch equation.

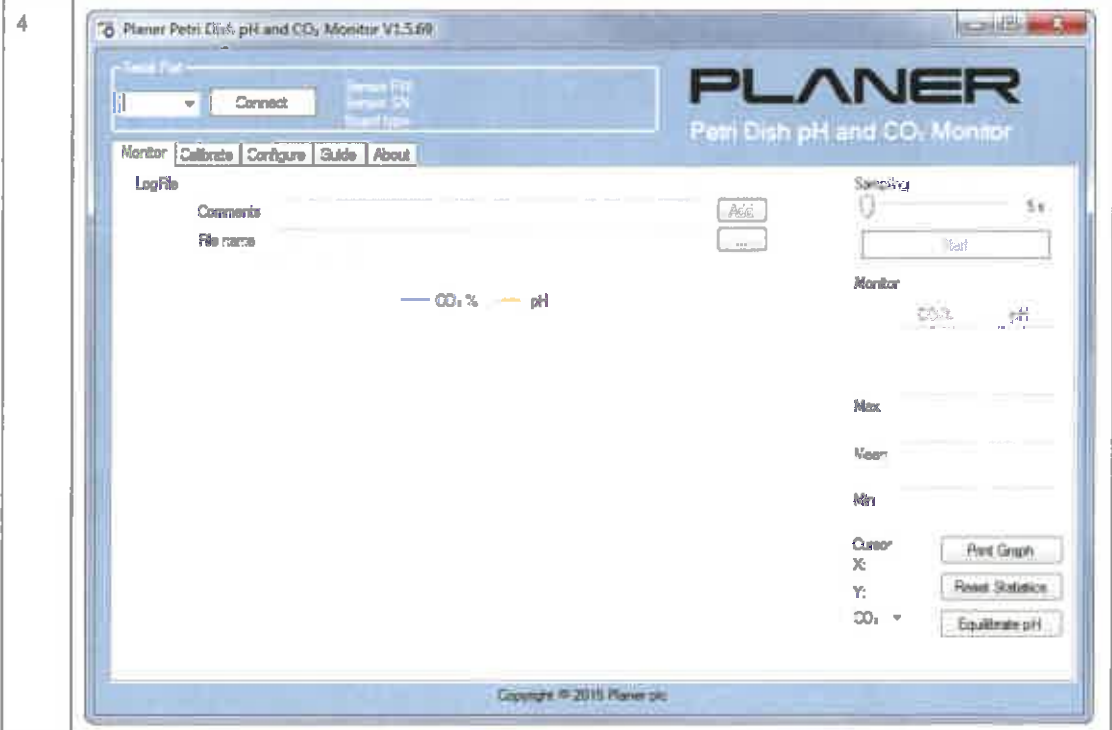
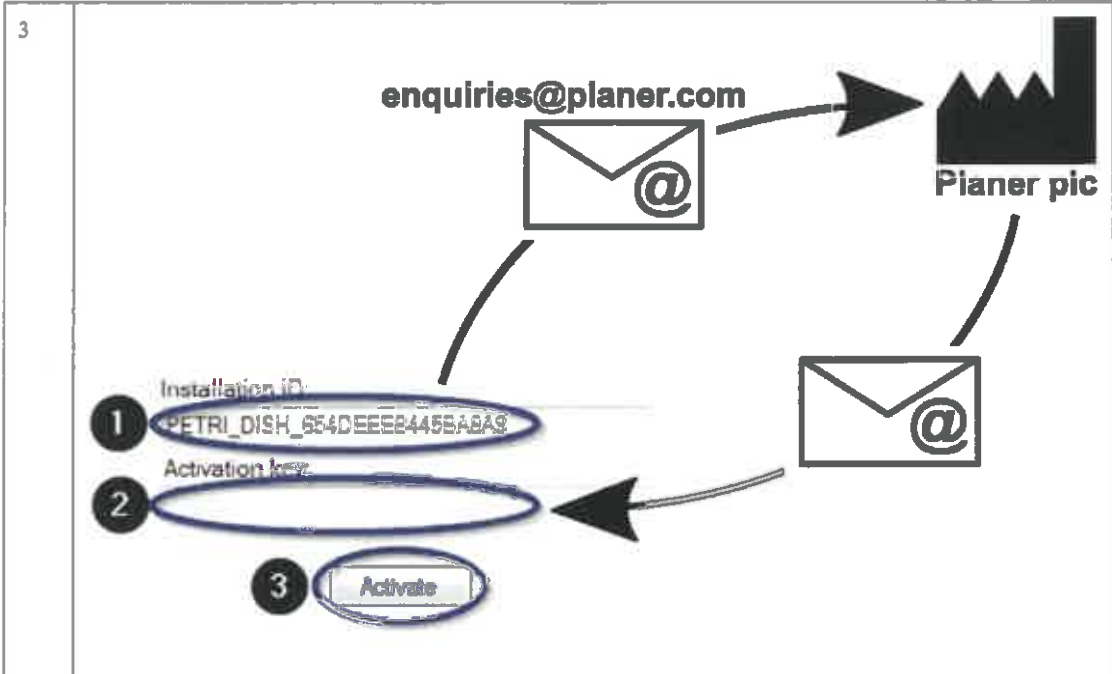
Installation




Operation

1


2



6



7



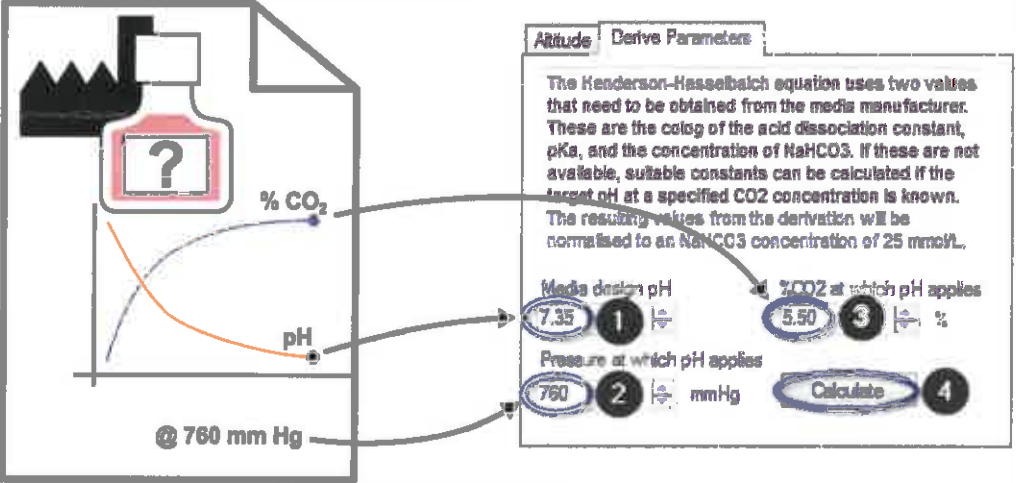
8

Petri Dish pH and CO₂ Monitor

Altitude Derive Parameters

If you do not know the normal pressure, enter the height above sea level of your location.

9



The Henderson-Hasselbalch equation uses two values that need to be obtained from the media manufacturer. These are the \log of the acid dissociation constant, pK_a , and the concentration of NaHCO_3 . If these are not available, suitable constants can be calculated if the target pH at a specified CO_2 concentration is known. The resulting values from the derivation will be normalised to an NaHCO_3 concentration of 25 mmol/L.

Media design pH: 7.35 (1)

Pressure at which pH applies: 760 (2) mmHg

% CO_2 at which pH applies: 5.50 (3) %

Calculate (4)

10

Atmospheric pressure (P_a):
760 mm Hg

pH recovery time constant:
8640 s

Start pH of media:
8.00

11

Atmospheric pressure (P_a):
760 mm Hg

pH recovery time constant:
8640 s

Start pH of media:
8.00

12

Altitude Derive Parameters

The Henderson-Hasselbalch equation uses two values that need to be obtained from the media manufacturer. These are the pK_a of the acid dissociation constant, pK_a , and the concentration of $NaHCO_3$. If these are not available, suitable constants can be calculated if the target pH at a specified CO_2 concentration is known. The resulting values from the derivation will be normalised to an $NaHCO_3$ concentration of 25 mmol/L.

Media design pH: 8.00

CO_2 at which pH applies: 4.00

Pressure at which pH applies: 760 mmHg

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Altitude Derive Parameters

If you do not know the normal pressure, enter the height above sea level of your location.

Altitude 1

Calculate 2

14

Get Alt Set Alt Load Config Save Config Defaults Clear Log

15

Monitor Calibrate Configure Guide About

pH conversion

Log of acid dissociation constant (pKa): 6.05 Get Set

Concentration of NaHCO₃: 25.00 mmol/L Get Set

16

Monitor Calibrate Configure Guide About

LogFile

Comments

File name

— OD, % — pH

17

File name: MyTestFile 1

Save as type: Comma-separated values (.csv) (*.csv)

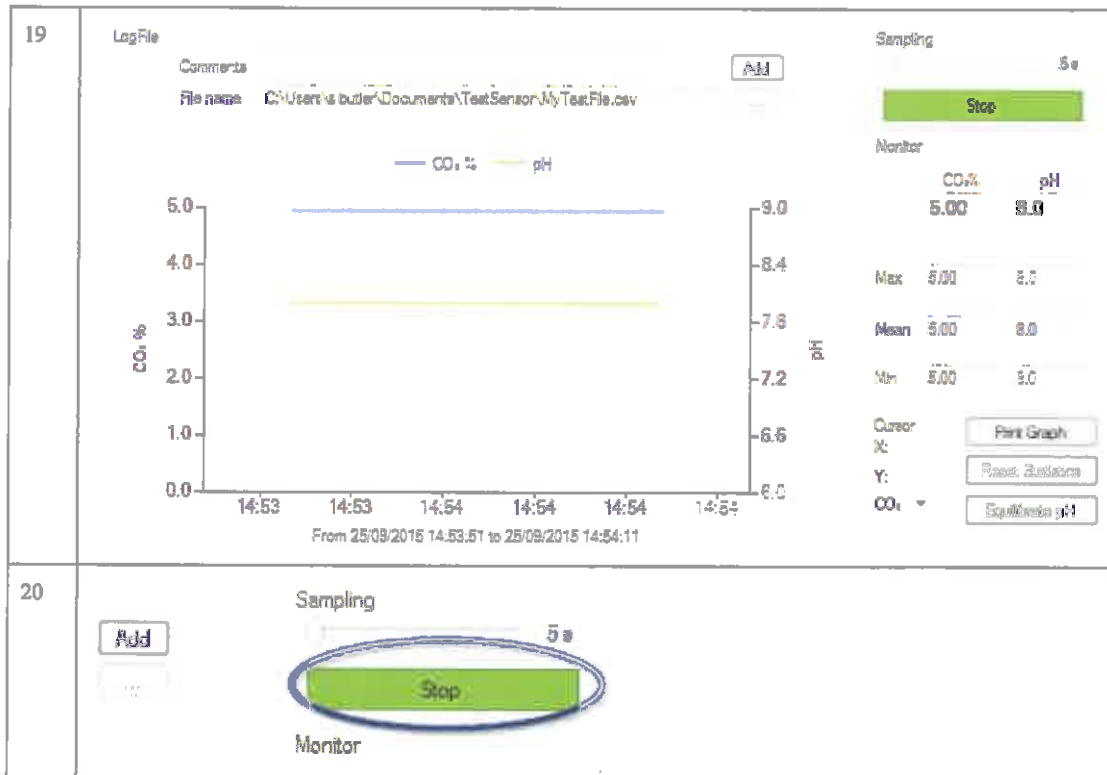
Save 2 Cancel

18

Sampling 5 s

Monitor

Add Start



Cleaning

1. Disconnect from the power supply.
2. Gently wipe with a damp cloth and sterile water.
3. Wait 2 minutes.
4. Allow to dry.

Disinfection

1. Disconnect from the power supply.
2. Gently wipe with a damp cloth and sterile water.
3. Wait 2 minutes.
4. Repeat 3 times.
5. Clean surfaces with a 70 % isopropyl alcohol wipe.
6. Wait 15 minutes.
7. Gently wipe with a damp cloth and sterile water
8. Allow to dry.

Specifications

Dimensions	Ø35 x 11.5 mm
Operating temperature	10 °C to 42 °C
Operating relative humidity (non-condensing)	Sensor: 0 % to 95 % System: < 80 % up to 31 °C, decreasing linearly to 50 % at 40 °C
Storage temperature	-40 °C to 80 °C
Storage relative humidity (non-condensing)	5 % to 95 %
Sensor type	Infrared
Measurement range	0 % to 20 % CO ₂
Accuracy	±50 ppm or ±3 % of reading, whichever is greater.
Connection	USB 2.0 standard-A

