

# SenseCAP S2106 - LoRaWAN® pH Sensor

---



SenseCAP LoRaWAN S2106 pH Sensor measures pH at the range of 0~14. This pH Sensor measures the hydrogen-ion activity in water-based solutions, indicating its acidity or basicity expressed as pH. pH level is an important indicator in many scenarios, especially in monitoring soil conditions and water quality. S2106 can be widely applicable in water and soil sensing scenarios. It is specifically optimized for OTA with built-in Bluetooth, which enables quick setup and update. Benefiting from LoRa and IP66 design, this sensor features stability and reliability and can cover a long transmission range while keeping lower power consumption. Unlike wireline devices, it is battery-powered, reducing the workload and complexity of the deployment, and can be disassembled and installed in a few minutes.

## Feature

---

- **Compatible with Worldwide LoRaWAN® Networks:** Compatible with different types of LoRaWAN® gateways to enable fast connection with LoRaWAN® networks (support the universal frequency plan from 863MHz ~928MHz).
- **Long Range & Battery powered:** Ultra-wide-transmission range of 2km in urban scenes and 10km in line of sight scenes. Powered by easily replaceable standard Li-SOCI2 battery (type: ER34615) with Max.10 years of battery life.

- **Designed to Use in Harsh Environments:** -40°C ~ 85°C operating temperature and IP66-rated enclosure, suitable for outdoor use, high UV exposure, heavy rain, dusty conditions, etc.
- **Simple Configuration and Calibration:** SenseCAP provides a no-code experience that enables users to finish configuration and calibration through SenseCAP Mate APP.

## Specification

---

### pH

---

Range	0 to 14 pH
-------	------------

---

Accuracy	±0.1 pH
----------	---------

---

Resolution	0.01 pH
------------	---------

---

### Temperature (Built-in junction box\*)

---

Range	-40 to 80 °C
-------	--------------

---

Accuracy	±0.5 °C
----------	---------

---

Resolution	0.1 °C
------------	--------

---

### General Parameters

---

Product Model	S2106
---------------	-------

---

Microcontroller	Wio-E5
-----------------	--------

---

Support Protocol	LoRaWAN v1.0.3 Class A
------------------	------------------------

---

Built-in Bluetooth	App Tool to change parameters
--------------------	-------------------------------

---

LoRaWAN Channel Plan	IN865/EU868/US915/AU915/ AS923/KR920/RU864 **
----------------------	---

---

Max Transmitted Power	19dBm
Sensitivity	-136dBm@SF12 BW=125KHz
Communication Distance	2 to 10 km (depending on gateway antenna and environments)
IP Rating	IP66(LoRa DTU); IP65(Junction box); IP68(Sensor probe)
Operating Temperature	-40 to +85 °C
Operating Humidity	0 to 100 %RH (non-condensing)
Device Weight	600g
Cable Length	2 meters (DTU to junction box); 5 meters (Junction box to probe)
Maintenance and calibration	The probe needs to be cleaned every 3 to 6 months and calibrated every 6 to 12 months
Certification	CE / FCC / RoHS
Battery (Contained in equipment)	
Battery Life	Up to 10 years***
Battery Capacity	19Ah (non-rechargeable)
Battery Type	Standard D-size SOCI2 Battery

\* Note: the temperature sensor in the junction box can not measure the temperature of water or soil.

\*\* A device supports different frequencies and can be configured via the Bluetooth App.

\*\*\* The battery life varies from data upload interval and distance between a gateway.

## LoRaWAN® Frequency

---

Note: **No Frequency limitation.** The sensor can be switched to other frequency plans at any time.

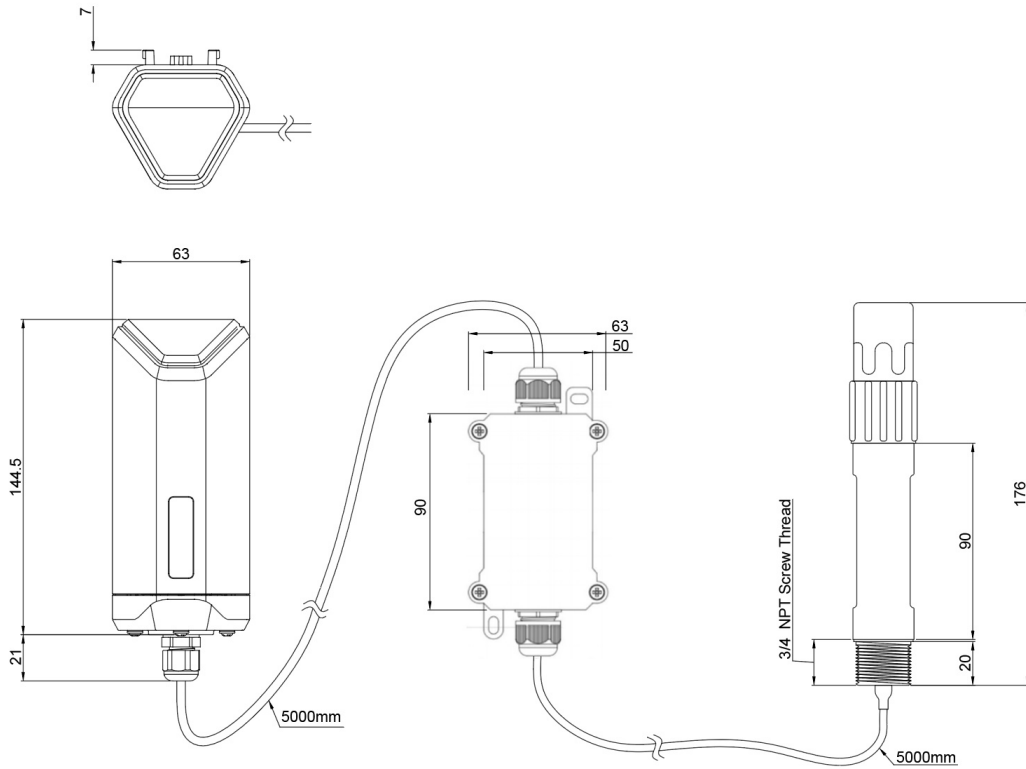
S210x Devices are manufactured to support the universal frequency plan from 863MHz ~928MHz in one SKU. That is to say, every single device can support the frequency plans below:

<b>Frequency Plan</b>	<b>Common Name</b>	<b>Sub-band</b>
EU863-870	EU868	___
US902-928	US915	Sub-band from 1 to 8
AU915-928	AU915	Sub-band from 1 to 8
AS923	AS923	AS923_1, AS923_2, AS923_3, AS923_4
IN865-867	IN865	___
KR920-923	KR920	___
RU864-867	RU864	___

The frequency plan setting is none by default and it will not transmit RF signal until it has been set by App via Bluetooth at the first power-up. And it can be changed to other frequency plans at any time.

## **Dimension**

---



## Part List

Sensor Node	x1
Bracket	x1
Quick Start Guide	x1
KA4*20mm Self-drilling Screw	x4



Seeed Studio® has always been deeply engaged in the Internet of Things as a Contributor Member of the LoRa Alliance™, the global association of companies backing the open LoRaWAN™ standard for the internet of things (IoT)

## ECCN/HTS

HSCODE	9027899090
USHSCODE	9027102000
UPC	
EUHSCODE	9027109000
COO	CHINA

---

CE	1
----	---

---

EU DoC	1
--------	---

---

FCC	1
-----	---

---

RoHS	1
------	---