SENSECAP

SenseCAP S210X LoRaWAN Sensor

Product Catalogue

About SenseCAP

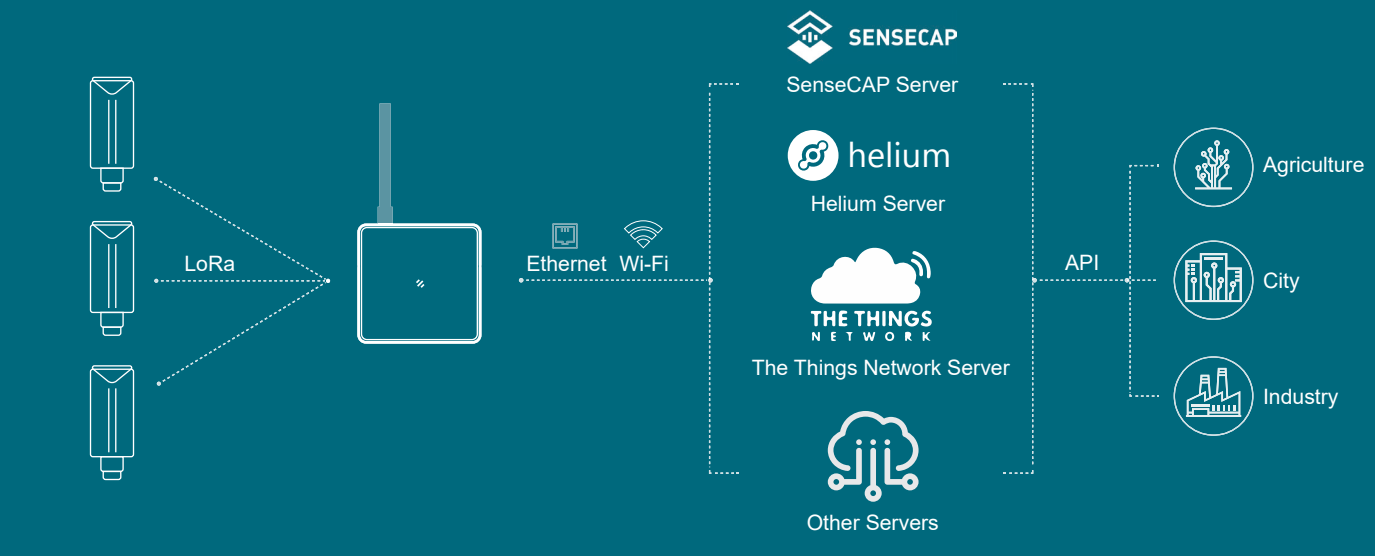
Among the first launch of Seeed IIoT product series, SenseCAP is focusing on wireless environmental sensing applications: smart agriculture, precision farming, and smart city, to name a few. It consists of hardware products (sensors, data-loggers & gateways, etc.), software services (SenseCAP portal, mobile App, open dashboard), and API for device & data management.

About S210X Series

The next generation of LoRa sensors, the S210X series offers users' industrial long-distance data acquisition via LoRaWAN. The S210x series is suitable for a wide variety of different industries such as smart agriculture, smart buildings and industrial control.

With the IP66 rating, -40 ~ +85C ° operating temperature and built-in 19Ah high-capacity battery, combined with the devices' low power consumption, the S210X series can operate in harsh outdoor environments for up to 10 years with a range of up to 10km. The built-in Bluetooth facilitates setup and greatly reduces large-scale deployment costs. Users can focus on application development with the easy set-up, and start retrieving data in a few steps. Just install the device, bind it using the QR code and configure the network, then data can be viewed from the SenseCAP portal, which supports popular IoT protocols such as HTTP and MQTT.

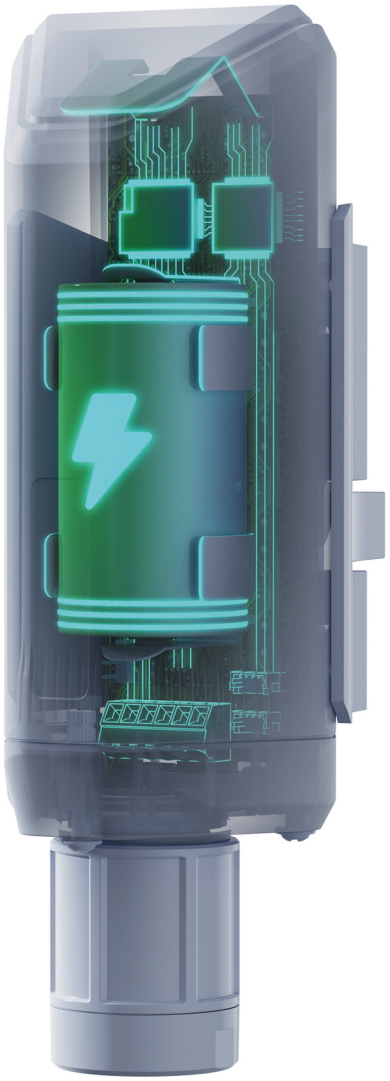
Architecture



Features

High accuracy sensor
Fast response and superior stability

Quick configuration
User–friendly set–up with built–in Bluetooth



Ultra-low power consumption
Battery life of up to 10 years with built–in 19Ah battery

Easy deployment
Easy to mount via brackets

Industrial design
–40 ~ 85℃ operating temperature and IP66 rating

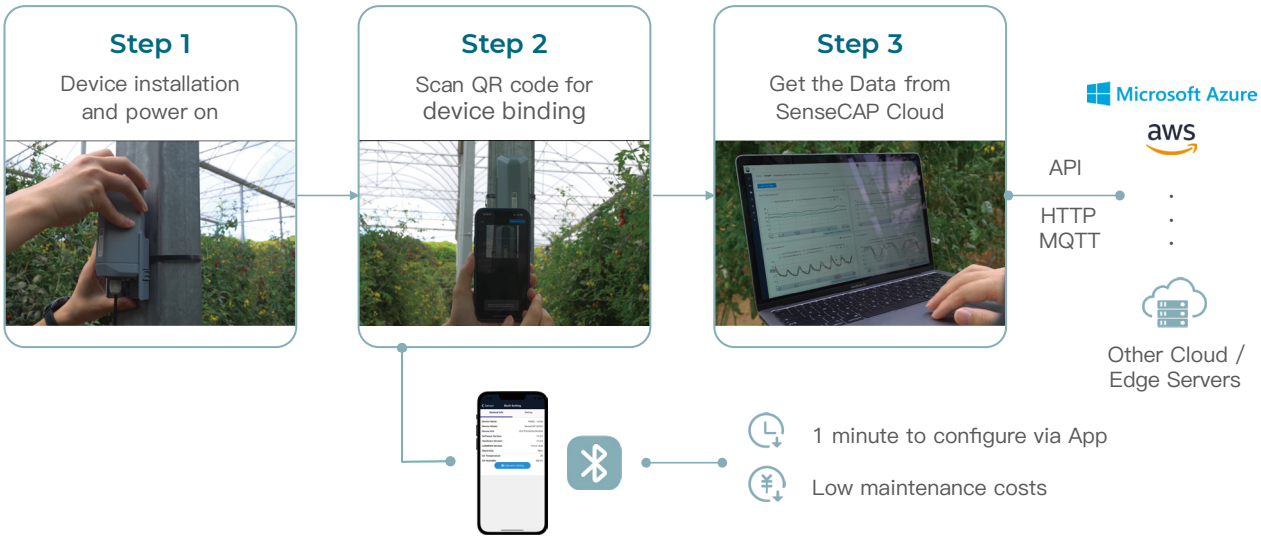
Efficient integration
SenseCAP cloud services with Open API support further development

Weather resistant
Suitable for indoor, outdoor and harsh environments such as high UV exposure, heavy rain, dusty conditions etc.

Multi-platform
Compatible with multiple NS (Helium, TTN) and IoT platforms

Application

3 Steps to Get the Data based on SenseCAP Portal



SenseCAP S2101

Air Temperature and Humidity Sensor

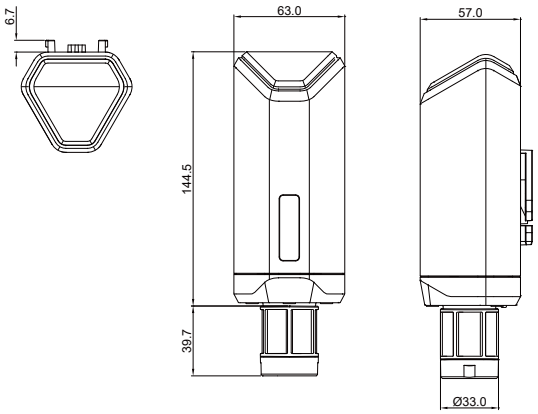
Specifications

Air Temperature	
Range	–40 to +85 ˚C
Accuracy	±0.2 ˚C
Resolution	0.01 ˚C
Long–term Drift	<0.03 ˚C/year
Air Humidity	
Range	0 to 100 %RH
Accuracy	±1.8 %RH
Resolution	0.01 %RH
Long–term Drift	<0.25 %RH/year
General Parameters	
Product Model	S2101
Microcontroller	LoRa–E5
Support Protocol	LoRaWAN v1.0.3 Class A
Built–in Bluetooth	App Tool to change parameters
LoRa Channel Plan	IN865/EU868/US915/AU915/ AS923/KR920/RU864 *
Max Transmitted Power	19dBm
Sensitivity	–136dBm@SF12 BW=125KHz
Communication Distance	2 to10km (depending on gateway antenna and environments)
IP Rating	IP66
Operating Temperature	–40 to +85 ˚C
Operating Humidity	0 to 100 %RH (non–condensing)
Device Weight	280g
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

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

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

Dimension



SenseCAP S2102

Light Intensity Sensor

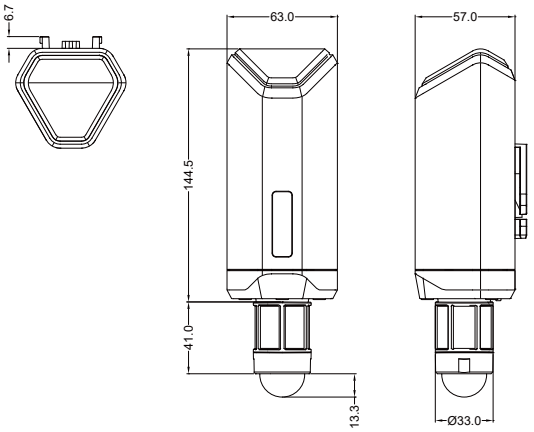
Specifications

Light Intensity	
Range	0 to 160000 Lux
Accuracy	±5%
Resolution	1 Lux
General Parameters	
Product Model	S2102
Microcontroller	LoRa-E5
Support Protocol	LoRaWAN v1.0.3 Class A
Built-in Bluetooth	App Tool to change parameters
LoRa 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
Operating Temperature	-40 to +85 °C
Operating Humidity	0 to 100 %RH (non-condensing)
Device Weight	280g
Certification	CE / FCC / RoHS
Battery (Contained in equipment)	
Battery Life	Up to 10 years**
Battery Capacity	19Ah (non-rechargeable)
Battery Type	Standard D-size SOCl2 Battery

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

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

Dimension



SenseCAP S2103

CO2, Temperature, and Humidity Sensor

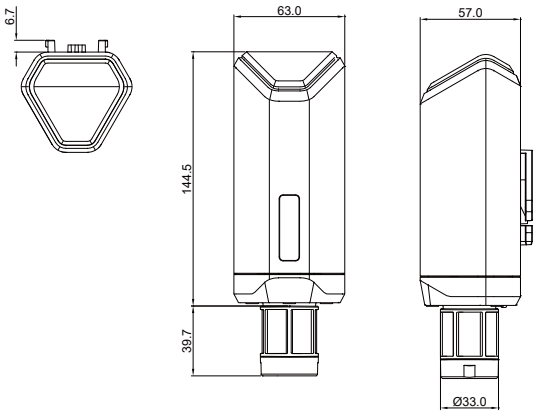
Specifications

CO2	
Range	400 to 10000 ppm
Accuracy	400 to 5000 ppm: ±(30+3%MV)
	5000 to 10000 ppm: ±10%MV
Resolution	1 ppm
Air Temperature	
Range	–40 to +85 °C
Accuracy	±0.2 °C
Resolution	0.01 °C
Long–term Drift	<0.03 °C/year
Air Humidity	
Range	0 to 100 %RH
Accuracy	±1.8 %RH
Resolution	0.01 %RH
Long–term Drift	<0.25 %RH/year
General Parameters	
Product Model	S2103
Microcontroller	LoRa–E5
Support Protocol	LoRaWAN v1.0.3 Class A
Built–in Bluetooth	App Tool to change parameters
LoRa 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
Operating Temperature	0 to 50 °C
Operating Humidity	0 to 90 %RH (non–condensing)
Device Weight	285g
Certification	CE / FCC / RoHS
Battery (Contained in equipment)	
Battery Life	Up to 10 years**
Battery Capacity	19Ah (non–rechargeable)
Battery Type	Standard D–size SOCl2 Battery

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

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

Dimension



SenseCAP S2104

Soil Temperature and Moisture Sensor

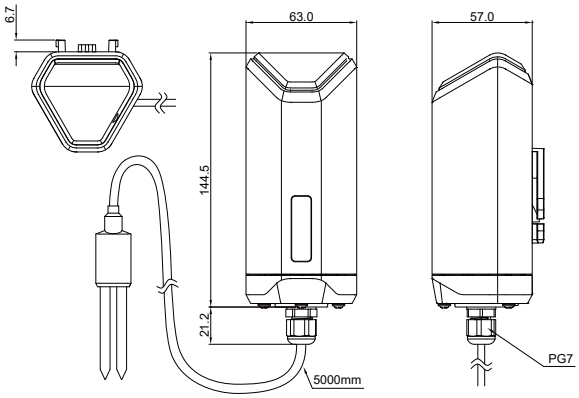
SenseCAP S2105

Soil Temperature,Moisture and EC Sensor

Specifications

Soil Temperature	
Range	–40 to +80 ˚C
Accuracy	0 to 50˚C: ±0.5 ˚C
	–40 to 0, 50 to 80˚C: ±1 ˚C
Resolution	0.1 ˚C
Soil Moisture (VWC–Volumetric Water Content)	
Range	0 to 100% (air – water)
Accuracy	0 to 50%: ±3%
	50 to 100%: ±5%
Resolution	0 to 50%: 0.1%
	50 to 100%: 0.5%
Electrical Conductivity (Only supported in S2105)	
Range	0 to 23 dS/m
Accuracy(0~50˚C)	0 to 5 dS/m: ±5%
	5 to 23 dS/m: ±10%
Resolution	0 to 5 dS/m: 0.01dS/m
	5 to 23 dS/m: 0.1dS/m
General Parameters	
Product Model	S2104/S2105
Microcontroller	LoRa–E5
Support Protocol	LoRaWAN v1.0.3 Class A
Built–in Bluetooth	App Tool to change parameters
LoRa 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
Operating Temperature	–40 to +85 ˚C
Operating Humidity	0 to 100 %RH (non–condensing)
Device Weight	405g
Cable Length	5 meters
Certification	CE / FCC / RoHS
Battery (Contained in equipment)	
Battery Life	Up to 10 years**
Battery Capacity	19Ah (non–rechargeable)
Battery Type	Standard D–size SOCl2 Battery

Dimension



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

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

SenseCAP S2100

LoRaWAN Data Logger

Specifications

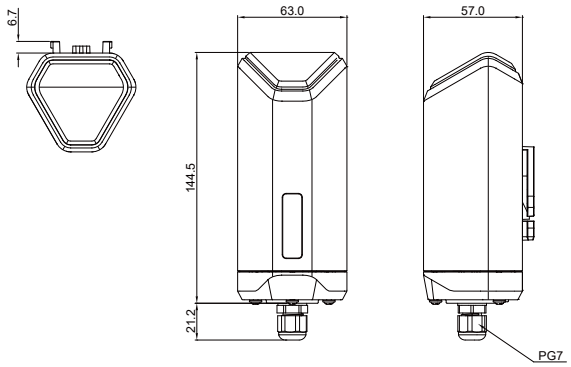
Interface*	
Current Input	4 to 20 mA (2 channel)
Voltage Input	0 to 5 V (2 channel)
RS485	RS485 Modbus-RTU Protocol
General Parameters	
Product Model	SenseCAP S2100
Microcontroller	LoRa-E5
Support Protocol	LoRaWAN v1.0.3 Class A
Built-in Bluetooth	App Tool to change parameters and set data conversion algorithm
LoRa 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
Operating Temperature	-40 to +85 ℃
Operating Humidity	0 to 100 %RH (non-condensing)
Device Weight	280g
Certification	CE / FCC / RoHS
Power Supply* **	
Sensor Power	3V / 5V, 12V(DC only)
PCBA Power	12V DC or Battery(contained)
Battery Life	Depends on the power consumption of the sensor
Battery Capacity	19Ah (non-rechargeable)
Battery Type	Standard D-size SOCI2 Battery

* Hardware supports all interfaces, but the software supports only one interface type to collect data simultaneously. For example, if the analog interface is selected, the RS485 interface cannot be used at the same time.

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

*** Both external power supply and battery power supply are supported. If 12V is connected to an external power supply, the external power supply is preferred and the battery is used as the backup power supply. The device supports 3V and 5V sensors, which can support the 12V sensor when the PCBA is powered by 12V DC.

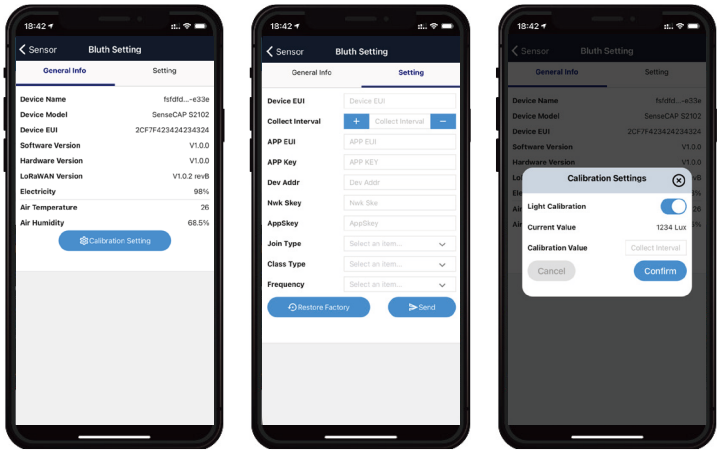
Dimension



APP

SenseCAP Mate App

SenseCAP Mate is a standalone Bluetooth configuration tool, which can modify sensor parameters like EUI, key, frequency plan, etc.

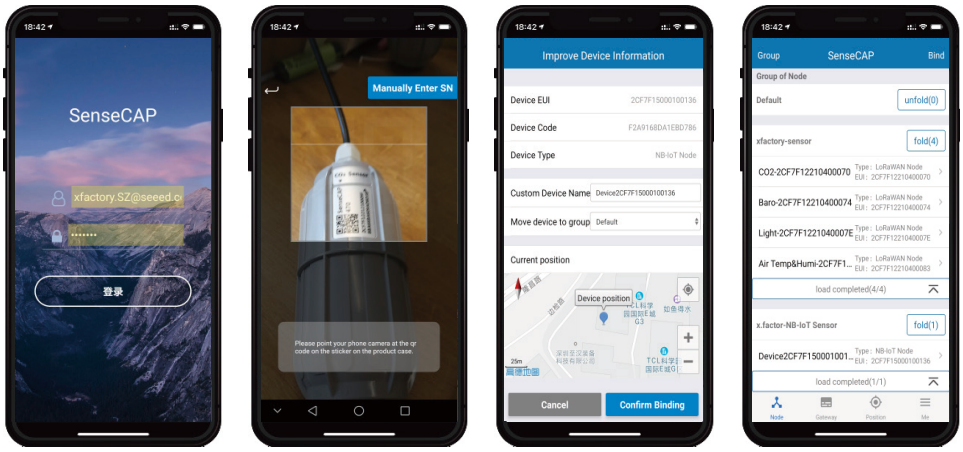


SenseCAP App

SenseCAP App is used to bind devices to your account and check device information. It must be used with the SenseCAP Portal.

Download Application:

For iOS, please search for “SenseCAP” in the App Store and download.
For Android, please download SenseCAP Application from:
http://sensecap-app-download.seeed.cn



iOS

Android

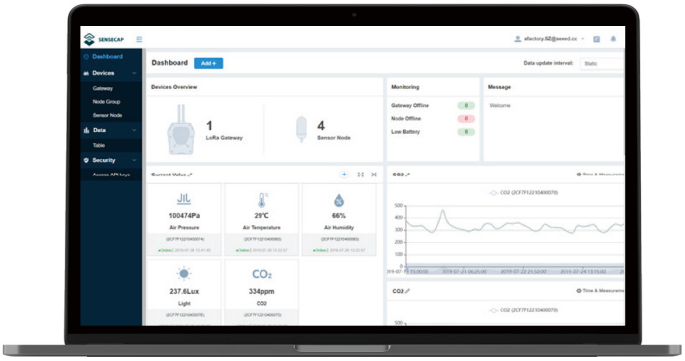
SenseCAP Portal

SenseCAP Portal is a web-based platform which enables

- Device management
- Data management
- API Access Key management

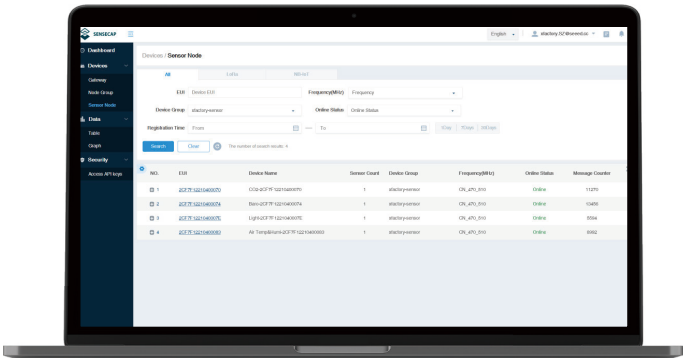
Visit SenseCAP Portal:
https://sensecap.seeed.cc

For more info, please visit:
https://solution.seeedstudio.com



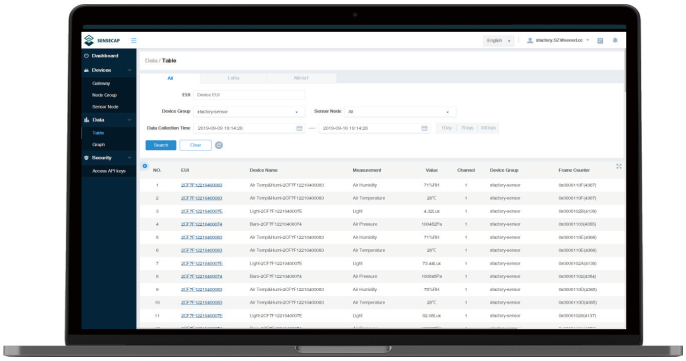
Dashboard

Including Device Overview, Data Upload Interval, Announcement, Scene Data, and Data Chart, etc.



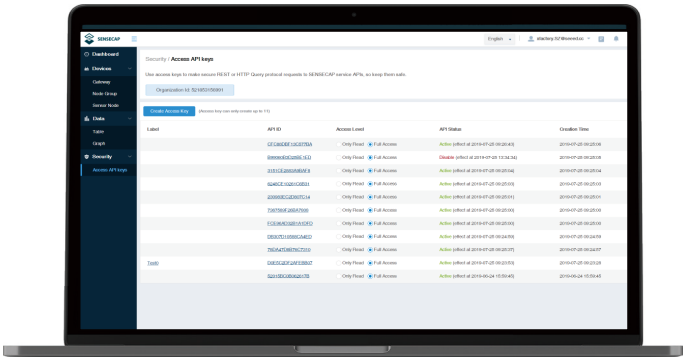
Device Management

Manage SenseCAP devices



Data Management

Manage data, including Data Table and Graph section, providing methods to search for data.



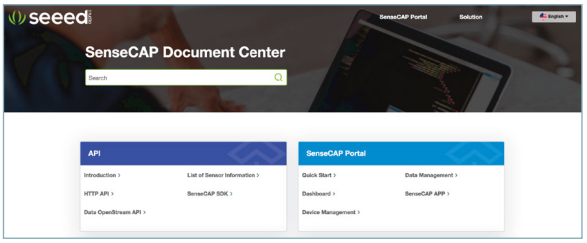
Access Key Management

Manage Access Key (to access API service), including: Key Create, Key Update, and Key Check.

Application Programming Interface (API)

SenseCAP also provides API to support further development.

Please visit this link for more info:
https://sensecap-docs.seeed.cc



SENSECAP

Website: solution.seeedstudio.com
Sales: iot@seeed.cc
Support: sensecap@seeed.cc
Phone：+86 0755 3314 7002