Feature

	P1	P1-Pro
SenseCAP Solar Node	✓	✓
• 18650 Batteries x 4 (Built - in)		✓
• XIAO L76K GPS Module (Built - in)		✓
Mounting Brackets • Universal Joint • Connector • Hoop Bracket • Hoop Ring	✓	✓
2dBi 868 - 915MHz Rubber Rod Antenna	✓	✓
RF Cable: RP-SMA Male to RP-SMA Female-300mm	✓	✓
Black Type-C Cable	✓	✓
User Manual	✓	✓

SenseCAP Solar Node P1-Pro
A solar-powered **off-grid** communication and **positioning** solution based on **Meshtastic**

seeed studio

Core Hardware Configuration
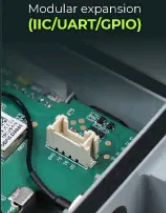High integration, plug & play

Bluetooth 5.0
Low-power MCU

LoRa chip

Supports precise
positioning

Modular expansion
(IIC/UART/GPIO)

Dual power: solar + battery
Off-grid forever, zero maintenance cost

5W
Solar Panel

Fully charged battery lasts
2 Months

Industrial durability
Lightweight, Easy to Use

Waterproof

Pole/wall
Mountable

Mesh Communication

Dynamic network
coverage expansion

Covers 8-9km (open area)
Multi-hop,
90% cost reduction

Applications

Outdoor
Client Node
Deployment

Mesh Network
Expansion

For Maker
Developers

- Utilizes a **5W solar panel** in combination with **4*18650 batteries** with a capacity of 3350mAh each. This setup ensures continuous operation even in the absence of sunlight, effectively solving the problem of outdoor power supply.

- The device comes **pre-flashed with Meshtastic firmware** at the factory.

- Features a **built-in XIAO L76K GPS module**, enabling high-precision real-time positioning. It supports real-time sharing of location information, providing reliable location assurance for outdoor activities.

- Equipped with a **Grove interface**, it is convenient to connect various sensors, such as temperature and humidity sensors. This meets diverse monitoring needs and enables easy functional expansion.

- It is suitable for **long-term outdoor use**.

- The communication range between the two devices can **reach 8-9KM in open areas**. It can seamlessly integrate into the Meshtastic ecosystem and be used as an outdoor node or repeater to easily expand the Mesh network, enhancing network coverage.

Results of the Distance Test

9.61KM

Test Device:
SenseCAP Solar Node *2

- **Accessory Options**：If you need an antenna with higher gain, we recommend the 860-930MHz 3dBi fiberglass antenna (https://www.seeedstudio.com/LoRa-Fiberglass-Antenna-Kit-with-base-860-930MHz-3dBi-360mm-p-5315.html).

- **Plug-and-play**: Comes with a standard RF cable, which can be directly inserted into the pre-drilled hole (standard D-shaped hole) on the Solar Node bracket

- **Three-step installation**: Align → Insert → Lock
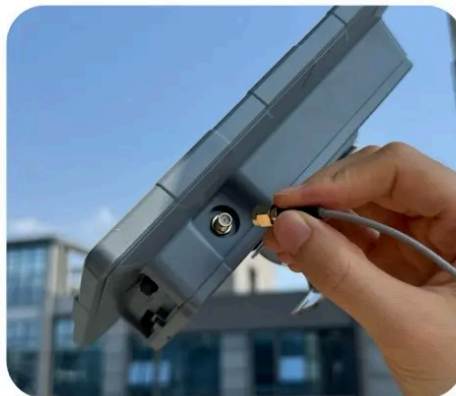

Specification

Main controller	XIAO nRF52840 Plus (https://www.seeedstudio.com/Seeed-Studio-XIAO-nRF52840-Plus-p-6359.html)（Nordic nRF52840, ARM® Cortex®-M4 32-bit processor with FPU, 64 MHz, 256KB RAM, 1MB Flash, 2MB onboard Flash)
LoRa Module	Wio-SX1262 Module (https://www.seeedstudio.com/Wio-SX1262-Wireless-Module-p-5981.html)（Semtch SX1262, TXOP=22dBm@862-930MHz)

GPS Module	XIAO L76K (https://www.seeedstudio.com/L76K-GNSS-Module-for-Seeed-Studio-XIAO-p-5864.html)（Support GPS/GLONASS/Galileo)
Antenna	LoRa: Type: Rod-shaped rubber antenna Frequency range: 868-915MHZ Gain: 2dbi
	GNSS: GPS L1 C/A: 1575.42MHz GLONASS L1: 1602MHz BeiDou B1: 1561.098MHz
	Bluetooth 5.0
Solar Panel	5W
Interface	Grove *1: IIC/GPIO/UART
	USB-C debugging
Button	Power on/off
	Reset
	User-defined
LED	Charging status indicator lights *2
	Solar panel status indicator light *1
	Mesh heartbeat light *1
	User-defined *1
Power supply	Type-C: 5V 1A
	Solar power supply: 5V 1A

Battery	4 x 18650 lithium batteries (3350mAh each)
	● Supporting Type-C and solar charging.
	● Discharge environment: -40 ~ 60°C
	● Charging environment: 0 ~ 50°C
Certification	FCC、CE
Dimension	191.2 x 201.2 x 42.1 mm

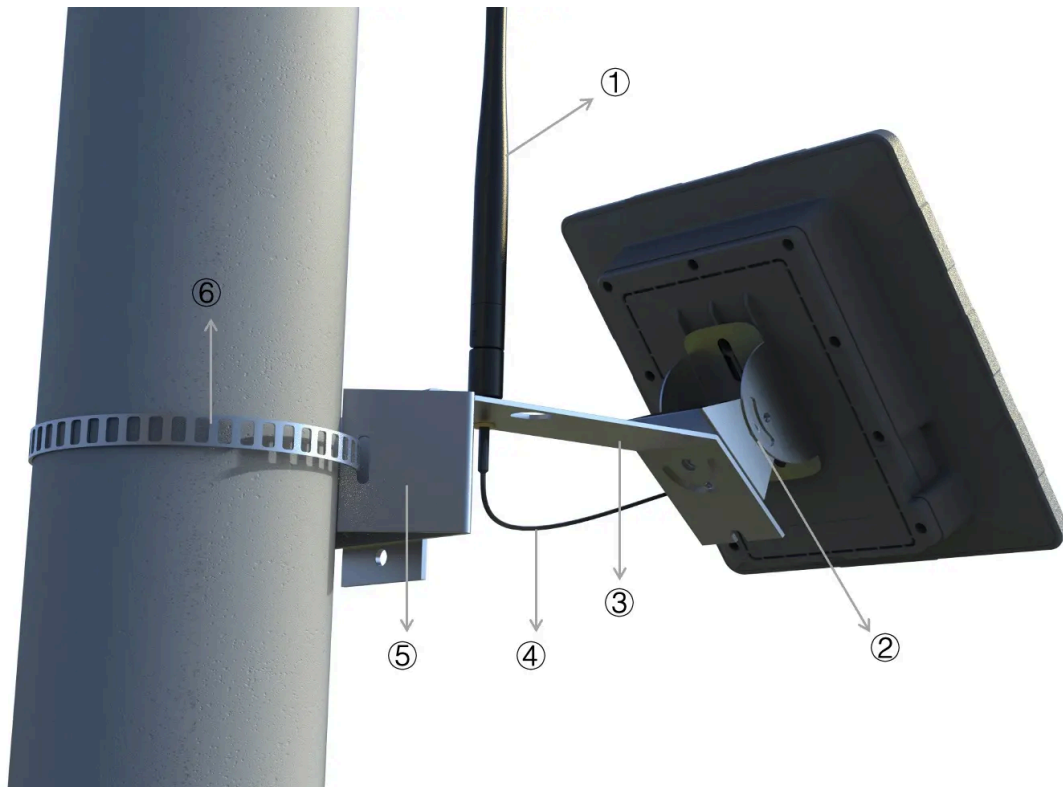# Hardware Overview

- **Diagram**
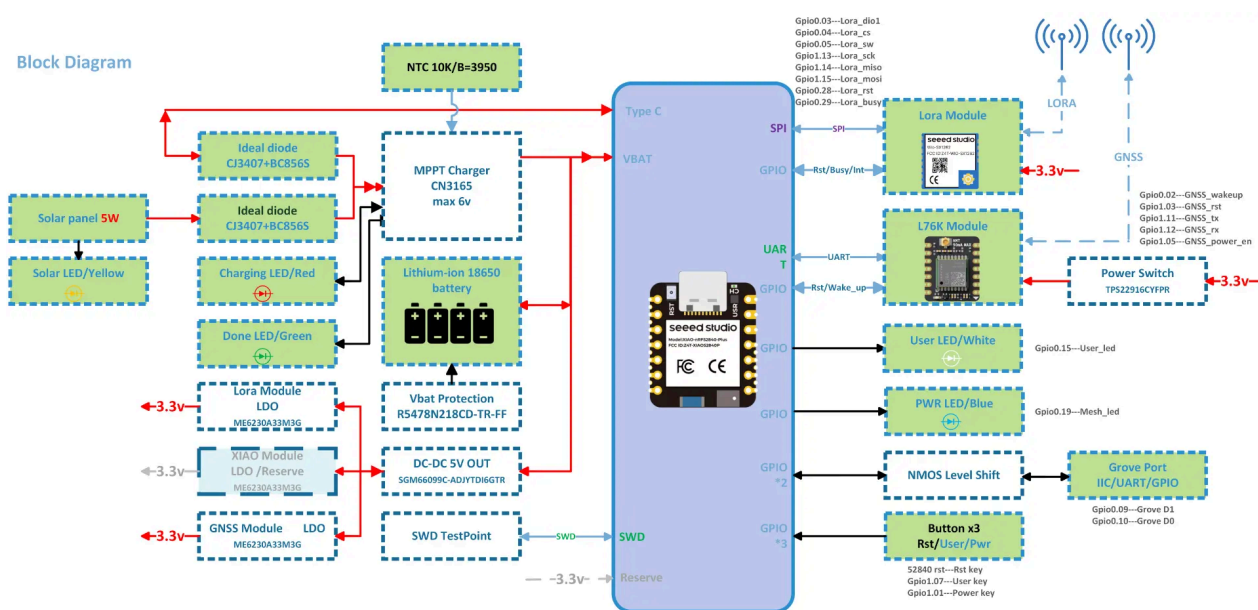
- **Overall effect diagram**

SenseCAP Solar Node

A solar-powered off-grid communication and positioning solution based on Meshtastic to build a smart network without boundaries.

- **Accessories diagram**

①	2dbi, 868~915MHz rubber rod antenna	
②	Universal joint bracket, angle adjustable.	
③	Bracket connector, can support the antenna	
④	RF Cable; RP-SMA Male to RF-SMA Female; 300mm	
⑤	Hoop bracket	Diameter: 70-100mm
⑥	Hoop ring	

- **Interactive items**
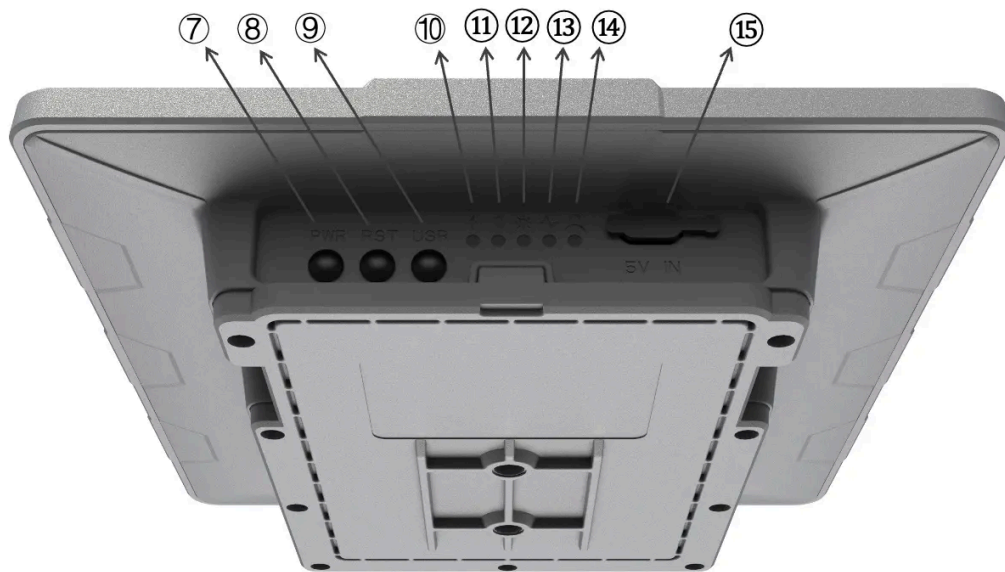
⑦	Power switch
⑧	Reset
⑨	User-defined
⑩	**Red light on:** Charging
⑪	**Green light on:** Charged
⑫	**Yellow light on:** Device is exposed to light.
⑬	**Blue light:** Mesh heartbeat
⑭	**White light:** User-defined
⑮	Type-C: 5V 1A

- **Dimension diagram**
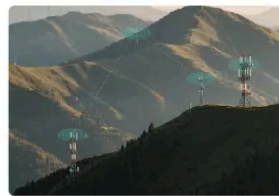

191.2mm

42.1mm

201.2mm
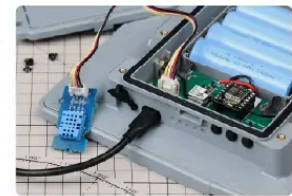
40.0mm

Φ5mm
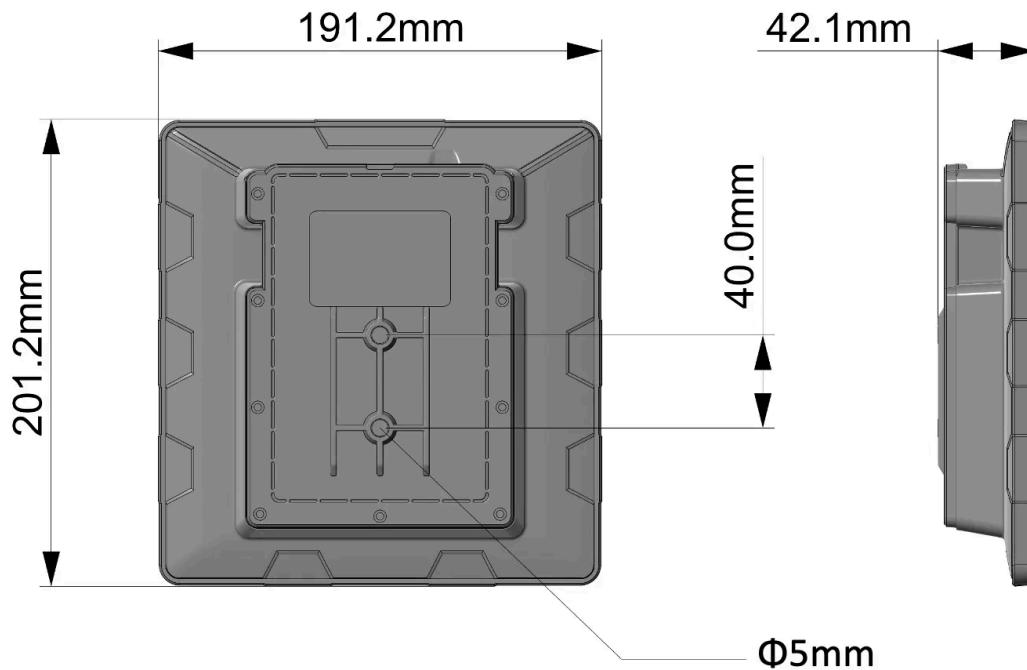
Application

Outdoor Client Node Deployment

Mesh Network Expansion

For Maker Developers

Expandability

- **Outdoor Adventure:** Send real-time location and text messages in areas without network coverage.

- **Mesh Network Expansion:** Serve as a Mesh relay node to expand the coverage of the existing Meshtastic network. Support multi-hop transmission, where data can be relayed through multiple nodes, enhancing network reliability.

- **Educational Experiments:** Learn about the development of Meshtastic and LoRa decentralized networks.

- **Environmental Monitoring:** Provide a Grove interface to connect sensors for remote monitoring of the environment (such as temperature, humidity, air quality, etc.).

ECCN/HTS

HSCODE	8541402000
USHSCODE	8541410000
UPC	
EUHSCODE	8531202090
COO	CHINA

Part List

SenseCAP Solar Node P1-Pro (with GPS & battery)	x1
Mounting Brackets ● Universal Joint ● Connector ● Hoop Bracket ● Hoop Ring	x1
2dBi 868 - 915MHz Rubber Rod Antenna	x1
RF Cable: RP-SMA Male to RF-SMA Female-300mm	x1
Black Type-C Cable	x1
User Manual	x1