



# RAK2560 WisNode Sensor Probe Datasheet

## Overview

### Description

The **Sensor Probe** is an accessory for the Sensor Hub solution platform. It supports up to two WisBlock sensors in various combinations to provide the needed data.

#### NOTE

The **Sensor Probe** could not be used as a standalone product. You need the [RAK2560 WisNode Sensor Hub](#)  in order to use this probe.

### Product Features

- Auto-identification of the sensor type
- One-wire protocol
- Waterproof (IP66-rated)
- Supports up to two (2) WisBlock sensor modules

## Specifications #

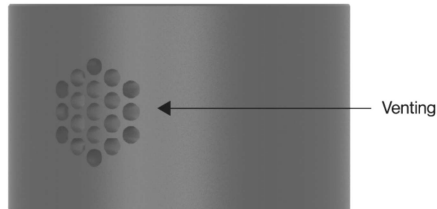
### Overview

#### Dimensions

The **Sensor Probe** dimensions are 90 x 30 mm. The body has a cylindrical shape. There is one physical port for connection to the Sensor Hub with a 50 cm cable length. The **Sensor Probe** is IP66-rated, suitable for outdoor use, with GORE venting. The device is designed to meet the UL/EN60950-22 standard.



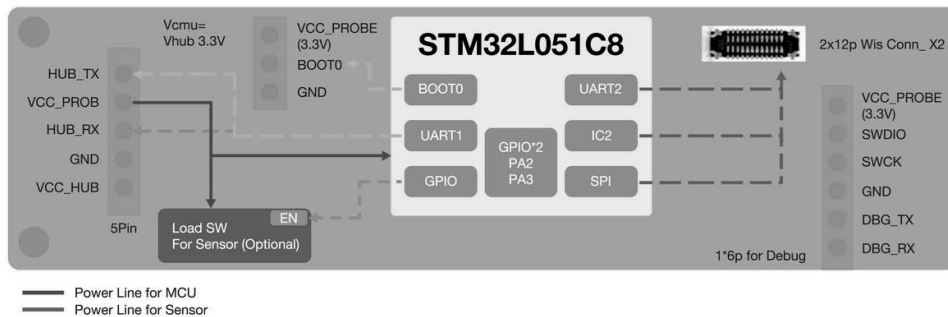
**Figure 1:** RAK2560 WisNode Sensor Probe dimensions



**Figure 2:** RAK2560 WisNode Sensor Probe venting position

## Block Diagram

RAK2560's **Sensor Probe** uses MCU STM32L051C8 for a control center. It hosts up to two (2) WisBlock sensors.

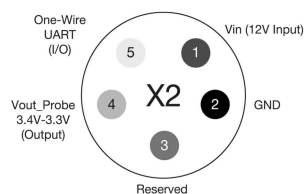


**Figure 3:** RAK2560 WisNode Sensor Probe block diagram

## Hardware

The hardware specification is categorized into four (4) parts. It shows the pinouts of the Sensor Probe and their corresponding functions and diagram. It also covers the power supply and environmental characteristics that include the tabular data of the functionalities and standard values of the RAK2560 WisNode Sensor Probe.

## Pin Definition



**Figure 4: RAK2560 WisNode Sensor Probe pin definition**

Pin No.	Name	Type	Description	Remarks
1	NC	-	No function	-
2	GND	-	Ground	-
3	Reserved	-	Not defined	-
4	Vcc_Probe	PI	Power supply from the Hub	3.3 V <sub>DC</sub> support mode; 3.4 V battery mode
5	One-wire UART	IO	Communication with Sensor Hub	

### Power Supply

The **Sensor Probe** must be supplied through the 3.4 ~ 3.6 V SP11 Pin 4 from the main body of the Sensor Hub.

### Power Consumption

Mode	Condition	Min	Typical	Max
Active mode	Read sensor data	3.2 mA	3.5 mA	3.6 mA
Sleep mode	Sleep mode	11 uA	14 uA	16 uA

### Environmental Requirements

#### Operating Conditions

Parameter	Min	Typical	Max
Normal operating temperature	-30° C	+25° C	+80° C

### Sensors

#### WisBlock Supported Sensors List

Module	Observed Parameters	Sensor ID	Application
RAK1901	Temperature Humidity	A	Environmental monitoring
RAK1902	Barometer pressure Temperature Humidity	B	Environmental monitoring
RAK1904	3-axis acceleration	C	Shake/fall/move detection
RAK1906*	Gas Humidity Temperature Barometer pressure	D	Environmental monitoring

 **NOTE**

For now, RAK1906 is not fully supported by the Sensor Probe. It will be added in the future.

**Sensor Combination List**

Probe	Module combination			Function		
		Temperature	Humidity	Barometer Pressure	3-Axis Acceleration	G
A	RAK1901	✓	✓			
B	RAK1902	✓	✓	✓		
C	RAK1904				✓	
D	RAK1906	✓	✓	✓		✓
AB	RAK1901+RAK1902*	✓	✓	✓		
AC	RAK1901+RAK1904	✓	✓		✓	

Probe	Module combination			Function		
BC	RAK1902+RAK1904	✓	✓	✓	✓	
CD	RAK1904+RAK1906	✓	✓	✓	✓	✓

**NOTE**

Due to RAK1901 and RAK1902 having temperature sensor with different accuracy levels, you will get two temperature values in the WisToolBox app.

### Sensor Connection Diagram

The **RAK2560** can support both Sensor Probes and Probe IO in all possible combinations.

**NOTE**

If you want to add a Probe IO to your setup, the Sensor Hub must be supplied by an external 12 V<sub>DC</sub> power source.

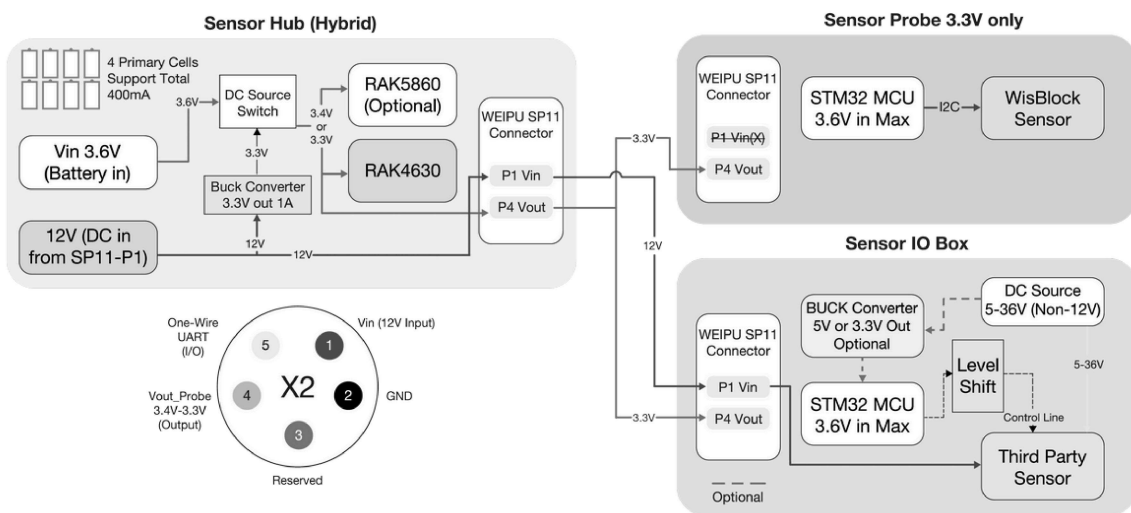


Figure 5: RAK2560 WisNode Sensor connection schematics

### Certification





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