



HRI-3621

Sensor Hub for Industry





Document version

Version	Time	Description	Remark
Rev. 1.0	2023-4-26	Preliminary version	Aaron

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1. Description

1.1 Overview

[Sensor Hub](#) is a ready-to-use LoRa/LoRaWAN sensor for indoor (industrial) applications. Modular design allows for the replacement of sensor probes to adjust different projects. The device can be registered by one key via APP and [Heltec Snap Emu IoT Platform](#).

[Sensor Hub for Industry](#) has excellent low power consumption characteristics and LoRa provides Long-distance transmission capability. It comes with a built-in 1100mAh rechargeable battery and magnetic charging interface. The stainless-steel shell and high-strength plastic provide an IP66 protection level, allowing it to perform stably and excellently in complex industrial environments.

Depending on the frequency band, Sensor Hub for Industry are available in 4 product variants:

No.	Model	Description
1	HRI-3621-470~510	470~510MHz working LoRa frequency, used for China mainland (CN470) LPW band
2	HRI-3621-863~870	863~870MHz working LoRa frequency, used for EU868, IN865 LPW bands.
3	HRI-3621-902~928	902~923MHz working frequency, used for AS923, US915, AU915, KR920 LPW bands.



1.2 Product features

- High extensibility, multi-sensor optional¹.
- Industrial grade protection structure, IP66 protection grade.
- Ultra-low power consumption design, built-in 1100 mAh 18350 rechargeable battery.
- Compatible with wall fixing, cylinder fixing or rail fixing.
- Wireless data transmission communication radius up to 3km (no occlusion).
- Working condition: -20~60°C², Working humidity: ≤90% (non-condensing).
- Power supply mode: built-in battery, can be charged by 5V DC power supply.
- Easy configure via Wi-Fi, or register by scanning the code with one click through the APP.

¹ The sensor will be soldered to the adapter board at the time of purchase;

² Its own operating temperature, part of the sensor can work within a smaller range.



2. Specifications

2.1 General specification

Table 2.1 General specification

Parameters	Description
Recommended operating condition	-20~ 60°C, 10 ~ 90(no condensing) RH%
Microcontroller	Heltec Wireless Shell
Sensor module	Customization ³
LoRaWAN channel plan	EU868/US915/AU915/ AS923/KR920/RU864/CN470
Max. Receiving sensitivity	-135dBm@SF12 BW=125KHz
Max. TX Power	+20± 2dBm
External power supply and charging voltage	5V DC
Communication Distance	1.5 to 5km (depending on gateway antenna and environments)
IP Rating	IP66
Battery Capacity	1100mAh rechargeable
Battery Type	18350
Dimension	86x36 cylinder

³ Sensors need to be welded, please indicate when placing the order.

2.2 Operating conditions

2.2.1 Power supply range

Table 2.2: Power supply range

Parametr	Min.	Typical	Max.	Unit
Charging Voltage @DC	5			V
Built-in Battery Power	3	3.7	4.1	V

2.2.2 Power consumption @3.7V

Table 2.2.1: Working current

Mode	Condition	Typical	Unit
Active-Mode (TX)	TX power is 22dBm @3.7 supply	140	mA
Active-Mode (RX)	TX disabled; RX enabled	45	mA
Deepsleep		25~40	µA

2.3 RF Characteristics

The following table gives typically sensitivity level of the HRI-3621 .

Table 2.4: LoRa RF characteristics

Signal Bandwidth/[KHz]	Spreading Factor	Sensitivity/[dBm]
125	SF12	-135
125	SF10	-132
125	SF7	-125
125	SF5	-121
250	SF9	-124



2.4 LoRaWAN Frequency

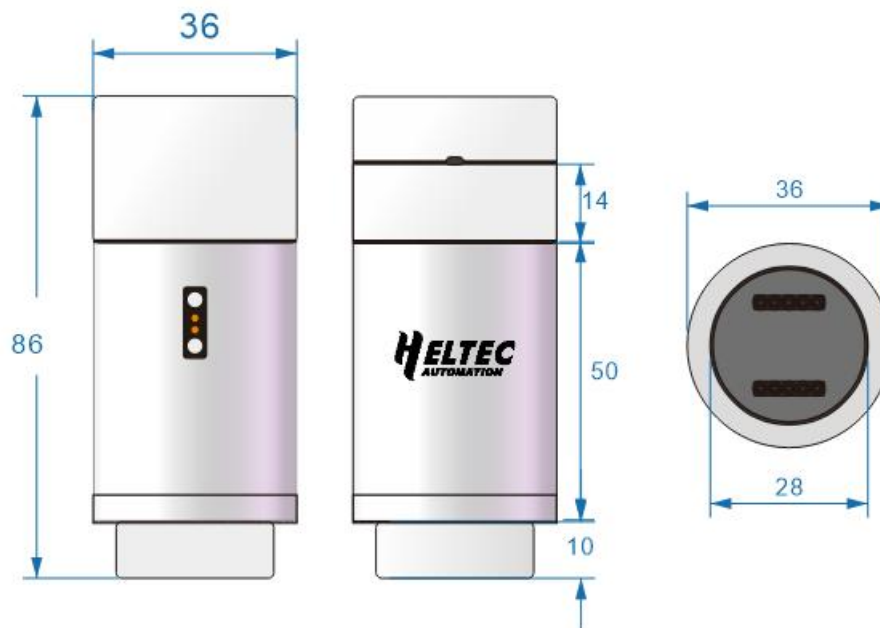
Note: **No Frequency limitation.** Except CN470, the sensor can be switched to other frequency plans at any time.

Frequency Plan	Common Name	Sub-band
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
KR920-923	KR920	--
RU864-867	RU864	--
CN470-510	CN470	--

2.5 LED indicator light description

LED Color	Condition	Description
White	Steady on	Long press the button, the white light means to enter the working mode, release and then go out
Yellow	Steady on	Long press the button, the yellow light means to enter the configuration mode
Blue	Blink	The button flashes, wakes up the device, and sends a message once
Green	Blink	Flash once after successful transmission
Purple	Blink	Flash once after successful reception
Red	Blink	Charge in working mode, press the button once flashing red light; The charging red light is always on in configuration mode

3. Physical Dimensions (Unit:mm)



4. Resource

4.1 Relevant resource

- [User's manual](#)
- [Related Downloads](#)
- [Heltec LoRaWAN test server based on TTS V3](#)

4.2 Heltec Contact Information

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