



HRI-3631

Wireless Aggregator

— Sensor Docker





Document version

Version	Time	Description	Remark
Rev. 1.0	2023-11-26	Preliminary version	Richard

Copyright Notice

All contents in the files are protected by copyright law, and all copyrights are reserved by Chengdu Heltec Automation Technology Co., Ltd. (hereinafter referred to as Heltec). Without written permission, all commercial use of the files from Heltec are forbidden, such as copy, distribute, reproduce the files, etc., but non-commercial purpose, downloaded or printed by individual are welcome.

Disclaimer

Chengdu Heltec Automation Technology Co., Ltd. reserves the right to change, modify or improve the document and product described herein. Its contents are subject to change without notice. These instructions are intended for you use.



Content

<i>HRI-3631</i>	2
<i>Sensor Hub for Industry</i>	
<i>Document version</i>	3
<i>Copyright Notice</i>	3
<i>Disclaimer</i>	3
1. <i>Description</i>	5
2. <i>Specifications</i>	7
2.2 <i>Operating conditions</i>	8
2.2.1 <i>Power supply range</i>	8
2.2.2 <i>Power consumption @3.7V</i>	8
2.4 <i>LoRaWAN Frequency</i>	9
3. <i>Physical Dimensions (Unit:mm)</i>	9
4. <i>Resource</i>	10



1. Description

1.1 Overview

[Wireless Aggregator—Sensor Docker](#) (HRI-3631) is a LoRa/LoRaWAN device for outdoor applications, It has 2 standard interface that can integrate most of the Heltec [QuickLink](#) series of sensors. Built-in 4 x 2000 mAh batteries and battery management system, allow it to be charged directly via a solar panel.

[HRI-3631](#) has the characteristics of ultra-low power consumption and long-distance transmission. Benefits from its high-strength plastic and large-capacity rechargeable battery, it can perform well in a variety of complex outdoor environments for a long time.

Depending on the frequency band, Sensor Hub for Industry are available in 3 product variants:

No.	Model	Description
1	HRI-3631-470~510	470~510MHz working LoRa frequency, used for China mainland (CN470) LPW band
2	HRI-3631-863~870	863~870MHz working LoRa frequency, used for EU868, IN865 LPW bands.
3	HRI-3631-902~928	902~923MHz working frequency, used for AS923, US915, AU915, KR920 LPW bands.



1.2 Product features

- High extensibility, multi-sensor optional¹.
- IP66 protection grade, Lightning protection design, ESD protection and isolation.
- Ultra-low power consumption design.
- Built-in 2000mAh x4 rechargeable battery, can be charged by DC and solar energy.
- Wireless data transmission communication radius up to 5km.
- Working condition: -40~80°C², Working humidity: ≤90% (non-condensing).
- Power supply mode: built-in battery or external 5~24V DC power supply.
- APP scan QR code for registration, or configure via Wi-Fi, supports OTA update.

Dev Info	
CLASS :	CLASS A
OTAA/ABP :	OTAA
ADR :	ADR OFF
DR :	DR_1
Confirm :	Confirmed
DEVEUI :	2232330000111111
APPEUI :	0000000000000000
APPKEY :	88888888888888888888888888888888
Channel :	80 83
Interval :	30
Retry :	0
Power :	22
Product :	SENSORHUB_OUTDOOR_SENSORHUB
Firmware :	V1.01
Battery :	4105
Charge :	NOT CHARGING
Temperature :	28.25
Humidity :	52.64

Submit

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
Temperature	-40 ~ 80 °C ³
Humidity	0 ~ 90% RH
Microcontroller	Heltec Wireless Shell
Sensor module	Optional ⁴
LoRaWAN channel plan	EU868/US915/AU915/ AS923/KR920/RU864/CN470
Charging voltage	7~24V
Recommned solar panel specifications	6V/1A
Max. Receiving sensitivity	-135dBm@SF12 BW=125KHz
Max. TX Power	21± 1dBm
Signal Range	5km (depending on gateway antenna and environments)
IP Rating	IP66
Battery Capacity	2000mAh x4

³ PCB and battery operating temperature, more than 60 degrees will affect the life of the battery, and please pay attention to the working temperature of the sensor.

⁴ The default solder is on the PCB, and the type of sensor to be added must be stated at the time of purchase.

2.2 Operating conditions

2.2.1 Power supply range

Table 2.2.1: Power supply range

Parameter	Min.	Typical	Max.	Unit
External power supply	7	12	24	V
Built-in battery power	3	3.7	4.1	V

2.2.2 Power consumption @3.7V

Table 2.2.2: Working current

Condition	Typical	Unit
Configuration	110	mA
TX @22dBm	220	mA
RX	50	mA
Deepsleep	26	μA

2.3 RF Characteristics

The following table gives typically sensitivity level of the HRI-363x .

Table 2.3: 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

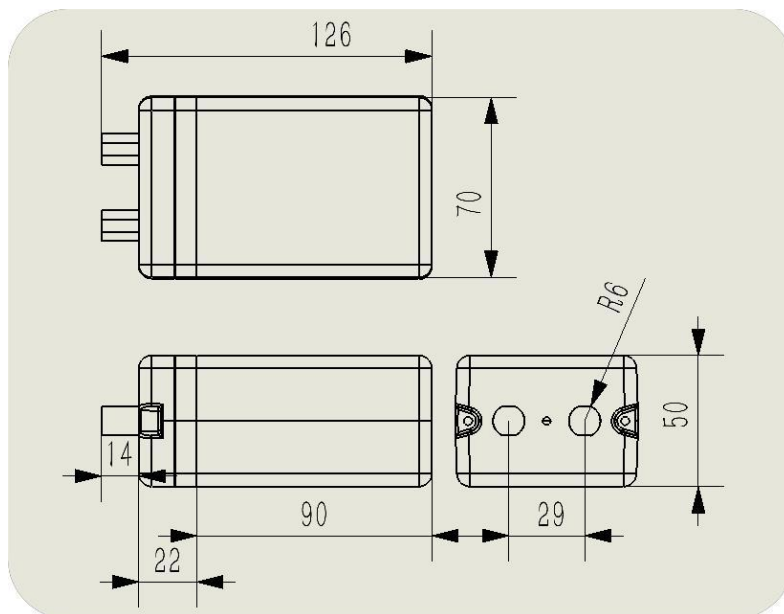
Note: **No Frequency limitation.** Except CN470, the sensor can be switched to other frequency plans at any time.

Table 2.3: LoRaWAN Frequency

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	--

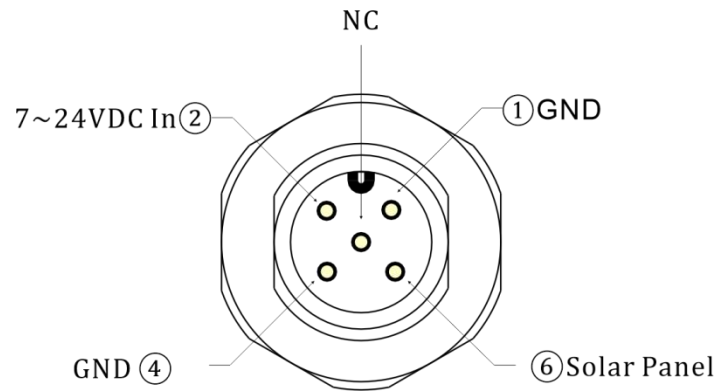
3. Hardware Resources

3.1 Physical dimensions (Unit:mm)



3.2 Interface Definition

Flange seat A-DC



4.Resource

4.1Relevant resource

- [User Manual](#)
- [Related Downloads](#)
- Heltec LoRaWAN test server based on TTS V3: <https://lora.heltec.org/>

4.2Heltec Contact Information

Heltec Automation Technology Co., Ltd Chengdu,

Sichuan, China

Email: support@heltec.cn

Phone: +86-028-62374838

<https://heltec.org>