



# HRI-3632

## Wireless Aggregator

——Bus Transformer





## Document version

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

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*This document describes some typical parameters of HRI-3632. Please refer to Heltec Documentation Center for usage guide: [HRI-3632 User Manual](#)*

## 1. Description

### 1.1 Overview

[HRI-3632](#) is a LoRaWAN converter belonging to **Wireless Aggregator** series, used to drive various third-party RS-485 sensors. We have equipped it with a junction box so that it can also drive 4 to 20mA sensors. Benefits from the IP66 protection provided by high-strength plastics, it can adapt to a variety of complex outdoor environments.

[HRI-3632](#) has the characteristics of low power consumption and long transmission distance. Built-in large capacity rechargeable battery, which can be charged through the DC power and solar interface, ensures that it can work stably 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

- IP66 protection grade, Lightning protection design, ESD protection and isolation.
- Ultra-low power consumption design.
- With special junction box, interface compatibility is strong.
- 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°C, Working humidity: ≤90% (non-condensing).
- Power supply mode: built-in battery or external 5~24V DC powersupply.
- APP scan QR code for registration, or configure via Wi-Fi, supports OTA update.

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



## 2. Specifications

### 2.1 General specification

Table 2.1 General specification

Parameters	Description
Temperature	-40 ~ 80 °C <sup>1</sup>
Humidity	0 ~ 90% RH (non condensing)
Microcontroller	Heltec Wireless Shell
Interface	Flange seat ( see <a href="#">3.2</a> )
LoRaWAN Channel Plan	EU868/US915/AU915/ AS923/KR920/RU864/CN470
External Power Supply and Charging Voltage	7~24V, 7~48V <sup>2</sup>
Power Out	5V/9V/12V, 7~24V, 7~48V <sup>3</sup>
Max. Receiving sensitivity	-134dBm@SF12 BW=125KHz
Max. TX Power	21± 1dBm
Signal Range	5km (depending on gateway antenna and environments)
IP Rating	IP66
Battery Capacity	2000mAh x4

<sup>1</sup> 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.

<sup>2</sup> 7~24V and 7~48V are different pin inputs, 7~24V input can charge the built-in battery, 7~48V does not.

<sup>3</sup> The built-in battery output is 5/9/12V, set in the device configuration page, and the corresponding dial switch should be selected on the device in advance. When other voltage output modes are selected, the output voltage is equal to the input voltage.

<https://heltec.org>

## 2.2 Operating conditions

### 2.2.1 Power supply range

Table 2.2: Power supply range

Parameters	Battery	7~24V Pin		7~48V Pin	
Input	3.3~4.1V	7~24V		7~48V	
Output	5/9/12V	5/9/12V	7~24V	5/9/12V	7~48V

### 2.2.2 Power consumption

Table 2.2.1: Working current

Mode	Condition	Typical	Unit
Active-Mode (TX)	TX power is 22dBm	220	mA
Active-Mode (RX)	TX disabled; RX enabled	50	mA
Deepsleep		28	μA

## 2.3 RF Characteristics

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

Table 2.4: LoRa RF characteristics

Signal Bandwidth/[KHz]	Spreading Factor	Sensitivity/[dBm]
125	SF12	-134
125	SF11	-132
125	SF10	-130
125	SF9	-127
125	SF8	-124
125	SF7	-122

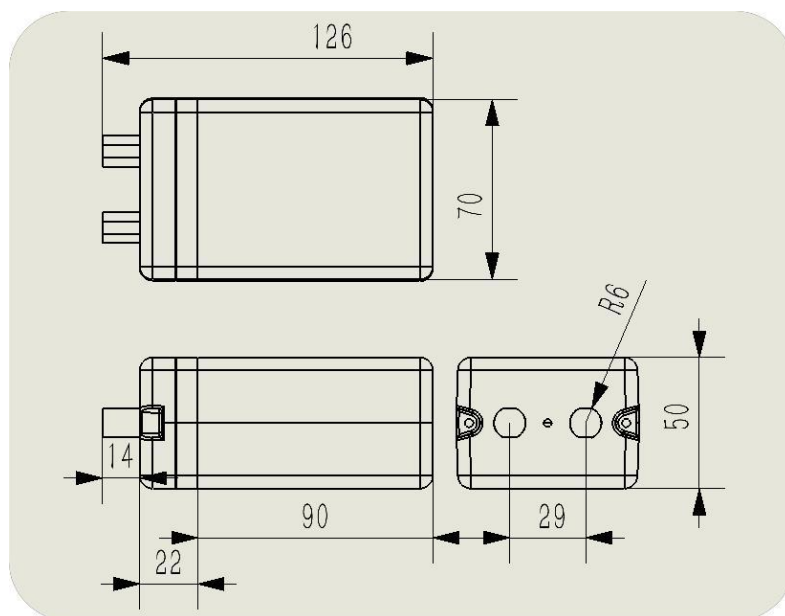
## 2.4 LoRaWAN Frequency

Note: **No Frequency limitation.** EU868 can be switched to RU864, US915 can be switched to AU915/AS923/KR920.

NO	Frequency band	Common band
1	EU863-870	EU868
2	US902-928	US915
3	AU915-928	AU915
4	AS923_1	As923
5	AS923_2	As923
6	KR920-923	KR920
7	RU864-867	RU864
8	CN470-510	CN470

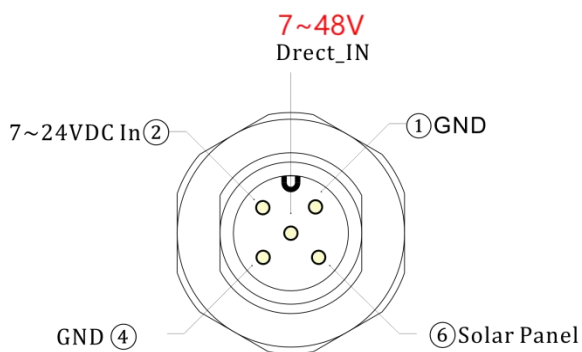
## 3. Hardware Resources

### 3.1 Physical dimensions (Unit:mm)

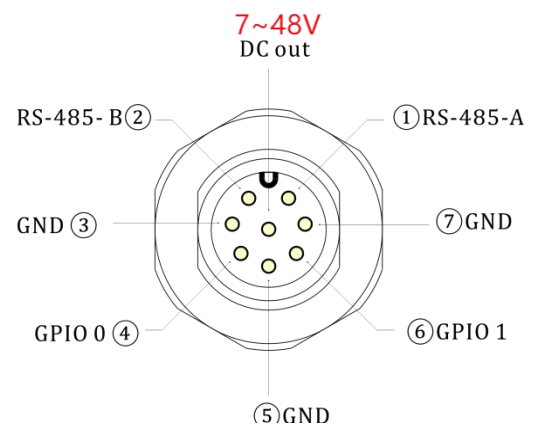


### 3.2 Interface Definition

Flange seat A-DC



Flange seat B-Sensor



### 4.Resource

#### 4.1Relevant resource

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

#### 4.2Heltec Contact Information

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