



# HRI-3633

## Wireless Aggregator

——Pulse Solenoid Valve Controller





## Document version

Version	Time	Description	Remark
Rev. 1.0	2023-9-26	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

目录

HRI-3633 .....	2
Wireless Aggregator .....	2
Document version .....	3
Copyright Notice .....	3
Disclaimer .....	3
Content .....	4
1. Description .....	5
1.1 Overview .....	5
1.2 Product features .....	6
2. Specifications .....	7
2.1 General specification .....	7
2.2 Operating conditions .....	8
2.2.1 Power Voltage .....	8
2.2.2 Power consumption .....	8
2.3 RF characteristics .....	8
2.4 LoRaWAN Frequency .....	9
3. Hardware Resources .....	9
3.1 Physical dimensions (Unit:mm) .....	9
3.2 Interface Definition .....	10
4.Resource .....	10
4.1Relevant resource .....	10
4.2Heltec Contact Information .....	10



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

## 1. Description

### 1.1 Overview

[HRI-3633](#) is a LoRaWAN conveter belonging to **Wireless Aggregator** series, which is specially used to drive pulse solenoid valves. Benefits from the IP66 protection provided by high-strength plastics, it can adapt to a variety of complex outdoor environments.

[HRI-3633](#) has the characteristics of low power consumption and long transmission distance. Built-in large capacity rechargeable battery, which can be charged through the DC and solar interface, ensures that it can work stably for a long time.

HRI-3633 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

- Industrial grade protection structure, IP66 protection grade, Lightning protection design, ESD protection and isolation.
- Ultra-low power consumption design, built-in 2000 mAh rechargeable lithium battery x 4.
- Compatible with wall fixing or cylinder fixing.
- Wireless data transmission communication radius up to 5Km (no occlusion).
- Working condition: -40~80°C, ≤90% (non-condensing).
- APP scan QR code for registration, or configure via Wi-Fi, supports OTA update.

Dev Info	
CLASS :	CLASS A <input type="checkbox"/>
OTAA/ABP :	OTAA <input type="checkbox"/>
ADR :	ADR OFF <input type="checkbox"/>
DR :	DR_1 <input type="checkbox"/>
Confirm :	Confirmed <input type="checkbox"/>
DEVEUI :	223233000011111
APPEUI :	0000000000000000
APPKEY :	88888888888888888888888888888888
Channel :	80 83
Interval :	30



## 2. Specifications

### 2.1 General specification

Table 2.1 General specification

Parameters	Description
Operating Temperature	-40 ~ 80 °C <sup>1</sup>
Operating 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
Power output	5V/9V/12V; 7~24
Impulse input	3.3~5V
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 operating temperature, more than 60 degrees will affect the life of the battery.



## 2.2 Operating conditions

### 2.2.1 Power Voltage

Table 2.2.1: Power voltage

Parameters	Min.	Typical	Max.	Unit
External power supply	7	12	24	V
Built-in battery power	3	3.7	4.1	V
Power Output	5/9/12(Battery supply)		7~24(DC supply) <sup>2</sup>	V

### 2.2.2 Power consumption

Table 2.2.2: Working current

Mode	Condition	Typical
Active-Mode (TX)	TX power is 22dBm @3.7 supply	220mA
Active-Mode (RX)	TX disabled; RX enabled	50mA
Sleep	5mA(Pulse input on)	28µA(Deepsleep)

## 2.3 RF characteristics

Table 2.3: 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

<sup>2</sup> How much voltage is connected, how much voltage is output.

## 2.4 LoRaWAN Frequency

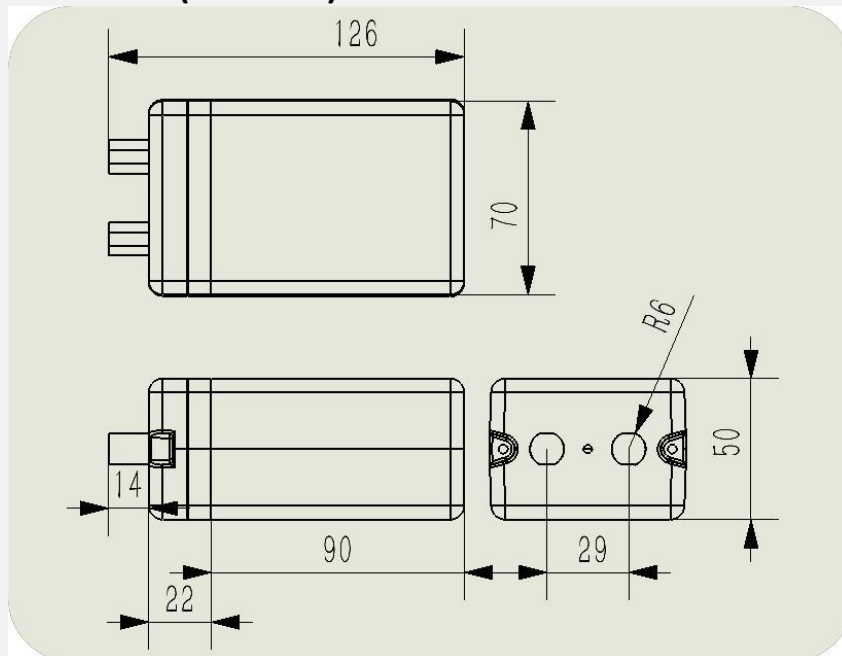
Note: **No Frequency limitation.** EU868 can be switched to RU864, US915 can be switched to AU915/AS923/KR920.

Table 2.4: LoRa RF characteristics

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

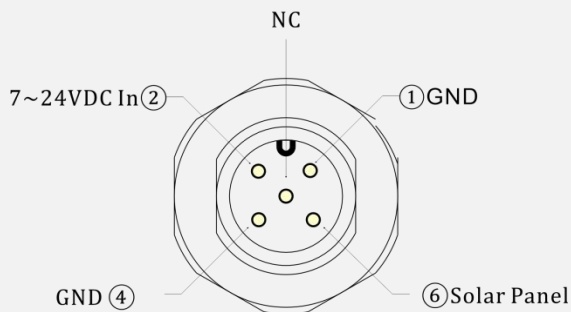
### 3.1 Physical dimensions (Unit:mm)



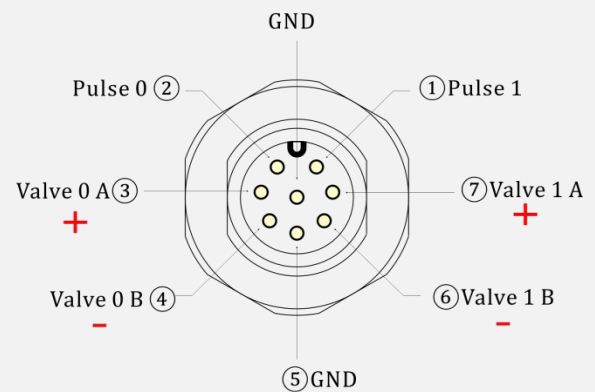


## 3.2 Interface Definition

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

Heltec Automation Technology Co., Ltd Chengdu,

Sichuan, China

Email: [support@heltec.cn](mailto:support@heltec.cn)

Phone: +86-028-62374838

<https://heltec.org>