HRI-3622

Sensor Hub Bus Transformer

——————Driving third-party Sensor

Document version

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

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Content

1. Description

1.1 Overview

HRU-3622 is a sub-model of the Sensor Hub for outdoor series that specifically drives third-party sensors. Its interface is a flange seat, with RS-485 interfaces and 4 GPIO interfaces, can be used to connect RS-485 sensors directly.

Sensor Hub for Industry has excellent low power consumption and long transmission distance characteristics, comes with a built-in 1100mAh rechargeable battery. The stainless-steel shell and high-strength plastic provide an IP66 protection level, allowing it to perform stably and excellently in complex industrial environments.

HRI-3622 are available in 3 product variants:

Table 1.1 Product variants

No.	Model	Description
1	HRI-3622-470	470~510MHz working LoRa frequency, used for China mainland (CN470) LPW band
2	HRI-3622-868	863~870MHz working LoRa frequency, used for EU868, IN865 LPW bands.
3	HRI-3622-915	902~923MHz working frequency, used for AS923, US915, AU915, KR920 LPW bands.

1.2 Product features

- Industrial grade protection structure, IP66 protection grade.
- Ultra-low power consumption design, built-in 1000mAh 18350 rechargeable battery.
- Compatible with wall fixing or cylinder fixing.
- Wireless data transmission communication radius up to 3km (no occlusion).
- Working temperature[1]: --20~60°C, Working humidity: ≤90% (non-condensing).
- Power supply mode: built-in battery or external 5V DC power supply.
- Can register by scanning the QR code through the APP, or easily register through the device WiFi.

[1] This refers to the operating temperature and humidity of the circuit and battery, not the sensor.

2. Specifications

2.1General specification

Table 2.1 General specification

Parameters	Description
Recommended operating condition	-20~ 60℃, 10 ~ 90(no condensing) RH%
Interface	Flange Seat(see 3.2)
Input format	RS-485; 4~20mA[2]
Microcontroller	Heltec Wireless Shell
Sensor module	Custom
LoRaWAN Channel Plan	EU868/US915/AU915/ AS923/KR920/RU864/CN470
Max. Receiving Sensitivity	-136dBm@SF12 BW=125KHz
Max. TX Power	+20 ± 2 dBm
Communication Distance	2 to 6km (depending on gateway antenna and environments)
IP Rating	IP66
Operating Temperature	-20 ~ 60 ℃
Operating Humidity	10% ~ 100%, no-condensing
Battery Capacity	1100mAh
Battery Type	18350

[2] Through the Junction Box

2.2Operating conditions

2.2.1 Power supply range

Table 2.2: Power supply range

Parameter	Min.	Typical	Max.	Unit
Operating voltage	2.7	3.7	5	V
Charging voltage		5		V

2.2.2 Power consumption @3.7V

Table 2.2.1: Working current

Mode	Condition	Min.①	Max.②
Active-Mode (TX)	TX power is 22dBm @3.7 supply.	200mA	235mA
Active-Mode (RX)	TX disabled; RX enabled.	35mA	42mA
Sleep		25μA	40μA

2.3 RF characteristics

The following table gives typically sensitivity level of the Sensor Hub.

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.

Table2.4: LoRaWAN frequency

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

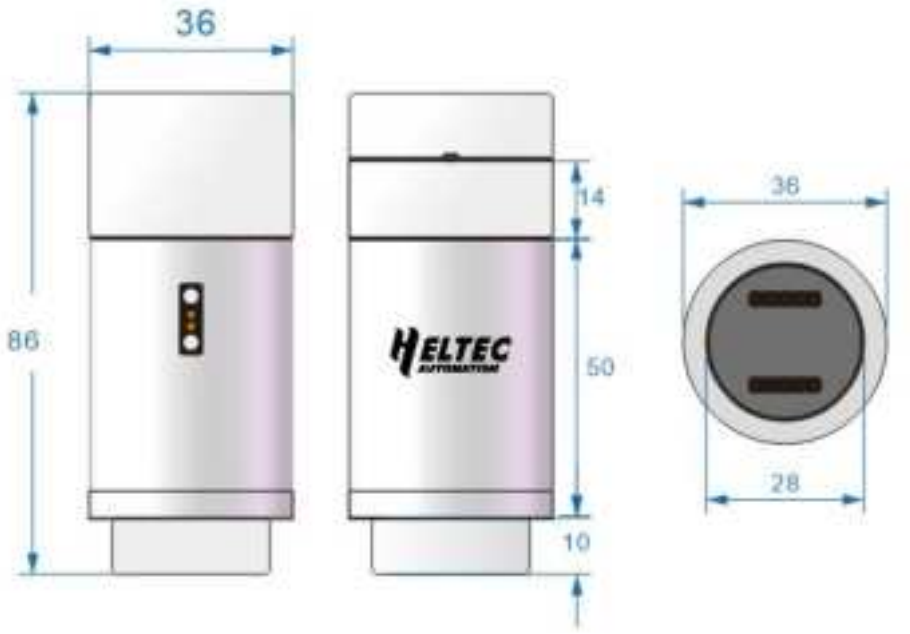
2.5 RGB indicator light description

Table2.5: RGB description

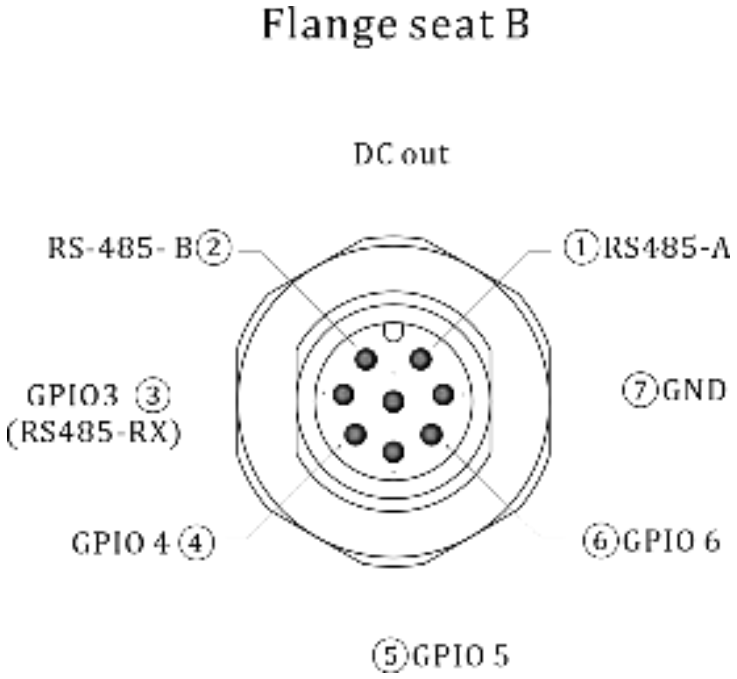
RGB Color	Condition	Description
White	Steady on	Long press the button, the white light means to enter the working mode, release and then go out
Yellow	Steady on	Long press the button, the yellow light means to enter the configuration mode
Blue	Blink	The button flashes, wakes up the device, and sends 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.Hardware characteristics

3.1Physical Dimensions



3.2 Interface definition



4.Resource

4.1Relevant resource

- User's manual
- Related Downloads
- Heltec LoRaWAN test server based on TTS V3

4.2Heltec Contact Information

Heltec Automation Technology Co., Ltd Chengdu,

Sichuan, China

Email: support@heltec.cn

Phone: +86-028-62374838

https://heltec.org

FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient or relocate the receiving antenna.

-Increase the separation between the equipment and receiver.

-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-Consult the dealer or an experienced radio/TV technician for help.

To assure continued compliance, any changes or modifications not expressly approved by the party.

Responsible for compliance could void the user's authority to operate this equipment. (Example- use only shielded interface cables when connecting to computer or peripheral devices).

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

FCC Radiation Exposure Statement:

The equipment complies with FCC Radiation exposure limits set forth for uncontrolled enviroment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

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