



HRU-1001

Wireless Thermoprobe 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

HRU-1001 is a rod type wireless thermoprobe integrated with LoRa wireless transmission technology, which collect the data of different positions of the rod to display on the built-in screen or upload it to LoraWAN network. It has the characteristics of high precision, long transmission distance and low power consumption.

HRU-1001 is integrated with 5000mAh rechargeable battery. Benefits from the IP66 protection provided by high-strength plastics and stainless steel, it has performed steadily and well in various industrial situations, especially in fermentation scene.

HRU-1001 are available in 2 product variants:

No.	Model	Description
1	HRU-1001-LF	470~510MHz working LoRa frequency, used for China mainland (CN470) LPW band.
2	HRU-1001-HF	For EU868, IN865, US915, AU915, AS923, KR920 and other LPW networks with operating frequencies between 863~928MHz.



1.2 Product features

- Temperature measuring range -9.9~99°C, accuracy ±1°C.
- Support LoRaWAN.
- Support multi-node measurement.
- Recommended working condition: humidity: ≤90% (non-condensing).
- Wireless data transmission communication radius up to 3km (no occlusion).
- Built-in 5000mAh rechargeable lithium battery, up to 3 years in continuous work.
- Special handle, easy to install.
- Stainless steel probe and high strength plastic for a variety of scenarios.

2. Specifications

2.1 General specification

Table 2.1 General specification

Parameters	Description
Measuring range	-9.9~ 99°C
Display	37x27mm LCD
LoRaWAN channel plan	EU868/US915/AU915/ AS923/KR920/RU864/CN470
LoRa Distance	1.5~3km (depending on gateway antenna and environments)
Measuring Nodes	2 (default, support customization, up to 5 nodes)
Period of transmission	60minutes (Customizable)
IP Rating	IP66
Dimension	L: 1100mm (Customizable)
Operating humidity	10% ~ 100%, no-condensing
Battery Capacity	5000mAh
Charging Voltage	2.5mm-2P Magnetic to USB 5V

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2.2 Operating conditions

2.2.1 Power supply range

Table 2.2: Power supply range

Parameter	Min.	Typical	Max.	Unit
Device operating input voltage	2.7	3.7	5	V

2.2.2 Power Consumption @3.7V

Table 2.2.1: Working current

Mode	Display	No Display
Active-Mode	140mA	140mA
Deepsleep	85µA	20µA

2.3 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	--

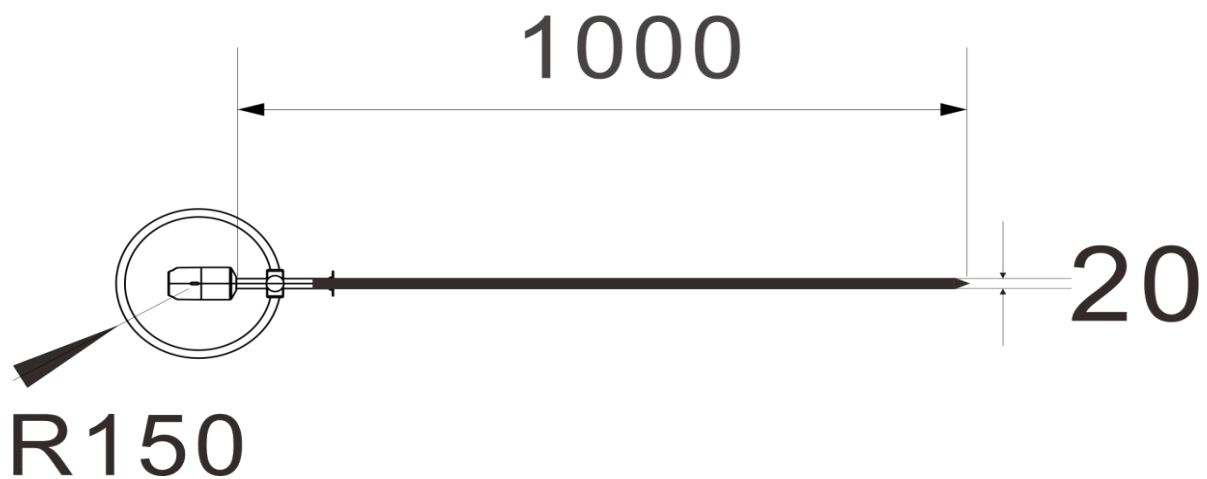
2.4 RF characteristics

The following table gives typically sensitivity level of the HRU-1001.

Table 2.4: LoRa RF characteristics

Signal Bandwidth/[KHz]	Spreading Factor	Sensitivity/[dBm]
125	SF12	-135
125	SF10	-134
125	SF7	-125
125	SF5	-121
250	SF9	-124

3. Physical dimensions (mm)





4.Resource

4.1Relevant resource

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

4.2Heltec Contact Information

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