DS02508

RHF1SFE2 Smart Fire Extinguisher Monitoring Sensor

V1.0

Document information

Info	Content
Keywords	RHF1SFE2 Smart Fire Extinguisher Monitoring Sensor
Abstract	This manual describes the technical specifications of the RHF1SFE2 smart fire extinguisher monitoring sensor.

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1 Overview

The RHF1SFE2 is an ultra-low-power smart fire extinguisher monitoring node designed by RisingHF Network (Shenzhen) Co., Ltd. It integrates a dedicated pressure sensor for fire extinguishers, a 3-axis accelerometer, an obstacle sensor, and a temperature sensor. The device is designed for real-time monitoring of fire extinguishers and enables network connectivity for centralized management and maintenance.
Once activated, the sensor periodically reports the fire extinguisher's temperature, gas pressure, battery level, and obstruction status. It can also actively send alerts for abnormal temperature, motion, pressure, obstruction, or low battery to support real-time monitoring and proactive safety.
Device parameters can be configured and firmware upgraded through the reserved user interface.
Powered by a 2000mAh rechargeable lithium battery, the sensor offers a typical battery life of up to 2 years.
Operating temperature: -20 to 70°C. The product features an ABS housing and copper fittings, designed for threaded installation on fire extinguishers.

1.1 Product Features and Applications

Features：

- Communication：LoRaWAN®
- LoRaWAN® protocol
- Supports LoRaWAN® Relay Slave mode
- Max transmission power: TXOP = 22 dBm
- Built-in antenna
- Power Consumption：
  Sleep current: 20 μA,
  Average current: 50 μA
- Rechargeable lithium battery with a typical service life of 2 years.
- Sensors Supported：
  - Gas pressure sensor for real-time extinguisher pressure monitoring
  - 3-axis accelerometer for displacement detection
  - Temperature sensor for ambient temperature monitoring
  - Obstacle sensor to ensure extinguisher is not blocked
  - Battery monitoring
  - Hall sensor for device query and activation
- User Interfaces
  - Charging: USB Type-C
  - Configuration/Firmware upgrade: Infrared interface
  - Fire extinguisher thread adapter
- Fire extinguisher status periodic reporting: Periodic reporting of temperature, gas pressure, battery level, and obstacle conditions. The reporting cycle time is configurable.
- Fire extinguisher proactively reports alarms: temperature alarm, abnormal movement alarm, abnormal air pressure alarm, obstacle alarm, low battery alarm
- Operating temperature range: -20~70℃
- Protection level: IP53

2 Product Specifications

Unless otherwise stated, specifications below are based on standard lab conditions using a 2000mAh rechargeable lithium battery.

2.1 Technical Specifications Overview

Table 1 RHF1SFE2 Product Specifications

Item Group	Project name	Function description
Mechanical specifications	Product size	M10: 65*65*52mm(L*W*H)
Communication method	Network communication	LoRa
	nterface	Type C
		Infrared connector
Electrical performance indicators	Power supply method	Rechargeable lithium battery
	Supply voltage	3.6V
	Typical working life	≥2 years
	Sleep current	20uA
	Stable current	50uA
Protocol	Device communication protocol	Support LoRaWAN® protocol
Temperature detection	Measurement range	-40℃~85℃
	Measurement accuracy	Error ±1℃, measured at 25℃
Air pressure detection	Range	30~3000kPa
	Measurement accuracy	±1%FS
Obstacle detection	Detection range	0.03~2 m
	Detection accuracy	< 1.5 cm
Antenna interface	Antenna interface	Integrated FPC antenna
Working environment	Working temperature range	-20~70℃
	Storage temperature range	-40~85℃
Protection level	Protection level	IP53
Installation	Installation method	Threaded installation

2.2 Reliability Specifications

2.2.1 Environmental Test Compliance

Table 2 Environmental Compliance Tests

Test Type	Conditions	Standards	Results
Low Temp Operate	Temperature: –20ºC Working mode: Normal operation of the equipment Test duration: 12 h	JESD22-A1 GB/T 2423	Good appearance; Communication is normal; Other functions are normal;
High Temp Operate	Temperature: 70ºC Working mode: normal operation of the equipment Test duration: 12 h	JESD22-A1 GB/T 2423	Good appearance; Communication is normal; Other functions are normal;

Low Temp Storage	Temperature: –40ºC Working mode: Device off Test duration: 24 h	JESD22-A1 GB/T 2423	Good appearance; Communication is normal; Other functions are normal;
High Temp Storage	Temperature: 85ºC Working mode: Device off Test duration: 24 h	JESD22-A1 GB/T 2423	Good appearance; Communication is normal; Other functions are normal;

2.2.2 EMC Specifications

Table 3 EMC Performance

Project	Test Standard	Result
ESD	IEC 61000-4-2	Air: ±15kV, Contact: ±8kV
Surge	IEC 61000-4-5	Common mode: ±4kV, Diff mode: ±2kV

2.3 Mechanical Dimensions：

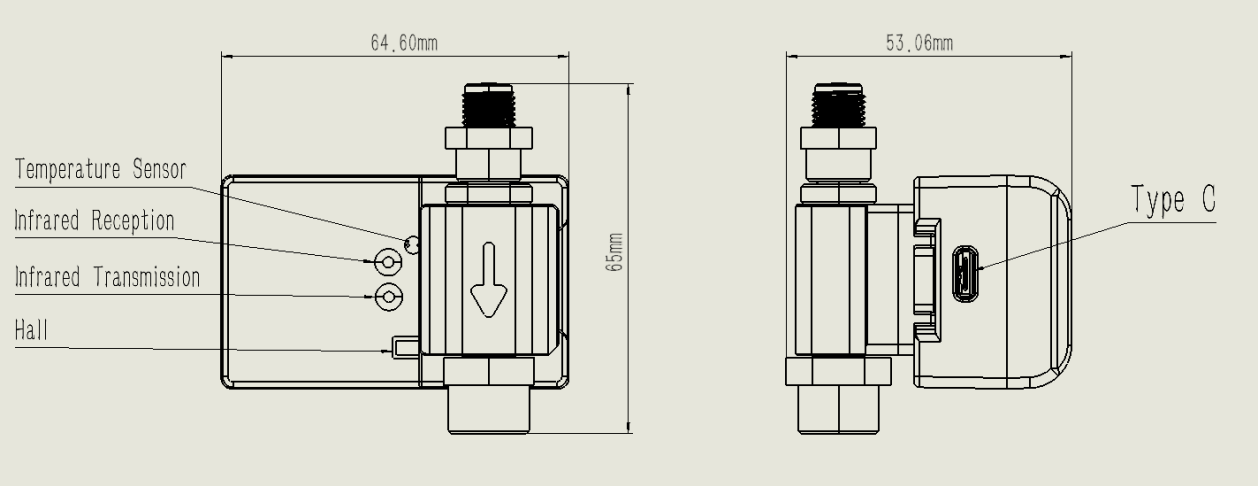

Figure 1 Mechanical Dimensions

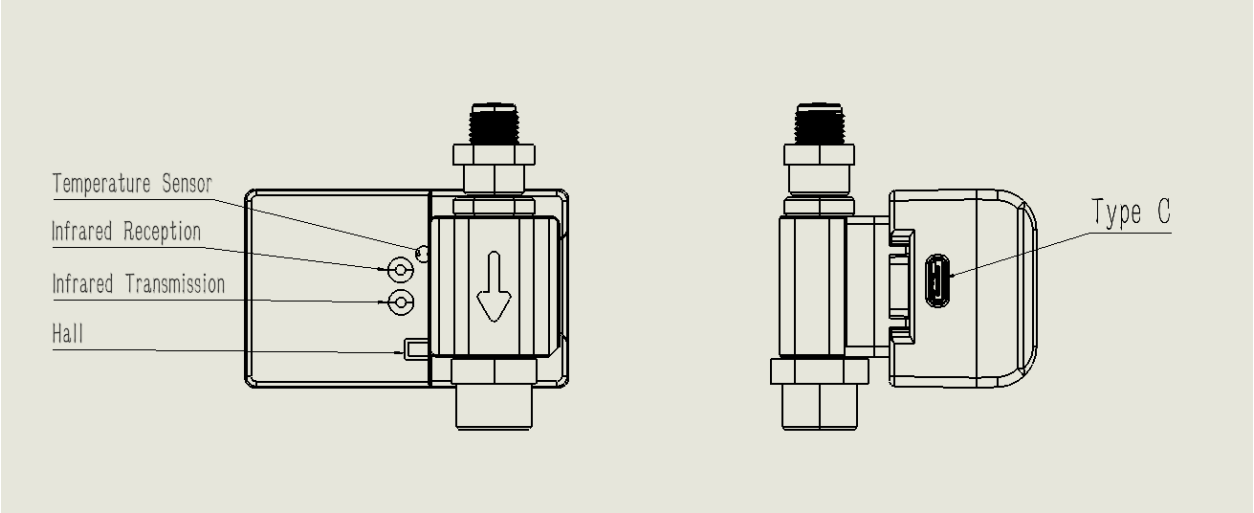

Figure 2 Interface Definitions

3 Package information

3.1 Product packing information

Figure 3 product packing information

Ltem	specification	quantity
Finished product	RHF1SFE2	1
Honeycomb paper	Cushioning wrappers	1
Packing box	Inner box	1

3.2 Packing information

Packing size: 110*86*64mm
Packing weight:150g

Figure 4 RHF1SFE2 packing 1

Figure 5 RHF1SF2 packing 2

4 Ordering Information

Table 4 RRHF1SFE2 Ordering Info

Product Model	Description
RHF1SFE2	Smart Fire Extinguisher Monitoring Sensor

For detailed ordering, please contact us by email:

China: salescn@risinghf.com

Overseas: saleswww@risinghf.com

Revision History

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+ First draft

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