DS02330

Livestock Tracker GN1S067 CAT.1 product specification

V1.1

Document information

Info	Content
Keywords	*RisingHF，IOT，CAT-1，CAT-M，Livestock Tracker, GN1S067*
Abstract	This document describes the functions and technical specifications of the industrial livestock tracer GN1S067 CAT.1

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1 Description

GN1S06_CAT.1 is a tracker designed for livestock such as cattle, sheep, camels, etc. The tracker integrates Bluetooth indoor positioning, GPS/BeiDou receiver module, temperature and humidity sensor and

Acceleration sensor. It is powered up via 3.6V Lithium-ion battery，with a typical service life of up to 2.3 years without replacement.

GN1S067_CAT.1 tracker will report GPS location, temperature and humidity data, and step counting and battery level information periodically through LTE network, there are Cat-1/Cat-M version for customer's choice.

It works in wide range -40~85℃ with IP67 protection. Hang the tracker with a belt to install it. Benefit of the Bluetooth inside, it is easy to configure the device parameter through APP with a mobile phone.

1.1 Features and applications

Features:

- ♦ CAT-1 China version Frequency Band:

  FDD: Band 1,3,5,8

  TDD: Band 34,38,39,40,41

- ♦ CAT-1 Europe version Frequency Band:

  FDD: Band 1,3,5,7,8,20,28

  TDD: Band 38,40,41

- ♦ CAT-M version Frequency Band:

  FDD:B1/B2/B3/B4/B5/B8//B12/B13/B18/B19/B20/B25/B26/B27/B28/B66/B85

- ♦ Temperature with ±0.3℃ measurement tolerance and Humidity with ±3%RH tolerance

- ♦ GPS position tolerance: ±10m

- ♦ Bluetooth position tolerance: ±3m （work with Bluetooth beacon）

- ♦ Support accumulated Step counting information of each day

- ♦ Enhanced dual-LED, more friendly user indication interface

- ♦ Field testing mode to evaluate Network quality

- ♦ IP67 protection

- ♦ Operation range; -40~85℃

- ♦ Bluetooth APP to enable device management and control and Upgrade over the air.

- ♦ Optimized power consumption design, typical battery life of CAT-1/CAT-M version is 2.3 years

- ♦ Low battery level alarm, Battery can be replaced, battery size is ER34615 (CAT-1/CAT-M version）

- ♦ Besides Cat-1/Cat-M version, GN1S067 LoRaWAN version is also available）

Applications:

- ● Livestock Tracking
- ● Husbandry
- ● Cow/sheep/camel location

2 Product Specification

ER34615 (CAT-1/CAT-M version) This chapter describes the technical specifications and performance of the product. Unless otherwise specified, the following specifications are for room temperature and power supply conditions are standard 3.6V (CAT-1/CAT-M version) batteries.

2.1 Technical Specifications overview

Table 1 GN1S067 CAT-1/CAT-M Version Product Specification Overview

Item Group	项目名称	功能描述
Mechanical specifications	Product size	110*47*57.8mm
	weight	252g
Wireless Communication	LPWAN Network connection	CAT-1/CAT-M
	WLAN Wireless configure	BLE
Electrical properties	Power supply	ER34615 Lithium-ion battery
	Battery Voltage	3.6V
	Battery capacity	19Ah
	Typical battery lifetime*	2.3 years
	Standby current	50uA
	Peak current	630mA(CAT-1/CAT-M communication, GPS enabled)
Sensors	Temperature- humidity sensor	Monitor external environmental Temperature-humidity
	Hall sensor	Act as Switch on/off button with a magnet
	3-axis acceleration sensor	Step counting
Operating environment	Operating temperature range	-40 to +85°C
	Storage temperature range	-40 to +85°C

* Typical for one hour uplink packet period.

2.2 Power supply specification

The tracker is powered by 3.6V (CAT-1/CAT-M)battery.

Table 2 GN1S067 battery Specifications2

Battery type	ER34615
Nominal Capacity	19Ah(The capacity of a battery is also related to discharge current, temperature, and termination voltage)
Nominal voltage	3.6V
Maximum continuous discharge current	230mA
Maximum pulse current	400mA
weight	107g

2.3 RF performance

Table 3 CAT-1 RF specifications

Standard	LTE Standard
Frequency （China version）	LTE FDD:Band 1,3,5,8 LTE TDD:Band 34,38,39,40,41
Frequency （Europe version）	LTE FDD:Band 1,3,5,7,8,20,28 LTE TDD:Band 38,40,41
Max Output power	23dBm±2dB
Data transmission	LTE FDD Rel.13 10.3Mbps DL/5.1Mbps UL LTE TDD Rel.13 9.1Mbps DL/3.1Mbps UL
Antenna	Built-in FPC antenna

Table 4 CAT-M RF specifications

Standard	LTE Standard
Frequency	LTE FDD CatM1： B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26/B27/B28/B66/B85
Max Output power	21dBm±2dB
Data transmission	Cat-M1 Rel.14：UL 1119kbps，DL 375kbps
Antenna	Built-in FPC antenna

Table 5 GPS Specifications

GPS chip	Built in BDS/GPS module
Frequency	GPS: L1C, L1A, 1575.42MHz BDS: B1I，B1C, 1561.098MHz
positioning accuracy	<10 meters
Tracking sensitivity	-163dBm
Capture sensitivity	-149dBm
Positioning time	Warm-startup 3S；cold-startup 30s

2.4 Reliability Performance

2.4.1 Environmental test

Table 6 Environmental test

Project	Test conditions	Standards	result
Low temperature operation	Temperature: –40ºC Operation mode: working with service connected Test duration: 12 h	JESD22-A1 GB/T 2423	Good appearance; Cat.1/Cat.M RF has good performance; Other functions are normal;
High temperature operation	Temperature: +85ºC Operation mode: working with service connected Test duration: 12 h	JESD22-A1 GB/T 2423	Good appearance; Cat.1/Cat.M RF has good performance; Other functions are normal;

Low temperature storage	Temperature: –40ºC Operation mode: no power, no package Test duration: 24 h	JESD22-A1 GB/T 2423	Good appearance; Cat.1/Cat.M RF has good performance; Other functions are normal;
High temperature storage	Temperature: +85ºC Operation mode: no power, no package Test duration: 24 h	JESD22-A1 GB/T 2423	Good appearance; Cat.1/Cat.M RF has good performance; Other functions are normal;

2.4.2 EMC performance

GN1S067 is an industrial level device with high reliability.

Table 7 EMC test

Project	Test conditions	Standards
ESD	IEC 61000-4-2	Air Discharge:8kV Contact Discharge:4kV Positive/Negative
Surge Immunity	IEC 61000-4-5	Common mode: 6kV Differential mode: 3kV Positive/Negative

2.5 IP Ingress Protection rating

The outdoor equipment IP level IP67.

2.6 Mechanical size
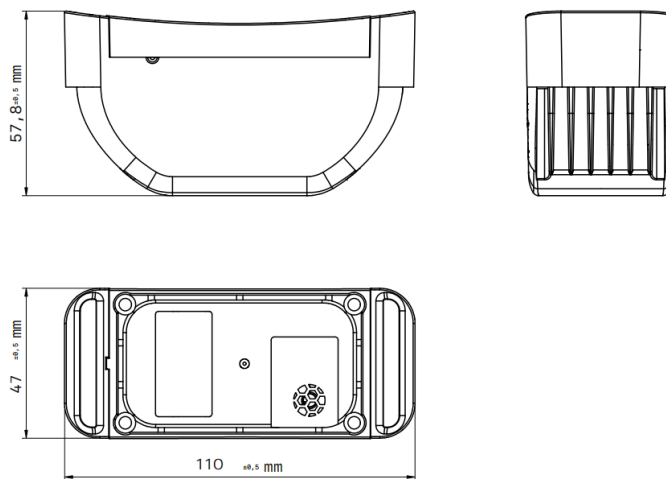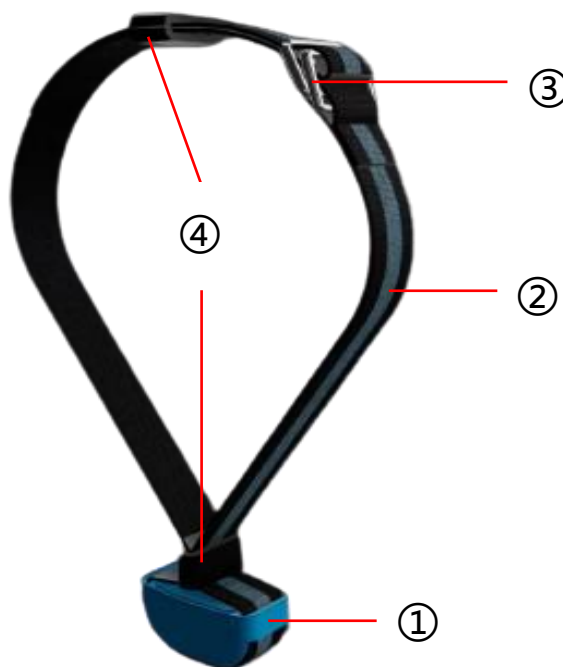
Mechanical dimensions ：110*47*57.8 mm。

Weight：233g

Figure 1 GN1S067 Mechanical dimension

3 Packaging information

3.1 GN1S067 assembly parts

Each GN1S067 tracker will have below assembly parts as illustration below:

Table 8 GN1S067 assembly parts

Item	Part name	Description	Quantity
①	GN1S067 tracker	Tracker device	1
②	Weave strap	Strap to tie to livestock	1
③	Metal buckle	Adjust and Lock the strap	2
④	Plastic buckle	Adjust the device proximity away to livestock	2

3.2 Packaging information

GN1S067 will packed with a carton, each carton contains 20pcs of Tracker device, and an extra Magnet will also be included, Magnet is used to activate the device like turn on or off the device.

Package information:

Package carton dimension:　　640 * 338 * 125 mm
Tracker device number:　　　20pcs
Package weight:　　　　　　5.3Kg

Figure 2 GN1S067 package

4 Ordering Information

GN1S067 contains several series of products, ordering model number listed below.

Table 9 GN1S067 ordering information

Model	DESCRIPTION
GN1S067-Cat1C	Livestock Tracker GN1S067, Cat-1 China version
GN1S067-Cat1E	Livestock Tracker GN1S067, Cat-1 Europe version
GN1S067-CatM	Livestock Tracker GN1S067, Cat-M version

Please E-mail for more ordering information detail:
China: salescn@risinghf.com
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Revision

V1.1 2024-11-15
    + Add Cat-1 Europe version frequency band
    +Update battery information
V1.0 2023-12-21
    + First draft

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