



Hanshow Nebular-T01-N Product Manual

V1.0.0

HS-ESL-NEBULART01N001

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ABOUT THE MANUAL

This document describes features, specification, package, and precautions of Nebular-T01-N.

Please read this manual carefully before using the device in first, retain the manual for subsequent use or for the next owner. If the instructions contained in this manual are insufficient to resolve issues that occur during device operation or maintenance, please contact Hanshow Technical Customer Service Center (China: 400-0365-305; Netherlands: 0800-022-5037; Belgium: 0800-71-335; France: 0800-91-7602; Thailand: 1800-011-185) directly, we will provide you with multi-channel technical services.

TARGET USERS

This document provides engineers with necessary data and related guidelines of Nebular-T01-N. Users have to master the basic knowledge on communication and network and so on. This manual is applicable for the below engineers:

- Testing Engineer
- Technical Support Engineer
- After Sales Engineer
- Installation Engineer

SYMBOL DESCRIPTION

Icon	Description
	Information indicated with this icon should be paid special attention and attached great importance by the reader.
	Information indicated with this icon is the explanation on the formal text for the readers to comprehend the text better.
[X-X]	It means special noun definition is provided here.

EXPLANATION OF TERMS

Acronym	Expanded form	Description
PriSmart	PriSmart Smart Retail System	Manage all store product data and issue price update command, as well as support multi-store management.
ESL-Working	ESL-Working System	Manage all the APs and ESLs in store, and ESL-Working 3.0 and above supports multi-store management.
ESL Controller	ESL Controller	Also called AP that is used for data interaction between ESL-Working and ESL Controller.
ESL	Electronic Shelf Label	Used for displaying product information like promotion information, price, and grade.

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1 Overview

Nebular-T01-N is Hanshow's newest generation temperature sensor label. Based on 2.4GHz private wireless protocol, Nebular-T01-N can communicate with ESL controllers to report temperature in real time or flash light. With extended life, Nebular-T01-N serves traditional retail, new retail, department stores and fashion, pharmacies, culture, and entertainment.

1.1 System architecture

Hanshow ESL system includes ESLs, ESL Controller, ESL-Working, All-Star, Database, Integration server, CloudMonitor and Handheld Terminal (PDA), as shown in [Figure 1-1](#). Specifically, the ESLs are used for electronically displaying product information such as name and price, and services available for customers.

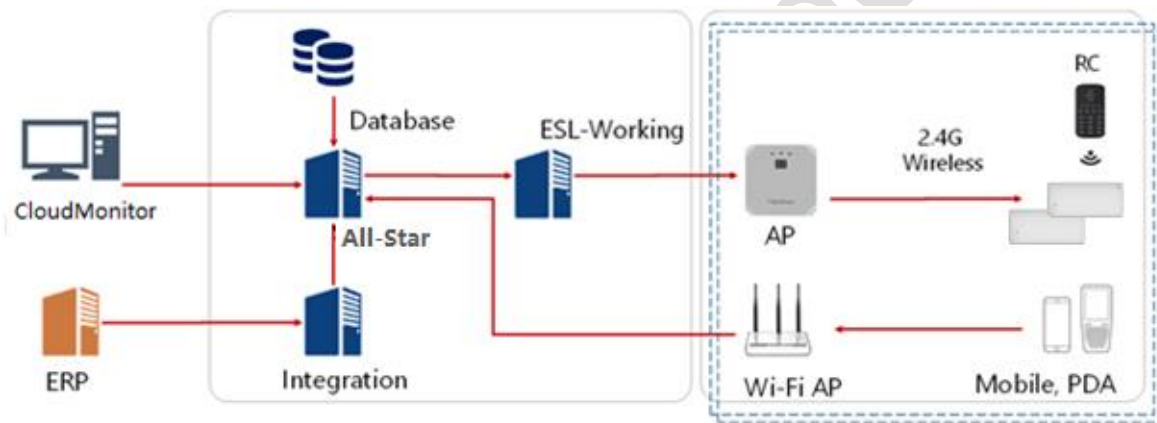


Figure 1-1 Hanshow ESL system architecture

1.2 Features

The features of Nebular-T01-N are as follows:

- Measurement accuracy: $\pm 0.1^{\circ}\text{C}$
- Temperature measurement range: $-30^{\circ}\text{C} \sim 60^{\circ}\text{C}$
- Size: 2.9"
- Operating frequency band: 2402MHz ~ 2480MHz, 2473.3MHz-2493.5MHz (only for Japan)
- Maximum transmit power: 1dBm
- Built-in LED indicator: 7-color display assists in product geolocation.
- Embedded NFC chip: Supports NFC function. NFC response distance is 10mm.
- Supports AES-128 encryption.
- Supports OTA (Over-The-Air) upgrade.

2 Product view

This chapter describes the appearance and composition of Nebular-T01-N.

2.1 Product appearance

Figure 2-1 shows Nebular-T01-N.

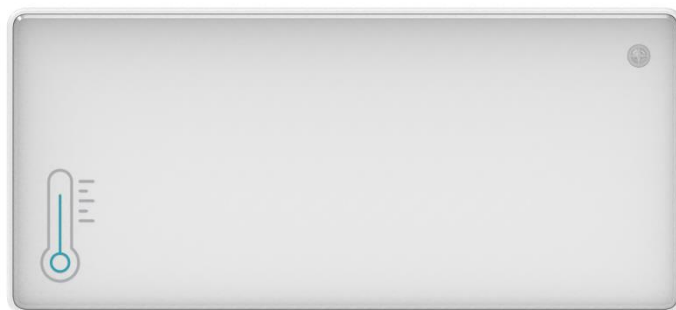


Figure 2-1 Nebular-T01-N

2.2 Dimensions

This section covers the dimensions of Nebular-T01-N.

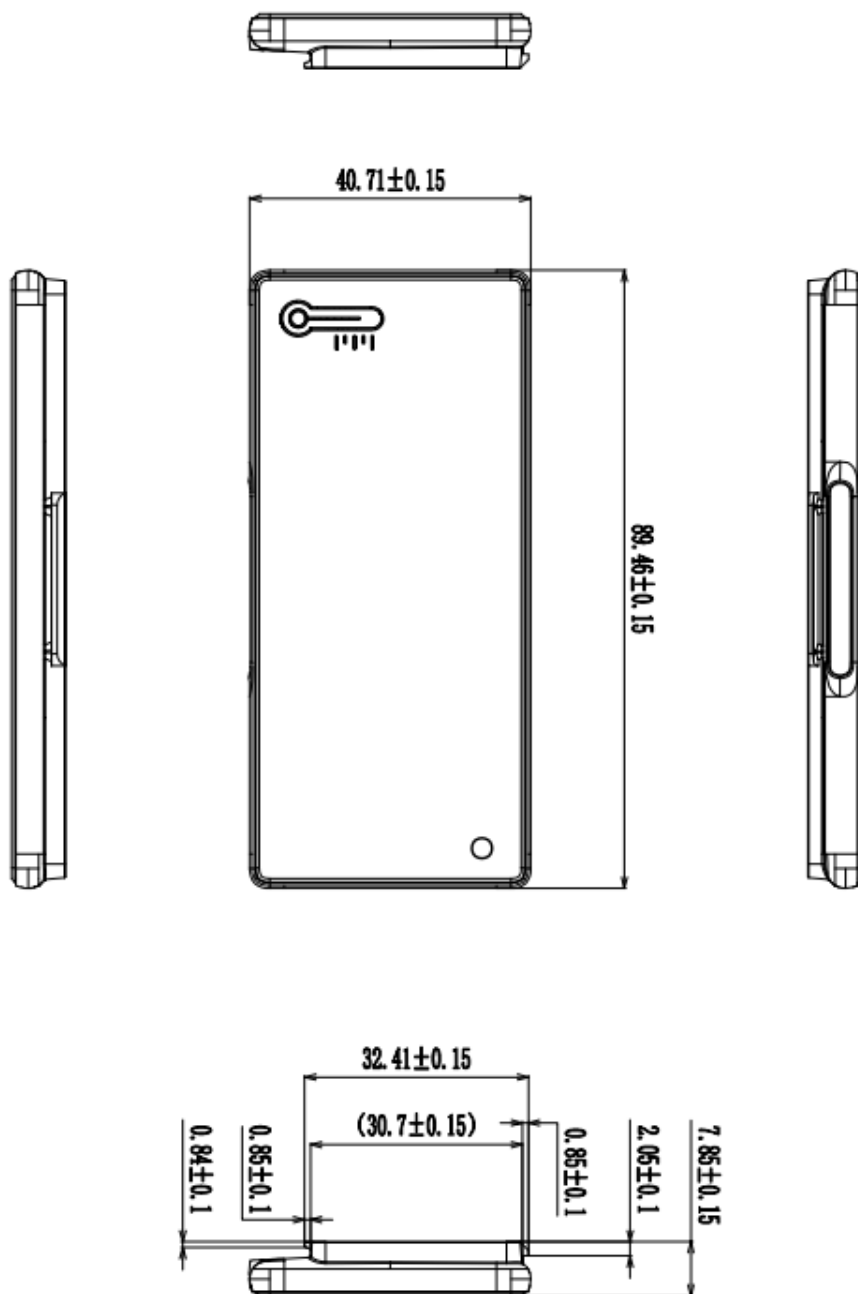


Figure 2-2 Nebular-T01-N dimension

3 Hardware performance

This chapter consists of:

- [Specifications](#)
- [Naming rule](#)
- [Product nameplate](#)

3.1 Specifications

[Table 3-1](#) lists the Nebular specifications.

Table 3-1 Nebular-T01-N specifications

Name	Description
Dimensions (mm*mm*mm)	89.4*40.0*7.8
Weight (g)	28.5
Size (inch)	2.9
Battery life ^[3-1]	3 years
Battery capacity	1030mAh
Battery type	CF302752F
Protection level	IP68
Operating temperature (°C)	-30 ~ 60
Storage temperature (°C)	0 ~ 40
Humidity (%RH)	30 ~ 70

 Note:

- [3-1]: The battery life is calculated based on the following scenario: the battery life is 3 years if Nebular-T01-N reports temperature every 3 minutes.

3.2 Naming rule

You can identify Nebular-T01-N from the following naming rule:

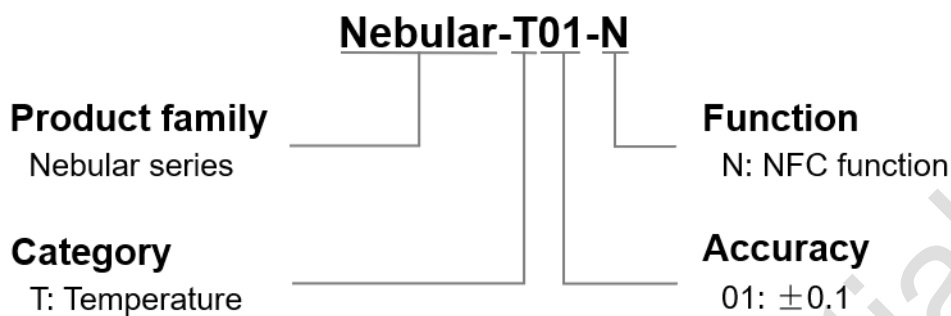


Figure 3-1 Naming rule of Nebular-T01-N

3.3 Product nameplate

Figure 3-2 shows the nameplate of Nebular-T01-N.



Figure 3-2 Nameplate of Nebular-T01-N

 **Note:** The above is for reference only, actual label information might vary.

4 Packaging and accessories

This chapter describes packaging and required accessories of Nebular-T01-N.

4.1 Packaging

Nebular-T01-N packaging and the specific label quantity is shown in [Figure 4-1](#).

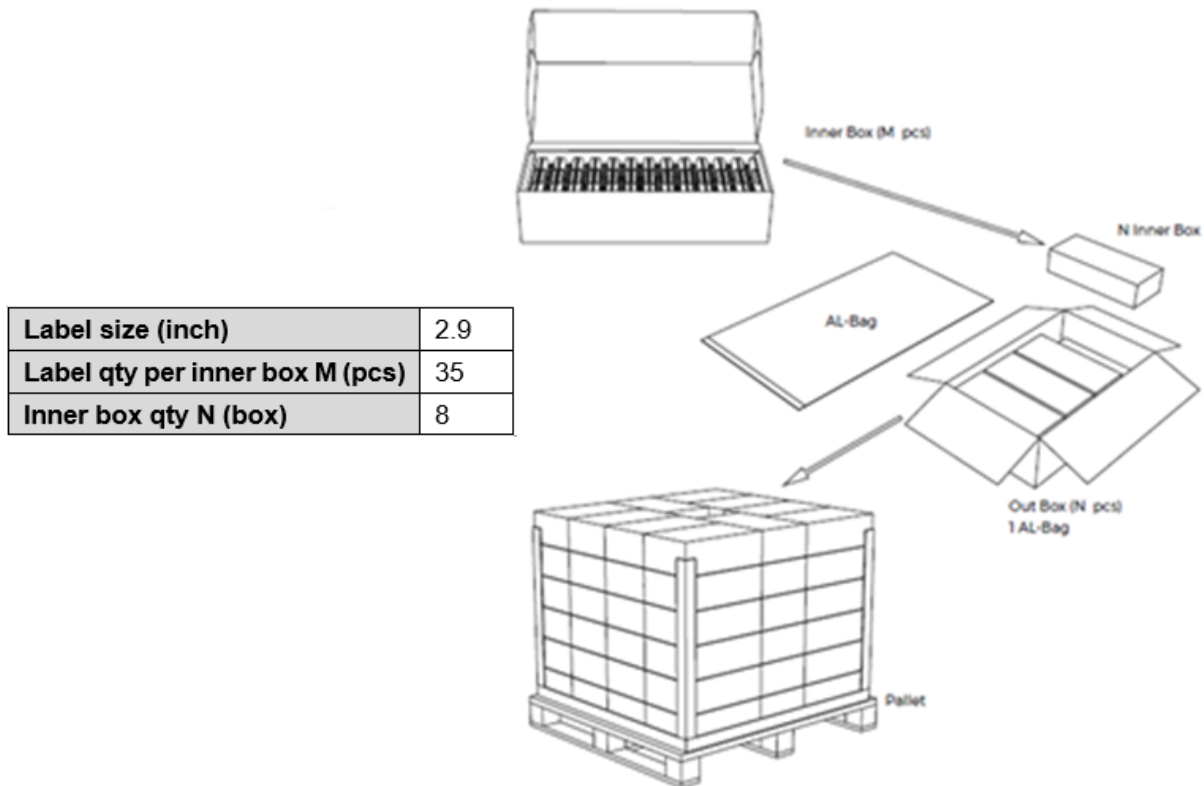
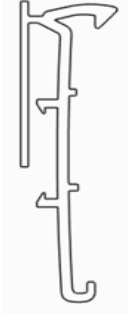
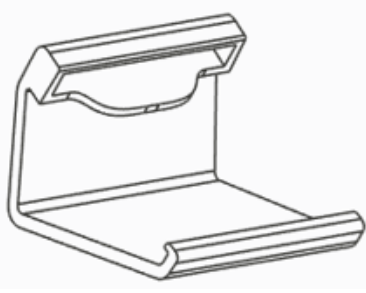
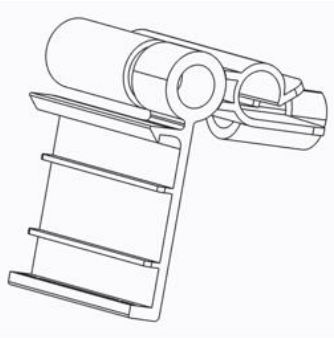
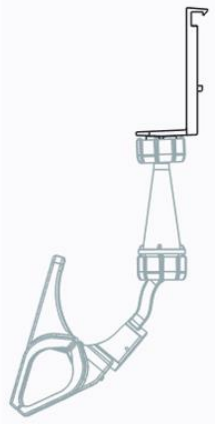


Figure 4-1 Nebular-T01-N family packaging

4.2 Product accessories

Common accessories of Nebular series are shown in [Table 4-1](#).

Table 4-1 Common accessories of Nebular series

Rail		
Table stand		
T-hook		
Basket clip		

5 Application scenarios

Nebular-T01-N is applicable to hypermarket, supermarket and retail stores, mainly for refrigeration areas.

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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.

Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

This device 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.

The device has been evaluated to meet general RF exposure requirement.

6 Precautions

During transportation and usage of Nebular-T01-N, note the following precautions.

6.1 Transportation considerations

Avoid the following considerations during transport:

- Water leakage or heavy moisture
- Heavy stacking
- High heat conditions above 40°C

6.2 Precautions for use

Follow the precautions:

- Operating environment, -30°C ~ 60°C, 30% ~ 70%RH
- Storage environment, 0°C ~ 40°C, 30% ~ 70%RH.
- Keep Nebular-T01-N within the specified temperature range, otherwise the battery life might be shortened.
- The output capacity will degrade at low temperature.
- Frequent communications or flashing might shorten battery life during the use.
- Avoid dropping or tossing Nebular-T01-N.
- Do not disassemble Nebular-T01-N without permission.
- The mineral substances in rainwater, moisture or liquids might corrode the electronic circuit. Avoid water on the product as much as possible.
- Regularly clean Nebular-T01-N.
- Promptly remove cosmetics, perfume and other dirty from Nebular-T01-N to avoid damages.
- Do not use Nebular-T01-N in water. Otherwise, no warranty is provided.
- Avoid direct contact with chemical detergent.
- Do not install Nebular-T01-N in a strong magnetic environment.
- Communications might be limited or affected by wireless communication systems that share the 2.4GHz frequency-band, such as Wi-Fi, Bluetooth, and Zigbee.
- Do not place Nebular-T01-N near kitchen appliances such as stove or microwave oven.