Hanshow

Hanshow Nebular Plus Plus-266 Product Manual

V2.0.4

HS-ESL-EPDN001

STATEMENT

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ABOUT THE MANUAL

This document describes Nebular Plus series, including features, specification, package, and precautions.

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 Plus series. 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.

Table of Contents

1 Overview

The Nebular Plus series is Hanshow's newest generation Electronic Shelf Labels (ESLs). They adopt e-ink screen to achieve page switching, light flashing, pricing and so on based on 2.4GHz wireless communication. With ultra-thin, extended life and high-definition visual effects, the Nebular Plus series widely 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, PriSmart/ShopWeb, 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.
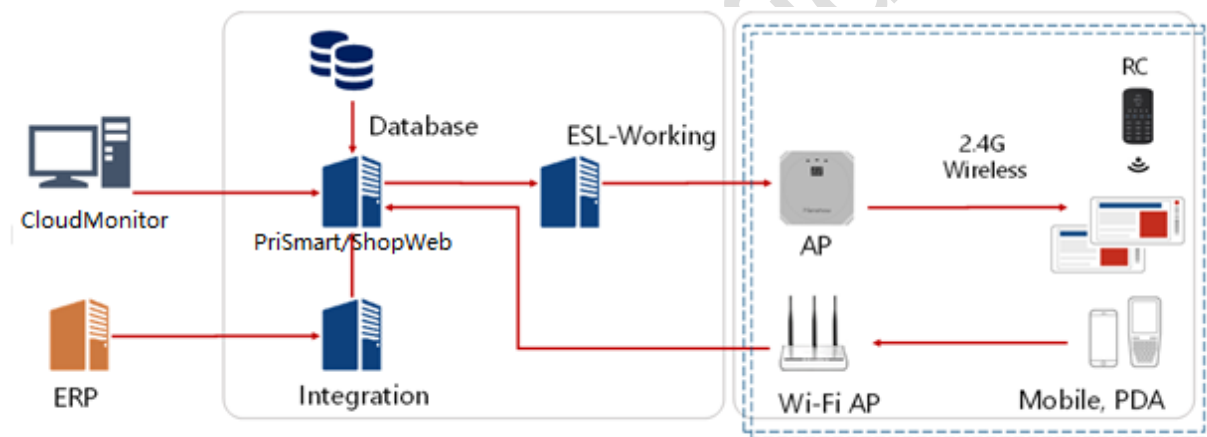

Figure 1-1 Hanshow ESL system architecture

1.2 Features

The features of Nebular Plus series are as follows:

- Nebular Plus ESLs come in 1 ESL sizes: 2.66"

- Display colors include: BWRY (Black-White-Red-Yellow).

- Operating frequency band: 2402MHz ~ 2480MHz.

- IP68 waterproof and dustproof design.

- Built-in LED indicator: 7-color display assists in product location, promotion reminder, out-of-stock reminder, and low power reminder.

- Embedded NFC chip: Supports NFC function. NFC response distance is 10mm.

- Nebular Plus ESLs support multiple functions, including binding/unbinding, updating, instant flashing, multi-page storage, page switching, geolocation, temperature collection, NFC function and so on.

- Supports AES-128 encryption.

- Supports OTA (Over-The-Air) upgrade.

2 Product view

This chapter describes Nebular Plus series' appearance and composition.
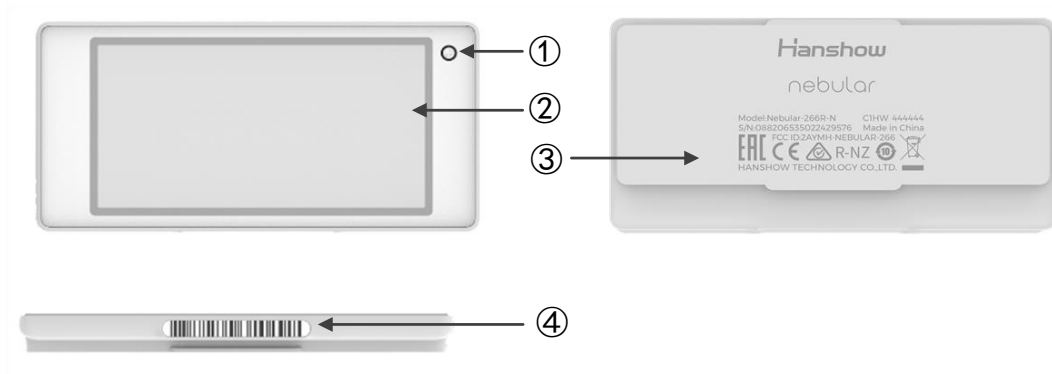
2.1 Product appearance

Figure 2-1 shows Nebular Plus.
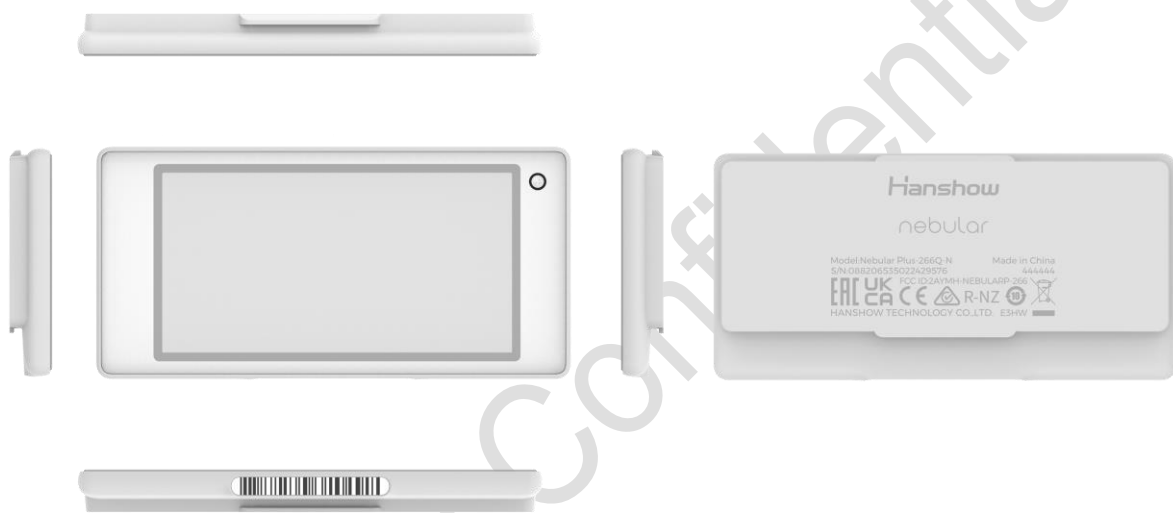
Figure 2-1 Nebular Plus

Each section of Nebular Plus and its relative description is shown in *Figure 2-2* and *Table 2-1*.

Figure 2-2 Key area of Nebular Plus

Table 2-1 Each area description of Nebular Plus

No.	Name	Description
1	LED indicator	Supports 7-color flashing.
2	Display area	Supports BWR or BWY display on E-ink screen. ● Display text, images, barcode, QR code and others. ● Product information display such as name, price, origin, unit, grade, phone number, barcode, and QR code. Supports customizable display position and font size. ● Supports 8-page storage and page switch functionality.
3	Nameplate	Product information mark, including model, S/N, and certifications such as CE and UKCA.
4	Barcode area	18-digit barcode used for product binding and maintenance.

2.2 Dimensions

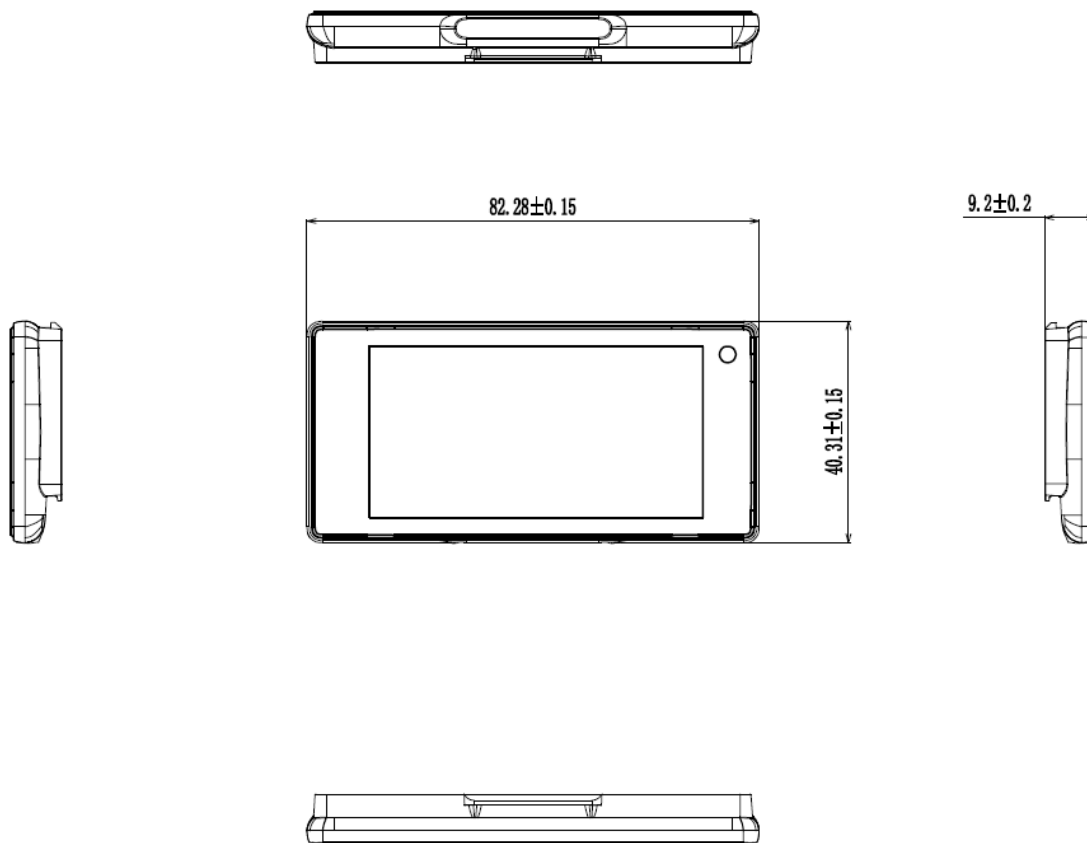This section covers the dimensions of Nebular Plus series.

82.28±0.15

9.2±0.2

40.31±0.15

Figure 2-3 2.66" dimension

3 Hardware performance

This chapter consists of:

- *Specifications*

- *错误!未找到引用源。*

- *Product nameplate*

3.1 Specifications

Table 3-1 lists the Nebular Plus specifications.

Table 3-1 Nebular Plus specifications

Name	2.66"
Dimensions (mm*mm*mm)	82.3*40.3*7.8
Active display area (mm*mm)	60.1*30.7
Weight (g)	29.9
Size (inch)	2.66
Resolution (pixel)[3-1]	296*152
DPI[3-1]	125

Name	2.66"
Display color	BWRY
Viewing angle	Nearly 180 degrees
Battery life[3-2]	10 years
Page switch	8 pages
Protection level	IP68
Operating temperature[3-3]	0 ~ 40
Storage temperature[3-3]	0 ~ 40
Humidity (%RH)	45~ 65

📖 **Note:**

➢ [3-1]: The resolution and DPI might be subject to slight variations.

➢ [3-2]: Battery life is calculated based on the following scenarios: The battery life is 10 years if updated twice a day.

➢ [3-3]: Room-temperature ESLs operate within 0℃ ~ 40℃, however temperatures below 10℃ might impact the ESL lifespan. Freezer ESLs operate within -25℃ ~ 0℃.

3.2 Product nameplate

Taking Nebular Plus-266R-N as an example, *Figure 3-1* shows the nameplate of Nebular Plus.

Figure 3-1 Nameplate of Nebular Plus

📔**Note:** Each ESL has a unique S/N number. The above is for reference only, actual label information might vary.

4 Packaging and accessories

This chapter describes Nebular Plus series' packaging and required accessories.

4.1 Packaging

Nebular Plus family packaging and the specific ESL quantity is shown in *Figure 4-1*.

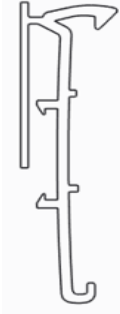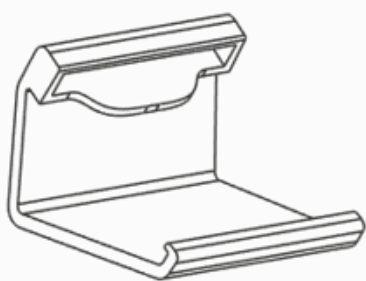| Screen size (inch)	ESLs qty in per inner box (M pcs)	Inner box qty N (Box)	Total (pcs)	Inner box size(mm)	Out box size(mm)
1.54	30	10	300	354*57*46	383*247*131
2.0	30	12	360	372*60*60	389*378*155
2.13	35	8	280	333*80*44	367*193*177
2.66	35	8	280	333*93*51	367*389*119
2.9	35	8	280	333*100*51	367*221*217
3.46	20	7	140	228*117*51	371*245*151
3.5	20	6	120	228*116*61	378*245*150
4.2	20	5	100	372*127*118	404*680*160
5.83	20	5	100	381*159*146	840*410*185
7.5	2	5	10	-	270*216*165
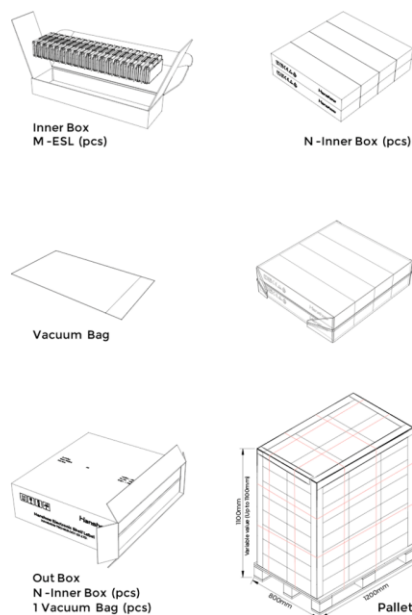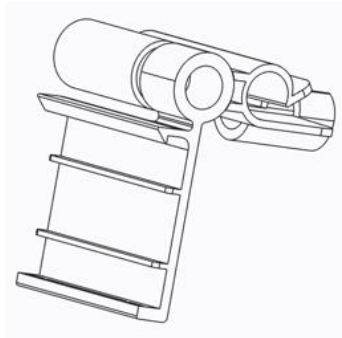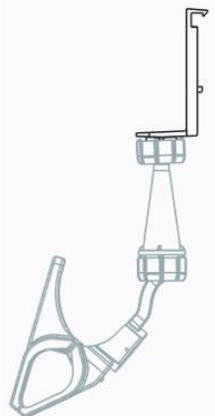
Figure 4-1 Nebular Plus family packaging

4.2 Product accessories

Common accessories of Nebular Plus series are shown in *Table 4-1*.

Table 4-1 Common accessories of Nebular Plus series

Rail	
Table stand	
T-hook	
Basket clip	

5 Application scenarios

Nebular Plus series are available to various zones and shelves of hypermarket, supermarket and retail stores. The ESLs are applicable to areas with different fixtures:

- Shelves
- Hooks
- Fences
- Tables

6 Precautions

During transportation and usage of Nebular Plus series, please 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℃

6.2 Precautions for use

Follow the precautions:

- The room-temperature ESLs operate best in normal operating and storage environment, 0℃ ~ 40℃, 45% ~ 65%RH.

- The freezer ESLs operate best in normal operating, -25℃~ 0℃, 45% ~ 65%RH and storage environment, -25℃~ 30℃, 45% ~ 65%RH.

- Keep ESLs within the specified temperature range, otherwise ESL screens might be damaged and the battery life might be shortened.

- The output capacity will degrade at low temperature.

- Frequent communications or updates might shorten battery life during the use.

- Avoid dropping or tossing ESLs.

- Do not disassemble ESLs without permission.

- Do not disassemble ESL batteries.

- Do not scratch ESL bodies with sharp objects.

- Use Nebular Plus dedicated disassembly tools when disassembling.

- The mineral substances in rainwater, moisture or liquids might corrode the electronic circuit. Avoid water on the product as much as possible.

- Regularly clean the screen.

- Promptly remove cosmetics, perfume and other dirty on ESLs to avoid screen, case, or lens damaged.

- Avoid direct contact with chemical detergent.

- Avoid direct sunlight or incandescent light on ESLs.

- Do not install ESLs in a strong magnetic environment.

- Do not place ESLs near or in a fire.

- Do not place ESLs near kitchen appliances such as a stove, a microwave oven.

- ESLs communications might be limited or affected by other wireless communication systems that share the 2.4GHz frequency-band, such as Wi-Fi, Bluetooth, or Zigbee.

7 FCC ID warning

7.1 Warning for nameplate

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.

7.2 Warning for product manual

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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

8 IC statement

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:

(1) This device may not cause interference; and (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils

radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

(1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement

9 UKCA statement

All products of the Nebular Plus series comply with UK Conformity Assessed (UKCA) standards. Nebular Plus products include 1.54", 2.0", 2.13", 2.66", 2.9", 3.46", 3.5", 4.2", 5.83", 7.5", 2.13" Freezer, 2.66" Freezer, and 3.5" Freezer.

Figure 9-1 UKCA marking