Hanshow Stellar-L E31 Series Product Manual

V1.0.1

HS-ESL-STELLAR290001

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STATEMENT

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ABOUT THE DOCUMENT

Thank you very much for using the Stellar-L E31 series products of Hanshow.

The document introduces the role of label, functional, hardware parameters, features and precautions, etc.

Please read the product manual carefully before using this product, 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 (400-0365-305) directly, we will provide you with multi-channel technical services.

TARGET USERS

This document provides engineers with the necessary data and detailed usage precautions of Stellar-L E31 series labels. Users have to master the basic knowledge on communication, DSP and Network. This document is applicable for the below engineers:

- Testing engineer
- Technical support engineer
- After sales engineer
- Installation engineer

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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

Term	Expanded form	Description
ShopWeb	ShopWeb smart retail system	Manage all store product data and issue price update command.
AP	Wireless access point	ESL controller
ESL	Electronic shelf label	ESL
ESL-Working	ESL-Working System	Manage all the APs and ESLs in each store.

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Table of Contents

STATEMENT I
ABOUT THE DOCUMENT 2
TARGET USERS 2
SYMBOL DESCRIPTION III
EXPLANATION OF TERMS III
Table of Contents IV
1 Overview 1
2 Specifications and characteristics 1
2.1 Product information 1
2.2 Product view 2
2.2.1 Front area 2
2.2.2 Rear area 2
2.3 Hardware parameters 3
2.4 Function introduction 5
3 Product function features 7
3.1 Performance parameters 7
3.2 Performance benefits 7
4 Precautions 8
4.1 Transport consideration 8
4.2 Precautions for use 8
5 FCC ID warning 9
5.1 Warning for nameplate 9
5.2 Warning for product manual 9
6 Application scenarios introduction 10

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List of Figures

Figure 2-1 Front area of Stellar-L E31 2
Figure 2-2 Rear panel of Stellar-L E31 3

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List of Tables

Table 2-1 Stellar-L E31 product information 1
Table 2-2 Description for front area of Stellar-L E31 2
Table 2-3 Stellar-L E31 hardware parameter..... 3
Table 2-4 Stellar-L E31 usage scenarios..... 4
Table 2-5 Stellar-L E31 basic function table 5
Table 3-1 Stellar-L E31 series product performance parameters 7

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1 Overview

Stellar-L E31 series are an Electronic Shelf Label (ESL) researched and developed independently by Hanshow Technology Co., Ltd. It is an important part of the Hanshow electronic shelf label system, interacting with AP and ESL-Working for data and information. It supports bi-directional communication, remote control function, NFC function, multi-page switch and multiple colors. The Stellar-L E31 series have high-definition visual effects, convenient and unified management and long life cycle, widely serving traditional retail, new retail, apartment store and fashion, medicare, culture and entertainment, etc.

Stellar-L E31 series products have a variety of models, including Stellar-L@ E31, Stellar-L@ E31A, Stellar-LN@ E31, Stellar-LN@ E31A, Stellar-L3@ E31, Stellar-L3@ E31A, Stellar-L3N@ E31, Stellar-L3N@ E31A, Stellar-L3Y@ E31, Stellar-L3Y@ E31A, Stellar-L3YN@ E31, Stellar-L3YN@ E31A, etc.

2 Specifications and characteristics

This chapter introduces the product information, product view, hardware parameters and function introduction of the Stellar-L E31 series.

2.1 Product information

Table 2-1 Stellar-L E31 product information

Marketing name	Color	ID rule
Stellar-*XXX* E31*X* [2-1]	● Case color: White (customizable) ● The color of EPD screen supported: black/white, black/white/red and black/white/yellow	Total of 18-digit ID

Note:

- [2-1]: *XXX* and *X* stand for hardware, such as Stellar-L3YN@ E31
  - L is: 2.9 inch
  - is: three colors of black, white and red
  - Y is: Yellow
  - N is: NFC chip
  - A is: No reed switch

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- @ is: LED indicator

2.2 Product view

The following sections introduce the appearance area of the front and rear of Stellar-L E31 series.

2.2.1 Front area

The front area of Stellar-L is shown in *Figure 2-1*, and the function of each area is shown in *Table 2-2*.

Figure 2-1 Front area of Stellar-L E31

Table 2-2 Description for front area of Stellar-L E31

No.	Name	Description
1	LED area	Support for RGB tricolor LED flashing
2	Barcode area	18 digits barcode used for binding product and maintenance
3	Screen area	e-paper screen, support three colors (black/white, black/white/red and black/white/yellow) display schemes, NOT SUPPORT grayscale
4	LOGO area	HANSHOW logo
5	Red dotted square	NFC sensing area

2.2.2 Rear area

The rear area of Stellar-L is shown in *Figure 2-2*.

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Figure 2-2 Rear panel of Stellar-L E31

Note:

- MODEL: Each type of ESL's MODEL is different

2.3 Hardware parameters

The hardware parameters of Stellar-L E31 are shown in *Table 2-3*.

Table 2-3 Stellar-L E31 hardware parameter

Name	Description
Product series	Stellar
Product type	Stellar-L E31
Product dimensions (mm*mm*mm)	91.0*41.0*13.1
Active display area (mm*mm)	66.9*29.1
Product weight (g)	47.0
Product appearance	Elegant White (customizable with different-color frame)
Display size (inch)	2.9
Resolution (pixel)	296*128 [2-2]
DPI	112 [2-2]
Display effect	EPD e-paper display screen, including black/white, black/white/red and black/white/yellow
Viewing angle	Nearly 180 degree
Working life	3 ~ 5 years [2-3]

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Name	Description
NFC function (Optional)	The ESL of "N" in the product model indicates the NFC function 1. Conforms to ISO/IEC 14443 Type A standard 2. Supports NFC NDEF data format 3. 200 byte storage space, and write content configurable 4. Maximum 1cm communication distance 5. Greatly improve batch data transmission rate for the same template ESLs
Page switching	Supports up to 4 pages
Battery specification	550mAh*2
Battery changeable	Changeable (compatible to standard Hanshow battery)
Protection level	IP54
Operating temperature	0℃ ~ 30 ℃
Storage temperature	0℃ ~ 30 ℃
Humidity	30% ~ 70%
Certifications	ROHS, CE

Note:

- [2-2]: The resolution and DPI vary with different screen.
- [2-3]: For EPD label with black/white/yellow, the working life is about 3 years, while for EPD label with black/white or black/white/red, the working life is about 5 years at room temperature.

The ESLs can perform flashing, page switch, update and other functions, thus the working life of ESLs will reduce due to limitations in *Table 2-4*.

Table 2-4 Stellar-L E31 usage scenarios

Name	Description
LED flashing	1 hour/day (on=30ms, off=120ms, on=30ms, off=1200ms flashing)
Frequency of update	Twice/day
Frequency of page switching	Once/day

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⚠**Notice:**

- If the screen is stored or used outside of the above operating temperature and normal humidity, the working life of the screen will be affected.

2.4 Function introduction

The basic functions of Stellar-L E31 are shown in *Table 2-5*.

Table 2-5 Stellar-L E31 basic function table

Name	Function	Description
Product series	-	Stellar
Product type	-	Stellar-L E31
Screen display area	Screen display	● Dot matrix screen, ultra-wide viewing angles, high-contrast, and adapting to complex light environment ● Flexible display such as text, digit, pictures, barcode, QR code and others ● All display areas, including independent elements such as name, price, place, unit, specification, phone number, barcode, QR code, display place and font size settable ● Supports up to 4 pages of storage content and page switch function
LED display function (Optional)	Flashing light	Supports RGB tricolor
		LED flash cycle configurable [2-4]
		Supports marquee function
Remote control function	Flashing light	Supports flashing light function
	Page switch	Supports page switch for remote controller
NFC function	Label management	● ESL binding and unbinding ● Lighting control ● Page switch control ● Data operation for private area and public area
Temperature acquisition	Range	0℃ ~ 40℃ (only for red screen) [2-5]
	Accuracy	±2℃

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Note:

- [2-4] Adjustable flashing cycle: 30ms ~ 7s, smallest unit of 30ms.
- [2-5] Whether the ESLs support temperature acquisition, please consult our technical staff.

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3 Product function features

This chapter introduces the performance parameters and benefits of Stellar-L E31 series.

3.1 Performance parameters

The performance parameters of Stellar-L E31 series are shown in *Table 3-1*.

Table 3-1 Stellar-L E31 series product performance parameters

RF parameters	
Transmission band	2402MHz ~ 2480MHz
Transmit power	Maximum 1dBm
System throughput	
Average rate	10000 tags/hour
Peak rate	18000 tags/hour

3.2 Performance benefits

The performance benefits of Stellar-L E31 series are as follows:

- Support bi-directional communication and wider coverage range
- Multiple installation ways and suitable for different scenarios

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4 Precautions

This section emphasizes the Stellar-L E31 series transportation and use precautions. Please be sure to strictly abide by the precautions to ensure the Stellar-L E31 series can work normally.

4.1 Transport consideration

The transport considerations for Stellar-L E31 series are as follows:

- Pay attention to the waterproof during transporting, prohibit water and prevent ESL damage
- Do not extrude ESL during transporting, to avoid screen damage
- Temperature never exceed 40℃ during transporting

4.2 Precautions for use

The precautions for use of Stellar-L E31 series are as follows:

- Keep ESLs working temperature in the range of 0℃ ~ 30℃
- It's highly prohibited ESLs temperature is over 60℃
- Clean ESL screens regularly and maintain cleanliness
- Do not disassemble the entire ESLs without permission
- Pay attention to the waterproof during use
- Pay attention to prevent collisions during use
- ESLs must be kept working within standard temperature range. If ESLs are working out of the nominal temperature range, screen will be damage.
- ESLs must be kept working within standard temperature range. If ESLs are working out of the nominal temperature range, the battery life will be shortened.
- Try to keep dry environment, to avoid short circuit and component damage due to wetting
- The screen of ESLs should be treated promptly to avoid affecting the screen display effect, and even causing permanent effects on the shell and lenses, such as cosmetics, perfume, etc.
- Don’t use chemical detergent to wipe the screen.
- It is forbidden to install ESLs in a strong magnetic environment.

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- Do not violently disassemble the ESLs

5 FCC ID warning

5.1 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.

5.2 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.

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6 Application scenarios introduction

ESLs can be applied to various areas and shelves of hypermarket, supermarket and retail stores. Stellar-L E31 series products are widely used for the below areas and scenes:

- Regular shelf racking areas
- Regular shelf hook areas
- Regular fence areas
- Regular floor display areas

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