



## Hanshow Polaris Series Product Manual

V1.1.1

HS-ESL-EPDP001

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# ABOUT THE MANUAL

This document describes Polaris 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: 0800-902-530; Thailand: 1800-011-185; Germany: 0800-182-7358; Australia: 0061-1800-953-008) directly, we will provide you with multi-channel technical services.

## TARGET USERS

This document provides engineers with necessary data and related guidelines of Polaris 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

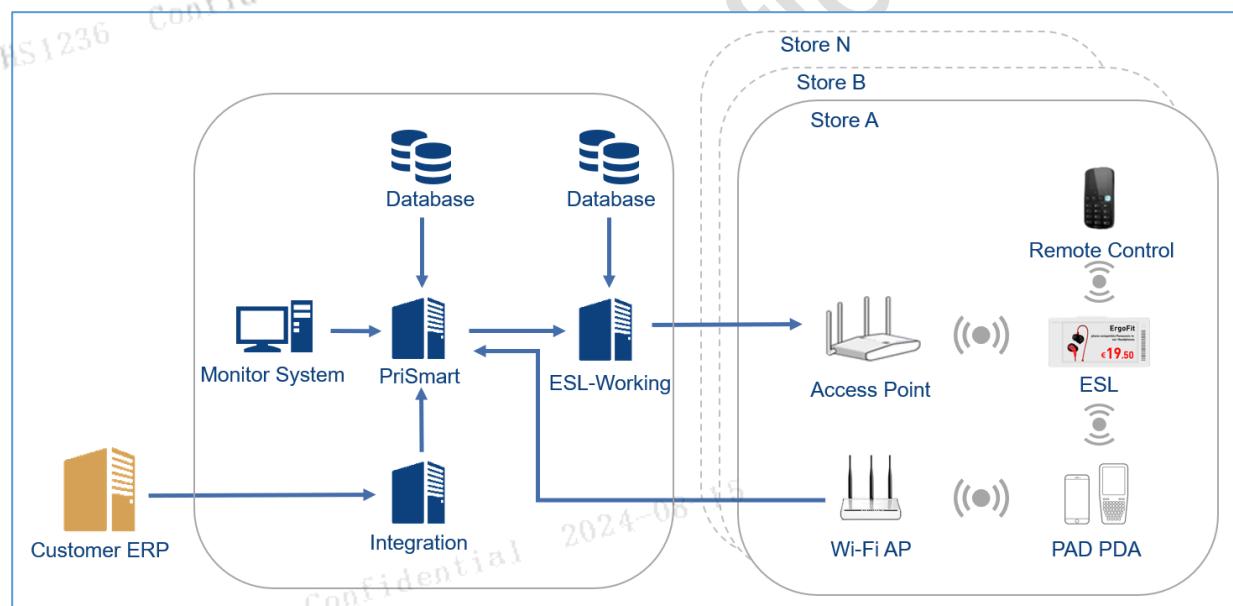
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# 1 Overview

The Polaris 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 Polaris 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, 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 Polaris series are as follows:

- Polaris ESLs come in 5 ESL sizes: 1.6”, 2.0”, 2.3”, 2.6”, 2.8”, 3.1”, 4.2”, 5.9”, 7.5” and 9.7”.
- Display colors include: BWR (Black-White-Red) display.
- Operating frequency band: 2,402MHz ~ 2,480MHz.
- IP54 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.
- Polaris 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 Polaris series' appearance and composition.

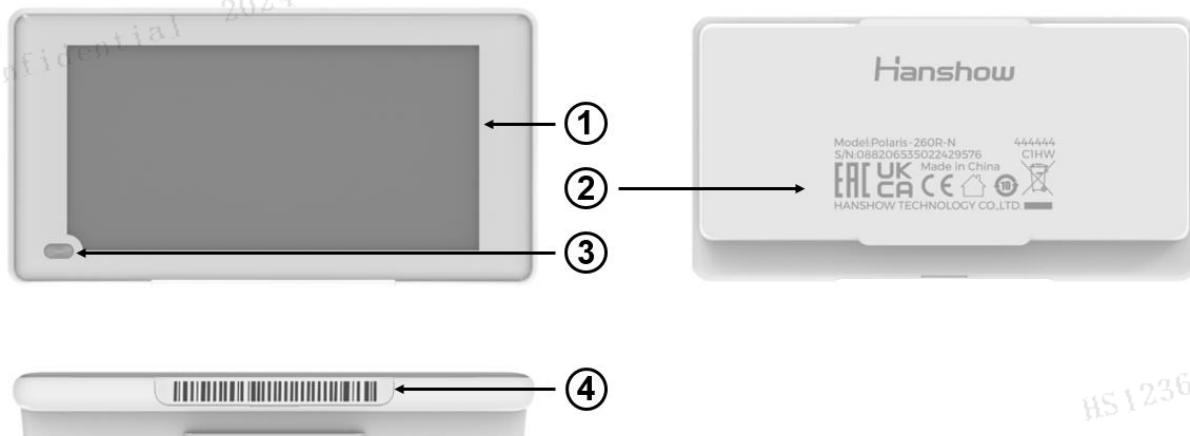
### 2.1 Product appearance

*Figure 2-1* shows Polaris family.



**Figure 2-1 Polaris family**

Each section of Polaris and its relative description is shown in [Figure 2-2](#) and [Table 2-1](#).



**Figure 2-2 Key area of Polaris**

**Table 2-1 Each area description of Polaris**

No.	Name	Description
1	Display area	<p>Supports BWR display on E-ink screen.</p> <ul style="list-style-type: none"> <li>Display text, images, barcode, QR code and others.</li> <li>Product information display such as name, price, origin, unit, grade, phone number, barcode, and QR code. Supports customizable display position and font size.</li> <li>Supports 8-page storage and page switch functionality.</li> </ul>
2	Nameplate	Product information mark, including model, S/N, and certifications such as CE and UKCA.
3	LED indicator	Supports 7-color flashing.
4	Barcode area	18-digit barcode used for product binding and maintenance.

## 2.2 Dimensions

This section covers the dimensions of Polaris series.

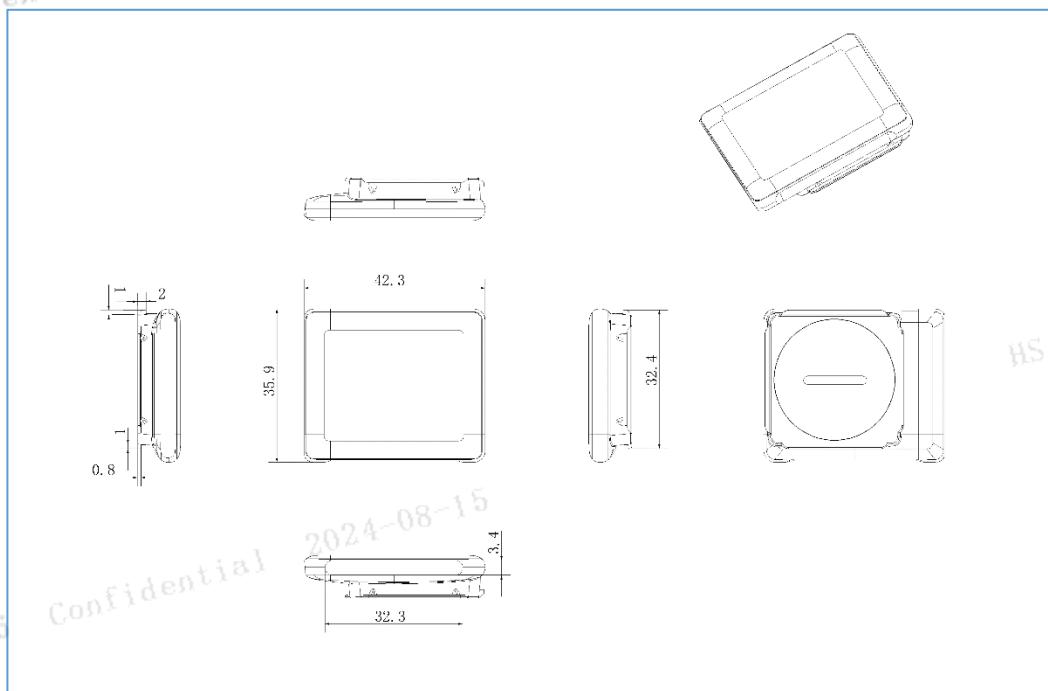


Figure 2-3 1.6" dimensions

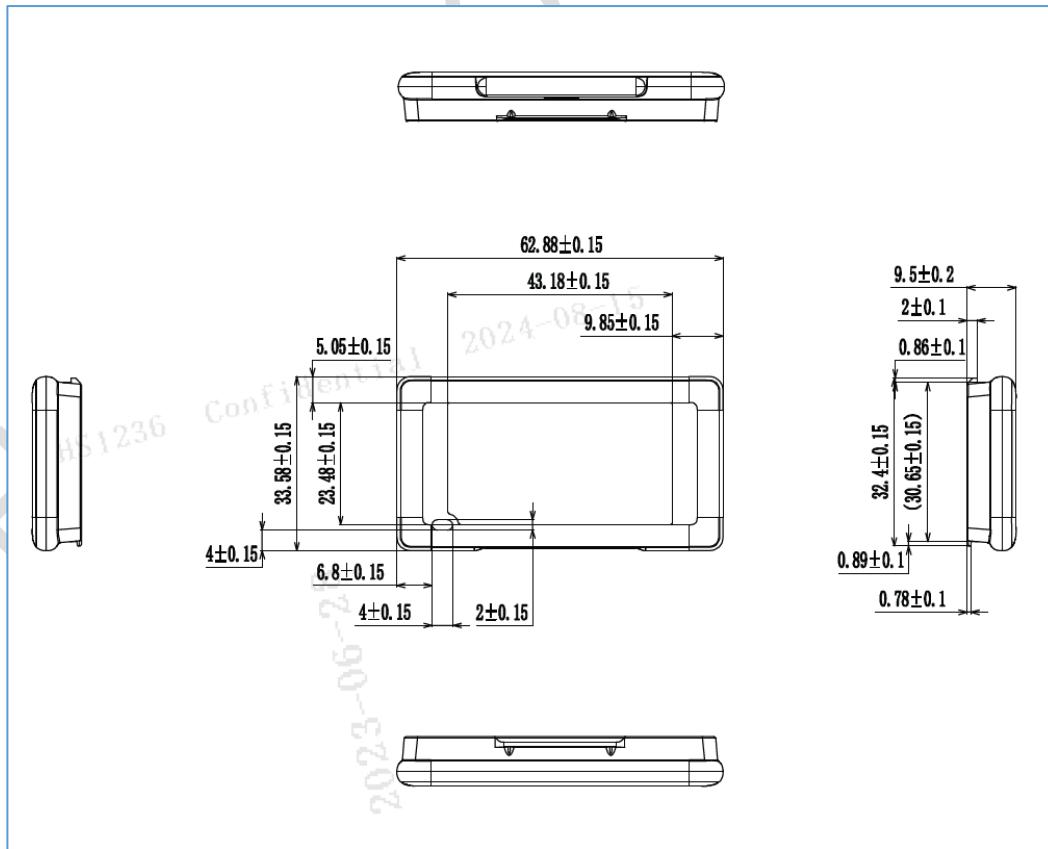
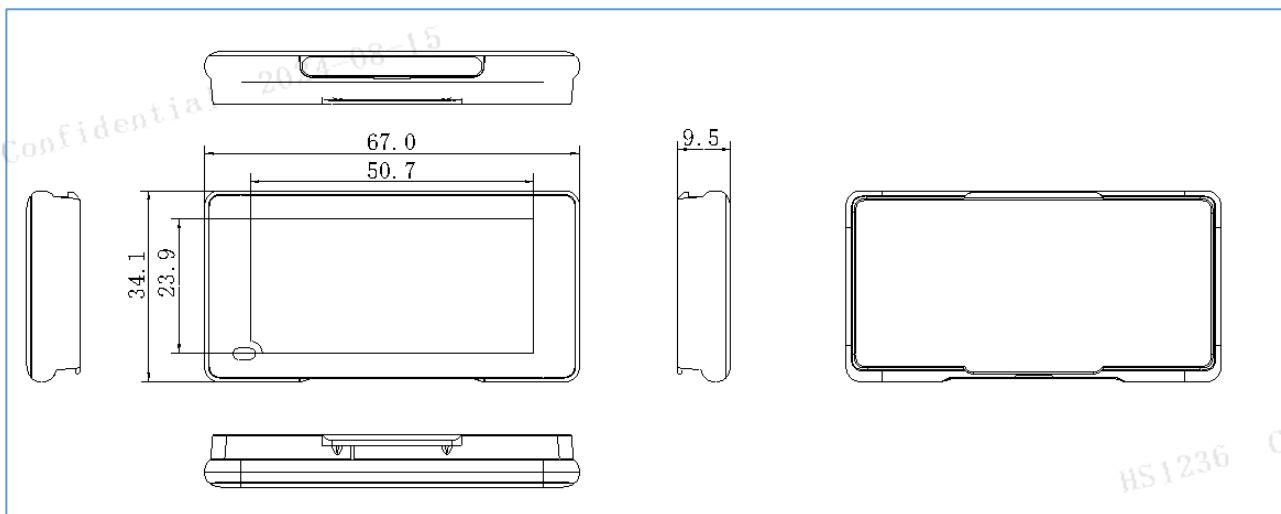
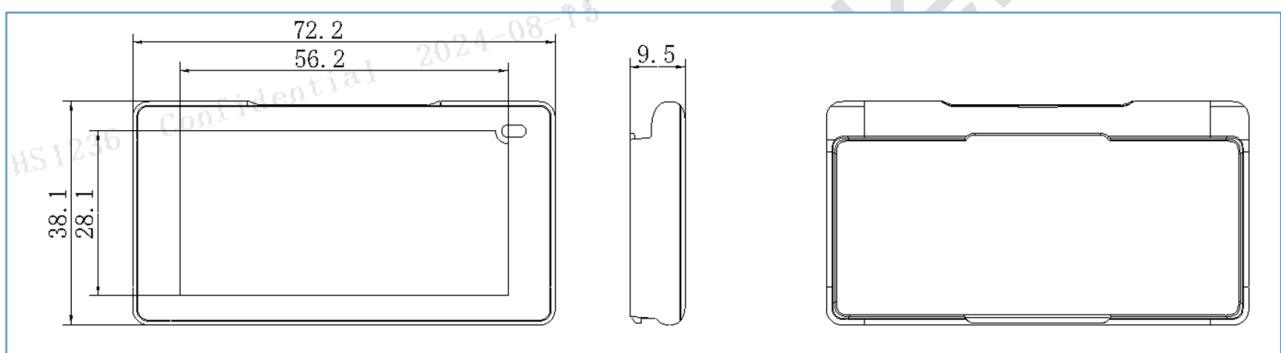


Figure 2-4 2.0" dimensions

**Figure 2-5 2.3" dimensions****Figure 2-6 2.6" dimensions**

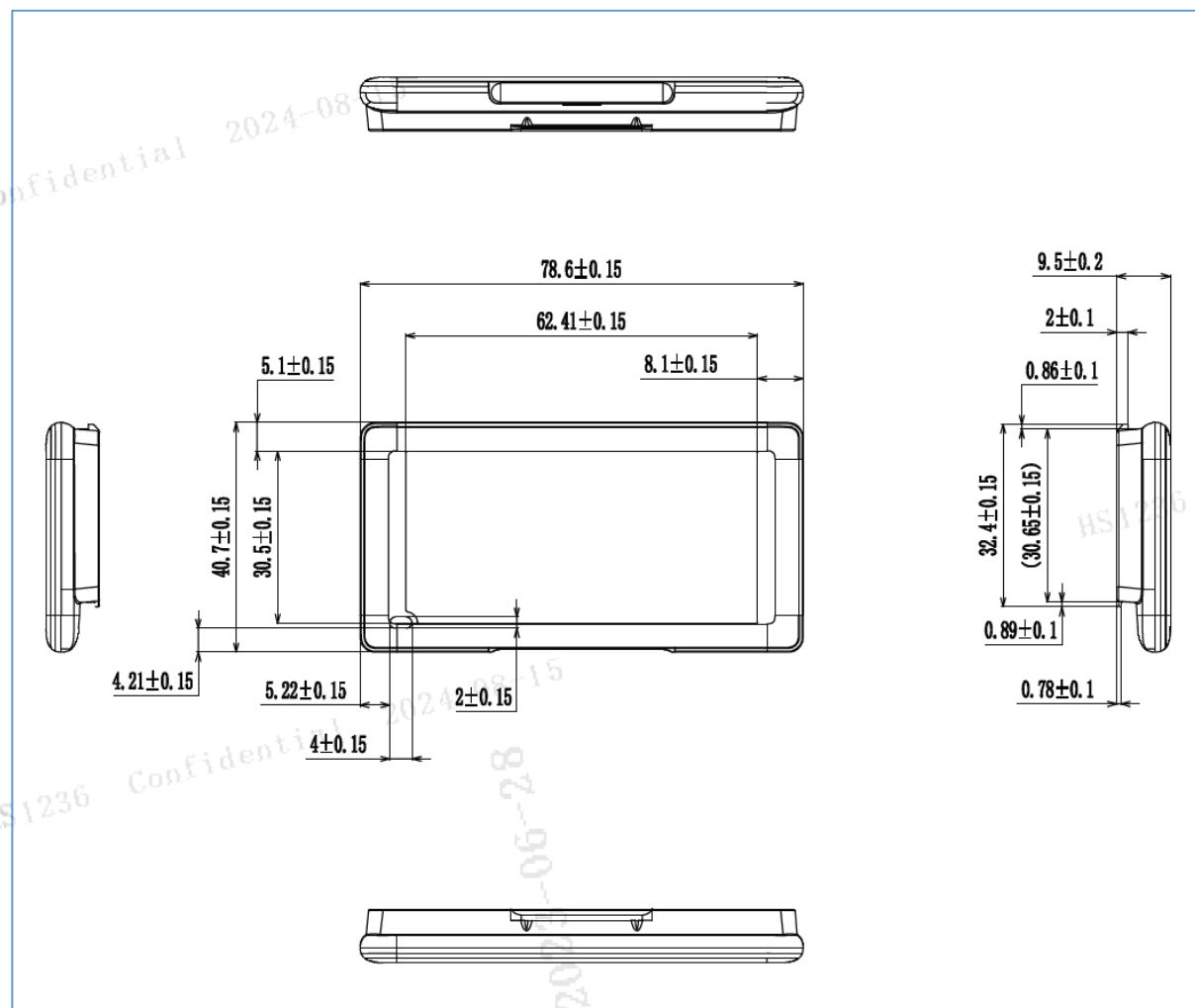


Figure 2-7 2.8" dimensions

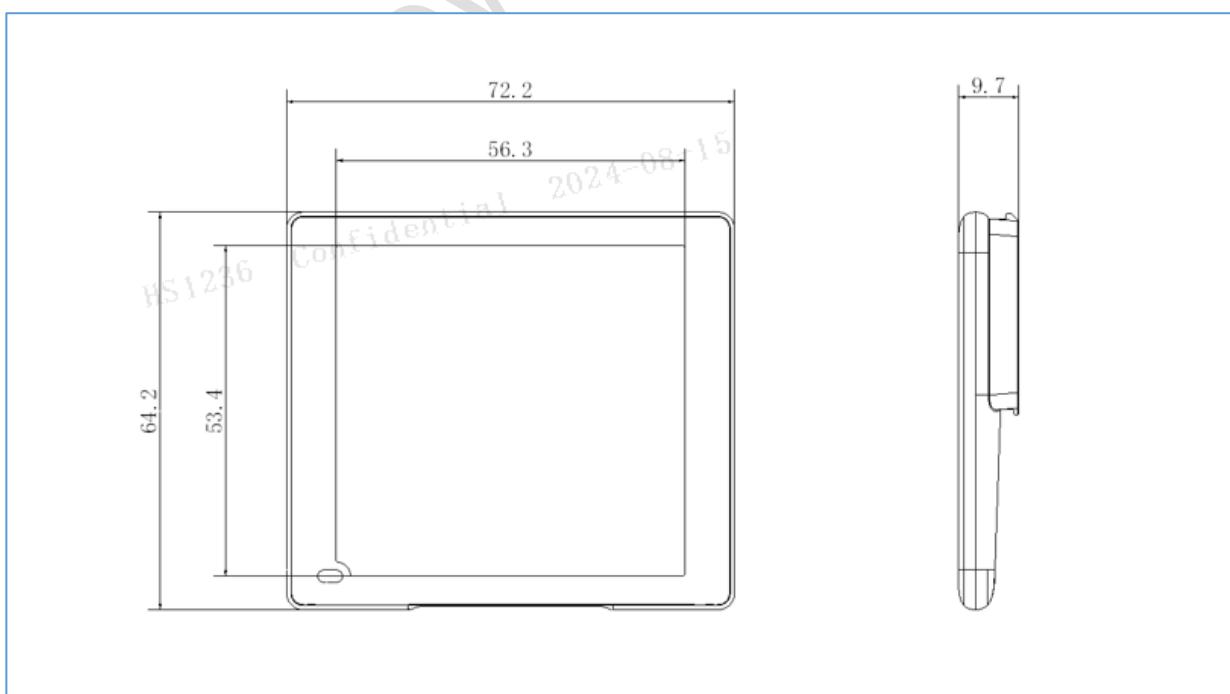
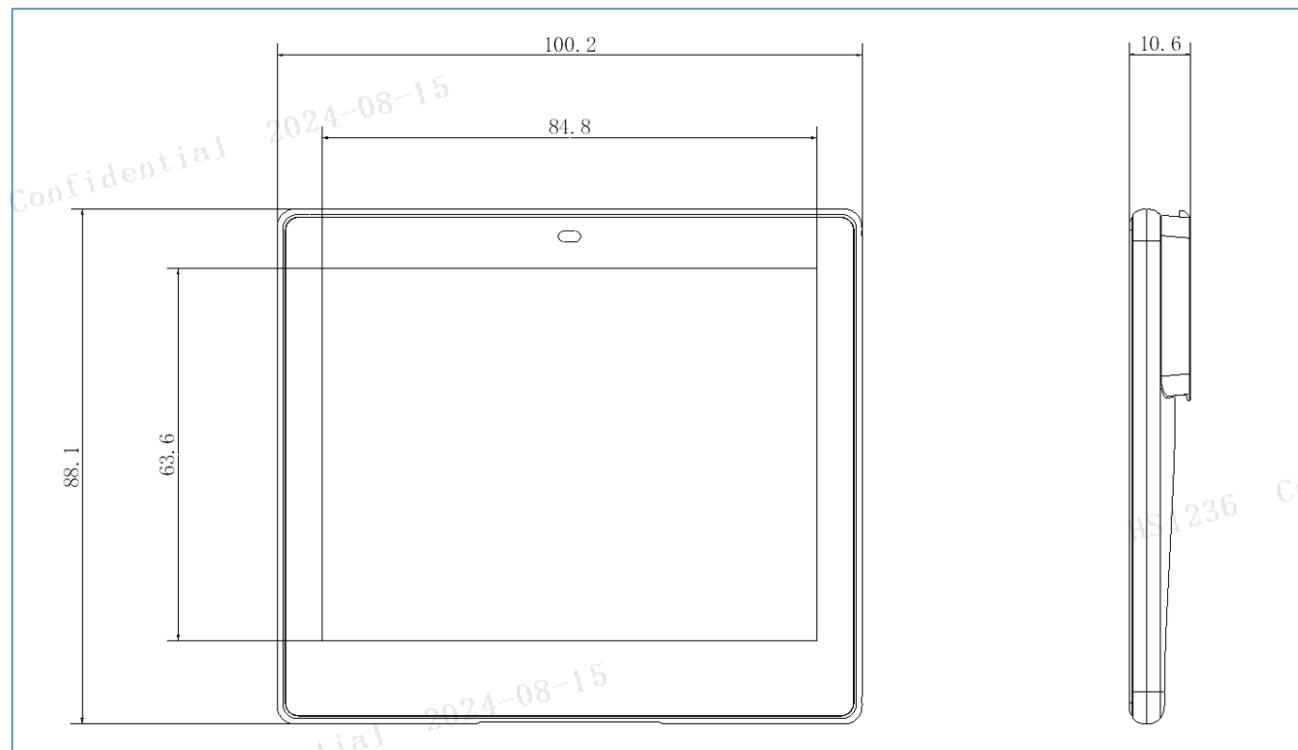
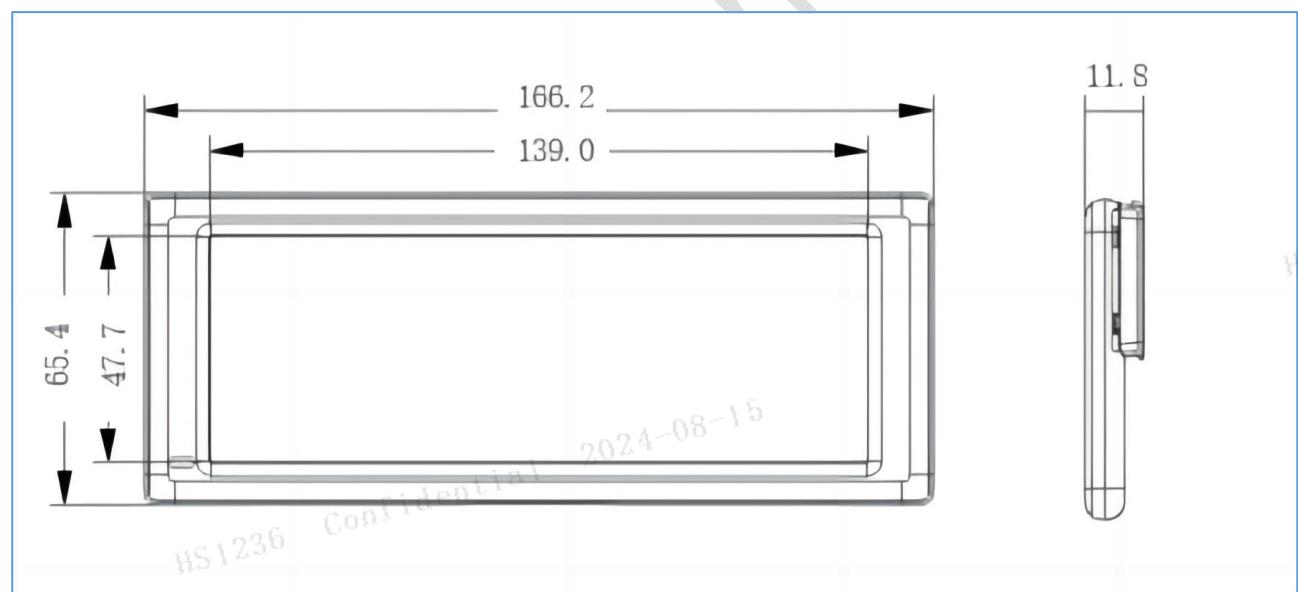
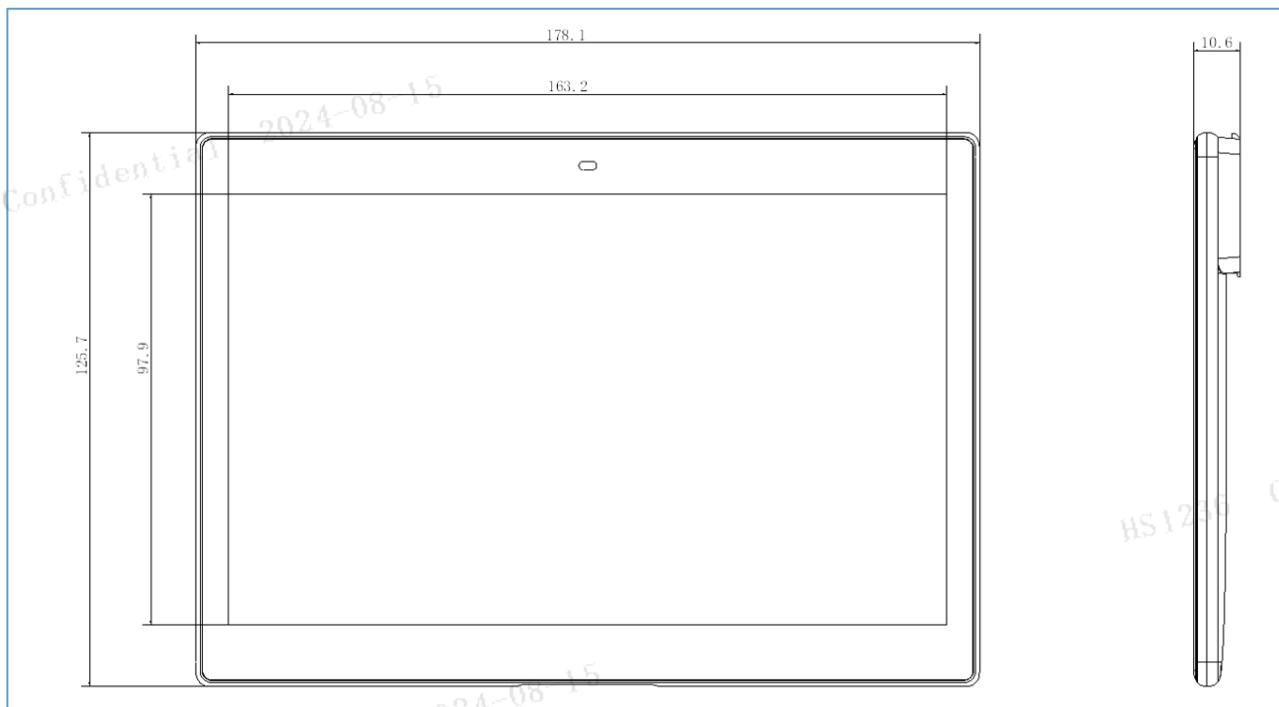
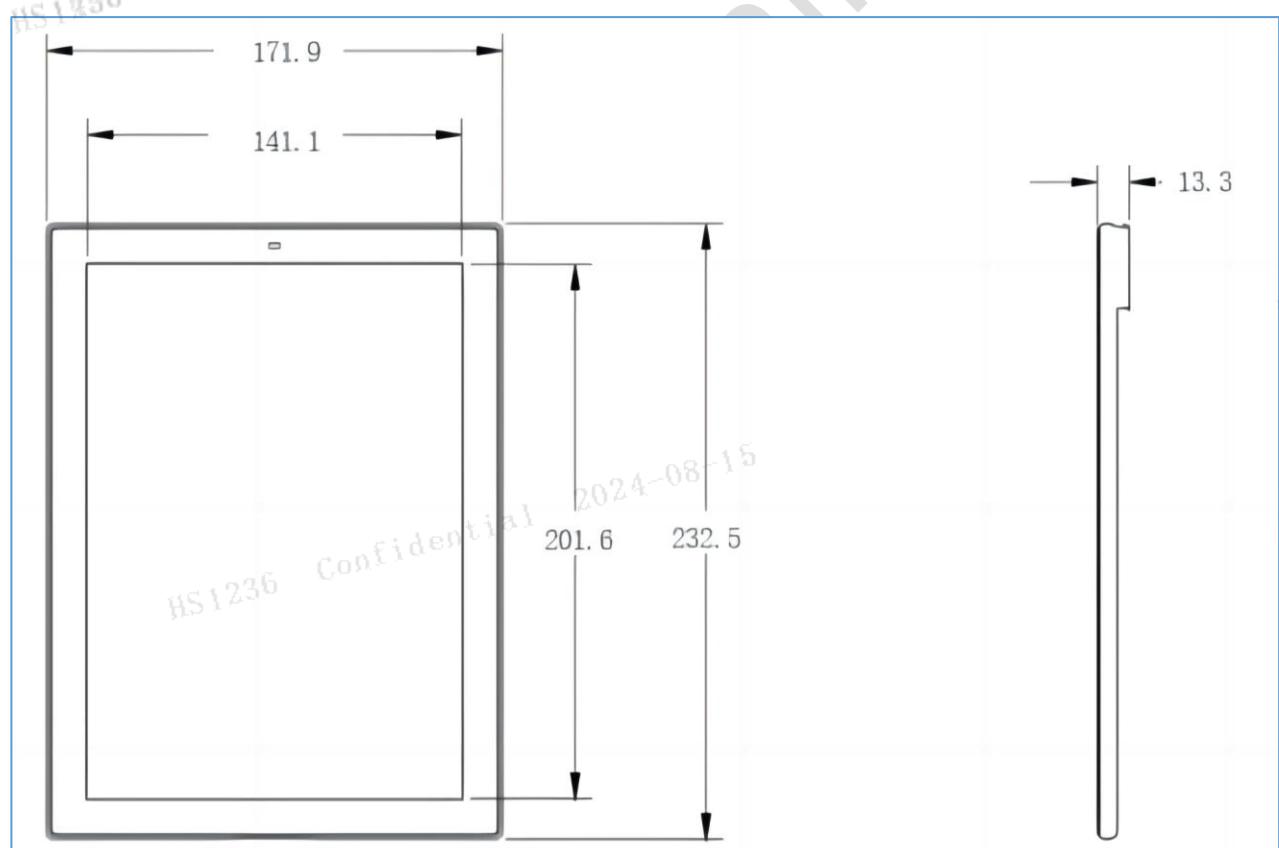


Figure 2-8 3.1" dimensions

**Figure 2-9 4.2" dimensions****Figure 2-10 5.9" dimensions**



**Figure 2-11 7.5" dimensions**



**Figure 2-12 9.7" dimensions**

# 3 Hardware performance

This chapter consists of:

- *Specifications*
- *Identifying your ESLs*
- *Product nameplate*

## 3.1 Specifications

*Table 3-1* lists the Polaris specifications.

**Table 3-1 Polaris specifications**

Name	1.6"	2.0"	2.3"	2.6"	2.8"	3.1"	4.2"	5.9"	7.5"	9.7"
Dimensions (mm*mm*mm)	42.3 *35.9*10	62.9*33.6*9.5	67.0*34.1*9.5	72.2*38.1*9.5	78.6*40.7*9.5	72.2*64.2*9.7	100.2*88.1*10.6	166.2*65.4*11.8	178.1*125.7*10.6	171.9*232.5*13.3
Active display area (mm*mm)	32.7*25.9	43.2*23.5	50.7*23.9	56.2*28.1	62.4*30.5	56.3*53.4	84.8*63.6	139.0*47.7	163.2*97.9	141.1*201.6
Size (inch)	1.6	2.0	2.3	2.6	2.8	3.1	4.2	5.9	7.5	9.7
Resolution (pixel) <sup>[3-1]</sup>	200*200	128*250	122*250	152*296	152*296	300*300	400*300	792*272	800*480	960*672
DPI <sup>[3-1]</sup>	183	144	125	134	121	137	120	145	121	121
Display color	BWR									
Viewing angle	Nearly 180 degrees									
Battery life <sup>[3-2]</sup>	Up to 10 years									
Page switch	8 pages									
Protection level	IP54									
Operating temperature <sup>[3-3]</sup>	0 ~ 40	0 ~ 40	0 ~ 40	-25 ~ 0	0 ~ 40	0 ~ 40	0 ~ 40	0 ~ 40	-25 ~ 0	0 ~ 40
Storage temperature(°C) <sup>[3-3]</sup>	0 ~ 40	0 ~ 40	0 ~ 40	-25 ~ 30	0 ~ 40	0 ~ 40	0 ~ 40	0 ~ 40	-25 ~ 30	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 up to 10 years if updated twice a day for the following sizes: 1.6" (pouch battery)/2.0"/2.3"/2.6"/2.8"/3.1"/4.2"/5.9"/7.5"/9.7"; The battery life is up to 5 years if updated twice a day for the following sizes: 1.6" (button battery).
- [3-3]: Room-temperature ESLs operate within 0°C ~ 40°C, however low temperatures (0°C~10°C) might impact the ESL lifespan.

### 3.2 Identifying your ESLs

You can identify your ESLs from the following Polaris naming rules:

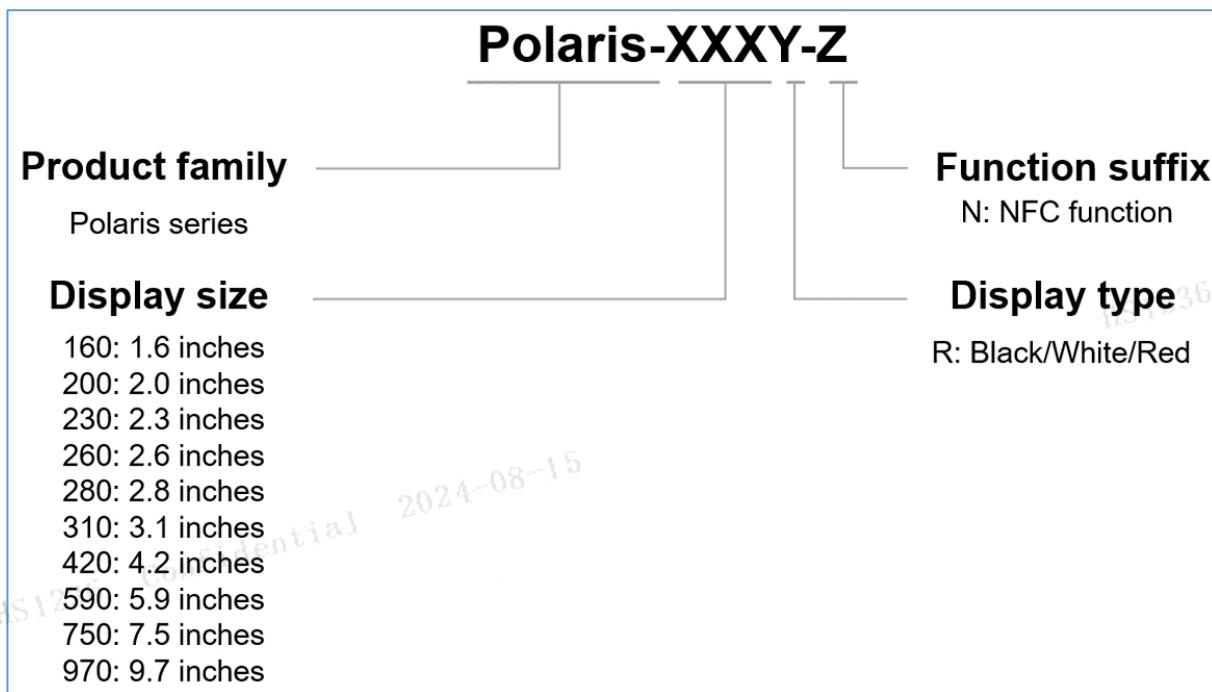


Figure 3-1 Naming rules for Polaris series

### 3.3 Product nameplate

Taking Polaris-260R-N as an example, [Figure 3-2](#) shows the nameplate of Polaris.



Figure 3-2 Nameplate of Polaris

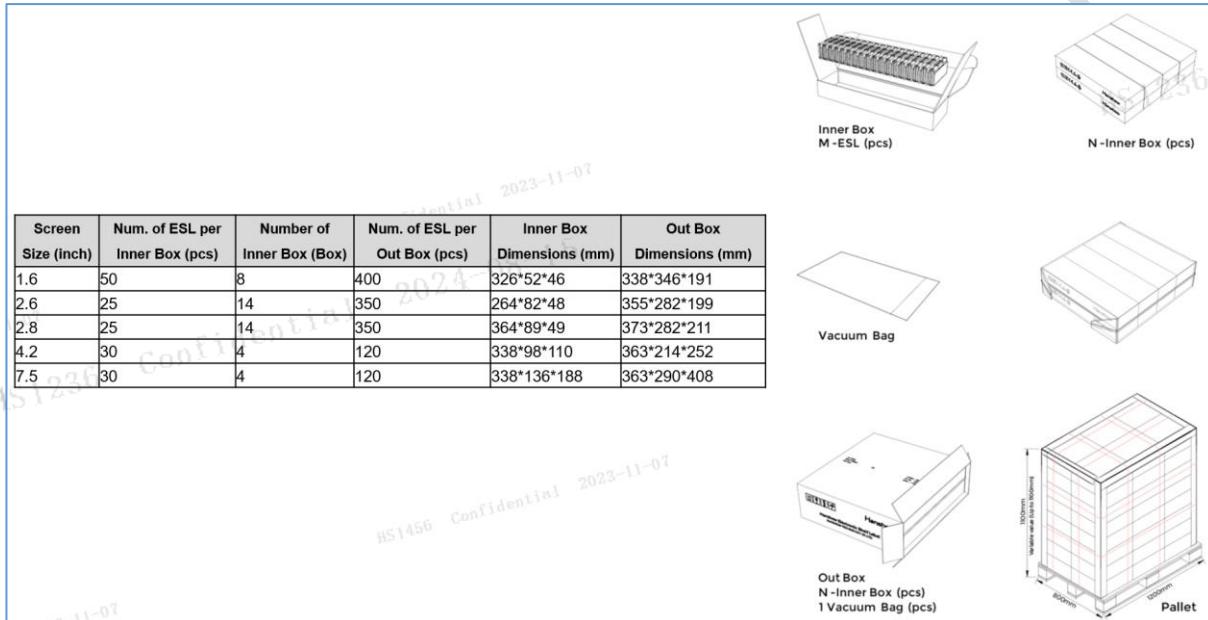
**Note:** Each ESL has a unique S/N number. The above is for reference only, actual label information might vary.

## 4 Packaging and accessories

This chapter describes Polaris series' packaging and required accessories.

### 4.1 Packaging

Polaris family packaging and the specific ESL quantity is shown in [Figure 4-1](#).

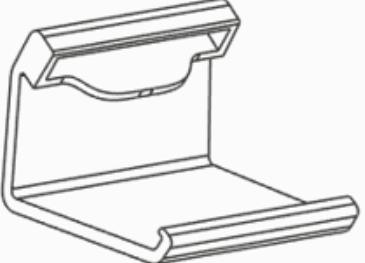
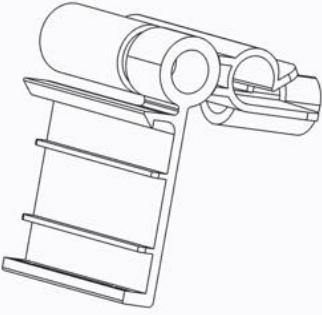
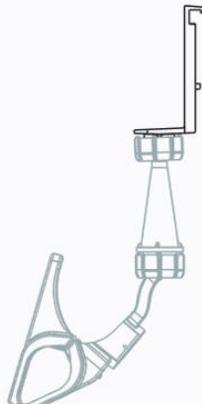


**Figure 4-1 Polaris family packaging**

## 4.2 Product accessories

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

**Table 4-1 Common accessories of Polaris series**

Rail	
Table stand	
T-hook	
Basket clip	

## 5 Application scenarios

Polaris 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 Polaris 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°C.

## 6.2 Precautions for use

Follow the precautions:

- The room-temperature ESLs operate best in normal operating and storage environment, 0°C ~ 40°C, 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 Polaris 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 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

## 8 UKCA statement

All products of the Polaris series comply with UK Conformity Assessed (UKCA) standards. Polaris products include 1.6", 2.0", 2.3", 2.6" and 2.8".



**Figure 8-1 UKCA marking**

## 9 NBTC Warnings



เครื่องวิทยุคมนาคมนี้ ได้รับยกเว้น ไม่ต้องได้รับ  
ใบอนุญาตให้มี ใช้ซึ่งเครื่องวิทยุคมนาคม  
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## 10 FCC regulatory conformance

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.
- (2) This device must accept any interference received, including interference that may cause undesired operation.

NOTE: 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

NOTE: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

### RF Exposure

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.