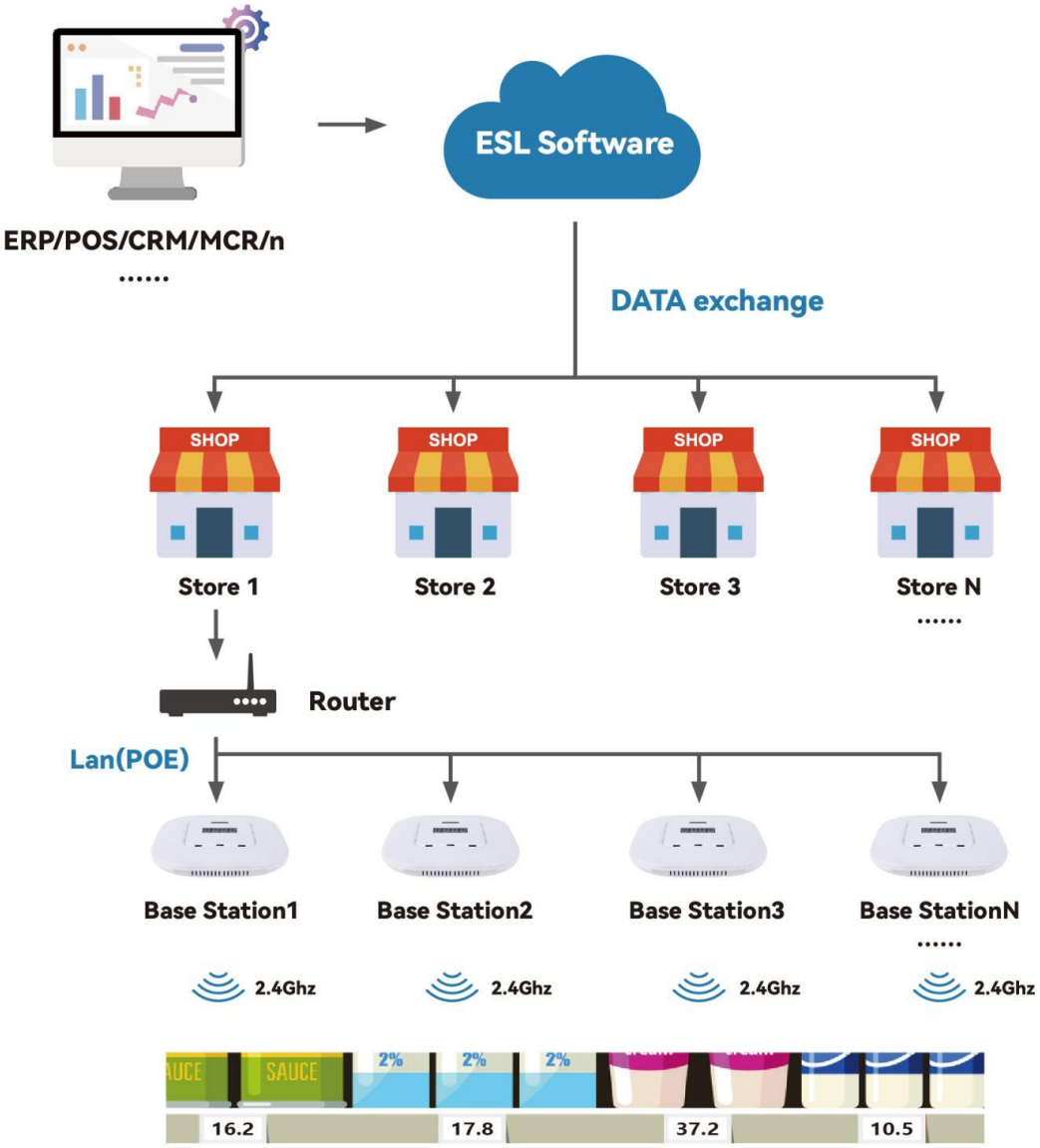
一、What is an Electronic Shelf Label solution?

2.4GHz Electronic Shelf Label solution consists of three components, including an Electronic Shelf Label management system (ESL Software), a wireless Base Station/AP and an Electronic Shelf Label. Integrate the Electronic Shelf Label management system with the POS system/ERP system/CRM system/MCR system of the supermarket, the information of the customer database is sent to the Electronic Shelf Label management system, the Electronic Shelf Label management system will send the information to the wireless base station through LAN and the wireless base station will send the content to be displayed to the Electronic Shelf Label through the 2.4GHz communication frequency to realize the commodify information in real time update.



ESL Solution Benefits

- Wireless RFID technology for real-time updating of bulk price tags.
- Reducing labor costs and achieving profit growth in supermarkets.
- Reducing paper waste and protecting the environment.
- Improving operational efficiency and saving time costs.
- Online and offline, timely synchronization of product information across multiple stores.
- Reducing error rates, customer complaints and merchant compensation.

3.1 Software Introduction

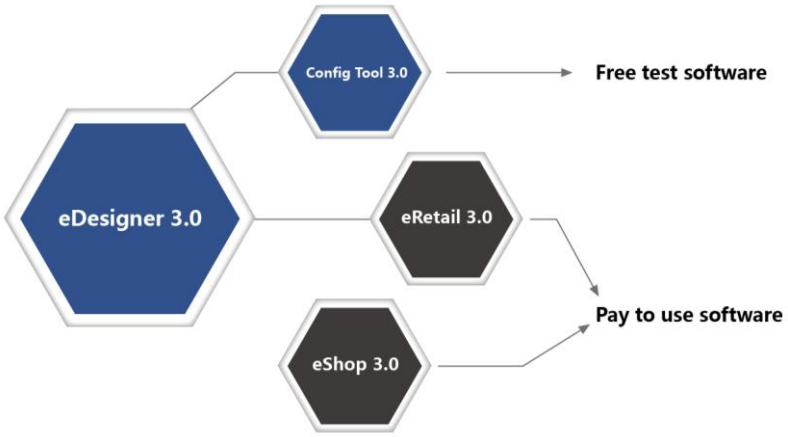
3.1.1 Software Product Matrix

Free test software

- eDesigner 3.0 (For eRetail 3.0)
- Config Tool 3.0 (For Base Station)

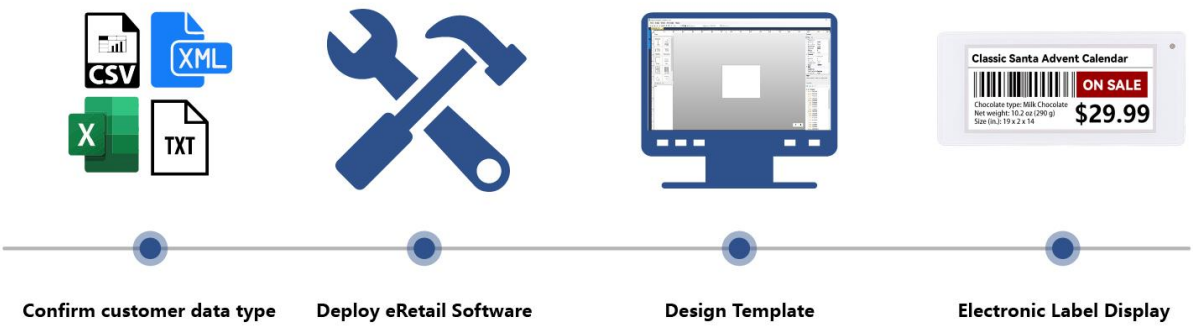
Pay to use software

- eRetail 3.0 (For multiple stores)
- eShop 3.0 (For single store)



3.1.2 Steps to deploy eRetail 3.0

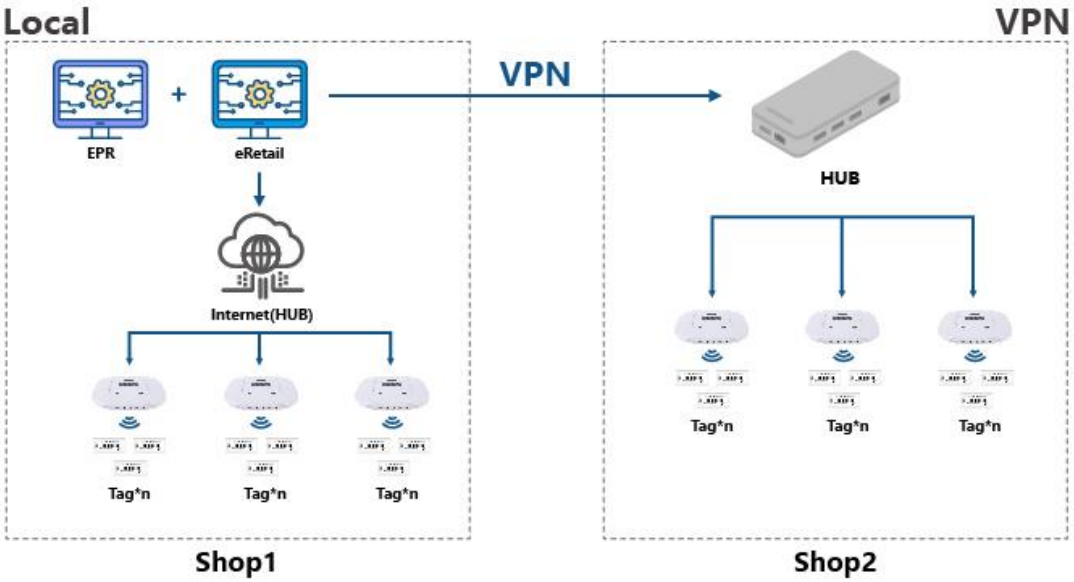
Confirm customer data type → Deploy eRetail Software → Design Template → Electronic Label Display



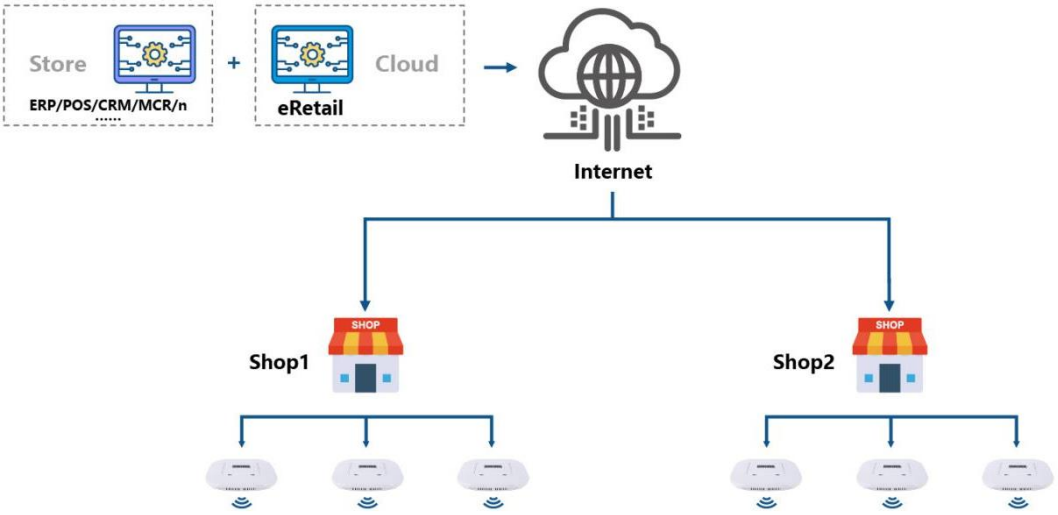
When interfacing with the customer management system, you need to confirm the data type of the customer management system (Excel/CSV/Word/XML/TXT/Database/WebAPI/Web Service/ JSON ...) and then confirm the data interfacing method.

3.1.3 Multiple Network Architectures Available

❖ **Local LAN Advantage:** Faster and more secure information transfer



❖ **Cloud Advantage:** Product information can be updated anytime and anywhere,multi-store management is more convenient.



3.1.4 Advantages of Suny eRtail Server

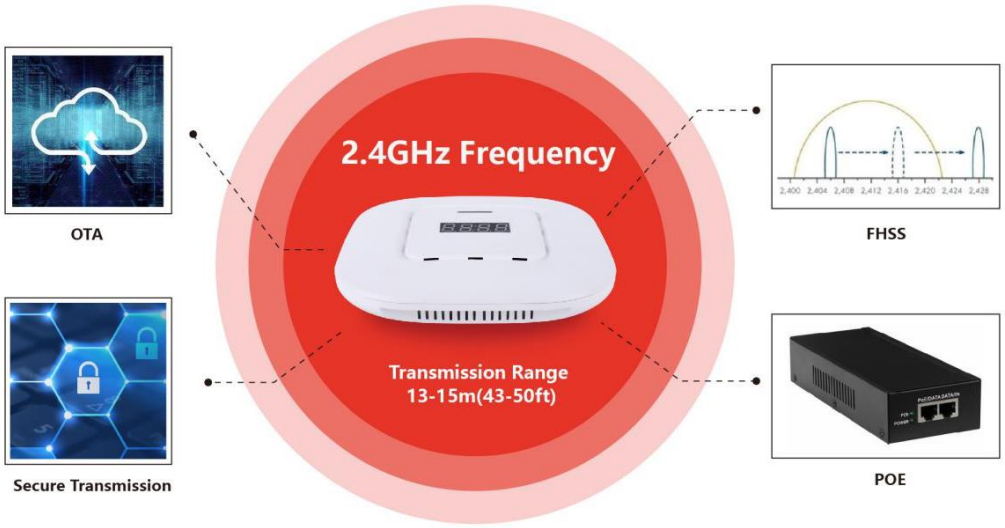
- Server : NET 6.0, cross-platform, Windows, Linux, or macOS. Also support Docker deploy;
- Client App: Android 5.0+, iOS 14.0+;
- 100% Customize interface or UI support.

3.2 Introduction of Base Station

3.2.1 Base station Parameters:

<table>
<tr><td colspan="2" rowspan="5"> 
</td><td>Item</td><td>Parameters</td></tr>
<tr><td>Product Model</td><td>ETAP03-2.5</td></tr>
<tr><td>H*V*D</td><td>190×190×39(mm)</td></tr>
<tr><td>Weight</td><td>285g</td></tr>
<tr><td>Color</td><td>White</td></tr>
<tr><td>Operating Voltage</td><td>DC 5V
[using original power supply</td><td>Operating Current</td><td>Less than 200mA</td></tr>
<tr><td>Operating Temperature</td><td>-10~55℃</td><td>Communication Method</td><td>2.4Ghz</td></tr>
<tr><td>Storage Temperature</td><td>-20~70℃</td><td>Communication Distance</td><td>13-15m</td></tr>
<tr><td>Storage Humidity</td><td>45%~70%RH</td><td>Data Interface</td><td>Standard Network Cable Interface</td></tr>
</table>

3.2.2 Base Station Characteristics

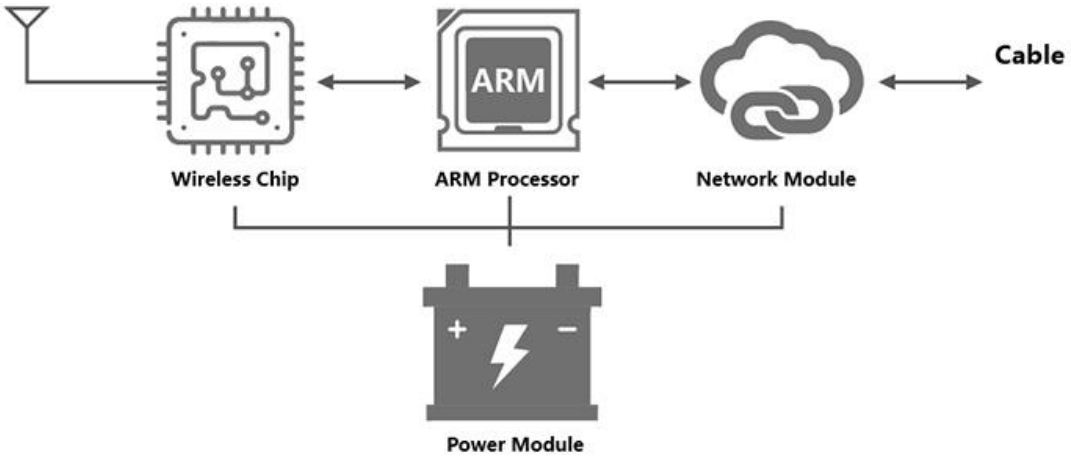


- Over-the-Air (OTA) firmware upgrade: Firmware upgrade via over-the-air download.
- FHSS: Improve the anti-interference of data transmission through frequency hopping spread spectrum technology and ensure 100% label update.
- POE : Support POE technology to simplify wiring and save costs.
- Encrypt on-the-fly: Automatically encrypt data in real time to ensure data security.

3.2.3 Working principle and status of the base station:

- Working principle:

1. After Base Station power on, the ARM processor to start working, initialize the network chip and wireless chip
2. After initialization, Base Station enters the network receiving state and waits for data from the server
3. When the server has tag data, it sends the data to Base Station through the network.
4. Base Station receives the data and sends it to the corresponding tag by wireless



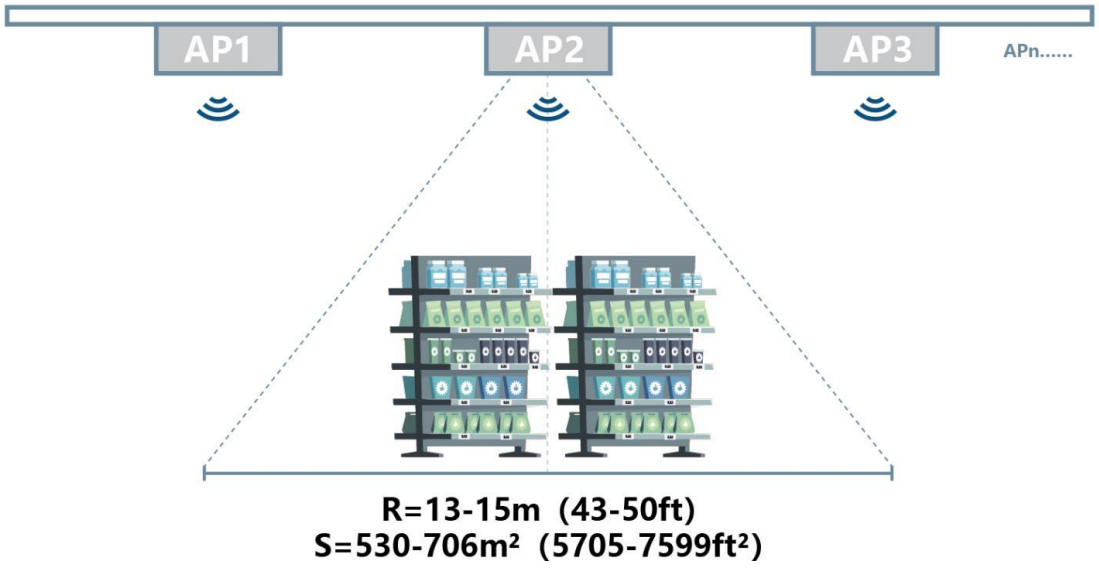
- Base station status:

1. Power on: plug in the power supply and network cable, the base station screen display "----"
2. Online: computer running ESL software, the base station screen display "H-01"

3. Communicating: software sending data and the base station screen display "C--01"
4. Communication completed: the base station screen display changes from "C--01" back to "H-01"

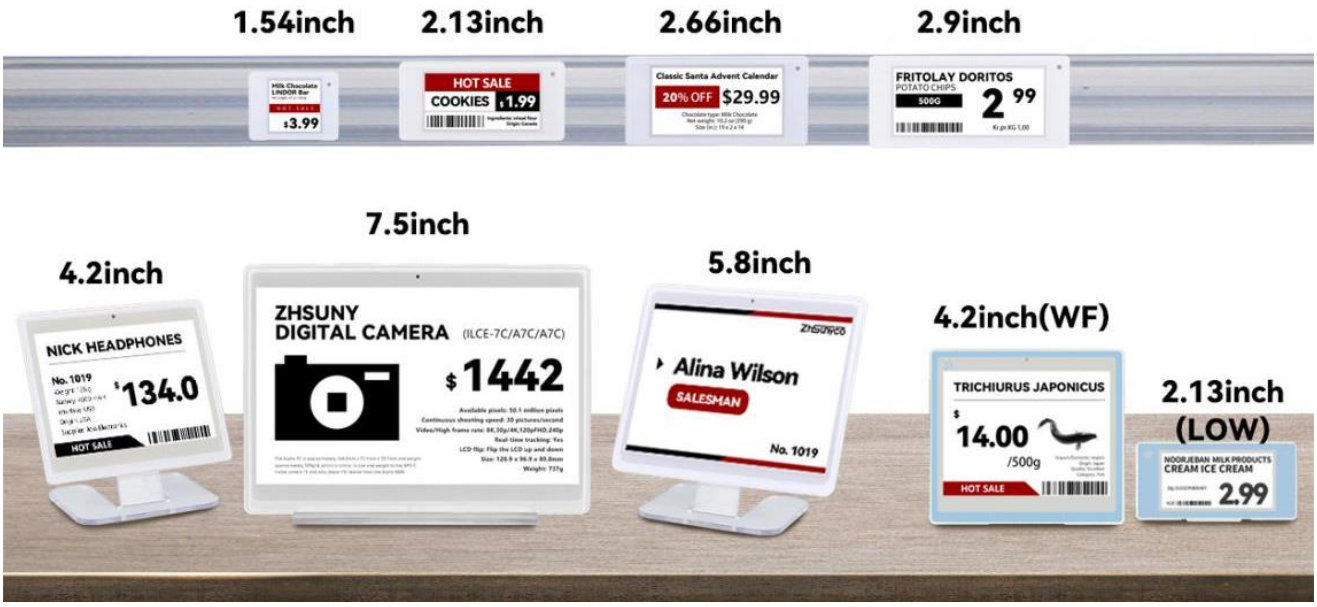
3.2.4 Base station control range:

- Connection method: TCP/IP(Private Protocol)
- Control area: Circle with a radius of 13-15m (43-50 ft) (Area 530-706m² (5705-7599ft²))

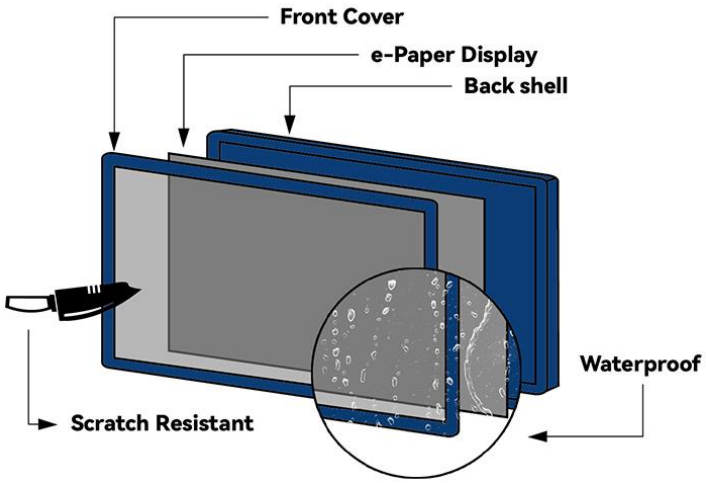


3.3 2.4GHz Electronic Shelf Label

3.3.1 Electronic Shelf Label Sizes & Parameters



3.3.2 2.4GHz Electronic Shelf Label Structure

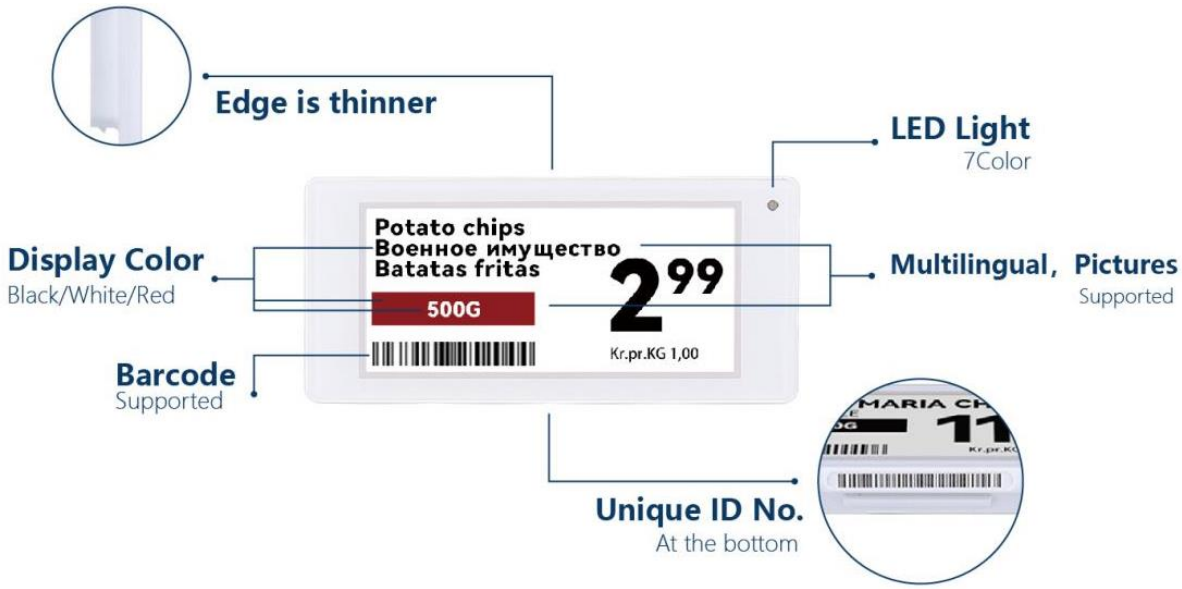


Electronic Shelf Label composition: front cover plate, e-ink display, PCBA board, battery, back cover plate.

- The front cover plate is made of 4H hardness acrylic, which has good anti-drop and anti-scratch characteristics.
- E-ink display: bistable characteristics, still displaying information after power failure, low power consumption, clear without backlight.
- PCBA board: using STMicroelectronics chips.
- Battery: Use high-performance batteries, life ≥ 6 years .

Note: The waterproof label back cover plate is welded by ultrasonic machine, the battery can not be replaced. In addition to 4.2 inch label is fully waterproof, other sizes of labels are surface waterproof, if you need full waterproof label can contact us to customize.

3.3.3 ESL Characteristics



- Appearance.

  Thin and light design with extremely narrow frame for a better visual experience
  Labeling bottom design, simpler and more beautiful

- Function.

  Information display: support for multiple languages, graphics, text, symbols, etc
  NFC function: support NFC communication function (optional)
  Temperature detection: support for temperature sampling, system readable
  Power detection: each tag supports power sampling and can be read by the system

LED indicators: support 3-color independent control lights, user-defined blinking frequency and color of the indicators

3.3.4 Accessories and Installation

Desktop Holder

Degree Clip

Plastic Rail

Hanger/Clip

Ice Insertion

Hanger Clip

Note: This picture listed is regular accessories, if you have other needs, please contact us.

FCC Statement

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.

FCC Radiation Exposure Statement

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment and it also complies with Part 15 of the FCC RF Rules. This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provided with antenna installation instructions and consider removing the no-collocation statement.

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.

Caution!

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

Canada Statement

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada’ s licence-exempt RSS(s). Operation is subject to the following two conditions:

(1) This device may not cause interference.

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

L’ émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d’ Innovation, Sciences et Développement économique 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;

2) L’ appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d’ en compromettre le fonctionnement.

.

The device meets the exemption from the routine evaluation limits of RSS 102 and compliance with RSS-102 RF exposure, users can obtain Canadian information on RF exposure and compliance.

Le dispositif rencontre l'exemption des limites courantes d'évaluation dans de RSS 102 et la conformité à l'exposition de RSS-102 rf, utilisateurs peut obtenir l'information canadienne sur l'exposition et la conformité de rf.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

Cet émetteur ne doit pas être Co-placé ou ne fonctionnant en même temps qu'aucune autre antenne ou émetteur. Cet équipement devrait être installé et actionné avec une distance minimum de 20 centimètres entre le radiateur et votre corps.