User Manual of Electronic Shelf Label (ESL)

Version: V1.0

Feb. 15, 2022

Contents

Revision History

Issued Date	Revised Contents	Version
2022-02-15	Draft	V1.0

1 Preliminary Work

Before implementing a formal deployment, the following preparations need to be completed:

1. Business cooperation process;
2. Statistics on the number and type of store ESLs;
3. Statistics on the installation mode of store ESLs (the type and quantity of guide rails and clamps);
4. Location determination of the access point installation (focus on the network wiring);
5. Cloud deployment mode confirmation (private cloud).

For the specific preparation process, please see implementation preparation collected in the separate project documentation.

2 Product docking

It is necessary to start the docking of product information as soon as possible, after the confirmation of business contract and the confirmation of product docking demand.

It takes about two weeks for product information docking.

The general process of product information docking is as follows:

1. AP, the software partner shall discuss docking requirements and release technical documents;
2. Confirm the docking plan and schedule the project;
3. Developing docking interface and launching after multiple environmental tests.

The deployment and implementation of equipment shall start after product docking.

See separate product docking documents for specific product docking procedures and instructions. This product is connected to base station via wireless Bluetooth communication.

3 Equipment Installation

3.1 Installation Preparation

Tools to be carried with during installation:

1. Rags, used to clean shelves
2. Big scissors or cutting machines for cutting guide rails
3. Electric drill for fixing equipment

3.2 Access Point

3.2.1 Introduction

The access point (AP) for smart ESLs is used to connect ESL equipment with digital store. The image and the instruction emitted by the digital store server are transmitted to the wireless access point through the Ethernet, and the access point is further distributed to the ESL through the wireless communication of the 2.4 G frequency band, so that the cloud change price and the ESL refresh can be realized.

The following table shows the basic specifications of the wireless access point for smart ESLs:

Product name	ESL（Electronic Shelf Label）
Product model	ET0154
Marketing model	ETAP03-2.5
Input Power	DC 5V/3A or PoE
PoE Specification	IEEE 802.3af
Ethernet interface	RJ45 100M
Wireless communication band	2.4GHz
Oversize	49mm(H)×37.6mm(V)×12.8mm(D)
Installation	Ceiling/ Wall/ Desktop Placement
Coverage radius	25m
Supported quantity of ESLs	Up to 200,000 single AP

The relevant interface description on the wireless access point for smart ESLs is as follows:

	Ports	**Description**
1	Indicator light indication	Working status indication (R / Y / B) ● LED_ R: Power indicator ● LED_Y：Work indicator ● LED_B：Work indicator

2	Nixie tube indication	● Working status indication and base station number indication

3.2.2 Base Installation

3.2.2.1 Power Supply Mode

AP for smart ESLs supports power adapter and PoE power supply, which power supply mode needs to be determined by in-store environment and installation mode. The power adapter line is 2 meters long. Use the plug board if it is not long enough, while strictly forbid to extend the power cord by yourself.

The installation of access point adopts ceiling and hanging-wall styles, but when the power cord of adapter is not long enough, PoE can be used to power the access point. PoE power supply needs to apply a separate PoE module or PoE switch, and the network line connected by PoE module / switch can be plugged directly into the access point to supply power to the access point.

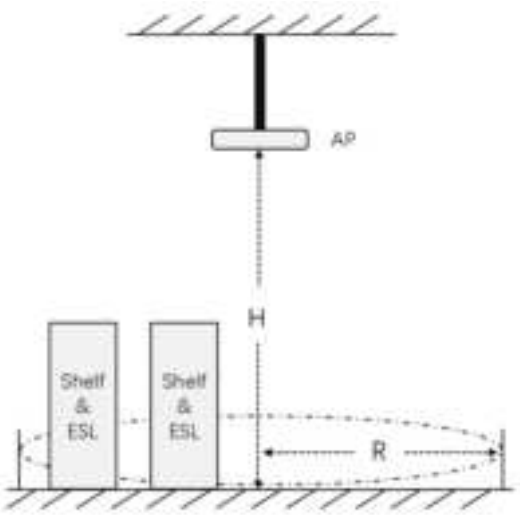
Note: it is strictly forbidden to use both power adapter and PoE power supply at the same time.

3.2.2.2 Internet Access

AP for smart ESLs supports static IP. If it is only a single access point, ensure that the access point can connect to the cloud server or the local server. If there are more than one access point, it is necessary to let each access point be located under the same LAN in order to realize the network roaming of access point and labels.

3.2.2.3 Installation and Fixation

The fixation of ESL access point supports ceiling, hanging walls and desktop placement. It is recommended to install on the ceiling, which can get wider signal coverage; Wall hanging and desktop placement are only suitable for the cases where the labels are less or close to the access point. For ceiling installation, the installation height is recommended as 3~3.5 meters (can be adjusted by metal universal rod). Max coverage radius of a single access point is 25 meters (laboratory test results), and 15 meters is recommended.



If multiple access points are needed, it is necessary to ensure that each access point signal has an overlapping area, and each label is at least within the coverage of more than one access point.

If there are walls, columns, air pipes, refrigerators, etc., between the access point and the label, the wireless signal will be affected and attenuated to a certain extent. When the access point is installed, it should avoid the above objects as far as possible. If it cannot be avoided, it can be regarded as reducing the coverage radius of the access point.

The signal frequency band of the ESL access point coincides with the band of 2.4G Wi-Fi. If the ESL access point and the wireless router are installed together, the two will interfere with each other, so the two should be installed separately. Actually, when installing the access point, we also need to consider the number of ESLs that the access point can support. Single SUNMI wireless access point for smart ESLs supports a maximum of 200000 pieces of ESLs. But considering the refresh speed of batch push and system redundancy, it is recommended that one access point be allocated for every 20000 pieces of labels. The installation distance between access points can be adjusted accordingly.

3.2.3 Access Point Configuration

After all ESL access points are installed, it is necessary to use cloud assistant APP to configure each access point, including the Internet access mode and name of each access point. After configuration, the tie-up between access point and store will be completed to realize the networking of access point, so that the labels can be connected to the access point. Detailed configuration refers to the implementation process documentation of software operations.

3.3 ESLs and Accessories

The label cannot be installed independently, it needs to be installed with various types of accessories to the shelf, basket rack and pile head.

3.3.1 Attention

1、Avoid heat and fire.

2、Recommanded long-term(over 3 months) storage condition is dry and cool.

3、Please use the special battery pack provided by the dealer.

4、 When replace the battery, please contact the after-sales service and get instructions.

4 Software Operation

Software configuration and usage include operations on the cloud digital store website and on the cloud ESL APP of PDA.

In cloud digital store, you need to complete:

1. Register an account in SUNMI digital store;

2. Set up docking of product information;

3. Design template for ESL;

On the cloud ESL APP of PDA, you need to complete:

1. Configure the Internet access mode of the AP;

2. Bind ESL and product;

3. Unbind ESL and product;

4. Search product.

Check below for specific procedures

FCC Statement :
Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the 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.
FCC Radiation Exposure Statement:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment .This equipment should be installed and operated with minimum distance 20cm between the radiator& your body.

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.