



Pick to Light System

Shenzhen Xunwei Communication Technology Co., Ltd. was founded in 2002, which has first-class R&D, produce and sales capability . We produce high quality automatic check weigher, intelligent logistics and intelligent warehouse complete sets of equipments. Shenzhen Xunwei is a national high-tech enterprise, shenzhen high-tech enterprise, shenzhen double soft enterprise. Over the years, Macinte has been committed to creating value for customers, focus on so professional



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Development History

● One step at a time adhere to move forward

We confront the future and face challenges, our company stay true to its cause and continue marching forward.



Application of PTL labels

Fast out/in storage management

Do not rely on skilled, reduce personnel training time



Greatly reduce the error rate

Error rate can be reduced to less than 0.3% (statistics)



Realize paperless operation

Directly connected with upstream and downstream, real-time monitoring operations



Improve operation speed and quality

"Searching according to the lamp", improve the picking speed by 50%-200% (statistics)

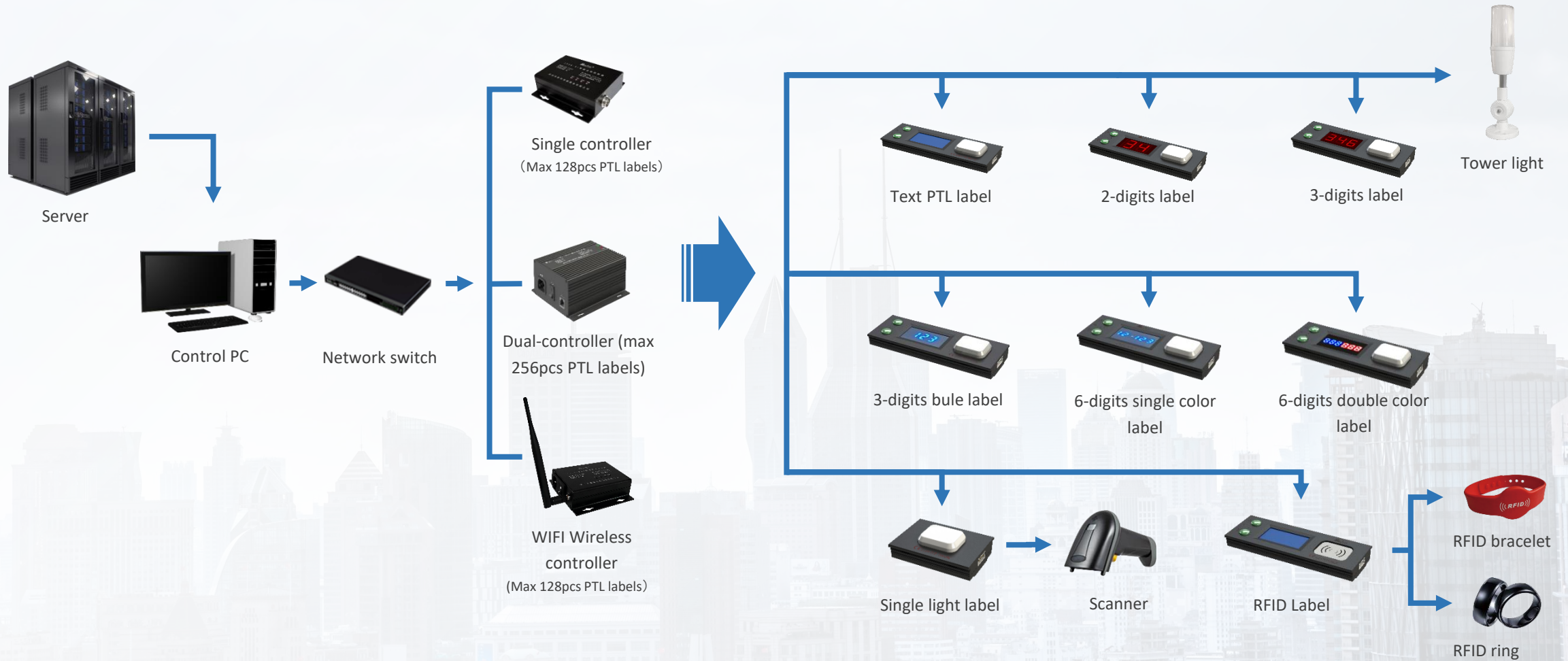


Reduce labor costs and standardize operations

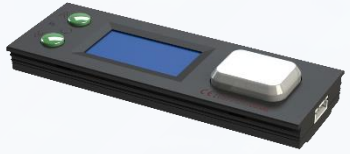
Ensure system data and actual synchronization, real Just In Time



Architecture of Intelligent PTL System



PTL Label Introduction



OLED display series

Can display Chinese and English characters, order information, pick quantity and send instructions



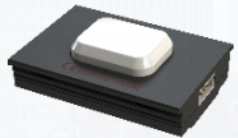
Digital display series

Used to display the goods location, the quantity of delivery and send out the indication information (including 2-bit, 3-bit, 6-bit, 6-bit two-color)



RFID Series

Can be displayed in Chinese and English characters, can also be used to connect the scanner, sensor bracelet and ring



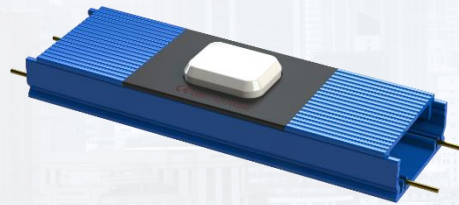
Single light series

Connect alarm lights and signal messages to indicate picking tasks

PTL Label Feature

1. The tag use ultra-thin design, compact and delicate.
- 2, Confirm button use of mechanical shaft button, good feel, lifetime up to 20 million times.
4. Low power consumption, the power consumption of each tag is not more than 0.2W.
5. The picking tag adopts two-wire intelligent bus mode, and the two wires are both power line and communication line.
- 6, two lines of embedded guide rail installation, tag without any wiring, buckle into the track can work, installation is very easy.
- 7, Automatic online detection, for online tag the background timely monitoring, offline tags the background timely alarm.

Wiring Duct



- 1, PVC flame retardant material.
- 2, easy installation/disassembly, no tools.
- 3, metal copper wire and tank body can be simple separation.

Installation Steps



1、 Drill holes on the rack to install duct



2、 Drive the rivet into the hole with a rivet gun



3、 Press the copper wire into the slot with press wheel



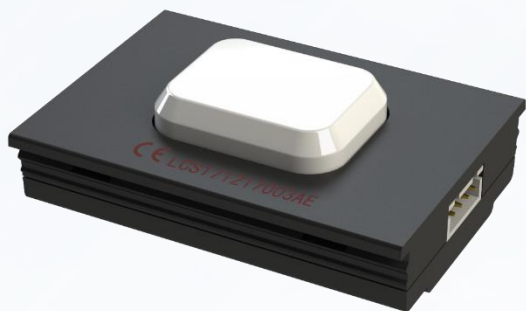
4、 Clip the label on the duct



5、 Clip the duct cover



6、 Installation completed



Single complete label XWPL-DD-1

- Button Life : 20 million times
- Button color : 6 colors

Single multifunction label XWPL-DD-2

- Button life : 20 million times
- Button color : 6 colors
- Tower light : 24V, loop current $\leq 50\text{mA}$

1. Voltage : 24V
2. Power : $< 0.2\text{W}$
3. Communication distance : within 500m
4. Working temperature : $-35\text{ }^{\circ}\text{C}\sim 70\text{ }^{\circ}\text{C}$
5. size : L-50mm W-36mm H-11.5mm

Single guide label XWPL-DD-3

- Button can't be pressed
- Light color : 6 colors

USB label XWPL-DD-USB

- Button can't be pressed
- Light color : 6colors
- External indication light current : $< 40\text{mA/channel}$
- USB interface : TYPE-A

Product data



3digits label XWPL-L3-1

- 3 blue digits display



3 digits label XWPL-G3-1

- 3 red digits display
- with bigger digit size (0.39 inch)

1. Voltage : 24V
2. Power : < 0.2W
3. Communication distance : within 500m
4. Button life : 2 million times
5. Button light color : 1 color
6. Working temperature : -35 °C~70°C
7. Size : L-100mm W-36mm H-11.5mm

3 digits grating label XWPL-L3-1L

- 3 blue digits display
- Can connect external grating

3 digits light strip XWPL-L3-1H

- 3 blue digits display
- Can connect external light strip

Product data



2 digits display label XWPL-G2-1

- 2 red digits display
- With bigger size digit(0.56 inch)

1. voltage : 24V
2. Power : < 0.2W
3. Communication distance : within 500m
4. Button life : 2 millions times
5. Button light color : 1 color
6. Working temperature : -35 °C~70°C
7. Size : L-100mm W36mmH-11.5mm



OLED text display label XWPL-OA-1

- Lattice display 128*64
- Blue color display



6 digits display label XWPL-L6-2

- 6 blue color digits display



RFID label XWPL-OA-RFID

- RFID, with LED button
- Lattice display 128*64
- Blue color display

6 digits double color display label XWPL-L6-2R



- 3 blue digits +3 red digits



Single Channel bus controller XWZK-B1

- Max label quantity : 128



Double channel bus controller XWZK-B2

- Max label quantity : 256



WIFI single bus controller XWZK-B1W

- Max label quantity : 128

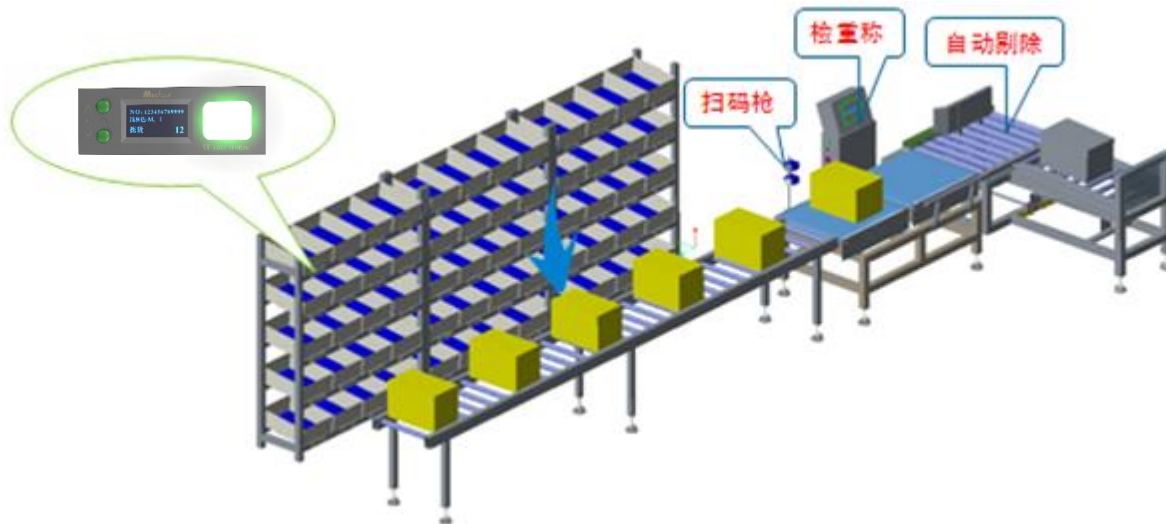
Bus controller contains the power supply

1. Voltage : 220V
2. Working Voltage : 100-264V
3. Max input current : 1.5A
4. Communication distance : 500m
5. Working environment : -30°C~60°C
5. Ethernet interface : 10M/100Mbps
6. Network port mode : TCP Client 、 TCP Server 、 UDP Client 、 UDP Server
7. Size : L-170mm W-145mm H-60mm
8. Can set a unique IP address for the device

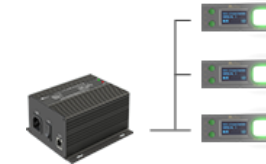
Pick to light working mode

Pick to light System

Install electronic labels on the shelf, in principle a place a product in the store (a label represents a product) and one order for a processing unit, system let the correspond labels in the order light up, picking member according to the bright lights and digital display to take out the goods from the shelf . This is called pick to light according to the order.



① System send the order



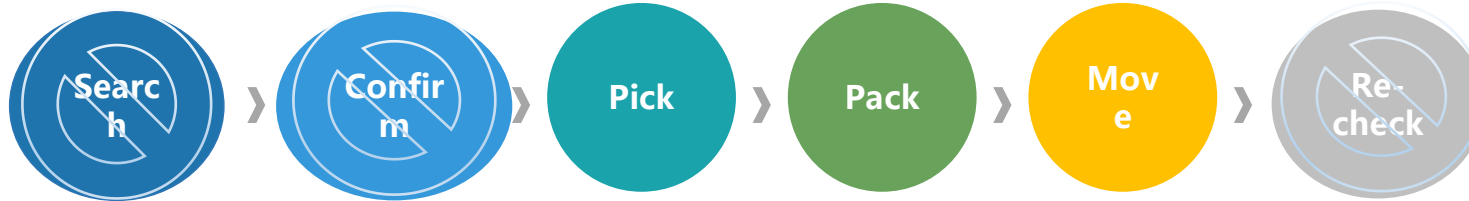
② Labels on the rack light up



③ Picking according the light

Pick to light advantage

Save the search, confirm and re-check link, greatly improve the efficiency of picking



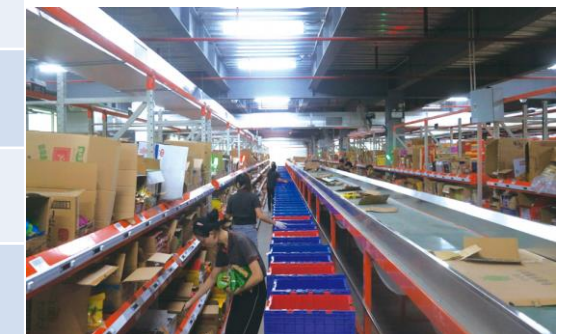
| | Manual to pick +review | View order to pick +scan to review | PTL picking + conveyor transfer |
|--------------------------|---------------------------------|--|--|
| Cost | Few software and hardware input | RF(PDA)and review software, bar code | Install the PTL label according your requirment |
| Error Rate | High error rate | Low error rate ,less than0.03% | Low error rate ,less than 0.03% |
| Skill requirement | High | High | Low |
| efficiency | Low | A staff 200orders/day | A staff 400orders/day |
| Other | Hard to check for receiver | Documents correspond to the goods ,easy to check | Documents correspond to the goods ,easy to check |



➤ View order to pick+ review



➤ View order to pick +scan to review



➤ PTL picking + conveyor transfer

Pick to light systematic model selection

Confirm the operation way



Pick to light



Confirm the relation between label and location

① Rack areas : zone tower light

② Scan to trigger : scanner+ USB label

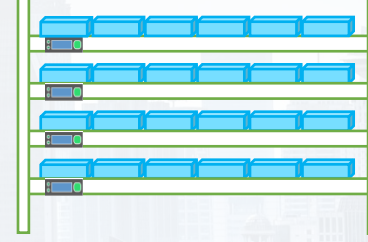
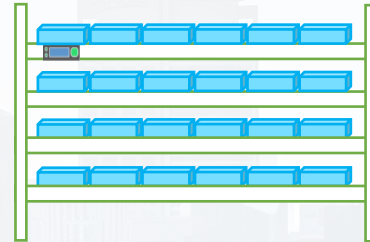
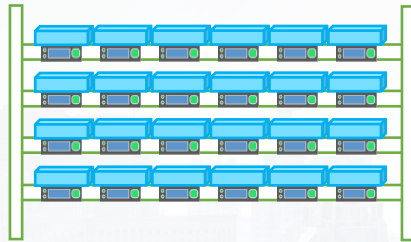
③ Sensor to trigger : RFID label+bracelet/ring

Efficiency type

Economical-type

Label and location one to more

Label and location one on one



- Picking qty= 1: single light label
- Picking qty ≤ 2 digits: 2-digit label
- Picking qty ≤ 3 digits: 3-digit label
- Picking qty ≤ 6 digits: 6-digit label
- Display text: OLED label

One label one rack

- Picking qty ≤ 3 digits: 6-digit two-color label
- picking qty ≤ 6 digits: OLED label

One label one row

- Picking qty ≤ 3 digits: 6-digit two-color label
- picking qty ≤ 6 digits: OLED label

One location to more items

- Picking qty ≤ 3 digits: 6-digit two-color label
- picking qty ≤ 6 digits: OLED label

Pick to light application cases

Pharmaceutical industry

- ✓ Area tower light
- ✓ OLED text label



On production line

- ✓ Area tower light
- ✓ 6digits double color label



On cross belt

- ✓ 6digits label



Supply chain distribution

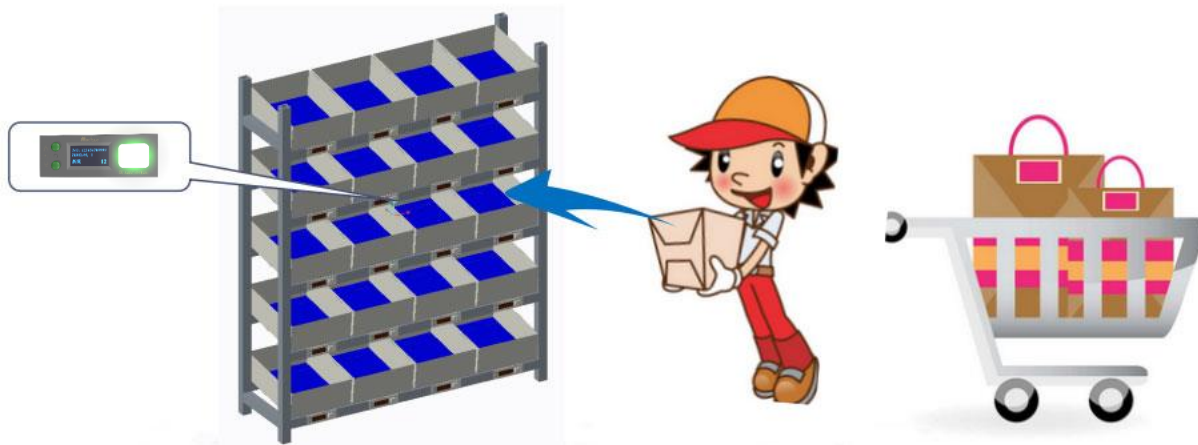
- ✓ RFID label
- ✓ Multifunction label
- ✓ 6 digits label

Put to Light System

Put to Light /DAS (Digital Assorting System)

Each label represents an order customer or a distribution object. Taking out the total quantity of the ordered goods first, and scan the good's bar code to light up the correspond PTL label . The distributor can match the goods to the cargo space according to the light or digital display of the PTL label.

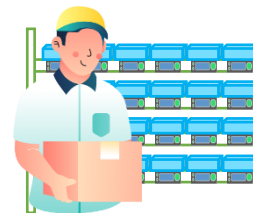
Put to light wall can be divid fixed type or mobile type .



① System sending wave picking



② Scanning barcode to know the location



③ Putting the goods according the light

Put to Light System Advantages

Improve efficiency, save the re-check link, reduce labor



| | Manual to distribute and recheck | Put to light system |
|--------------------------|----------------------------------|--|
| Cost | Few software and hardware input | Need some space for operating |
| Error Rate | High error rate | Low error rate ,less than 0.03% |
| Skill requirement | High | Low |
| Efficiency | Low | A staff 400orders/day |
| Other | Hard to check for receiver | Documents correspond to the goods ,easy to check |



➤ 看单分播+看单复核

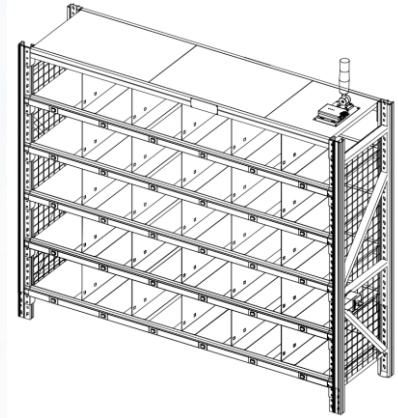


➤ 播种墙分播

DAS wall Product Selection

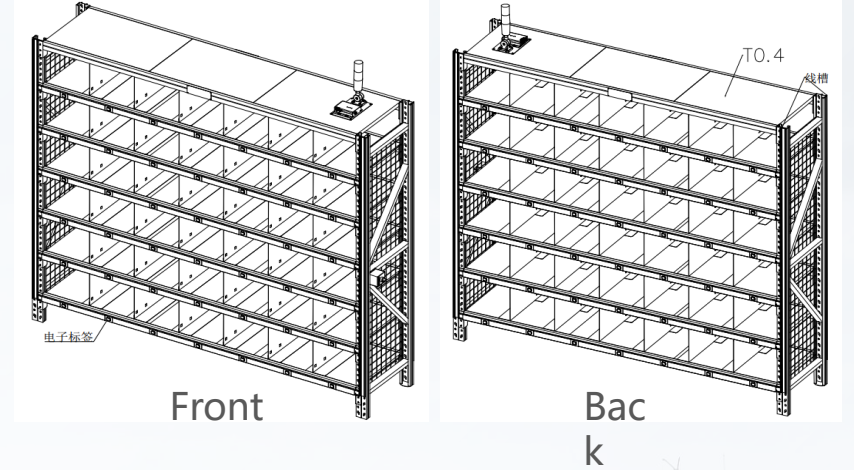
Rack type single side wall

PTL hardware install on one side of the rack . Operator put on the take down the goods from same side of the DAS wall .



Rack type double sides DAS Wall

PTL labels install on both sides of the rack . Operator put the item on front side wall and take down the items to packing from the back side wall after corresponse order is complete.



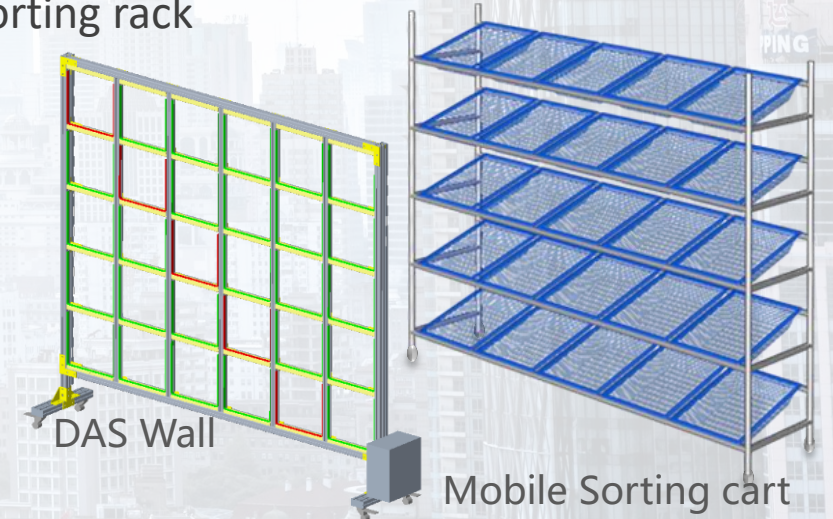
Mobile DAS Wall

PTL hardware install on the mobile rack . Pushing the DAS wall to the operating area , pushing it to the packing area after operation complete .

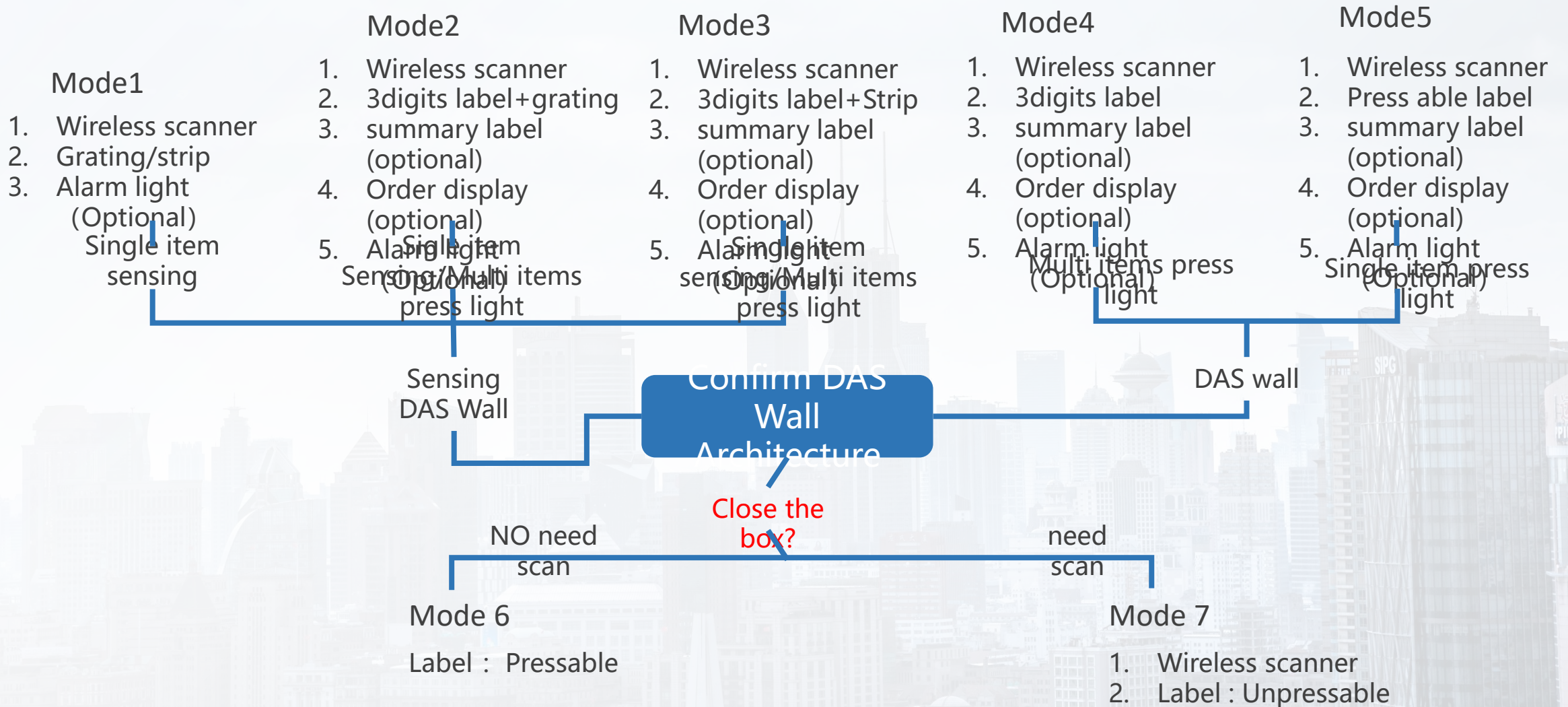


Mobile/Fixed DAS Wall + Sorting rack

PTL install on DAS Rack. Pushing the mobile sorting rack behind the DAS wall .Operating on the DAS wall and pushing the sorting rack to the packing area when operation complete . Let another sorting car behind the DAS Wall to continue operating



DAS wall Product Selection



DAS Wall Rack Combination Mode

Rack placement and using

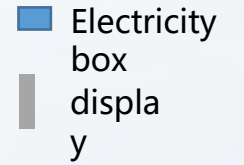
1. 90°, U type, L type, opposite type, etc., the operating surface is facing the operator;
2. No.1 Wall have electricity box and display, use to display item information and location;
3. Operator take the products to the working area, scan the product barcode to working
4. Can adjust the location on rack if orders quantity is small in each putting wave

Light and digit display mode :

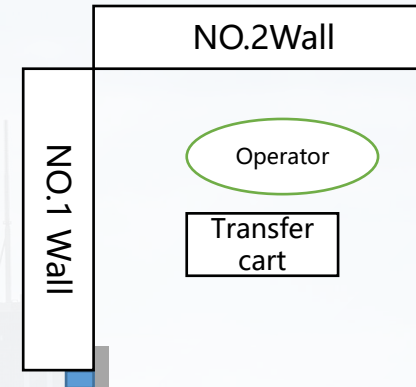
1. For single product, can use one time multi lights and digits display mode
2. For multi products, can use one time one light and digits display ;

Confirm after light mode:

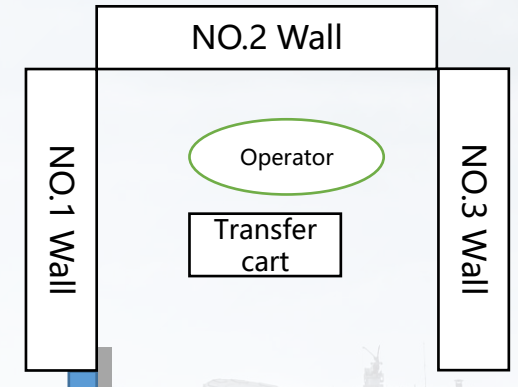
1. After putting the products, press the light in turn;
2. Don't press after putting, auto turn off light in next scan.
3. Using grating to trigger



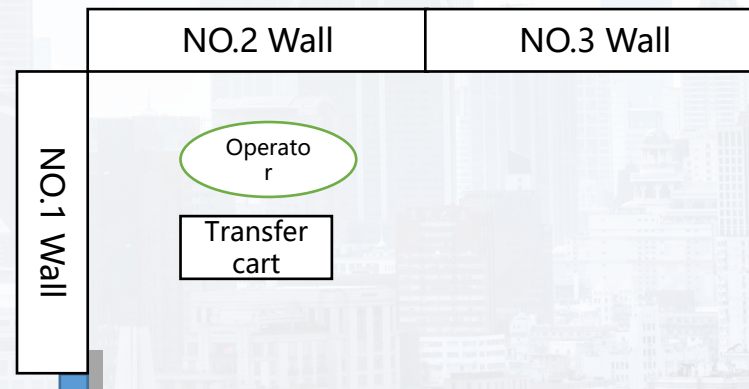
90°Type



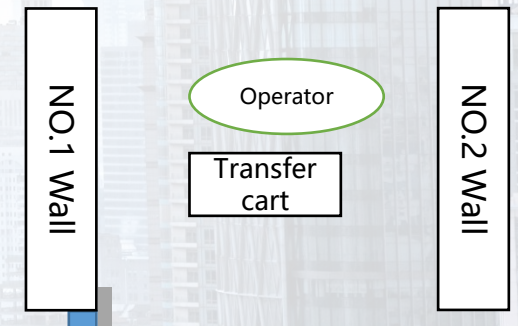
U Type



L Type

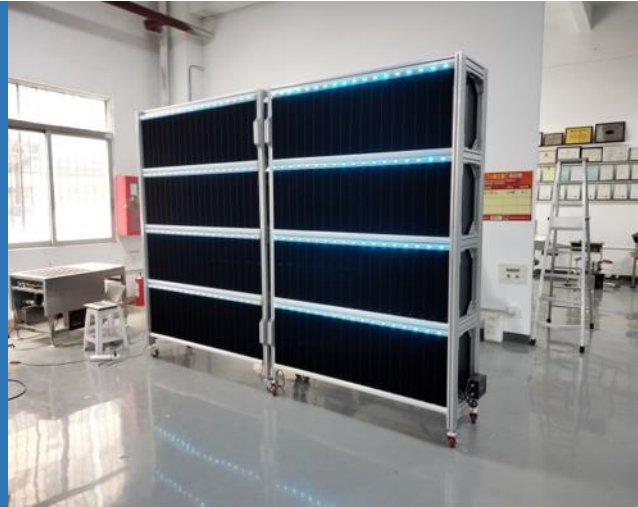


Opposite type



DAS Wall Application Case

- 90°Type grating
- DAS wall+Sorting rack
- Mode1
- ✓ Wireless scanner
- ✓ Grating
- ✓ Alarm light (Optional)



3digits grating DAS wall + Sorting rack

- Mode 2
- ✓ Wireless scanner
- ✓ 3digitis label+grating
- ✓ summary label (optional)
- ✓ Order display (optional)
- ✓ Alarm light (Optional)



4*18 Sensing DAS Wall

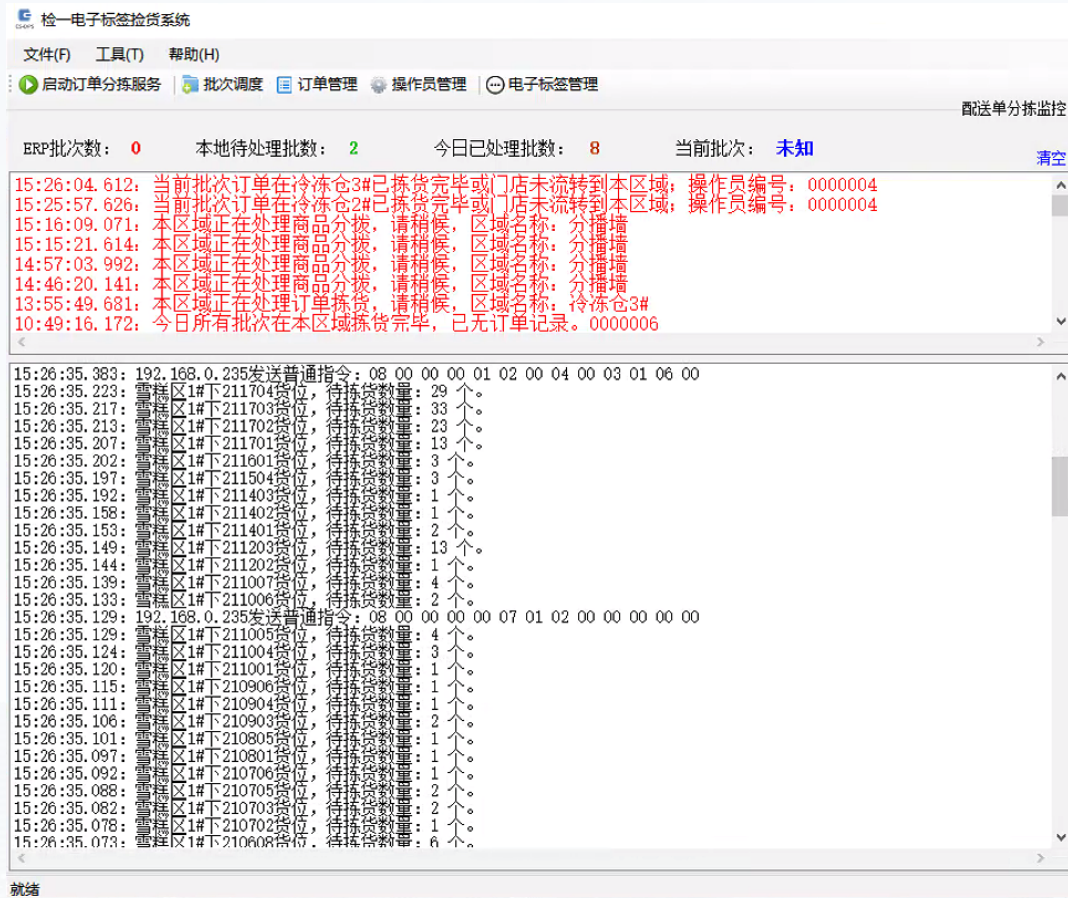
- Rack size customizable
- ✓ Wireless scanner
- ✓ Grating
- ✓ Alarm light(Optional)



Ddouble sides DAS wall

- Mode 5
- ✓ Wireless scanner
- ✓ Pressable single light label
- ✓ summary label (optional)
- ✓ Order display (optional)
- ✓ Alarm light (Optional)

Main Interface of Put to Light Software



- **ERPbatch number**: Shows the number of orders that need to be processed in the system so far.
- **Local pending batches number**: The number of orders from ERP synchronization to the local database is generally less than or equal to the number of ERP batches to be processed. ;
- **Number of batches processed today**: (Batch has been processed means feedback to ERP system).
- **Clear**: The clear button in the upper right corner can clear all logs from the list and redisplay them. By default, only 200 records are displayed in the list. If more than 200 records are added, the last record is automatically deleted.
- **Abnormal logs**: Remind the user of various special or abnormal situations that occur during the operation ;
- **Monitoring log**: Track the whole process of operation, real-time view the actions of picking goods, in reverse order of the time axis display;The main contents of the display include operator ring induction, electronic label display, picking completion of the action, communication instruction sending.

Put to light Software Main Interface



- **Current wave:** Current Seedwall seeding wave ;
- **Assorted :** Current assorted order number ;
- **Wait for assort:** Current waiting assorting order;
- **Wait for assort wave:** Current waiting assorting order wave
- **Finished wave:** Current finished wave
- **Bar code:** including all bar code scanned;
- **Wave number :** scanned wave bar code;
- **Product bar code:** scanned product bar code;
- **Put wall interface:** display current put wall corresponding bin position , judge the bin condition via the light up ;
 - Green: normal;
 - Red : abnormal ;
 - Yellow : occupy;
- **Real time monitor:** current software real time log area ;

Area Management

区域管理

控制器IP: 零件1# [添加区域](#) [批量删除](#)

| | 全选 | 区域编码 | 区域名称 | 控制器名称 | 修改时间 | 维护 | 查看 |
|---|-------------------------------------|------|------|-------|----------------|--------------------|--------------------|
| ▶ | <input checked="" type="checkbox"/> | A | 区1# | 零件1# | 2021/6/4 11:25 | 维护 | 查看 |
| | <input type="checkbox"/> | B | 区2# | 零件1# | 2021/6/4 9:09 | 维护 | 查看 |
| | <input type="checkbox"/> | C | 区3# | 零件1# | 2021/6/4 11:32 | 维护 | 查看 |

(area management)

电子标签管理

控制器: 区1# [添加标签](#) [批量删除](#)

| | 全选 | 标签ID | 货位编码 | 类型 | 维护 | 巷道灯编码 | 控制器 | 子区域编码 | 修改时间 |
|---|-------------------------------------|------|----------|----|--------------------|-------|-------|-------|-----------------|
| ▶ | <input checked="" type="checkbox"/> | 1 | 2C212162 | 普通 | 维护 | | 零件区1# | A | 2021/6/19 17:34 |
| | <input type="checkbox"/> | 1 | 2C212163 | 普通 | 维护 | | 零件区1# | A | 2021/6/19 17:34 |
| | <input type="checkbox"/> | 1 | 2C212164 | 普通 | 维护 | | 零件区1# | A | 2021/6/19 17:34 |
| | <input type="checkbox"/> | 1 | 2C212165 | 普通 | 维护 | | 零件区1# | A | 2021/6/19 17:34 |
| | <input type="checkbox"/> | 1 | 2C212166 | 普通 | 维护 | | 零件区1# | A | 2021/6/19 17:34 |
| | <input type="checkbox"/> | 2 | 2C212151 | 普通 | 维护 | | 零件区1# | A | 2021/6/19 17:34 |
| | <input type="checkbox"/> | 2 | 2C212152 | 普通 | 维护 | | 零件区1# | A | 2021/6/19 17:34 |
| | <input type="checkbox"/> | 2 | 2C212153 | 普通 | 维护 | | 零件区1# | A | 2021/6/19 17:34 |
| | <input type="checkbox"/> | 2 | 2C212154 | 普通 | 维护 | | 零件区1# | A | 2021/6/19 17:34 |
| | <input type="checkbox"/> | 2 | 2C212155 | 普通 | 维护 | | 零件区1# | A | 2021/6/19 17:34 |
| | <input type="checkbox"/> | 2 | 2C212156 | 普通 | 维护 | | 零件区1# | A | 2021/6/19 17:34 |
| | <input type="checkbox"/> | 3 | 2C212141 | 普通 | 维护 | | 零件区1# | A | 2021/6/19 17:34 |
| | <input type="checkbox"/> | 3 | 2C212142 | 普通 | 维护 | | 零件区1# | A | 2021/6/19 17:34 |
| | <input type="checkbox"/> | 3 | 2C212143 | 普通 | 维护 | | 零件区1# | A | 2021/6/19 17:34 |

(PTL labels management)

Order Management

订单管理

下单日期: 2021年 7月 6日 - 2021年 7月 7日 状态: 全部 查询

订单号: 拣货容器编码:

| 全选 | 订单号 | 拣货容器编码 | 批次 | 状态 | 下单时间 | 完成时间 | 处理跟踪 | 操作 |
|-------------------------------------|-------------------|--------------|-------------------|-----|----------------|------|----------------------|---|
| <input checked="" type="checkbox"/> | 0JWJDC21070700008 | B21070700008 | 0EWJDC21070700005 | 待处理 | 2021/7/7 10:45 | | 处理跟踪 | 删除 强制完成 |
| <input type="checkbox"/> | 0JWJDC21070700007 | B21070700007 | 0EWJDC21070700005 | 待处理 | 2021/7/7 10:45 | | 处理跟踪 | 删除 强制完成 |
| <input type="checkbox"/> | 0JWJDC21070700006 | B21070700006 | 0EWJDC21070700004 | 待处理 | 2021/7/7 10:45 | | 处理跟踪 | 删除 强制完成 |
| <input type="checkbox"/> | 0JWJDC21070700005 | B21070700005 | 0EWJDC21070700004 | 待处理 | 2021/7/7 10:45 | | 处理跟踪 | 删除 强制完成 |
| <input type="checkbox"/> | 0JWJDC21070700003 | B21070700003 | 0EWJDC21070700002 | 待处理 | 2021/7/7 10:45 | | 处理跟踪 | 删除 强制完成 |

(order management)

订单拣货数据

订单号: 拣货容器编码: 状态: 处理中 查询

只限当天

| 订单号 | 拣货容器编码 | 拣货区域 | 货位 | 拣货数量 | 实际数量 | 状态 |
|-------------------|--------------|------|----------|------|------|-----|
| 0JWJDC21070700003 | B21070700003 | 区1# | 2C209111 | 20 | 0 | 待处理 |
| 0JWJDC21070700007 | B21070700007 | 区1# | 2C209111 | 20 | 0 | 待处理 |
| 0JWJDC21070700008 | B21070700008 | 区1# | 2C209111 | 10 | 0 | 待处理 |
| 0JWJDC21070700005 | B21070700005 | 区2# | 2C204124 | 10 | 0 | 待处理 |
| 0JWJDC21070700006 | B21070700006 | 区2# | 2C204124 | 10 | 0 | 待处理 |
| 0JWJDC21070700007 | B21070700007 | 区2# | 2C204124 | 20 | 0 | 待处理 |
| 0JWJDC21070700005 | B21070700005 | 区5# | 2C310152 | 10 | 0 | 待处理 |
| 0JWJDC21070700006 | B21070700006 | 区5# | 2C310152 | 5 | 0 | 待处理 |
| 0JWJDC21070700007 | B21070700007 | 区5# | 2C310152 | 5 | 0 | 待处理 |

(order picking data)

Product Management



The screenshot shows a software window titled '产品管理' (Product Management). It features a search bar with the label '产品名称:' (Product Name) and a '查询' (Search) button. Below the search bar is a table with the following columns: '全选' (Select All), '产品名称' (Product Name), '产品编码' (Product Code), '产品条码' (Product Barcode), and '数量' (Quantity). The table contains four rows of product data, with the first row selected.

| 全选 | 产品名称 | 产品编码 | 产品条码 | 数量 |
|-------------------------------------|----------------|---------------|------|-----|
| <input checked="" type="checkbox"/> | CAN总线-8位黑色感应标签 | JYBQ-L18-RFID | | 320 |
| <input type="checkbox"/> | CAN总线-5位光栅标签 | JYBQ-15-A1-W | | 320 |
| <input type="checkbox"/> | CAN总线-5位白色电子标签 | JYBQ-L15-A1 | | 320 |
| <input type="checkbox"/> | CAN总线-多功能标签 | JYBQ-D-U1-Q2 | | 320 |

(Product and corresponding stock management)

The quantity of product stock is updated in real time according to the outgoing orders transmitted from the WMS/ERP system.

```
WCS启动
(1-31;8;ER) 172.0.1.127
(1-31;8;ER) 172.0.1.127
(1-31;8;ER) 172.0.1.127
(1-31;8;ER) 172.0.1.127
(1-31;8;ER) 172.0.1.127
error! command response in press button!!!
(1-31;8;ER) 172.0.1.127
(1-31;8;ER) 172.0.1.127
(1-31;8;ER) 172.0.1.127
(1-31;8;ER) 172.0.1.127
(1-31;8;ER) 172.0.1.127
error! command response in press button!!!
(1-83;8;ER) 172.0.1.161
(1-83;8;ER) 172.0.1.161
(1-83;8;ER) 172.0.1.161
(1-83;8;ER) 172.0.1.161
(1-83;8;ER) 172.0.1.161
(1-39;8;ER) 172.0.1.161
(1-83;8;ER) 172.0.1.161
(1-83;8;ER) 172.0.1.161
(1-83;8;ER) 172.0.1.161
(1-83;8;ER) 172.0.1.161
(1-83;8;ER) 172.0.1.161
(1-83;8;ER) 172.0.1.161
error! command response in press button!!!
(1-83;8;ER) 172.0.1.161
(1-83;8;ER) 172.0.1.161
(1-83;8;ER) 172.0.1.161
(1-83;8;ER) 172.0.1.161
(1-83;8;ER) 172.0.1.161
```

➤ HTTP light control interface

System docking mode

Docking Mode →

Client have software

- 1) Provide order API interface
- 2) Data base docking way , confirm the database type : SQL SERVER、ORACLE ect
- 3) Excel import : make sure excel format

Macinte provide software

- 1) Macinte provide WCS software HTTP interface, client develop the control flow .
- 2) Client provide API interface for data calling ,uploading and returning while press the PTL light or hardware abnormal

Client develop the software

Macinte provide the hardware communication protocol for client develop the software

Operation Flow

Provide the Pick to light / put to light working flow



THANK YOU