



**LUOYANG MINNO OFFICE FURNITURE CO.,LTD**

# Intelligent Parcel Locker



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# The Manual of Parcel locker

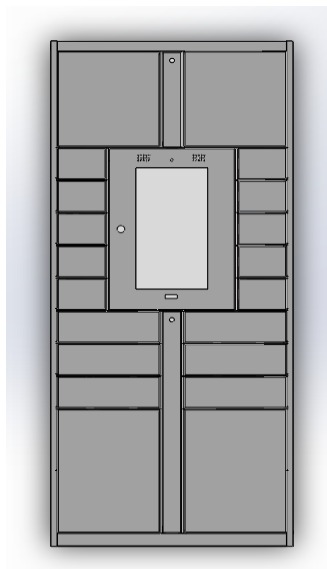
2018, 2

## 1. Summary

The intelligent parcel locker system is a new generation of logistics terminal system, which is a set of terminal platform based on the Internet of things, and can identify, store, monitor and manage items; The platform is composed of intelligent express cabinet and server. The server can manage the various express delivery cabinets (such as express delivery parcel locker information, express information, user information, etc.), which also analyzes and processes all kinds of information to achieve reliable and reliable links between sender, express company and recipient, and a new way of consignment and delivery is provided for express service and online shopping. For express companies and consumers, The 24 - hour express delivery cabinet makes it easier to send and receive express, which is a daily routine of high frequency.

## 2. Appearance structure

### 2.1 Impression drawing

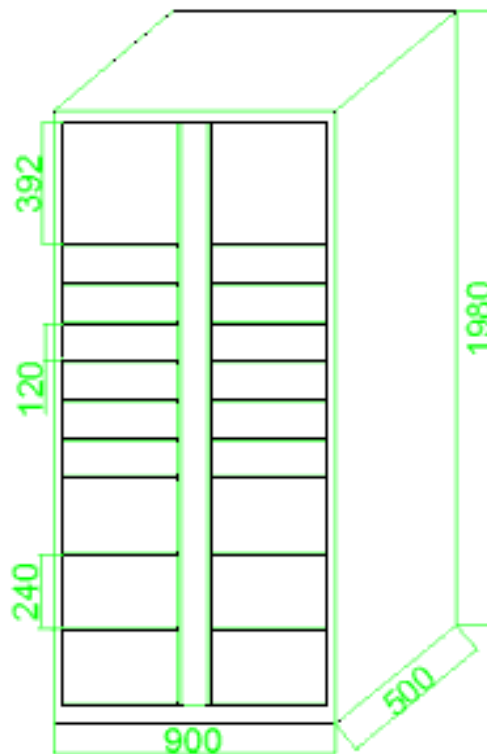
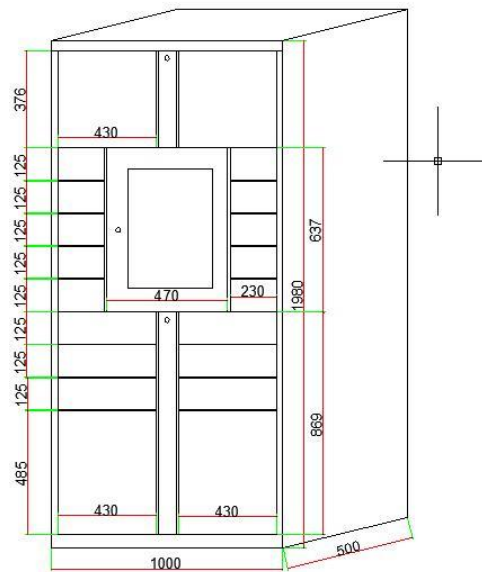


Main cabinet (20 doors)



Deputy cabinet (20 doors)

## 2.1. Outline dimension



## 2.2. Cabinet material

The main body of the cabinet adopts the 1.0mm cold rolled steel and the

auxiliary cabinet adopts the 1.0mm old rolled steel. After cold working forming, the cabinet is assembled by carbon dioxide gas shielded welding, and the structure of the cabinet is sturdy and strong. After the surface of the box is derusted, degreased, polished, phosphate, the surface of the box is sprayed with plastic, and the surface color can be chosen by the user. The longitudinal reinforcement is added to the back of the box door to improve the impact resistance of the door; the cabinet can effectively prevent and reduce the users' negligence and bruises, and the electronic control lock is 360 degrees with a pry proof and an anti slide insert device.

## **2.3. Cabinet structure**

Cabinet structure

- ❖ 1 main cabinet + 2 deputy cabinet, total 60 box doors;
- ❖ Main cabinet size: 1980 (high) \* 1000 (wide) \* 500 (deep);
- ❖ Deputy cabinet size: 1980 (high) \* 900 (wide) \* 500 (deep);

Remarks: the number of vice cabinet can be added according to the actual needs of the user.

## 2.4. Cabinet diagrammatic sketch



## 2.5. Power

Voltage: AC200V – AC240V 50Hz, standby: 65W, work: 90W. The system has the AC and DC power detection function which can be indicated on the display screen. At the same time, the system has a low voltage automatic detection function alarm function to ensure the stability of the system.

## 3. Functional characteristics

### 3.1. Safety

The body of the cabinet is made of 1.0 mm thick steel plate, which can protect the performance of fire protection, shockproof, burglary, prying and so on, and protect the safety of the express. The locking system of

the box is used, the combination of physical locking and electromagnetic unlocking is adopted to ensure that the box is open only when the system is confirmed. At the same time, for security, the monitoring probe can be installed around the cabinet, and 24 hour monitoring to prevent man-made sabotage.

### **3.2. Convenience**

- ❖ The user does not have to receive the express face to face, the time of taking parts can be arranged freely, and the independent operation is more humanized.
- ❖ The network is all over the community, the office building, the campus, and the users can receive the express at any time at their own door.

### **3.3. Major function**

- ❖ Providing Webservice interface, supporting third party business platform to manage express cabinet
- ❖ Through the third party business platform interface, the service data is returned to the platform system.
- ❖ The fast delivery function of the package improves the efficiency of the terminal express delivery, and solves the problem of the last 100 meters of logistics.
- ❖ Parcel overtime recovery function; realizing the intelligent management of distribution so as to avoid the increase of the cost of the two distribution.
- ❖ The users receive the express safely by short message extraction code. 24 hours of flexible arrangement of time, privacy, safety and security of goods;

- ❖ The detection function of the door switch;
- ❖ Anti prying alarm function

### **3.4. Rich value added function**

- ❖ Payment function:the system integrates third party payment functions, which is convenient for all kinds of third party payment.
- ❖ Advertising function:the intelligent express cabinet provides the function of streaming media advertising.Through the platform, the intelligent express cabinet controls the advertising of the terminal, and the advertisement content can be updated through the network to facilitate unified management;
- ❖ Other functions:the future smart express cabinet can also add a lot of functions,such as community life information, deposit and transfer, nearby business circle preferential information and coupon printing, direct purchase and distribution and other life value-added services.

## **4. Parameter requirements for hardware basic configuration**

### **4.1. Requirements for performance and environment**

- ❖ Anti damage design:strong appearance, screen and so on can withstand a certain impact damage;
- ❖ The ambient temperature used:-20<sup>~</sup> to +60 C;
- ❖ Ambient humidity used: (no condensation);
- ❖ Power Supply Voltage:220VAC

## **4.2. State detection requirements:**

- ❖ Supporting goods detection inside box
- ❖ Supporting switch state detection of the box door lock;
- ❖ Support detection and monitoring in network connection status

## **4.3. Requirements for monitoring and monitoring of fault :**

- ❖ Supporting the detection and monitoring of communication failures between the host and the vice cabinet.
- ❖ Supporting the detection and monitoring of door lock failure of opening door.

## 5. Configuration

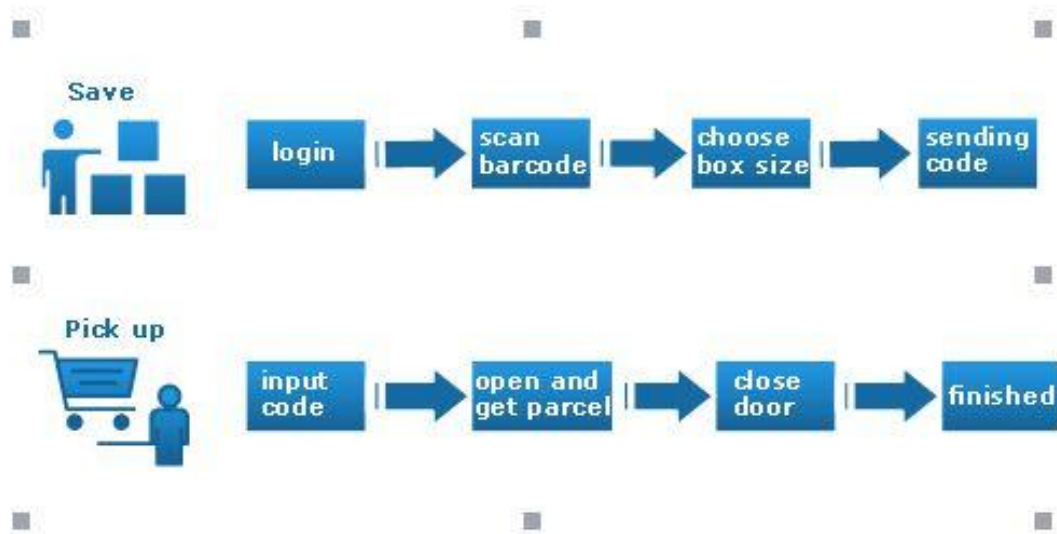
### 5.1. Main cabinet configuration list

Number	Name	Specifications	Unit	Qty	Remarks
1	Main cabinet	Thickness:1.0mm	Set	1	
2	Main cabinet system	21.5 Inch Touch Screen	piece	1	
3		Advertising screen	piece	1	Optional
4		Industrial Personal Computer	Set	1	
5		Bar code scanning platform	piece	1	
6		Voice	piece	1	
7		Pinhole camera	piece	1	
8		Industrial power supply	piece	2	
9		Electronic lock	piece	20	
10		Lock control board	Set	1	
11		Thermosensitive printer	Set	1	Optional
12		RFID card reader	piece	1	Optional

### 5.2. Deputy cabinet configuration list

Number	Name	Specifications	Unit	Qty	Remarks
1	Deputy cabinet	Thickness:1.0mm	Set	1	
2	Deputy cabinet system	Electronic lock	piece	20	
3		Lock control board	piece	1	

## 6. Use process of intelligent parcel locker



## 7. Software functional requirements and development support

### 7.1. Terminal software requirements for intelligent cabinet

#### 7.1.1. System startup

- ❖ The boot process and the drive load are carried out in the background. The front end shows only the start schedule and the interface, progress can not be interrupted directly with a touch screen.

#### 7.1.2. Delivery

- ❖ Supporting account and swing IC card, swing card (selection) and other login methods.

- ❖ Supporting the self – registration of courier (Providing the submission page of the registration application to unregistered courier, post audit);
- ❖ Supporting the functions of investment, inquiry, recovery, repair, empty box processing, personal information management and so on.
- ❖ Overdue orders that are periodically forced to be reclaimed by the system, can be forced to pop up at the first level and require priority treatment. Otherwise, other operations can not be carried out.
- ❖ In the operation of the submission, when the receiver's cell phone number is entered, it needs to be checked by two times.
- ❖ Supporting submission (network connection interruption) in the case of offline, and offline data is uploaded immediately after the network is restored.

### **7.1.3. Pick-up**

- ❖ Supporting pick-up (network connection interruption) in the case of offline, and offline data is uploaded immediately after the network is restored.
- ❖ Supporting overdue charge;

### **7.1.4. Management entry**

- ❖ Completing the functions of the setting, inquiry, maintenance, registration and audit of the intelligent cabinet.
- ❖ The setting interface of the intelligent cabinet supports the information maintenance of the intelligent cabinet, the setting of parameters, the platform of the registration of the intelligent cabinet, and so on.

- ❖ The intelligent cabinet query interface supports third party managers or maintenance engineers to carry out Express query.
- ❖ The maintenance interface supports the maintenance engineer to carry out the maintenance operation, such as the repair processing, the open of box and so on.
- ❖ After logging in, the service engineer can enter the monitoring and check interface and the monitoring video record.
- ❖ Supporting network remote access to view terminal monitoring images and monitoring records;
- ❖ The registration audit interface supports the on-site audit of the registration information of the courier.

#### **7.1.5. Dying Gasp**

- ❖ When power is broken, the power of the UPS can be used to maintain a network connection. At the same time, the system software can trigger the alarm and submit it to the backstage management system.

#### **7.1.6. Maintenance of terminal system of intelligent cabinet**

- ❖ Provide a complete terminal operation log, which is immediately uploaded to the backstage management platform when the terminal operation log is updated.
- ❖ Supporting terminal system automatically upgrade at night;
- ❖ The maintenance engineer can actively operate the trigger system upgrade.

#### **7.1.7. Other requirements**

- ❖ Voice hints: When the user or the courier and the manager operate on the terminal of the smart cabinet, The system has phonetic hints.

Maximum volume: the volume is not less than 90 decibels, the volume is adjustable, the sound is clear, no ringing, noise, and no distortion at any volume.

## **7.2. Functional requirements of the intelligent cabinet management platform**

### **7.2.1. Platform erection**

The equipment manufacturer needs to erect the intelligent cabinet management platform on the server. Our company is responsible for the management of the equipment during the maintenance period, and provides training for the relevant use.

### **7.2.2. Login and Write off ,account date management**

- ❖ Enter the login name and password; click on the login, or the return key, login the system;
- ❖ Prompt for login name and password input error;
- ❖ There is a cancellation button;
- ❖ The account base information field can be edited, and the password can be modified.

### **7.2.3. System management function(administrator account)**

- ❖ Menu management: defining the management platform menu;
- ❖ Management platform login account management: query, add, delete, edit; reminding the main fields; account is unique;
  - The account contains basic attributes: name, way of contact, company, role and scope of management.

- There is a special account for the agent, and the proxy account can only manage the content within the scope of the authority of the agent.
- Enabling or disabling.
- ❖ Role management:querying, adding, deleting, editing roles;assigning roles to the platform login account;
- ❖ Distribution of Rights:selecting the role,adding, deleting, editing the rights of the role;permissions function requirements:
  - The system has the function of different user login display different menu module.
  - Different users enter the same menu, and the control authority of the buttons in the menu is different.
- ❖ System constant configuration:System maintenance state switch;The secret key interacting with the terminal etc.;
- ❖ The system has the function of preventing injection attack.

#### **7.2.4. Terminal login account management**

- ❖ Terminal login account management:query, addition, deletion, edit;reminding the main fields;account name is unique;
- ❖ System record entry time;
- ❖ Main fields:category, name, cell phone number, ID card number, affiliated company, IC card number, non card login password, remark.
- ❖ Main categories:express personnel, maintenance personnel, property personnel, super administrator;
- ❖ It can be enabled or disabled.
- ❖ The IC card card number is unique; the type account and cell phone number of the courier are the only ones.

### **7.2.5. Terminal management**

- ❖ Terminal management:query, addition, deletion, edit;the type and quantity of the main cabinet of the locker can be managed;reminding the main fields;the number is unique;
- ❖ The lockers can be searched separately,the type and quantity of the matching storage space can be managed separately.
- ❖ Each storage lattice can be searched separately, type and available state can be managed separately (normal, unopen, unclosed, unavailable);
- ❖ The designated storage cabinet door can be opened remotely;
- ❖ The operation screen background can be automatically updated by the system or modified by the manual operation in the background;
- ❖ The power failure of each terminal can be monitored and alert in time.
- ❖ The network status of each terminal can be monitored (the terminal is connected to the platform every 10 minutes, the platform records the terminal login time) and alerts the alarm in time.
- ❖ The terminal can be logged and restarted remotely;

### **7.2.6. Dispatch management**

- ❖ The management of all the dispatch information;
- ❖ Supporting a variety of query conditions filtering to facilitate the management of data.
- ❖ Processing of delivery message sending failure:supporting short message retransmission directly on the management interface.
- ❖ Supporting the addition of notes;

### **7.2.7. SMS Management**

- ❖ SMS template customization;
- ❖ The query of all messages sent by the system;
- ❖ Custom SMS (need to be audited);
- ❖ Supporting load balancing of multi message platform channel;
- ❖ Supporting custom short message channel of three big mobile operators.

### **7.2.8. Alarm management**

- ❖ The system can be remind or query confirmation express, overdue express, abnormal lattice door, terminal power off or offline and other messages.

### **7.2.9. Statistical function**

- ❖ The system can be used to calculate the situation of the delivery of the courier and the case of the user.
- ❖ Availability of statistical terminals can be calculated: the number of logging accounts of each account, power break time and times, failure time and number of times;
- ❖ The sending situation of SMS can be counted.
- ❖ The above data can customize the date and time period to produce reports.

### **7.2.10. Tariff function**

- ❖ According to the charge mode, the system controls the relevant contents of the tariff, such as account, recharge, consumption and so on.

#### **7.2.11. APP function**

- ❖ Supporting the interaction with APP for information management.

#### **7.2.12. Additional function**

- ❖ The query interface supports fuzzy query.
- ❖ Supporting blacklist management:the system can prohibit the courier login;the system can prohibit the delivery of an addressee (the system does not support the receiver's cell phone number temporarily).
- ❖ Terminal log query and analysis:according to the terminal log, the system can analyze the detailed terminal operation records and assist in the investigation of abnormal parts.
- ❖ Management of platform log records and queries:the system can record and query the login and operation of all management platforms.

#### **7.2.13. Advertising publishing system**

- ❖ Terminal display system support advertising display, display types including but not limited to PIP, below the banner;
- ❖ The backstage management system supports the network remote advertisement management.

#### **7.2.14. The API interface of the cooperative content provider platform**


- ❖ Other cooperative operation project interfaces can be provided.
- ❖ The advertising platform can be provided.

### **7.3. Development support of intelligent cabinet**

- ❖ File technical specification, encoding of character set character and font type which belong to intelligent cabinet software should comply with the corresponding national standards.
- ❖ The interface between the terminal software and the backstage intelligent cabinet management system is communicated by Webservice. The message format follows the SOAP specification, the transmission protocol uses HTTP, HTTPS is used for sensitive information transmission protocols such as user personal information, account number, password and so on.
- ❖ The manufacturer is required to provide a free terminal software and a backstage management system software within the warranty period, and provide a version update and update, and the version upgrade of the backstage management system software does not affect the use of the operating intelligence cabinet.


## 8. Introduction of main parts

### 8.1. Touch screen

Basic parameters		
Display type	21.5”    LED	
Appearance color	Black	
Aspect ratio	16: 9	
<b>Effective touch area</b>	level:476.64mm, vertical:268.11mm	
Effective resolution	1920 × 1080   @ 60 Hz	
Image corresponding time	25 ms	
pixel	16.7 million	
brightness	LCD Panel: 250 cd/m2	
contrast ratio	3000:1	
pixel	16.7 million	
Field / frequency range	level: 30 ~ 82 kHz vertical: 50 ~ 75 Hz	
Touch technology	Projective-type capacitance touch technology	
Touch-screen	USB	


interface	
Touch response time	$\leq 10$ ms
Power supply(Max)	30 W
Display size of display screen	Dustproof (standard): 541mm(W) $\times$ 328mm(H) $\times$ 41mm(D)
Weight	Gross weight: 7.64kg, net weight: 4.96kg
Safety and regulation certification	CCC

## 8.2. Main control board

Basic parameters			
Central processing unit	Integrated Intel Bay Trail-D Celeron J1900 quad core processor, clocked at 2.0GHz power 10W.		
internal storage	1* DDR3L slot, support 1333MHz, maximum support 8GB.		
Display function	Integrated Intel HD Graphics core graphics card.		
Display interface	It provides 1 VGA, 1 HDMI, and 1 dual channel 24bitLVDS, which supports double display.		
network interface	2 gigabit network interface on board		
Serial port interface	6* RS232 serial port, COM2 support RS485/422		
Other ports	1 mini-PCIE slot, marking the SIM card slot, supporting the 3G/4G network module		
Maximum power consumption	60W		


working voltage	DC_12V single power input
Electric current	Maximum current 5A
Appearance size	170mm x 170mm
Weight	260g

### 8.3. Scanner

Basic parameters		
Literacy pattern	CCD	
Resolving power	2500	
Interface	RS232 USB	
Identification code system	One dimensional bar code1-D: UPC, EAN, Code 128, Code 39, Code 93, Code 11, Matrix 2 of 5, Codabar Interleaved 2 of 5, MSI Plessey, GSI DataBar, China Postal, Korean Postal, etc QR code2-D: PDF417, MicroPDF417, Data Matrix, Maxicode, QR Code, MicroQR, Aztec, Hanxin, ect	
Decode range	5MIL:50mm-110mm	
	13MIL:40mm-300mm	
	Code 39 (17.8 mil):20mm-250mm	
Environmental illumination	100.000 Lux	
light source	Aim ing: 617nmLED;il lumination:6500K LED	
Sensor pixels:	640 pi xels( H)x480 pi xel s( V)	
Motion tolerance:	up to 25in. ( 63.5cm) per second	
working voltage	DC 5V	

Electric current	+/-10% @400mA
Appearance size	70mm x 23mm x 50mm
Weight	50g

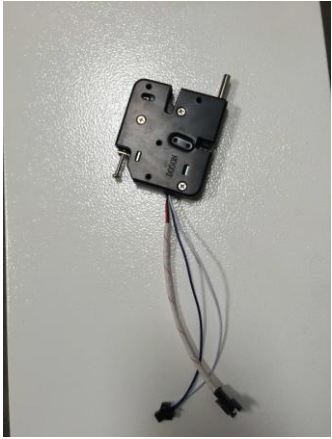
## 8.4. Doorlock control board

Basic parameters		
System	32 bits ARM Cortex-M3 CPU kernel; flash program memory, up to 256 KB; up to 64 KB SRAM memory; 2 KB EEPROM memory.	
data interface	RS485	
baud rate	115200	
Support number	24 Road drive interface, DC12V/6.8A (max) load, and I/O signal detection.	
Extension interface	Button interface, keep the 1 and 2 feet short of the short J4, reconnect, and open all the drive interfaces.	
Maximum power consumption	24W	
working voltage	DC 12V	
Electric current	Maximum current 2.2A working current 1.2A dormant current 50mA	
Appearance size	100mm×99mm×1.6mm (L×W×H)	
Weight	120g	

## 8.5.

## 8.6. Electronic lock

Basic parameters

Electrical parameters	12V 2A	
Closing signal feedback type	When the lock is locked, the two gate state frames are connected.	
Elastic specification	strong	
material	Iron	
Maximum power consumption	24W	
working voltage	DC 12V	
Electric current	2A	
Aging test	30W	
ROHS	satisfy	
Appearance size	59 * 80 * 13.5mm	
Weight	160g	

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