Elevator Floor Controller

User Manual

Note： The products we provide are strong technical devices, please strictly follow the manual while using, any individual operation on assembly or dis-assembly is not allowed, which may cause unnecessary loss by improperly handling.

Products Model：HLD-DT-A
Last revision date：9 Sept 2017

Catalogue

Chapter 1 Summary

Elevator floor access control system provides intelligent management for entrance and exit of lift by smart cards, mobile phone, which is helpful to prevent the strangers from taking the lift in the building randomly to enhance the security management of the building.

The system including Intelligent one-card management system,Card issued Machine,Elevator floor Access controller,Floor expansion relay,Reader antenna set,Floor data collector, Group controller.

The intelligent one-card management system works with card issued machine to realize the card authorization,the report of card's loss,records management,parameter setting of the elevator operation.

The Elevator access controller and floor expansion relay are the terminal devices,they mainly control the floor access and reserve the access records.

The reader antenna and floor controller are used cooperatively to identify the authorization of cards and confirm the legality of floor permission.

Floor Data collector is to provide the intercom linkage function， it is used to collect the visitor records, which will deliver to the floor controller or group controller.

The group controller intelligently dispatch the floor data and intercom linkage signal to each lift controller.

1.1 Product Technical Parameters and Features

1.1.1 Technical Parameters

1. Using DC 12V~24V as working power，The main board max working Current <500mA；
2. Main board output port：32
3. Working Environment：
   Temperature：-10--60℃；
   Relative Humidity：While Temperature（40±2）℃，Humidity 20%-93% No condensation；
4. Storage Environment：
   Temperature：-40--60℃；
   Relative Humidity：While Temperature（40±2）℃，Humidity 20%-96% No condensation；
5. The system using MiFare 1 card or CPU card，Operator time:0.2~0.5 Second；
6. RS485 external communication interface
   Transfer format:9600bps，8，N，1；
7. It is compatible to be used by keypad or password reader

1.1.2 Main Features

1. Able to reserve 8192 blacklist records；
2. The main board support control of 16 floors，the max control up to 112 floors if adding the floor expansion relay board；
3. Each floor has 16 reception card permission；
4. Each access floor is able to set up 40 pass code by user, but need to be used with IC card which authorized with password permission.
5. Able to save 30000 pcs offline message.
6. When the elevator controller is off power or enters the fire fighting state, it will automatically withdraw from the control of the elevator and the elevator return back to its original state.

7. The data of system never loss even though it is power off.
8. Intelligently records each single floor user access and time；
9. Intelligently records of using password to access and the time；
10. Intelligently records the card reading time of the visitor reception.
11. Intelligently detect whether the card permission is legal or not

1.2 Functions Introduction

The system functions are divided into two parts：Elevator access control and Intercom linkage

1.2.1 Elevator Access control

The Floor Access control and management center are the basic of the system, see the structure figure 1-2-1 : the system contains of smart card management software,card issued machine,card reader, elevator access controller and floor expansion relay board.

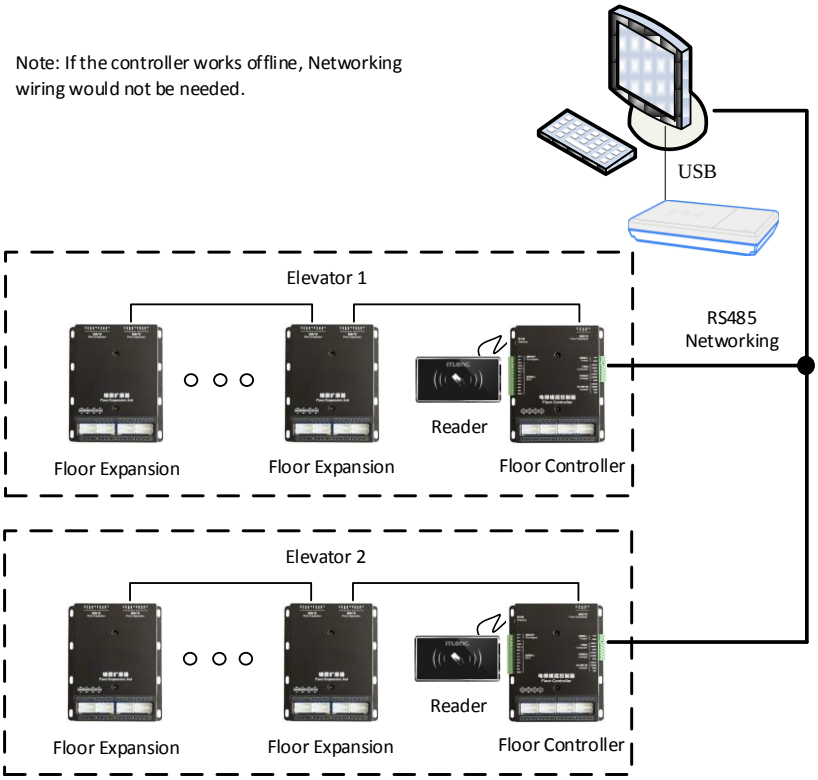

Figure 1-2-1 Floor Control Structure Diagram

1.2.2 Intercom Linkage

Visitor Intercom linkage features：When visitor comes to the building, the holder is able to open the access of certain floor by pressing indoor button, the floor data collector receiving the intercom linkage signal and the controller open the floor, thus the visitor walk into the lift car and ascend to the authorized floor.

Two ways to connecting the controller and intercom system：Switching mode and protocol mode.

一、Switching Mode

Using the floor data collector to collecting the signal of visitor's

intercom. The intercom signal is provided by intercom device supplier or collecting the signal data from each holder’s signal press button. Three roads floor signal collector installed on each 3 floors , the fifteen roads floor signal collector installed on each 15 floors.

When there are several elevators sharing the intercom signal in one Unit, it needs to be installed the group controller, which can intelligently dispatch the intercom signal to each elevator access controller.

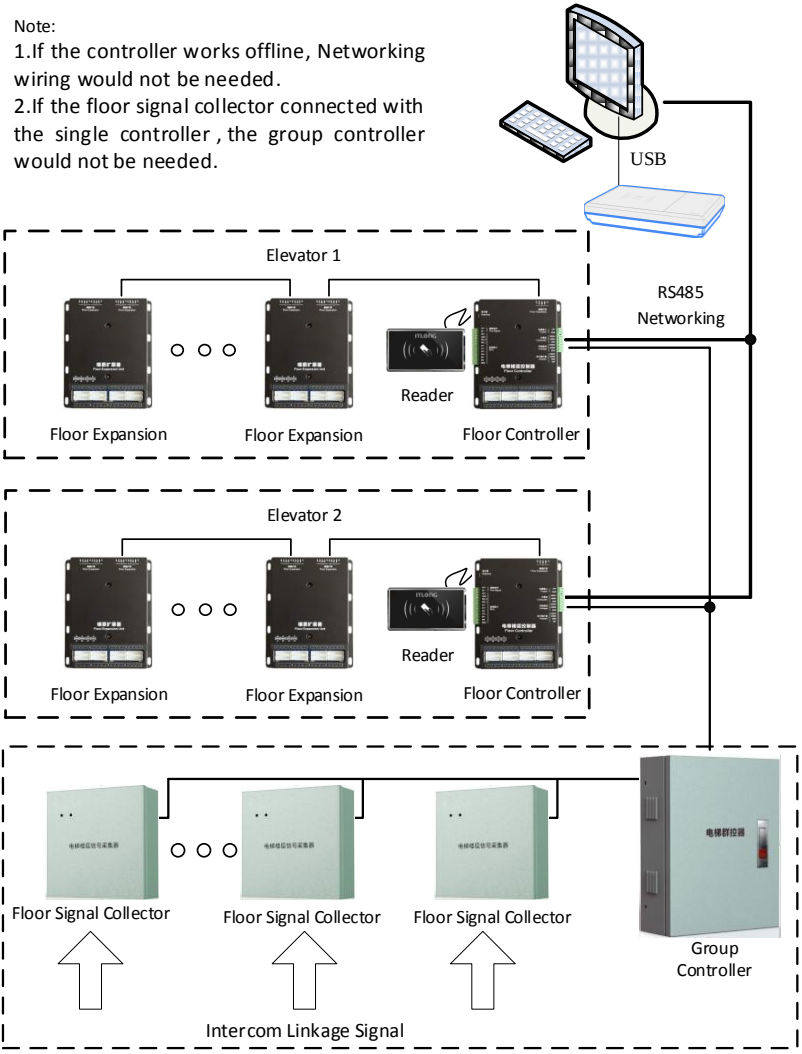

Figure 1-2-2 Switch mode intercom linkage system diagram

1.2.2.2 Protocol Mode

Using the floor data collecting converter to collect the signal of intercom linkage device, please refer to the intercom system as

figure1-2-3 below

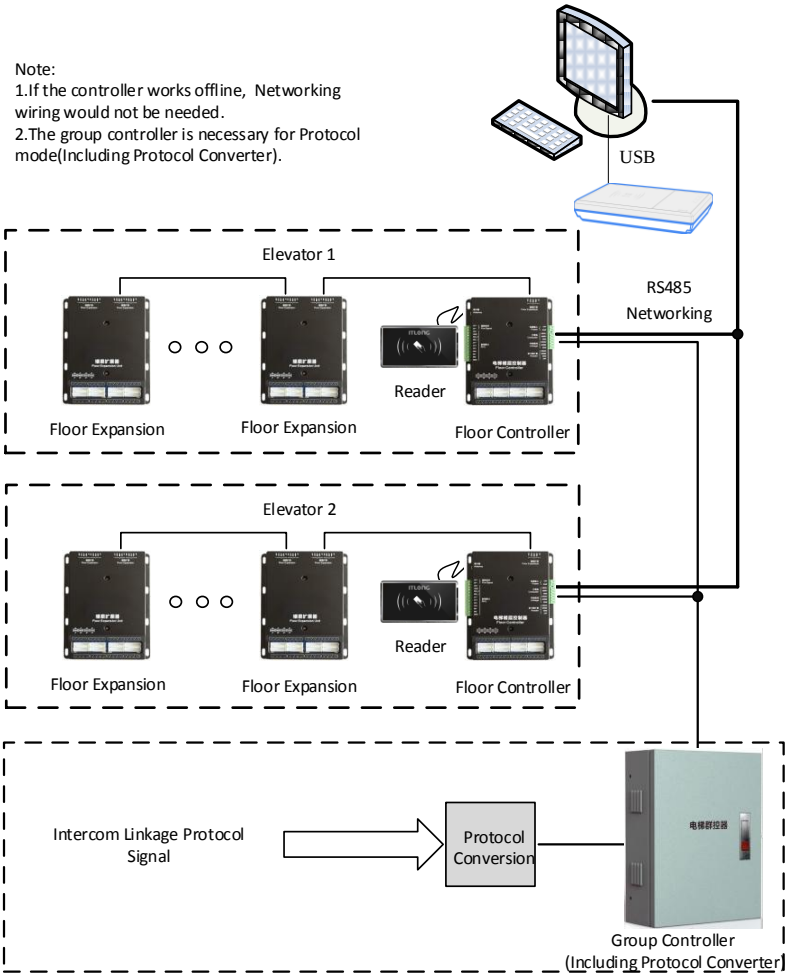

Figure 1-2-3 Protocol mode for intercom linkage system

Chapter 2 The Wiring Instruction of Devices

2.1 The introduction of controller interface

The controller interface structure see the figure 2-1-1 below, the exact instruction refers to figure 2-1-1 and figure 2-1-2.

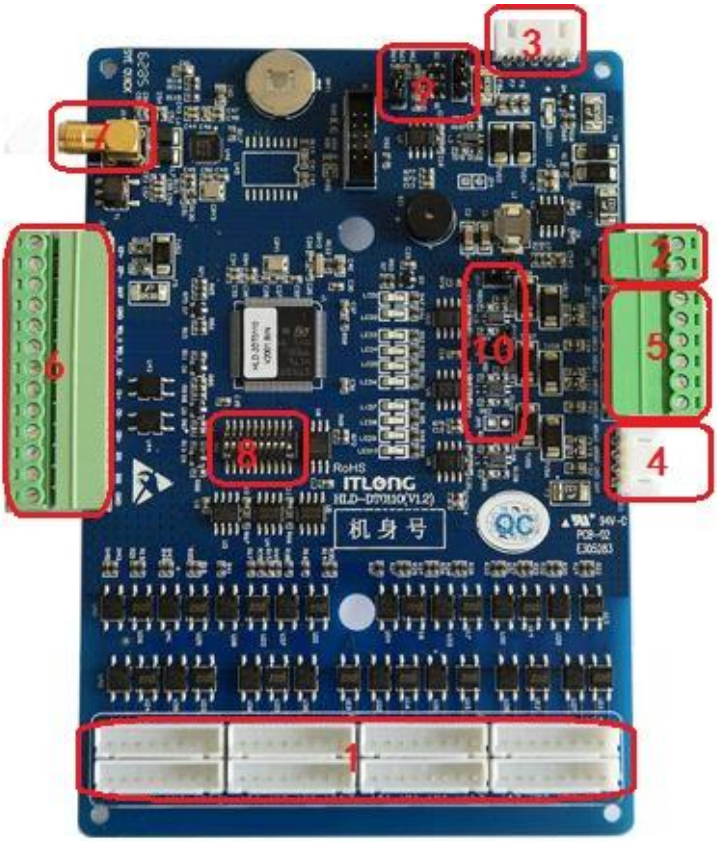

Figure 2-1-1 Floor controller structure

Figure 2-1-1 Instruction of floor access controller interface

No.	Item	Instruction	No.	Item	Instruction
1	J1-J8	Floor button output interface	2	J9	Power input interface
3	J10	Floor expansion interface	4	J11	Extra card reader interface
5	J12	Computer and intercom communication interface	6	J13	Firefighting interface
7	J14	Reader antenna interface	8	SW1	Address and initialization switch
9	JP1-JP2	Firefighting signal jumper setting	10	JP5-JP7	RS485 communication terminal resistance, selection jumper

J1-J14—Hardware interface

Figure 2-1-2 elevator controller interface instruction

Jumper	Item	Instruction
J1	1+	Floor selection output：series circuit connect to the first floor button(positive pole)
	1-	Floor selection output：series circuit connect to the first floor button (negative pole)
	2+	Direct output：multi circuit connect to the first floor button (Positive Pole)
	2-	Direct output：multi circuit connect to the fist floor button (Negative Pole)

	3+	Floor selection output：multi circuit connect to the second floor button (positive pole)
	3-	Floor selection output：multi circuit connect to the second floor button (Negative pole)
	4+	Direct output：multi circuit connect to the second floor button (Positive Pole)
	4-	Direct output：multi circuit connect to the second floor button (Negative Pole)
J2-J8	……	Similar to J1，J2-J8 orderly are the floor button control output for the floors from 3-16, J2 is corresponding to lower floor，J8 is corresponding to higher floor
J9	24V	Power input（Positive pole）：DC 12-24V
	GND	Power input（Negative pole）
J10	24V	Floor expansion power （Positive pole）
	GND	Floor expansion power （Negative pole）
	485B	Connect to floor expansion RS485 communication B negative pole interface
	485A	Connect to floor expansion RS485 communication A positive pole interface
	XF	Floor expansion firefighting signal
J11	485A3	Connect to the card reader RS485 communication A positive pole interface
	485B3	Connect to the card reader RS485 communication B Negative pole interface
	GND	Card Reader Power (Negative pole)
	24V	Card reader power (Positive Pole)
J12	485A1	Connect to the computer RS485 communication A positive pole interface.

	485B1	Connect to the computer RS485 communication B negative pole interface.
	485G1	Connect to the computer RS485 communication ground electrode
	485A2	Connect to the intercom device RS485 communication A positive pole interface.
	485B2	Connect to the intercom device RS485 communication B negative pole interface.
	485G2	Connect to the intercom device RS485 communication ground electrode
J13	XF +	Firefighting input（Positive pole）
	XF -	Firefighting input（Negative pole）
	24V	Standby application
	GND	
	WD_0	
	WD_1	
	O1-	Standby output
	O1+	
	O2-	
	O2-	
	IN1	Standby input
	IN2	
	GND	
J14		Reader antenna suite interface

SW1—Machine number and the initialization of dial

The first 8 numbers of the dial switch SW1 is used for setting machine number. The 9 is used for setting intercom linkage. The 10 is used for the initialization of dial.

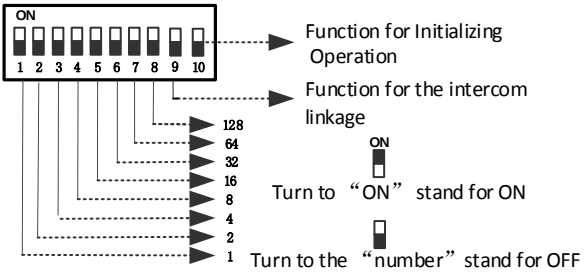

Figure 2-1-2 The definition diagram of dial switch

Note:

1) Binary encoding is adopted to the address.The range of machine number can be set is from1 to 255. Eg: The machine number is 25, 25=1+8+16, just need to turn 1,4,5 to ON.

2) Initializing Operation: Turn the dail 10 to ON, then turn it to OFF after 500ms.

3)Function for the intercom linkage (installed with front door and back door in the elevator car):It should be worked with group controller.The default setting is OFF

JP1 And JP2—Fire Signal Type Setting

JP1 is used to specify that the input signal type of the fire signal terminal(XF+,XF-) is voltage signal or the switching value signal (including dry contact and open collector electronic switch)

JP2 is used to specify that the state of the input signal is normal and effective. The logical constructions are as follows:

Chart 2-1-3 Description of fire signal type setting

JP1	JP2	Description
Short Circuit	Short circuit 3-2	XF+、XF- inputs short-circuit signal，the system will enter the fire mode
Short Circuit	short circuit 1-2	XF+、XF- inputs open-circuit signal,the system will enter the fire mode

Cut Off	short circuit 3-2	XF+、XF- inputs 0~7V voltage, the system will enter the fire mode
Cut Off	short circuit 1-2	XF+、XF- inputs 8~24V voltage, the system will enter the fire mode

Note: When the fire terminal on the controller received the fire signal, the system will enter the fire mode. Under the fire mode,the elevator will recover to the original state (without the access control system).

Default setting: JP1short circuit、JP2 short circuit 3-2 。

Optional Jumper: JP6—Floor signal collector communication terminal resistance

When the controller connect with the floor signal collector in RS-485 communication mode, the jumper should be connected if the controller is attached to the end of the communication cable.

Optional Jumper: JP7—Computer communication terminal resistance

When the controller connect network with the computer in RS-485 communication mode, the jumper should be connected if the controller is attached to the end of the communication cable.

2.2 Expansion Relay Interface Instruction

The main board of the controller can controls 16 floors, if beyond 16 floors, the expansion relay board would be needed. One expansion relay board can control 8 floors , support max quantity of the expansion relay board is 12pcs, that is, 112 floors can be controlled.

One or two expansion relay boards are installed in the expander, the expansion relay board will be set the machine number according to its functions and controlled floors.

Schematic diagram of its hardware interface as follow figure 2-2-1:

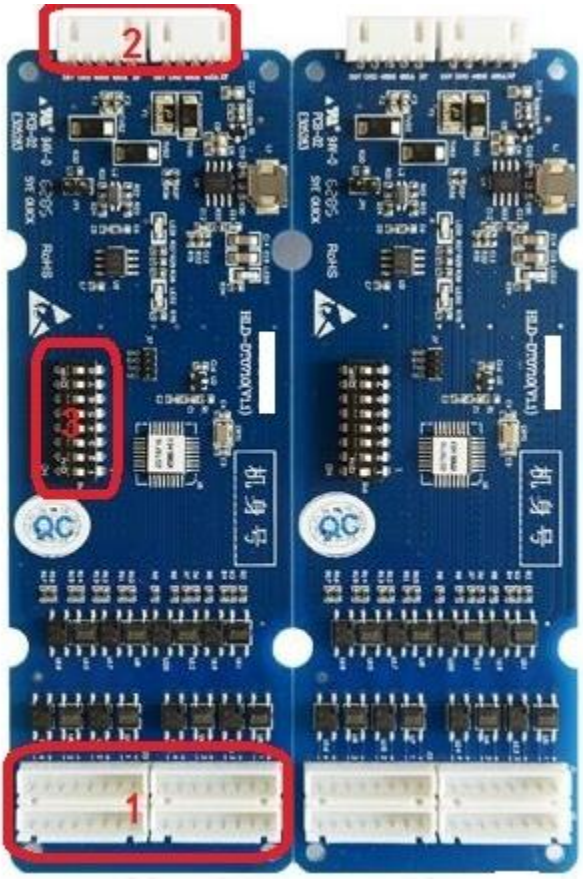

Figure 2-2-1: Schematic diagram of expansion board's hardware

Chart 2-2-1: Expansion Relay Board Specification

NO.	Name	Description	NO.	Name	Description
1	J1-J4	The floor buttons output interface	2	J5- J 6	The interface that cascaded with the controller or the other expansion relay board
3	SW1	Dial Switch of the expansion relay board machine No.			

SW1—Setting dial switch for expansion relay board

The main board of the controller can controls 16 floors.One expansion relay board can control 8 floors , support max quantity of the expansion relay board is 12pcs, that is, 112 floors can be controlled.

Chart 2-2-2 Setting dial switch for expansion relay board number

NO.	SW1.1	SW1.2	SW1.3	SW1.4	Other	Floors Output （J1-J4）
1	OFF	OFF	OFF	OFF	OFF	17-24
2	ON	OFF	OFF	OFF	OFF	25-32
3	OFF	ON	OFF	OFF	OFF	33-40
4	ON	ON	OFF	OFF	OFF	41-48
5	OFF	OFF	ON	OFF	OFF	49-56
6	ON	OFF	ON	OFF	OFF	57-64
7	OFF	ON	ON	OFF	OFF	65-72
8	ON	ON	ON	OFF	OFF	73-80
9	OFF	OFF	OFF	ON	OFF	81-88

10	ON	OFF	OFF	ON	OFF	89-96
11	OFF	ON	OFF	ON	OFF	97-104
12	ON	ON	OFF	ON	OFF	105-112

J1-J6—Expansion Relay Board Interface Specification

Chart 2-2-3 Expansion Relay Board Wiring Settings

Name	Description
J1	The same as the main controller wiring mode.Default relationship between corresponding floor and expansion relay board number is allowed. Eg: Expansion Relay Board NO.n (1≤n≤12) 1~2Pin connect with the 17+8*(n-1) floor in series 3~4Pin connect with the 17+8*(n-1) floor in parallel 5~6Pin connect with the18+8*(n-1) floor in series 7~8Pin connect with the 18+8*(n-1) floor in parallel
J2-J4	They are similar to J1. J2-J4 are the interfaces of the floors that from 17+8*(n-1) to 24+8*(n-1) button Control. J2 corresponds to lower floors，J4 corresponds to higher floors.
J5-J6	J5 and J6 functions are the same.One is connected with the controller, the other one is cascaded with the next expansion relay board or be null.

2.3 Reader Antenna and Card Reader Instruction

The elevator floor access controller can be accessed to a reader antenna via the controller interface J14.

The appearance of the reader antenna as the figure shows below:

Figure 2-3-1 The appearance of the reader antenna

Or connected the controller with a keypad reader via controller interface J11. It supports 2 modes to access elevator: password, swipe the card.

Figure 2-3-2 Elevator Reader DT0200-2C

2.4 Intercom Devices Instruction

2.4.1 Floor Signal Collector

As below Chart 2-4-1 Floor Signal Collector and Figure 2-4-1 3-chanel Floor Signal Collector Connection Diagram:

Chart 2-4-1 Floor Signal Collector

Name	Port	Description
J1	1.2	The 1st Floor under this address
	3.4	The 2nd Floor under this address
	5.6	The 3rd Floor under this address
J2	GND	The signal location of the floor signal collector
	485A	The floor signal collector485 communication A pole （+pole）port
	485B	The floor signal collector485 communication B pole （-pole）port

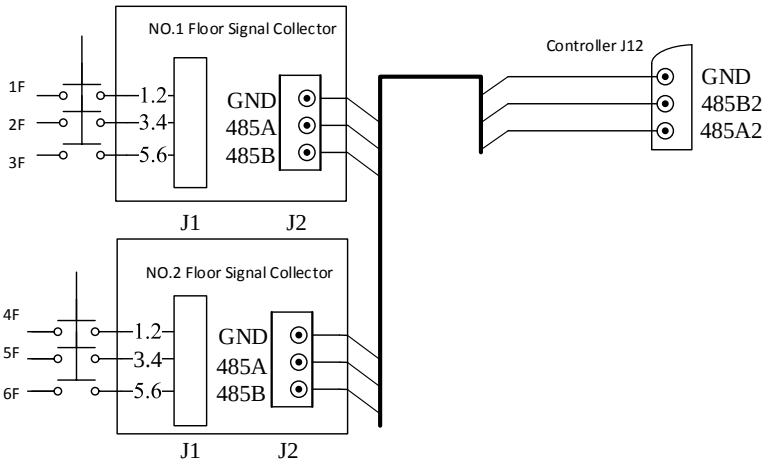

Figure 2-4-1 3-Chanel Floor Signal Collector Connection Diagram

2.4.2 Group Controller Interfaces Instruction

As below Chart 2-4-2 The Interfaces of Group controller and Figure 2-4-2 The Group Controller Connected With Floor Signal Collector and Elevator Access Controller Diagram:

Chart 2-4-2 The Interfaces of Group controller

Name	Port	Description
J1	V+	Power supply positive pole 24V
	V-	Negative Pole
J6	GND	The signal location of the collector
	485B	The 485 communication B pole（－pole）port of the collector
	485A	The 485 communication A pole（＋pole）port of the collector
J2	GND	The communicating negative pole of the controller
	485B	The 485 communication B pole（－pole）port of the controller
	485A	The 485 communication A pole（＋pole）port of the controller
J3-J5	……	The same as J2

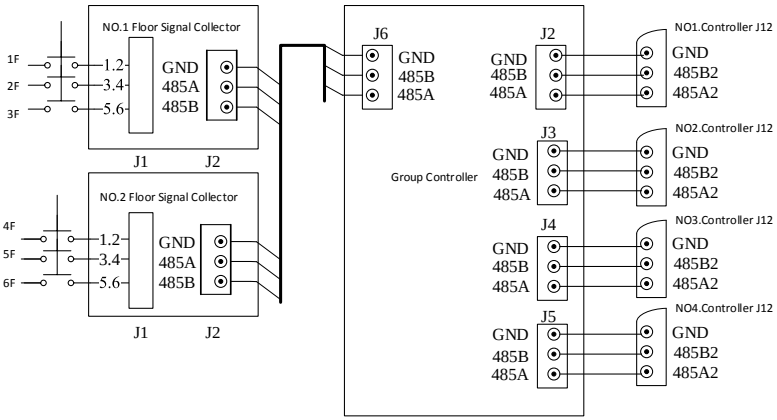

Figure 2-4-2 The Group Controller Connected With Floor Signal Collector and Floor Controller Diagram

2.4.3 Protocol Mode and Intercom Linkage

The intercom supplier can interact with ITLONG via protocol mode to achieve the intercom linkage function.As below Figure 2-4-3:

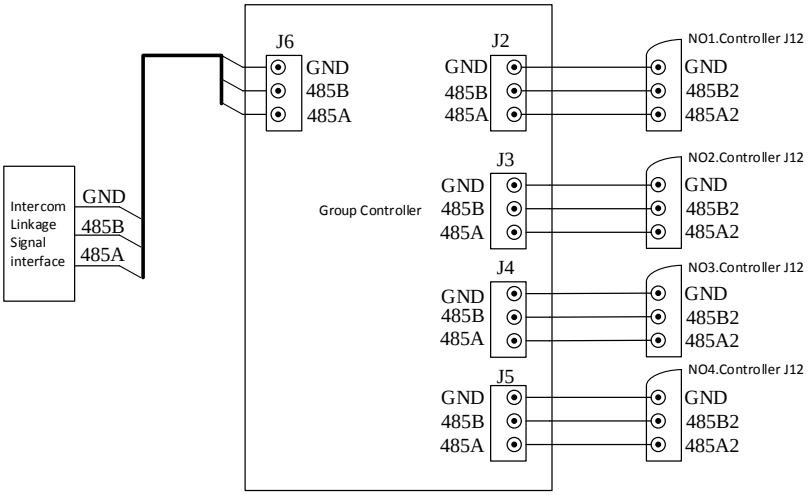

Figure 2-4-3 Protocol Mode Intercom Linkage Connection Diagram

2.5 Hardware Wiring Diagram

Elevator floor access controller connection diagram as below:

Note: When connected the floor button, the positive and negative poles of the elevator signal line should be coincident with the poles of access controller or expansion relay board output port.

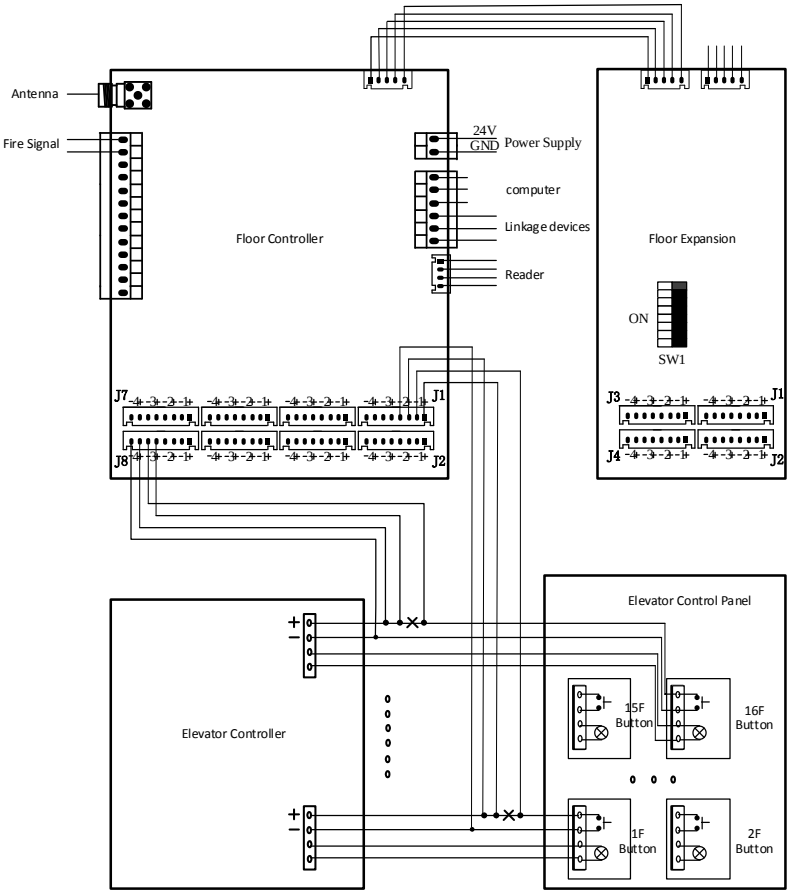

Figure2-5-1 Elevator Floor Controller Wiring Diagram

Chapter 3 Installation

3.1 Preparation before installation

1. The preparation of tools and material

2. According to the Installation direction of the reader, drill two Φ8 orientation holes at the appropriate position of the elevator panel to install the reader. Please assure that the distance between the two locating hole centers is 40mm.

3. Measuring push-button signal line:

1) Set the Multi- meter to Buzzer gear (see figure 3-1-1), and unplug the elevator push-button line (see figure 3-1-2).

Figure 3-1-1 Buzzer stall

Figure 3-1-2 Elevator push-button back

2) Measure the button signal line. As the below figures: press the button,and at the same time measure the button 2 pins in turn,until the multimeter conduction (buzzer tweet). Then it can be judged that the 2 pins are connected signal wires.

Figure 3-1-3 Press the button

Figure 3-1-4 Buzzer stall

Figure 3-1-5 Measuring

3) According to the elevator button electrical schematic diagram to find the public lines and signal lines. Turn the Multimeter gear to the "DC voltage", then measure the button signal line to find the positive and negative poles of it.

Figure 3-1-6 DC voltage gear

Figure 3-1-7 Measure the button wires

3.2 Fixed Devices

1.Controller or expander installation: In most cases,it can be installed in the control box directly. Just find the proper position and fix it in the bottom control box by using screw or 3M. Please make sure the circuit

board and the metal parts are isolated after installing.In particular cases,if the elevator control box space is not enough,the controller can be installed on the top of the elevator car.

Floor Controller or expander installation diagram as below:

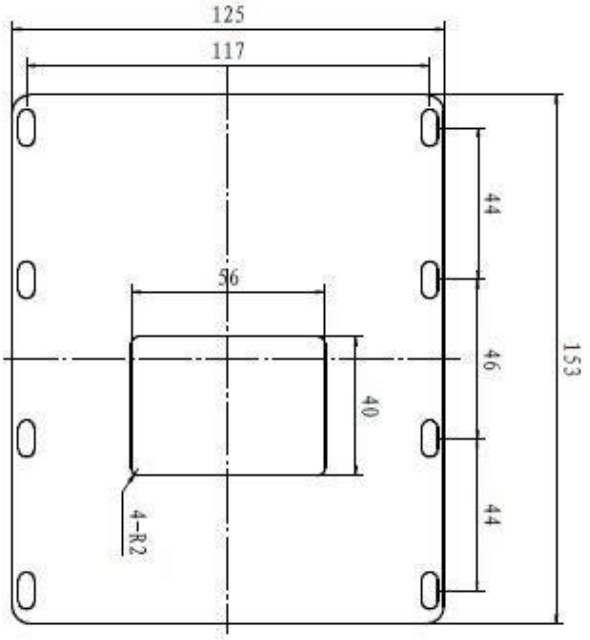

Figure 3-2-1 Controller or expander installation dimension diagram

2.Elevator reader installation: The controller comes with a reader, the installation diagram as below:

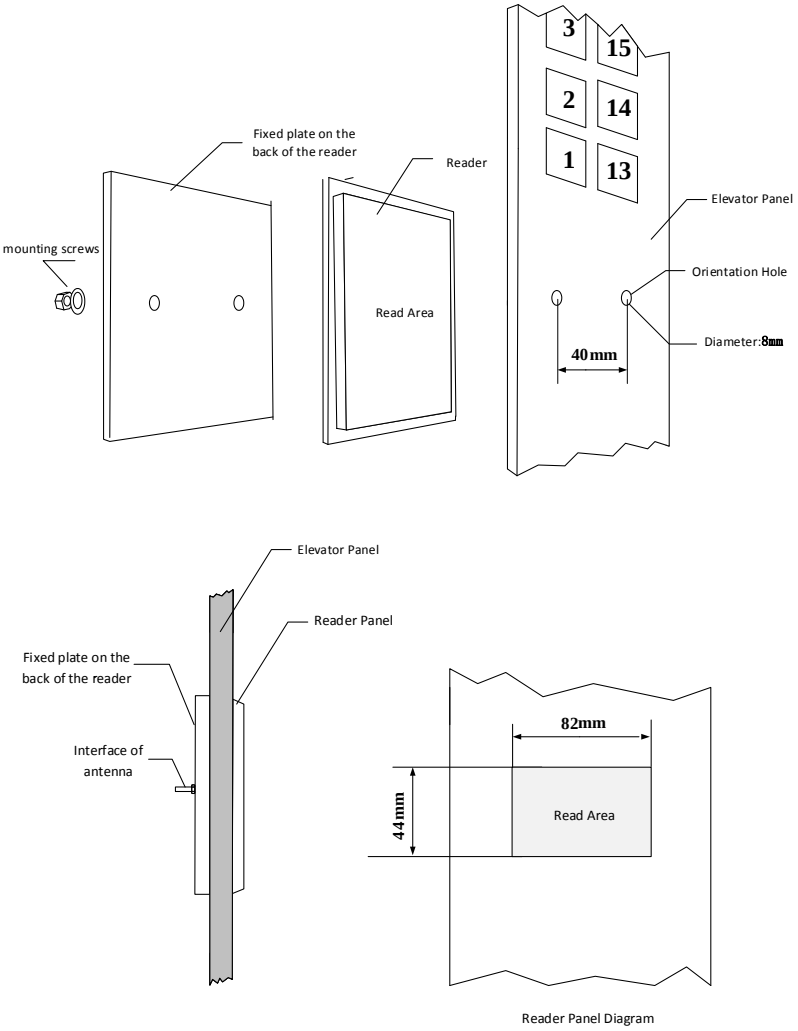

Figure 3-2-2 Reader (antenna) fixed diagram

3.Group controller fixed installation: According to the fixed hole position, install it on the wall of engine room appropriately.220V AC

power supply will be needed.

4.Floor signal collector fixed installation: According to the fixed hole position on the signal collector box, find the proper place on the wall of weak electrical well to install the collector. The floor signal collector should be installed in every 3 floors or 15 floors, and power supply should be provided around the collector. If the linkage interface in the engine room is provided by intercom machine factory, the collector can be installed in the engine room.

3.3 Devices Connection

1.The connection of button wires: cut off the signal wire of the floor button(Figure 3-3-1),and connect the positive and negative poles with the ribbon cable of buttons(red wire is positive, black wire is negative) by wire connector(Figure3-3-2). Then insert the terminal of 8pin wires into the corresponding floor button port. Finally insert the button wires into the original place (Figure 3-3-3).

Figure 3-3-1

Figure 3-3-2

Figure 3-3-3

2.The connection of power supply: Fixed the power supply, then connect the 2pin power line which is drawn from the power output with the power interface of elevator access controller. Please note the poles connection.

3. The connection of the reader: Connect the reader with elevator access controller by the matched connection cable.
4. The connection of group controller: Connect the group controller with elevator access controller by cable RVSP*0.75mm2 correctly.
5. The connection of floor signal collector: Connect the floor signal collector with group controller by cable RVSP*0.75mm2 correctly.The RS485 bus structure is used among the floor signal collectors,and the distance between the bus and branch line should less than 5m.

Chapter 4 System Debug

4.1 Power on the controller

After installing the controller, self-checking will be operated when it is power on. If it works successfully, the controller will be in working order, and the indicator light will flicker at a frequency of 0.5 Hz

4.2 Operation Parameters Download

When the controller is power on, the parameter of elevator controller can be downloaded into the access controller via management computer(if connected with networking) or data collector,such as system time, black list,etc.. Moreover, the access records can be read if necessary.

4.3 Read Cards

After finishing the power supply and key setting, the card can be read. Put the smart card into the induction range of the reader, then the access controller can sense the card and handle the process.At present, there are 6 cards included in the system: Management card, user card,visitor card, VIP user card, VIP visitor card, charging card.

Management card: Be used for setting the system key

User Card: Be used for accessing to the floors

Visitor Card: Be used for accessing to the certain floors temporarily (at 0:00 clock, the authorization will be invalid)

VIP User Card: Be used for accessing to all of the floors

VIP Visitor Card: Be used for accessing to all of the floors temporarily (at 0:00 clock, the authorization will be invalid)

Charging Card: Access to the elevator by charging, Operation is the same as user card, it will be invaild when the users use up the fee. It will

be vaild after recharging.

4.3.1 Read Management Card

Management card is the carrier of storing key. When the system is first installed and used, only read the management card first, then the other cards can be read. Put the management card into the induction range of the reader, if the buzzer bleep once, it stands for the management card is the right one; if the buzzer bleep rapidly , it stands for the controller was set by other management card before. In order to use the management card, the controller need to be initialized.(please see the introduction on SW1)

4.3.2 Read User Card

Users put the user card into the induction range of the reader , when the controller senses the card, it will read the data in the card,and check the validness of the data (such as the system password,authorization), if valid, the buzzer would bleep once. For mobile app Bluetooth access control ,when the users' smart phone close to the Bluetooth sensing area ,it will sense the signal automatically,or users click the open button /shake the smart phone.(It depends on the users' setting).

For single-floor authority user card, flash the card to the reader, the certain floor button will be lighten automatically;

For multiple-floor authority user card,flash the card to the reader, the authorized floors will be valid,then select the floor button in 10 seconds.

4.3.3 Read Visitor Card

Manager puts the visitor card into the induction range of the reader, when the controller senses the card, it will read the data in the card,and check the validness of the data (such as the system password,authorization).

If invalid, the buzzer will bleep rapidly .

If valid, and it is the single-floor authority visitor card, swipe the card once, the certain floor authorization will be opened, and need to press

the floor button, after doing it, the manager can swipe the card again to close the authorization when finished using the visitor card.Or the authorization will be invalid at the day 0:00 o'clock.

If valid, and it is multiple-floor authority visitor card, swip the card once, the authorized floors will be valid, and need to press the floor button, after doing it, the manager can swipe the card again to close the authorizations when finished using the visitor card.Or the authorizations will be invalid at the day 0:00 o'clock.

1) If the controller read the card times is odd, the buzzer will give a long bleep first,and then give a short bleep, the certain floors authorization will be opened, the floor button is valid to be selected.
2) If the controller read the card times is even, and the same authorized floor was not controlled by other visitor card, the buzzer will give a short bleep first,and then give a long bleep, it means the authorizations is closed for the visitor card, that is mean the floor button is invalid. The IC card can use as usually.
3) If the controller read the card times is even, and the same authorized floor was controlled by other visitor card, the buzzer will give a short bleep first,and then give a long bleep, and the floor will be valid to be selected, until the other visitor cards close the floor authorization.

4.4 Password Encryption

If select the reader with keypad, the users can access to the certain floor by password. The user card should be issued the password function by management center, and only the authorized floor can be set with a

password. The password is made up of 4 digits

For example: Card NO.000001, Authorized floor: 4F, Password:5555

Operation Steps:

1) Press OK;
2) Input 045555 or 45555;
3) Press OK;
4) Swipe the Card 000001;
5) The buzzer bleep once;
6) Resetting the password is the same as step1-4

Using Method:

1） Input 045555 or 45555;
2） Press OK.

Meanwhile, the pass record will be preserved.(If the authorized floor and the password are the same, the preserved record will depend on the card that set the password firstly.)

Chapter 5 Common troubleshooting and maintenance

5.1 Common troubleshooting and maintenance

The following are some possible phenomenons and simple inspection methods. Please cut off power supply before any operation on the controlling hardware devices.

Symptom 1：The device can not communicated with PC after devices connected.

Diagnosis：

Cause of issues	Troubleshooting method
485 communication line fault	Check the wiring and wire it correctly
Communication converter failure	Change the communication converter
The software serial port is set incorrectly	Put into the correct serial port
Communication distance too far	Consider adding a relay amplifier

Symptom 2：When the elevator is powered on, the reader is not responsive.

Diagnosis：

Cause of issues	Troubleshooting method
No system encryption key	Read the management card
The card is not yet issued with authorization	Reissue the card
The card not belongs to this	Change the card

system	
The card reader failure	Replace the card reader

Symptom 3： When a card is read with reader sounds “Di”, but the corresponding floor is not enabled

Diagnosis：

Cause of issue	Troubleshooting Method
The button line and signal line are connected incorrectly	Check the wiring and re-connect the line correctly
The button control signal line error in cutting out	Re-connect the signal line correctly

Symptom 4：Able to press the button without swiping a card

Cause of issue	Troubleshooting Method
The controller enters the fire status	Disconnect the fire state
The button line is short circuit	Replace the button line and wiring again
Downloaded the open zone	Close the open zone
Card reader communication failure	Check the line or replace the line

Symptom 5 Card reading distance is short.

Cause of issues	**Troubleshooting Method**
Card quality issue	Change the card
The interference to card reader	Eliminate the interference sources
Card reader failure	Replace the card reader

Symptom 6：When swiping the card, the reader issue " dididid i"

sound

Cause of issues	Troubleshooting Method
The card is invalid	Issue card with validity
Card permission is incorrect	Reissue the card with authorization
Card is blacklisted	Confirm if it is a blacklisted card

Symptom 7：The reader LED light flash rapidly when power on.

Cause of issues	Troubleshooting Method
Reader communication line connection failure	Reconnect the lines correctly
Card reader fault	Change the card reader
Access control board error	Change the Access control board

Symptom 8：The intercom linkage system can't provide visitors open access

Cause of issues	Troubleshooting Method
No switch signal from intercom	Check the intercom device wiring
Intercom communication failure	Check the intercom communication module
Communicate line connection	Correctly connect lines
Error of the floor signal dialing code	Set the dialing code correctly.
Error of the floor signal collector.	Change the floor signal collector
Access control board fault	Change the access control board
Group controller error	Change the group controller
Error setting on the floor corresponding table	Reset the corresponding floor table

5.2 The common sense of hardware's maintenance

1.Regularly clean the dust of controller, PCBA Board and other parts and components;

2. Regularly check if the controller work normally.

3.Regularly check if all the wiring are in good status

Chapter 6 Cautions

1. Elevator control system using RS485 communication networking, in order to ensure the quality of communication, requiring networking using two-core shielded twisted-pair cable RVSP2 * 0.75mm2, communication cable should be away from strong power to prevent interference with the same system using the same model, the max communication distance up to 1200 meters.。

2.If the laying of network cable length more than 1200 meters, it needs to increase the relay signal amplifier or increase the diameter.

3.In order to guarantee the communication quality, when the system interconnects, it is required that the ground wire between the controller and the controller pass through the shielding grid and be connected together.

Network communication cables

Model	Function	Wiring route	Remarks
RVSP2*0.75mm^2	Linked to computer	From Controller to the machine room	No need for offline work
RVSP2*0.75mm^2	Linked to computer	From machine room to management center	

Intercom linkage Wiring

Model	Functions	Wiring Route	Remarks
RVSP2*0.75mm^2	Linked to computer	From Controller to the machine room	No need for offline work
RVSP2*0.75mm^2	Linked to computer	From machine room to management center	
RVSP2*0.75mm^2	Communication	From Controller to	

	between controller and group controller	the machine room	
RVSP2*0.75mm^2	Communication between floor data collector and controller	From weak electric well to machine room	Choose one of them according to the actual situation
RVSP2*0.75mm^2	Communication between intercom and protocol convertor	Intercom communication module to machine room	
AVVR2*0.5mm^2	For indoor switch output signal	Indoor to weak electric well	Choose one of them according to the actual situation
AVVR2*0.5mm^2	For intercom switch output signal	Machine room connection	

Chapter 7 Regulatory

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 aredesigned 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

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

Warning: 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.