

# A-334XXE10-JN User Manual

## ARD Overview

Elevator automatic rescue device, simply ARD for short, is specially developed by our company to improve elevator operation reliability and protect passengers from being trapped in an elevator due to power failure, further avoiding harm to passengers both physically and mentally.

ARD uses the back-up emergency power system beyond original elevator control and inverter system. ARD is characterized by simple installation wiring, convenient commissioning and high cost effectiveness. In case of failure of three-phase power network, ARD will automatically run within the set time to make elevator car slowly move to the near floor along the light-load direction, and then open the door to release passengers.

## Attentions before Installation

1. Please carefully read the use manual for correct installation, commissioning and use of elevator automatic rescue device (ARD for short).
  2. To avoid personal and equipment accident, the following safety measures shall be taken for ARD installation, commissioning and maintenance:
    - (1) ARD installation, connection and commissioning shall only be made by the professional technician in elevator industry.
    - (2) Please make sure that ARD power switch and elevator main power have been turned off before ARD installation, connection and maintenance. Otherwise, there is electric shock risk.
    - (3) Please make sure that elevator equipment is grounded well.
    - (4) Please make operation according to hints or warnings in the use manual to prevent harm to installation or maintenance personnel, and damage to elevator equipment.
    - (5) Please confirm the correctness of the connection between ARD and elevator system again before turning on three-phase power for commissioning.
  3. This manual shows ARD installation and connection steps, commissioning, usage, possible faults and troubleshooting methods, and in addition, introduces ARD external signal terminal in detail.
  4. Do not keep or use the product in the following environment:
    - A. Availability of combustible gas, corrosive substance or heavy dust;
    - B. Abnormal high or low temperature (greater than 40°C or lower than -5°C), and high humidity (greater than 90%)
    - C. Direct exposure to sunlight or near to heating appliance;
    - D. Sharp vibration
- Please use powder fire extinguisher in case of any fire around ARD, and do not use fluid extinguisher to avoid electric shock
  - Please make sure ARD is grounded reliably during installation

## ARD Key Features

- Automatic recognition of the status of three-phase power, automatic rescue in case of power failure, without the need of manual operation;
- Excellent human-computer interaction, parameters can be set and real-time display running status
- Adoption of temperature-compensated constant-current limit voltage charge to raise the service life of battery
- Adoption of free-liquid charging and free-maintenance lead-acid battery

# Installation and Connection Description

## 1. Installation

The cabinet bottom of the product is equipped with bolt hole, which could make the product firmly mounted on structure by M8 bolt.

## 2. ZA01 Amp terminal external wiring

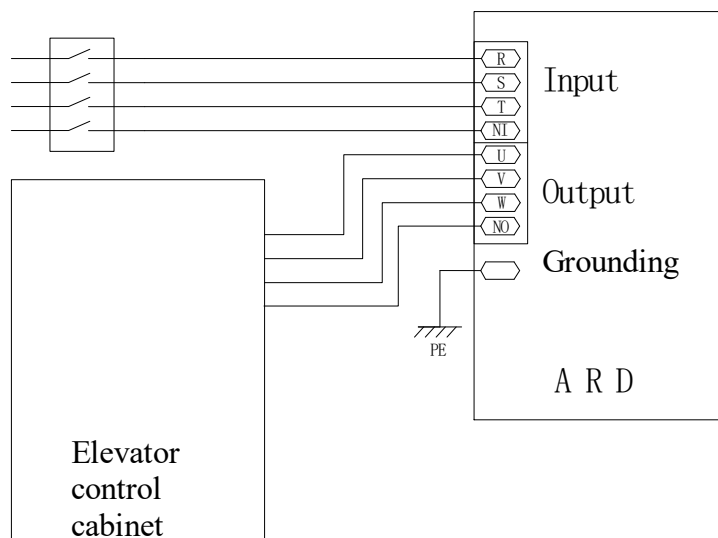
### 1) A-334XXE10-J/JN (Amp 9 pin terminal, Applicable to integrated machine system)

Line No.	Mark	Function description
1	ARD-1	ARD running signal, which are output when in inversion. Normally open.
2	ARD-2	
3	ARD-3	It closes when inverter output, for the temporary short circuit phase sequence. Normally open
4	ARD-4	
5	ARD-5	Inverter Enable. The inverting output only when the two pin is on and the switch on the door pane is turn ON.
6	ARD-6	
7	ARD-7	Short circuit this two point whenever need to restart ARD inverter
8	ARD-8	

- 1、 Cable (6+2)\*0.75\*3M
- 2、 If the target elevator use *Stepelevator AS380* integration machine system, Line1 should connect to the **JP9/7** port of control board, and Line2 connect to common end of the control board(Negative effective).Line3 and Line4 should connect to point 11 and 14 of phase sequence relay in the control cabinet .If the elevator runs toward heavy load direction(Elevator car downwards) in case of emergency rescue, please modify the parameter F49 to 0,1 or 2 by using *Stepelevator*'s handheld operator.
- 3、 If the target elevator use *Monarch 3000* or *3000+* integration machine system, Line1 should connect to **X20** port, Line2 should connect to common end (Positive effective). After the completion of wiring, please modify the parameter F5-20 to value 27(open emergency function), F8-10 parameter is set to 1(Confirm emergency function has been opened). If the elevator control system protects before run to station floor ,set F9-02 parameter to 0(Cancel the operation time limit of traction machine, refer to *Monarch User Manual* for detail).

## 3. Power line input and output terminals R/S/T/NI/U/V/W/NO

- 1) Turn off ARD power switch and elevator main power
- 2) Connect three-phase power and neutral line to ARD input and output terminal R S T NI respectively
- 3) Connect elevator control cabinet and neutral line to ARD output terminal U V W NO
- 4) Neutral line NI and NO may not be connected, depending on site need, and may not be used for all devices. For details, please refer to attached wiring diagram
- 5) Please ground ARD grounding terminal reliably



# ARD Operating Instructions

1. In case of normal mains supply, the product is in charging state, and *STANDBY* indicator on panel flickers or is constantly on.
2. When the mains is abnormal, the 3-phase AC380 output is started after the F01 parameter setting time (default 5S), and the AC380 output duration is set by the F02 parameter (default 3Min).
3. Start ARD when any phase of the three-phase mains is disconnected
4. If the mains supply is restored during the ARD inverter works, the ARD delays 3S and switches back to the mains.
5. It will stop all output when in a faulty state.

## ARD Operating Parameter Setting Instructions

- ARD operation panel consists of 1602LCD, 4 buttons and 3 indicator lights.

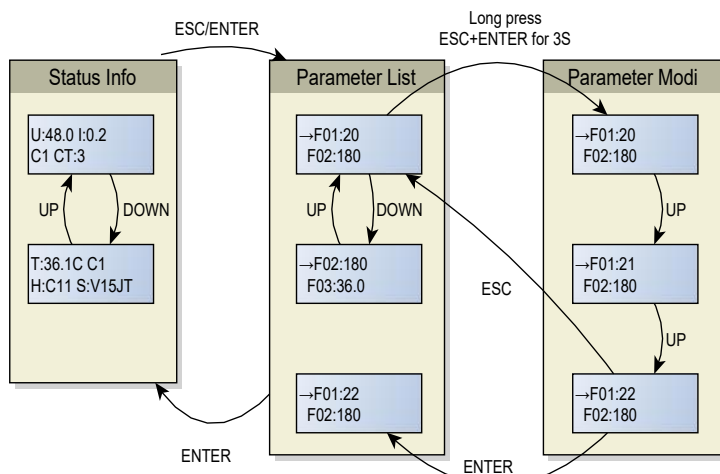
Type	Mark	Function
Key	ESC	Exit, return
Key	UP	Select the upper parameter or increase the parameter value
Key	DOWN	Select the lower parameter or decrease the parameter value
Key	ENTER	Enter the parameter or determine the modification
Indicator light	STANDBY	Flicker: Under charging Normally on: Charge complete
Indicator light	INVERTER	Flicker: Under inverter output Normally on: Inverter output stops
Indicator light	ERROR	When the red light is normally on, it refers to ARD error. Please shoot the trouble according to the fault code.

Notes: To modify parameter, please press ESC+ENTER key for 3s, and it is invalid in case of ARD in inversion state

- Parameter Settings

Parameter No.	Parameter Description	Default	Unit	Remark
F01	Waiting time for start the inversion	20	S	The time for ARD starting up the inverter output when in power failure.
F02	Time for inversion	180	S	Setting the working time of ARD inverter output
F03	Low-voltage cutoff threshold	36.0	V	Setting range 32.0~42.0
F04	Battery charging voltage at 25°C	54.5	V	Setting range 53.8~55.0
Err	Error records			Err parameter refers to the Error records, which can check the latest 10 faults through the interface. E0 refers to the latest fault record.

- Operation and display description



### Example of modification of inverter output time F02 parameter:

- Press *ENTER* or *ESC* key to enter the parameter modification interface in the power-on initial state
- Press *UP* or *DOWN* again to set F02 Parameter on the first row on the screen
- Meanwhile, long press *ESC + ENTER* for 3S to enter the parameter modification interface. At this moment, the first row on the screen flickers (only in non-inversion state can the parameter be modified)
- Press *UP* or *DOWN* to increase or decrease the parameter value
- Press *ENTER* to save or *ESC* to cancel after modification completion.

● Description of Display

System State	Example Displayed	Description
Waiting for inverter output	U:48.2 I:0.1 Sta:2 WT:4	U:48.2 The current battery voltage is 48.2V I:0.1 The average current of the battery is 0.1A. Sta:2 is a fixed value, indicating that the current state is waiting for inverter output. WT:4 Remaining waiting time. When the value is reduced to 0, the inverter output is started up.
Inverter output	U:48.2 I:1.1 WorkT:15	WorkT:15 The time that the inverter output has lasted, 15S
Charging	U:48.2 I0.1 C1 CT:12	CX: Indicates charging stage, wherein, X refers to 1-3. C1:Refers to the charging stage with high constant current C2:Refers to the charging stage with small current C3:Refers to the completion of charging. CT:12 Refers that the charging has lasted for 12 Min.
Fault	U:48.2 I:0.1 ERR:4	ERR:4 Fault code 4 (refer to the fault codes)
Inverter output shutdown	U:48.2 I:0.1 Shutdown	Shutdown: Inverter output shutdown
Others	U:48.2 I:0.1 Sta:X	Sta:X System state X 0: Initialization 1: Standby 2: Waiting for inverter output 3: Relay switch state 1 4: Relay switch state 2
(Irrelevant to the system state)	T:25C C0	T:25C The ambient temperature of the cabinet is 25°C. CX: Discharge or charge stage C0: Discharge C1: Charge Stage 1 C2: Charge Stage 2 C3: Charge completion
Unknown	COMM ERR	Error in communication between display board and mainboard

● Fault code and description

Fault code	Fault description	Fault code	Fault description
01	Battery overcurrent	02	Battery undervoltage
03	Battery overvoltage	04	The main contactor is not disconnected
05	The main contactor is not closed	06	The output voltage error, please check whether the input and output power lines reversed
21	Over load		

## ARD Commissioning

- The connection between ARD and elevator control cabinet must be conducted after the completion of elevator installation and commissioning and the elevator can be normally put into operation.
- Firstly, disconnect the main power of the elevator control cabinet, and then well connect the wire between ARD and elevator system according to the wiring instructions; check and confirm whether the wire connection is correct. Please ensure no error in the connection of RST and UVW of the three-phase power. Otherwise, it will cause irreparable and irreversible damage to ARD.

- Supply the normal three-phase power first, and then turn the control switch on ARD panel to On, then ARD is in a standby mode, and the battery charges automatically.
- After the mains failure, the yellow indicator light on ARD panel flicker and ARD is in an inversion mode and supplies power to the elevator system. ARD will stop running automatically according to the set time and enter to the standby mode after the three-phase power is restored.
- Internal commissioning is not required after the product is delivered. If an internal adjustment is required, please contact with the Company.
- ARD panel power switch instruction

POWER SWITCH	ARD power switch, which should be set ON when normal work. The device will no longer perform the emergency rescue function when OFF, also can not charge the battery. Long term not used Please set to OFF
INVERTER SWITCH	Inverter switch, which allows output when set to ON, and no output when set to OFF

## Battery Maintenance and Replacement

The service life of the battery is shortened with the rise of the ambient temperature (25 °C). Regular replacement of the battery (2-3 years) may ensure the normal operation of ARD and have sufficient time for discharge.

1. The battery must be charged after it is used for the first time or placed for a long time.
2. At the ambient temperature  $<0^{\circ}\text{C}$ , the chemical substances inside the battery will be affected by the temperature and the discharge time will drop sharply.
3. The battery has the phenomenon of self-discharge. Under the circumstance of no use for a short time, it should be charged once every three months, so as to ensure no damage to it.
4. If ARD is not used for a long time, please take off the battery and place the device in a dry environment.
5. The battery maintenance and replacement can only be conducted by professional technicians of battery.
6. There are risks of electric shock and short-circuit current when in battery replacement. To avoid personal injury due to electric shock, please conform to the following warnings when replacing the battery:
  - Do not wear watch, ring or other metal object;
  - Adopt insulated tools;
  - Put on insulating gloves;
  - Do not put any metal object on the battery;
  - Do not short out the positive electrode and the cathode of the battery. Otherwise, it will cause electric shock or fire.
7. The steps of battery replacement are as follows:
  - Disconnect all the power circuit and external input power supply
  - Remove the fixed plate
  - Disconnect the connection wires of the old battery;
  - Replace the battery group. In principle, only the whole group replacement;
  - Connect wires of the new battery according to the original method;
  - Install the fixed plate and screws;

**Warning: It is strictly forbidden to make opposite connection of battery positive and negative pole.**

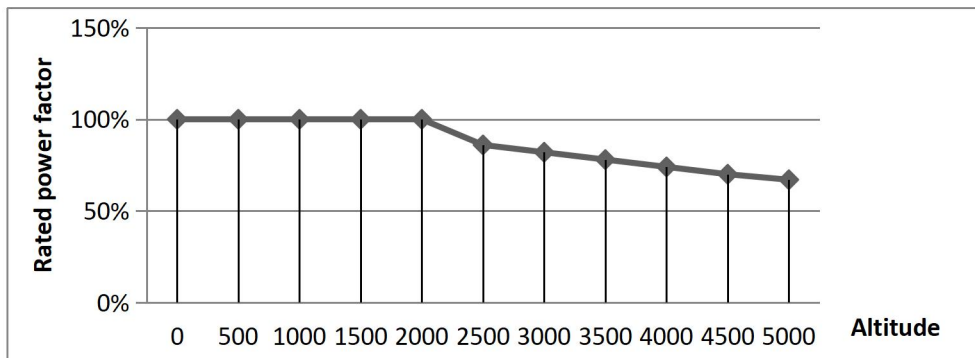
# ARD Specifications

Model		A-33411E10-JN	A-33422E10-JN	A-33430E10-JN	A-33440E10-JN	A-33455E10-JN	A-33475E10-J
Capacity(VA)		1600	2200	2600	3300	3900	4500
Mains input	Voltage	3 phase AC400V±10%					
	Frequency	50/60Hz					
Inverter output	Voltage	3 phase AC400V±10%					
	Waveform	Sine wave					
	Frequency	50Hz					
	Efficiency	≥0.8					
	Waveform distortion	Linear rated load≤5%					
Battery	Type	Plumbic acid charging-free and maintenance-free special battery					
	Rescue time	2-15Min (adjustable)					
	Charging time	≤6 hours					
	Specification and quantity	12V/7AH×4	12V/12AH×4	12V/17AH×4	12V/12AH×6	12V/17AH×6	12V/24AH×6
Environment	Temperature	0 °C ~ 40 °C					
	Humidity	30% ~ 90% (non-condensable)					
	Noise	≤50dB					
Dimension L*W*H (mm)		450*172*535			465*195*615		
Weight (KG) with battery		33.0	38.0	48.5	49.2	53.8	55.6

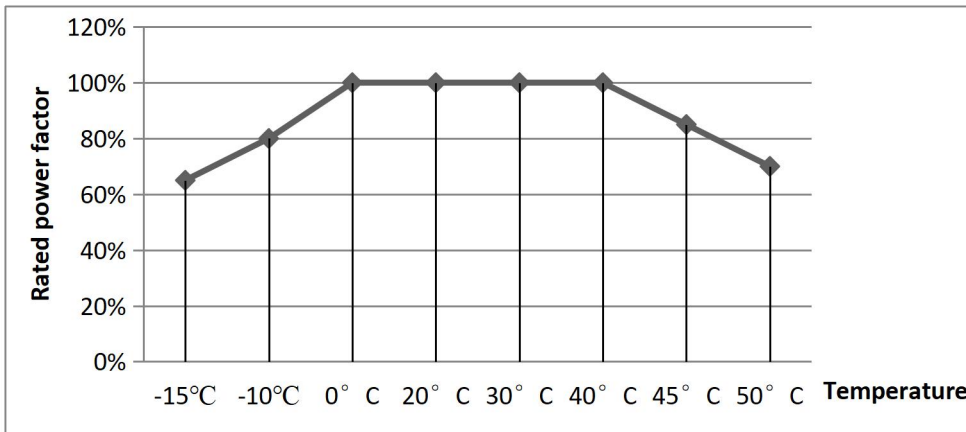
**Note:** Since different brands of elevators have different door motor, brake, motor capacity and other equipment power consumption, the selection of ARD model should accord to the actual power demand of the field elevator.

## Altitude and temperature impact on ARD rated power

a) Altitude vs. ARD rated power derating curve



b) Temperature vs. ARD rated power derating curve



## After-sale Commitments

Dear Valued Customer, Good day!

Thank you very much for choosing our product. Our product is produced strictly in accordance with the product standards registered in the national authority. With the principle of honesty and trustworthiness and win-win cooperation, we will provide you with the best and fastest after-sale services. We hereby solemnly promise:

1. One-year warranty for the battery and two-year warranty for other components under the circumstance of proper installation and normal and standard use.
2. In case of technical problems in the course of installation and use, please call our After-sale Service Center at any time. We will provide you with perfect technical support.
3. For the product defect caused due to design and manufacturing, we will replace the product with the same type for you for free and undertake any expenses incurred.
4. The following circumstances should not belong to the range of free repair, replacement and return according to relevant national regulations:
  - (1) The product is damaged by accident or human factor. Such as input with an inapplicable voltage, high temperature, water inlet, mechanical damage, damage after falling, serious oxidation or rust in the product, etc.
  - (2) The product is damaged as it is installed or used not according to the requirements provided in the Operating Instructions.
  - (3) The product is damaged due to force majeure.
  - (4) The product is disassembled or repaired by the person who is not authorized by our company.
  - (5) Other damages caused not due to the quality of the product.

Address for after-sale services: No.829, Fangshan East 2nd Road, Maxiang Shitou Industrial Zone, Xiang'an District, Xiamen City, Fujian Province, P.R. China

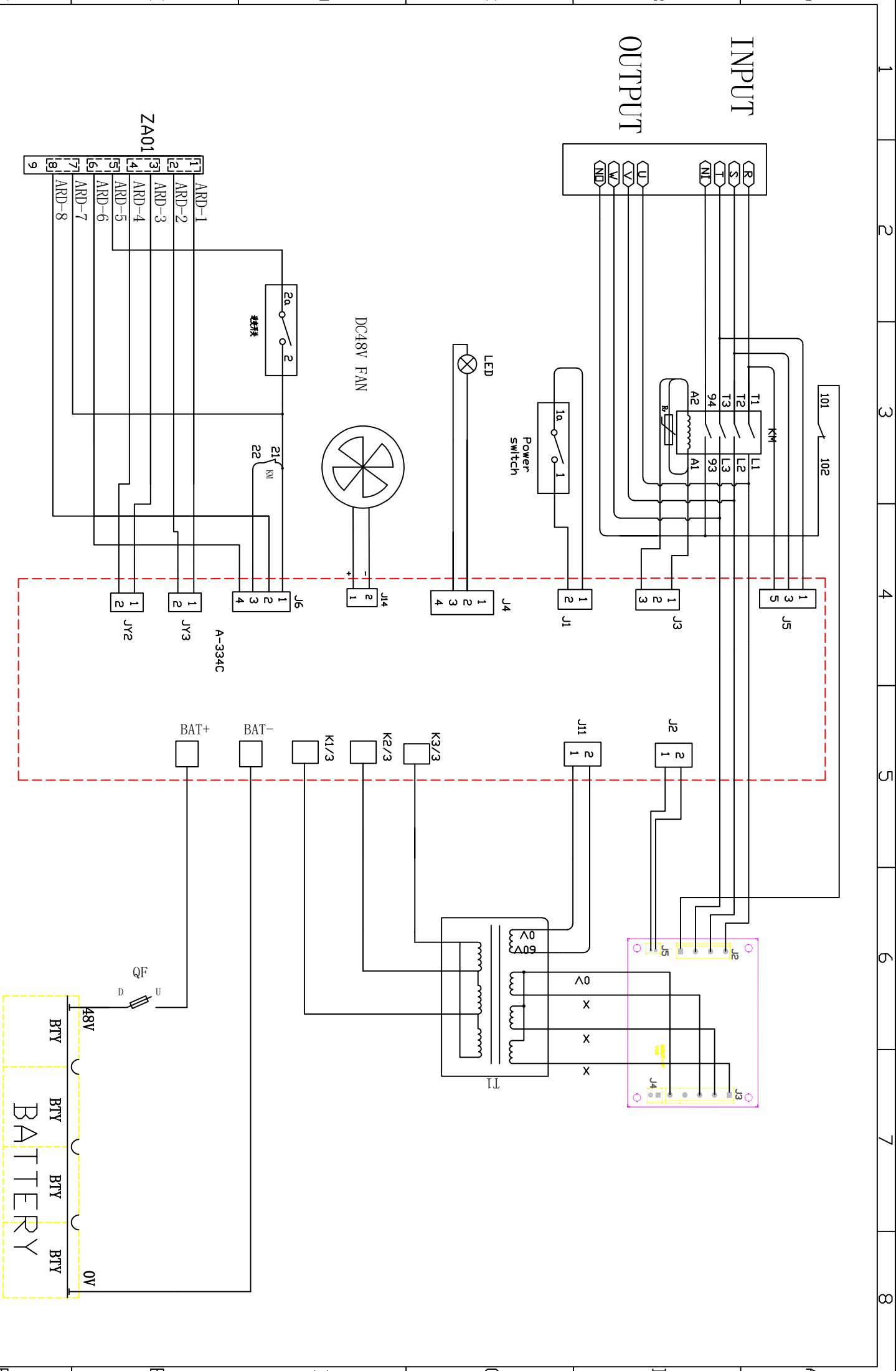
Postal Code: 361101

Tel: 0592—7622310

Fax: 0592—7622316

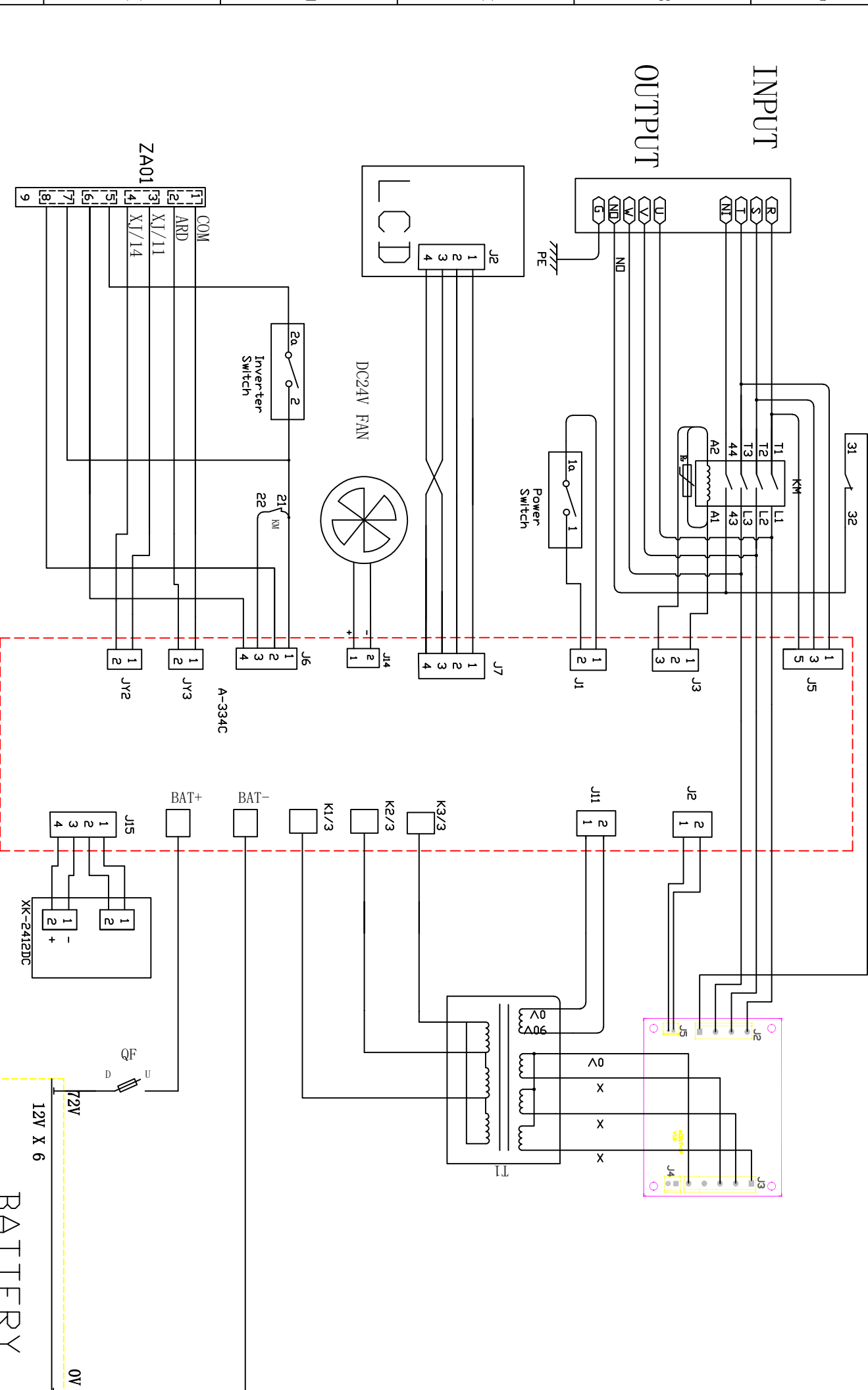
<http://www.xietongcn.com>

When the product is improved, the features and relevant data of the product may be altered without prior notice.



Designed by ZhirHuang | Reviewed by | Issued by | Xiamen Xietong Electric Control Co., Ltd | Internal Wiring Diagram | Model NO. A-33X111/22/30E-J | Revision V13 | Date |



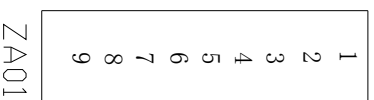
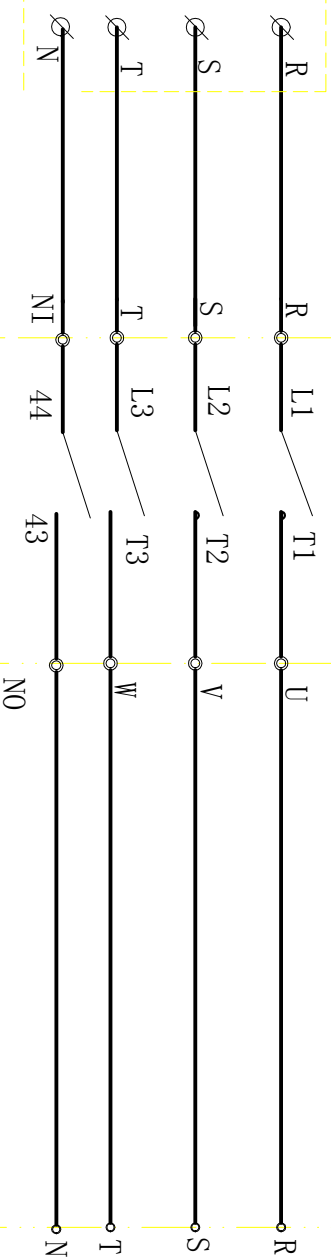


Designed by Minzhilu	Reviewed by	Issued by	Xiamen Xietong Technology Co.,Ltd		Internal Wiring Diagram	Model NO. A-33X40/55E14-JNDK
1	2	3	4	5	6	Revision V11
1	2	3	4	5	6	Date
1	2	3	4	5	6	7
1	2	3	4	5	6	8

Power supply box

XT-3ARD-334XXC-JN

Elevator control cabinet



Num Note

Identifier

Num Note	Identifier
1 COM	ARD-1
2 Control system for ARD signal	ARD-2
3 Phase sequence relay/11	ARD-3
4 Phase sequence relay/14	ARD-4
5 Main power switch detection	ARD-5
6 Main power switch detection	ARD-6
7 Start switch 1	ARD-7
8 Start switch 2	ARD-8
9 Spare	

Designed by	ZhiHuang	Standard	Xiamen XieTong technology Co.,Ltd				Model NO	XT-3ARD-334XXC-JN	
Checked by	LIZhenFan	Auditing					Revision	20170901-V1.0	
	1		2	3	4	5	6	7	8