

IFE-ARD Series Operating Instructions

Introduction to ARD

In order to improve the reliability of elevator operation and prevent people from being shut up in the elevator due to external power failure, thereby resulting in the physical and psychological harm to passengers, the Company has hereby researched and developed a special blackout emergency device for elevator, short for ARD. ARD is a standby emergency power supply system except for the original elevator control and frequency converting system, which is of easy wire connection and simple installation, convenient commissioning and high cost performance. When the mains failure, ARD will be put into use automatically for a set time, and enable the elevator car to run slowly in the lightly loaded direction to the nearest stop floor, open the elevator door and release passengers.

Precautions

1. In order to properly install, debug and use the elevator blackout emergency device (short for ARD), please be sure to carefully read the Operating Instructions.
2. In order to avoid personnel and equipment accident, the following safety measures must be taken in ARD installation, commissioning and maintenance, etc.
 - (1) ARD installation, connection and commissioning, etc. should be conducted by relevant technicians of the elevator industry.
 - (2) Before ARD installation, connection and repair, please make sure that ARD power switch and the main power supply of elevator have been turned off. Otherwise, when ARD starts up to supply power, it will cause an electric shock hazard.
 - (3) Please ensure good grounding of all equipment of the elevator.
 - (4) Please operate according to the notes or warnings in the Operating Instructions, so as to prevent injury to installation or repair personnel and avoid damage to elevator equipment.
 - (5) Before switching on the three-phase power supply for commissioning, please confirm again that the wiring connection between ARD and elevator system is correct.
3. The Operating Instructions introduce ARD installation and connection instructions, commissioning and operation, faults incurred and troubleshooting methods, etc., and describe ARD external signal terminal in details.
4. Do not keep or use this device under the following environment
 - A、 The place with flammable gas, corrosive substance or heavy dust;
 - B、 The place with abnormal high temperature or low temperature (higher than 40°C or lower than -5°C), high humidity (greater than 90%)
 - C、 The place with direct sunlight or close to heating device.
 - D、 The place with violent vibration.
5. This product includes battery. If there is no mains electricity for a long time, please turn off the power switch. If there is no mains charge for more than one week, please disconnect the internal battery breaker to prevent the battery from over-discharging.
 - In case of fire around ARD, please use the powder fire extinguisher. Do not use fluid extinguisher to avoid electric shock hazard
 - Please make sure that ARD is grounded firmly when in installation.

Scope of application

IFE-ARD series automatic rescue device is applicable to frequency inverters with no energy feedback function and capacity less than 30KW. The automatic rescue running speed is not more than 0.25m / s.

Installation and Connection

1. Fixed installation

There are bolt holes in the bottom of the device cabinet, which can be firmly installed to a structure with M8 bolts.

2. Description of ZA01 AMP Terminal Wiring

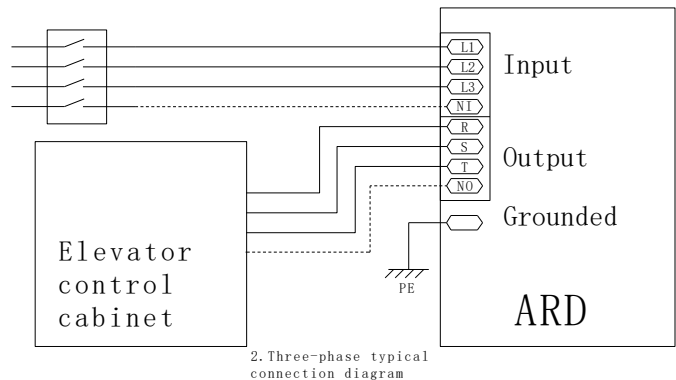
SN.	No.	Mark	Description
1	ZA01-1	Reserve	Reserve
2	ZA01-2	Reserve	
3	ZA01-3	PE	ground wire
4	ZA01-4	24V	ARD running signal output when in inverter mode.
5	ZA01-9	X8	
6	ZA01-5	G7	Remote switch signal input used for detection of main switch action signal of elevator power supply
7	ZA01-6	G8	
8	ZA01-7	25	Signal output used to short circuit the phase sequence relay when in inverter mode.
9	ZA01-8	03	

1、 If the target elevator use *Steplevator* AS380 integration machine system, Line4 should connect to the **JP9/7** port of control board, and Line9 connect to common end of the control board(Negative effective).Line7 and Line8 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 *Steplevator*'s handheld operator.

2、 If the target elevator use *Monarch* 3000 or 3000+ integration machine system, Line4 should connect to **X20** port, Line9 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 terminal connection instructions

- 1、 Shut off ARD power switch and main power supply of the elevator.
- 2、 Respectively connect three-phase power of the main power to ARD input wiring terminals,
- 3、 Respectively connect three-phase power of the elevator control cabinet to ARD output wiring terminals
- 4、 Please make ARD grounding terminal grounded firmly.



ARD Operation

Mains Detection

- It can identify the disconnection of any phase of the three-phase main power.
- The main power is restored when in ARD inversion. At this moment, ARD delays for 3S for switching over the main power.

Emergency Power Output

- Output is allowed only when the inverter switch is closed and pin 5 and pin 6 on the connector are connected

- After detecting the mains failure, meet the above conditions and then start the AC400 / 230V output after 5s. The output duration is 3 minutes.

LED Indicator Instructions

- If there is a failure, the red LED blinks

Number of Red fault LED blinks	Fault description
1	Battery overcurrent
2	Battery under-voltage
3	Battery over-voltage
4	Fail to de-energise the main contactor/relay
5	Fail to energise the Main contactor/relay
6	The output voltage error, please check whether the input and output power lines reversed

- If there is no fault
Red LED normally ON: Inverter mode
Green LED blinks: Charging
Green LED normally ON: Charge complete
- Others: LED OFF

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; Please ensure no error in the connection of input and output. .
- Supply the normal mains power, and then turn the switch on ARD panel to On, and the battery pack is charged automatically
- The ARD automatically performs the emergency rescue function after the setting time (by default setting 5 seconds) when mains failure
- ARD panel 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	Reverse switch, which allows reverse 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°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

Caution: The reverse polarity of the battery is prohibited

ARD Specifications

Model		IFE-ARD-11	IFE-ARD-15	IFE-ARD-22	IFE-ARD-30	IFE-ARD-37
Appropriate elevator converter power		11KW	15KW	22KW	30KW	37KW
Mains input	Voltage	Three-phase AC400V±10%				
	Frequency	50Hz/60Hz				
Inverter output	voltage	Single-phase AC400V±10%			Three-phase AC400V±10%	
	Waveform	Sine wave				
	Frequency	50Hz/60Hz(rated value): 50Hz				
	Efficiency	≥0.8				
Battery	Type	Valve-regulated sealed lead-acid battery				
	Rescue time	three minutes (default)				
	Charging time	≤6 hours				
	Specifications and quantity	12V/7AH×3	12V/12AH×3	12V/12AH×4	12V/12AH×4	12V/17AH×4
Environment	Temperature	0℃ ~ 40℃				
	Humidity	30% ~ 90% (non-condensable)				
	Noise	≤50dB				
Dimension L*W*H (mm)		398*156*421	398*156*421	398*156*421	450*172*535	465*220*615
Weight (KG) with battery		20	23.4	28.4	35.7	48.3

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.

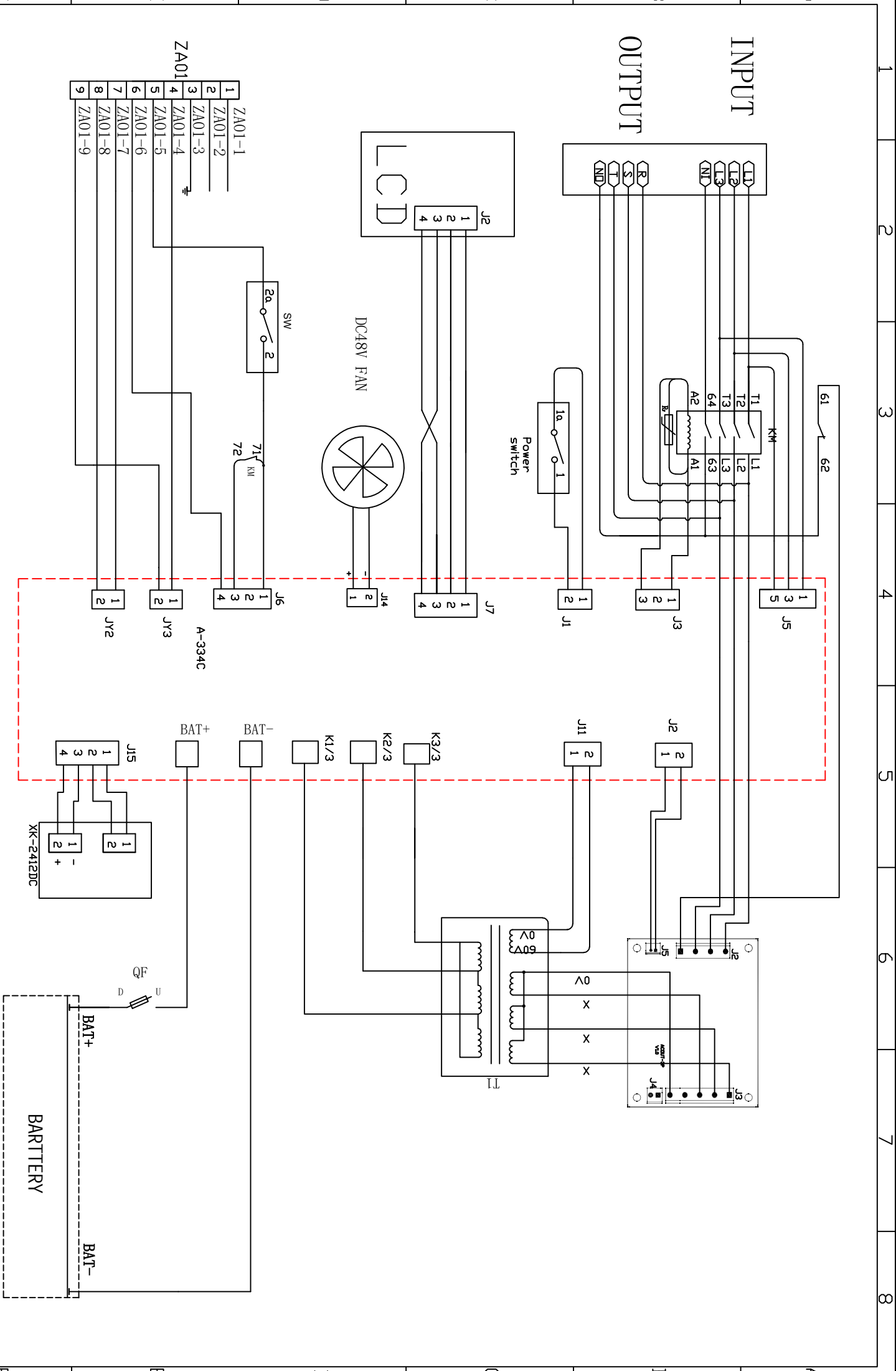
After-sale Commitments

Dear Valued Customer,

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 following circumstances should not belong to the range of free repair, replacement and return according to relevant national regulations:
 - (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.

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.	IFE-ARD-33X40/55/75C11-J
1	2	3	4	5	6	Revision	V13
1	2	3	4	5	6	Date	

BATTERY

INPUT

OUTPUT

LCD

DC48V FAN

ZA01

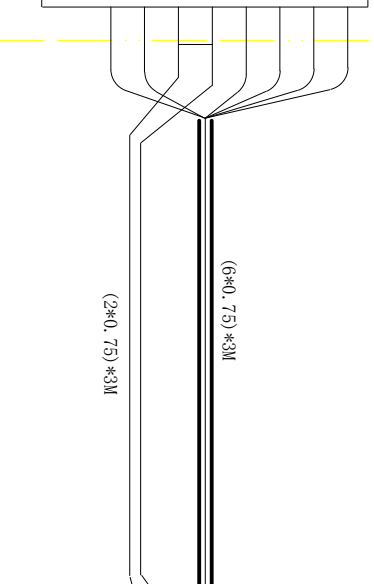
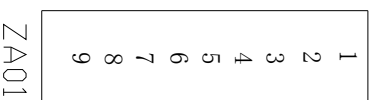
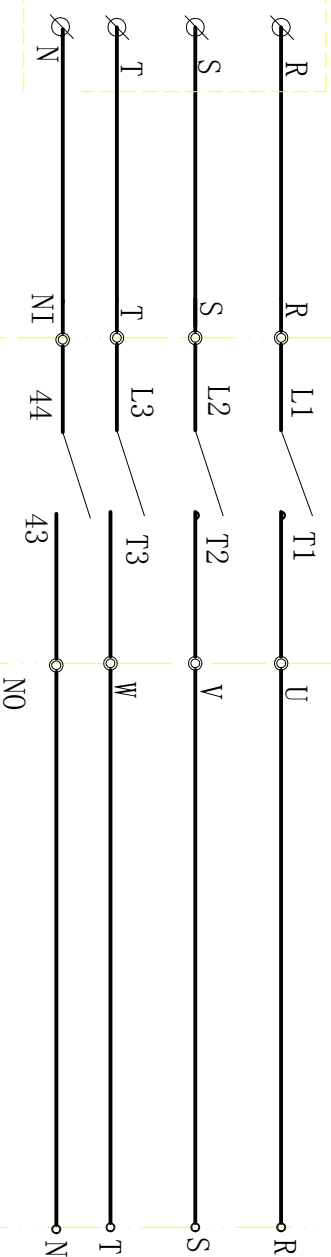
A-334C

XK-2412DC

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	

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