# Operation Instruction of SJT-YY Elevator Automatic Rescue Device

**Shenyang Bluelight Mechatronics Co., Ltd.**

**January, 2008**

# Content



## Warning

When the ARD is used in combination with YASKAWA 676GL5-JJ or YASKAWA Varispeed-L7B transducer, turn off the power to ensure safe operation conditions, disconnect PO with B1 and NO of transducer with ○, remove the connecting wires between controlling cabinet PO and B1, and between NO and ○, and then connect PO and NO into the ARD.

# 1. Introduction

SJT–YY Elevator Automatic Rescue Device is applied to emergency running when the electric grid is in an abnormal state. When elevator stops between floors due to power failure, the ARD can supply power to allow the elevator to slowly land on the nearest floor and enable the door of the elevator to be opened automatically with the battery provided in the ARD, so as to let the passengers out safely.

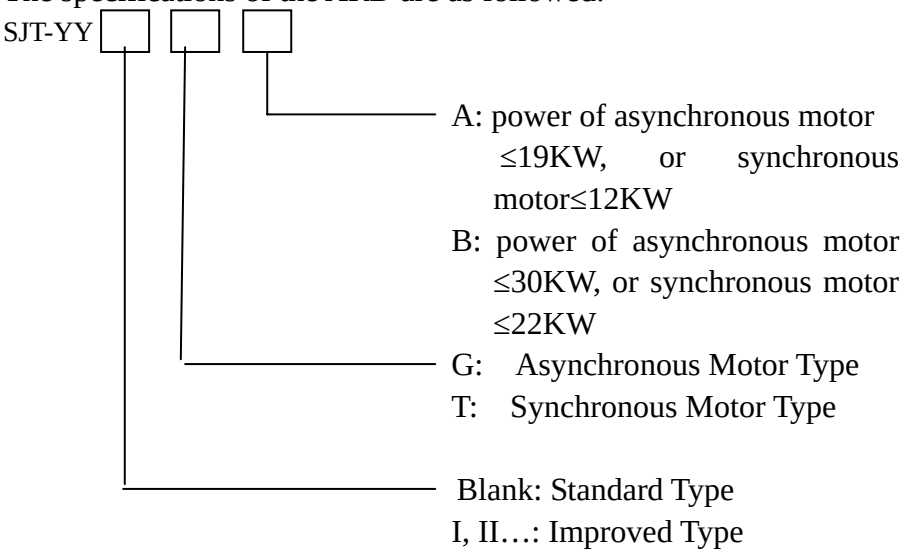
Through the coordination of the internal control circuit with transducer and microcomputer board, the ARD achieves automatic leveling function of elevators during power failure. Compared with similar traditional products, the ARD has the advantages of maximum utilization of the original resources of the control system, low price, high reliability and controlling flexibility.

# 2. Application scope

The ARD can be applied to the variable voltage & variable frequency elevator (VVVF elevator) driven by gearless permanent magnet synchronous motor or asynchronous motor.

# 3. Specifications

The specifications of the ARD are as followed:



## 4. Principles and functions

During operation, the ARD supplies power and controlling signals to the transducer and the microcomputer board via the internal controlling circuit. The internal control unit, transducer and microcomputer board coordinate the elevator to move slowly and

| Code | Description | Location | Instructions |
|---|---|---|---|
| PS1<br>PS2 | Input power | CN1-1<br>CN1-12 | PS1 and PS2 are input powers of the ARD, must be from one phase and neutral wire of the main power supply. AC220V±15% (50HZ±10%) is the power supply for the ARD and used to determine whether the electric grid is normal. Wires of 2mm$^2$ are recommended. |
| Y5 | Output signal for power failure | CN1-6 | To separate the grounding terminal of braking voltage DC192V supplied by battery from the grounding terminal of the braking circuit **only for synchronous system**. |
| BS+<br>BS- | Output power | TB1-1<br>TB1-2 | BS+ and BS- are the output power, DC192V, to supply power for transducer. Wires of 4mm$^2$ are recommended. |
| BK+<br>BK- | Output power (only for synchronous type) | CN1-3<br>CN1-14 | BK+ and BK- are the braking power output and the synchronous type adopts DC192V. Wires of 0.75mm$^2$ are recommended. |
| | Output brake releasing signal (only for asynchronous type ) | CN1-3<br>CN1-14 | BK+ and BK- are output brake releasing signals. Contact output of contactor is used for locking KMC |

| | | | |
|---|---|---|---|
| | | | adopted.) |
| CP1<br>CP2 | Output power | CN1-4<br>CN1-15 | CP1 and CP2 are the output controlling power AC220V±10% (50HZ) provided by the ARD. Maximum power is 600W. To supply power for controlling circuit and electric circuit of door. Wires of 0.75mm$^2$ are recommended. |
| IL1<br>IL2 | Power interlock input | CN1-7<br>CN1-17 | IL1 and IL2 supply interlock input CP1 |

| | | | |
|---|---|---|---|
| COM2 | | CN1-11 | terminal, Y2 supplies the running signal of transducer's battery and Y6 supplies transducer failure reset signal. used in certain transducers . |

2. Wire connecting and adjustment

a) Disconnect the air switches F1, F3, **F4 (this air switch**

## 6. Troubleshooting and Countermeasures

1 If the power supply is abnormal after the ARD is connected, check the interlock connecting wires.

2 If nothing is displayed on transducer when power failure occurs, check whether air switches F3 and F4 are closed; check whether the output power BS+ and BS- are higher than DC192V; and check whether air switch F1 is closed as well as the connecting wires are sound and reliable.

3 Stop power supply and install the ARD. If nothing is displayed on the transducer when power is resumed, check whether air switch F1 is closed.

4 If nothing is displayed on microcomputer board when power failure occurs, check whether the rocker switch F2 is closed and the UPS power switch is closed ( both should be in an “ON” status all the time).

5 If the brake of elevator is not released during emergency running, for synchronous type, check whether the braking power output is DC192V; and for asynchronous type, check whether the output brake releasing signal is normal.

6 If power failure occurs, but emergency running does not start, check whether emergency running circuit and door lock circuit are normal; whether the elevator is in non-maintenance condition; whether the normally-open contact of phase sequence locking relay is normal; and whether the input signals for microcomputer and transducer are normal.

## 7. Major technical parameters

1 Power supply AC220V±15 50HZ ±10%

2 Output power DC192V

AC220V 50HZ $I_{ed}$≤3A

DC110V asynchronous type $I_{ed}$≤3A

3 Atmosphere temperature 0 40

4 Relative humidity 20 90 without dew formed

5 Leveling accuracy ±15mm

6 Applicable power for motors

A asynchronous type≤19KW synchronous type≤12KW
B asynchronous type≤30KW synchronous type≤22KW

7. Maximum running time: ≤2min
8. Cabinet dimensions:

YB 840*240*450
YC 574*180*721

## 8. Maintenance and service

1 Use the battery in clean, dry and draughty environments, and short circuit and contacting with organic solution as well as open fires are forbidden. Keep the battery upright during transportation; collision and heavy oscillation are not allowed; and the grounding of its terminals should be kept in a normal state.

2 It is recommended to check voltages of battery (F1-1 and BS- must be greater than DC192V) and conduct a trial run regularly (e.g. once a quarter).