

ARIAN ASANSOR CO. (PTE LTD)

STEP BY STEP INSTALLATION OF EMERGENCY RESCUE BOARD

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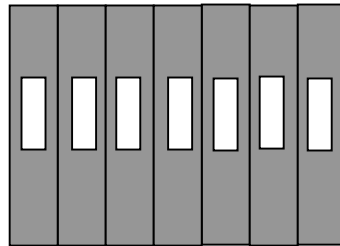
1. General features of emergency rescue system

- Compatible with double speed elevator systems, equipped with drive and hydraulic system
- In agreement with all demands of each elevator system
- Total agreement between control system and emergency rescue system
- Independent of control system
- Operates emergency rescue cycle, if any error occurs in lift control board operation
- Emergency rescue operation starts if even one phase disconnects, Phase unbalances or reverses
- Compatible with various DC, single phase & 3 phase AC doors
- Compatible with every DC brake (maximum authorized brake magnet current in 220 volt is 2A)
- Containing sealed acid battery (four 12v battery)
- Compatible with different types of inductive motors
- Equipped with automatic charger to increase the useful life of batteries
- Resistant against installation errors
- Optimum designing for easy installation

2. Important notes in ordering emergency rescue system

For ordering each rescue system, we should consider bellow items:

- Elevator type (traction or hydraulic)
- Motor type (synchronous or asynchronous)
- Motor power
- Electric current and voltage (emergency) in hydraulic lifts
- Mechanical brake current and voltage
- Retiring cam's current and voltage
- Door type: the lift door is a part that has various types, and there are different types of that in market such as 2000 series, 220 fermator, fermator with inverter, bus type, Meri, 3phase including inverter, and without inverter.



FSR FSS FST FS24 FS25 FS26 FS27

(FUSE TABLE)

FUZE No.	Description	Ampere	Fuse burn out causes
FS24	Fuse for EPS board's supply	15A	Short circuit in 220V circuits(mechanical brake-opening door's retiring cam) Error or fault in EPS board
FS25	Fuse for ERB board's supply	5A	By pass in 48 V circuit-and safety circuit in blackout- fault or error in ERB board
FS26	Fuse related to façade 220V and cabin's light	5A	By pass in façade and cabin's light and their wirings
FS27	Fuse related to protection of 32W trans and EPS	15A	Trans No. 32 fault or it's wiring fault in EPS board
FSR	R phase protection's Fuse	100mA	Voltage increment in R line
FSS	S phase protection's Fuse	100mA	Voltage increment in S line
FST	T phase protection's Fuse	100mA	Voltage increment in T line

(PUSH BUTTONS TABLE)

MCCBs No.	Description	Ampere	Push button's auto disconnection causes
FBT	MCCB related to rescue board's power supply via batteries	40A	Consuming too much current from batteries
FS23	MCCB related to EMD power supply and motor	32A	Fault or error in related cable-fault or error in EMD board
FLC	MCCB related to façade 220V, cabin light, ...	6A	Fault or by pass in 220V circuits (mechanical brake, retiring cam)error or fault in EPS board

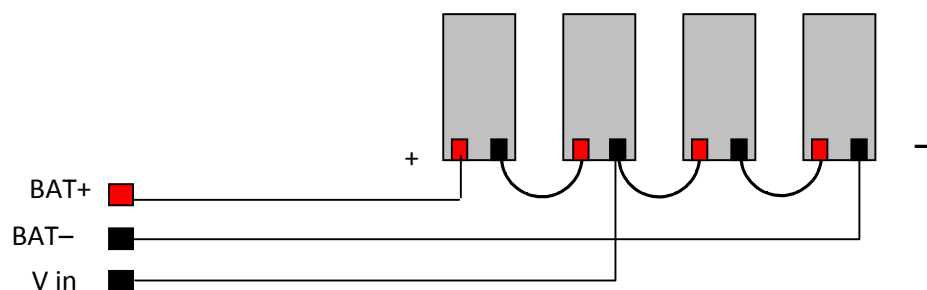
5. Important notes for installation

During installation, you should care to bellow items:

1) Comparing lift with emergency rescue board as bellow:

- Motor power: this system is compa ble with all induc ve motors. (four 12v batteries can be used for various motor powers)
- Brake voltage and current (brake current shouldn't exceed 2 Amperes)
- Elevator door type
- Door magnet voltage and current (door magnet current shouldn't exceed 2 Amperes)

2) Be assured of connection between batteries and Vin , BAT- & BAT+ as bellow :



Note:

Please connect wires as above figure, any mistake may cause damage in board and batteries.

- 3) Use suitable wire for wiring between emergency rescue board and control panel, also between emergency rescue board and main power supply panel of machine room.
 - Connecting cables between machine room 's electrical board , emergency rescue board and also connecting cables between emergency rescue board and control panel three-phase switch, based on motor power should match values in bellow table:

Wire thickness (mm)	Motor Power (KW)
4	5.5
4	6.5
4	7.5
6	11
6	15
10	18.5

- Direction of U2, V2 &W2 connections: wire with flexible conductors number 2.5
 - For other connections, we use wires with flexible conductors number 1
- 4) Assure about stability of wiry connections
 - 5) If for any reason any fuse burns, do not replace it with a wiry connection or fuse with higher current
 - 6) If this system is installed in under construction buildings ; after installing and doing required tests ,by switching off the double state switch (in down direction) under EPS board ,temporary prevent emergency rescue board operation in blackout condition. Because in such these buildings, many blackouts happen; and considering there exists residents in it, thus the operation of emergency rescue system is unusable. In this way we prevent batteries from discharging and increase their working life

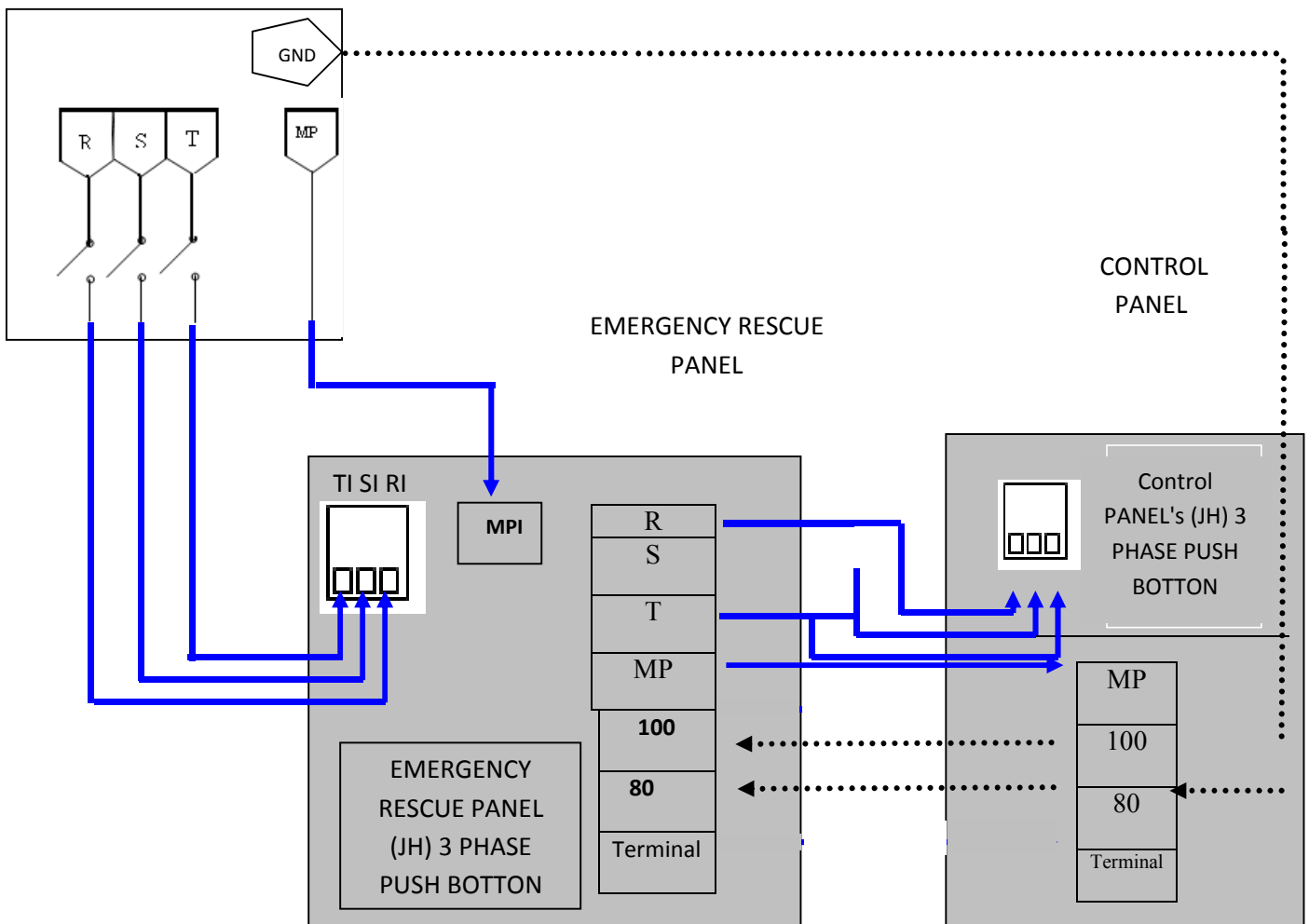
6. Emergency rescue system's operation

By cooperating with control panel in blackout or unusual conditions in main power supply (phase duality, phase reverse), Emergency Rescue System controls the motor, mechanical brake and elevator door and then issues necessary orders. Actually emergency rescue system is equipped with circuits which detect above unusual conditions and control it.

You should care that emergency rescue board while blackout, will cause the elevator to reach to landing level and after passenger exit, it turns off, until the main power supply becomes connected.

In addition while emergency rescue system is operating, call, floors and numerator push buttons are passive and the emergency rescue system tries to unload passengers (in up or down floors).

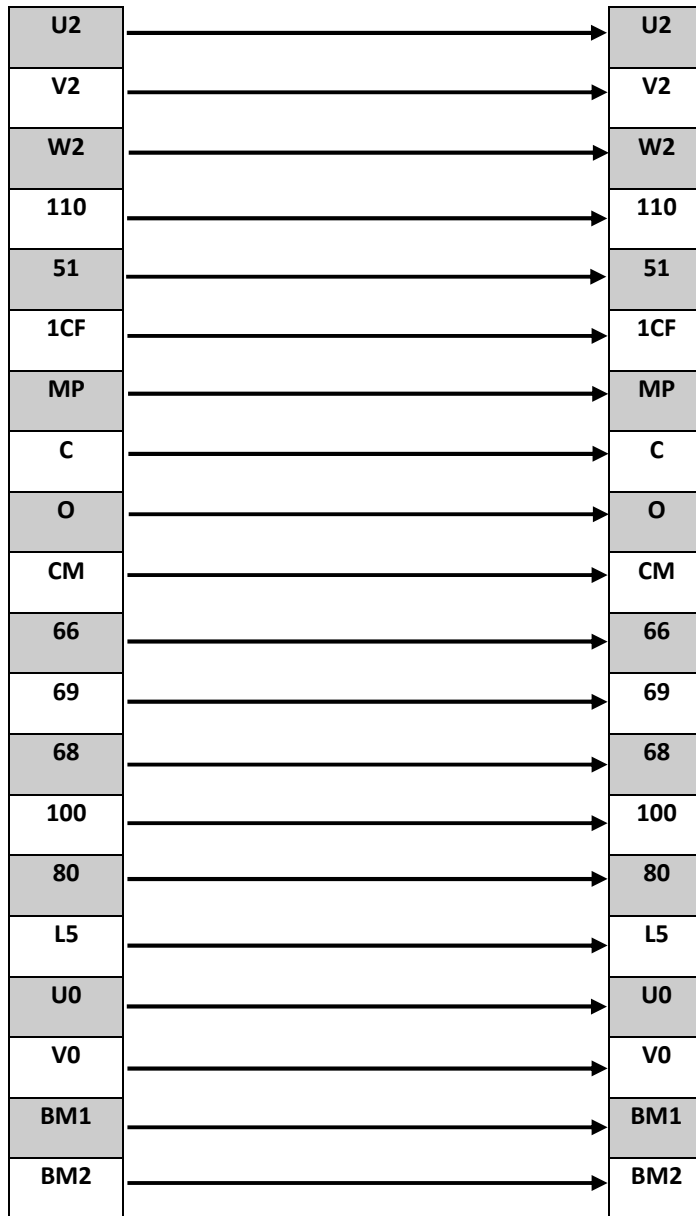
7. Wiring method of power circuit and earth between emergency rescue board , control panel and machine room's main power panel



Note:

- The control panels and emergency rescue board should connect to each other and to building's earth
- Pay attention not to connect control panel's MP terminal to emergency rescue board MPI terminal, by mistake.

8. Wiring between emergency rescue board , control panel and elevator well



L5D terminal is as the phase using in facade drive's trans on cabin & light (at most a 60W lamp)

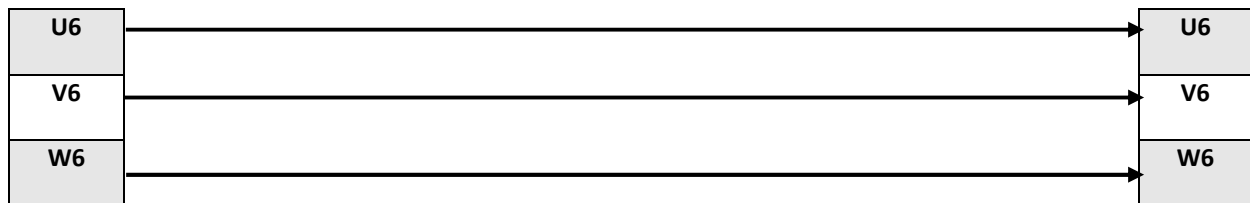
MPW terminal is as the null using in facade on top of the car

The 110W terminal in emergency rescue board is connecting to head of safety circuit

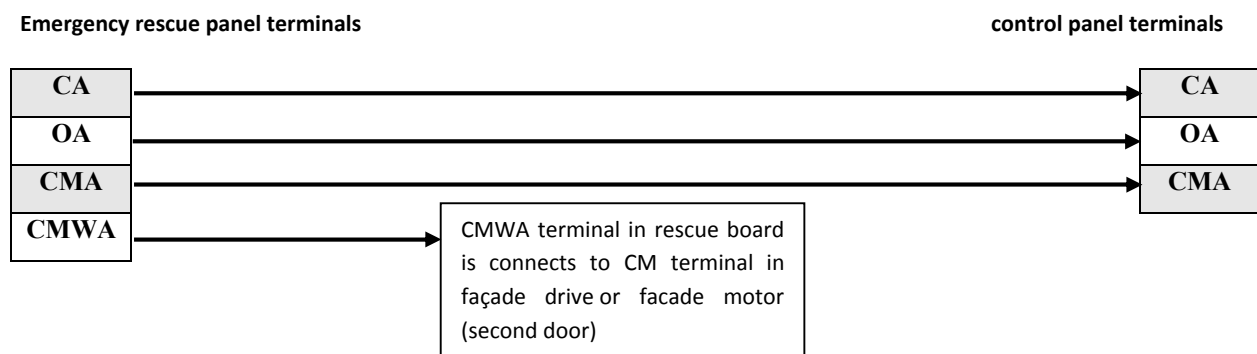
CMW terminal in emergency rescue panel should connect to CM drive façade or facade motor

- Pay attention, don't connect control panel's L5 terminal to emergency rescue board's L5D terminal, by mistake.

In the case of elevators that their façade motor has 3 phase supply, instead of C, O, CM, CMW we should wire U6, V6, W6 as bellow figure:



In the cases that the elevator cabin has tow doors, the CA, OA, CMA, CMWA wires as bellow:



9. Testing emergency rescue system and solving it's probable defects

Move the elevator in up and down direction in inspection mode and remove it from landing level. Then cut off main power via machine room's main power supply panel.

- If the cabin door remains open, emergency rescue system will close it.
- After closing cabin door, emergency rescue system actives retiring cam and get ready for direction test.
- In direction testing mode, emergency rescue system chooses a direction for motion that in that special direction, batteries consume less power. Thus the elevator will start moving in a direction, then it stops and after a delay it would start it's motion in reverse direction .If the second motion's direction is chosen as the correct one, elevator will continue it's motion until it reaches to the landing level; but if the first motion direction be elected, lift will stop and after a delay will continue it's motion in elective direction until reaches a landing level.

But it's possible that the lift can't move in a direction, so in this situation the emergency rescue system should choose its final direction, considering the direction that the elevator can choose.

- After cabin reaches to landing level, the lift door will open and after several second the emergency rescue board will be turned off.
- If the door opening time after lift stoppage be short, then by turning POT1 potentiometer of EPS board in right direction, this time will be increased.

Potentiometer	Description
POT1	For setting the activate time of door's OPEN(O) order, you can turn POT1 to the right and increase this time.

- If after installation and being assured of wiring ,the emergency rescue board doesn't work properly for any reason and goes wrong, it would be because of one of bellow items:

Row	Fault causes	Solution
1	Double-state push button on EPS board	If the double speed push button, in EPS board is in disconnect mode (on the left), the rescue cycle won't be operated. Turn it to right.
2	Passive charger	At first, test the board's charging voltage ,for this reason disconnect both ends of positive and negative wires from batteries and measure that by voltmeter(about 56W); if the voltage was less or zero, contact with after sale's service Dep.
3	Discharged batteries	First charge the batteries for 24 hours, then measure both ends of wires by voltmeter(in both empty and overload states)-(about 13V for each battery and 52V for 4 series batteries)

4	One or several batteries faults	Batteries expired (if their voltage is still low after charging), note: If you don't use and don't charge the lead acid batteries which are used in rescue boards, it will be discharged and its effective life will be shorter. So after delivering system, install it immediately, in order to charge the batteries.
5	Emergency Rescue System faults	After doing above operations and not reaching to wanted result, contact our after sale's Dep.

10. Emergency rescue system's periodical test

Emergency rescue systems should be tested and inspected in regular periods (each month). In this stage the best test is testing this system's real operation, in which you should cut off electricity and remove the cabin from landing level. In this situation the emergency rescue system should move the elevator and reach it to landing level; and at last opens the cabin door as well.