

# NA22

## 1 Introduction

The NA22 is an electronic emergency module used, especially the hydraulic elevators. During the normal functionality, the module is power supplied by the transformer connected to a tri-phase 380VAC (or a bi-phase 230VAC) and the 12V battery is charged by the module. If the main power supply is interrupted, the module changes the functionality: taking the energy from the battery generates, by the internal inverter, a tri-phase voltage usable to supply the electrical cabinet the door operator and the hydraulic valves, in order to move the elevator car to the nearest floor.

## 2 Normal functionality

During this phase, the emergency module is connected to a transformer in order to keep the 12V battery (connected to B+, B-) charged.

## 3 Emergency phase

Following an AC power supply interruption greater than 3 seconds, the module changes the state and the emergency cycle starts. The function starts only if the 4P/4P input are short circuits.

The +M /-M inputs checks the availability of the main AC power supply.

When the emergency phase starts, the safety module disconnects the main power supply line from transformer primary and it starts working as inverter. Taking the energy from the battery, generates a 8V-3 phase signal (outputs U,V,W) connected to a dedicated transformer input.

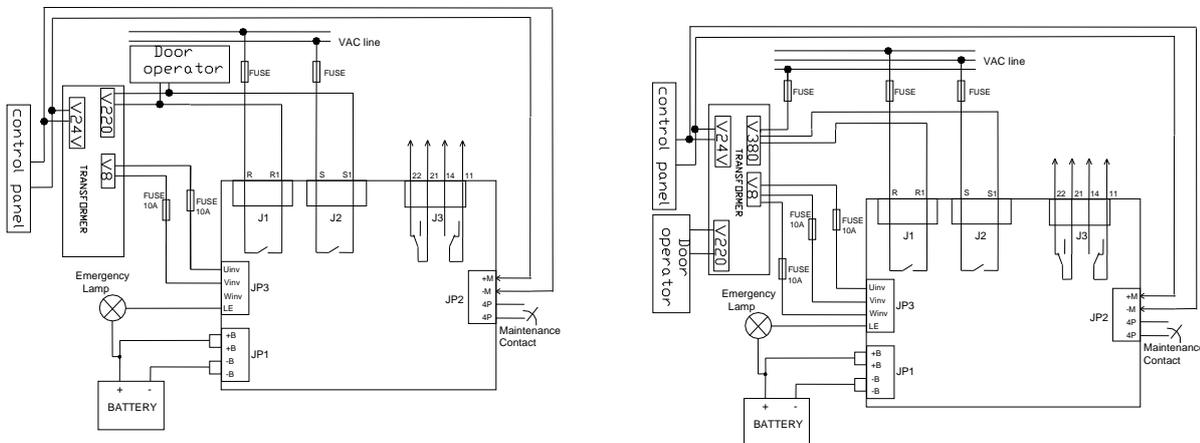
The cycle will be completed even if the main power supply is coming back, the cycle duration time is 120 seconds and it will be interrupted only if an alarm will happen.

A relays with 2 free contacts (J3) is available to be used for signaling the status of the emergency module.

A transistor output LE is also available to connect for example a lamp.



## 4 Electrical Diagram Connections



## 5 Alarms

The safety module checks its status and if abnormal functioning is detected, the emergency cycle will be interrupted.

When the alarm is not anymore present the emergency cycle restart for a maximum of 3 times.

A sensor measure the charging status of the battery if it's below the threshold the alarm will be activated, an hysteresis is present to remove the alarm.

A current sensor detects an overcurrent or a short-circuit on the phases U,V,W.

A temperature sensor detects the over temperature limits (70 °C).

Two bicolor LED on the front panel of the emergency module signals the battery status and the alarms.

The LED combinations are:

BATTERY STATUS	CONDITION
Led BATTERY on-green	Module in normal function, battery charged
Led BATTERY on-red	Module in normal function, battery not charged, but in charging phase
Led BATTERY blinking - green	Module in emergency phase, battery charged
Led BATTERY blinking - red	Module in emergency phase, battery discharged

EMERGENCY MODULE STATUS		
Led BATTERY	Led EMERGENCY	MODULE STATUS
OFF	OFF	Module deactivate or 4P open. If the 4P is open the battery charged is working, but it's not possible start the emergency cycle
ON	OFF	Module is in normal function, battery charged or not depending of led Battery color
Blinking	ON GREEN	Module in emergency phase
Blinking	Blinking green	Emergency phase completed in a correct way
Blinking	Blinking Red	Emergency phase not completed due to alarm, (check the next table to find the cause)

ALARM STATUS	
Blink sequence for the Emergency led	Alarm type
Single blink: *	Short circuit
Double blink: **	Overload
Triple blink: ***	Battery discharged
Quadruple blink: ****	Overtemperature

## 6 Commissioning and use in maintenance

During the commissioning of the device, observe the following sequence of installation and switch-on

1. Make all connections with the main switch off (mains voltage OFF) and the fourth pole open
2. Activate the 4P switch (4P-4P terminals short-circuited)
3. Within 3 seconds, activate the main switch (mains voltage ON)

Whenever maintenance is performed on the lift, deactivate the 4 pole to prevent the inverter from starting and therefore respect the sequence described above for the system switch on

## 7 Emergency Test

To carry out the emergency test, follow the sequence below:

1. Turn off the main switch (no mains voltage)
2. Wait for the emergency test to finish and then turn on the main switch

## 8 General technical data

General technical data	
Battery type	12V – 7,2 Ah solid state
Main power supply (connected to the transformer)	230 – 400 VAC
Tri-phase output U,V,W	8 – 12 VAC , 50 Hz
Maximum output power	200 W
Maximum output current	25A
Output (J3) 2 free contacts	2A/48V
Maximum load at the LE output (luce emergenza cabina)	12V, 3W
Maximum switching load on the main phases inputs	400 VAC, 1A
Temperature range	0 – 50 °C
Battery charging time	24 hours
Time to start emergency cycle	3 second after the main power supply off
Emergency cycle time duration	120 seconds (240s optional)
Protections	Undervoltage, shortcircuit, overtemperature, overload
Diagnostics	Emergency ON, Emergency completed, Emergency stop due to alarms, battery status
Connection cables sections	Battery cables: 2,5 mm <sup>2</sup> Inverter cables: 2,5 mm <sup>2</sup> Other cables: 0,75 – 2,5 mm <sup>2</sup>
Module dimension	Phoneix box ME MAX22, IP 20, thickness 22,5mm height 125mm, width 105mm
Mechanical fixing	DIN guide
Storage temperature	-40°C + 120°C
External Fuse on the lines U,V,W	5mmx20mm, fast, 10A
Internal Fuse on the battery	Automotive, MINI 25A, 32VDC