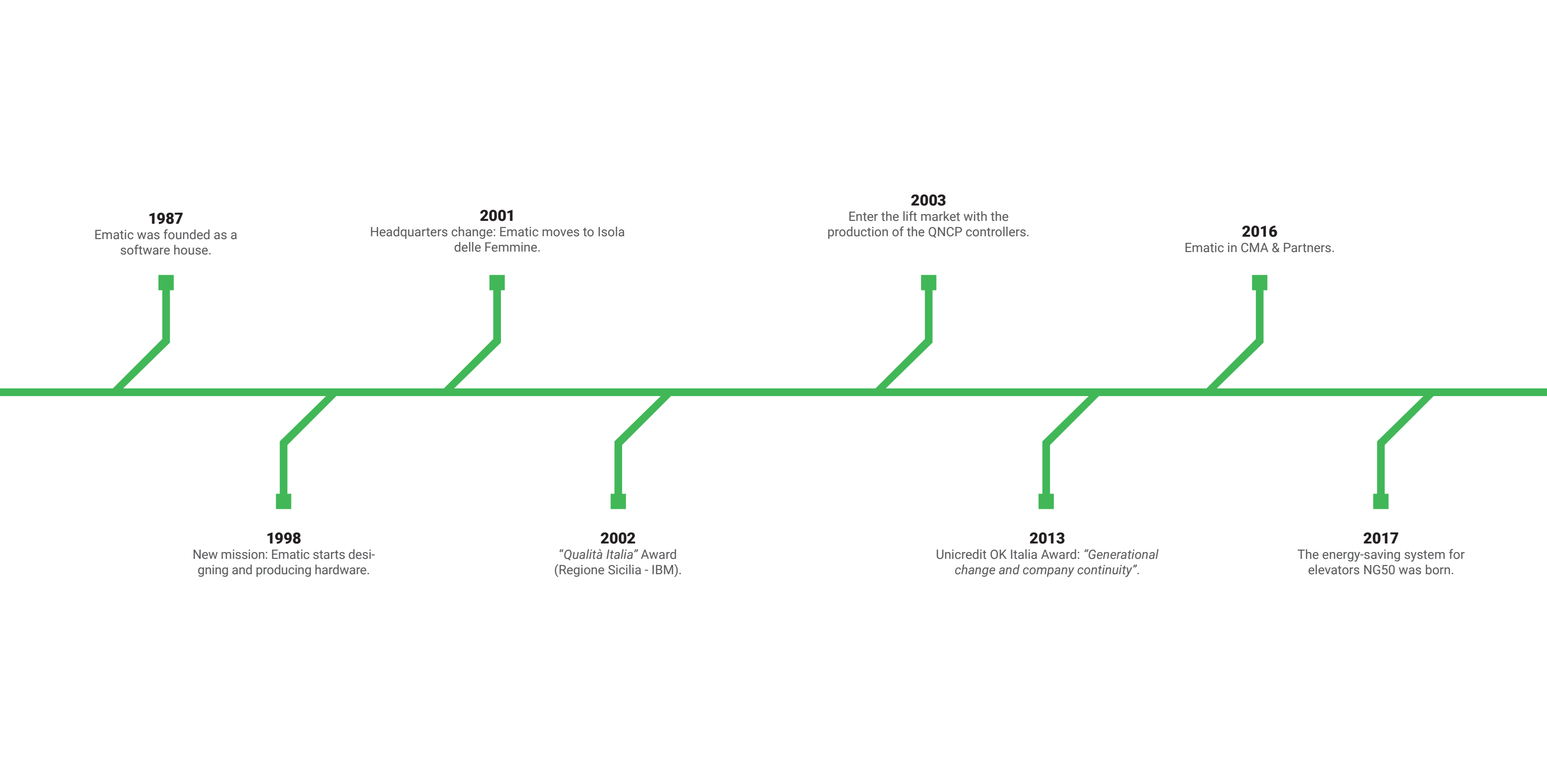# ematic

ematic

Control and emergency systems for lifts

A family passion that begins almost 50 years ago with Emergenzamatic, founded by Giuseppe Nasca and then grew up to become the leader in the global market for the production of an innovative emergency device for elevators. But the success of Ematic is due not only to the high quality products and services, but also to an approach based on humility, on a careful evaluation of customers' needs and advice, and a strong team spirit in an informal working environment that does not escape anyone coming in contact with the company.

In 2013, Ematic was among the 7 Italian companies that received the "Ok Italia 2013" Award by UniCredit Banking for the category "Smart Solutions and Innovative Finance Development".

1987
Ematic was founded as a software house.

2001
Headquarters change: Ematic moves to Isola delle Femmine.

2003
Enter the lift market with the production of the QNCP controllers.

2016
Ematic in CMA & Partners.

1998
New mission: Ematic starts designing and producing hardware.

2002
"Qualità Italia" Award (Regione Sicilia - IBM).

2013
Unicredit OK Italia Award: *"Generational change and company continuity"*.

2017
The energy-saving system for elevators NG50 was born.

Controllers: overview

Traction lifts

- Microprocessor controller.
- Available for VVVF, Double speed
- Available capacity: up to 75 kW.
- Available with emergency landing device.
- Types of manoeuvre: all.
- Doors: manual, semiautomatic, automatic, even combinate.
- Number of stops allowed: up to 12 in standard configuration, expandable.
- Wiring type: Serial and Parallel.
- Brake supply protected by thermal magnetic switch.
- General thermal magnetic switch.
- Fixed and switched car lights.
- Early opening of the door.
- Relevelling.
- 81.20/50 rules.

Hydraulic lifts

- Microprocessor controller.
- Available for direct drive, star-delta, soft starter
- Available capacity: up to 75 kW.
- Available with emergency landing device.
- Types of manoeuvre: all.
- Doors: manual, semiautomatic, automatic, even combinate.
- Number of stops allowed: up to 12 in standard configuration, expandable.
- Wiring type: Serial and Parallel.
- Valve supply protected by thermal magnetic switch.
- General thermal magnetic switch
- Fixed and switched car lights
- 81.20/50 rules

MRL installations / Electric platforms

• Microprocessor controller.
• Available for MRL lift and for gearless motors.
• Available capacity: up to 75 kW.
• Available with emergency landing device.
• Speed: in standard configurations up to 2 m/s, higher speeds are also available.
• Types of manoeuvre: all.
• Doors: manual, semiautomatic, automatic.
• Number of stops allowed: up to 12 in standard configuration, expandable.
• Wiring type: Serial and Parallel.
• Management of early opening of the door for "on the fly" approach to floor.
• Even available with commands remotely on door frame.
• Brake supply protected by thermal magnetic switch
• General switches integrated section (car lights, shaft lights, general lights).
• Manual emergency manoeuvre by brake opening command.
• Fixed and switched car lights.
• On board signalling (car at the floor, upward, downward).
• Relevelling.
• EN 81.20/50 rules.

IMPORTANT!

The emergency landing device integrated in our controllers - for both asynchronous motors and permanent magnet motors - does not involve the use of the VVVF inverter nor encoder card.
The machine is directly managed by the emergency board, making use of just:
• Nos. 4 batteries 7,2 Ah for low capacity machines;
• Nos. 4 batteries 18 Ah for higher capacity machines.


Electrics and hydraulics homelift

• Microprocessor controller
• Available for Electrics and hydraulics homelifts
• Available capacity: up to 75 kW
• Available with emergency landing device
• Types of manoeuvre: all, including "press and hold"
• Doors: manual, semiautomatic, automatic
• Number of stops allowed: up to 6
• Wiring type: Serial and Parallel
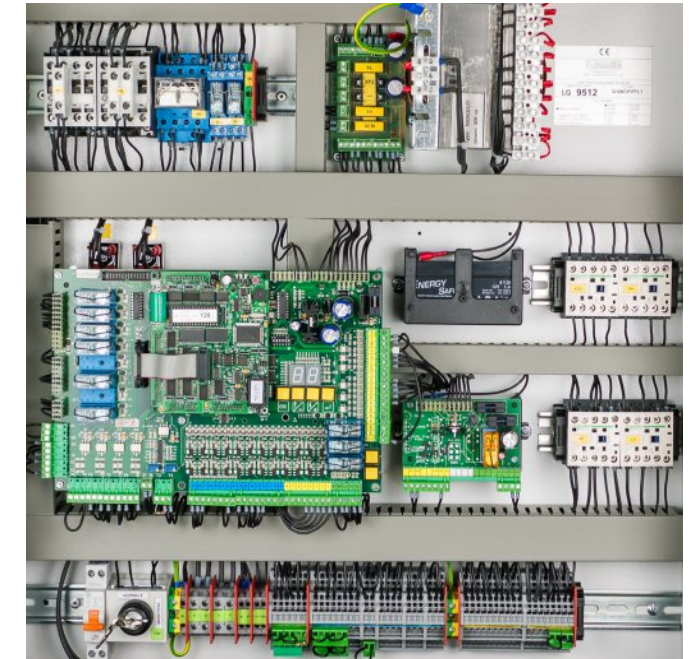
# Monitoring and telecontrol system

Software for watching controllers via INTERNET, Wi-Fi or cable, also available as APP for smartphones.
It allows remote monitoring of the system, sending commands, and displaying on the phone of electrical drawings, manuals, error codes list, and so on.

Our controllers, if equipped with a GSM interface and independently from monitoring, allow to manage the reception and / or transmission of SMS via any mobile phone.
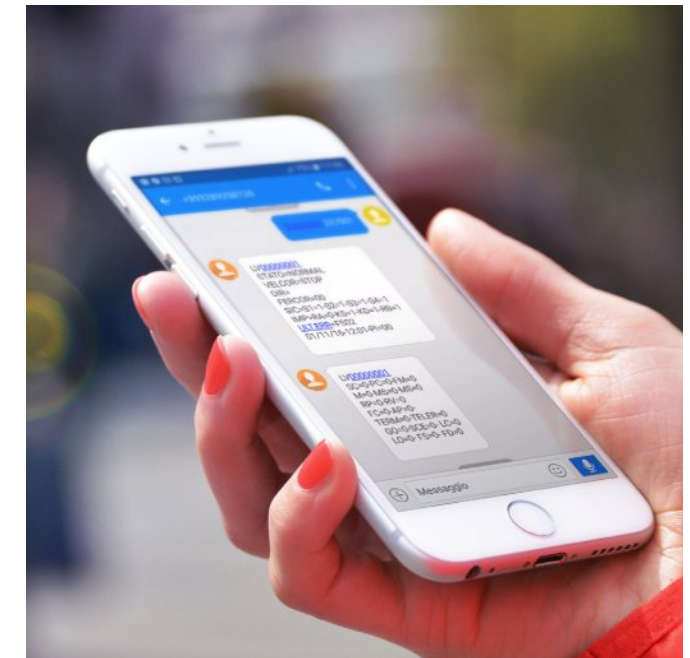
Pre-wired systems
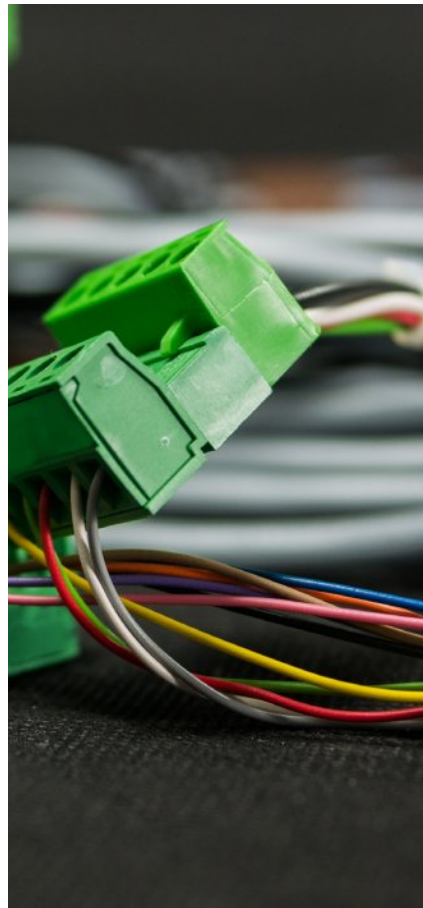
On request, the controllers are supplied both with electric lines and push-buttons terminal boards for floors and car, ready to be placed on jobsite.
In order to simplify the commissioning and the trouble-shooting, groups of terminals are marked with labels of proper colors.
All wiring is designed to minimize the consultation of frawings and the use of other tools. The various braces are labeled with tags that clearly indicate their destination.
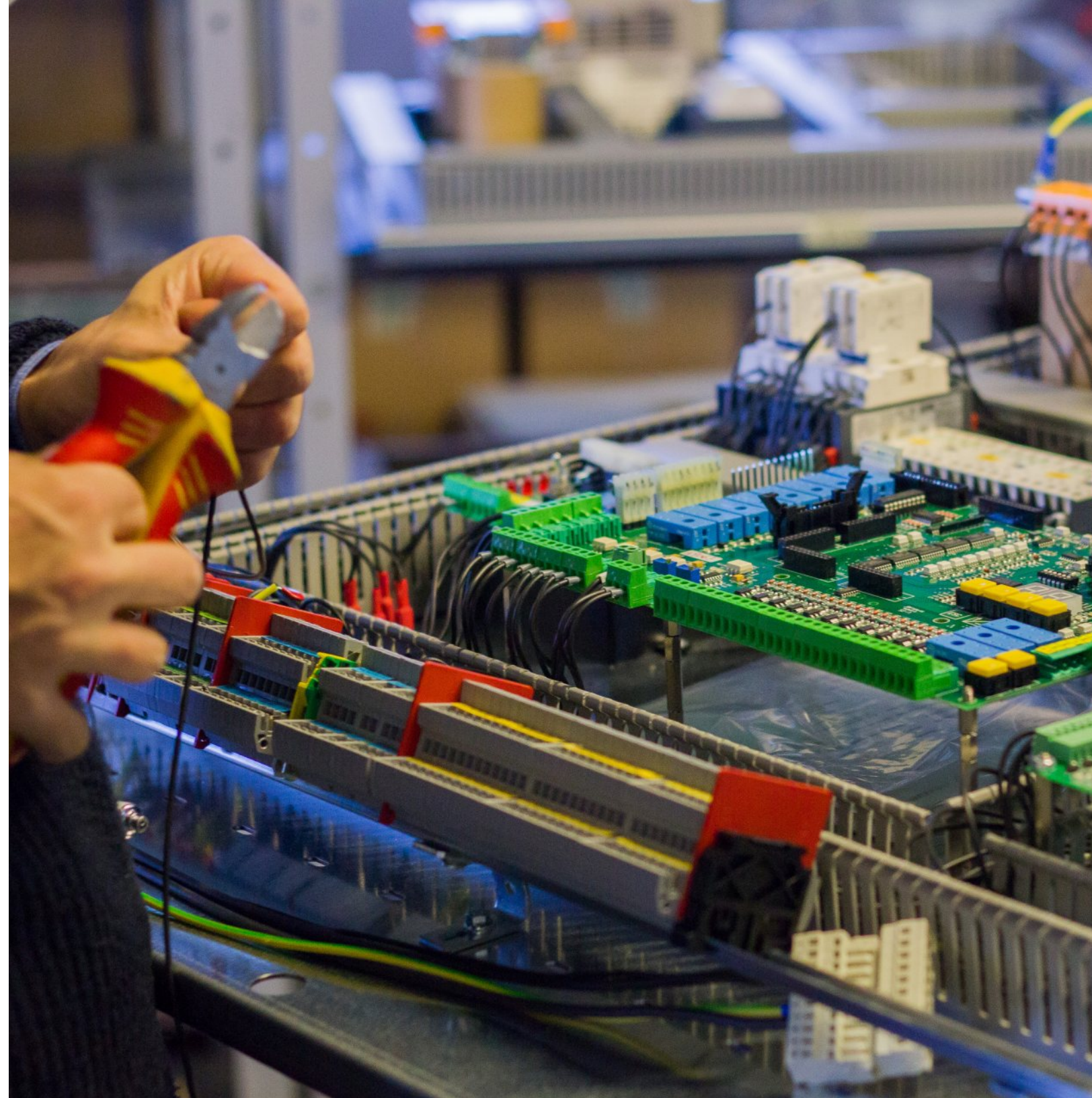
Rules
EN 81.20/50
EN 81.21
EN 81.70
EN 81.72
EN 81.73

Controllers: insights

The architecture of QNCP

The on-board transformer is equipped with an external shield for overcurrent protection. Our controllers are made of metal cabinet with epoxy powder coated lid with upper and lower holes for a facilitated fixing.

Inside the closet we find:

• Power supply for on-board circuits and external devices (display, push button, etc.), equipped with suitable short-circuit protection.

• All our controllers are equipped with:
- Three-phase and single-phase general thermal magnetic switch;
- Magneto thermal contactors to protect the loads (e.g. brakes and valves);
- Manoeuvre switches.

• High impedance microprocessor board with high immunity to external noise and 4-layer printed circuit board.This card is able of directly processing signals from the shaft safely and is equipped with specific inputs in accordance with EN-81 rules regarding the management of safety circuits.

The on-board software (firmware) - entirely produced by Ematic - is constantly evolving on customer specifications and can be easily updated with the simple replacement of internal memory (Eprom) or via dedicated software.
All the events that during elevator's operation are relevant to the management of the technical assistance, are stored inside the card even in the case of power failure. For each of these stored events, given data (date and time) are reported.
For every stored event, date, time, stop, direction and plant state, are displayed.

The programming data that characterize each elevator can be edited via a 4-button keypad and two 7-segment displays on board.

The programming parameters are grouped by type of operation and easy to remember.
Our board is designed to directly manage both auxiliary relays and main travel switches.
Inside the controller there is a quick-release terminal blocks for signals to shaft and car and a series of terminals for connection to the motor and power lines.

The terminals are identifiable by different colored labels, so they simplify the commissioning and troubleshooting.
Our controllers are delivered to the customer with all the operating parameters already pre-set as according to the specifications provided at the order. The same procedure is applied to the inverter that manages the machine normally supplied already programmed according to the system design data.
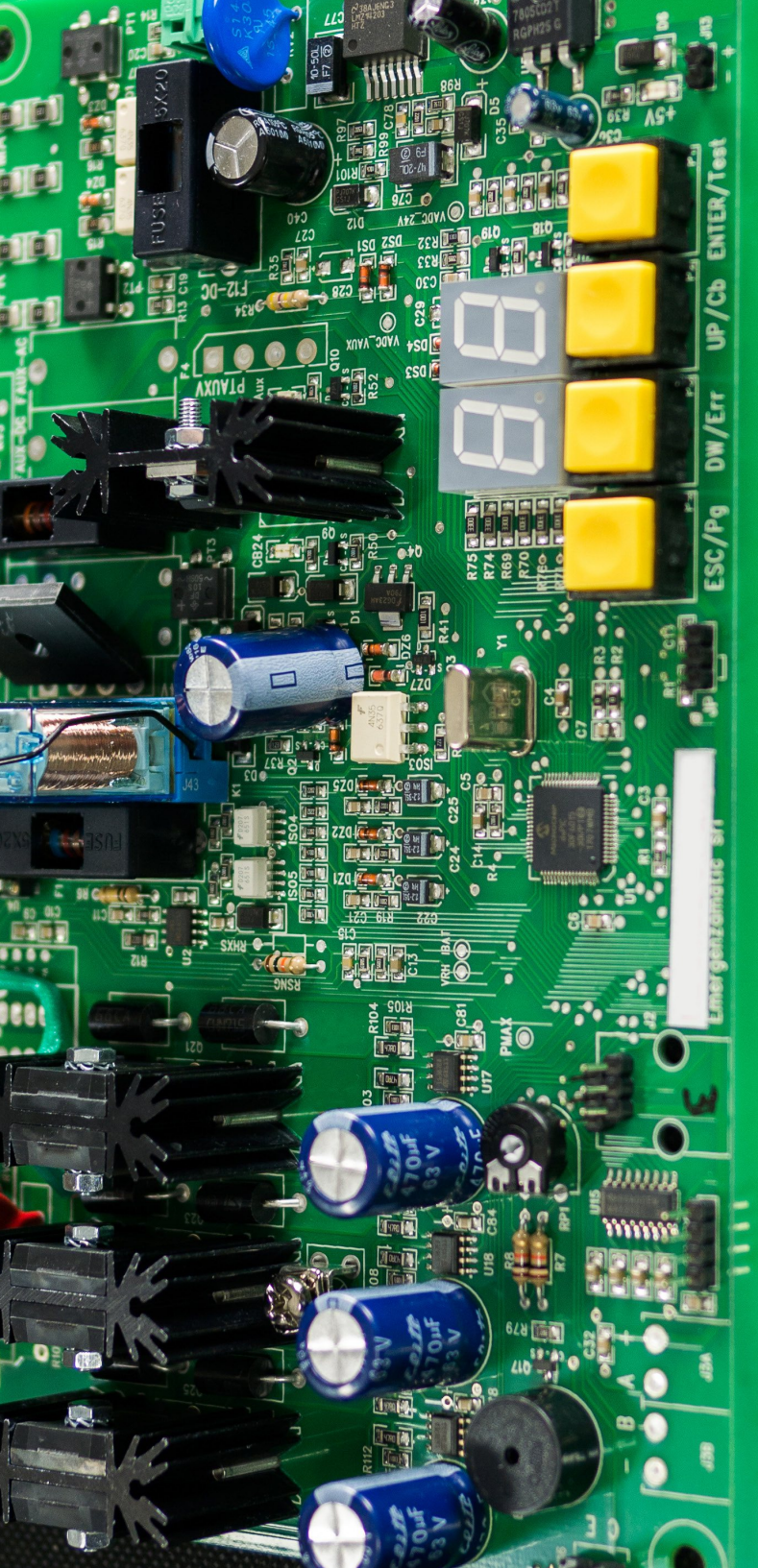
Wide range of options

• Configuration in groups: from simplex to octoplex.
• Manoeuvre: universal (PB), down collective (DC) and full collective (FC).
• Standard basic configuration: 12 stops PB; 8 stops FC expandable by means of proper boards.
• Drive: 2 Speed, VVVF, Hydraulic.
• Available power: up to 75 kW.
• Doors: Manual, semiautomatic, automatic.
• Integrated emergency landing device (for power supply failure) on board.

Other characteristics:

• Alarm battery 12V/24V.
• Connection of parallel/serial displays.
• Motor protection with thermistor.
• Sequence control, phase shortage.
• Control and protection againts overload and short-circuit of each input signal.

Altre manovre disponibili:

• Firefighters manoeuvre.
• Preferential manoeuvre.
• Programmable preferential parking floor for stop and timeslot.
• Selective door opening.
• Independent opening management.

Characteristics of ELSA board

• 16bit/40 Mhz microprocessor.
• 512 Kb Flash EPROM, 1 Mb Big-Ram, 8 Kb Eeprom.
• LED signaling of all digital input and output signals.
• Watch-dog, control system for automatic restart of on-board software in the event of involuntary stoppage.
• Clock for managing date, time and day of the week.
• Two serial ports on board for interfacing with other systems.
• Outputs with protection system for each lights channel against overloads and short circuits.
• In case of failure of one of the inputs or one of the outputs, it is possible to reassign the corresponding functionality to another free position of the terminal block, by simply modifying a software parameter.
• Direct management of safety circuits with power up to 110 V ac/dc.

Reliability of operations

• The power lines of floor and car lights circuits are properly separated from the main power line and are protected against short circuits and overloads

• All the controllers are subjected to a computerized testing phase at our test tower with high-stress tests, according to stiff controls which extremely reduce any production error indices

• The stops' counting during the running is very reliable because it uses a software algorithm that allows - even in case of incorrect or missing reading of the magnets - to avoid causing error in calculating the car position. This anomaly is reported in the list of operating errors.
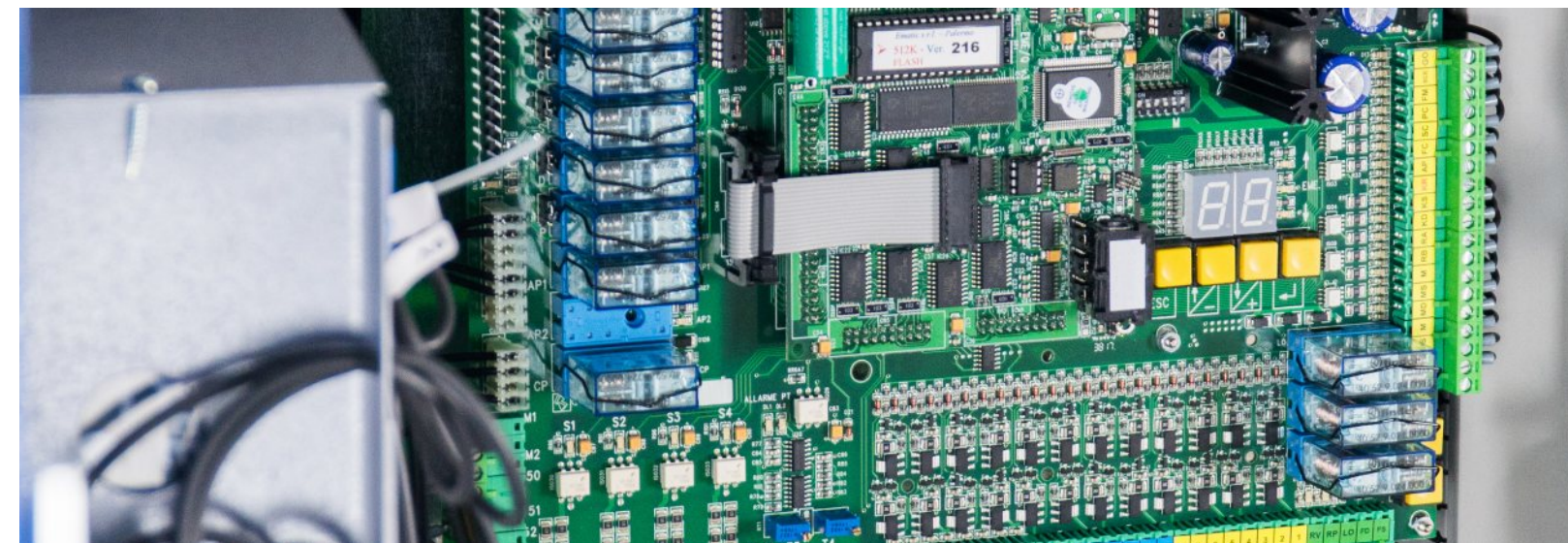
High flexibility
of the software

By changing just one parameter, it is possible to set four different type of manoeuvre:

• SAPB
• Car call registration
• Down collective
• Full collective

The **rephasing procedure** is **optimized** for minimum displacements, choosing the easiest between the two extreme floors. On request, it is also allowed to avoid the parking of the liftcar at the **reset floor**.

The **management of parking floors** is very flexible as it is possible to choose different ones depending on the time of day.
For example, in the case of a condo, as generally the most traffic in the morning is outbound, the car can be stationed at the highest floor, while in the evening at the lower floor.

It is possible to avoid repetition of the same malfunctions for some errors occurring at a particular floor (blocks and preliminary contacts faulty or defective, wrong counts, etc.), the system can be programmed to automatically exclude call requests to that floor.

Adaptation to existing circuits. The software provides the possibility of programming the different logic of the contacts to be interfaced to the controller (mobile base, full load, overload, photocell, etc.).

It is possible to program both the logic of car lights management logic (position, floor of destination, calls) even if the display is not used, and the floor lights management logic (information "Present", "Incoming", "Busy / Incoming", "blinking Present" is displayed).

Flexibility in displaying the position of the car. For each floor you can program the two digits to be shown on the display.

Double entrance management is fully programmable by the operator who can autonomously decide at any single stop the priority to follow in opening.
For each direction, it is possible to set a different duration of passage in the floor zone that determines the stop level. This simplifies the positioning of the magnets and ensures the same stop position in both directions.

Car door control is optimized thanks to timing procedure and repeated opening/closing attempts.

Assignment of the functions to each terminal is provided by the controller and programmable by the installer.
It is possible to protect the calls by PIN code to dial directly with the call buttons of the COP.

Group Programming of inputs/outputs for functions useful to arrange remote signals.

Adjusting of the car stop level by using the call buttons.
The on-board software provides a function to check whether the parameters show any discrepancy that can compromise the operation of the controller.
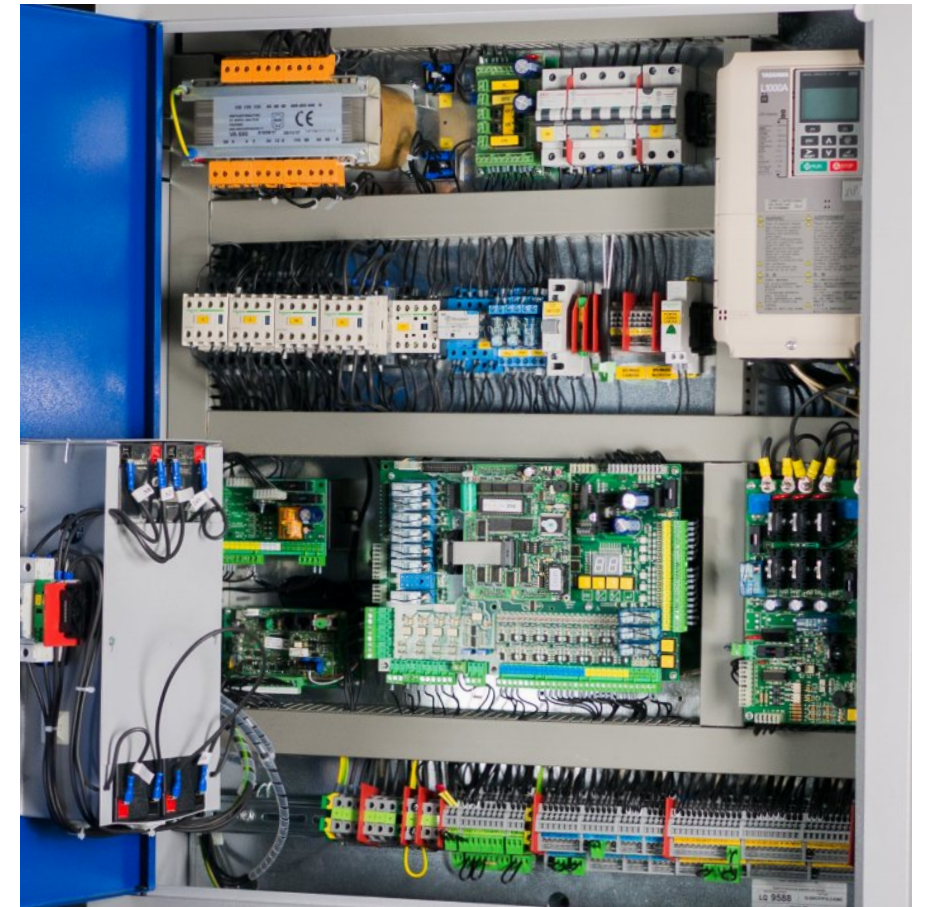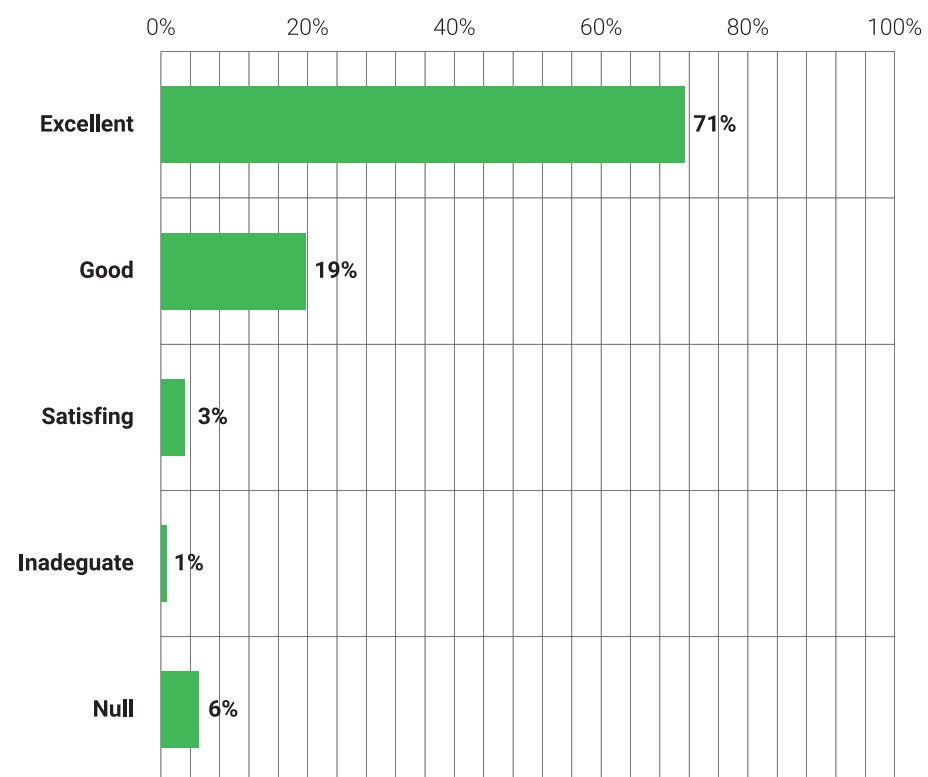
Effective post-sale service
(Ematic on web)

We devote special attention to the after-sales service, which, in addition to the free telephone support provided by specialized technical staff, allows, by connecting to **www.ematic.it**, to receive on-line update of the various stages of the production process to know the status of orders in real time.

For any controller bought, it is also possible to quickly and easily download all the related documents:

• Wiring diagrams
• Manuals
• Certificates of conformity
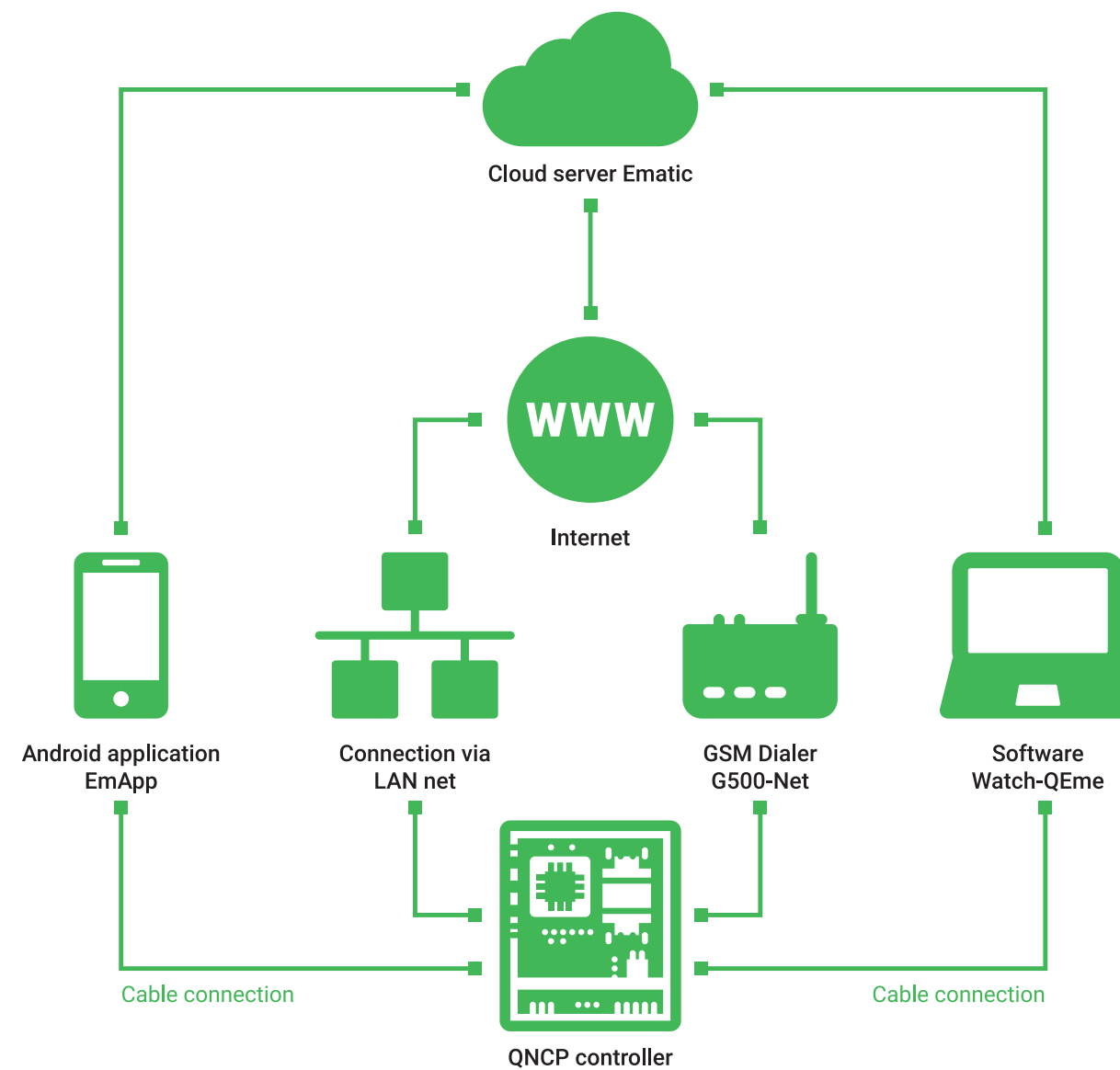• Testing Certificates
• Order confirmation
•Etc

Data related to the last survey:

Rating	Percentage
Excellent	71%
Good	19%
Satisfing	3%
Inadeguate	1%
Null	6%

Controllers: remote control

Ematic it network

Cloud server Ematic

Internet

Android application EmApp

Connection via LAN net

GSM Dialer G500-Net

Software Watch-QEme

QNCP controller

Cable connection

Cable connection

# "Emapp" Android application

EmApp connection modes:

• INTERNET, via GSM G500-Net dialer
• INTERNET, via direct connection using LAN net
• DIRECT, via OTG USB/RS232 cable

EmApp is a software for the monitoring and remote control of the QNCP controller via INTERNET (both GSM and/or LAN), or via CABLE connections, also available as an APP for smartphones.
It allows remote monitoring of the whole system, sending commands and displaying on the smartphone wiring diagrams, manuals, list error codes.

EmApp features:

• System monitoring with graphical view of the status
• Sending remotely commands to the connected controller
• Download and analysis of the events stored by the controller
• Updating the operating parameters of QNCP controller•
Immediate help in the interpretation of the error codes (synchronized with Ematic cloud)
• Receiving advices and information from Ematic world in real time
• Access to the Ematic cloud services including: viewing and synchronization of wiring diagrams, technical and administrative documentation and images for each controller
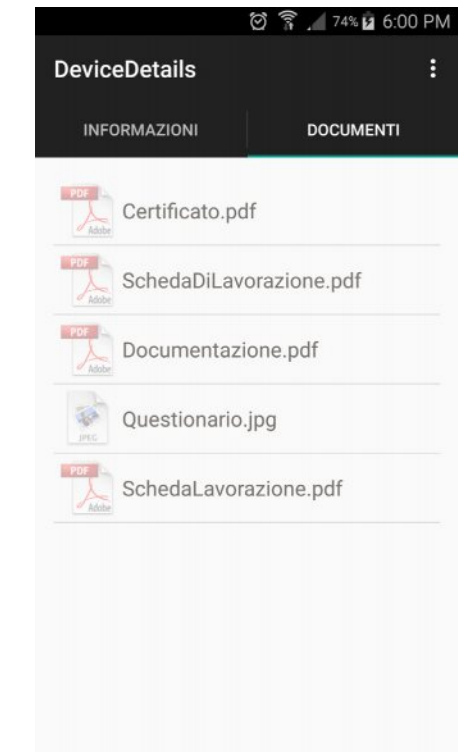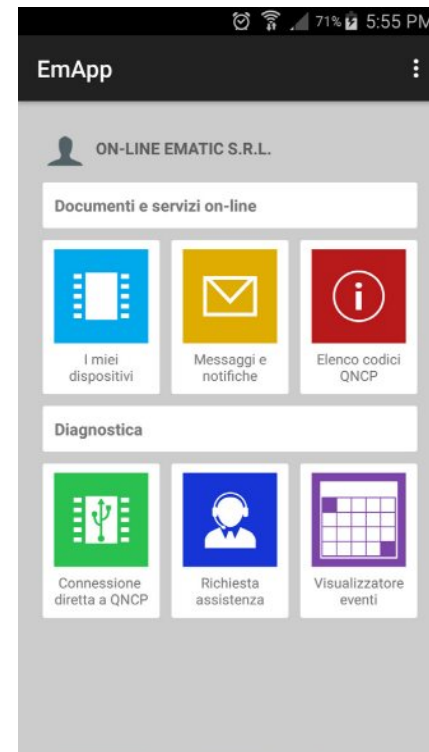
Managing the system through SMS

Our controller, besides of monitoring, allow to manage the reception and/or transmission of SMS through any mobile phone.

This is a quick way to control the whole elevator and to be aware of any anomaly in time.
Thanks to simple commands with easy and intuitive format it is possible:

• Restarting the controller
• Resetting the system
• Check the status of the elevator
• Put the elevator out of service
• Activate the elevator
• And much more…

Summary of main characteristics

Features	Modes
Types of manoeuvres	• Car call registration • Down collective • Full collective
Available connections	• From Simplex to Octoplex
Rephasing	• Up • Down (excluding the reset floor)
Logic of inputs	• Direct • Reverse (N.O. or N.C. contacts are allowed)
Lights signaling at floors	• Present at floor (from controller, not from lock) • Incoming • Busy/Incoming • Present blinking
Display signaling	• Directly from 7-segment display of the board • Serial with dedicated interface
Accesses	• Up to 3
Reprogrammable terminals	• Parameters editable directly by installer
Protected car starting	• Through PIN via push-button or keypad
Management of short distances between floors	• Yes
Selective opening	• Yes, programmable by the installer
Adjust of reading sensitivity	• Yes, by optimizing the detectors' readings on speed basis
Early opening	• Yes
Independent service	• Yes
Fire-fighting system for compli-ance with rules: EN UNI 81-72/73, D.M. 15/09/2005	• Yes, with supply of waterproof push-buttons with IPX3 degree of protection, firemen push button panel, protected cable-conductor in conformity with rules.
Stop Level Adjustment	• From the car by means of call buttons
On-board software update	• Yes, by reprogramming the Eprom memory
Signal redirection	• Yes
Car parking by time slot	• Yes
A3 amendment	• Yes, for all types of elevator, depending on the methodology adopted by the customer
Dialer	• Yes, telephone dialers are allowed

Our emergency landing devices

Our automatic rescue systems guarantee the highest efficiency and total safety to the elevators, as they remain in stand-by status and without any active element during the normal operation.

They perform the emergency run of the car to the floor both because of a lack of mains supply (black-out) and of electrical interruptions/breakdown in the control panel even in the presence of mais supply, making sure that the car movement, thanks to the advance applied technology, is imperceptible and without any vibration in the maximum comfort for passengers.

By choosing any of our emergency devices, you are sure to find a team that can offer:

• Over 50 years experience of the Emergenzamatic group on lifts of any brand all over the world.
• 100% Italian development, design and manufacturing with high quality level of components.
• Total compliance with standards and CE marking.
• High performance and limited battery consumption, according to the new energy saving criteria.
• Regulation system with "Autotuning" and protections that avoid any mechanical or electrical hazard conditions.

Models	Asynchronous, Gearless and MRL (< 3 m/s)		Synchronous, Gearless and MRL (< 2,5 m/s)	
	43 EMD	43 EMDH	43 ES	43 ESH
25	8,5 KW 380 V 5,0 KW 220 V	—	25 A	—
40	18 KW 380 V 10 KW 220 V	—	40 A	—
65	—	32 KW 380 V 19 KW 220 V	—	65 A
100	—	50 KW 380 V 30 KW 220 V	—	100 A

New emergency landing device 43 Easy

The new 43 Easy device is the hardware and software synthesis of the most used series for asynchronous motors, since it maintains the traditional reliability and applicability features on any lift – both new and already in operation - and extends its scope to synchronous motors (gearless, even MRLs).

For the technical and constructive features, the reduced dimensions specially designed for the MRL market and the extremely advantageous quality/price ratio, this new device represents an opportunity to be considered with great interest for large scale use and added value to be proposed to customers.

• **Synchronous** machines up to: 17 A.
• **Asynchronous** machines: 6 kW/380 V — 3,5 kW/220 V.
• Speed: < 1 m/s.
• Size: 28 x 32 x 18 cm.
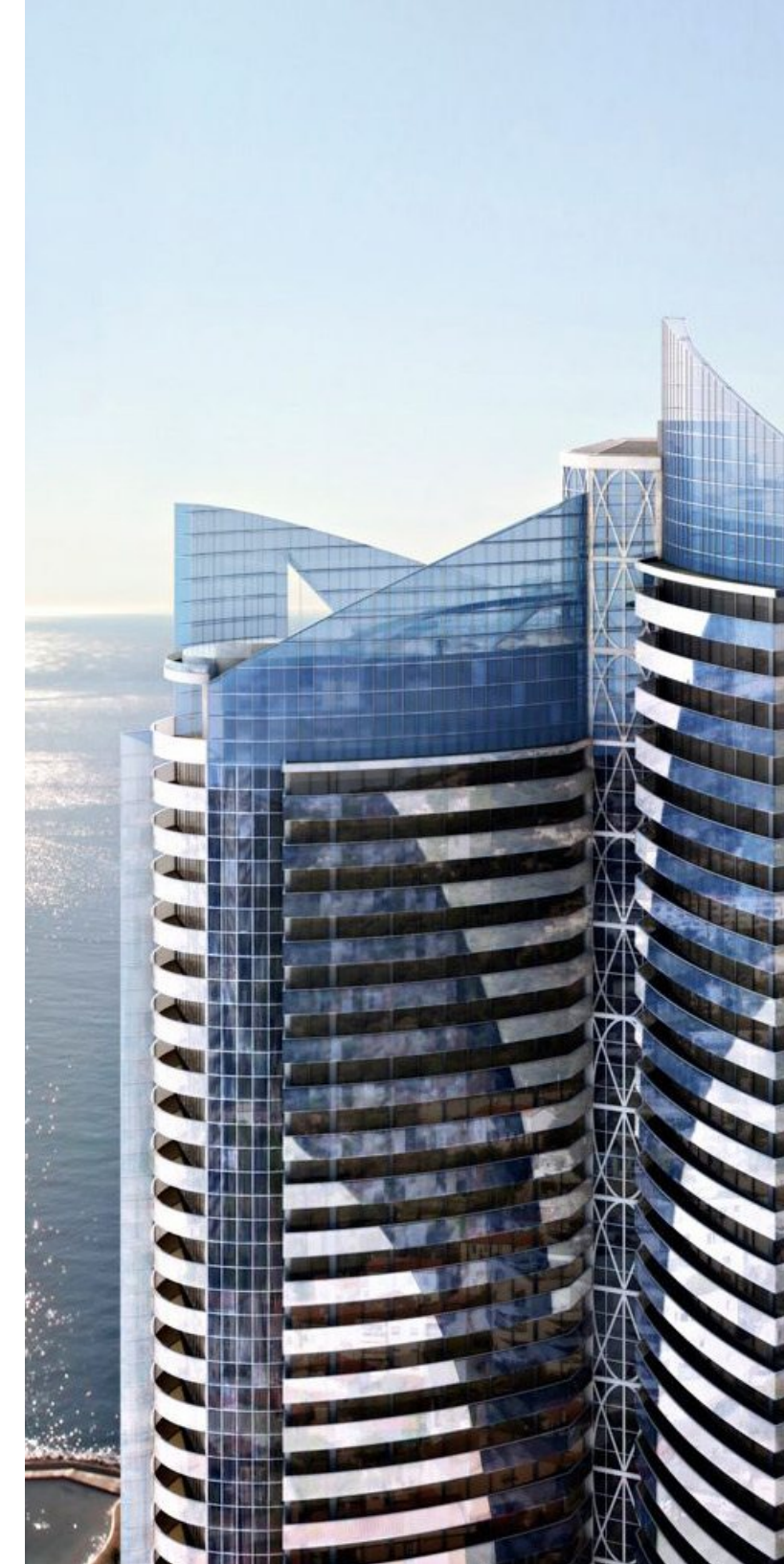
NG50 Energy saving system

NG50 is able to use the "favourable" phases during which the hoist motor, due to the fact that it receives some energy from the counterweight movement, acts as a true generator of electricity that it is able to concentrate in a proper battery pack. This energy can be fed back into the lift as free energy in addition (or alternatively) to the mains supply.
NG50 was also designed to store the alternative energy supplied by external renewable sources.
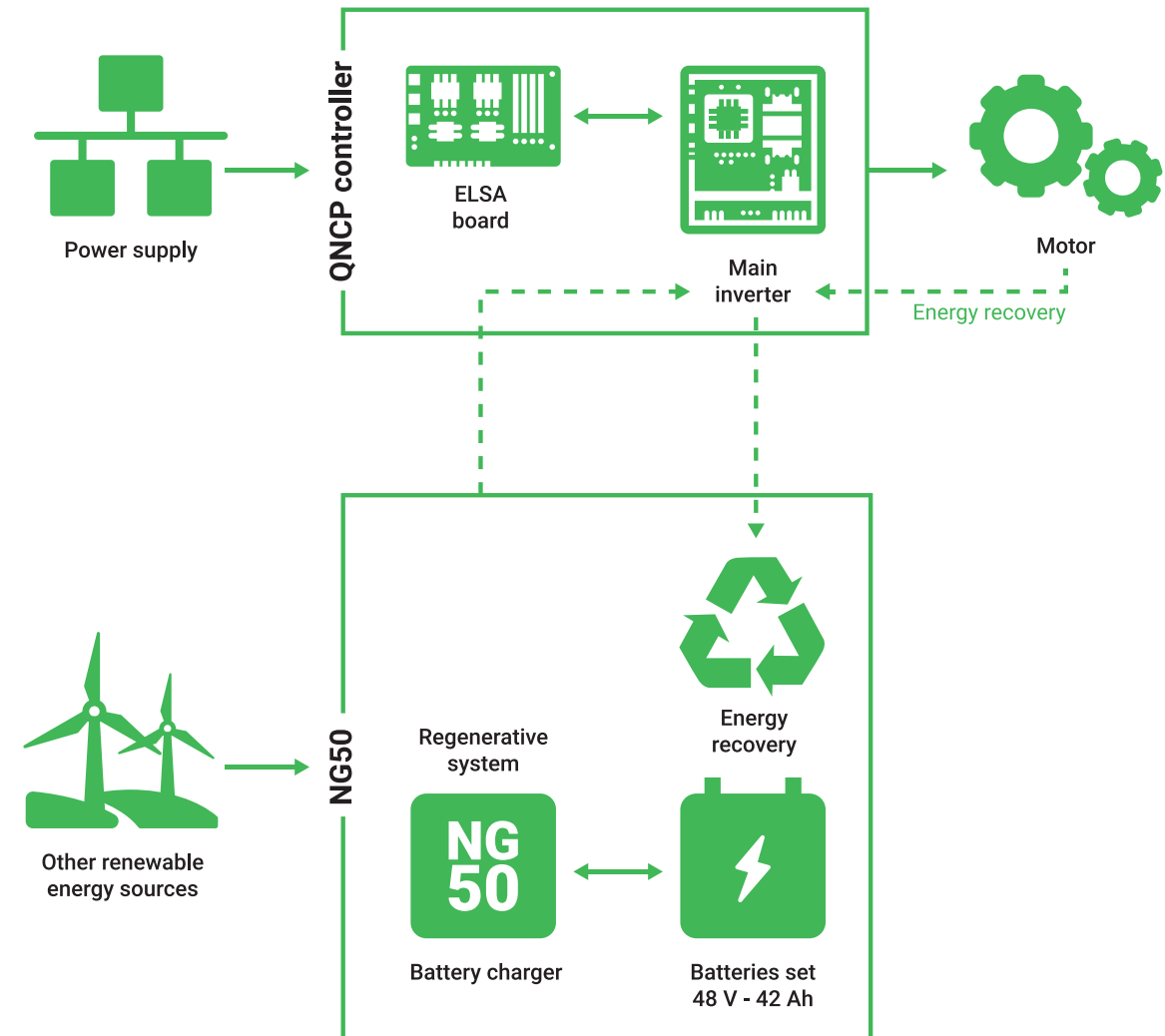A schematic of NG50 features is the following:

• Applicable to elevators of any brand managed by Ematic QNCP controllers and inverters with single-phase or three-phase 220V feeding equipped with synchronous machines and asynchronous machines, where the efficacy of the system may be lower.

• High-efficiency DC-DC converter, current-controlled and overload-protected.

• Set of common sealed batteries consisting of 4 nos. batteries 12V in series. Set of common sealed batteries consisting of nos. 5 batteries 12 V in series. Battery capacity (at least 18Ah) depends on the energy demand to meet and changes accordingly.
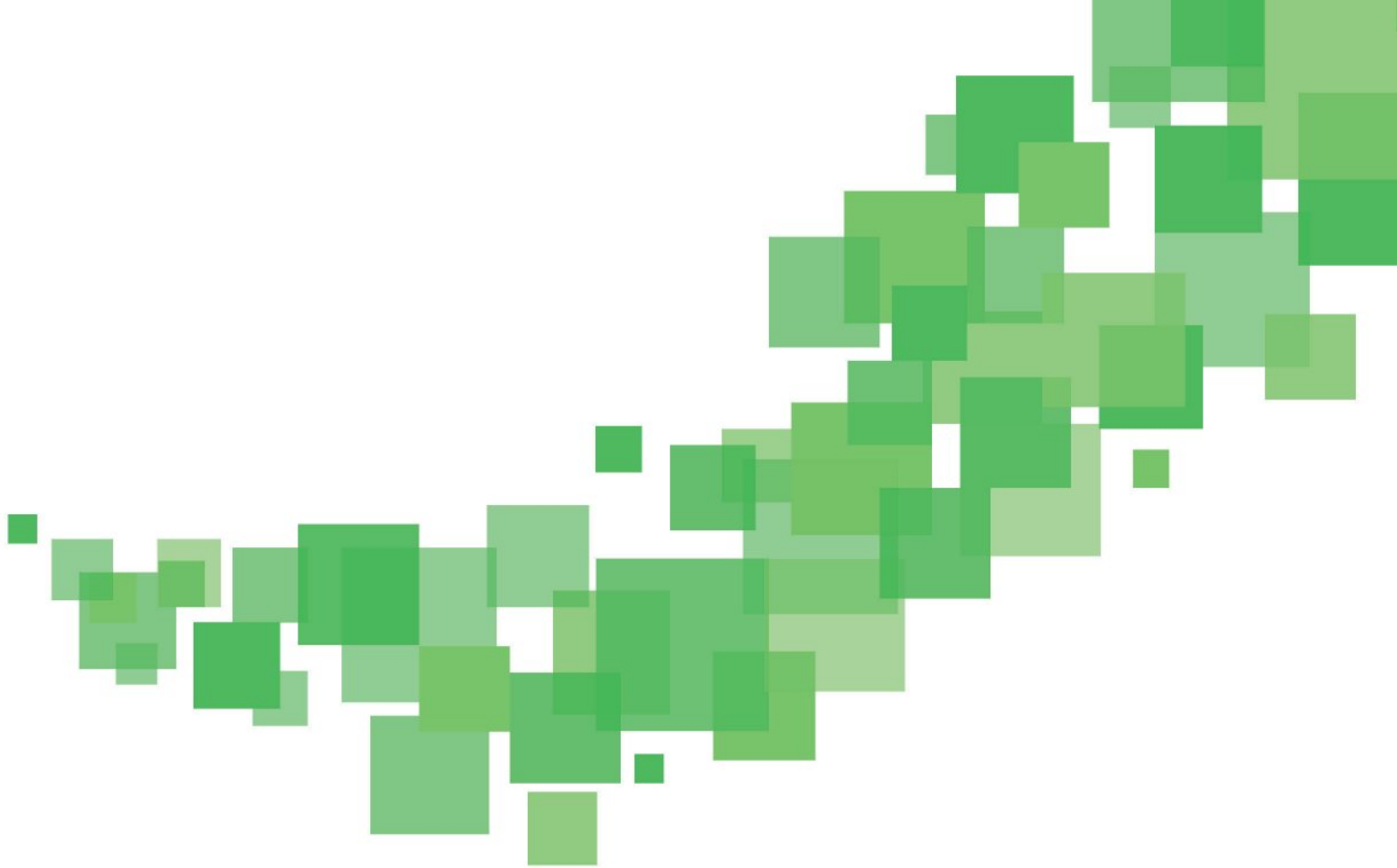
• Battery Charging Section, based on technologies already developed by Emergenzamatic company for the highest efficiency of the Automatic Rescue Device in the event of a power failure.

• Modular technology that offers actually more sizes with 2.7 maximum delivered power. These power values make NG50 appealing in terms of cost/performance ratio for any type of lift, even for ordinary apartment blocks.

Power supply

QNCP controller

ELSA board

Main inverter

Motor

Energy recovery

Other renewable energy sources

NG50

Regenerative system

Energy recovery

Battery charger

Batteries set 48 V - 42 Ah

Note