



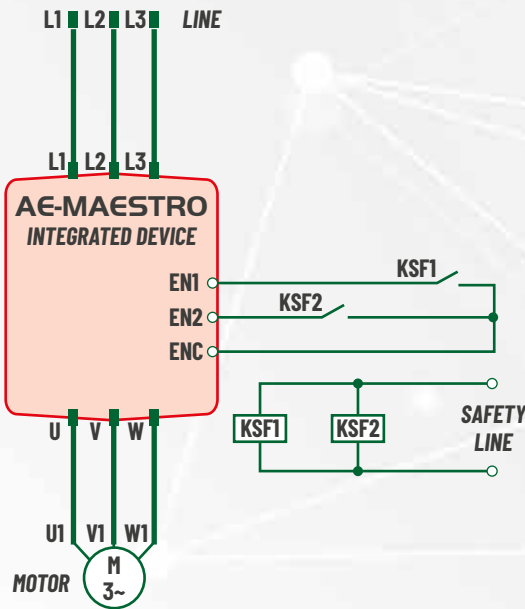
AYBEY
ELEKTRONIK



AE-MAESTRO

Contactorless (STO) Integrated Lift Controller

Aybey Elektronik combined its experience of 26 years in production of elevator control system with the experience gained with AE-LIFT motor driver in development of **AE-MAESTRO**, Integrated Lift Control System. After an intensive work of Aybey R&D team **AE-MAESTRO** comes with its new and unique design into the lift industry along various innovations.



AE-MAESTRO is contactorless Integrated Lift Control System

When **AE-MAESTRO** is used then the motor windings are connected directly to the device. The conformity of this direct connection to the motor without contactors (Safe Torque Off - STO) has been approved after passing hard tests.

Contactorless control system has several advantages. The first one is the reduction of the cost of the materials used. The second one is significant noise reduction due to absence of the switching elements in the panel. The absence of the mechanical switching elements at the output of the motor driving transistors (IGBT) is the most important advantage in technical aspect. The fact that IGBT currents are always damping naturally in motor windings instead of cut mechanically by any element extends the life of these vital elements considerably.

AE-MAESTRO motor driving system has been designed with digital signal processor (DSP)

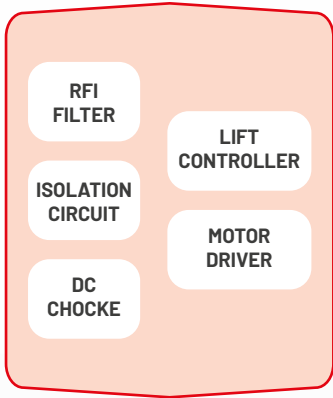
As stated by the users, we accomplished superior driving comfort in AE-LIFT Motor Drive. The most important reason for this was using a DSP (Digital Signal Processor) instead of a standard microcontroller. The vector control procedure involves very complex mathematical operations and must be repeated at least 10 thousand times per second. Due to the DSP, which includes dedicated modules for mathematical operations in hardware, these operations can be done much more precisely and shorter time than a standard microcontroller. Therefore, the performance of a DSP-driven motor drive is always better compared to the performance of the motor drive managed by an industrial microprocessor. So the device can supply 16 kHz carrier frequency and 250 Hz motor frequency.



AE-MAESTRO is a high-performance motor driver and control system with dual-processor architecture



Motor driving job is dedicated to a DSP in **AE-MAESTRO** as has been done in AE-LIFT. And in order not to disturb its precision another powerful micro is employed in lift management. The tasks are shared by two micros and carried out undisturbed. Thus, **AE-MAESTRO** has a very strong structure thanks to its multiprocessing architecture.



AE-MAESTRO is a compact integrated control system

Besides lift control system and motor drive, **AE-MAESTRO** includes EMC filter, dc choke coil and rescue system isolating circuits inside the device. So it provides full EMC compatibility with this feature.

This also leads to cost reduction and simplicity in panel manufacturing.

AE-MAESTRO can be used as open-loop, closed-loop, geared and gearless for any type of lift machines

AE-MAESTRO is manufactured in seven different power ratings from 4kW to 30kW. It can be used in new, as well as in one or two speed lifts for modernization purposes. Old machines without encoder can be driven by **AE-MAESTRO** as open loop. Homelift software is integrated in the device and it can be driven by monophas power supply in a house for low power machines.



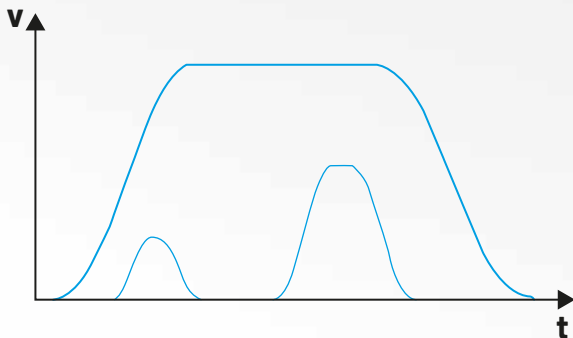
AE-MAESTRO supports many lift standards

Therefore, it can be employed in new elevators as well as in old buildings for modernization purposes all over the world.

- EN81-1
- EN81-1+A3
- EN81-20/50
- EN81-70
- EN81-72
- EN81-73
- EN81-41
- EN81-28
- EN81-21

AE-MAESTRO has intelligent speed management system

The intelligent speed management system is automatically active when encoder data is used as floor selector. It determines the appropriate travel speed depending on the distance to the destination by regarding selected speed parameters. You only need to set the nominal speed of the lift in normal, inspection, rescue modes and adjust all floor levels. Before starting any travel it evaluates the travel curve by considering the defined speed, acceleration, deceleration and S-curve settings. Minimum floor to floor distance can be as small as the door zone. **AE-MAESTRO** can also use magnetic switches as floor selector where no encoder is present, usually in modernization of old lifts.





Shaft Controller



MR Control Panel



Door-Frame Switch Panel



MRL Control Panel



AYBEY
ELEKTRONİK

All electrical connections are placed under the front cover. The main hardware configuration of **AE-MAESTRO** is supplied to support EN81-20/50 lift standard. The device can also be used for the standard EN81-1+A2 or less without door bridging board. Therefore, almost no additional boards are required in most applications. Two main add-on boards are left as option depending on the standard or motor type, door bridging and absolute encoder boards. Incremental encoder interface is already built in.



SDB
Door bridging board



ICA Board supports all types of absolute encoders (EnDat, SinCos, Biss, SSI) used in gearless machines.

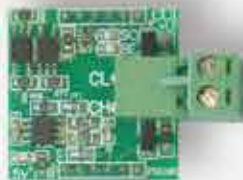
ICA
Absolute encoder board



ETN
Ethernet interface board for LAN or internet connection.



USN
Interface board for USB connection between PC and controller.



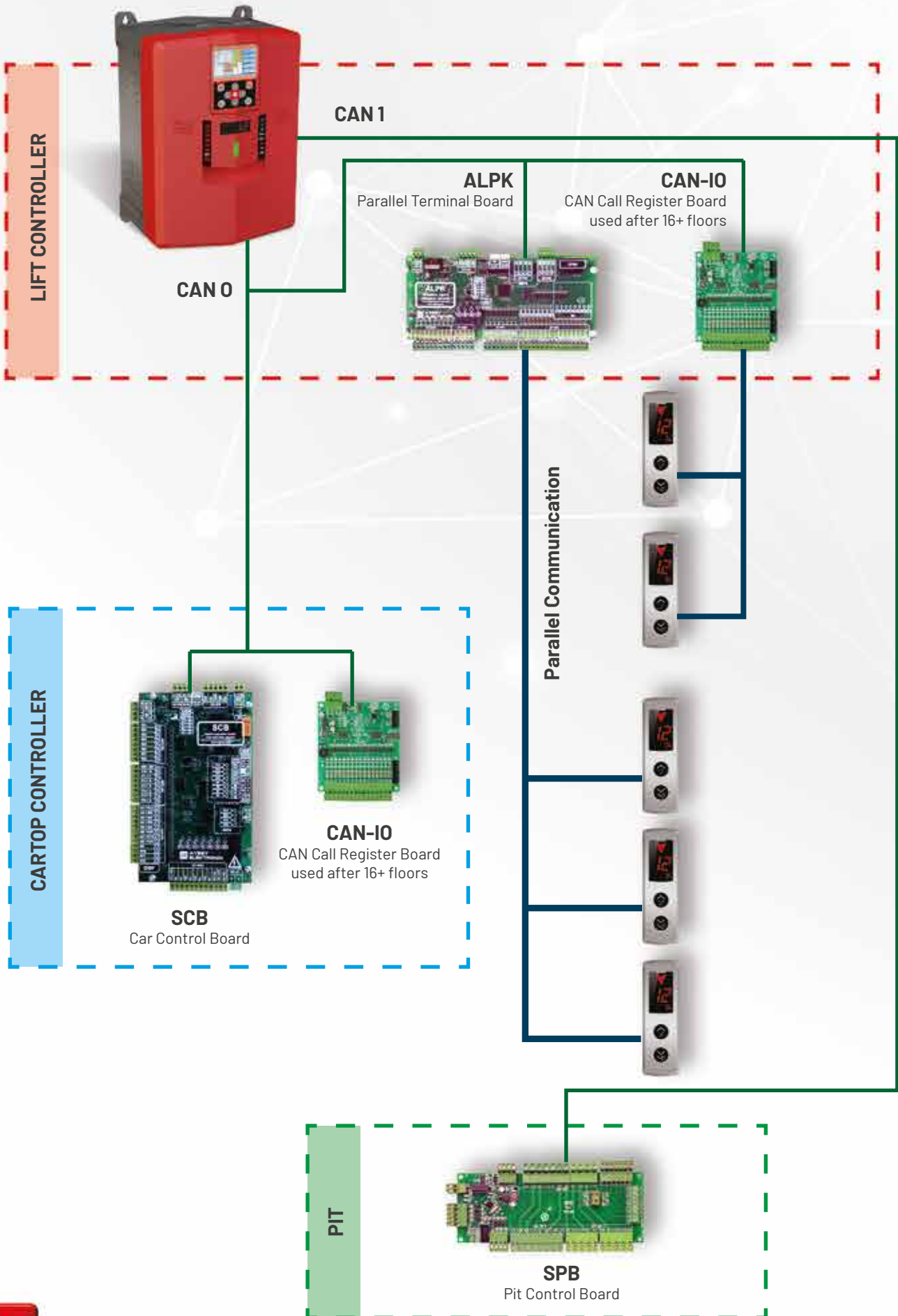
CCI
CAN interface board high speed



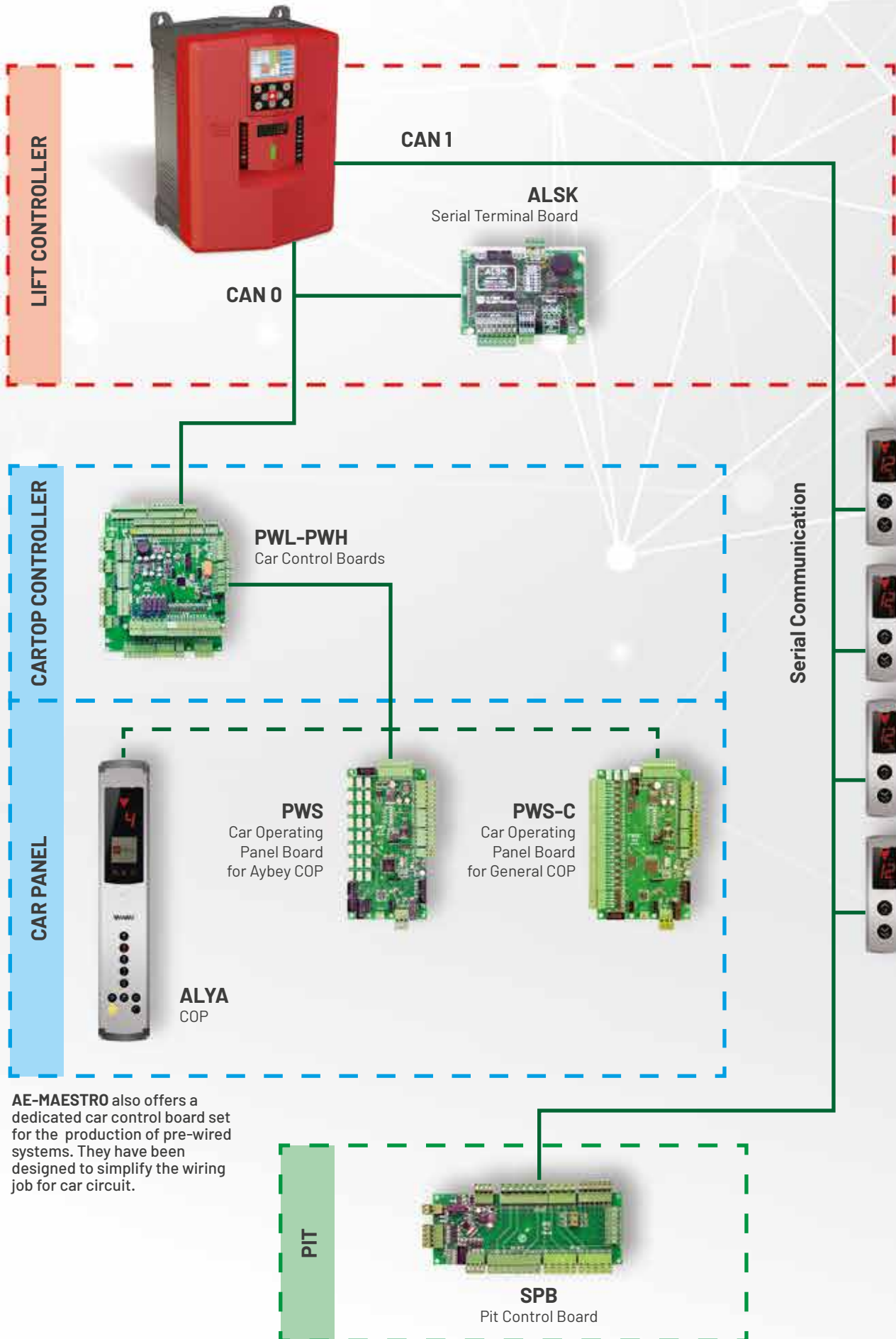
CSI
CAN interface board fault tolerant

The communication between extension or driver units is serial. **AE-MAESTRO** offers three CAN-ports where two of them are already built in the device. Car network is supplied as fault tolerant CAN to increase the reliability and robustness. CAN2 can be selected as high speed or fault tolerant by using CCI or CSI interface boards.

SYSTEM BOARDS IN NON-PREWIRED CONNECTIONS



SYSTEM BOARDS IN PREWIRED CONNECTIONS



AE-MAESTRO also offers a dedicated car control board set for the production of pre-wired systems. They have been designed to simplify the wiring job for car circuit.

AE-MAESTRO features a user-friendly monitoring and adjustment system

AE-MAESTRO displays some important inputs, floor number and errors on the front panel. In addition, there is color indicator to give the status of the lift. For example, the **green color** indicates normal mode, the **red color** error, and the **yellow color** inspection mode. A blinking color indicates a lift motion.



Parameter settings and detailed inspection of the device can be carried out by using the hand terminal. The hand terminal can also be used via serial communication line (CANBus). A variety of operations can be done with the hand terminal, such as software update, editing parameters, error review and travel chart monitoring.

AE-MAESTRO offers access control and VIP functions as standard in the software



Access control systems, such as RFID card or i-Button, are easily connected to car or/and landing stations. Their information are directly sent to the controller via CAN-Bus. The controller, AE-MAESTRO controls directly the accessibility of any user to the lift depending on time or specified floor as well as the Access rights given to that user. Similarly, the VIP travel system is also supported.



AE-MAESTRO is easily accessible via the Internet

AE-MAESTRO can be connected to any PC directly or via the Internet using USB or Ethernet interfaces. Lift motion, calls, signals and most of the time variables can be observed instantaneously. Most of the operations which can be done by hand terminal can also be carried out with a PC. The parameter list can be saved into the computer or uploaded from a file to the device.

MODEL	AEM04	AEM05	AEM07	AEM11	AEM15	AEM22	AEM30
NOMINAL MOTOR POWER	4 kW	5.5 kW	7.5 kW	11 kW	15 kW	22 kW	30 kW
NOMINAL MOTOR CURRENT	9 A	13 A	18 A	25 A	32 A	45 A	60 A
OUTPUT FREQUENCY	0 - 250 Hz						
CARRIER FREQUENCY	6 - 16 kHz						
MAXIMUM FLOORS	64						
SHAFT COMMUNICATION	FULL SERIAL / CAR SERIAL-LANDING PARALLEL						
GROUP OPERATION	SIMPLEX, DUBLEX,UP TO 8 GROUP LIFTS						



**AYBEY
ELEKTRONIK**

AYBEY ELEKTRONIK GmbH

Lothringer Allee 2, 44805 Bochum / Germany P: +49 (0) 234 687 368 29 F: +49 (0) 234 687 368 28 E: sales@aybey-elektronik.de

aybey-elektronik.de