ALPHA

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ACE1000 Series
Intelligent Elevator Control System

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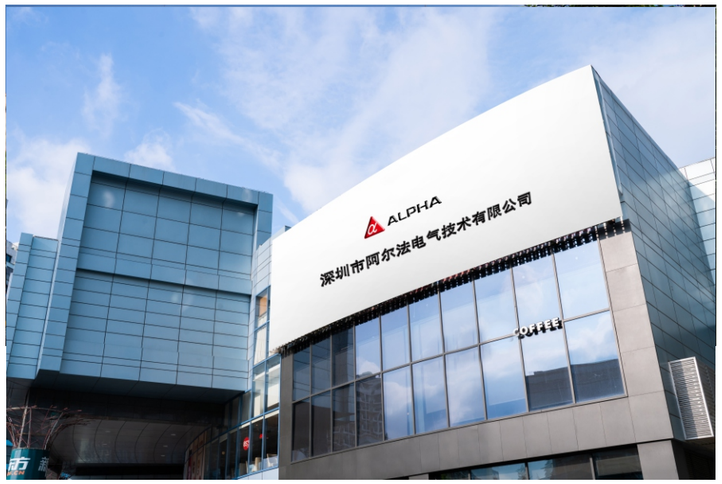


Company Profile

Shenzhen ALPHA Electric Co.,Ltd was established in 2000, and owns more than 30 subsidiaries and 50 after-sale service centers across China. Our headquarter is located in Longhua district of Shenzhen City, and has another 2 manufacturing bases are located in Zhejiang Province and Jiangxi Province. The company employs more than 500 people, of which about 60 percent are technology staff.

Our main business is in the design, development, and sales of industrial automation, power assembly of new energy automobile, and intelligent elevator control system. Meanwhile, as a High-Tech enterprise, we put a lot of focus in R&D expenditures. We have several comprehensive laboratories, we have introduced the advanced technology from both domestic and abroad, we also allied with a number of scientific research institutions and universities.

Through years of efforts, our professional sales and after-sale service teams help Alpha not only gain the customers recognition by reliable products, but also gain the customers trust by premium services. In the future, we will continue to serve our partners with professional spirit and excellent services based on industrial automation, new energy vehicle, and elevator control fields, achieve win-win collaboration.

ACE1000 Introduction

ACE1000 Elevator controller is an economical, perfect performance, high reliability and high safety product which developed by ALPHA electric based on more than 20 years experiences in development and manufacturing of frequency inverter, compliance with the latest national standard of China elevator industry, certified by professional testing organization with EMC certification.

Solutions for the new generation elevator control

Architecture — The main control board adopts the classical high-end core architecture, and the high-performance three-chip (MCU + DSP + FPGA) is concentrated on the MCB.

Operating system — Built-in high-performance embedded operating system MQX for multi-task scheduling, MQX is an embedded real-time operating system conforming to the certification of American aerospace and medical standards.

Debugging — A variety of debugging means and rich debugging functions, support debugging elevator in the car. Main control board comes with full function debugging keyboard. English LCD keyboard +PC debugging software.

Parameter setting — All parameters are filled in EXCEL, and the operation of uploading or downloading parameters is completed at one time. Automatically fill in parameters, range check, contrast, backup and avoid manual binary bit operation.

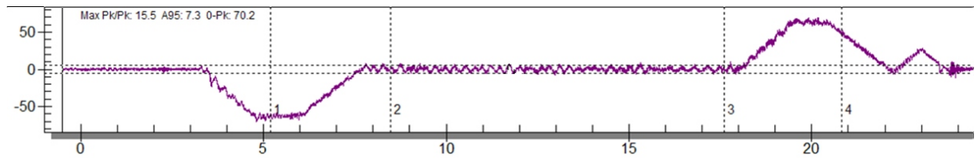
Fault diagnosis — Keep a detailed record of the latest 100 historical faults, and standardize the function of black box. A variety of statistical functions facilitates maintenance work of elevator.

Creating a new era of people-oriented elevator control

- **Carefully guard elevator safety**

  Three high-performance processor chips construct multiple hardware and software redundancy security barriers at the main control board, without competing with others at low cost.

- **Outstanding driving algorithms provide excellent ride comfort**



- **Friendly man-machine interface and powerful functions make installation, debugging and maintenance easier and faster**

  The keyboard design conforms to the computer operation habits, simple and straightforward tree menu and function parameters, powerful debugging and monitoring functions, make it possible to have your cake and eat it.

Naming rules for ACE1000 series products

A C E 1000 – 3 022 X B (– P)

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Stands for company name : ALPHA

② Product type : Controller

③ Elevator industry : Elevator

④ Product series : 1000

⑤ Rated voltage : S2: single-phase 220V,
2: three-phase 220V, 3: three-phase 380V

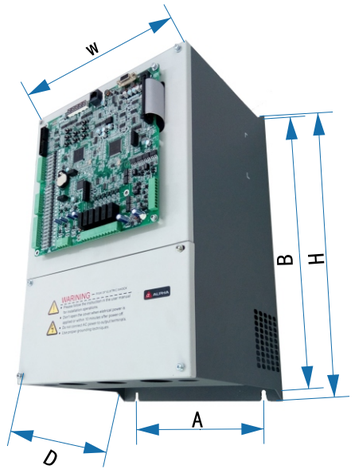
⑥ Output power : 2R2: 2.2KW, 022: 22KW

⑦ Energy feedback : R: Built-in energy feedback,
X: No energy feedback

⑧ Braking unit : B: Built-in braking unit, □ : No braking unit

⑨ Encoder type : P: UVW encoder, A: ABZ encoder, □ : SinCos encoder

Outline drawing and installation dimensions



Type	A	B	H	W	D	Locating hole diameter φ
S21R1XB	150	334	350	235	166	8
S21R5XB	150	334	350	235	166	8
S22R2XB	193	360	375	235	206	8
S23R7XB	193	360	375	235	206	8
S25R5XB	193	360	375	235	206	8
22R2XB	150	334	350	235	166	8
23R7XB	150	334	350	235	166	8
25R5XB	193	360	375	235	206	8
32R2XB	150	334	350	235	166	8
33R7XB	150	334	350	235	166	8
35R5XB	150	334	350	235	166	8
37R5XB	193	360	375	235	206	8
3011XB	193	360	375	235	206	8
3015XB	230	440	460	285	276	8
318R5XB	230	440	460	285	276	8
3022XB	230	440	460	285	276	8
3030XB	250	550	565	300	280	8
3037XB	250	550	565	300	280	8
3045XB	250	550	565	300	280	8

Note: D is the thickness of the controller (the maximum distance from the bottom of controller to the top of PG card)

Cross-references for inverter base

Type ACE1000-	Rated capacity (KVA)	Rated input current (A)	Rated output current (A)	Adaptive motor power (KW)	Circuit breaker rated current (A)	Contator rated current (A)	Power wire diameter (mm)
S21R1XB	2	9.2	5.2	1.1	16	10	2.5
S21R5XB	2.9	13.3	7.5	1.5	16	10	2.5
S22R2XB	3.9	17.9	10.3	2.2	25	16	2.5
S23R7XB	5.9	25.3	15.5	3.7	32	25	4
S25R5XB	8.6	34.6	22.5	5.5	40	32	6
22R2XB	4	11	9.6	2.2	25	16	2.5
23R7XB	5.9	17	14	3.7	32	25	4
25R5XB	10	29	27	5.5	40	32	6
32R2XB	4	7	6	2.2	16	10	2.5
33R7XB	5.5	10.7	9	3.7	25	16	2.5
35R5XB	7.5	15.5	13	5.5	25	18	2.5
37R5XB	11	18	17	7.5	32	25	4
3011XB	15	26	25	11	40	32	6
3015XB	18.5	35	32	15	50	38	6
318R5XB	22	39	37	18.5	63	40	10
3022XB	30	47	45	22	80	50	10
3030XB	37	63	60	30	100	65	16
3037XB	45	78	75	37	100	80	25
3045XB	55	93	90	45	160	95	35

Main technical indicators and application scope

Technical indicators

- Maximum elevator speed is 4m/s, maximum total number of floors is 48.
- Maximum number of parallel control is 4, maximum number of group control is 8.
- Leveling accuracy is ±5 mm.
- Adaptive power range: 1.1kw~45kw. Covering the range of 220V/380V household lifts to high-speed lifts.
- 220% rated current can last 3 seconds, 180% to 10 seconds and 150% to 120 seconds.
- Main control board IO: Maximum 40 inputs(3~4 AC110V or DC110V), Maximum 10 outputs.
- Communication port: 3 CAN, 1 RS485/RS422 (on the board), 1 RS422 (Extended)、1 RS232.
- Save details of the last 100 failure records.
- Black box recording time ≥ 72 hours.

Application scope

- Single elevator, 2~4 parallel control elevators, 5~8 group control elevators.
- Passenger elevators, cargo elevators, hospital elevators, villa elevators, etc.
- Rated speed≤4m/s.

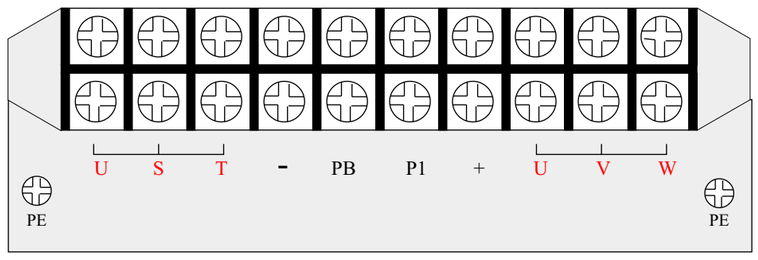
Encoder type

- SinCos Encoder.
- UVW Photoelectric Encoder.
- ABZ Incremental Encoder.

Input voltage

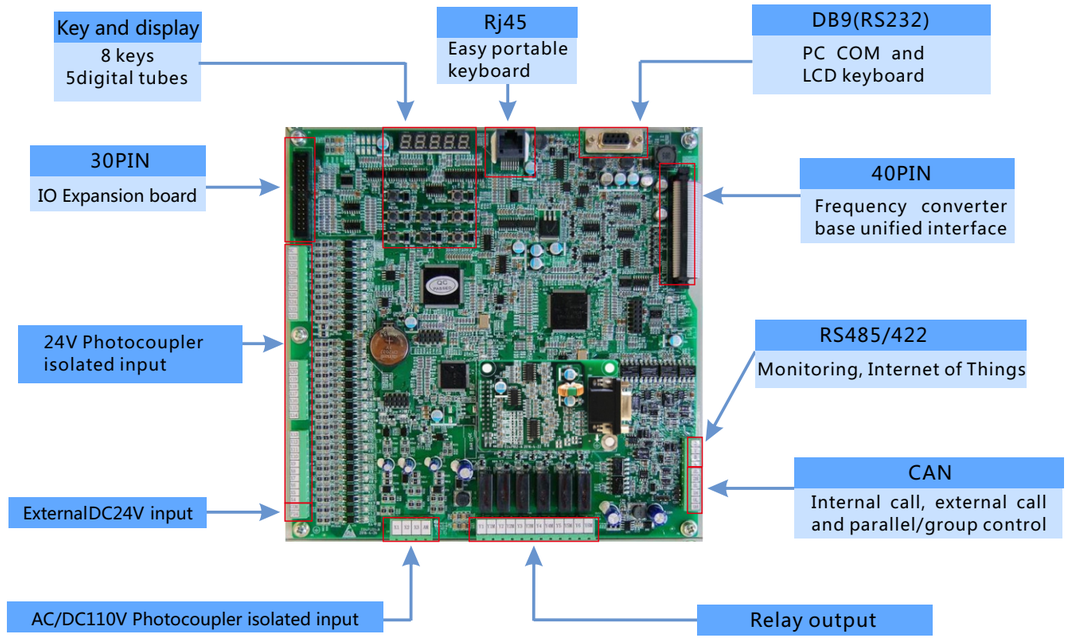
- Single-phase ：200~240VAC
- Three-phase ：200~240VAC
- Three-phase ：340~450VAC

Main power circuit terminals



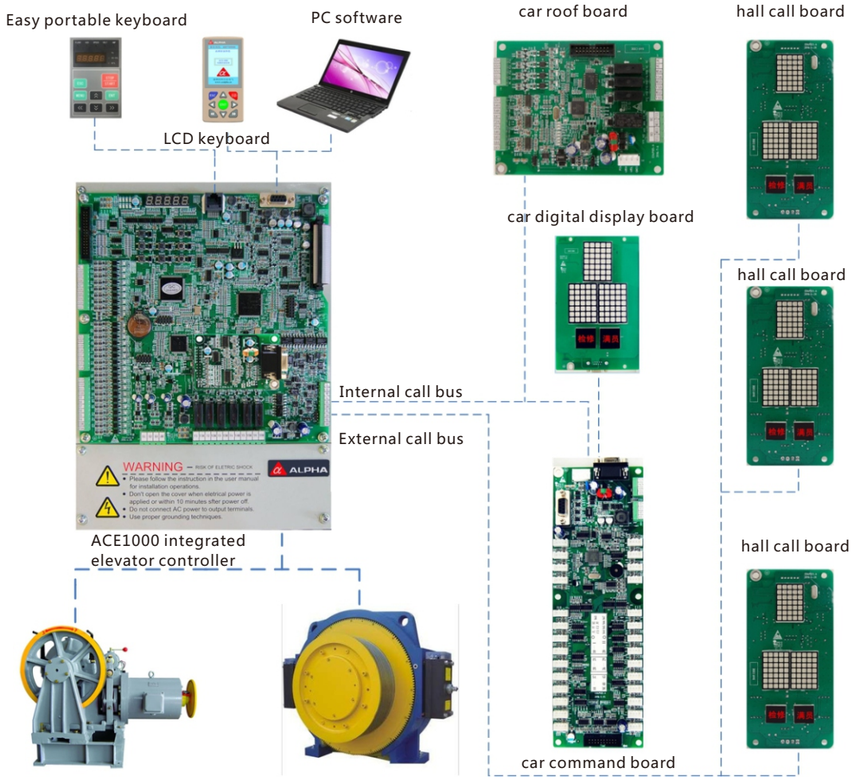
Label	Name	Remarks
R/L、S、T/N	Power input terminal	single-phase/three-phase power input terminal AC220V/AC380V
P1、（+）	DC reactor terminal	External DC reactor reserved terminal, DC reactor is optional
（+）、PB	Brake resistance terminal	External brake resistance terminal
（+）、（-）	DC Bus terminal	DC positive and negative bus output terminal
U、V、W	Driver output terminal	Three-phase AC output terminal
PE	Grounding terminal	

Control terminals

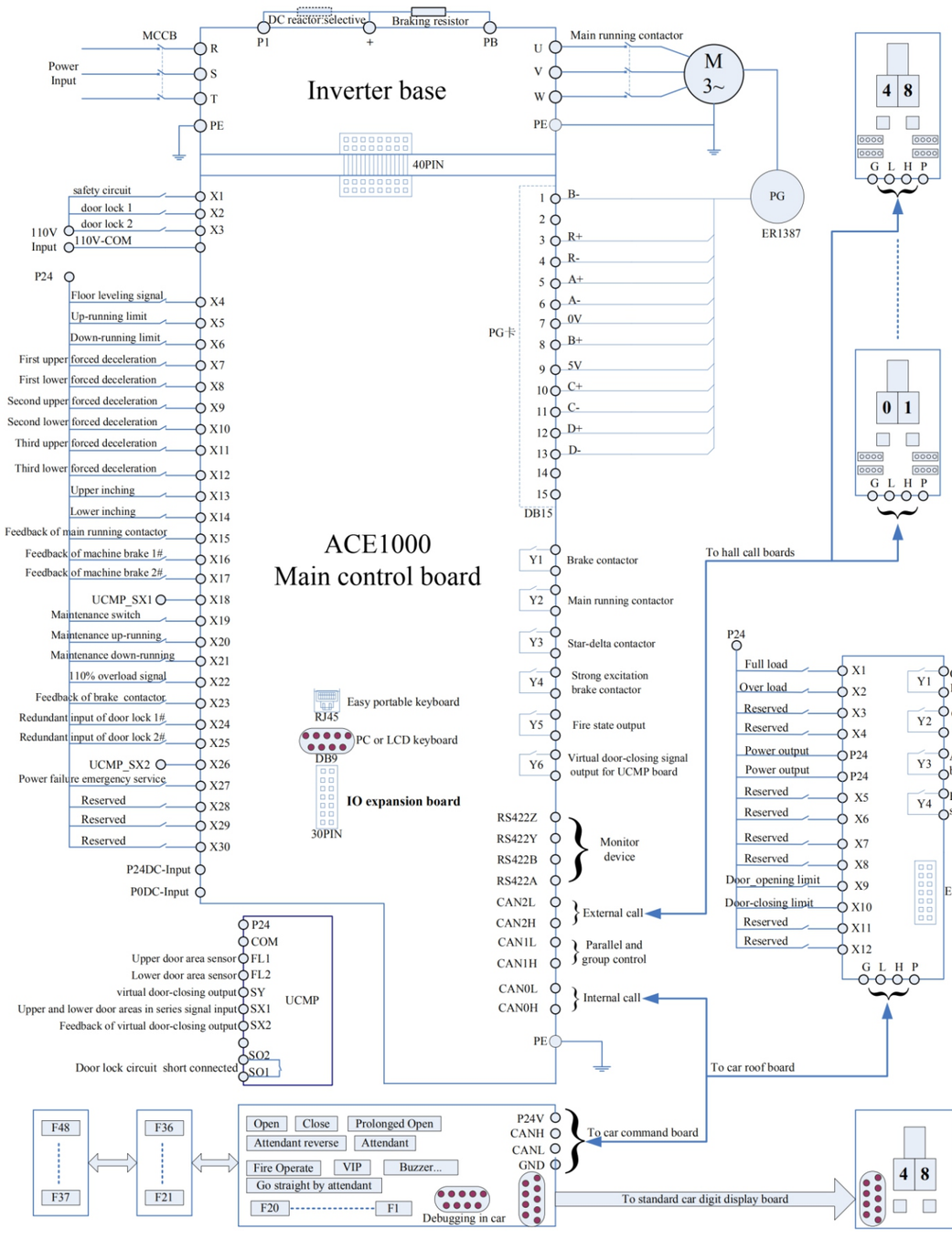


Name	Label	Remarks
DC24V input	X4～X30 P24、GND,	TP381H-00V-12P, TP381H-00V-8P, TP381H-00V-10P terminal. Photocoupler Isolated input. X17~X30 User-defined. P24 and GND is external DC24V power input. Input signal level DC12V ~ DC30V.
AC/DC110V input	X1～X3，AM	TP508H-00V-4P terminal. Photocoupler Isolated input. Safety circuit, car door lock / series door lock input, hall door lock input, door lock short connection detection. AM is common port. Input signal voltage: AC95V-AC125V.
Relay output	Y1/M1～Y10/M10	Max 5A/250VAC or 3A/30VDC. Y1/Y1M for brake control,Y2/Y2M for main running contactor. Y3/Y3M~Y10/Y10M is user-defined. Y7~Y10 on Extension Board.
CAN bus	CAN0H/CAN0L	Internal call
	CAN1H/CAN1L	Parallel and group control
	CAN2H/CAN2L	External call
RS485/422	422A/422B/422Y/422Z	Monitoring, Internet of Things, etc.
RJ45		Easy portable keyboard
IO expansion		30PIN simple horn socket. Extensible 10 DC24V optocoupler isolation input, 4 relay output, 1 RS422. IO is user-defined.

ACE1000 Control system configuration diagram



Schematic diagram of elevator control system wiring



Control function list

No.	Name	No.	Name
1	All calls response entirely	2	Door stop (no opening and closing)
3	Only down calls response	4	Random/Floor-by-floor running
5	Protection for undervoltage and overvoltage of power supply	6	Keyboard call holding
7	Protection for overcurrent and overheat of inverter	8	External call prohibition
9	Protection for phase shortage of input power and output short circuit	10	Real time control
11	Protection for fault detection of encoder	12	Time sharing and floor dividing service
13	Overload indication, alarm and protection	14	Automatic control of door-opening time
15	Overspeed protection	16	Prolong door-opening time control
17	Protection for door lock short circuit	18	Running times sum up
19	Sliding protection for tractive steel wire cable	20	Running time sum up
21	Protection for Elevator door touch panel	22	Door opening in advance of car stop
23	Protection for Elevator door light screen	24	Re-leveling on door-opening state
25	Protection for Elevator door-machine overload	26	Automatic/manual detection for brake valid torque
27	Protection for abnormal door opening and closing time	28	UCMP function and test
29	Protection for disconnection of door lock and safety circuit when running	30	Auxiliary/double brake control
31	Protection for forced deceleration	32	Double detection for brake holding
33	Fault classifying and hierarchical processing	34	Car IC-card control function
35	Automatic fault detection and alarm	36	Hall IC-card control function
37	Automatic record and statistics of faults	38	Display in car for out call message
39	Low-speed self-rectifying operation in fault	40	Lift attendant operating function
41	Automatic re-selectimg the next floor in door-opening fault	42	Double car command board operation function
43	Alarm when parking in non-door area	44	VIP passenger dedicated function
45	Automatic correction of abnormal floor location(floor err)	46	Special facilities for physically disabled
47	Parallel and group management control	48	Automatic ID setting of external call board
49	Non-call, self-returning to home landing floor	50	Button-conglutination judgement of internal and external call, opening and closing door
51	Car stand-by dispersedly in parallel and group control mode	52	Judgment of absence of external calling board
53	High-low-feet compensation in parallel and group control mode	54	External calling board analogs displaying door opening and closing actions
55	Peak load operation mode under parallel and group control mode	56	Internal and external call communication protocol can be encrypted
57	Examine and repair running mode (maintenance mode)	58	External calling board buzzer function
59	Emergency electrical operation supported	60	Custom-defined special digital display
61	Self-measurement of the floor height	62	Call for help from the car to the hall
63	Earthquake control operation	64	Full CAN communication among control boards
65	Fire forced landing back to home landing floor	66	IO point status monitoring
67	Firefighter operation	68	IO terminal customization
69	Parking of lift (manual or time control)	70	IO on the control board can be expanded
71	Power failure emergency service	72	Elevator debugging and adjustment in car
73	Double doors control (including through door and independent door)	74	Chinese/English LCD keyboard debugging (parameter backup)
75	Set a limit to operating times by user	76	Serial communication debugging
77	Straight going/passing when in full-load	78	Mobile phone App debugging
79	Anti prank for internal call	80	Full debugging on the main control board
81	Automatic elimination of reversed internal instructions	82	Easy portable keyboard debugging
83	Cancellation of incorrect instructions in car	84	Wireless/remote monitoring interface (GBT24476-2017 China)
85	Skip floors without stopping	86	Integrated upload/download elevator parameters
87	Start-up compensation with weighing-device	88	Easy-transfer parameters to the new when replacing main control board
89	Start-up compensation without weighing-device	90	Backup/recovery of off-chip parameters from/to main control board
91	Arrival light/bell in car	92	Static self-learning of motor parameters
93	Arrival light/bell in hall	94	Auto multi-segment speed and ultra-short floor recognition
95	Voice announcing/broadcasting in car	96	Direct stopping at the floor leveling
97	Energy-saving control of lighting and fan in car	98	Black box record of operating status
99	Special statistics for the convenience of maintenance	100	Hierarchical password control of elevator parameters
101	Signal satisfaction test/check	102	Security floor at night
103	Backup/recovery of default factory parameters	104	Door opening and closing test independently
105	Troubleshooting of elevator emergency stop	106	Open the door on the leveling floor before the elevator is corrected to the terminal floor
107	Automatic brake-loosing rectifying	108	Elevator external call turning to internal call service specially
109	Faults reset conditionally and Intelligently	110	Door-opening standby for passengers
111	Normal opening door change to inching action door in emergency	112	

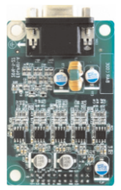
Note: Some of the functions are not listed here. For details of each, please consult Alpha technical support engineer.

Commonest supporting products

UVW encoder card

Function configuration :

adapting synchronizer UVW encoder, doing pulse counting, steering recognition, electric angle recognition, speed feedback. Usually when the car is equipped with analog weighing device, it is selected.



SinCos encoder card

Function configuration :

adapting SinCos encoder of synchronous motor to do pulse counting, steering recognition, electric angle recognition and speed feedback. Usually when there is no analog weighing device in the car.

car roof board

Hardware configuration :

CAN communication, 12 digital input (including four two-way input), 4 relay output, with expansion interface

Function configuration : full load, overload, door-opening limit, door-closing limit input, open door, close door, arrival bell, energy saving output.

car roof expansion board

Hardware configuration : 8 digital input, 4 relay output and one 0~10V analog input (weighing).

Function configuration :

double-door control, analog weighing for pre-torque compensation, and non-standard function.

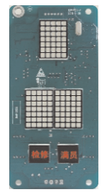
car command board

Hardware configuration :

CAN communication, 20 floor button input, 12 custom input 4 custom output, buzzer, debugging interface, expansion interface and digital display interface.

Function configuration :

Internal call, open and close the door, prolong door-opening time, attendant control, attendant reversing, fire control, attendant straight going, independent, overload and fault buzzer output.



standard hall call board

Hardware configuration : CAN communication, with buzzer, three 5×7 red dot arrays, 1 ~ 2 LED blocks.

Function Configuration : Elevator up and down call, elevator parking input, fire control input, floor and direction dynamic display, maintenance, overload display, out-of-hall arrival bell control, failure display, call for help display and buzzer warning.

car command expansion board

Function Configuration :

Adding one can expand 16 floors and two boards can be connected in series.

IO expansion board

Functional configuration :

10 inputs, 4 outputs and 1 RS422 can be extended.

easy portable keyboard

Hardware configuration :

5 digital tubes, 8 indicator lights, 8 keys.

Function configuration :

parameter modification, elevator control, IO-port monitoring, floor, voltage, current, speed, frequency, load real-time monitoring, fault record data query, etc.

car digital display board

Function configuration :

communicate with the car command board through DB9 interface, dynamic display of floor and direction, with maintenance and overload display, large font, with vertical and horizontal modes.

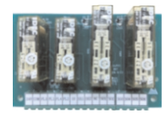
UCMPB-A

Hardware configuration :

4 safety relays.

Function configuration :

Unintended car movement monitoring for synchronous motor, door opening in advance of car stop, inching to re-level with door-opening.



UCMPB-C

Hardware configuration :

4 safety relays.

Function configuration :

Unintended car movement monitoring for asynchronous motor, secondary brake control, door opening in advance of car stop, inching to re-level with door-opening.

Monochromatic/True color LCD hall call board

Hardware configuration :

4.3 "and 6.4" screen sizes, CAN communication, with buzzer.

Function Configuration :

Elevator up and down call, elevator parking input, fire control input, floor and direction dynamic display, maintenance, overload display, out-of-hall arrival bell control, failure display call for help display and buzzer warning.

English LCD keyboard

Hardware configuration : 2.8 true color industrial LCD, real time.

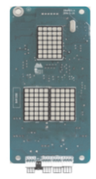
Function Configuration :

Full English user interface, multi-level tree menu structure, keys in line with PC operation habits, can completely replace the easy portable keyboard for elevator parameter setting, status monitoring, fault query, control elevator running, parameters upload and download, etc.

Multi-lattice call and display board

Function Configuration :

Elevator up and down call, elevator parking input, fire control input, floor and direction dynamic display, maintenance, overload display, out-of-hall arrival bell control, failure display, call for help display and buzzer warning. Automatic energy saving function, with vertical and horizontal modes.



Ultra-thin hall call board

Hardware configuration : CAN communication, with buzzer, two or three 5*7 red dot matrix.

Function Configuration : Elevator up and down call, elevator parking input, fire control input, floor and direction dynamic display, maintenance, overload display, out-of-hall arrival bell control, failure display, call for help display and buzzer warning.

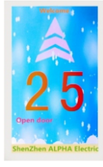
Elevator advertising machine

Hardware configuration :

7 inch, 8 inch, 10.4 inch, 12.1 inch and 15 inch screen sizes, with voice, CAN communication.

Function Configuration :

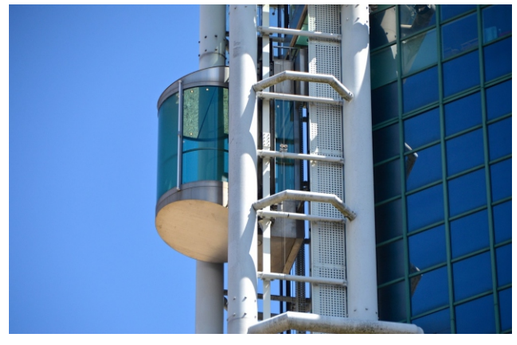
Elevator floor and direction display, time and temperature display, overload, maintenance, fire control, failure display, etc., update advertisement through USB or network.



True color LCD external call and display board

Functional configuration :

CAN communication, backlight life more than 30000 hours, with Up/Down arrival bell ring and voice reporting floor functions. Elevator up/down call, floor and direction display.



Features

- **Perfect combination of drive and control**

MCU, DSP and FPGA are centralized on the main control board to provide multiple protection for security. Elevator operation logic control, synchronous and asynchronous motor frequency conversion drive, board-level security protection, parallel and group control, serial communication, debugging function, fault handling, statistical functions are centralized in the main control board of a highly integrated control system.

- **High-end and upper-grade core architecture**

FREESCALE Cortex M4 Core Architecture MCU + RENESAS High Performance DSP + ALTERA High Performance FPGA. The classical three-chip architecture of elevator control system can redundantly handle elevator safety in hardware and software.

- **MQX Embedded operating system on the main control board**

MQX itself has passed the certification of CFR 820.30 Part 21 and IEC 60601-1, and meets the requirements of aerospace listed in DO-178b. Embedded operating system is the spirit of multi-task real-time scheduling, and also the guardian of elevator security.

- **Debugging tools have a friendly human-computer interaction experience**

All keyboards are designed with minimalist "ESC + MENU + ENTER + Direction" keys. The key setting and layout conform to the computer operation habits. All keyboard functions are invoked with tree directory structure menu, taking into account "simplicity + convenience + efficiency".

- **Full range of products**

Type of input power supply: single-phase 220V, three-phase 220V, three-phase 380V. The adaptive motor power ranges from 1.1kw to 45kw.

- **Rich supporting products**

Common supporting products are all available, and new ones will be introduced one after another.

- **Easy and unique method of setting parameters**

All elevator parameters are filled in EXCEL software. Parameter setting software can automatically check whether the parameters filled by customers conform to general rules, and can automatically fill in most of the parameters, with backup, comparison and other functions.

- **Minimalist method of uploading and downloading parameters**

The upload and download of elevator parameters can be completed by PC software and serial port at one time. At the same time, it has the function of parameter comparison and check. It supports the parameters of EXCEL and TXT formats.

- **Onboard full - function debugging keyboard**

The main control board comes with a full-function keyboard, as long as you can remember the elevator password is OK.

- **Fast blocking wave generation, instantaneous switching off IGBT**

With the help of powerful three-chip architecture, ACE1000 has high security redundancy and fast blocking time has been reduced to nanosecond level.

- **Strict hierarchical password**

Elevator parameters are controlled by three levels of passwords, which can prevent violent cracking. Different levels of passwords are authorized to different qualified personnel, and different levels of password operation rights is different, which can not only prevent parameters from being tampered but also protect their legitimate rights and interests.

- **Adequate number of IO ports**

The main control board has 30 input and 6 output ports. It can also expand 10 input, 4 output and 1 RS422. Most of the IO port functions, normally open or normally closed properties can be customized by the user.

- **Adequate power margin**

The actual power of ACE1000 converter base is much larger than the nominal rated power, and the power margin is about 25% higher than that of the common counterparts.

- **Three independent CAN bus**

The main control board is equipped with 3 independent CAN bus, which is provided for internal calling, external calling, parallel and group control functions respectively. The three CAN bus are independent of each other, any external interference will not be crosstalk, and data density is reduced to improve real-time communication. The distribution of CAN communication function can be controlled by parameters.

- **Parameter internal backup and care-free board replacing**

ACE1000 saves elevator parameters in MCU, and extends EEPROM for backup. It can be recovered from EEPROM if the current parameters are manually misoperated. The parameters on the old board can be transferred to the new board instantaneously with only one dedicated data line and the parameter transfer function.

- **Call for help from car to hall**

If the elevator breaks down and traps people in the car, the ACE1000 car's call-for-help function can let the waiting passengers on each floor know that someone is trapped in the car, so that more people can help you escape from the trapped elevator.

- **Black box for elevator operation**

The system uses a large capacity FLASH chip (non-SD card) to store the black box information. Information can not be deleted or falsified to achieve the function and purpose of the black box.

- **Easy and powerful parallel control**

Two lines can realize parallel elevator control, and the number of parallel elevators can reach four without using group control board.

- **A large number of detailed failure records**

Storage of the latest 100 detailed fault information, no need to set up a specific fault capture, easy maintenance personnel to find and deal with the fault.

- **All external call boards are equipped with buzzers**

The type and level of buzzer alarm can be controlled by parameters. Sound alarm can prevent passengers from jumping into the abnormally opened hall door and falling into the hoistway.

- **Signal satisfaction test/check**

ACE1000 innovatively enables you to check what signals are missing in the current mode of operation, allowing you to locate the missing or error signals one step at a time.

- **No customization is required for internal and external display**

ACE1000 allows users to draw special characters in EXCEL, use these custom characters to compose internal and external call display content, and automatically generate corresponding parameters.

Features

- **Various statistical functions to facilitate maintenance work**

  Count up the number of times the elevator is used on each floor, the number of specific failures on each floor, what are the most frequent failures and so on.

- **The hall call board simulates the action of opening and closing the door and the real-time speed of the elevator. There are various ID setting methods.**

- **True color English LCD keyboard supports elevator parameters debugging in car.**

- **Powerful and rich functions**

  The system has many unique functions, more than 100 functions to meet your daily use and installation and maintenance requirements.

- **Various debugging methods**

  Onboard full-function keyboard, easy portable keyboard, LCD keyboard, PC software, mobile phone application, remote debugging.

- **Powerful real-time control functions**

  Call service on time-sharing floor, Enter the parking mode at the set time, Timely rush hour mode, Timely only down call mode, Timely brake torque test, Timely security floor at night, Timely VIP.

- **Deal with anomalies easily**

  According to abnormal conditions, automatic leveling floor, active forced landing, floor correction, closing the output, etc. Ensure the safety of elevators and passengers in the case of fire fighting, power failure, earthquake, lightning strike, signal failure and mechanical failure.

Elevator control cabinet products

ACE1000-SCC01: Model 01 standard control cabinet

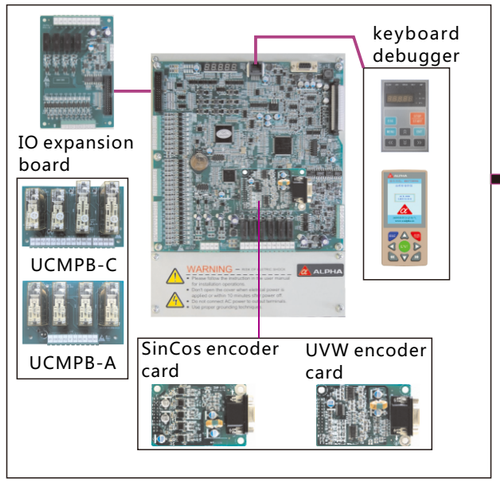
Motor type	Synchronous motor, Asynchronous motor
Controller	ACE1000 series integrated elevator controller
Power	≤22KW
Speed	≤3m/s
Max floors	48
Wiring	The plug-in
Weighing	with AD weighing device, withot AD weighing device
Brake voltage	AC110 \DC110V
Communication	CAN bus
National standard	Door locks bypass, UCMP, door lock shorted detection
Contactor	Fuji SC Series AC Contactor
Connector type	AMP(TYCO) Universal MATE-N-LOK
Power supply	AC380V
Elevator type	have machinery-room
Installation mode	On the ground

Series product list

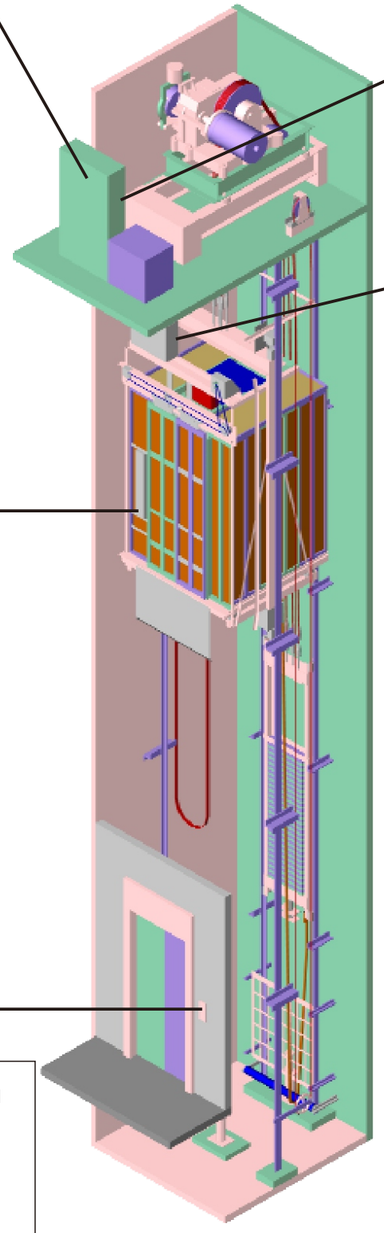
Name	Model	Size(mm)	Remarks
ACE1000 main control board	ACE -MCB -A	220 × 220	Standard
ACE1000 Inverter base			Standard, A variety of power
ACE1000 car roof board	ACE -TB -A	100 × 125 × 20	Standard
ACE1000 car roof expansion board	ACE -TB -E	60 × 125 × 20	Optional, With analog weighing input
ACE1000 car command board	ACE -CB -A	250 × 80 × 20	Standard
ACE1000 car command expansion board	ACE -CB -E	120 × 80 × 20	Optional
ACE1000 Standard external/hall call board	ACE -HC -A	145 × 70 × 15	Optional
ACE1000 Multi-lattice call and display board	ACE -HC -B	189 × 65 × 15	Optional
ACE1000 Ultra-thin hall call board	ACE -HC -C	145 × 70 × 8.5	Optional
ACE1000 True color LCD call and display board (4.3~7")	ACE -HC -E4/5/6/7	143 × 79 × 15	Optional
ACE1000 Monochromatic LCD call and display board (4.3")	ACE -HC -D4	143 × 79 × 15	Optional
ACE1000 Monochromatic LCD call and display board (6.4")	ACE -HC -D6	180 × 131 × 15	Optional
ACE1000 LCD advertising machine (7")	ACE -HC -T7	194.5 × 129.4 × 25	Optional
ACE1000 LCD advertising machine (8")	ACE -HC -T8	209.5 × 153.5 × 25	Optional
ACE1000 LCD advertising machine (10.4")	ACE -HC -T10	270 × 233 × 35.6	Optional
ACE1001 LCD advertising machine (12.1")	ACE -HC -T12	304.4 × 261 × 35.6	Optional
ACE1002 LCD advertising machine (15")	ACE -HC -T15	363.4 × 303 × 35.6	Optional
ACE1000 UVW encoder card	ACE -PG -A	75 × 50 × 25	Standard, one of encoder card
ACE1000 SinCos encoder card	ACE -PG -B	75 × 50 × 25	
ACE1000 ABZ encoder card	ACE -PG -C	75 × 50 × 25	
ACE1000 IO expansion board	ACE -IO -A	110 × 85 × 18	Optional
ACE1000 UCMP Synchronous motor	ACE -UCMPB -A	113.5 × 72 × 30	Optional
ACE1000 UCMP Asynchronous motor	ACE -UCMPB -C	112 × 70 × 30	Optional
ACE1000 standard car display board	ACE -CD -A	115 × 185 × 20	Optional
ACE1000 group control board	ACE -GC -A		Optional, for 5~8 elevators
ACE1000 Voice broadcast machine	ACE -SP -A	107.5 × 59 × 36	Optional
ACE1000 supporting software	ACE -DATA -A		Standard, free download
ACE1000 mobile phone application	ACE100 -APP -A		Optional
ACE1000 standard control cabinet	ACE1000 -SCC01	Relating to the power section	Optional, A variety of power
Easy portable keyboard	ACE -KB -A	72 × 110 × 15	Standard
LCD keyboard	ACE -KB -B	135 × 70 × 25	Optional
ACE1000 Wireless monitoring Internet of things module	ACE -WL -A		Optional

Solution diagram

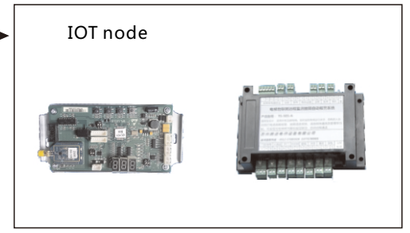
ACE1000 series integrated elevator controller



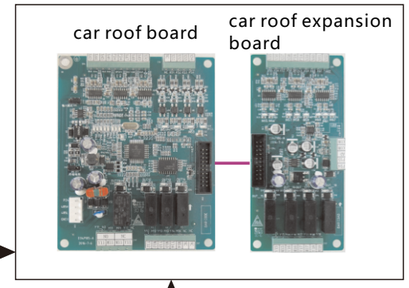
control cabinet



Internet of things module

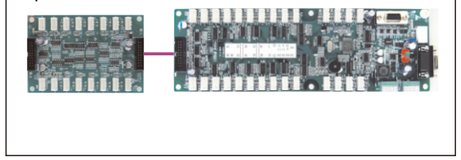


ACE1000 Car roof control box



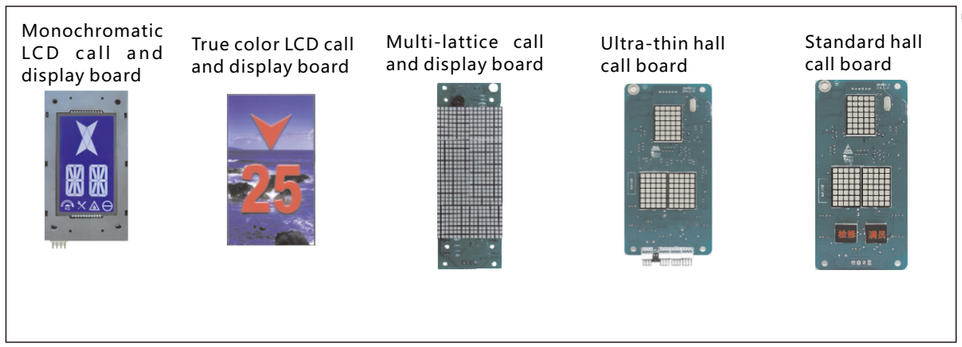
Door machine controller

ACE1000 Car control box



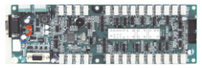
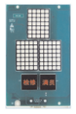
ACE1000 Car display box

ACE1000 External call box



Selection example

Elevator specifications	Passenger elevator , 24 floors, 24 stops, 24 hall doors, load 1000kg, speed 2.0m/s, 15kw synchronous motor, SinCos encoder, Pre-torque compensation do not use the weighing sensor, no attendant, standard display, UCMP function.

	Name and Model	Picture	Quantity
Product selection and quantity	ACE1000-3015XB, Contains a SinCos PG card ACE-PG-B, an easy portable keyboard		1
	Car roof board: ACE-TB-A		1
	Car command board: ACE-CB-A		1
	Standard hall call board: ACE-HC-A		24
	Standard car display board: ACE-CD-A		1
	UCMP Board: ACE-UCMPB-A		1