Contents

1. Product Description

1.1. BM Series Integrated Special Inverter

BM series integrated special inverter for construction elevator is a new generation of highly integrated intelligent control system , set inverter、brake unit、logic control unit、 brake control unit、 lifting weight limiter、 intelligent voice prompt、 intelligent status display board、 touch screen unit、 automatic leveling device 、 satellite positioning and remote monitoring in one. Compared with ordinary frequency conversion control cabinet, it's small and easy to be transported . There are there ways of installation, hang on the wall、half embedded and completely embedded . As long as the power wire, motor wire, brake wire, limit switch, brake resistance and operating console are correctly connected, the machine can work normally after starting up, external circuit wiring is simple， both of master signal and limit signal have LED indication and voice prompt， installation, debugging, maintenance and repair more convenient， reduce service cost.

1.2. BM100 Special Inverter For Reconstruction

BM100 is a special inverter developed for the reconstruction of old elevator; Set inverter control、braking resistor、status display in one，minimize the cost of reconstruction of old elevator.

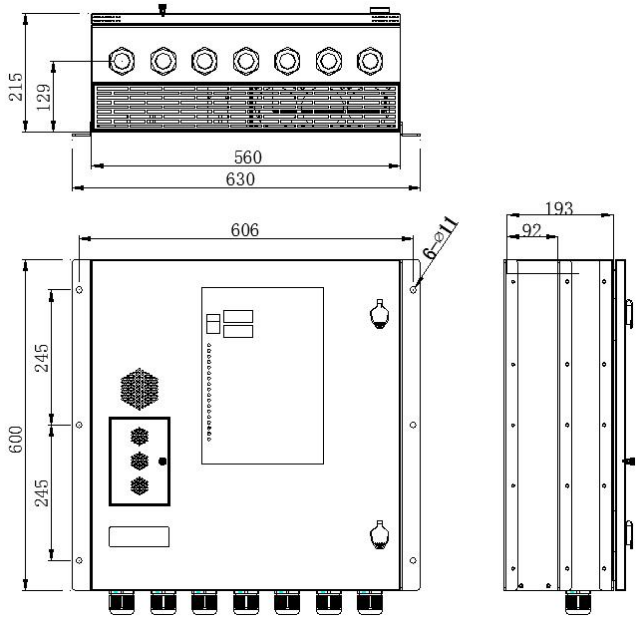
- **Simple installation：** There is no change for original power frequency cabinet，just add drive and resistor.
- **Good vibration resistance：** Anti-vibration test before delivery;
- **Safe and reliable：** Special logic break timing control guarantees safty and reliability;
- **Brake resistance short circuit protection：** Built-in brake unit which has short circuit protection;
- **No setting parameters：** Properly connect power wire, motor wire, resistance wire and external control wire, then it can work normally after starting

up ；

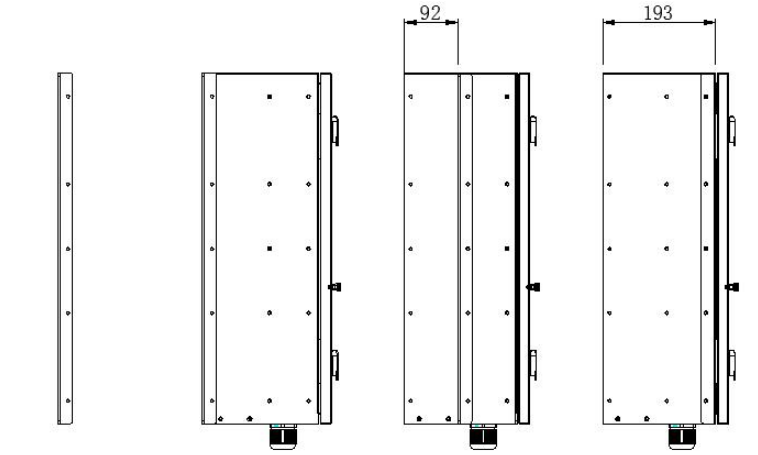
- **Wide range of applications：** Suitable for construction elevator with any transmission structure , such as turbine worm reducer and gear reducer .

2. Product Dimension

2.1. BM300B-037（37kW Vertical Integrated Special Inverter）

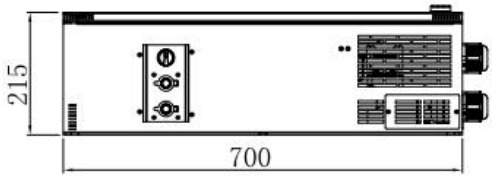


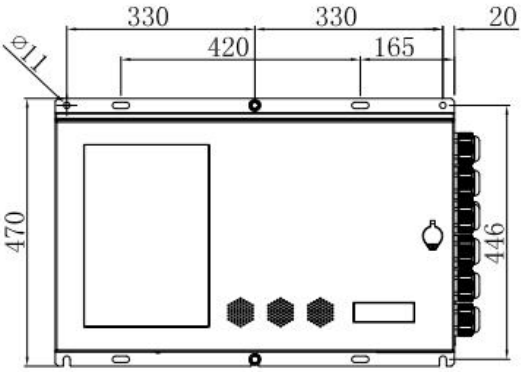
BM300B-037 Measure

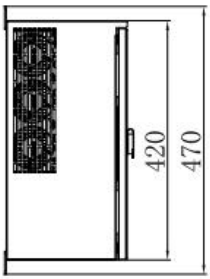


BM300B-037 installation

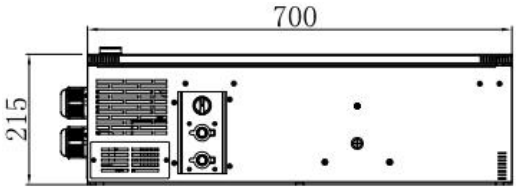
2.2. BM322C-037L（37kW Horizontal Integrated Special Inverter Left Cage）

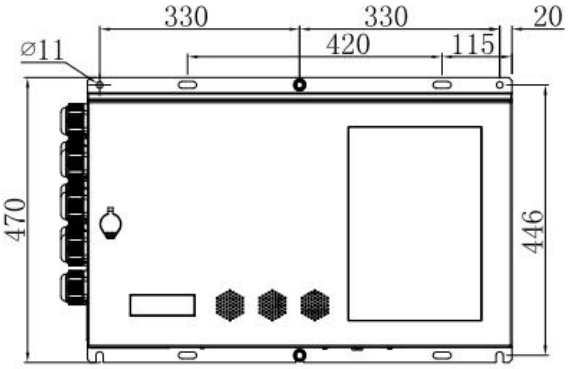


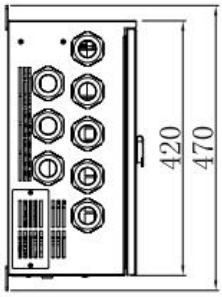




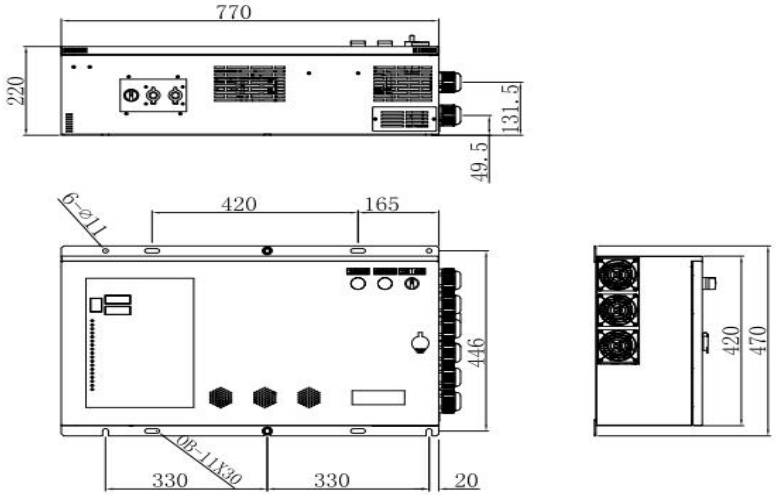
2.3. BM322C-037R（37kW Horizontal Integrated Special Inverter Right Cage）



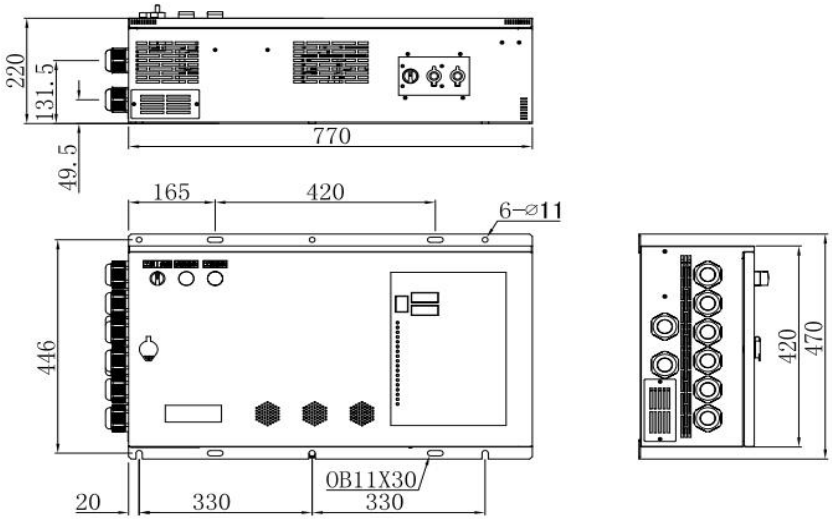




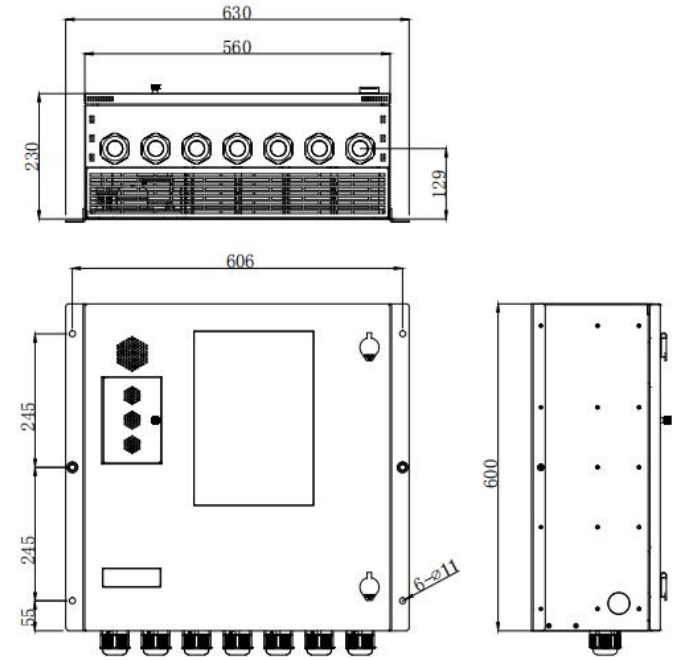
2.4. BM321C-037L（37kW Horizontal Integrated Power Frequency Inverter Left Cage）



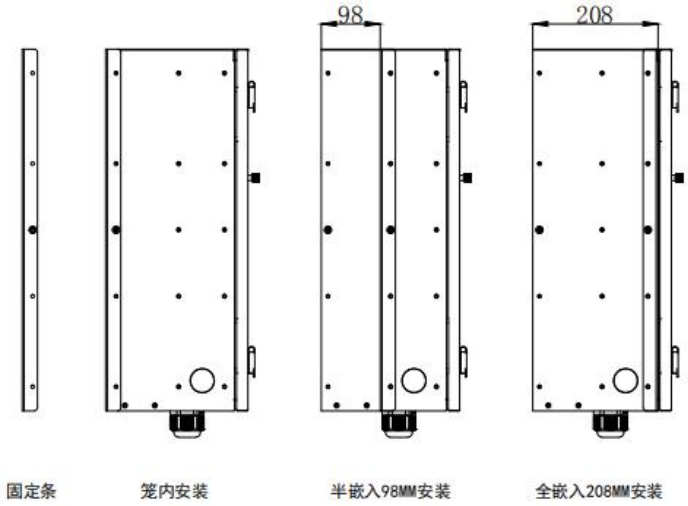
2.5. BM321C-037R（37kW Horizontal Integrated Power Frequency Inverter Left Cage）



2.6. BM300B-055 / 075（55 / 75kW Vertical Integrated Inverter）

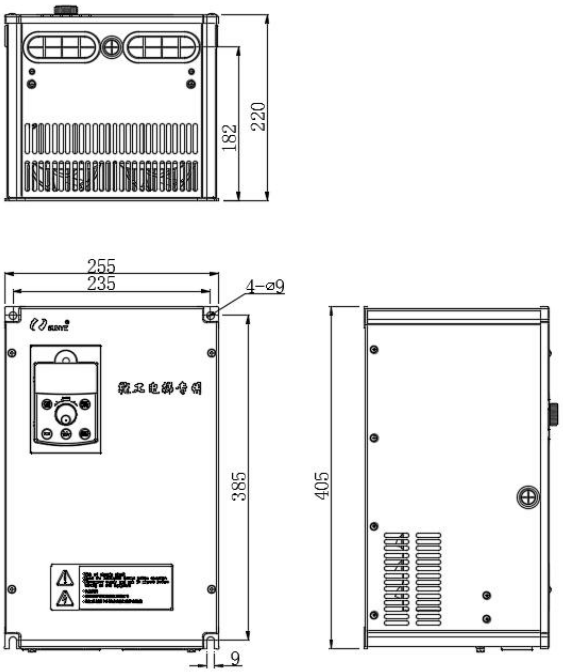


BM300B-055 / 075 Measure

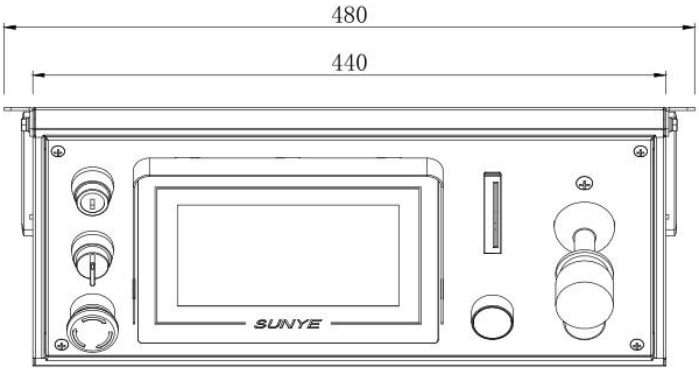


BM300B-055 / 075 installation

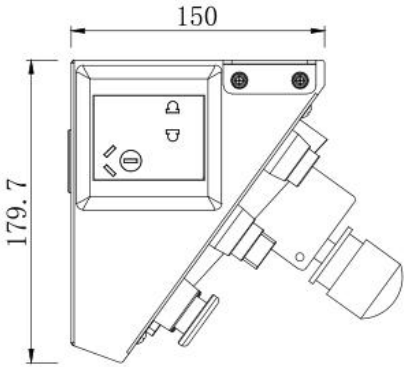
2.7. BM100-037（37kW Special Inverter For Power Frequency Transformation）



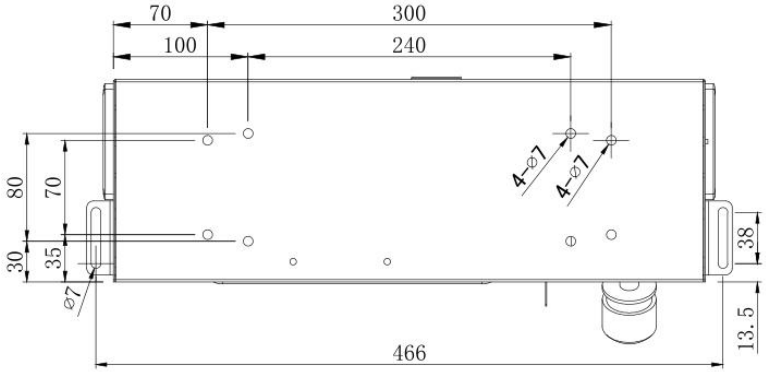
2.8. PD Series Console



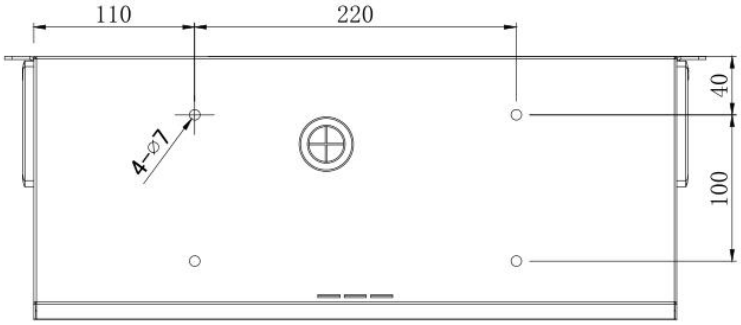
Top view of the console



Side of console



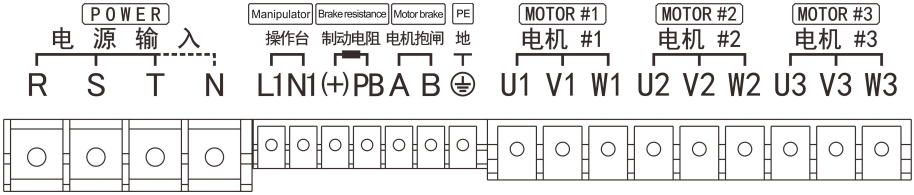
Back of console



Bottom of console

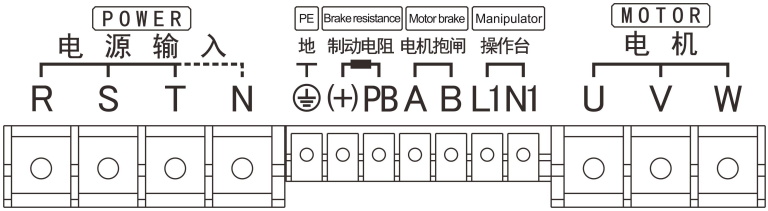
3. Product Terminal

3.1. BM300B-037 Main Loop Terminal



Symbols	Designation	Function
R、S、T、N	Power supply	There-phase AC power supply to inverter
L1、N1	console socket power supply	AC 220V supply to console socket
(+)、PB	Braking resistor	Output to connecting braking resistor
A、B	Brake output	Output to connecting brake
⏚	Grounding	Grounding resistance < 10ohm
U1、V1、W1	Inverter output	Output to connecting motor
U2、V2、W2		
U3、V3、W3		

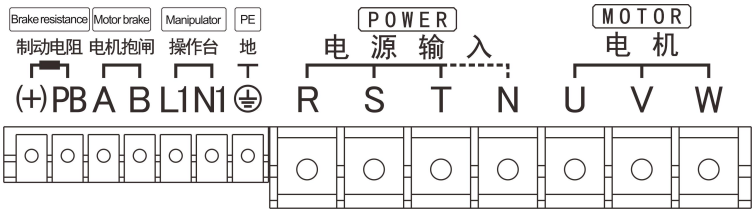
3.2. BM322C-037 L / R Main Loop Terminal



Symbols	Designation	Function
R、S、T、N	Power supply	There-phase AC power supply to inverter

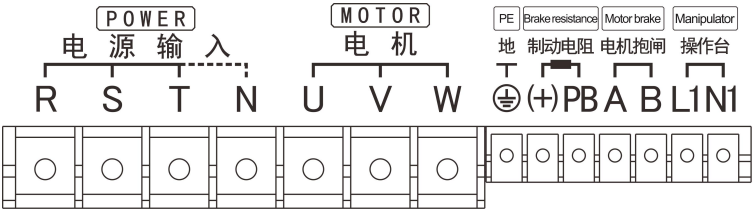
⏚	Grounding	Grounding resistance < 10ohm
(+)、PB	Braking resistor	Output to connecting braking resistor
A、B	Brake output	Output to connecting brake
L1、N1	console socket power supply	AC 220V supply to console socket
U、V、W	Inverter output	Output to connecting motor

3.3. BM321C-037 L Main Loop Terminal



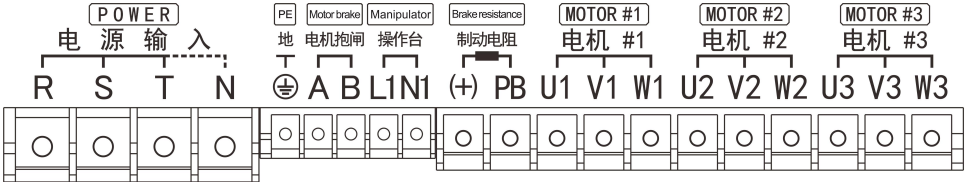
Symbols	Designation	Function
(+)、PB	Braking resistor	Output to connecting braking resistor
A、B	Brake output	Output to connecting brake
L1、N1	console socket power supply	AC 220V supply to console socket
⏚	Grounding	Grounding resistance < 10ohm
R、S、T、N	Power supply	There-phase AC power supply to inverter
U、V、W	Inverter output	Output to connecting motor

3.4. BM321C-037 R Main Loop Terminal



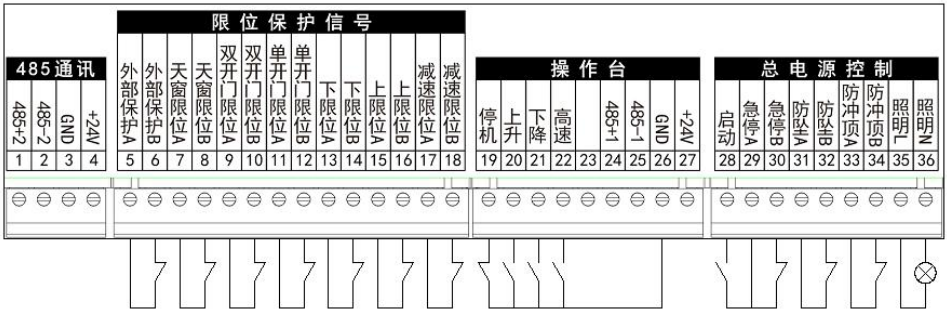
Symbols	Designation	Function
R、S、T、N	Power supply	There-phase AC power supply to inverter
U、V、W	Inverter output	Output to connecting motor
⏚	Grounding	Grounding resistance < 10ohm
(+)、PB	Braking resistor	Output to connecting braking resistor
A、B	Brake output	Output to connecting brake
L1、N1	console socket power supply	AC 220V supply to console socket

3.5. BM300B-055 / 075 Main Loop Terminal

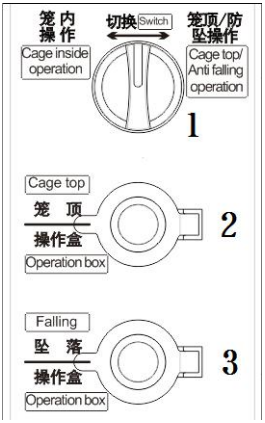


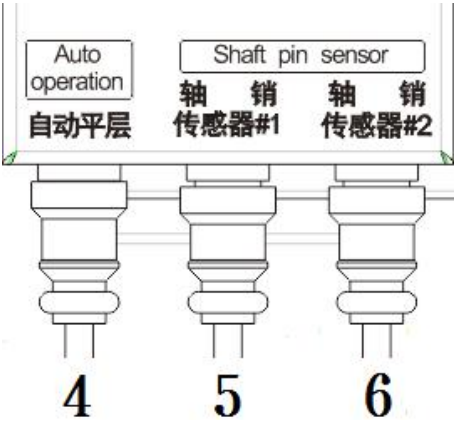
Symbols	Designation	Function
R、S、T、N	Power supply	There-phase AC power supply to inverter
⏚	Grounding	Grounding resistance < 10ohm
A、B	Brake output	Output to connecting brake
L1、N1	console socket power supply	AC 220V supply to console socket
(+)、PB	Braking resistor	Output to connecting braking resistor
U1、V1、W1	Inverter output	Output to connecting motor
U2、V2、W2		
U3、V3、W3		

3.6. Control Loop Terminal of BM Series Integrated Inverter（General）



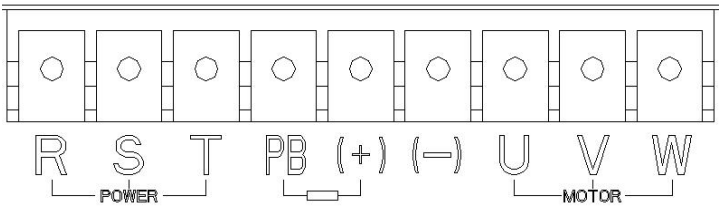
3.7. BM Series Integrated Inverter Aviation Connector（General）





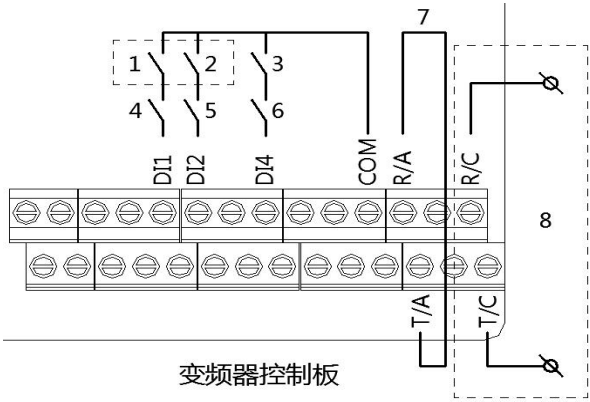
Number	Designation	Function
1	Switch knob	Mode switch: cage inside、cage top/anti-drop
2	Cage-top handle aviation connector	Connect to cage-top handle
3	anti-drop handle aviation connector	Connect to anti-drop handle
4	Auto leveling coder aviation connector	Connect to auto leveling coder
5	No.1 weight sensor aviation connector	Connect to weight sensor
6	No.2 weight sensor aviation connector	

3.8. BM100-037 Main Loop Terminal



Symbols	Designation	Function
R、S、T	Power supply	There-phase AC power supply to inverter
PB、(+)	Braking resistor	Output to connecting braking resistor
(—)	reserved	Connect to nothing
U、V、W	Inverter output	Output to connecting motor

3.9. BM100-037 Control Loop Terminal

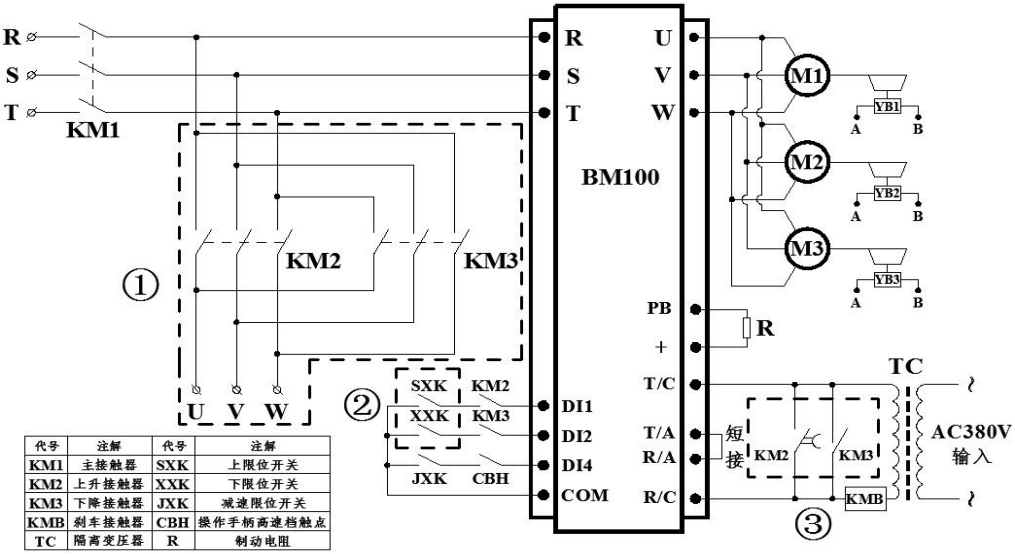


Number	Designation	note
1	Upper limit switch	It can be modified without reference to the figure above，Upper limit switch is in series with coil of descending contactor, lower limit switch is in series with coil of ascending contactor；
2	Lower limit switch	
3	Deceleration limit switch	In series with second-contact of console handle, control high-speed of elevator；
4	Ascending contactor normally open contact	Making Use of ascending / descending contactor normally open contact inside power frequency control cabinet；Attention：Do not connect AC 220V wires which connected to contactor；
5	Descending contactor normally open contact	
6	Console handle high speed contact	In series with deceleration limit switch ， control high-speed of elevator；
7	Short wire	Connect R/A、T/A terminal, control brake contactor

		by two relays(R/A-R/C、T/A-T/C);
8	Brake contactor switch	Need to remove brake contactor's wires of control which connected to original ascending / descending contactor;

3.10. BM100-037 Wiring Steps Of Power Frequency Transformation

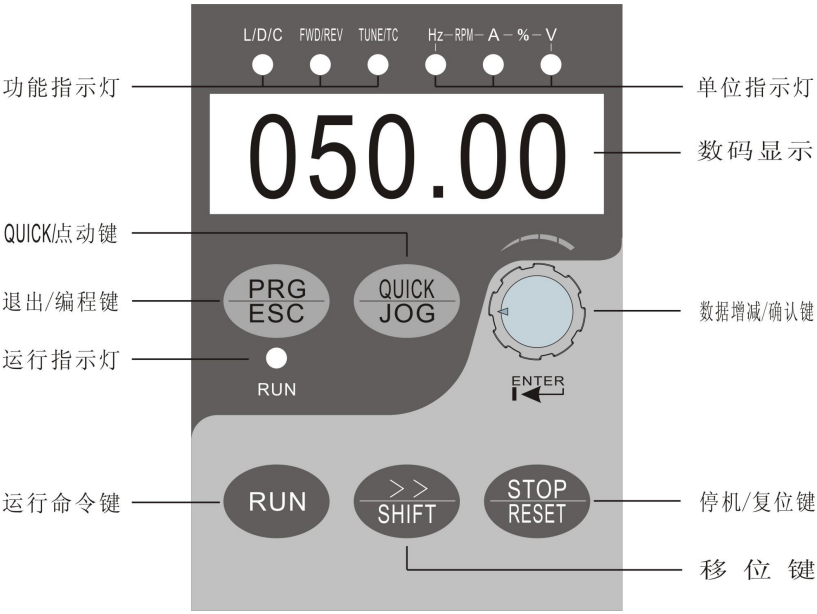
1. Removing main contactor wires which between main contactor and ascending / descending contactor, remove main contactor wires which between ascending / descending contactor and motor. As shown in the dotted box (①)below;
2. The main power wire is directly connected to inverter R, S and T through the main contactor;
3. The motor wire is directly connected to inverter U, V and W;
4. The brake resistance is directly connected to PB, + on the inverter;
5. （**You can chose to ignore this**：Connect the upper limit switch in series to the DI1—COM、connect the lower limit switch in series to the DI2—COM，as shown in the dotted box (②)below.）
6. Brake contactor controlled by T/C — R/C， need to remove original ascending/ descending contactor wires which refer to control brake contactor，as shown in the dotted box (③)below.



代号	注解	代号	注解
KM1	主接触器	SXK	上限位开关
KM2	上升接触器	XXK	下限位开关
KM3	下降接触器	JXK	减速限位开关
KMB	刹车接触器	CBH	操作手柄高速档触点
TC	隔离变压器	R	制动电阻

BM100-037 Wiring diagram of inverter transformation

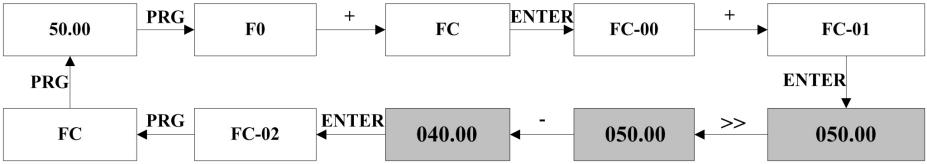
4. Panel Operation



按键	名称	功能
PRG ESC	program / exit	Level 1 menu entry or exit、return last menu
ENTER	enter	**Operation: pressing the knob vertically** enter menu interface 、save parameter
	add (+)	**Operation: The knob rotates clockwise** Numerical or Function code number increase
	subtract (−)	**Operation: The knob rotates counterclockwise** Numerical or Function code number decrease

	shift	When modifying a parameter, you can choose to modify the values at different locations
	run	This key is not valid in construction elevator mode.
	stop/reset	Reset the fault
	Quick run	This key is not valid in construction elevator mode.

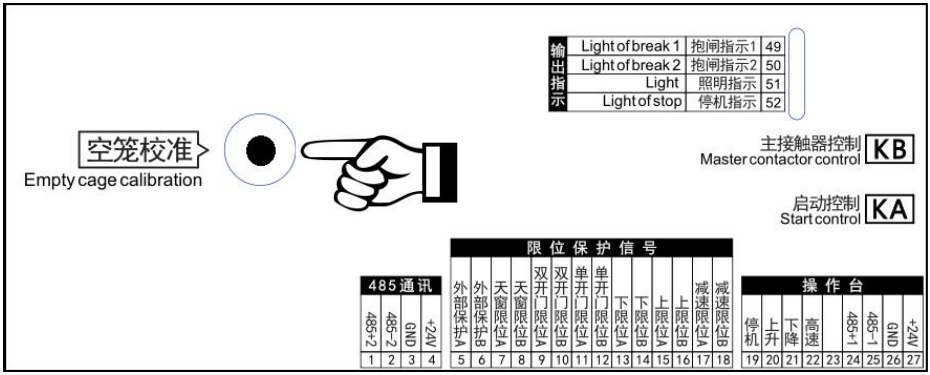
4.1. Modification Example Of Inverter Function Code：In-cage High Speed FC-01



4.2. Commonly Used Function Code Table Of Inverter

Function Code	Designation	Default value		Function Code	Designation	Default value
F0-04	Command source	1 (terminal source)		F6-00	Output of no. 1 relay	18(break output)
F0-06	Frequency source	4(Multistage speed)		F6-01	Output of no. 2 relay	18(break output)
F0-23	Time of speed up	6.0 second		FC-00	In-cage low speed	15.0Hz
F0-24	Time of speed reduction	2.0 second		FC-01	In-cage high speed	50.0Hz
F0-26	Carrier frequency	3.0kHz		FC-02	Cage top speed	35.0Hz
F0-28	Factory reset	0（1 invalid）		FE-08	Feed back protection of brake	1(valid)

5. Weight Reset Steps Of Integrated Inverter



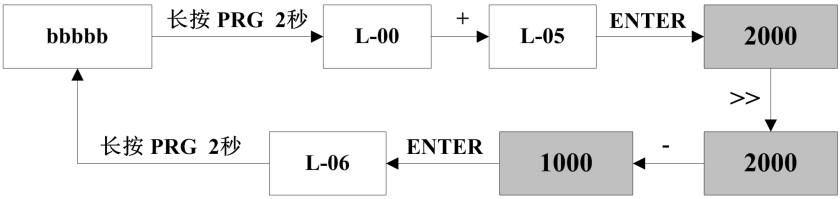
Open the lid of integrated inverter，find the arrow icon shown above，press the button in the round hole for more than 3 seconds，there will be a voice broadcast “The lift load has been cleared”，then weight clearing operation completed.

6. Basic Function Code Of Integrated Inverter

6.1. Enter Steps Of Basic Function Code

1) Open the lid of integrated inverter，remove the panel，remove network cable behind the keyboard；
2) Find the display panel behind the lid of integrated inverter，remove network cable on the display panel， then put it in the panel of inverter；
3) Panel diaplay “bbbbb”， press PRG ESC for 2 second，panel diaplay “L-00”；
4) Refer to the modification example below to modify others ；
5) press PRG ESC back to main interface，press PRG ESC for 2 second，panel diaplay “bbbbb”.

6.2. Modification Example Of Basic Function Code：Rated Weight L-05



6.3. Basic Function Code Table

Function Code	Designation	Value range	Default value	Note
L-00	Switch of brake current detection	0：open 1：close	0	
L-01	current value of brake protection	0～9.99A	6.00A	
L-02	Actual brake current	----------	-----	
L-03	Anti-drop test mode	0: Disconnect the input power when Anti-drop device is in action 1: Keep the input power on when Anti-drop device is in action	0	If value is 1，Anti-drop device have to connect to the terminal A/B
L-04	Switch of weight detection	0：open 1：close	1	
L-05	rated weight	0～9999kg	2000	
L-06	Weight bias	-4000～4000 kg	0	
L-07	Warning load	0～200. 0%	90.0%	
L-08	Alarm load	0～200. 0%	110.0%	
L-09	A unit of weight	0：ton 1：%	0	
L-10	Factory parameter	----------	-----	
L-11	Coefficient of weight	0～9999	290	
L-12	tare deduction	0～9999 kg	1200 kg	
L-13	Weight self-learning mode	0：default 1：Learn nominal weight value 1 2：Learn nominal weight value 1 3：Weight reset	0	After loading the elevator according to l-18 parameter value, l-13 is set as 1; After loading according to l-19 parameter value, l-13 is set to 2, thus l-11can be automatically calibrated. (weight ratio coefficient)
L-14	Software version	3101.0	3101.0	
L-15	Actual value of weight sensor 1	----------	-----	
L-16	Actual value of weight	----------	-----	

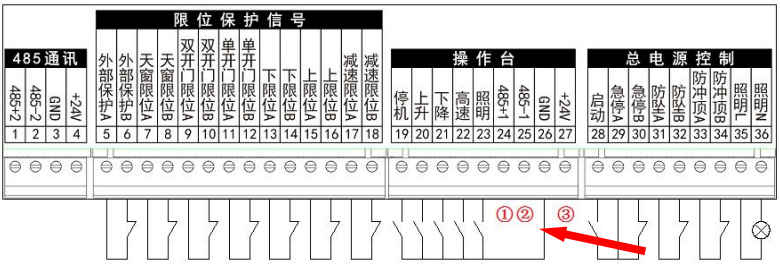
	sensor 2			
L-17	Actual current value of brake	----------	-----	
L-18	Nominal weight value 1	0～9999kg	4000kg	
L-19	Nominal weight value 2	0～9999kg	1100kg	
L-20	Voice broadcast master switch	0：open 1：close	0	
L-21	Switch of fault voice broadcast	0：open 1：close	0	
L-22	Switch of leveling voice broadcast	0：open 1：close	0	
L-23	Switch of running voice broadcast	0：open 1：close	0	
L-24	Broadcast selection switch in Chinese and English	0：Chinese 1：English	0	
L-25	Factory parameter	--------	-----	
L-26	Inverter communication indication	Normal：0/1 jump abnormal：add up	-----	
L-27	Touch panel communication indication	Normal：0/1 jump abnormal：add up	-----	
L-28	BM300_GPS communication indication	Normal：0/1 jump abnormal：add up	-----	
L-29	Switch of automatic leveling function	0：open 1：close	1	
L-30	Learning mode of automatic leveling	0：normal operation 1：floor learning 2：raising self-calibration 3：lowering self-calibration 4：Floor data reset	0	Modified by touch panel
L-31	Target floor	Enter the floor number	0	Modified by touch panel

		through the touch panel		
L-32	Current floor	The current floor of the elevator	1	
L-33	Stop distance of high-speed of elevator rising	0～20000	838	Automatic adjustment after up calibration
L-34	Stop distance of high-speed of elevator down	0～20000	873	Automatic adjustment after down calibration
L-35	Stop distance of low-speed of elevator rising	0～9999	82	Automatic adjustment after up calibration
L-36	Stop distance of low-speed of elevator down	0～9999	95	Automatic adjustment after down calibration
L-37	Accelerated distance of high-speed of elevator rising	0～20000	2312	Automatic adjustment after up calibration
L-38	Accelerated distance of high-speed of elevator down	0～20000	2495	Automatic adjustment after down calibration
L-39	The limited distance an elevator can go up at the top floor	0～2.0m	0.2m	
L-40	The limited distance an elevator can go up at the bottom floor	0～2.0m	0.2m	
L-41	Detection frequency 1 of encoder	0～50.00Hz	15.00Hz	
L-42	Detection frequency 2 of encoder	0～50.00Hz	6.00Hz	
L-43	Protection speed of auto-leveling	0～3.00m/s	0.75m/s	

L-44	Factory parameter	--------	-----	
L-45	Factory parameter	--------	-----	
L-46	Factory parameter	--------	-----	
L-47	A unit of speed	0:Hz 1:m/s	0	
L-48	Factory parameter	--------	-----	
L-49	Factory parameter	--------	-----	
L-50	Panel sensitivity	0～5	1	The smaller the value, the more sensitive it is
L-51	Parameter reset	0：default 1：Reset	0	Group L revert to default
L-52	The number of errors in the weight sensor	0～9999	300	Detection of abnormal sensor function: no connection/wire break, set to 0, this function is invalid.
L-53	Factory parameter	--------	-----	
L-54	Change in encoder pulse value	Change in pulse value every 500 milliseconds	-----	
L-55	Factory parameter	--------	-----	
L-56	Switch of brake wear detection	0：open 1：close	1	
L-57	Automatic/ manual brake wear detection	0: automatic 1: manual	1	
L-58	Switch manual wear detection	0：end 1：start	0	
L-59	Frequency of brake wear detection	0～10.00Hz	2.50Hz	After the brake wear is detected, the system controls the elevator to output the set frequency, and the brake power is disconnected. If the brake pad is badly worn, the elevator will down
L-60	Distance of brake wear detection	0～400	40	When the descending distance of the lift exceeds the set value after the brake wear is detected, the system prompts Er36
L-61	Factory parameter	--------	-----	
L-62	Rising non-limit switch	0：no limit 1：limit	1	The lift is at the lower

				limit, and the function is effective when moving up
L-63	switch of bell voice broadcast	0：open 1：close	0	When externally connected to the bell, the function code is changed to 1 to turn off the bell voice
L-64	Switch of shielding weight sensor	0：no shield 1：shield weight sensor no.1 2：shield weight sensor no.2	0	
L-65	Factory parameter	--------	-----	
L-66	Factory parameter	--------	-----	
L-67	Factory parameter	--------	-----	
L-68	Brake delay time of elevator rise in power frequency	0～2.0	0.4s	These parameters are valid only if the equipment is a mix of power frequency and inverter
L-69	Feedback protection of power frequency output	0：open 1：close	0	
L-70	Feedback time of power frequency output feedback time	0～2.0	0.3s	
L-71	Factory parameter	--------	-----	
L-72	Factory parameter	--------	-----	
L-73	Factory parameter	--------	-----	
L-74	Factory parameter	--------	-----	
L-75	Factory parameter	--------	-----	
L-76	Factory parameter	--------	-----	
L-77	Factory parameter	--------	-----	

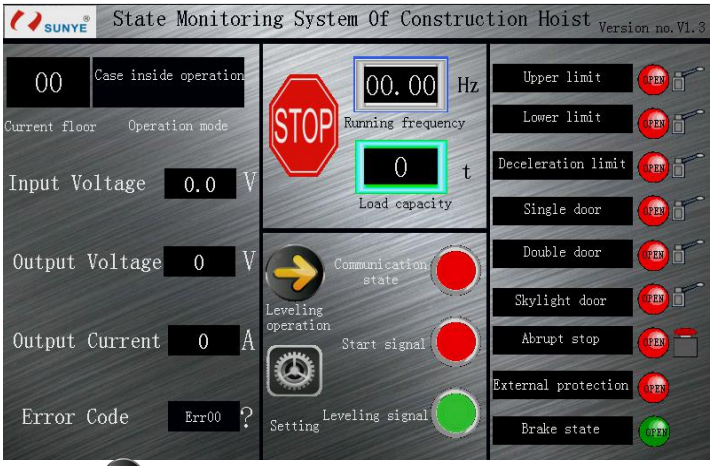
7. PD Series Console—Touch Panel（Optional）



Compared with the ordinary console, add 3 connecting wires（As shown in the arrow icon above）:

Number	Designation	Function
①	485+1	Communication wires between touch panel and integrated machine
②	485-1	
③	+24V	Combined with GND, Power supply to touch panel

7.1. Main Interface

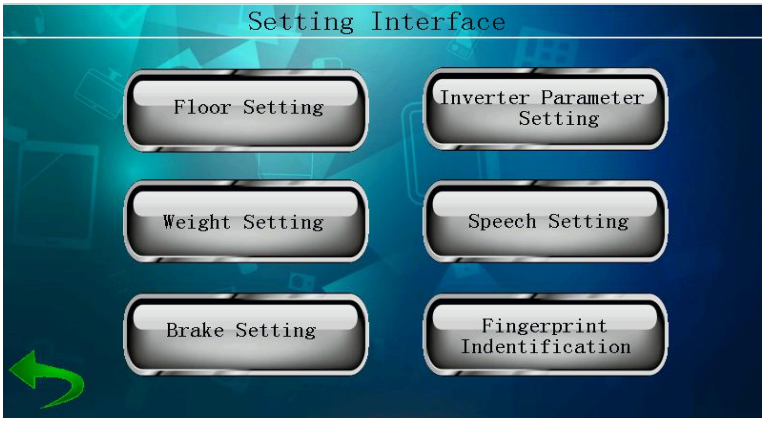


- Click “ ”（leveling operation）enter leveling operation interface;
- Click “ （setting）enter setting interface，input password（default password： “8”）;
- Click “ ？ ”， enter fault code query interface.

7.2. Auto Leveling Operation Interface

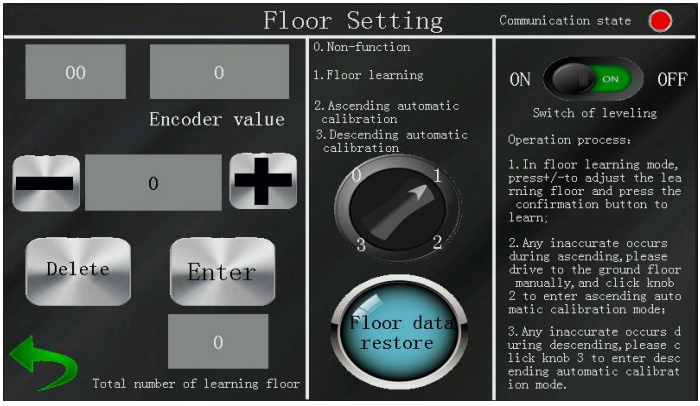
- Click “ - ”、“0~9”， input target floor（ - 9 ~ 99）;
- Click “CLEAR”， Clear the input target floor;
- Click “ TOP FLOOR ”， The target floor automatically enters the learned maximum floor;
- Click “GROUND FLOOR”， The target floor is automatically entered into the first floor;
- Click “ENTER”， Target floor has been entered,elevator starts running;
- Click “STOP”， When automatic operation, the elevator stops running;
- Click “ ”（Floor setting）Enter floor setting interface;
- Click “ ”（Leveling switch），Open or close auto leveling function;
- Click “ ” Back main interface.

7.3. Setting Interface



- Click “Floor Setting” Enter floor setting interface;
- Click “Converter Parameter Setting” Enter inverter parameter setting interface;
- Click “Weight Setting” Enter weight setting interface;
- Click “Speech Setting” Enter speech setting interface;
- Click “Brake Setting” Enter brake setting interface;
- Click “Fingerprint Identification” Enter the fingerprint identification interface;
- Click “ ” Back main interface.

7.4. Floor Setting Interface



- Click “ ” Open/Close auto leveling function;
- Click “ ” Set current auto leveling mode:

0. Normal operation mode：Back Leveling operation interface in this mode，then input floor number；

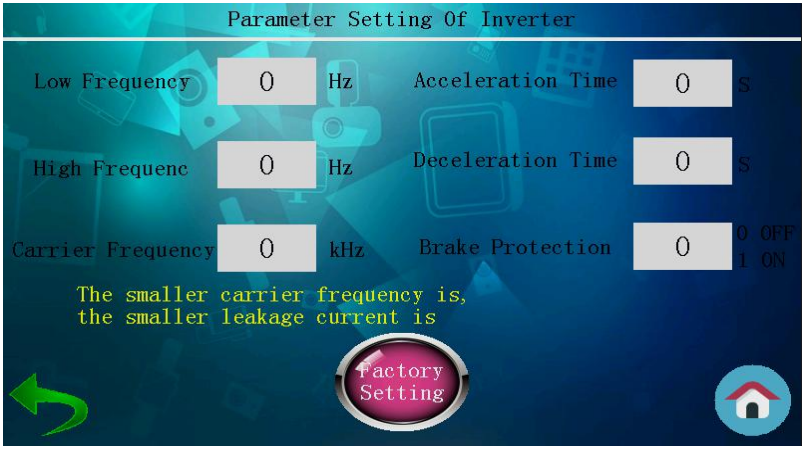
1. Floor learning mode：Ensure that the initial position of the construction elevator is on the ground floor， After normal start, manually control elevator rise/fall， After manual leveling, enter the floor in this mode and press "ENTER" to learn the floor；Enter the floor number and press “DELETE” to delete the floor；

2. Rising auto calibration mode： Ensure that the initial position of the construction elevator is on the ground floor，after normal startup, the elevator will automatically rise after setting into this mode， after calibration, the elevator will stop and automatically enter into normal operation mode；

3. Descending auto calibration mode： Ensure that the construction elevator has a descending height of more than 4 meters. After the normal starting, the elevator will automatically descend after the setting enters the mode. After the calibration is completed, the elevator will stop and automatically enter the normal operation mode；

- Click “+” / “ - ” Add or subtract the input floor number；
- Click “  ” Clear all floor data and restore to factory value；
- Click “  ” Back leveling operation interface.

7.5. Inverter Parameter Setting Interface



- Low Frequency： Click the value display box and set the in-cage low speed frequency;
- High Frequency： Click the value display box and set the in-cage high speed frequency;
- Carrier Frequency：Click the value display box and set the carrier frequency，the smaller the carrier frequency is, the smaller the leakage current of the corresponding inverter is, ranging from 1kHz to 3kHz.;
- Accleration Time：Click the value display box and set the acceleration time;
- Deceleration Time：Click the value display box and set the deceleration time;
- Brake Protection：Click the value display box and set the function of turning on/off the inverter brake protection，

  0：close brake protection，1：open brake protection;
- Click “ ” The basic function parameters of inverter are restored to the factory default value;
- Click “ ” Back setting interface;
- Click “ ” Back main interface.

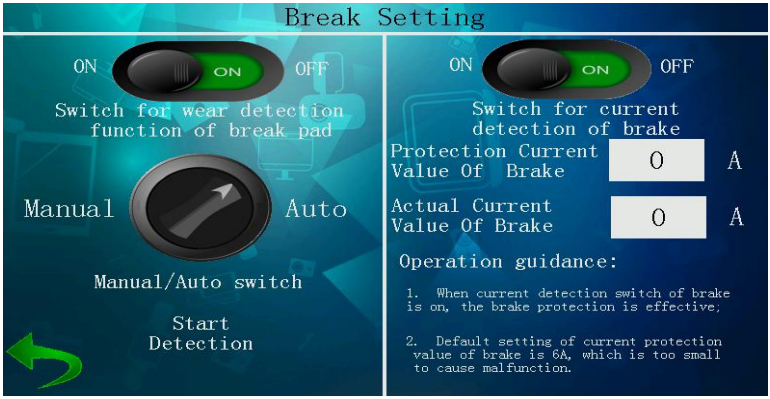
7.6. Weight Setting Interface

- Warning Load： Click the value display box to set the overload warning weight percentage of the construction elevator；
- Alarm Load： Click the value display box to set the overload alarm weight percentage of the construction elevator；
- Rated Load： Click the value display box to set the rated load of construction elevator；
- Click “ ”， Construction elevator overload clearance operation；
- Click “ ”， Turn on/off the construction lift weight limiter function；
- Click “ ”， Back setting interface；
- Click “ ”， Back main interface.

7.7. Speech Setting Interface

- Click “ ”， Turn on/off the speech function, switch between Chinese and English broadcasting function；
- Click “ ”，Restore factory Settings of peripheral control board (group L, group P, group N function code)；
- Click “ ”， Back setting interface；
- Click “ ”， Back main interface.

7.8. Brake Setting Interface

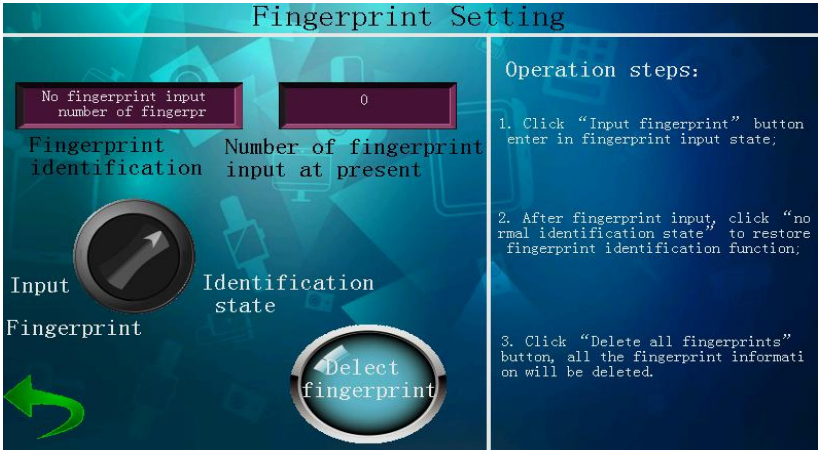


- Click “ ”， Turn on/off break related functions；
- Click “ ” Set brake pad wear manual/automatic detection；
- Protection current value of brake：Click the value display box to set the protection current value of the brake of construction elevator. When the actual current value of

the brake exceeds the protection current value of the brake, the system will disconnect the brake power for protection;

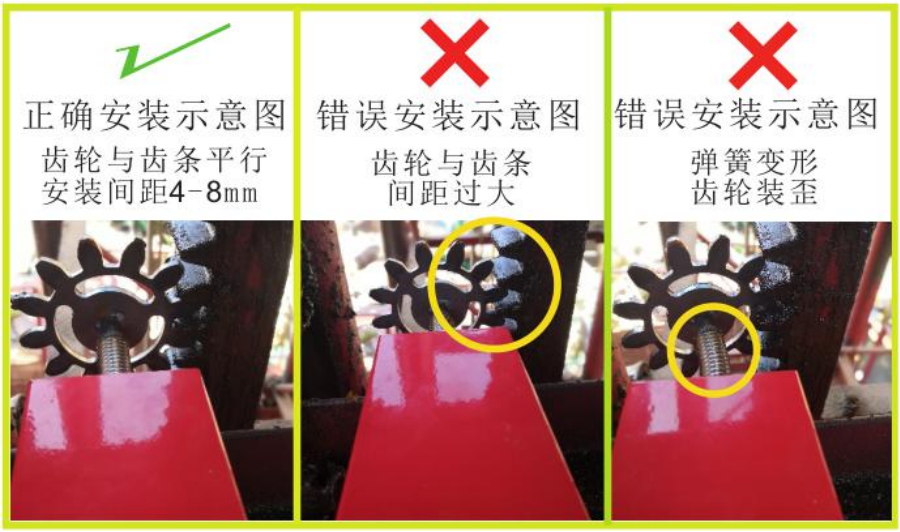
- Actual current value of brake: Displays the current actual current value of the brake;
- Click "  ", Back setting interface.

7.9. Fingerprint Identification Setting Interface



- Click "  " Set the working mode of fingerprint identification: Input fingerprint or normal identification status;
- Click "  " Delete all fingerprint data.

8. Installation Diagram Of Integrated Inverter Auto Leveling



Installation diagram of leveling equipment

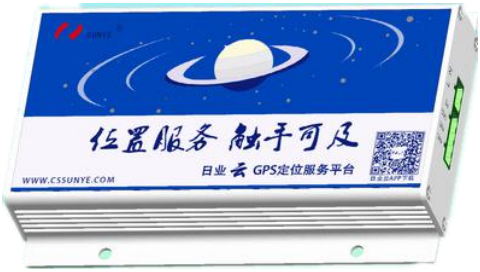
9. Common Fault And Countermeasures

Fault code	Fault information	countermeasures
Er00	Speech：Elevator overload	1.reduce the load； 2. Check weight sensor；
	Speech：Sensor Fault	1. The weight sensor is not connected; 2. Short circuit/break of signal wire of weight sensor;
Er01	Inverter protection	1. Check whether the motor has a short circuit to the ground; 2. Check whether the three-phase resistance of the motor is balanced; 3. Check whether the brake resistance is short circuit to the ground;
Er02	Hardware over current	
Er03	Hardware overvoltage	1. Check whether the resistance value of brake resistor is 15 ohms; 2. Check whether the brake resistance wire is
Er08	Acceleration overvoltage	
Er09	Deceleration overvoltage	

		broken and causes short circuit or broken circuit;
Er12	supply voltage below level	Check whether the input power is normal;
Er13	Drive overload	1. Check whether the motor is blocked; 2. Check whether the brake is open normally;
Er15	Overheating protection	1. Check whether the air duct is blocked; 2. Check whether the fan is blocked; 3. Contact after-sales service personnel for technical support;
Er23	Phase-loss of input power	Check the balance of the three phases of the input power;
Er24	Phase-loss of output power	1. Check whether the motor wire is installed correctly; 2. Check whether the three-phase resistance value of the motor is balanced; 3. Contact after-sales service personnel for technical support;
Er29	EEPROM storage fault	Contact after-sales service personnel for technical support;
Er30	Coder fault	1. Check whether the aviation connector of the encoder is properly inserted; 2. Check whether the encoder signal wire is short-circuited or broken;
Er31	Brake over current	Check whether the brake wire is short circuit；
Er32	Brake signal fault	Check whether parameters f6-00 and f6-01 are all 18；
Er33	The brake is not opened in time during running	Check whether the brake wire is connected properly；
Er34	The brake is not disconnected in time when stopping	1. Check whether the brake coil is normal; 2.Contact after-sales service personnel for technical support;
Er35	Brake pads wear too	In the brake check mode: When the rated

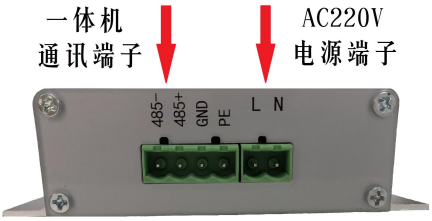
	much	torque is output, the cage displacement is large when the brake is not opened.
Er36	The contactor of power frequency output is not closed	In power frequency mode, no rising/descending of output contactor is closed when starting operation;
Er90	Motor current during running the timeout did not reach the opening current	1. Check whether the motor wire is installed correctly; 2. Check whether the motor power matches; 3. Contact after-sales service personnel for technical support;
Er91	The setting running frequency lower than the frequency of opening the brake	Reset the running frequency
Er92	Motor parameter self-learning failed	1. Check whether the motor wire is installed correctly; 2. Check whether the three-phase resistance value of the motor is balanced; 3. Check whether the motor parameters are set correctly; 4. Contact after-sales service personnel for technical support;

10. BM300-GPS Sunye Cloud Platform



BM300-GPS host

Matching antenna



Terminal Information

Antenna terminal and indicator

Terminal	Function
L、N	AC220V Power input
485 + 485 -	Communication with integrated machine BM300B/BM322C（the new）: 1.485 + connect to 485 + 2; 2.485 - connect to 485 - 2; BM300/BM322B（the old ）: 1.485 + connect to 27; 2.485 + connect to 28;
GND	Ground（Empty）

Indicator light	Information
485	bright：Communication is normal scene ：Communication failures
state	The number of periodic continuous lights indicates different states: One：SIM module is ok Two：Internet of things card is ok There：Device positioning successful Fore：Internet of things card signal is normal Five：Internet of things card GPRS function is ok Six：The device was successfully

PE	Ground terminal（Grounding resistance <10Ω）			connected to the data center Seven：The device connected to the server successfully Eight：The equipment received and send data successfully （Example: the device flashes twice, pauses for a while, and continues flashing for 5 times, indicating that the device is not located successfully）

10.1. Binding BM300-GPS

注：BM300-GPS requires proper antenna installation and power supply

QR code of Sunye cloud APP

QR code of DTU

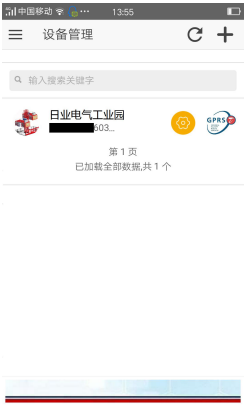
SER NO

1.Login ID

2.Add Equipment

3.Scan QR Code

4.Scan QR Code of DTU



5.Click“下一步” 6.Input information of Company 7.update 8.Add Finish

10.2. Function Of Sunye Cloud Platform APP

10.2.1. Check the position

10.2.2. The remote control

10.2.3. Modify device information