content

BL-B Parallel Integrated Controller Test Commissioning:

```
                    ┌─────────────────────────────────────────┐
                   (  SYBL Integrated Controller Commissioning  )
                    └─────────────────────────────────────────┘
                                        │
                    ┌─────────────────────────────────────────┐
                    │      Parameter Setup in Inspection Mode   │
                    └─────────────────────────────────────────┘
                                        │
                             ╱─────────────────────╲
                    Y ──────┤   Synchronous Machine?  ├────── N
              │             ╲─────────────────────╱              │
              │                                                  │
   ┌──────────────────────┐                        ┌──────────────────────┐
   │ Perform Initial angle │                        │   Test run in low     │
   │       tuning          │                        │        speed          │
   └──────────────────────┘                        └──────────────────────┘
              │                                                  │
   ┌──────────────────────┐                        ┌──────────────────────┐
   │  Test run in low      │                        │ Parameter setup in    │
   │      speed            │                        │ normal mode, hoistway │
   │                       │                        │ parameter learning    │
   └──────────────────────┘                        └──────────────────────┘
              │                                                  │
   ┌──────────────────────┐                        ┌──────────────────────┐
   │ Parameter setup in    │                        │  Test run in normal   │
   │ normal mode, hoistway │                        │        speed          │
   │ parameter learning    │                        │                       │
   └──────────────────────┘                        └──────────────────────┘
              │                                                  │
   ┌──────────────────────┐                        ┌──────────────────────┐
   │  Test run in normal   │                        │ Elevator start comfort│
   │        speed          │                        │   level adjustment    │
   └──────────────────────┘                        └──────────────────────┘
              │                                                  │
   ┌──────────────────────┐                        ┌──────────────────────┐
   │ Elevator start comfort│                        │ Elevator normal speed │
   │   level adjustment    │                        │ comfort level         │
   │                       │                        │ adjustment            │
   └──────────────────────┘                        └──────────────────────┘
              │                                                  │
   ┌──────────────────────┐                                     │
   │ Elevator normal speed │                                     │
   │ comfort level         │                                     │
   │ adjustment            │                                     │
   └──────────────────────┘                                     │
              │             ┌──────────────────────┐            │
              └─────────────│ Commissioning Finished │───────────┘
                            └──────────────────────┘
```

1. Parameter Need to set before Inspection Run：

Parameter List			Setup Medhod	
	Parameter No.	Name	Use BL Sync-machine	Use Non-BL Sync-machine
Automatic Generate	F5-00	Motor Type	In blue-light machine input, these parameters can generate automatically, see instructions below for detail.	Set motor type (0:sync- outer rotor, 1:async machine, 2:sync-inner rotor)
	F5-01	Poles		Follow motor nameplate
	F5-02	Sync Frequency		Follow motor nameplate
	F5-03	Rated Power		Follow motor nameplate
	F5-04	Rated Speed		Follow motor nameplate
	F5-08	Motor rated current		Follow motor nameplate
	F8-00	Encoder PPR		Follow motor nameplate
	F8-02	PG card Type		PG card type (0: Incremental encoder, 1: Sine/Cosine encoder）
Manual Input based on Site Condition	F1-00	Car Speed	Base on site condition	
	F1-01	Motor Speed	Motor speed at elevator rated speed (calculated)	
	F5-09	No-Load Current	Only for asynchronous machine, no-load excitation current, normally set for 25%-40% of rated current.	
	F5-10	Rated Slip	Only for asynchronous machine, follow the nameplate. Calculation method: Rated Slip = rated frequency -(rated speed * poles/60)	
	F6-03	DirSel (direction select)	Select motor running direction (0/1：Motor rotates anti- clockwise, car move down/up).	
	F9-11	Load Comp Enable	Load Compensation: 1 enable; 0 Unable. If use incremental encoder set this to 1; if use 1387 encoder at no-weighing mode, set this to 0.	

When using Blue-Light Integrated Controller, if the traction machine is also made by Blue-Light, you only need to input the machine model number and encoder information on the machine name plate to finish the parameter setting of the machine.

The interface of the Blue-Light machine input is showing in figure 4.24(a). The input content has three parts, separated by ".". The first part is the model number (separated in 4 digits), the middle part is encoder resolution information, the last part is the PG model. The detail information is showing in figure 4.24(b)

(a)   (b)

	0: Incremental Encoder
PG Model	1: Sine/Cosine Encoder
	2: 2048ppr
Encoder Resolution	8: 8192ppr
Machine Model	
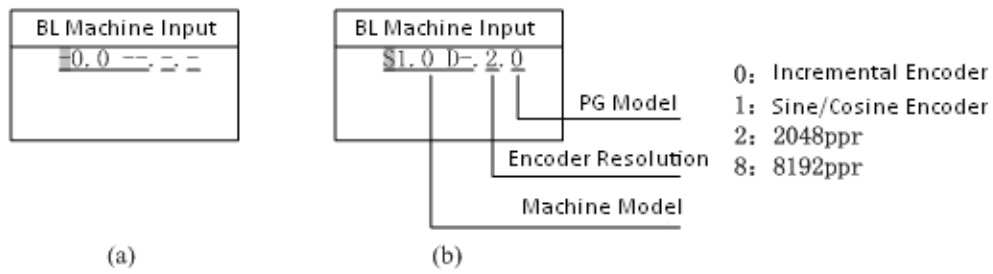
Use [UP] or [DOWN] key to set the content of the pointed area, then press the [ENTER] key to confirm. The cursor is then moved to next bit. If the pointed area is not set, the cursor will not move even you press the [ENTER] key (Except the 4th number of the machine model, e.g. S1.0D- as the last number is empty, you can press the [ENTER] key directly to set the next bit).

The flow chart of the Blue-Light machine input is shown below in figure 4.25 (i.e. S0.75D)
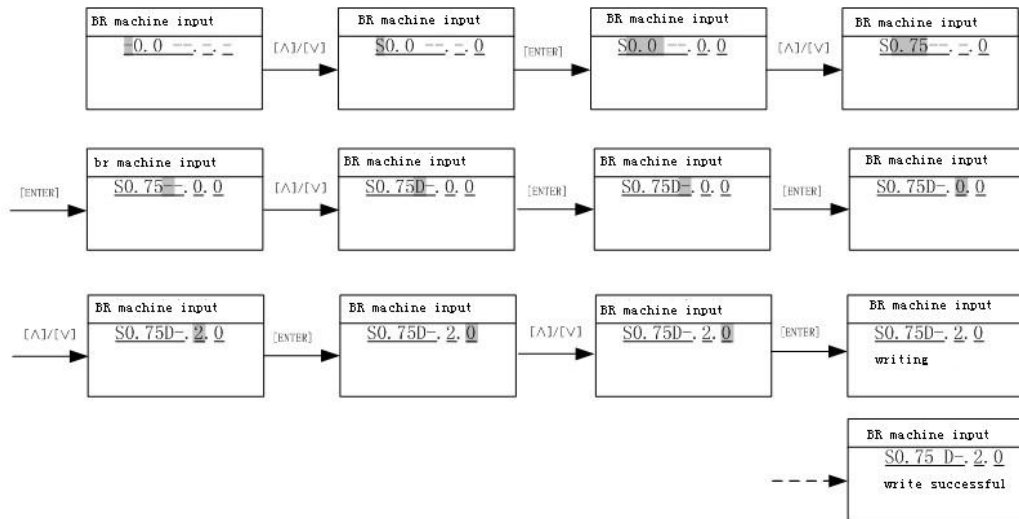
2. Motor Initial Angle Tuning (Only for Synchronous Machine)

With hand operator:

For machines without attached steel rope and no load, please follow section 2.1 " **Motor Initial Angle Tuning with no load**". For machines attached with steel rope and have load, please follow section 2.2 "**Motor Initial Angle Tuning with loa**d".

No hand operator:

If use Blue-light synchronous machine, please follow section 2.3 to perform motor initial angle tuning without hand operator.

(The above 3 tuning method could achieve the same tuning purpose, please select one based on site condition.)

2.1 Motor Initial Angle Tuning with no load

For this tuning method, make sure the motor have no load and brake is released.

Procedures required before tuning:

1. Ensure synchronous motor (traction machine) has no load (DO NOT attach steel ropes);

2. Connect running contactor output Y9 (J4-7) and COM3 (J4-6) to make it close;

3. Connect brake contactor output Y6 (J4-10) and COM3 (J4-6) to release the brake;

Set tuning method parameter FX-20 to "0" on digital operator (0: rotation tuning, 1: static tuning), after setting motor parameters (F5) and encoder parameters (F8) correctly, perform motor initial angle tuning based on the following procedures shown in Figure 7.3:
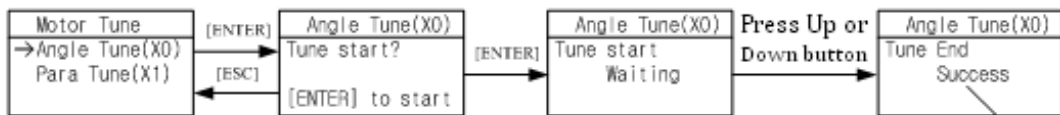
Display: Success or failure

Incremental Encoder: After pressing "Enter", tuning starts. Motor vibrate at beginning or runs forward / reverse a little, then it accelerates forward to a certain speed（facing to traction sheave, anticlockwise rotation is forward direction）, after 20s of constant speed running, motor stops; Then it accelerates forward to a certain speed, and after 20s running in constant speed, it stops again; Then it accelerate forward to a certain speed in third time, and after 20s running in constant speed, it stops and indicates "Success".　The whole tuning procedure lasts around 80s.

Sine/Cosine Encoder: After pressing "Enter", tuning starts. First, motor rotates to a firm position, then it rotates forward（facing to driving shaft, anticlockwise rotation is forward direction）in a constant speed, rotation speed and time depends on the pole number and initial position, it stops after maximum one round rotation, then it rotates to one position and remains for 2 s again, motor stops and indicates success. The whole tuning procedure lasts less than 20s.

Motor Initial Angle Rotation Tuning Fault List (Incremental Encoder, without load)

Error Code	Definition	Possible Causes	Possible Solution
RF1	Rotation tuning error	1. Motor with load; 2. Motor phase is not correct; 3.Encoder damage or wiring incorrect.	1. Make sure motor has no load; 2. Correct the phase of motor; 3. Check the encoder and wiring.
RF2	Auto tuning data error	1. Motor parameter setting error; 2.Encoder damaged or wiring incorrect; 3. High interference.	1. Check motor parameter setting; 2. Check encoder and its wiring; 3. Reduce interference.
RF3	Z-phase pulse lost at tuning	1. Encoder damaged; 2. Encoder wiring is incorrect	1. Check encoder; 2. Correct the wiring of encoder
RF4	Auto tuning result is not correct	1. Motor parameter setting incorrect; 2. Encoder and its wiring is incorrect; 3. Auto tuning motor with loads; 4. Speed circle P/I set too large.	1. Check motor parameter setting; 2. Check encoder and its wiring; 3. Make sure motor has no load; 4. Reduce P/I parameter value.
RF5	Auto tuning UVW repeated input	The encoder UVW wire have short circuit or disconnected	Check the encoder and wiring
RF6	Motor cannot rotate normally	1. Motor with load; 2. Motor phase sequence is incorrect.	1. Make sure motor has no load; 2. Check motor phase sequence.
Others	Check controller for fault.	If drive has fault, it cannot perform auto tuning, and it will give fault code.	Check the drive is fault or not

**Motor Initial Angle Rotation Tuning Fault List (Sine/Cosine Encoder, without load)**

Error Code	Definition	Possible Causes	Possible Solution
RF232	Motor does not rotate at auto tuning	1. Encoder connection fault; 2. Motor has load or brake close; 3. Motor parameter input error; 4. Motor & controller connection error.	1. Check encoder signal connection; 2. Motor parameter input correct; 3. Check motor/controller connection; 4. Make sure motor has no load & brake open.
RF233	Motor rotate in wrong direction	Motor phase sequences does not match encoder	1. Adjust motor phase sequence 2. Adjust encoder A-, A+ or B-, B+
RF234	Encoder Z pulse signal error.	1. No detection of Z pulse signal; 2.Motor/Controller connection error.	1. Check wiring for Z pulse signal; 2. Make sure motor has no load. 3. Check motor/controller connection.

2.2 Motor Initial Angle Tuning with load

For this tuning method, tuning can be carried out with steel rope attached, but please make sure the following procedures are finished correctly before tuning:

1. Wiring in control cabinet is completely correct, and system under inspection state;
2. Set running parameter (F1), motor parameter (F5), encoder parameter (F8) correctly ;
3. All mechanical faults in hoistway are eliminated; cabin and counterweight locate at center of hoistway.

Set tuning method parameter FX-20 to "1" on digital operator (0: rotation tuning, 1: static tuning), perform motor initial angle tuning based on following procedures shown below:
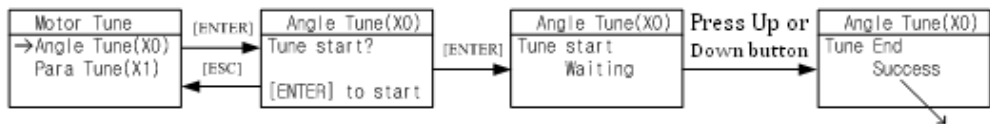
After pressing "Enter", tuning starts. When digital operator indicates "running" , press jog up or down button , contactor KDY closes, motor will vibrate a little and give a noise, the duration depends on motor rated power and rated current, but no longer than 5s, this is static tuning period. (Make sure jog up or down button is pressed constantly, DO NOT release the button during this period.)Motor will then start and run in inspection speed , jog up or down, until digital operator indicates success, this is test running period. Finally, release the jog up or down button and finish the tuning procedure.
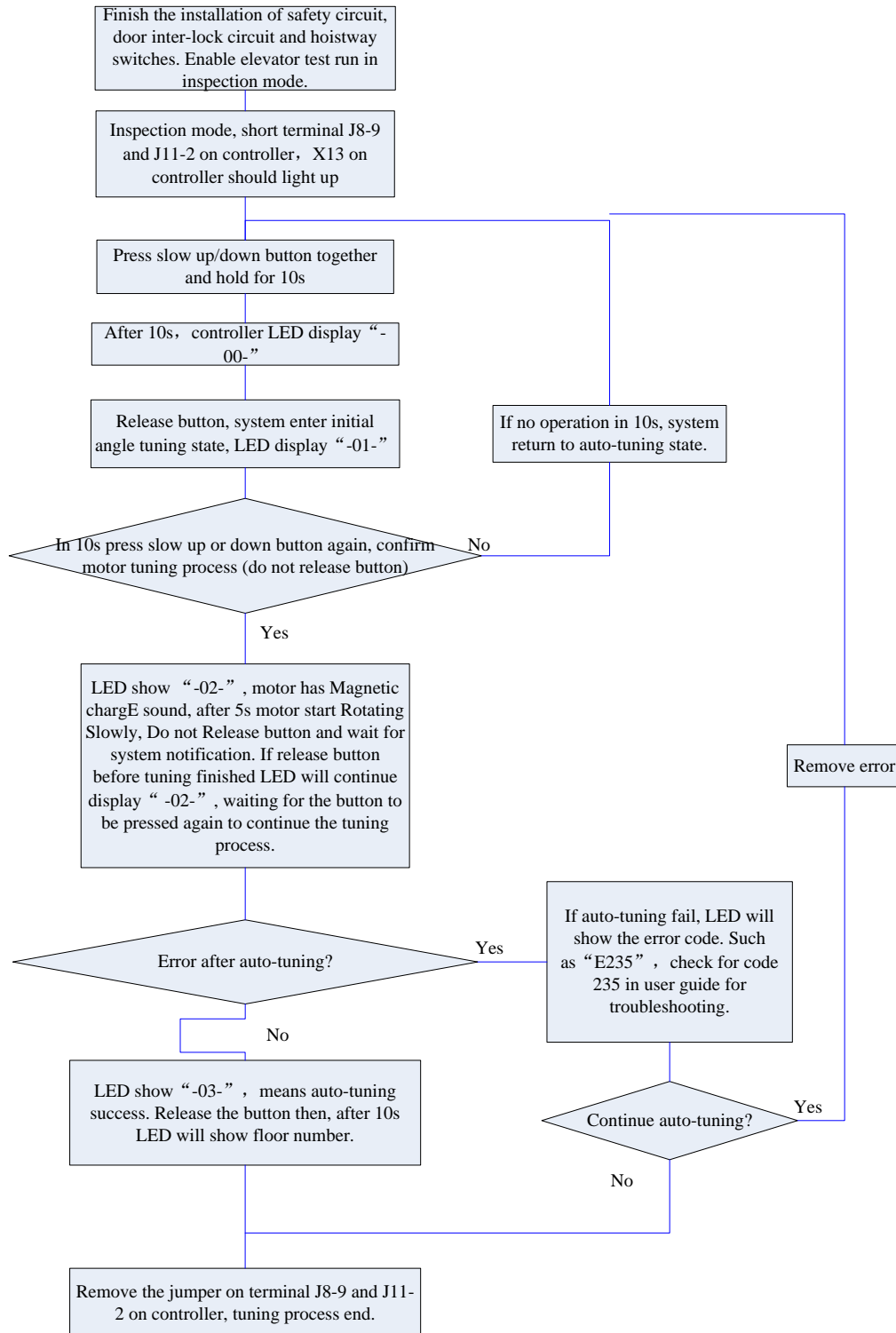
Please note the following items at motor static tuning:

1. To ensure safety, during tuning process, people are not allowed to stay in car/hoistway;
2. Press up or down jogging button can base on the current cabin position;
3. The whole tuning procedures can be divided into two steps: static tuning and motor test run, make sure there is no gap between two steps. If no fault happens, before digital operator indicates success, press the jog up or down button constantly;
4. If car running direction is opposite to inspection run button, correct this through F6-03

2.3 Motor Initial Angle Tuning without Hand Operator

When using BL series integrated controller with Blue-light synchronous machine, just fill in the machine type at factory, every integrated controller will perform the corresponded angle tuning at factory, save site test time and maximize the site commissioning efficiency.

Note: At factory, integrated controller must fill in the related machine parameter (F5) and PG card parameter (F8), set tuning method to static tuning.

```
┌─────────────────────────────────────┐
│ Finish the installation of safety    │
│ circuit, door inter-lock circuit and │
│ hoistway switches. Enable elevator   │
│ test run in inspection mode.         │
└─────────────────────────────────────┘
                 │
┌─────────────────────────────────────┐
│ Inspection mode, short terminal J8-9 │
│ and J11-2 on controller，X13 on      │
│ controller should light up           │
└─────────────────────────────────────┘
                 │
┌─────────────────────────────────────┐
│ Press slow up/down button together   │
│ and hold for 10s                     │
└─────────────────────────────────────┘
                 │
┌─────────────────────────────────────┐
│ After 10s，controller LED display    │
│ "-00-"                               │
└─────────────────────────────────────┘
                 │
┌─────────────────────────────────────┐      ┌─────────────────────────────┐
│ Release button, system enter initial │      │ If no operation in 10s,     │
│ angle tuning state, LED display      │      │ system return to auto-      │
│ "-01-"                               │      │ tuning state.               │
└─────────────────────────────────────┘      └─────────────────────────────┘
                 │
         ◇ In 10s press slow up or down button again, confirm ─── No
           motor tuning process (do not release button) ◇
                 │ Yes
┌─────────────────────────────────────┐
│ LED show "-02-", motor has Magnetic  │
│ chargE sound, after 5s motor start   │
│ Rotating Slowly, Do not Release      │
│ button and wait for system           │
│ notification. If release button      │
│ before tuning finished LED will      │
│ continue display "-02-", waiting for │
│ the button to be pressed again to    │
│ continue the tuning process.         │
└─────────────────────────────────────┘
                 │                                      ┌─────────────┐
         ◇ Error after auto-tuning? ◇ ─── Yes           │ Remove error│
                 │ No                                    └─────────────┘
                                        ┌──────────────────────────────┐
┌─────────────────────────────────────┐│ If auto-tuning fail, LED will │
│ LED show "-03-", means auto-tuning  ││ show the error code. Such as  │
│ success. Release the button then,   ││ "E235", check for code 235    │
│ after 10s LED will show floor       ││ in user guide for             │
│ number.                             ││ troubleshooting.              │
└─────────────────────────────────────┘└──────────────────────────────┘
                 │                            ◇ Continue auto-tuning? ◇ ── Yes
                 │                                    │ No
┌─────────────────────────────────────┐
│ Remove the jumper on terminal J8-9   │
│ and J11-2 on controller, tuning      │
│ process end.                         │
└─────────────────────────────────────┘
```

Motor Initial Angle Tuning with load error code (same for section 2.2 & 2.3)

Error Code	Definition	Possible Causes	Possible Solution
RF235	Encoder Z pulse signal lost.	No encoder Z pulse signal detected after motor tuning for 7s.	If motor can running, check the encoder wiring; otherwise find out why motor cannot run.
RF236	Internal counting error.	Internal counting error.	1. Check the parameter input 2.Check motor/controller connection.
RF237	Motor is not held still	Motor brake is not close or brake is too loose	Check motor brake.
RF238	Detection current is too small	Motor/Controller connection is incorrect.	Check motor/controller connection.
RF239	Tuning results have too large errors	After tuning 3 times, tuning results have large differences.	Check motor and encoder wiring ground condition, then try again.
RF240-RF249	For incremental PG tuning, UVW signal error	The encoder UVW wires have wrong sequence or disconnection.	Check the UVW wiring with encoder
RF252	Auto tuning failed	Test run failed after auto tuning.	Check encoder feedback signal; Check power cable phase order.

3. Asynchronous Motor Adjustment

Asynchronous motor do not need angle tuning. But compared with synchronous motor, NO-Load Current (F5-9) and Rated Slip (F5-10) should be adjusted. The parameters and informations below should be confirmed as well(parameters below are different with synchronous motor).

（1）**Motor Parameters Confirmation**

Para No.	Display (In Chinese) / Display (In English)	Content	Range	Factory Setting	Unit	Live Chang	Ref Page
F5-00	电机类型 / Motor Type	Set motor type (0:sync- outer rotor, 1:async machine, 2:sync-inner rotor)	0～2	0	--	N	6-14
F5-01	电机极数 / Poles	Moto poles (Nameplate)	1~99	20	--	N	6-14
F5-02	电机同步频率 / Sync Freq	Motor synchronous frequency (Nameplate)	0.001~99.999	16	Hz	N	6-14
F5-03	电机额定功率 / Rated Power	Motor rated power (Nameplate)	1~50	6.7	kW	N	6-14
F5-04	电机额定转速 / Rated Speed	Motor rated speed (Nameplate)	1~1999	96	RPM	N	6-14
F5-05	反电动势 / V IN	Motor counter-EMF (Nameplate)	1~380	280	V	N	6-14
F5-06	电机相电感 / L_phase	Motor phase inductance set. (Auto-tuning/ manual input)	Auto-tuning /Nameplate		mH	N	6-14

F5-07	电机相电阻	Motor phase resistance set. (Auto-tuning/ manual input)	Auto-tuning /Nameplate		Ω	N	6-14
	R_phase						
F5-08	电机额定电流	Motor rated current. (Nameplate)	0～99.999		A	N	6-14
	Rated FLA						
F5-09	空载电流	For asynchronous machine, no-load excitation current.	0.1~50	0	A	N	6-14
	NO-Load Current						
F5-10	滑差	For asynchronous machine rated slip. (Nameplate)	0.1~10	1.3	HZ	N	6-14
	Rated Slip						

（2）Encoder Parameters Confirmation

Para No.	Display (In Chinese)	Content	Range	Factory Setting	Unit	Live Chang	Ref Page
	Display (In						
F8-00	编码器线数	The encoder pulse count per-revolution.	100~8192	8192	--	N	6-18
	Encoder PPR						
F8-02	PG 类型	PG card type (0: Incremental encoder, 1: Sine/Cosine encoder）	0/1	0	--	N	6-18
	PGType						

（3）PI Parameters Confirmation

Para No.	Display (In Chinese)	Content	Range	Factory Setting	Unit	Live Chang	Ref Page
	Display (In English)						
F6-04	速度环比例	Speed loop proportional gain. (Valid for complete curve if not used in multiple PI.)	0~65535	700	--	--	6-15
	Kp						
F6-05	速度环积分	Speed loop integral gain. (Valid for the complete curve if not used in multiple PI.)	0~65535	260	--	--	6-15
	KI						

（4）Elevator System Confirmation

1) Time Setup Parameters

Para No.	Display (In Chinese)	Content	Range	Factory Setting	Unit	Live Chang	Ref Page
	Display (In						
F2-00	提前开闸时间	Brake open first then run elevator speed curve. This is to improve the elevator start comfort and match control system with different machine brake on time.	0.00~9.99	0.50	s	Y	6-4
	Brake ON Time						

Para No.	Display (In Chinese) / Display (In English)	Content	Range	Factory Setting	Unit	Live Chang	Ref Page
F2-01	抱闸时间 / Brake OFF Time	Brake close first then disable elevator run. This is to improve elevator stop comfort and avoid slip at elevator stop.	0.00~9.99	0.50	s	Y	6-4
F2-02	检修抱闸时间 / Insp Brake Time	The time delay in inspection mode before brake close.	0.00~9.99	0.05	s	Y	6-4

Time	Definition and Setup Instruction
t3~t4	Brake advance release time (F2-00): System output brake release command (Y6), brake release and brake arm feedback valid (e.g. F1-31=1), waiting for brake advance release time (F2-00), and then running speed is given. Two functions for brake advance release time (F2-00): 1. Brake has enough time to release completely; this can avoid elevator startup with brake. 2. After brake release, traction sheave may rotate due to the load, with enough time traction sheave can be steady at zero speed then start in order to achieve comfort feeling at start. Based on the brake condition, set 0.8-1.5s for synchronous machine, and 0.3-0.5s for asynchronous machine.
t7~t8	Braking time (F2-01): After brake close, due to the subsequent flow and demagnetization, brake cannot lock on the traction sheave immediately and torque output is kept in the mean time. After braking time, system drop internal direction command and torque output. This time can prevent the elevator slip due to braking lag. Based on the brake condition, set 0.8-1.5s for synchronous machine, and 0.3-0.5s for asynchronous machine.
ta~t8	Inspection braking time (F2-02): At inspection running stop, system will not wait for elevator zero speed to close brake. When jogging up/down instruction is dropped, brake will close at once (with speed). For some asynchronous traction machines, holding time for torque output too long will result system trigger over-current protection. In this case decreasing the braking time can eliminate such protection. For synchronous machine control, this value should be same under normal running and set as 0.8s-1.5s, for asynchronous machine control, this value should be set as 0.1s-0.3s.

2) Zero Speed Parameters

Para No.	Display (In Chinese) / Display (In English)	Content	Range	Factory Setting	Unit	Live Chang	Ref Page
F1-16	零速阈值 / Zero Speed	Motor speed less than set value, system considers elevator speed as zero and output brake signal.	0~10	1	RPM	Y	6-4

Warning：Most of asynchronous motors use incremental encoder which work at 12V voltage. In this case, J0 of PG card should be short circuit.

4. Inspection Running:

1. Things to check before inspection running in machine room.

（**1**）Inspection switch in control cabinet is at "inspection" position, inspection switch on car top and cabin should be in "normal" position.

（**2**）Safety circuit/door interlock circuit are normal, DO NOT short door interlock.

（**3**）After power on, **KJT** emergency stop contactor in control cabinet, **KMB** door interlock contactor, **KMC power** contactor are closed, check if the controller is normal and parameter setting is correct, in LCD indicator, elevator state is "**INSP".**

（**4**）Connect the brake to control cabinet properly.

2. Inspection running in machine room

When the conditions for inspection running in machine room are satisfied, press the Jog Up/Down button on the control cabinet, elevator will run up/down in set inspection speed. If car running direction is opposite to inspection run button, correct this through F6-03.

5. Hoistway Parameter Learning:

If have hand operator, please follow section 4.1, for learning without hand operator, please follow instructions in section 4.2. Both learning methods have same effect, choose one based on site condition.

Parameters need to set before hoistway parameter learning:

Para No.	Name	Setup Method
F0-00	Total Floor	Set floor number based on actual site condition.
F9-03	Speed Deviation Set	Normally set 5 for synchronous machine, set 20 for asynchronous machine.

5.1 Perform Hoistway Parameter Learning with Hand Operator

Hoistway parameter self-learning means elevator runs at a self-learning speed and measures every floor height and record the position of every switch in the hoistway. As the floor position is the foundation for elevator normal running, braking and floor display. Therefore, before normal running, hoistway parameter self-learning must be performed. Before hoistway parameter self-learning, inspection running in full trip must be performed too; elevator must be able to run normally from bottom limit to top limit.

Hoistway parameter self-learning procedure is as follows:

1. Make sure elevator meets the conditions for safety running;

2. Make sure all the switches in hoistway are installed and connected correctly, traveling cable and hoistway cable are connected correctly, and finish setting the HOP/display address;

3. Elevator in inspection mode, jog elevator down to the bottom limit (bottom limit is valid);

4. Enter elevator hoistway self-learning menu through digital operator, follow the learning procedures shown below in Figure 7.4
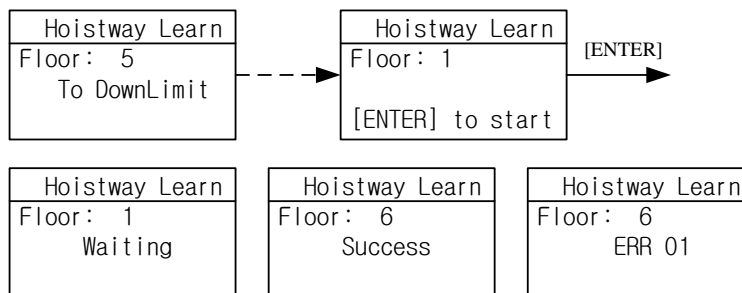
```
┌─────────────────────┐          ┌─────────────────────┐
│   Hoistway Learn    │          │   Hoistway Learn    │   [ENTER]
│ Floor: 5            │ ───────► │ Floor: 1            │ ──────────►
│        To DownLimit │          │                     │
│                     │          │ [ENTER] to start    │
└─────────────────────┘          └─────────────────────┘

┌─────────────────────┐  ┌─────────────────────┐  ┌─────────────────────┐
│   Hoistway Learn    │  │   Hoistway Learn    │  │   Hoistway Learn    │
│ Floor: 1            │  │ Floor: 6            │  │ Floor: 6            │
│         Waiting     │  │         Success     │  │         ERR 01      │
│                     │  │                     │  │                     │
└─────────────────────┘  └─────────────────────┘  └─────────────────────┘
```

Figure 7.4 Hoistway Parameter Self-Learning Procedures

5. The results of learning can be seen from hoistway position parameter U00-U69 under monitor menu with unit of meter, please check the switches position after hoistway learning.

6. In self-learning process, if control system detects any abnormal phenomenon, self-learning will be terminated and give fault code, please refer to troubleshooting table in chapter 8, find out the reason and solve it accordingly, then start hoistway parameter self-learning again.

Note: When self-learning process stops, only when LCD indicator shows "success" on digital operator, self-learning is completed successfully.

After hoistway parameter self-learning is completed successfully, normal speed running can be carried out. Procedure as follows:

1. Switch elevator to attendant mode (Manual)

2. In floor selection parameter D0 through digital operator, target floor can be set (details refer to chapter **4.5 Commissioning Parameters Setup**). Then it is possible to perform single floor traveling, double floor traveling, multi-floor traveling and full trip traveling test. Through D1 parameter interface, input door open / close instruction to control the door.

3. Make sure elevator can start, accelerate, decelerate, leveling normally in normal speed.

4. If running is abnormal, please check for parameters setting.

5.2 Hoistway parameter Learning without Hand Operator.

Integrated controller could also perform hoistway parameter learning without hand operator.

Note: Before learning process, please make sure all switches in hoistway are installed correctly.

Finish the installation of safety circuit, door interlock circuit and hoistway/ door zone switches/flags. Enable elevator test run in normal speed.

Inspection mode, run elevator to bottom terminal position, short J10-6 and J11-2 on controller, X30 input indicator should light up.

Press slow up/ down button together and hold for 10s.

After 10s，controller LED will display "-UU-"

Release button, enter hoistway parameter learning initial state, LED flash "-UU-"

If no operation in 10s, system will quit hoistway parameter learning process.

Remove jumper on X30 in 10s to confirm the start of hoistway parameter learning — No

Yes

LED Display normal Floor Number, elevator run up in inspection speed, This means the hoist way parameter learning has started. Motor start Rotating in 5S, just wait for LED notification. If an error occurs during the learning process, LED will flash the error code. Remove error and repeat the learning process.

Remove fault

Error after learning? — Yes

If learning failed, LED will display error code, such as "E**E"，based on error code "**"，follow user guide for troubleshooting.

No

LED will finally display "-nn-"，meaning learning success. After 10s LED will display normal floor number.

Continue learning? — Yes

No

Hoistway parameter learning finished.

After making sure hoistway parameter learning is successful, elevator can test run in normal speed. Please follow section 4.1 for detail.

5.3 Hoistway Parameter Learning Fault Diagnosis

Hoistway Parameter Self-Learning Fault List

Error Code	Definition	Possible Solution
LER=0	System running error	Press "ESC" to exit learning, check fault record shown in table 8.1
LER=1	Pulse input phase reverse	Exchange phase A and phase B in encoder.
LER=2	Bottom terminal 1 switch input repeat.	Bottom terminal 1 switch installation error, causing multiple terminal switch input or bottom terminal 1 switch signal shake. Check related switches.
LER=3	Bottom terminal 1 switch signal lost (elevator >2.0m/s)	Bottom terminal 2 switch enable before bottom terminal 1 switch or bottom terminal 1 switch signal lost. Check related switches.
LER=4	Bottom terminal 2 switch signal repeat. (elevator >2.0m/s)	Bottom terminal 2 switch installation error, causing multiple terminal switch input or bottom terminal 2 switch signal shake. Check related switches.
LER=5	Bottom terminal 2 switch signal lost (elevator >2.0m/s)	Top terminal 2 switch enable before bottom terminal 2 switch or bottom terminal 2 switch signal lost.
LER=6	Top terminal 2 switch signal repeat. (elevator >2.0m/s)	Top terminal 2 switch installation error, causing multiple terminal switch input or top terminal 2 switch signal shake. Check related switches.
LER=8	Top terminal 2 switch signal lost (elevator >2.0m/s)	Top terminal 1 switch enable before top terminal 2 switch or top terminal 2 switch signal lost.
LER=9	Bottom terminal 1 switch signal lost	Top terminal 1 switch enable before bottom terminal 1 switch or bottom terminal 1 switch signal lost.
LER=10	Top terminal 1 switch signal repeat	Top terminal 1 switch installation error, causing multiple terminal switch input or top terminal 1 switch signal shake. Check related switches.
LER=11	Top terminal 1 switch signal lost	Top limit switch enable before top terminal 1 switch or top terminal 1 switch signal lost.
LER=12	Total floor setting error	Check total floor number match actual floor number. Check leveling inductor plates on every floor.
LER=14	Two leveling inductors cannot trigger together	Leveling inductor plate on this floor cannot cover both inductors or missing one leveling inductors.
LER=15	Press "ESC" in the middle of hoistway parameter learning process.	Cancel the learning by pressing "ESC".
LER=17	Up/Down leveling switch enable at same time	Wiring of two switches is parallel connection by mistake, or bottom limit switch is installed close to 1st floor leveling position.
LER=18	Hoistway data saving error	▲Please contact supplier at once.
LER=19	Both leveling switch signal enable together when arrive at top limit switch.	Move up top limit switch.
LER=20	Bottom limit switch too high	Lower the bottom limit switch.
LER=21	When elevator reaches top limit switch, bottom terminal 1/2 switch is valid.	Check the switches position and their wirings.
LER=22	When elevator start from bottom limit switch, top terminal 1/2 switch is valid.	Check the switches position and their wirings.

Note: System has 2 top and 2 bottom terminal switches for elevator speed >2.0m/s

6. Start-up comfort level adjustment

### 6.1 Comfort level adjustment with weighing device

There are 3 weighing devices available for BL series integrated controller: 1. Blue-light CAN BUS weighing device; 2. -10V to 10V simulated signal output weighing device; 3. 0-10V simulated signal output weighing device.

Parameter F9-13 can be used to choose the weighing device.

Before adjust elevator start-up comfort level with weighing device, **make sure the weighing device is tuned and it can respond the correct cabin load situation.**

Adjustment method (See picture below for detail):

1) With cabin no load, adjust F9-00 till car does not slip at empty load condition: When car has no load and brake open, if counter-weight goes down, then increase F9-00. Otherwise if car goes down then decrease F9-00. Normally F9-00 is set between 45% to 70%.

2) Adjust F9-19 & F9-20: When elevator balance coordinator is 45%, if F6-03=0, then set F9-19 & F9-20 to -(50-45)=-5. If F6-03=1, then set F9-19 & F9-20 to (50-45)=5.

3) After empty load adjustment, if full load condition is different, then adjust F9-21: When car has full load and brake open, if counter-weight goes down, then decrease F9-21. Otherwise if car goes down then increase F9-21.
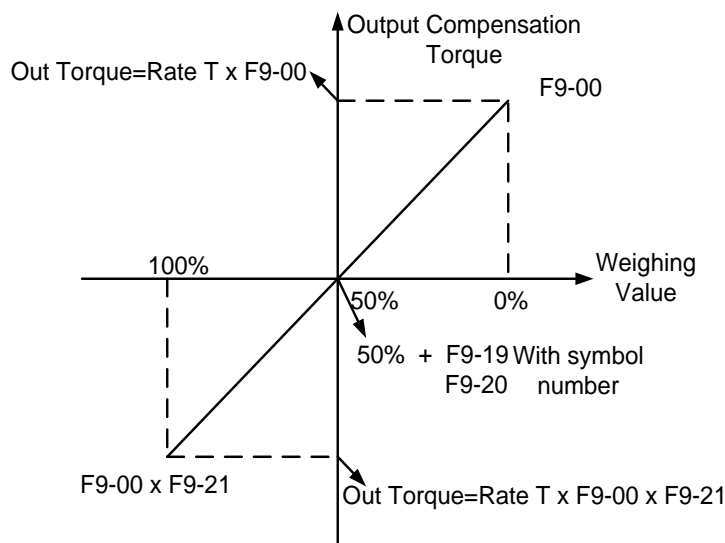
Good comfort level could be achieve with adjustment shown above.

6.2 Start without Load Compensation Setup

When using BL parallel integrated controller with Sine/Cosine PG card, it is possible to achieve comfort start without load compensation by proper setup in FA group parameters. (It means elevator can reach the same effect of load compensation even without weighing device.)

1. Note for starting without load compensation:

   a) PG card type, F8-02 is set to "1" (Sine/Cosine PG card)

   b) Weighing compensation invalid, confirms F9-11 is set to "0" to disable weighing compensation and enable FA group parameters.

   c) Drive software version, confirm version is 0005 or above.

2. Adjustment method for elevator starting without load compensation:

1) Principles: As can be seen in figure 6.16 below, when brake open, based on the position feedback from Sine/Cosine PG card, system can calculates the necessary torque required for motor to remain the steady position under current load, and it gives corresponded torque at once to minimize the traction sheave movement and to achieve comfortable start.
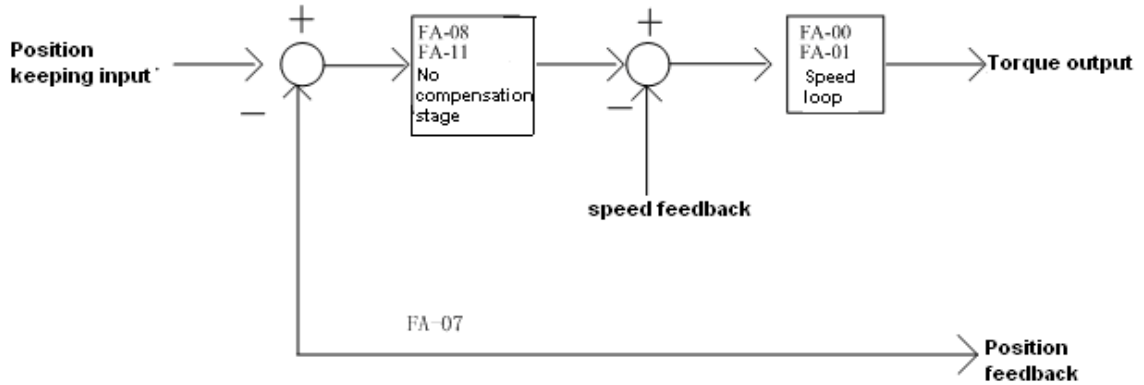

Figure 6.16: Flowchart for elevator starting without load compensation

2) Parameters： Parameters related to function can be seen below in table 6.5.

Table 6.5：Elevator start without load compensation parameters list

Parameters No.	Display in Chinese / Display in English	Factory Setting	Fast Brake Recommendation	Slow Brake Recommendation
FA-00	启动段比例增益 / StratKP	30	KEEP	KEEP
FA -01	启动段积分增益 / StratKI	750	KEEP	KEEP
FA -08	无负载比例 1 / PLKP1	3600	4800	3600
FA -09	无负载作用时间 / PLTime	900	700	KEEP
FA -11	无负载比例 1 / PLKP2	800	KEEP	KEEP
FA -12	无负载比例系数 / PLKPMOD	125	KEEP	KEEP
F2-00	提前开闸时间 / Brake ON Time	0.5	0.9	1
F9-00	最大补偿力矩 / Max Torq Comp	0	KEEP	KEEP
F9-11	补偿使能 / Load Comp Enable	1	0	0

3) Adjustment method: Main parameters used are FA-08, FA-09 and FA-11.

FA-09: This parameter is the working time for starting without load compensation after brake opens, it

must be set according to the actual brake opening time, if the time is too short, elevator will slip as this action will be over before brake fully opened; Also the value of F2-00 (brake opening time before running) must be 100ms longer than the value of FA-09, so that this action can finish before speed curve start.

FA-08 and FA-11: Two gain parameters for the starting without load compensation action, these two parameters can be adjusted according to the elevator slipping condition and comfort level, if the slipping is too much please increase the value of FA-08; if the traction machine gets vibration, please reduce this value; during the period of torque keeping, if there is slight slipping or small back-and-forth movement on traction sheave, please increase the value of FA-11, if there is vibration, please reduce this value.

Note:

1. During commissioning, besides the mentioned 3 parameters, other FA group parameters can be kept with factory setting.

2. For different versions of program, the name of FA group parameters might be different, but their positions remain the same. As a result, only adjust FA-08, FA-09, FA-11 despite the operator version.

3. The setting value of above parameters is just for reference, as the PG card is not same in different job side; please adjust above parameters based on site condition.

4. F9-00 is the pre-set torque when the starting without load compensation function is enabled. Generally there is no need to change its value, please keep it with factory setting (0)

7. Adjustment for Start/Brake Speed curve

Elevator running speed curve is shown below.

t₁	direction forming time
t₂	direction keeping time
tₖ	advanced time for brake release
tₛ	runing time at constant speed

t q   acceleration time at starting
t d   deceleration time at braking
t F   one cycle of running
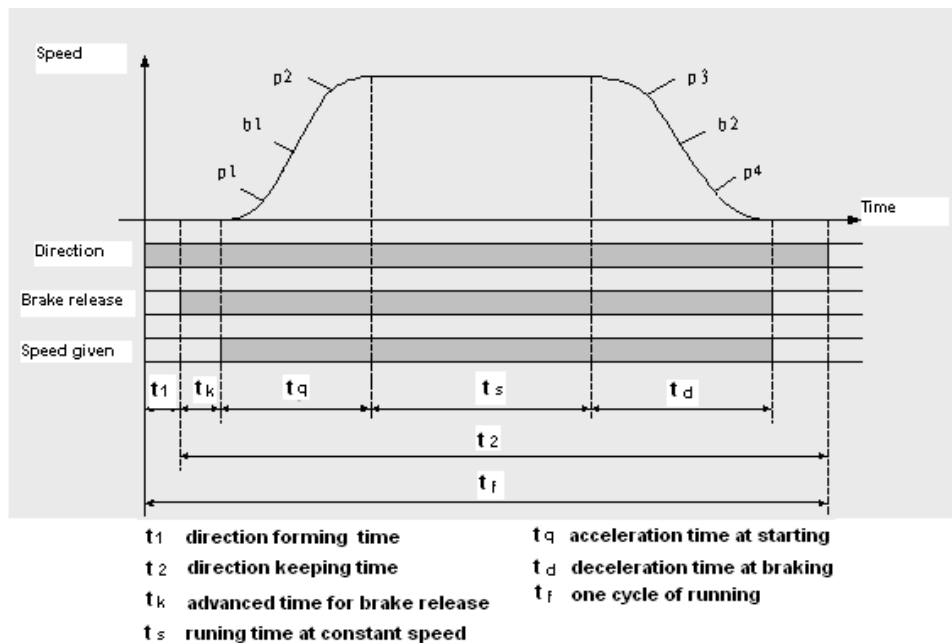
To achieve the maximum level of comfort, integrated controller must control the motor and make feedback speed strictly following the change of running curve. Proportional gain on the speed circle **F6-04** and integral gain **F6-05 or F7-05~F7-12** for PI section parameters also influence the motor tracking ability to speed curve. Generally, increasing the proportion gain will improve the reaction of the system and promote the tracking speed. However, if proportion gain is set too big, it will cause system vibration with high frequency and large motor noise. Increasing integral gain can improve the system

anti-interference/tracking ability and improve the leveling precision, but set integral gain too big will make system vibration, speed over adjustment and wave vibration.

Generally, it is recommended to first adjust proportion gain, increase it right before system vibration threshold. Then adjust the integral gain, enable system with quick reaction and no over adjustment.

Speed Loop PI Recommend Value：

Type	Recommend Value
Proportional	700
Integral	260

If system performance is not perfect at start or stop period (low speed period), try to control in multi-section PI, detail can be seen in 6.19.2 in the complete user guide.

8. Leveling Precision Adjustment

Leveling precision adjustment should be performed after comfort level adjustment is satisfied.

8.1 Basic Conditions for Elevator Leveling

8.1.1.1   Make sure the leveling switches and leveling inductor plates are installed in the right position.

8.1.1.2 Leveling inductor plates length on every floor must be same.

8.1.1.3 Leveling inductor plates must be installed vertically.

8.1.1.4 The position of leveling inductor plates should be precise. When elevator is at the leveling position, the center of the plate and center of two inductors should match together (refer to appendix), otherwise elevator leveling will have deflection, which means in up or down running, elevator stops higher or lower than leveling position.

8.1.1.5 If magnetic inductors are adopted, please make sure the inductor plates inserting to the inductor sufficiently, otherwise it will influence the reaction time of inductor, in that way elevator will overruns the leveling position.

8.1.1.6 To ensure precise leveling, system require elevator to crawl for a certain distance before stop.

8.1.1.7 In practice, first make adjustment for a middle floor, until leveling is precise. Then, adjust the other floors on the base of these parameters.

After adjusting curve selection, ratio and integral gain in the above context, please make sure every time elevator runs up or down, when stop at middle floor, its leveling positions are the same(or deflection ≤±2~3mm every time).

8.2 Leveling Parameter Adjustment

If elevator still cannot achieve desired leveling condition with adjustment based on instructions in

chapter 7.9.1, further adjustments can be done by parameters. After elevator stops in normal running, if running speed curve has no problem (for example, no sudden stop or overrun beyond leveling zone), if elevator overruns the leveling position (it stops higher in up-running, lower in down-running), please decrease leveling adjustment parameter F1-17（default: 50）. if elevator cannot reach the leveling position(it stops lower in up running, higher in down running), increase leveling adjustment parameter F1-17, generally the range of this parameter is 40~60, if the adjustment is too big, please adjust driving parameter PI, or the shape of speed curve (F1-10~F1-15).

Warning：If the leveling precision of a majority of floors are no good, you should firstly adjust leveling parameter to make most of them leveled, and then adjust the flag of specific ones.

9. Elevator System Faults

Error Code	Definition	Possible Solution
Er2	Door inter-lock faults: Door inter-lock circuit open at elevator running	Check the work condition of door vane and door interlock circuit. Roller should have enough space at both side of the vane.
Er3	Driver faults	Based on error code, check details in table 8.3
Er4	Elevator running in opposite direction with command	1. Exchange phase "V" and "W" on motor 2. Exchange phase "A" and "B", on encoder terminal block or change in parameter setup.
Er5	System does not receive brake open feedback signal after output brake open command: 1. No X17/X15 feedback after Y6 output 0.5/2s. 2. X17/X15 enable when Y6 has no output.	1. Check the traction machine brake detection switch and wiring; 2. If no feedback switch, should set feedback enable to OFF
Er6	During elevator running, leveling zone input signal X9, X10 is always on.	Check leveling zone signal circuit and induction switch
Er7	Inverter pulse not enough at elevator running.	Check the wiring from encoder to controller.
Er9	Contactor KDY output not matching feedback signal: 1. After Y9 output X16 no feedback in 0.4s. 2. X16 is enable when Y9 has no output.	Check the contactor KDY coil and output/feedback circuit wiring.
Er10	Safety circuit open, input X13, X29 is invalid.	Check all safety circuits.
Er11	Leveling switch signal missing: Elevator is running pass the floor, but there is not input at X9 /X10.	Check the leveling switches and its wiring.
Er12	Elevator pass top limit switch (X5 is invalid)	Check encoder, top limit switch including its position / wiring.
Er13	Elevator pass bottom limit switch (X6 is invalid)	Check encoder, bottom limit switch including its position / wiring.

Elevator System Fault List (Cont'd)

Er14	Floor counter error from encoder deviation accumulation: after this error, elevator will return to bottom floor in inspection speed for recalibration.	1. Check encoder wiring and related circuits; 2. Check the leveling switch and related circuits; 3. Possible reason: traction rope slip /door drive shake at start.
Er17	No drive output after running command.	Check parameters in controller or contact supplier.
Er18	Floor number error: after this error, elevator will return to bottom floor in inspection speed for recalibration.	Possible due to sudden power drop & elevator slip. Check the encoder and its wiring.
Er19	The deceleration distance for target floor is not enough, elevator did not perform hoistway parameter learning after changing terminal switch location.	1. Decrease "Least Speed" in user menu; 2. Do hoistway parameter learning again.
Er20	When elevator reaches top/bottom floor and get deceleration instruction, but elevator doesn't slow down; elevator did not perform hoistway parameter learning after changing terminal switch location.	1. Check the braking resistor specification 2. Increase controller PI gain parameters. 3. Make elevator running curve more smooth.
Er21	Single running time is over set time	1. Check the traction rope for slip or car jam. 2. Check related parameters in drive; 3. Check value of parameter "Over Time".
Er22	Elevator has inspection signal input (X10 invalid) at elevator normal running.	Check inspection switch and related circuits.
Er23	One of two leveling switch (X9, X10) is invalid at elevator normal running.	Check leveling switches and wirings.
Er25	Heat sensor protection: Braking resistor or motor is over heat (X21 invalid).	Check heat sensor circuit. If this error cannot reset in 90s, Y10 relay on controller will output KMC contactor open signal.
Er26	Door inter-Lock contactor working state does not match to its coil (X14, X30 input different)	Check door interlock contactor terminal & coil and their related terminal on controller.
Er27	Emergency stop contactor working state does not match its coil state. (X13, X29 input different)	Check emergency stop contactor terminal & coil and their related terminal on controller.
Er28	Top/bottom terminal (1st or 2nd) switch fault. (X7 or X8 valid when elevator outside their floor)	Check for terminal switches location and their wirings.
Er29	Communication interference too much (In system or in duplex communication).	1. Check system ground condition. 2. Check COP/LOP for possible damage that may influence CAN BUS communication.
Er30	Door open fault (car cannot open door)	1. Run elevator in inspection mode, give door open command and check Y4 for output signal. 2. If Y4 has no output, need to check door open, close limit switch and related signal.
Er31	Door close fault (car cannot close door)	Normally due to door not installed properly and short circuit door interlock circuit. Check if door close and door interlock circuit are output at same time.
Er32	Floor number counting error.	A sudden power break may affect terminal/limit switches and cause floor number error. Elevator will then return to bottom floor for recalibration.
Er33	Motor star short circuited contactor fault	KDY fault: KDY command not match feedback signal: 1. Y8 output, X11 has no feedback in 0.4s 2. Y8 has not output, X11 is valid

10. Driver Faults

Error Code	Display	Definition	Possible Causes	Possible Solution
DF1	UV	DC bus under voltage (for 400V drive, 380V at UV protection)	1. Phase lost on input supply; 2. Instantaneous power lost; 3. Excessive input voltage fluctuation; 4. Loose terminals at input.	1. Check input power supply; 2. Check input power cable terminals.
DF2	OV	DC bus over voltage (for 400V drive, 760V at OV protection)	1. Too short deceleration time, 2. Excessive motor regenerated energy; 3. Supply voltage too high 4. No connection to braking resistor.	1. Increase deceleration time; 2. Connect brake resistor; 3. Check power supply.
DF3	OH	Heat sink overheated	1. Excessively ambient temperature; 2. Damaged cooling fan; 3. Existence of heat source around.	1. Reduce ambient temperature; 2. Remove heat source around; 3. Check the fan and wiring.
DF4	IF	IPM fault	1. IPM over current/short circuit; 2. IPM over heat; 3. Abnormal IPM control power (UV)	1. Check output short circuit; 2. Check motor short circuit; 3. Contact supplier.
DF5	OC	Over current	1. Inverter output short circuit; 2. Machine over-load; 3. Accel/decel time too short.	1. Check motor short circuit; 2. Check accel/decel time, slow down if needed.
DF6	CF	CUP faults	Too much interference.	Please contact supplier.
DF7	OS	Elevator over speed. The speed feedback exceeds the speed limit and last longer than set time.	1. Max speed /last time set incorrect; 2. Speed over-tuning; 3. Encoder feedback incorrect.	1. Check speed limit setting; 2. Check the P/I parameter; 3. Check encoder
DF8	OE	speed over deviation. The speed deviation exceeds the allowable range and last longer than set time.	1. System overload; 2. Accel/decel time short; 3. Parameter setting wrong; 4. encoder cannot work properly.	1. reduce system load; 2. Increase accel/decel time; 3. Check the parameters; 4. Check the encoder.
DF9	PGO	PG disconnect, did not receive encoder signal at operation.	1. Encoder wiring break/ loose/ wrong; 2. Encoder damaged.	1. check encoder wiring; 2. Check encoder.
DF10	FF	Flash memory fault	Data fault at saving parameters.	Please contact supplier.
DF11	BF	Base block circuit error	1. Wiring at X14 is incorrect; 2. Setting electric level for X14 incorrect	1. Check the wiring at X14; 2. Modify the parameters.
DF12	OL	Motor overload, current output exceed 150% (200%) rated value for 60s (10s).	1. System load too heavy; 2. System power rating too low.	1. Reduce system load; 2. Change a more suitable controller.
DF13	MC	Controller main contactor MC not close after given close command for set time.	1. Wrong wiring for MC contactor; 2. MC contactor damaged.	Try to reset the power, if this error come again, contact supplier for replacement.
DF14	BR	Brake unit fault	1. Brake cable/elements issue 2. External brake resistor disconnected	1. Check brake resistor; 2. Replace the controller.
DF15	OF	Output phase lost	1. Output cable break or loose terminal. 2. Motor stator cable disconnect.	1. Check output cable/terminal; 2. Check motor stator cable.
DF16	SCF	Current remains at elevator stop.	Controller damaged.	Change the controller.
DF17	SRF	Elevator slip after stop	1. Brake/encoder loose; 2. Encoder interference.	1. Fasten brake/encoder; 2. Remove interference source.
DF18	UF	Signal U of encoder wire lost	Encoder damaged or wiring incorrect.	Check encoder and wirings
DF19	VF	Signal V of encoder wire lost	Encoder damaged or wiring incorrect.	Check encoder and wirings
DF20	WF	Signal W of encoder wire lost	Encoder damaged or wiring incorrect.	Check encoder and wirings
DF21	DF	Parameter setting error	Parameter setting error	Check parameter setting
DF22	SDF	Internal programmer check error	Internal data setting error	Please contact supplier

11. Parameters

U0 Monitoring Parameters

Para No.	Display (In Chinese) / Display (In English)	Content	Range	Unit
U0-00	下限位刻度 / Lower Limit	The location of bottom limit in hoistway. Data will be recorded after finishing hoistway learning	m	--
U0-01	上限位刻度 / Upper Limit	The location of top limit in hoistway. Data will be recorded after finishing hoistway learning。	m	--
U0-02	下端站 1 刻度 / Lower Slowdown 1	Location of bottom terminal switch 1 in hoistway. Data will be recorded after finishing hoistway learning	m	--
U0-03	下端站 2 刻度 / Lower Slowdown 2	No down terminal 2	m	--
U0-04	上端站 1 刻度 / Upper Slowdown 1	Location of top terminal switch 1 in hoistway. Data will be recorded after finishing hoistway learning	m	--
U0-05	上端站 2 刻度 / Upper Slowdown 2	No up terminal 2	m	--
U0-06 … U0-69	1 层刻度 … 64 层刻度 / Floor Data 1…64	The location of floor 1-64 switches in hoistway. Data will be recorded after finishing hoistway learning	m	--

U1～U5 Monitoring Parameters

Para No.	Display (In Chinese) / Display (In English)	Content	Range	Unit
U1-00	输入状态 / Input Data	Controller input data show in decimal type. It will be turned into binary type to show the logical status of the input port.	--	--
U1-01	输入状态指示 / Input Bin	Input port data show in binary type .Each data correspond to logical status of one input port.	--	--
U1-02	输入状态评价 / Input App	Each line correspond to one input port, "On/Off" states the current port status, the following "n" value states the signal appraisal to input level. Value from "10" to "0" refers to interference condition from good (less interference) to bad (large interference)	--	--
U2-00	输出状态 / Output Data	Display the output port Y0-Y15 current status. The valid output port has the corresponded indication. Port without output (invalid) will be hidden.	--	--
U3-00	轿厢信号 / Car Input Data	Display car input signal status. The valid input port has the corresponded indication. Port without input (invalid) will be hidden.	--	--
U4-00	运行次数 / Run Times	Show the elevator accumulated running times. Adopts 10 digital decimal figures as indication	次	--

U1～U5 Monitoring Parameters (Cont'd)

Para No.	Display (In Chinese) / Display (In English)		Content	Range	Unit
U4-01	运行时间	Run Hours	Show the elevator accumulated running hour. Adopts 10 digital decimal figures as indication.	小时	--
U4-04	并联通讯 1	SendApp1	Signal send appraisal for Duplex and group control. Large number means comm send more mistakes.	--	--
U4-05	并联通讯 2	ReceiveApp2	Signal receive appraisal for Duplex and group control. Large number means communication receive more mistakes.	--	--
U4-06	电磁干扰评价	Interfer Apprais	Appraise the value of interference strength at site. The big value refers to strong interference,"0" states no interference and good GND condition.	--	--
U4-07	编码器评价	Encoder Apprais	The interference degree of encoder signal. When elevator runs steady, large value states the encoder signal weak with heavy interference.	--	--
U4-09	锁梯计数	Lock Timer	The current elevator stop timer	--	--
U5-00	控制软件版本	CtrlSoftWare NO	Show the elevator control software information. Provide the current software version for factory maintenance and software upgrading.	--	--
U5-01	驱动软件版本	DriveCodeVer	Show the drive control software information. Provide the current software version for factory maintenance and software upgrading.	--	--
U5-02	底层驱动版本	CpldEdition	Show base drive control software information. Provide the current software version for factory maintenance and software upgrading.	--	--

U3-00 Cabin Signal Content & Definition

Cabin signal	Symbol signal	Cabin terminal No.	Content
C00	IGM1	J3-4	door close 1 input
C01	IKM1	J2-4	door open 1 input
C02	IGM2	J5-4	door close 2 input
C03	IKM2	J4-4	door open 2 input
C04	GMV2	J10-6	door close limit 2 input
C05	KMV2	J10-5	door open limit 2 input
C06	GMV1	J9-3	door close limit 1 input
C07	KMV1	J9-2	door open limit 1 input
C08	SZY	J10-1	Special Use Input
C09	IGMYS	J6-4	door open delay input
C10	SZH	J9-10	Attendant input
C11	--	--	Empty (for Backup use)
C12	SZS	J10-2	Bypass drive input
C13	MZ	J9-6	Full-load input
C14	QZ	J9-8	Light-load input
C15	CZ	J9-5	Over-load input
C16	KZ（50%）	J9-9	50% Full-load (No-load) input
C17	KAB2	J9-7	Door safety plate 2
C18	KAB1	J9-4	Door safety plate 1

U6 Drive Monitoring Parameters List

Para No.	Display (In Chinese) / Display (In English)	Content	Unit
U6-00	功率等级 / Power	Rated power class	kW
U6-01	给定转速 / Ref Speed	Reference Speed	RPM
U6-02	反馈转速 / Feedback Speed	Feedback Speed	RPM
U6-03	称重值 / Load	The current load in % of full load	%
U6-04	直流母线电压 / DC Voltage	DC BUS voltage	V
U6-05	输出电流 / Output Current	Output Current	A
U6-06	变频器内部温度 / Temperature	Drive internal temperature	℃
U6-07	输出转矩 / Output Torque	Output Torque	N·M

Building Setup Parameters List

Para No.	Display (In Chinese) / Display (In English)	Content	Range	Factory Setting	Unit	Live Change
F0-00	总楼层 / Total Floor	Total floor number (same as door zone plate number)	2~64	6	--	N
F0-01	基站层 / Homing Floor	Without landing/car call elevator will return this floor.	1~ Total Floor	1	--	N
F0-02	消防层 / Fire Floor	At fire-linkage circuit close, elevator enter fire mode and return to this floor automatically.	1~ Total Floor	1	--	N
F0-03	锁梯层 / Parking Floor	When close electric lock in the process of running, elevator return to this floor and stop.	1~ Total Floor	1	--	N
F0-04	显示输出编码 / Show Select	Code for floor display: 0: 7-segment; 1: BCD code; 2: Grey Code; 3: point to point; 4: Decimal.	0~ 63	0	--	N
F0-05 … F0-68	1~64 层显示设置 / Set Indication 1~64	Set indication 1-64, customized character/figure display available	---	1 … 64	--	N

Running Setup Parameters List

Para No.	Display (In Chinese) / Display (In English)	Content	Range	Factory Setting	Unit	Live Change
F1-00	电梯额定速度 / Car Speed	Elevator speed at motor rated speed. Calculate through motor rated rev, traction ratio, deceleration ratio and traction sheave diameter.	0~4.0	1.6	m/s	N
F1-01	折算转速 / Motor Speed	Motor speed at elevator rated speed (Calculated)	1~9999	1450	RPM	N
F1-03	检修运行速度 / Insp Speed	Car running speed at inspection cannot exceed 0.6m/s based on relevant standards and regulations	0~0.6	0.3	m/s	Y
F1-04	启动平滑速度 / Start Speed	For large resistance at motor start, the starting speed can have smooth increase. The start smooth speed is invalid if set to "0".	0~0.2	0.00	m/s	Y
F1-05	自救运行速度 / Leveling Speed	When elevator park outside door zone due to fault, if satisfy running condition, the elevator can level to door zone with this speed.	0.01 ~ 0.6	0.3	m/s	Y
F1-06	单层运行速度 / Least Speed	Steady speed on the lowest speed curve.	0~1.0	0.5	m/s	N
F1-07	提前开门速度 / Open Door Speed	NO SUCH FUNCTION	0~0.3	0.15	m/s	N
F1-08	再平层保护速度 / Relevelst Speed	NO SUCH FUNCTION	0~0.3	0.3	m/s	N
F1-09	再平层运行速度 / Relevelrun Speed	NO SUCH FUNCTION	0~0.10	0.05	m/s	N
F1-10	加速斜率 B1 / Acceleration B1	B1 refers to the acceleration speed curve changing rate, smaller value means elevator start with smooth and gentle increase of speed.	0.1~1.0	0.7	m/s^2	N
F1-11	减速斜率 B2 / Deceleration B2	B2 refers to the deceleration speed curve changing rate, smaller value means elevator brake with smooth and gentle decrease of speed.	0.1~1.0	0.7	m/s^2	N
F1-12	S 曲线 P1 / S Curve P1	P1: Acceleration speed increase rate at beginning of elevator start; smaller value means beginning of elevator start with slow and steady movement.	0.1~1.0	0.6	m/s^3	N
F1-13	S 曲线 P2 / S Curve P2	P2: Acceleration speed decrease rate at end of elevator start; smaller value means end of elevator start with slow and steady movement.	0.1~1.0	0.6	m/s^3	N
F1-14	S 曲线 P3 / S Curve P3	P3: Deceleration speed increase rate at beginning of elevator brake; smaller value means beginning of elevator brake with slow and steady movement.。	0.1~1.0	0.6	m/s^3	N
F1-15	S 曲线 P4 / S Curve P4	P4: Deceleration speed decrease rate at end of elevator brake; smaller value means end of elevator brake with slow and steady movement.	0.1~1.0	0.6	m/s^3	N

Running Setup Parameters List (Cont'd)

Para No.	Display (In Chinese) / Display (In English)	Content	Range	Factory Setting	Unit	Live Change
F1-16	零速阈值 / Zero Speed	Motor speed less than set value, system considers elevator speed as zero and output brake signal.	0~10	1	RPM	Y
F1-17	平层调整 / Leveling Adj	Adjust differences of up/down leveling	0~100	50	mm	N
F1-18	称重调整 / Load Adj	Normally used in synchronous machine system, compensate elevator load based on steel rope weight difference on each floor.	0~20	0	--	Y
F1-21	驱动模式 / Drive Mode	Selection of driving mode ,when setting "1", attendant/VIP mode close door manually; when setting "3", elevator automatically do test run ,other value is invalid.	0~9	0	--	N
F1-22	贯通门方式 / Two Door Mode	Setup rear door mode, based on customer requirements, set from mode"0" to"5".	0~5	0	--	N
F1-23	消防方式 / Fire Mode	Three Fire modes: 1.Mode"0": Elevator run fire-mode after returning to fire floor; 2.Mode "1": Elevator stop running after returning to fire floor; 3. Mode "2": After elevator return to fire floor, depend on fire switch to run/stop in fire mode.	0~2	0	--	N
F1-24	并联梯号 / Parallel No.	Set "YES" in duplex enable. Set elevator number 0-1 in duplex; 0-7 in group control.	0~7	0	--	N
F1-25	并联使能 / Twins Control	Elevator duplex control: 1: On 0:OFF	0/1	0	--	Y
F1-26	群控使能 / Group Control	Elevator group control: 1:ON 0:OFF	0/1	0	--	Y
F1-27	远程监控使能 / Far Monitor	Remote Monitoring System: 1：On 0：Off	0/1	0	--	Y
F1-28	自动开关梯使能 / Auto Parking	Auto parking: 1:ON 0:OFF	0/1	0	--	Y
F1-29	称重使能 / Load Enable	Load Weighing: 1:ON 0: OFF	0/1	0	--	Y
F1-30	开门延长使能 / Open Delay Able	Door open/close delay: 1:ON 0:OFF	0/1	0	--	Y
F1-31	闸臂反馈使能 / Brake Feedback	Test brake feedback signal: 1: open 2: close	0/1	0	--	Y
F1-32	解梯密码 / Rerun Password	NO SUCH FUNCTION	0~9999	0	--	N

Time Setup Parameters List

Para No.	Display (In Chinese) / Display (In English)	Content	Range	Factory Setting	Unit	Live Change
F2-00	提前开闸时间 / Brake ON Time	Brake open first then run elevator speed curve. This is to improve the elevator start comfort and match control system with different machine brake on time.	0.00~9.99	0.50	s	Y
F2-01	抱闸时间 / Brake OFF Time	Brake close first then disable elevator run. This is to improve elevator stop comfort and avoid slip at elevator stop.	0.00~9.99	0.50	s	Y
F2-02	检修抱闸时间 / Insp Brake Time	The time delay in inspection mode before brake close.	0.00~9.99	0.05	s	Y
F2-04	零速时间 / Zero Time	The time delay when system detects elevator stop. Adjust this parameter to close brake after elevator reach 0 speed completely, increase elevator stop comfort.	0~9.99	0.30	s	Y
F2-05	开门保持时间 / Open Door Time	In Auto mode, elevator automatically open door when stopping at one floor, door will automatically close after set time.	0~999	3	s	Y
F2-06	开门延长时间 / Open Delay Time	Enable door open delay function, press open delay button, door open time will be delayed.	0~999	30	s	Y
F2-07	返基站时间 / Homing Time	The waiting time before elevator return to homing floor without landing/car call, Set value to "0" to disable this function.	0~999	60	s	Y
F2-08	开关门保持时间 / Door Run Time	1. The door open/close command run time; 2. Door open/close relay run time for door drive without open/close limit switch. 3. For door drive with open/close limit switch, this run time should be 1s longer than the door actual open/close time.	0~999	5	s	Y
F2-09	到站信号延时 / Beep Delay Time	After elevator change speed to target floor, landing signal is delayed by set time, arrival gong /voice synthesizers are also delayed by set time.	0.00~9.99	0.15	s	Y
F2-10	使能延时 / Enable Delay	Drive enable signal given/drop is delayed by set time after drive direction signal is given/drop. During this time, drive output current is decreased to reduce current noise.	0.00~9.99	0	s	Y
F2-11	关照明延时 / Lamp Off Time	In Auto mode, if have no car/landing call during set time, system will cut car light power from COP.	0~999	15	min	Y
F2-12	运行超时时间 / Over Time	To prevent wire rope slipping or elevator car stuck, time from elevator running to stop is limited to set value. If elevator is running longer than set value, system stops immediately and enter protection mode. Need to re-start the system in order to exit from such mode.	0~999	45	s	Y

Time Setup Parameters List (Cont'd)

Para No.	Display (In Chinese) / Display (In English)	Content	Range	Factory Setting	Unit	Live Change
F2-13	启动平滑时间 / SmoothStart Time	The time to keep elevator start smooth.	0.00~9.99	0	s	Y
F2-14 / F2-15	自动开梯时间 / Start Time	System will automatically start the elevator (Electric lock: ON) at set time.	00:00 ... 23:59	00:00	时:分	Y
F2-16 / F2-17	自动关梯时间 / Stop Time	System will automatically stop the elevator (Electric lock: OFF) at set time. This function is disabled if same start/stop time.	00:00 ... 23:59	00:00	时:分	Y
F2-18 / F2-19	不停层开时间 / Start Time1	System will run bypass the set floor start from this time.	00:00 ... 23:59	00:00	时:分	Y
F2-20 / F2-21	不停层关时间 / Stop Time1	System will run bypass the set floor start until this time.	00:00 ... 23:59	00:00	时:分	Y

Note: The elevator automatic switch: F2-14, F2-15 F2-16, F2-17 were set separately as per hours and minutes. Please follow the operator indication for this setting.

Input Type Setup Parameters List

Para No.	Display (In Chinese) / Display (In English)	Content	Range	Factory Setting	Unit
F3-00	主板输入类型 / Input Type	Setting the input type on main control panel. Each bit corresponds to one terminal. Set default level of main board input port. **ON:** Close enable, **OFF:** Open enable.	0～4294967295	3974102631	N
F3-01	轿厢输入类型 / Car Input Type	Setting input type of car. Each bit corresponds to one terminal. **ON:** Close enable, **OFF:** Open enable. Correspond terminals are X32-X35, I0-I19.	0～4294967295	4294573839	N
F3-02	输入功能 1 / Input select 1	X12 Input Function Selection	0~32	12	N
F3-03	输入功能 2 / Input select 2	X18 Input Function Selection	0~32	18	N
F3-04	输入功能 3 / Input select 3	X27 Input Function Selection	0~32	27	N
F3-05	输入功能 4 / Input select 4	NO SUCH FUNCTION	0~32	24	N
F3-06	输入功能 5 / Input select 5	NO SUCH FUNCTION	0~32	25	N
F3-07	输出功能 1 / output select 1	NO SUCH FUNCTION	0~32	0	N
F3-08	输出功能 2 / output select 2	NO SUCH FUNCTION	0~32	11	N
F3-09	输出功能 3 / output select 3	NO SUCH FUNCTION	0~32	12	N

Note: When using X22 and X23 as multifunctional input port, please make sure the re-leveling device is NOT used.

Service Setup Parameters List

Para No.	Display (In Chinese) / Display (In English)	Content	Range	Factory Setting	Unit
F4-00	不停层设置 1 / Set Stop Floor1	Set elevator stop/bypass at floor corresponds to each bit. (1-32 floors)	0～4294967295	4294967295	Y
F4-01	不停层设置 2 / Set Stop Floor2	NO SUCH FUNCTION	0～4294967295	4294967295	Y
F4-02	分时不停层 1 / TIM Stop Floor1	Set elevator stop/bypass at floor corresponds to each bit at the set time. (1-32 floors)	0～4294967295	0	Y
F4-03	分时不停层 2 / TIM Stop Floor2	Set elevator stop/bypass at floor corresponds to each bit at the set time. (33-64 floor)	0～4294967295	0	Y
F4-04	前门设置 1 / Door Select A1	Set elevator front door enable /disable at floor corresponds to each bit (ON/OFF: Front door enable /disable at this floor)	0～4294967295	4294967295(1~32 floor)	Y
F4-05	后门设置 1 / Door Select B1	Set elevator rear door enable /disable at floor corresponds to each bit (ON/OFF: Rear door enable /disable at this floor)	0～4294967295	4294967295(1~32 floor)	Y
F4-06	特殊功能选择 / Funtion Select	Set elevator functions enable /disable at floor corresponds to each bit. (ON: Enable, OFF: Disable)	0～4294967295	4	Y
F4-07	特殊功能选择 2 / Function Select 2	Set elevator functions enable /disable at floor corresponds to each bit. (ON: Enable, OFF: Disable)	0～4294967295	0	Y

Special Function List

Number	Instruction
F4-06-00	After elevator stops, based on current floor, if there is no landing/car call ahead of the current floor in previous running direction, system will cancel all the car calls.
F4-06-03	NO SUCH FUNCTION
F4-06-04	NO SUCH FUCNTION
F4-06-05	NO SUCH FUNCTION
F4-06-06	ON: For 7-segment display, Y25 is inspection mode output (must ensure the highest digit is not used). For other display mode, inspection mode output do not require to set Y25.
F4-06-07	ON: At elevator running, direction arrow output with flash.
F4-06-08	After setting 7-segment display output, when electric lock enabled, floor will still display (ON)/no display (OFF)
F4-06-09	ON: Elevator can cancel registered car call at running. If all call canceled, elevator stop in nearby floor.
F4-06-10	ON: Brake open when receiving inverter running feedback signal enable. OFF: Brake open 0.5s after receiving inverter running feedback signal enable.
F4-06-15	ON: When setting 7-segment display mode, at electric lock enable or safety circuit open, turn off all display (all relays have no output).
F4-06-16	ON: When door lock is closed, door close limit must be valid too. OFF: Door lock state is not related to door close limit.

Special Function List (Cont'd)

Number	Instruction
F4-06-17	ON: When elevator stops in inspection mode, inverter direction given and brake are released together. OFF: When elevator stops in inspection mode, inverter direction given drop is 0.5s later than brake close.
F4-06-18	ON: In rear door mode, elevator only installs one set of door open& close buttons. OFF: In rear door mode, elevator installs two sets of door open & close buttons.
F4-06-19	NO SUCH FUNCTION
F4-06-20	NO SUCH FUNCTION
F4-06-21	ON: In inspection mode, door cannot open outside levelling zone. OFF: In inspection mode, door can open at any position.
F4-06-22	ON: Up/Down (single) collection OFF: Full selective collection
F4-06-23	ON: Use SJT-300 weighing device through CAN BUS OFF: Use SJT-150 weighing device through RS485
F4-06-24	NO SUCH FUNCTION
F4-06-25	ON: When elevator cannot open door at current floor, it can automatically register the closest floor, approach and open door in that floor.

Motor Setup Parameters List

Para No.	Display (In Chinese) / Display (In English)	Content	Range	Factory Setting	Unit	Live Chang
F5-00	电机类型 / Motor Type	Set motor type (0:sync- outer rotor, 1:async machine, 2:sync-inner rotor)	0～2	0	--	N
F5-01	电机极数 / Poles	Moto poles (Nameplate)	1~99	20	--	N
F5-02	电机同步频率 / Sync Freq	Motor synchronous frequency (Nameplate)	0.001 ~99.999	16	Hz	N
F5-03	电机额定功率 / Rated Power	Motor rated power (Nameplate)	1~50	6.7	kW	N
F5-04	电机额定转速 / Rated Speed	Motor rated speed (Nameplate)	1~1999	96	RPM	N
F5-05	反电动势 / V IN	Motor counter-EMF (Nameplate)	1~380	280	V	N
F5-06	电机相电感 / L_phase	Motor phase inductance set. (Auto-tuning/ manual input)	Auto-tuning/ Nameplate		mH	N
F5-07	电机相电阻 / R_phase	Motor phase resistance set. (Auto-tuning/ manual input)	Auto-tuning/ Nameplate		Ω	N
F5-08	电机额定电流	Motor rated current.	0～		A	N

	Rated FLA	(Nameplate)	99.999			
F5-09	空载电流 / NO-Load Current	For asynchronous machine, no-load excitation current.	0.1~50	0	A	N
F5-10	滑差 / Rated Slip	For asynchronous machine rated slip. (Nameplate)	0.1~10	1.3	HZ	N
F6-00	载波频率 / Carrier Freq	Set controller carrier frequency.	6~15	8	kHz	N
F6-02	速度压缩比 / SpeedZoom	Speed Zoom (Reduce elevator actual running speed)	0~100	100	%	Y
F6-03	运行方向选择 / DirSel	Select motor running direction (0/1：Motor rotates anti-clockwise, car move down/up).	0/1	0	--	--
F6-04	速度环比例 / Kp	Speed loop proportional gain. (Valid for complete curve if not used in multiple PI.)	0~65535	700	--	--
F6-05	速度环积分 / KI	Speed loop integral gain. (Valid for the complete curve if not used in multiple PI.)	0~65535	260	--	--

Multiple PI Setup Parameters List

Para No.	Display (In Chinese) / Display (In English)	Content	Range	Factory Setting	Unit	Live Chang
F7-00	多段 PI 使能 / PIMulEnable	Multiple PI parameters 1: Enable; 0: Disable	0/1	0	--	N
F7-01	PI 作用范围 1 / PI1 Range	PI available range 1 (Start-middle speed running PI switch frequency)	0～ Rated freq	0	Hz	Y
F7-02	PI 作用范围 2 / PI2 Range	PI available range 2 (middle-high speed running PI switch frequency)	0～ Rated freq	0	Hz	Y
F7-04	PI 作用范围 4 / PI3 Range	PI available range 4	0～ Rated freq	0	Hz	Y
F7-05	比例增益 1 / Kp1	PI available range 1 proportional gain	0~2000	700	--	Y
F7-06	积分增益 1 / Kx1	PI available range 1 integral gain	0~2000	260	--	Y
F7-07	比例增益 2 / Kp2	PI available range 2 proportional gain	0~2000	0	--	Y

F7-08	积分增益 2	PI available range 2 integral gain	0~2000	0	--	Y
	Kx2					
F7-11	减速段比例	PI available range 4 proportional gain	0~2000	700	--	Y
	Kp3					
F7-12	减速段积分	PI available range 4 integral gain	0~2000	260	--	Y
	Kx3					

Encoder Setup Parameters List

| Para No. | Display (In Chinese) | Content | Range | Factory Setting | Unit | Live Chang |
	Display (In English)					
F8-00	编码器线数	The encoder pulse count per-revolution.	100~8192	8192	--	N
	Encoder PPR					
F8-02	PG 类型	PG card type (0: Incremental encoder, 1: Sine/Cosine encoder）	0/1	0	--	N
	PGType					

Control Setup Parameters List

| Para No. | Display (In Chinese) | Content | Range | Factory Setting | Unit | Live Chang |
	Display (In English)					
F9-00	最大补偿力矩	Maximum torque compensation (torque required to compensate at no load, 100% correspond to machine rated torque.)	0~100%	0	%	N
	Max Torq Comp					
F9-01	速度来源选择	Speed given source selection: 0: Simulation; 1: Multi-segment 2: Internal; 3: Operator	0~3	2		N
	SPDSourceSel					
F9-03	超差范围设定	Speed Deviation Set (100% correspond to machine rated speed.)	0~100	5	%	Y
	Spderr Set					
F9-11	补偿使能	Load Compensation: 1 enable; 0 Unable	0/1	1	--	N
	Load Comp Enable					
F9-13	称重来源	Weighing source (0:SJT weighing, 1:-10-10V weighing, 2:0-10V weighing)	0/1/2	0	--	N
	Load Source Sel					
F9-19	顺时针补偿偏置	Up direction (clockwise) Compensation Bias	－100～100	0	--	Y
	UP Comp Bias					
F9-20	逆时针补偿偏置	Down direction (anti-clockwise) Compensation Bias	－100～100	0	--	Y
	DOWN Comp Bias					
F9-21	满载补偿比例	Full load compensation proportion	0～200	100	--	Y
	FULL Comp Pro					

No-load Compensation Setup Parameters List

Para No.	Display (In Chinese) / Display (In English)	Content	Range	Factory Setting	Unit	Live Chang
FA-00	启动段比例增益 / StratKP	Start-up proportional gain with no compensation.	0~50000	30	--	N
FA-01	启动段积分增益 / StratKI	Start-up integral gain with no compensation	0~50000	750	--	N
FA-08	无补偿比例1 / PLKP1	No compensation effect proportional gain 1	1~6500	3600	--	N
FA-09	无补偿作用时间 / PLTime	No compensation effect time	1~1000	900	ms	N
FA-11	无补偿比例2 / PLKP2	No compensation effect proportional gain 2	0~50000	800	--	N
FA-12	无补偿比例系数 / PLKPMOD	No compensation effect proportional factor	0~50000	125	--	N

Special parameters (FC) are mapping a part of factory parameters (FX) in customer level; users can access this part information by user level password. In these parameters, FC-00~FC-06 can only be viewed but not editable, while other parameters can be changed. Special parameters (FC) number, description and content are shown below.

Special Parameters List

Para No.	Display (In Chinese) / Display (In English)	Content	Range	Factory Setting	Unit
FC-00	Z脉冲数 / Zpulse_Init	Result of motor angle tuning, same as FX-00.	0～3277	--	N
FC -07	电流环比例 / KpIreg	Current ring proportional (FX-07), **MODIFY WITH CAUTION!**	0～65535	2000	N
FC -08	电流环积分 / KxIreg	Current ring integral (FX-08), **MODIFY WITH CAUTION!**	0～65535	500	N
FC-13	自学习方式选择 / AutoTuneModeSel	Sine/Cosine PG card auto- tuning selection (FX-20): 0:Rotation; 1:Stationary;	0/1	0	N
FC-14	负温度报警使能 / N Temp Alarm Ena	Negative temperature alarm (FX-21) 1: Alarm enable at -15C; 0: Alarm disable at -15C.	0/1	1	N
FC-15	初始定位使能 / InitTuneEnable	When using Sine/Cosine PG card, whether need CD signal for position at power up 0:Yes.1:No (Can only set to 0 for SPG-V33 and above) Set to 0 can avoid electric noise at first power up.	0/1	0	N
FC-16	CD信号方向选择	FC15 is available if set to 1. Set to	0/1	0	N

	CD DirSel	0 if AB & CD signal in same phase, otherwise set to 1. (Auto selected at motor angle tuning.)			

Environment Setup Parameters List

Para No.	Display (In Chinese)	Content	Range	Factory Setting	Unit
	Display (In English)				
A0-00	显示语言	Language selection	--	中文	Y
	Language Sel				
A0-01	用户密码	Input/Setting user level password	000000~999999	000000	Y
	User Password				
A0-02	厂家密码	Input/setting factory level password	000000~999999	0000000	Y
	Factory Password				
A0-04	对比度	Setting the LCD contrast level	0~10	5	N
	Contrast				

12. Integrated Controller Terminal Wiring Diagram

DC reactor
Battery
Braking Resistor

P1
(+) (−)
B2 B1
KDY
U
V
W

3-phase Power Input
380V 50HZ
R
S
T
KMC
R
S
T
M

PE
GND

Inspection	J7-6	X0
Up limit input	J7-7	X1
Down limit input	J7-8	X2
Up-leveling input	J7-9	X3
Down-leveling input	J7-10	X4
Running contactor input	J8-1	X5
Brake contactor feedback input	J8-2	X6
Door Open Limit 2	J8-3	X7
Door Close Limit 2	J8-4	X8
Safety Plate 2	J8-5	X9
Emergency stop input	J8-6	X10
Door inter-lock input	J8-7	X11
Standby1	J8-8	X12
Fire fight input	J8-9	X13
Slow up running input	J8-10	X14
Slow down running input	J9-1	X15
Top terminal input	J9-2	X16
Bottom terminal input	J9-3	X17
Standby2	J9-4	X18
Door Open signal input 1	J9-5	X19
Door Close signal output 1	J9-6	X20
Door Open Limit 1	J9-7	X21
Door Close Limit 1	J9-8	X22
Safety Plate 1	J9-9	X23
electric lock input	J9-10	X24
Overload signal input	J10-1	X25
Fullload signal input	J10-2	X26
Standby3	J10-3	X27
Light load Anti-mischief	J10-4	X28
Attendant input	J10-5	X29
Drive by-pass input	J10-6	X30
Brake travel switch input	J10-7	X31
Thermo switch input	J10-8	X32
Door Open 2	J10-9	X33
Door Close 2	J10-10	X34
Separate GND for separate power	J11-2	GND1
	J11-3	GND1
Input 24V	J11-4	+24V
Input GND	J11-2	GND1
	J11-3	GND1
Input Public	J11-1	+24V
1H	J11-7	
1L	J11-8	
	J11-6	GND2

24V Power Input

Wiring

Duplex Comm

X35+	J4-7	110V Door inter-lock input	+24V
X35-	J4-8		
I0	J5-1	Door Open delay input	J11-2(GND1)
I1	J5-2	Car call 1	
I7	J5-8	Car call 9	
I8	J5-9	Up call 1	
I13	J6-4	Up call 6	
I14	J6-5	Down call 2	+24V
I19	J7-5	Down call 7 & answer	J11-2(GND1)
Y0	J1-1	Brake control output	
Y1	J1-2	Running contactor control output	
Y0-Y1 COM1	J1-3	Y0-Y1 common terminal	
Y2	J1-4	Door open 1 control output	
Y3	J1-5	Door close 1 control output	
Y4	J1-6	Door open 2 control output	
Y5	J1-7	Door close 2 control output	
Y2-Y5 COM2	J1-8	Y2-Y5 common terminal	
Y6	J2-1	Fire fighting output	
Y7	J2-2	Light turn off output	
Y8	J2-3	Arrival gong output	
COM3	J2-4	Y6-Y8 common terminal	
Y9	J2-5	LED section low a display	
Y15	J3-3	LED section low g display	
Y16	J3-4	Inspection ouput	
Y17	J3-5	LED section high g display	
Y18	J3-6	Up arrow display	
Y19	J3-7	Down arrow display	
COM4	J3-8	Y9-Y19 common terminal	
Y20	J4-1	Power turn off while Parking	
Y21	J4-2	Overload output	
Y22	J4-3	Buzzer sounds output	
COM5	J4-4	Y20-Y22 common terminal	
Y23	J4-5	Cut main contactor output	
COM6	J4-6	Y23 common terminal	
AG0 IN	J11-5	Analog input	
GND2	J11-6		

15PIN

JG1
Encoder
Interface

Appendix I: BL-B Parallel Integrated Controller Simple Wiring Solution

For integrated Controller MU-V5 main board logic program with version 6020 or above support the function of "Simple wiring solution". Detail can be seen below:

When F4-07-34 is set to "ON", up/down limit signal will not be used, this saves 2 hoistway cables. Instead, the up limit signal is generated with up terminal/down door zone signal valid + up door zone signal invalid; the down limit signal is generated with down terminal/up door zone signal valid + down door zone signal invalid.

Note: When using this function, please short connect X5 (J3-3) & GND_IN (J7-2) as inspection signal for outer circuit power cut, this is to prevent controller miss-register floor information at outer circuit power cut.

For integrated Controller MU-V5 main board logic program with version 6020 or above together with BL2000-CZB-V10 COP can support CAN BUS control COP open/close door. In this way the open/close door signal in the hoistway cable (total 5 wires) can be reduced.

BL2000-CZB-V10　Serial control Door Setup: (through Jumper)

J1	J2	J3	JD	
YES	YES	YES	No	With COP

First use jumper 3,2,1 & D to setup the COP function, after COP buzzer ring twice, it enters function setup. Door open 1 button shows the condition of this function: Button light on means serial control door function is enable, button light off means this function is disabled; press the button to switch these 2 conditions. After setup, change the jumper, the set value will flash 3 times, buzzer will ring 3 times, means COP setup is restored and quit function setup mode.

After enabled serial control door function, door open relay 1,2 & door close relay use the same public terminal (J11-6), J11-5 is door close relay output, J11-9 is door open 1 relay output, J11-10 is door open 2 relay output. Y2-Y5 relay on main board still output the door open/close signal and can be used to monitor the door condition when command go through CAN BUS.

Integrated controller and LOP CAN communication can add electric lock and fire signal. Together with BL2000-HAH-M1.1, FR2000-HAH-V9 & BL2000-HAH-B9 it could allow CAN BUS to control electric lock and fire mode and save 2 cables in the hoistway. To enable this function, short DS jumper on LOP.

Note: Only 1 LOP for one elevator can short jumper DS and set as electric lock/fire service input. If parking floor and fire floor are different, please connect a wire from this LOP to the other floor.

　　　BY0-3　24V Public　　　　　　　BY0-4　　　Spare Input 0

　　　BY1-3　24V Public　　　　　　　BY1-4　　　Spare Input 1

Default: Spare input 0 as electric lock input, spare input 1 as fire service mode input.

Parameters need to set on Integrated controller:

　　F4-07-35 set "On" to enable CAN BUS electric lock function.

　　F4-07-36 set "On" to reverse CAN BUS electric lock enable type.

　　F4-07-37 set "On" to enable CAN BUS fire service function.

　　F4-07-38 set "On" to reverse CAN BUS fire service enable type.

Note: After CAN BUS fire signal is enabled, its original terminal on the main board (X12) is still valid, both signals could enable elevator fire-service mode.
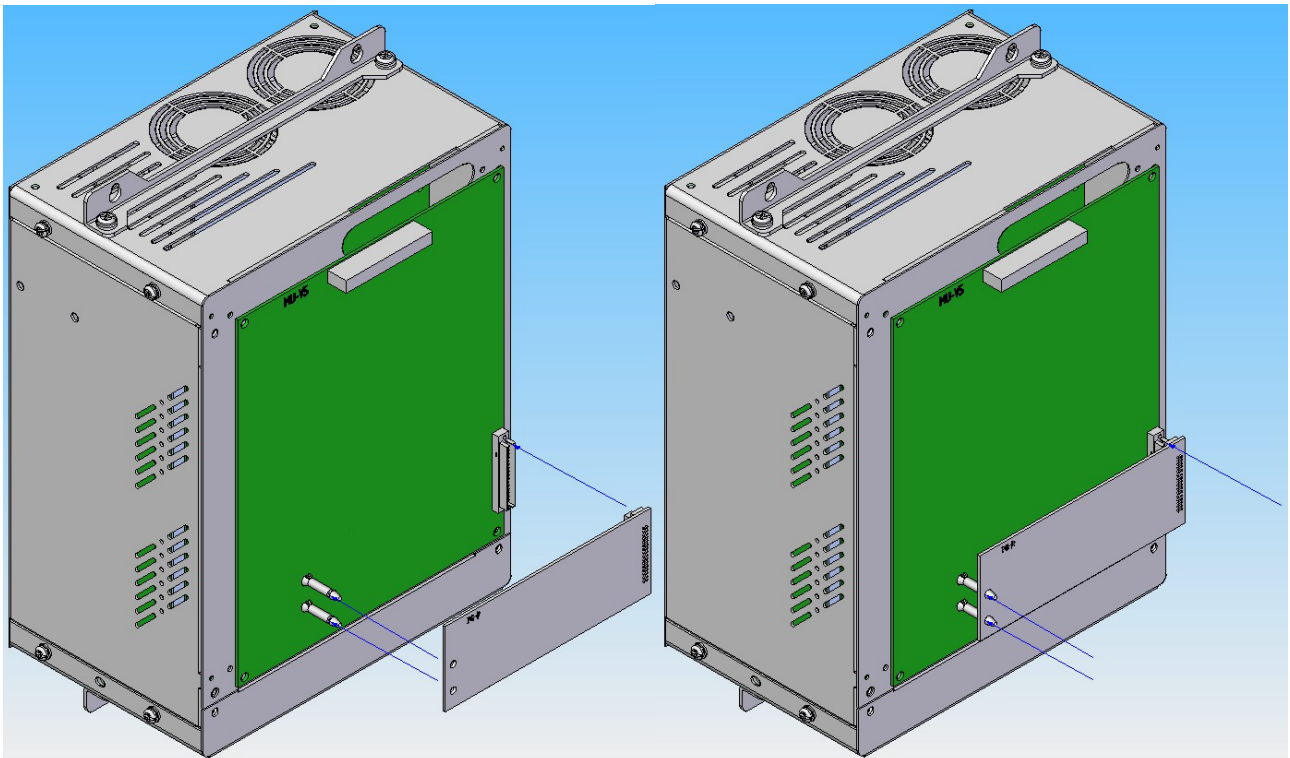
Note: When controller enables CAN BUS electric lock/fire service function but without LOP or LOP did not connect jumper DS or communication break, elevator cannot enter lock/fire-service mode.

Appendix II: BL-B Parallel Integrated Controller PG Card Assemblage
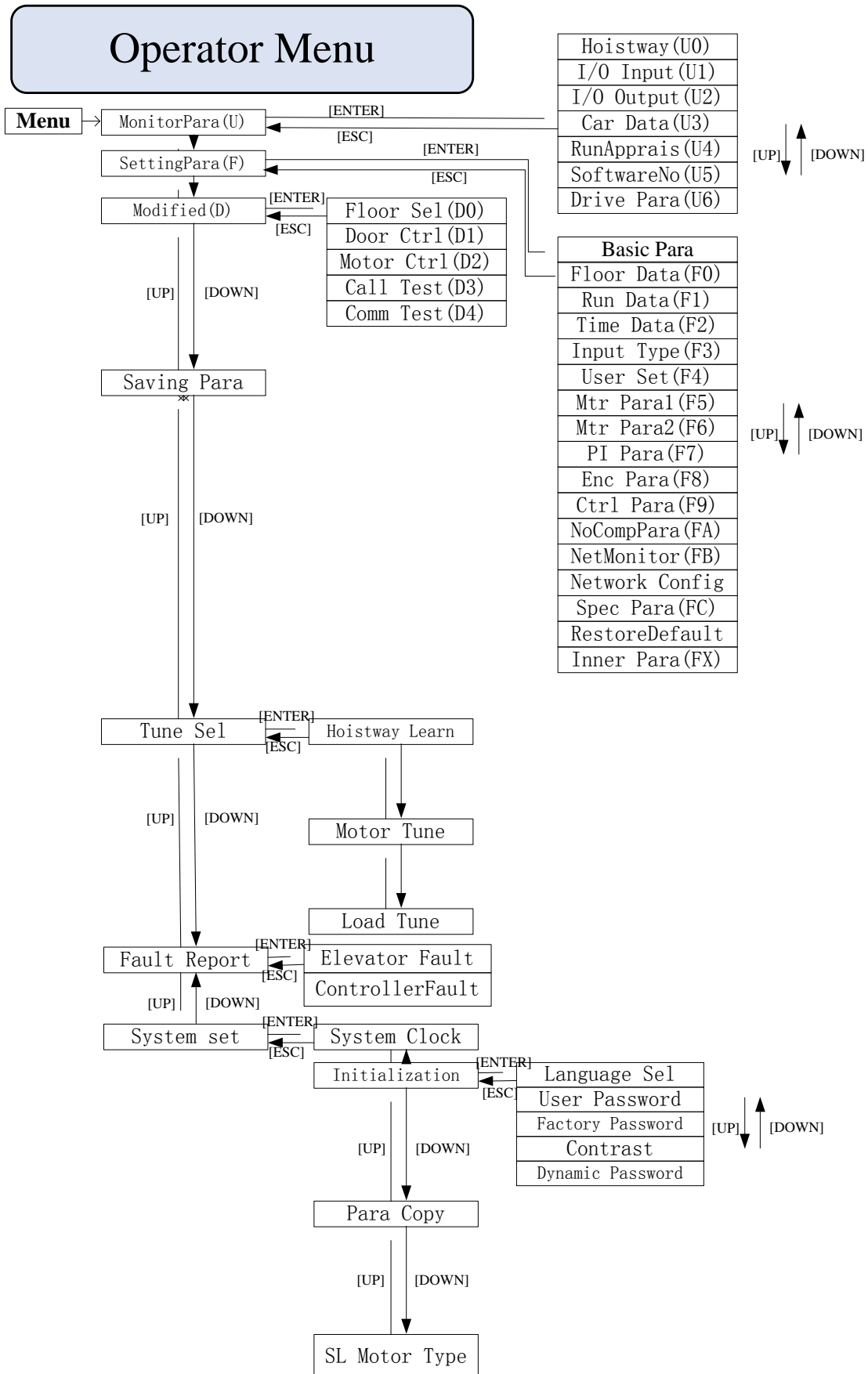
1. Take out the chassis and PG card from Packing.
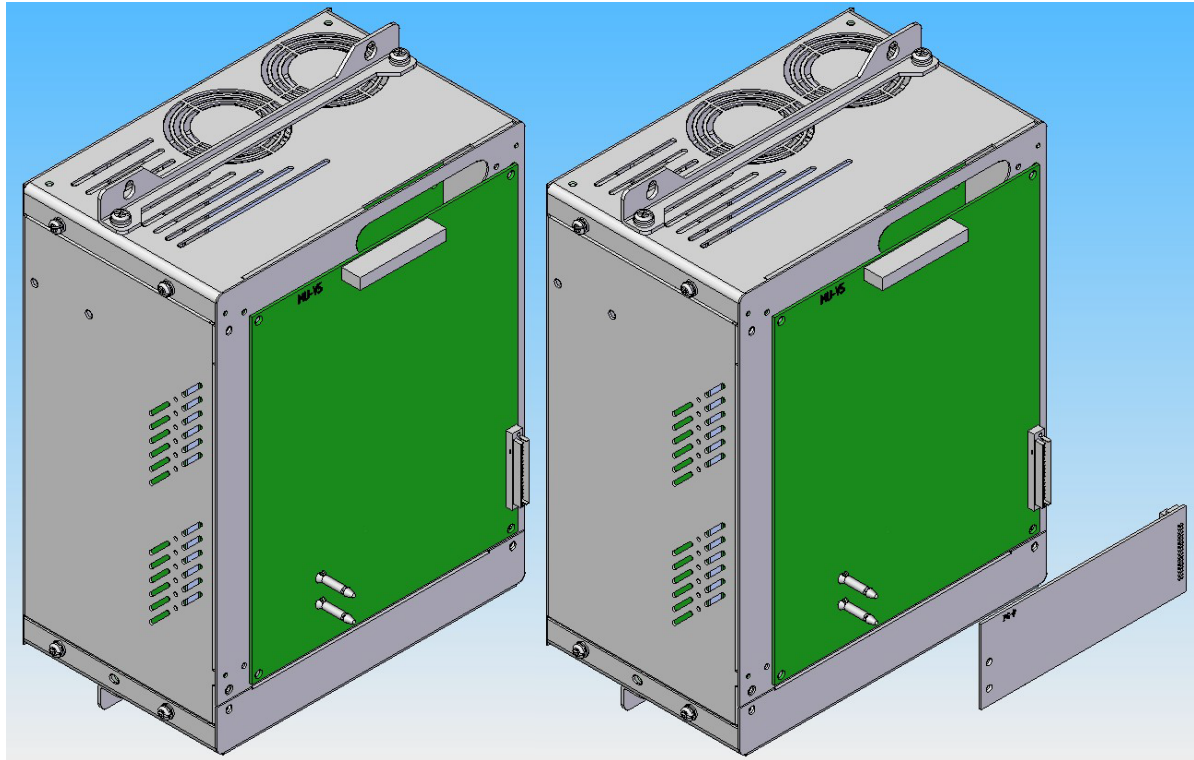
2. Align PG card and   sustain pillar and right socket，as the graphic.

Appendix III: BL-B Parallel Integrated Controller Operator Menu

Operator Menu

| Menu | → | MonitorPara(U) |

[ENTER]
[ESC]

SettingPara(F)

[ENTER]
[ESC]

Modified(D)

[UP] [DOWN]

Saving Para

[UP] [DOWN]

| Hoistway(U0) |
| I/O Input(U1) |
| I/O Output(U2) |
| Car Data(U3) |
| RunApprais(U4) |
| SoftwareNo(U5) |
| Drive Para(U6) |

[UP] [DOWN]

[ENTER]
[ESC]

| Floor Sel(D0) |
| Door Ctrl(D1) |
| Motor Ctrl(D2) |
| Call Test(D3) |
| Comm Test(D4) |

| Basic Para |
| Floor Data(F0) |
| Run Data(F1) |
| Time Data(F2) |
| Input Type(F3) |
| User Set(F4) |
| Mtr Para1(F5) |
| Mtr Para2(F6) |
| PI Para(F7) |
| Enc Para(F8) |
| Ctrl Para(F9) |
| NoCompPara(FA) |
| NetMonitor(FB) |
| Network Config |
| Spec Para(FC) |
| RestoreDefault |
| Inner Para(FX) |

[UP] [DOWN]

Tune Sel

[ENTER]
[ESC]

Hoistway Learn

[UP] [DOWN]

Motor Tune

Load Tune

Fault Report

[ENTER]
[ESC]

| Elevator Fault |
| ControllerFault |

[UP] [DOWN]

System set

[ENTER]
[ESC]

System Clock

Initialization

[ENTER]
[ESC]

| Language Sel |
| User Password |
| Factory Password |
| Contrast |
| Dynamic Password |

[UP] [DOWN]

[UP] [DOWN]

Para Copy

[UP] [DOWN]

SL Motor Type

Appendix IV: Leveling Switches & Flag Installation

For elevator leveling control, two leveling switches (up/down leveling switches) and some door zone flags (one in each floor) are required. Two leveling switches are installed on top of car, door zone flag is installed in hoistway, their dimensions and positions are illustrated in figure F1.1. Leveling switches can be optical or magnetic.

Door zone flag adjustment:

1. Elevator stop at each floor, measure car and hall sills difference △S on each level at elevator park (car sills higher is position, lower is negative)

2. Adjust door zone flag on each floor, if △S>0, flag on this floor should move down △S; move flag up △S if △S<0.

3. Elevator need to redo the hoistway parameter learning

after door zone flag adjustment.

4. Check elevator leveling on each floor, redo part 1-3 if necessary.
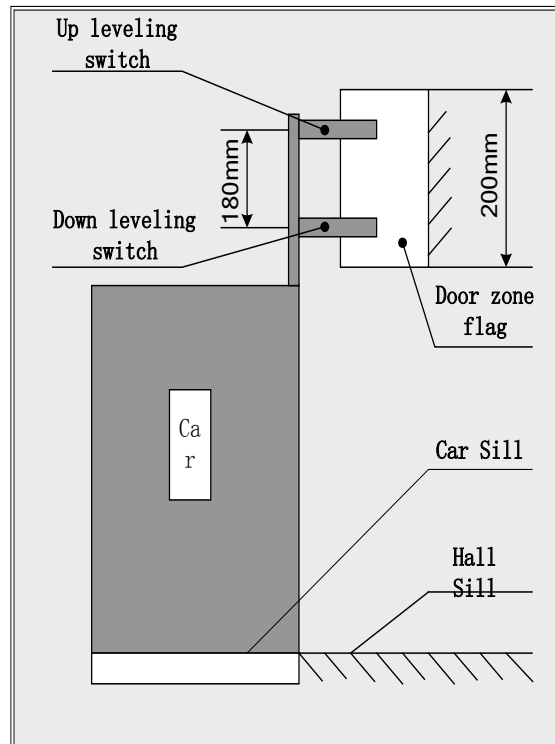

Figure F1.1 Door zone flag & Leveling Switch Position

Appendix V: BL-B Parallel Integrated Controller Terminals & Car Input Data

Control Circuit Port definition and Function

Port No.	Terminal Symbol	Location	Definition	Usage	Interface Tech Spec			
					Interface Type	Rated Capacity	On/off Time	Max Speed
J1	Y0	J1_1	Brake control output	Output	Relay	DC 10A30V AC 10A250V	5/10mS	20cpm
	Y1	J1_2	Running contactor control output					
	CM1	J1_3	Y0-Y1 common terminal					
	Y2	J1_4	Door open 1 control output					
	Y3	J1_5	Door close 1 control output					
	Y4	J1_6	Door open 2 control output					
	Y5	J1_7	Door close 2 control output					
	CM2	J1_8	Y2-Y5 common terminal					
J2	Y6	J2_1	Fire fighting output	Output	Relay	DC 10A30V AC 10A250V	5/10mS	20cpm
	Y7	J2_2	Light turn off output					
	Y8	J2_3	Arrival gong output					
	CM3	J2_4	Y6-Y8 common terminal					
	Y9	J2_5	LED section low a display					
	Y10	J2_6	LED section low b display					
	Y11	J2_7	LED section low c display					
	Y12	J2_8	LED section low d display					
J3	Y13	J3_1	LED section low e display	Output	Relay	DC 10A30V AC 10A250V	5/10mS	20cpm
	Y14	J3_2	LED section low f display					
	Y15	J3_3	LED section low g display					
	Y16	J3_4	LED section high bc display（if there's no LED or section bc is unused, display "Inspection" while function FU05 is ON）					
	Y17	J3_5	LED section high g display					
	Y18	J3_6	Up arrow display					
	Y19	J3_7	Down arrow display					
	CM4	J3_8	Y9-Y19 common terminal					
J4	Y20	J4_1	Power turn off while Parking	Output	Relay	DC 10A30V AC 10A250V	5/10mS	20cpm
	Y21	J4_2	Overload output					
	Y22	J4_3	Buzzer sounds output					
	CM5	J4_4	Y20-Y22 common terminal					
	Y23	J4_5	Cut main contactor output					
	CM6	J4_6	Y23 common terminal					

	X35+	J4_7	Door inter-lock input + （110V—220VAC）	Input	OC	AC110V 8mA	10mS	100Hz
	X35-	J4_8	Door inter-lock input （110V—220VAC）					
J5	I0	J5_1	Door Open delay input	Input	OC	DC24V 7mA 300MA	10mS	100Hz
	I1	J5_2	All collective selective /Single collective selective Car call 1/ Car call 1					
	I2	J5_3	All collective selective /Single collective selective Car call 2/ Car call 2					
	I3	J5_4	All collective selective /Single collective selective Car call 3/ Car call 3					
	I4	J5_5	All collective selective /Single collective selective Car call 4/ Car call 4					
	I5	J5_6	All collective selective /Single collective selective Car call 5/ Car call 5					
	I6	J5_7	All collective selective /Single collective selective Car call 6/ Car call 6					
	I7	J5_8	All collective selective /Single collective selective Car call 7/ Car call 7					
	I8	J5_9	All collective selective /Single collective selective Up call 1/ Car call 8					
	I9	J5_10	All collective selective /Single collective selective Up call 2/ Car call 9					
J6	I10	J6_1	All collective selective /Single collective selective Up call 3/ Call Input 1	Input	OC	DC24V 7mA 300MA	10mS	100Hz
	I11	J6_2	All collective selective /Single collective selective Up call 4/ Call Input 2					
	I12	J6_3	All collective selective /Single collective selective Up call 5/ Call Input 3					

Port No.	Terminal Symbol	Location	Definition	Usage	Interface Type	Rated Capacity	On/off	Max Speed
	I13	J6_4	All collective selective /Single collective selective Up call 6/ Call Input 4					
	I14	J6_5	All collective selective /Single collective selective Down call 2/ Call Input 5					
J7	I15	J7_1	All collective selective /Single collective selective Down call 3 Call Input 6	Input	OC	DC24V 7mA 300MA	10mS	100Hz
	I16	J7_2	All collective selective /Single collective selective Down call 4/ Call Input 7					
	I17	J7_3	All collective selective /Single collective selective Down call 5/ Call Input 8					
	I18	J7_4	All collective selective /Single collective selective Down call 6/ Call Input 9					
	I19	J7_5	All collective selective /Single collective selective Down call 7/Call Input 10					

Port No.	Terminal Symbol	Location	Definition	Usage	Interface Tech Spec			
					Interface Type	Rated Capacity	On/off	Max Speed
J7	X0	J7_6	Inspection Input	Input	OC	DC24V 7mA	10mS	100Hz
	X1	J7_7	Up limit input					
	X2	J7_8	Down limit input					
	X3	J7_9	Up-leveling input					
	X4	J7_10	Down-leveling input					
J8	X5	J8_1	Running contactor input	Input	OC	DC24V 7mA	10mS	100Hz
	X6	J8_2	Brake contactor feedback input					
	X7	J8_3	Door Open Limit 2					
	X8	J8_4	Door Close Limit 2					
	X9	J8_5	Safety Plate 2					
	X10	J8_6	Emergency stop input					
	X11	J8_7	Door inter-lock input					
	X12	J8_8	Standby					
	X13	J8_9	Fire fight input					
	X14	J8_10	Slow up running input					
J9	X15	J9_1	Slow down running input	Input	OC	DC24V 7mA	10mS	100Hz
	X16	J9_2	Top terminal input					

	X17	J9_3	Bottom terminal input				
	X18	J9_4	Standby				
	X19	J9_5	Door Open signal input 1				
	X20	J9_6	Door Close signal output 1				
	X21	J9_7	Door Open Limit 1				
	X22	J9_8	Door Close Limit 1				
	X23	J9_9	Safety Plate 1				
	X24	J9_10	electric lock input				
J10	X25	J10_1	Overload signal input	Input	OC	DC24V 7mA	10mS	100Hz
	X26	J10_2	Fullload signal input				
	X27	J10_3	Standby				
	X28	J10_4	Light load Anti-mischief input				
	X29	J10_5	Attendant input				
	X30	J10_6	Drive by-pass input				
	X31	J10_7	Brake travel switch input				
	X32	J10_8	Thermo switch input				
	X33	J10_9	Door Open signal input 2				
	X34	J10_10	Door Close signal output 2				
J11	+24V1	J11-1	Input power supply	Power	Power	DC 24V 10A		
	24V_GND	J11-2，J11-3	Input Ground				
	+24V	J11-4	Input power supply				
	AG0 IN	J11-5	Analog input	input	Analog	−10V~+10V		
	GND1	J11-6	Output Ground	Output				
	1H	J11-7	Duplex/Group control communications+	COMM Interface	CAN	80mA		25KH
	1L	J11-8	Duplex/Group control communications-				