Integrated Controller
Quick Commissioning

Ver Number: V3.14

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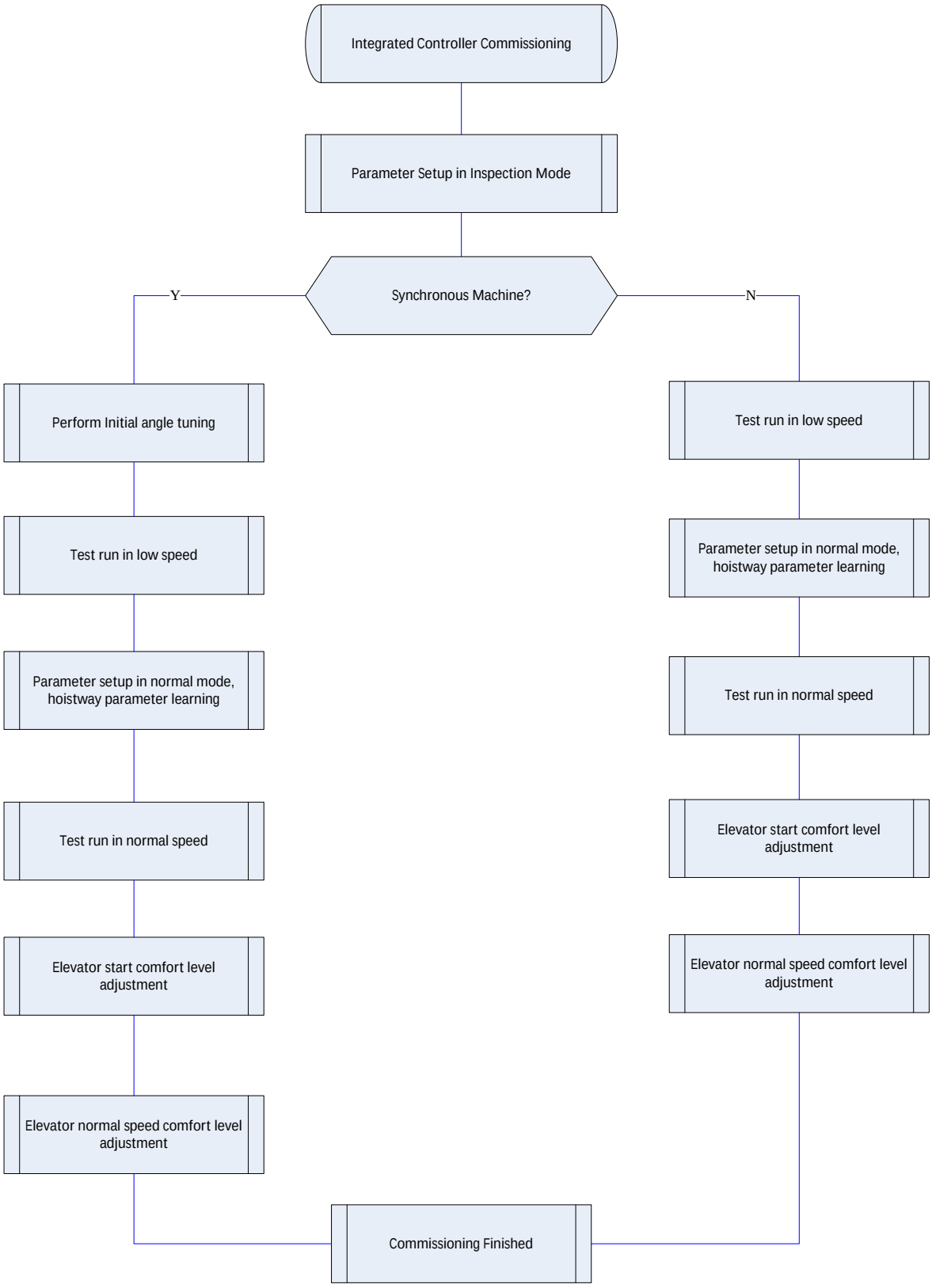
Chapter 1 Integrated Controller Test Commissioning



1. Parameter Need to set before Inspection Run

Note: Parameters must be saved after setting operation; otherwise the original value will not be saved after power off.

Chart 1.1.1 Parameter Need to set before Inspection Run

Parameter List			Setup Method	
	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.	0: Sync machine, 1: async machine. Fill in according to actual situation.
	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		Base on site condition
	F8-02	PG card Type		PG card type (0: Incremental encoder, 1: Sin/Cos 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	0er eetu (reev ( )-40 (e;4.341 240.827 10.995 reW nBT-0.005 Tc 0.	

Press OK button after entering complete motor and encoder information. BL series integrated controller automatically generate motor parameters corresponding to current motor model. Wait to exit the interface until prompting success. Then save the parameters.

If motor model entered invalid, or information entered incompletely (for example, only input the motor model but did not enter the encoder information), interface will indicate “Invalid model”. Please conform model and encoder information is correct before proceeding.

Try again if interface indicates fail.

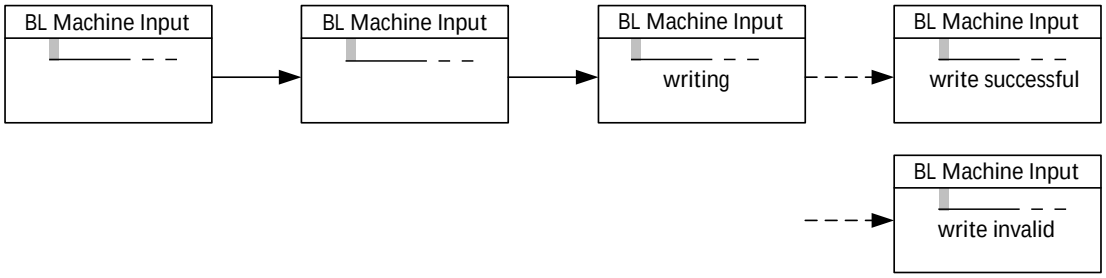


FIGURE 1.1.2 BL Machine Input Interface

2. Motor Initial Angle Tuning (Only for Synchronous Machine)

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 load**".

(The two angle tuning modes can achieve the same effort. Please choose one of them according to the actual situation.)

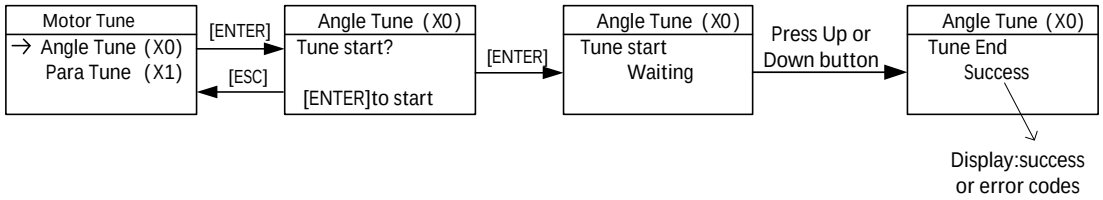


FIGURE 1.2.1 Motor initial tuning without load (Do not attach steel ropes) sketch

Note: Rotation angle tuning no longer distinguish encoder type.

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.

Chart 1.2.1 Motor Initial Angle Rotation Tuning Fault List

Error Code	Definition	Possible Causes	Possible Solution
RF100	**Controller fault** The drive has a failure and can not do Initial Angle Rotation Tuning.	Controller has met fault.	First solve fault according to error code, then angle tuning again. Refer to **Chart 4.1 Driver Fault List.**
RF226	**Give voltage limit** Already give limit force during angle tuning, but feedback current can not reach least requirement.	1. Incorrect parameters of motor or encoder; 2. The difference between the actual parameters of the motor and the estimated parameters of the driver is too large; 3.	

Chart 1.2.1 Motor Initial Angle Rotation Tuning Fault List (Cont'd)

Note: 1. Above description is for SIN/COS encoder;

2. For increment encoder, RF231 correspond to UVW signals, RF234 correspond to Z pulse. The solution is same, and other faults are same too.

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)

2.2.1 Motor Initial Angle Tuning with Hand Operator

Correctly set PG type F8-02 on digital operator, set tuning method parameter (FC-13) to "1" (default setting is 1 in Integrated Controller), perform motor initial angle tuning based on following procedures shown below:

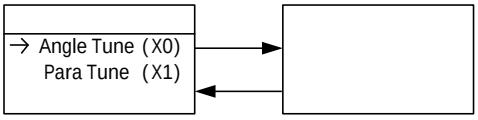


Chart 1.2.2 Motor initial Angle tuning with load (attach steel ropes) error code (Cont'd)

Error Code	Definition	Possible Causes	Possible Solution
RF227	**Output current over limit** During the tuning process, the driver controller detects that the output current has reached the limit and stops the output, indicating that the current is out of limit.	1. Incorrect parameters of motor or encoder; 2. The difference between the actual parameters of the motor and the estimated parameters of the driver is too large; 3. Power matching imbalance between motor and driver (The motor power is far more than the drive).	1. Check parameters of motor and encoder; 2. Increase F5-08 to complete tuning, then recover F5-08; 3. Check if the power of inverter is adapted to motor, refer 2.
RF228	**ESC input** During the tuning process, ESC input is effective, and self tuning is cancelled.	1. Release Up or Down button while tuning; 2. Fault occurs during angle tuning.	1. Angle tuning interruption, failure to complete, please do angle tuning again. Do not 2. C-56 (k)whter(t)-3 (h)533 (er)-29 e(i)-29 sevtor

Chart 1.2.2 Motor initial Angle tuning with load (attach steel ropes) error code (Cont'd)

Chart 1.3.4 Time Setup Parameters (Cont'd)

Para No.	Display	Content	Range	Factory Setting	Unit	Live Chang	Ref Page
F2-01	Brake OFF Time	When start closing brake, brake cannot hold traction s-80heave immediately due freewheeling and demagnetization. Keep output torque in this period. Remove internal direction enable and cancel torque output after this time. This parameter can prevent car s--1 (l)3.6 (i)3.7 (p)33.7 (c)-2.3 (a)20.3 (u)33 (s--1 (e)6 (d)33.6 (b)33 (y)-5.7 (b					

5. Hoistway Parameter Learning

Chart 1.5.1 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.

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

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)

1.

Chart 1.5.2 Hoistway Parameter Learning Fault Diagnosis (Cont'd)

Error Code	Definition	Possible Solution
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	

1) Without cabin 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% and 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.

The block diagram of weighing is shown below:

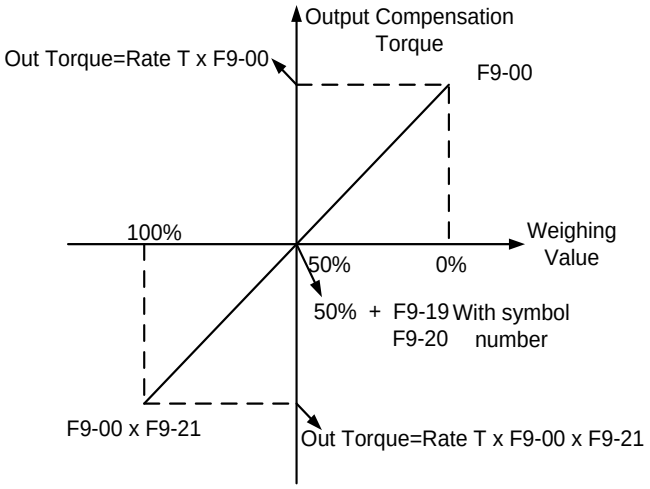


Figure 1.6.1 Good comfort level could be achieved with adjustment shown above

6.2 Start without Load Compensation Setup

6.2.1 No load compensation for Sin/Cos PG card

When using 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.

2) Adjustment method for elevator starting without load compensation:

a) Principles: As can be seen in figure below, when brake open, based on the position feedback from Sin/Cos PG card, system can calculate 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.

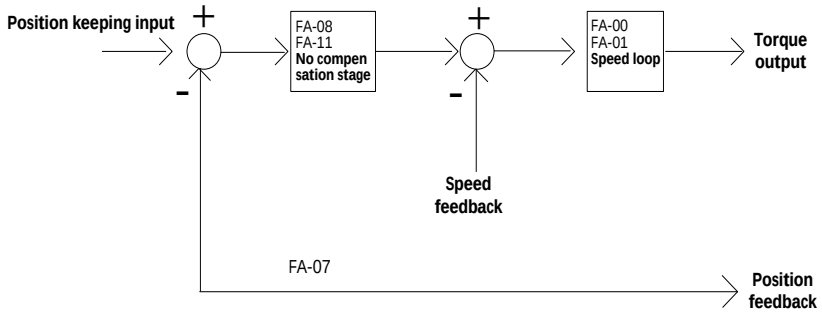


Figure 1.6.2 Flowchart for elevator starting without load compensation (Sin/Cos)

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

Chart 1.6.1 Elevator start without load compensation parameters list

c) 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,

6.2.2 No load compensation for Incremental PG card

When using integrated controller with Incremental PG card, it is possible to achieve comfort start without load compensation by proper setup in F9 and 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 "0" (Incremental PG card PG_V6 or PG_V6X);

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

2) Adjustment method for elevator starting without load compensation:

a) Principles: As can be seen in figure below, when brake open, based on the position feedback from Incremental PG card, system can calculate 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;

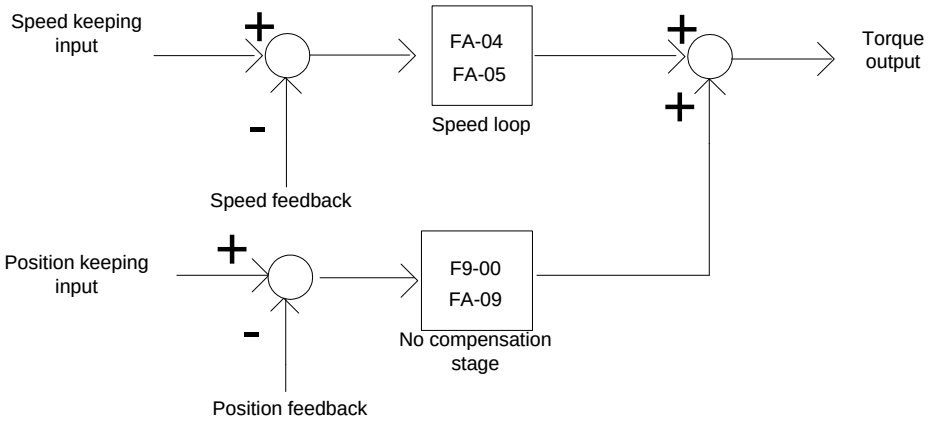


Figure 1.6.3 Flowchart for elevator starting without load compensation (Incremental)

b) Parameters: Parameters related to function can be seen below in table below;

Chart 1.6.2 Elevator start without load compensation parameters list

Parameters No.	Display	

c) Adjustment method:

Main parameters used are F9-00, FA-09, FA-04 and FA-05.

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

Speed loop proportional/integral can be adjusted by 50 increments. If system performance is not perfect at start or stop period (low speed period), try to control in multi-section PI. Detailed method is described in specific section of instruction.

6.3.2 Leveling Precision Adjustment

1) Basic Conditions for Elevator Leveling

1. Length of leveling inductor plates on every floor must be the same.
2. Leveling inductor plates must be installed vertically.
3. 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, otherwise elevator leveling will have deflection, which means in up or down running, elevator stops higher or lower than leveling position.
4. 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.
5. To ensure precise leveling, system require elevator to crawl for a certain distance before stop.
6. 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 (each deflection of stop position ≤±2~3mm).

2) Leveling Parameter Adjustment

If elevator still cannot achieve desired leveling condition with adjustment, 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

Chapter 2 Parameters

1. Monitoring Parameters

Chart 2.1.1 U0 Monitoring Parameters

Para No.	Display	Content	Unit	Ref Page
U0-00	Lower Limit	The location of bottom limit in hoistway. Data will be recorded after finishing hoistway learning	m	--
U0-01	Upper Limit	The location of top limit in hoistway. Data will be recorded after finishing hoistway learning.	m	--
U0-02	Lower Slowdown 1	Location of bottom terminal switch 1 in hoistway. Data will be recorded after finishing hoistway learning	m	--
U0-03	Lower Slowdown 2	Location of bottom terminal switch 2 in hoistway. Data will be recorded after finishing hoistway learning	m	--
U0-04	Upper Slowdown 1	Location of top terminal switch 1 in hoistway. Data will be recorded after finishing hoistway learning	m	--
U0-05	Upper Slowdown 2	Location of top terminal switch 2 in hoistway. Data will be recorded after finishing hoistway learning	m	--

U0-06...69

2. Setup Parameters

Chart 2.2.1 Building Setup Parameters List

Chart 2.2.3 Time Setup Parameters List

Para No.	Display	Content	Range	Factory Setting	Unit	Live Change
F2-00	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	1	s	Y
F2-01	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	1	s	Y
F2-02	Insp Brake Time	The time delay in inspection mode before brake closes.	0.00~9.99	0.9	s	Y
F2-04	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 73.832 21 >>( )TjECID 4 /TT1 1 Tf-0.007 Tc 01.853 21.			

Chart 2.2.4 Input Type Setup Parameters List

Para No.	Display	Content	Range	Factory Setting	Live Change
F3-00	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	4024434279	N
F3-01	Car Input Type	Setting the input type of cabin. Each bit corresponds to one terminal. **ON**: Close enable, **OFF**: Open enable.	0 4294967295	2147090191	N
F3-02	Input select 1	X13 Input Function Selection	0~32	13	N
F3-03	Input select 2	X14 Input Function Selection Default: F3-03=33 (X14 as brake fault detection)	0~32	33	N
F3-04	Input select 3	X23 Input Function Selection	0~32	23	N
F3-05	Input select 4	X24 Input Function Selection	0~32	24	N
F3-06	Input select 5	X25 Input Function Selection	0~32	25	N
F3-07	output select 1	Y0 Output Function Selection	0~32	0	N
F3-08	output select 2	Y11 Output Function Selection F3-08: 0-11 — Instead of Y0 - Y11 output. 12 — Thermistor overheat protection output. 15 — Alarm closure output (when elevator is running or in door zone with door open, disable the alarm). 16 — Integrated controller fault indication output. 17 — UPS shut down the emergency door and cut off the UPS power after 30 seconds. 18 — Car accident mobile detection, Y11 output trigger rope clamp. 19 — The output is not valid when it is in automatic, and the output will be prompted under the mode of inspection, fire fighting, driver and special-			

Chart 2.2.4 Input Type Setup Parameters List (Cont'd)

Para No.	Display	Content	Range	Def Value	Live Change
		Y10 Output Function Selection			

F3-09	content
0-11	Instead of Y0-Y11 output.
12	Thermistor overheat protection output.
15	Alarm closure output (when elevator is running or in door zone with door open, disable the alarm).
16	Integrated controller fault indication output.
17	UPS shut down the emergency door and cut off the UPS power after 30 seconds.
18	Car accident mobile detection,i1Qq223.094 590.891

F3-09 output select 3

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

Chart 2.2.5 Service Setup Parameters List

Chart 2.2.6 SPECIAL FUNCTION LIST

Number	Instruction
F4-06-00	

CHART 2.2.6 SPECIAL FUNCTION LIST (CONT'D)

Number	Instruction
F4-07-01	ON: Enable elevator data recorder. Together with PC debugging software, after-sales/service team can provide fault diagnosis.
F4-07-02	ON: Disable top/bottom limit signal, use another mechanism to detect limit signal: a. Top terminal/down door zone valid + up door zone invalid = Top limit; b. Bottom terminal/up door zone valid + down door zone invalid = bottom limit.
F4-07-03	ON: Enable serial connected electric lock.
*F4-07-04	ON: elevator door-open and hold function. (Including base station floor, internal selection and external call, then automatically close the door.)
F4-07-05	ON: Enable serial connected fire-linkage signal.
*F4-07-06	**Previous versions of IECS_7122:** ON: Y11 relay is defined as integrated controller fault indication output. Y11 is valid when fault occurs, and Y11 is invalid without fault. (This function cannot be used simultaneously with F4-07-11 or F4-07-17.) **IECS_7122 and later versions:** ON: the input type of serial fire-linkage signal is reversed. (If you need the fault output function of the original Y11 relay, please set the F3-08 Y11 output function to 16.)
F4-07-07	ON Enable the anti impact top squat bottom protection function. If the slowdown switch fails when the elevator automatically runs near the terminal, immediately slow down and creep to the leveling position. OFF Turn off this function.
F4-07-08	ON: Main board X25 input is used as over load signal input.
F4-07-09	ON: Main board X24 input is used as full load signal input.
*F4-07-10	**Previous versions of IECS_7122:** Main board X19 input is used as light load signal input. Note: The brake feedback function must be disabled. (When brake feedback is forced to be enabled, above function is invalid) **IECS_7122 and later versions:** ON: When the elevator is running in duplex/group mode with generator, the elevator will return to the base station in turn. The A ladder will return first and then the B ladder will return.
*F4-07-11	**Previous versions of IECS_7122:**

Chart 2.2.12 Special Parameters List(CONT'D)

Spare parameter (FD) is reserve parameter group, FD-00 to FD-39, totally 40 spare parameters.

Bit setting group (FD-05 FD-21 FD-22):

Each parameter can be set in a numerical range of 0~65535, which is split into 16 special functions of the ON/OFF set in binary way, which opens (ON) for the binary value of 1, and the 0 is closed (OFF).

Please select the function that you need to open according to the chart 2.2.13, then set the value of the corresponding position to 1, and then convert the binary value of the whole table to the decimal value to set the FD-

Chart 2.2.14 Spare parameter 6 (FD-05) (Cont'd)

Num.	Function definition	Meaning
FD-05-01	Earthquake evasion function	ON: Opens the earthquake evasion function. When the main board X21 earthquake input signal is valid, the elevator will clear all the registered external call signals, and then open the door to evacuate the passengers at the nearby floor. If the special function parameter F4-07-15 is set to ON, after opening the door, a buzzer sounds every second. When the door is evacuating, the elevator control system determines the current position of the car. If the balance position interval between the weight and the car in the hoistway is found (within the range of positive and negative 2 meters), the elevator enters the circumvention balance position mode, the car tries to close the door, and after the door is closed, the elevator automatically registers an internal selection instruction of the parked floor above the balance position (which can automatically avoid the non-stop floor). Then run upwards to the parked floor to open the door. Then it reports ER25 fault and waiting for the manual reset earthquake monitoring switch to resume the ER25 fault. OFF: Close the earthquake evasion function.
FD-05-02	Inspection run in power off emergency operation	ON: Inspection cannot run in power off emergency operation; OFF: Inspection can run in power off emergency operation.
FD-05-03	ER39 reset method	ON: ER39 error can only be reset once the system successful complete braking force self-test; OFF: In inspection mode, pressing both slow up and slow down buttons for 5 seconds can reset this error.
FD-05-04	Car call cancellation function	ON: Disable car call cancellation function; OFF: Enable car call cancellation function. Click the car call button again can cancel this car call, according to F4-06-09.
FD-05-05	Light curtain abnormal alarm	ON: If light curtain is adhering for more than 2 minutes or it lose effectiveness (no action for 8 continuous car call running), car buzzer will alarm; OFF: Turn off this function.
FD-05-06	Hall door and car door bypass detection method selection	ON: Using SJT-BDD-Vn board to detect hall door and car door bypass, instead of using SJT-ZPC-V2A safety circuit board. When activate this function, car releveling, advance door opening and synchronous machine UCMP testing functions will be disabled. OFF: Using SJT-ZPC-V2A safety circuit board instead of SJT-BDD-Vn circuit board.
FD-05-07	Automatical torque restore of door motor when powered on	ON: Power on at the level position, the elevator will automatically open the door. When closing the door for the first time, both the front and rear doors will be closed at the same time; Power on at non level positions and provide a door closing command for 5 seconds the front and r(t)10 (i(no)-38 (n l) t)10 (i)-16 (8.867 0 0 8.5

Chart 2.2.14 Spare parameter 6 (FD-05) (Cont'd)

Num.	Function definition	Meaning
FD-05-14	Star-sealed self-test	ON: For elevators using independent star-seal contactors, in an unmanned state, after each successful self detection of braking force, the automatic sliding detection of the star sealing function will be conducted to check if it is ineffective. This function needs to be used in conjunction with F4-07-27; OFF: Turn off this function.
FD-05-15	STO	ON Enable STO. This function needs to be used in conjunction with the driver module OFF Disable STO.

Chart 2.2.15 Spared parameter 7 FD-06

Num.	Function definition	Meaning
FD-06-00	7588-2020 enable	ON Enable related functions in new standard OFF Disable all functions in new standard.

CHART 3.1 ELEVATOR SYSTEM FAULT LIST (CONT'D)

Error Code	Definition	Possible Solution	

CHART 3.1 ELEVATOR SYSTEM FAULT L

C

CHART 3.1 ELEVATOR SYSTEM FAULT LIST (CONT'D)

Error Code	Definition	Possible Solution	Reset Level

CHART 3.1 ELEVATOR SYSTEM FAULT LIST (CONT'D)

Error Code	Definition	Possible Solution	Reset Level
ER55	For fire elevator, the encoding of elevator integrated controller absolute value coding communication board is abnormal (the encoding floor counting is more than the total floor).	Absolute floor coding confusion, probably because the bistable switch is not operated by the magnetic bean or magnetic beans degaussing, please check the floor code from the top of the car with inspection mode.	B
Er56	Door close limiiID 17 >>BDC -018 (o)11a-16 (c)U29ecmb1013 (l a)10 (r6 (c)U29c 0 Tw 1.88 0 MC ET/P <</MCID 13 >>BDC9q93.281 -28.		

CHART 3.1 ELEVATOR SYSTEM FAULT LIST (CONT'D)

Error Code	Definition	Possible Solution	Reset Level
Er89			

CHART 3.1 ELEVATOR SYSTEM FAULT LIST (CONT'D)

Note

1. Elevator fault reset conditions

Reset level	Fault reset conditions
A	1.In inspection mode, press both Up and Down for 5 sec to reset. need professional to manually reset at site
B, C ,D	2.Power off control system and power on again
C	3.Turn to inspection mode
D	4.Automatically reset

2.Adding sub code in fault records C0 C0=0 fault has no sub code fault has sub code(fault in chart 8.1with * .

3. In default setting, it shows fault code when fault occurs, but not show sub code. During fault looping display, press UP button, it will show corresponding sub code, press ESC to exit sub code show. For example, fault Er02, sub code is 5. When there's fault, it shows E-02, after pressing UP button, it shows E02.5, press ESC to exit.

Chart 3.2 Sub code of fault explanation

Fault	Sub code	Analysis
Er2 Door interlock fault: Door circuit open during elevator running.	1	Car door open X31
	2	Hall door open X30+X32
	3	Rear car door open

Chart 3.2 Sub code of fault explanation(Cont'd)

Fault	Sub code	Analysis
Er5 Brake feedback fault: This fault cannot be reset by power off, it need to press both Up and Down in inspection mode for 5 sec to reset it	7	When the brake is opened, the X19 signal remains invalid. Check the wiring, and the X19 light should light off.
	8	The brake is not opened, or the brake travel switch is invalid.
	9	Brake contactor 2 cannot be effectively engaged or X13 feedback is lost, check wiring.
	10/A	The X13 signal is always valid. Set F3-00-13 to ON, check the wiring, and the X13 signal light on the motherboard should be off.
	10/B	The control output Y8 and X11 feedback of the brake electromechanical device are inconsistent.
Er9 Running contactor action Abnormal	1	Y9 running contactor enable has no output but X16 feedback is abnormally valid.
	2	Y9 running contactor enable has output but X16 feedback is abnormally invalid.
Er10 Safety circuit open X13 X29 input invalid	1	Safety circuit open.
	2	Safety contactor off.
Er11 Leveling signal lost fault	1	Elevator has run over floor distance but leveling signal X9 and X10 keep invalid.
	2	

Chart 3.2 Sub code of fault explanation(Cont'd)

Fault	Sub code	Analysis
Er26 Door fault	1	matched
	2	.
	3	.
	4	F4-06-16=ON

Chart 3.2 Sub code of fault explanation(Cont'd)

Fault	Sub code	Analysis
Er92 Fault detected in the door lock circuit bypass operation signal	4	During the door lock short circuit detection period, after opening the front door, the front car door closing limit signal is still valid.
	5	During the short circuit detection period of the door lock, even after opening the rear door, the rear car door closing limit signal is still valid.
	6	During the door lock short circuit detection period, after opening the rear door, the rear door detection signal X32 is abnormally valid.
	7	Through door, F4-06-04 incorrectly set to OFF.
	8	The door opening limit is abnormal. The hall door lock and car door have not been fully opened, and the door opening limit is effective in advance.
Er93 The safety circuit board operates abnormally, and the door lock short circuit detection function cannot be used normally	1	After the elevator leaves the level position, the safety door area detection signal X23 is still valid.
	2	Y0 not outputted, safety circuit board feedback signal X22 abnormal and valid.
	3	Y0 output, safety circuit board feedback signal X22 consistent invalid.
	4	Y t.0.99-950663t Tdt1.80 3 2PLBody5 reW64012291.35 T2q7383.784.2t

CHART 4.1 DRIVER FAULT LIST (CONT'D)

Error Code	Display	Definition	Possible Causes	Possible Solution
DF4	IF	**IPM fault** Find drive module has serious short circuit error, system trigger a hardware over- current protection. Please get rid of external short circuit before retrying	1. IPM over current/short circuit; 2. IPM over heat; 3. Abnormal IPM control power (UV); 4. Motor wire adhered or short to ground; 5. Abnormal star-sealed contactor action.	1. Check output short circuit; 2. Check motor short circuit; 3. Check star-sealed contactor action; 4. Contact with supplier.
DF5	OC	**Overcurrent** Phase current of controller has exceeded limit and keep for certain time	1. Inverter output short circuit; 2. Machine over-load; 3. Accel/decel time too short; 4. Encoder signals have a bad connection; 5. Wrong motor or encoder parameter setting: (1)Wrong original point (Gearless); (2)Rated slip is too large (Geared); (3)Wrong poles setting; (4)Wrong encode pulse setting; (5)Wrong P & I parameter setting.	1. Check motor short circuit; 2. Check accel/decel time, slow down if needed; 3. Check if inverter's capacity match load; 4. Check encoder connection: (1) Check original point (Gearless); (2) Check rated slip (Geared); (3) Check poles setting; (4) Check encoder pulse setting; (5) Check P & I parameter setting.
DF6	CF	**CPU faults** Controller abnormal	Electro-Magnetic interference.	Too much interference.
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; 4. Wrong motor parameters setting.	1. Check speed limit setti 0.203 26670 Tc 0 Tw 2.92 0 Td

CHART 4.1 DRIVER FAULT LIST (CONT'D)

Error Code	Display	Definition	Possible Causes	Possible Solution
DF21	DF	**Parameter setting error** System find rated current/no-load current/ rated slip/ poles/pulse setting error.	Parameter setting error Check rated current/no-load current/ rated slip/ poles/pulse setting.	Check parameter setting.
DF22	SDF	**Internal programmer self-check error** The system detected the types of faults that cannot be classif0 0 8/MCID 0.355		

3151MC 0 Tw 12.52 EMC /P <<E01

CHART 4.1 DRIVER FAULT LIST (CONT'D)

Error Code	Display	Definition	Possible Causes	Possible Solution
DF31	158	**Communication error between drive modules** Detection of communication error between drive modules	Communication of internal drive chip is abnormal.	1. Check if there is serious EMI or contact with supplier; 2. Change main board.
DF32	159	**Encoder Z (or R) signal is abnormal** Motor has run for over 2 rounds but didn't find Z signal.	1. The controller finds **disconnection** or interference in Z pulse; 2. Component on mainboard is abnormal; 3. Component on PG card is abnormal.	Check if there is interference or broken wire of Z pulse.
DF33	160	**Before start, feedback speed is abnormal.** Before elevator start, system finds the feedback speed is over limit.	1. Encoder signal anomaly; 2. Brake force may be not enough or already open.	1. Check A & B signals of encoder; 2. Check brake.
DF34	161	**While brake force detecting, feedback movement of encoder is too long.**	1. Encoder feedback signal anomaly; 2. Brake force may be not enough or already open.	Check the brake and encoder.
DF35	162	**While safety protecting, motor has crept too long** When the system is in the state of security protection, it is detected that the encoder feedback displacement is too large.	1. Encoder feedback signal anomaly; 2. Brake force may be not enough or already open. 3. The setting of control parameter is not reasonable.	Check the brake, encoder and parameter setting related to safety protection
DF36	163	**Lack of phase protection for 3-phase input power** During the operation of the system, the input phase is detected lack, and the shell driving power is abnormal.	1. While running, system find lack of phase. 2. Check if there's IF error in Fault report. If yes, solve error according to IF error. 3. Bad contact between main board and power board.	1. Check 3-phase input power; 2. Check if there's short circui28 (ı