



# **OP-V6 Series Digital Operator User Manual**



**Ver Number: V1.1**

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## 1. Brief Introduction of Digital Operator

LCD digital operator OP-V6 is a tool for commissioning and maintenance of control system. It provides a nice and easy human-machine interface with both Chinese and English on display.



FIGURE 1 DIGITAL OPERATOR

## 2. Key, display and function of Digital Operator

The digital operator OP-V6 has the main LCD screen with resolution of 128×64 LCD, 5 LED and 11 function buttons. Refer to Figure 1 for detail.

### 2.1 Operator LED Display












Leds on the top of the operator display controller current state simply and directly. The definition and display function of each LED, as shown in chart 1.

Chart 1 LED definition & display function

Name	Function
DRV	When the controller is in operation, the led light.
FWD	When the controller is in forward running operation, the led light.
REV	When the controller is in reversal running operation, the led light.
COM	When the controller communication is normal, the led light.
ERR	When the controller is in fault, the led light.

## 2.2 Operator Keys

Chart 2 Operator Keys names and functions

Keys	Name	Function Description
	[RUN] Key	Run the controller in keypad control mode; button is disabled in program control mode. Enable/disable is set through parameters.
	[STOP] Key	Stop the controller in keypad control mode; button is disabled in program control mode. Enable/disable is set through parameters.
	[MENU] Key	Return to main menu on any screen.
	[SHIFT] key	Enable the 2 <sup>nd</sup> function of other keys.
	[RESET] Key	Enter the digit setting option for certain parameters.
	[UP] Key	Scroll up menu options or edit figures in certain setting page.
	[DOWN] Key	Scroll down menu options or edit figures in certain setting page.
	[LEFT] Key	For parameter setting, choose the left digit for editing.
	[RIGHT] Key	For parameter setting, choose the right digit for editing.
	[ENTER] Key	Enter the next level sub-menu on main screen; Input set value on parameter setting; Give command; Check fault/warning information.
	[ESC] Key	Return the previous level menu.

## 2.3 LCD Display

Controller enters the main interface after power on. The main interface is shown in Figure 2.

The main interface displays the main information of the elevator in present status, including floor number, elevator speed, running direction, door lock status, running mode, fault code and else. On the main interface, the above information is live updated.

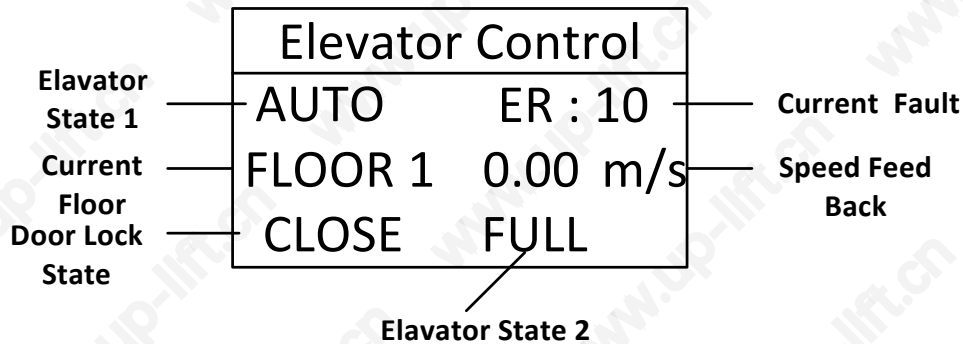


FIGURE 2 MAIN INTERFACE ON DIGITAL OPERATOR

The instructions for the information shown in the Digital operator LCD display interface are as following:

1. The status of the elevator display1:

INSP	ARD	MANU	AUTO
FIRE	STOP	USER	

2. Present floor display:

Display the floor number that the elevator is at.

3. Door lock status:

CLOSE/OPEN: Door inter-lock circuit closed/opened.

4. The status of the elevator display 2:

FULL:	Full load
OVER:	Overload
GROUP:	Group control
TWINS:	Duplex control

5. Present error:

ERR: XX Display the present Error code.

## 2.4 Function of Operator

The function of digital operator is as follows:

1. LCD display with English and Chinese
2. Setting log in level and corresponded password.
3. Adjusting the settings of quick menu
4. Monitor the status of the elevator and the controller.
5. Parameter check, setting and save.
6. Hoistway learning
7. Motor parameter learning
8. Weighing data learning
9. System clock setting
10. Error history log record and check.
11. Parameter copy, upload and download.
12. Restore to factory setting.

## 2.5 Installation and Connection of Digital Operation

The connection for the digital operator of the opening controller is as follows: remove the front cover of the controller, connect one side of the special communication cable to digital operator, and connect the other side to the USB1 connection on the main board. Make sure the connection is securely; install the front cover of the controller.



**IMPORTANT**

1. The installation, dismantle, insert and remove of the digital operator can be carried out when the controller is power-on. That is to say, hot plug is accepted by the digital controller.
2. Please install, dismantle, insert and remove the digital operator carefully to avoid unwanted damage of the digital operator.
3. Please save the removed digital operator and communication cable well, DO NOT press, damage the operator or put it in extreme environment.
4. Please DO NOT use the self-made (> 3m) communication cable.

### 3. Structure and Switch process of the Operator Interface

The structure and interface switch process of the digital operator, as shown in Figure 3.

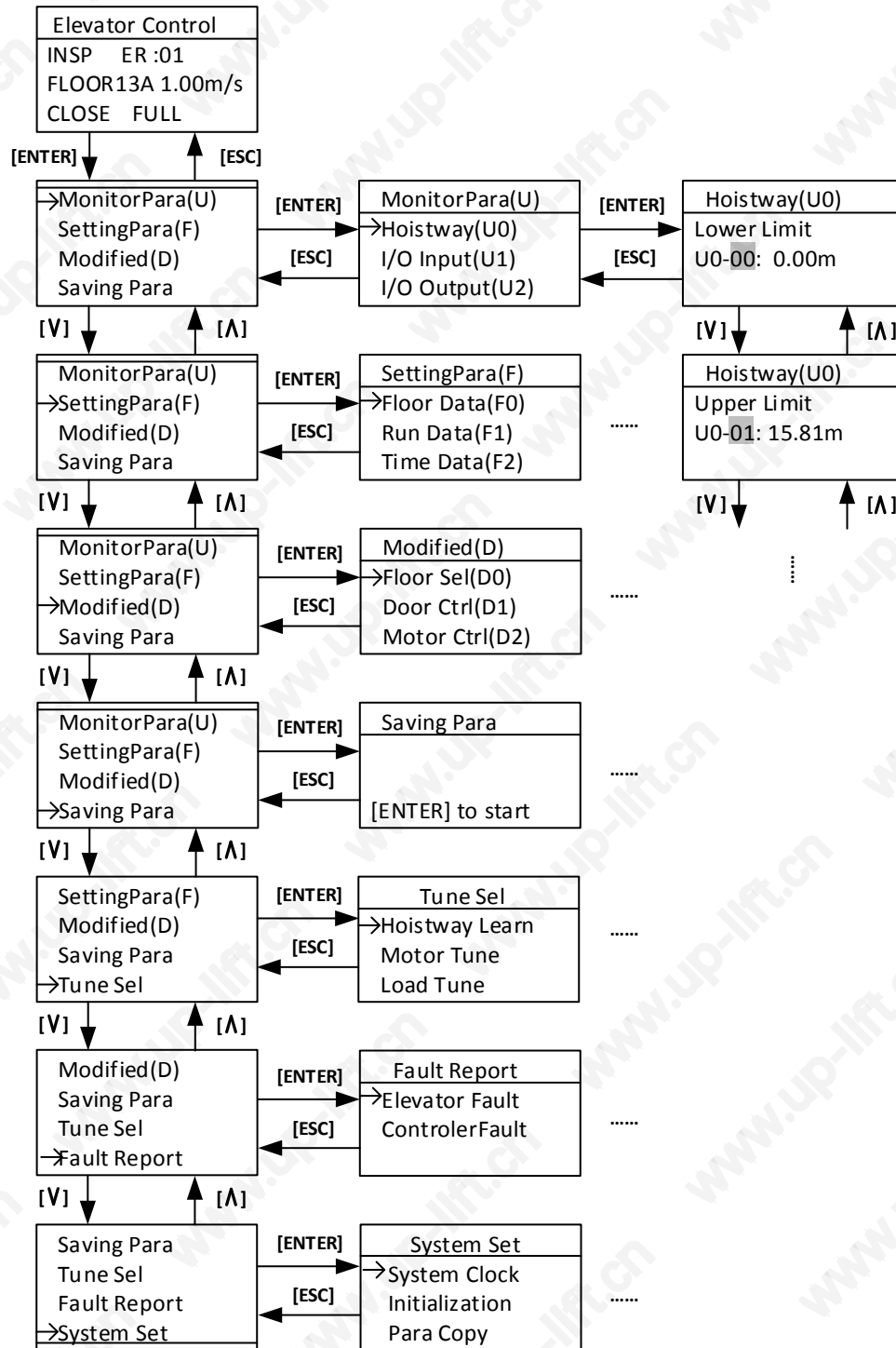


FIGURE 3 STRUCTURE FLOWCHART OF OPERATOR MENU

## 4. Parameter Setting

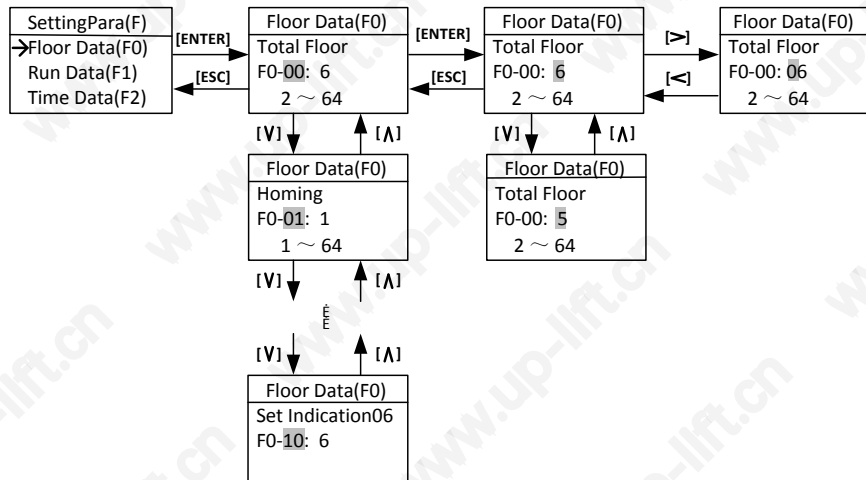


FIGURE 4 PARAMETER SETTING

In the interface of parameter menu: Press [ENTER] key to enter the interface. (First, it should input the correct user password in the environment setting menu, otherwise, pressing the [ENTER] key will enter the interface of user password setting. So please pay attention to distinguish the factory password and user password. If you want to input the factory password, please press the [ESC] key, returning to previous menu, then press the [DOWN] key to change the prompt to “input the factory password”, after that press the [ENTER] key, entering to the interface of the inputting factory password). Press the [UP] or [DOWN] key to check all the parameters. Please press the [ENTER] key to enter the interface of parameter menu. Please press [LEFT] or [RIGHT] key to move the arrow to left or right. Press the [UP] or [DOWN] to increase or decrease the value that the arrow point at. After setting the value, please press the [ENTER] key to save the parameter.

Some parameter values are combination values of the status. Their setting cannot follow the above flowchart directly and should follow the ToolTip in the parameter changing interface. Press [RES] key to enter the bit parameter setting interface to set the status value as per the bit. After enter the bit parameter setting interface, press [UP] or [DOWN] key to check the status of the present bit. When the status of the present bit need to be changed, press [ENTER] key to enter the status change interface. In the status change interface, press [UP] or [DOWN] key to check the status of the present bit, press the [ENTER] key to save the status of the present bit, press [ESC] key to return the Previous Menu

The process of bit parameter setting is shown in Figure 5.



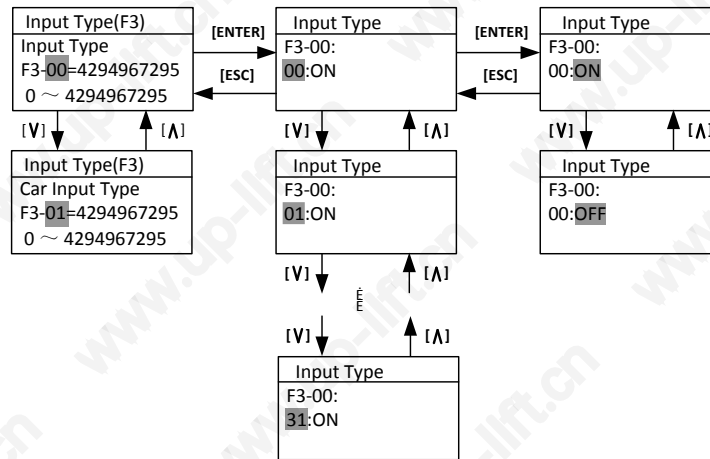


FIGURE 5 SETTING BIT PARAMETERS

## 5. Commissioning Parameters

In commissioning interface: Move the arrow by pressing [UP] key or [DOWN] key to carry out the operation, press [ENTER] to enter the selected interface.

In floor selection interface: Press [UP] key or [DOWN] key to check the car call status in present floor. If need to set car call on current floor, press [ENTER] key in the interface to save the car call information. In the interface, the information follow “F:” is the present floor the elevator car at.

Floor selection flowchart is shown in Figure 6.

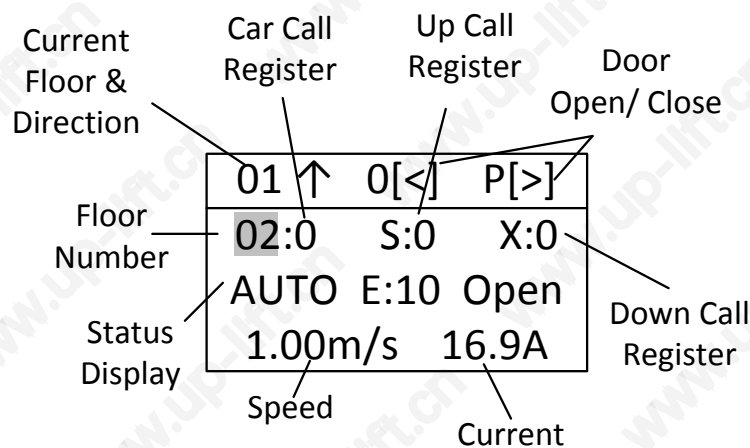


FIGURE 6 FLOOR SELECTION

In the interface of door control: Press [LEFT] key in the interface to carry out the command “opening front door”. Press [RIGHT] key to carry out the command “close front door”. Press [UP] key to carry out the command “open rear door”. Press [DOWN] key to carry out the command “close rear door”, Press [RES] key to cancel all the commands.

Door open and close flowchart is shown in Figure 7.

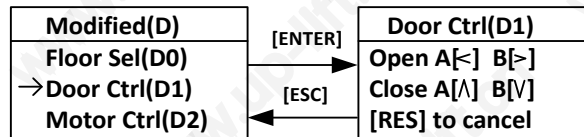


FIGURE 7 DOOR CONTROL INTERFACE

In Motor Control interface: Press [UP]/ [DOWN] key to select the running mode is continuous running or JOG. In continuous running mode, press [RUN] key to start motor first, press [UP]/ [DOWN] key to increase/decrease the motor given speed. The motor given speed can be negative (negative speed means motor reverse run), press [ENTER] key to save the given speed. Press [STOP] key to stop the motor. In the mode of JOG, press [UP]/ [DOWN] key to increase/decrease the JOG operation frequency, after press the [ENTER] to save the setting, and then press the [RUN] key to start, and press the [STOP] to stop the operation.

The process of operator to control the motor running is shown below in the Figure 8.

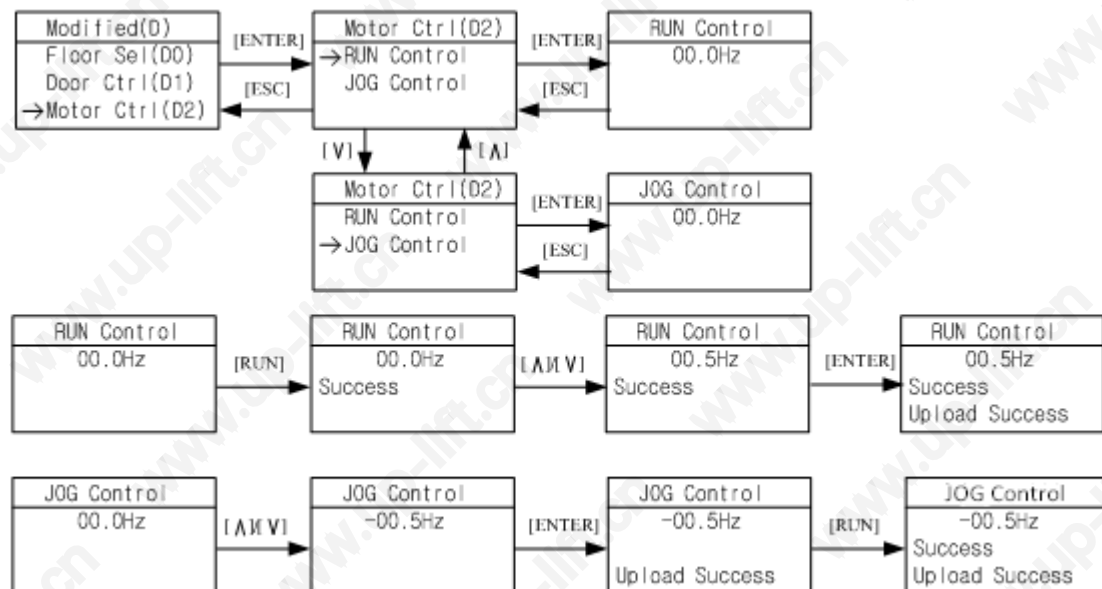


FIGURE 8 FLOWCHART FOR OPERATOR TO CONTROL MOTOR RUNNING

In interface of call testing: Press [UP]/ [DOWN] key to check the connections for all floors. Normally, it displays running success, otherwise it shows fails. Press [ESC] key to return to the Previous Menu.

The flowchart for call testing is shown in Figure 9.

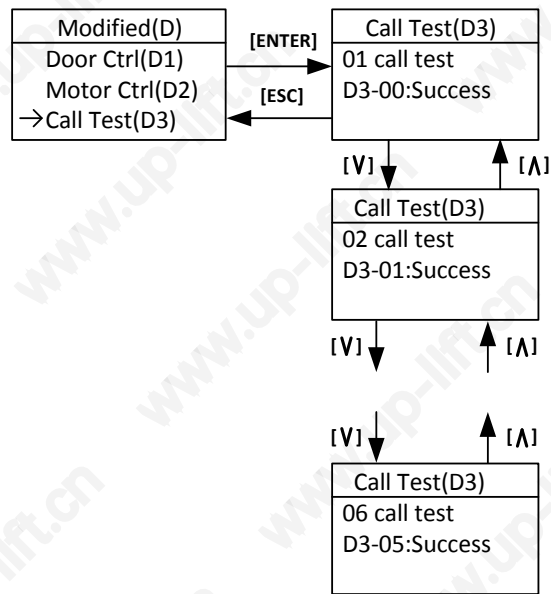


FIGURE 9 ELEVATOR CALL TESTING INTERFACE

The interface of communication testing is shown in the Figure 10.

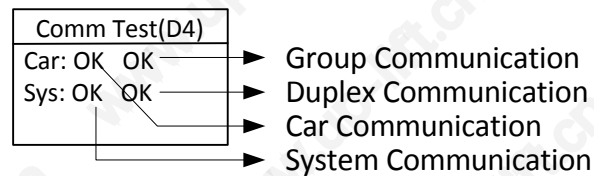


FIGURE 10 COMMUNICATION TESTING INTERFACE

The display of the Car Control Communication is as follows:

OK      Communication normal

ER      Controller receiving data error (please check communication connection & car control board), when there appears a numerical value, it refers to the times of error on car control board communication.

#### System communication display

OK      communication good

ET      the controller sending data error (please check landing call communication connection), when there appears a figure, it refers to the times of error on system communication.

**Group control communication**

OK      Group control system communication normal

ER      Group control system communication abnormal (When choose this option)

**Duplex control communication**

OK      Duplex control system communication good

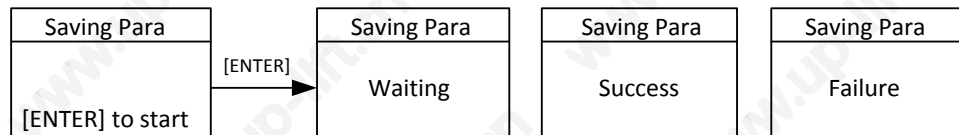
ET/ER   Duplex control system communication abnormal (When choose this option)

**6. Save Parameter**

In the interface of saving parameter, press the [ENTER] to save all the parameters in the F menu.

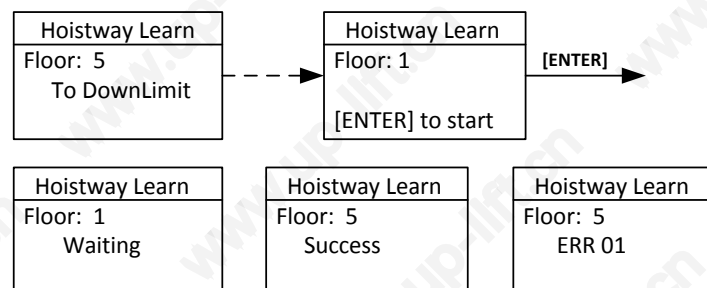
During saving process, LCD will display “Waiting”; after saving, it will display “Success” or

“Failure”. The flowchart of saving parameter is shown in the Figure 11.

**FIGURE 11 SAVING PARAMETER****7. Hoistway Learning**

In hoistway learning interface: when status display “To Down limit”, the hoistway learning cannot start directly. The elevator should manual run to the down limit position first, and “To Down limit” status disappear, the screen will display “[ENTER] to start”, press the [ENTER] key to start hoistway learning. During the learning process, the interface will display the current learning floor and display the status of “Waiting”, when the hoistway learning is completed, the status will display “Success”, when there are errors during the hoistway learning, the status will display “ERR” and display error code. Press [ESC] key to return the Previous Menu.

The flowchart of the hoistway learning is shown in the Figure 12.

**FIGURE 12 HOISTWAY LEARNING**

## 8. Motor Auto-tuning

Motor Auto-tuning includes two parts: Motor angle tuning and motor parameter tuning. In the interface of Motor Tune: Press [UP] or [DOWN] key to move the arrow to select related tuning information; Press [ENTER] key to enter the pointed tuning interface.

In the interface of Motor Angle Tuning and Motor Parameter Tuning, press [ENTER] to start turning. During tuning, the operator display “waiting”; after tuning, it will display “success”. During tuning, if there is error, the tuning process will be terminated, and LCD will display “Tune End”, and the status is “error”, with error code followed.



Before auto-tuning process, make sure to set the parameters in the F5 & F8 menu first.

Make sure motor has no load, first carry out motor parameter tuning, then carry out the motor angle tuning. Press [ESC] key to return to the previous menu. The flowchart of the motor learning is shown in Figure 13.

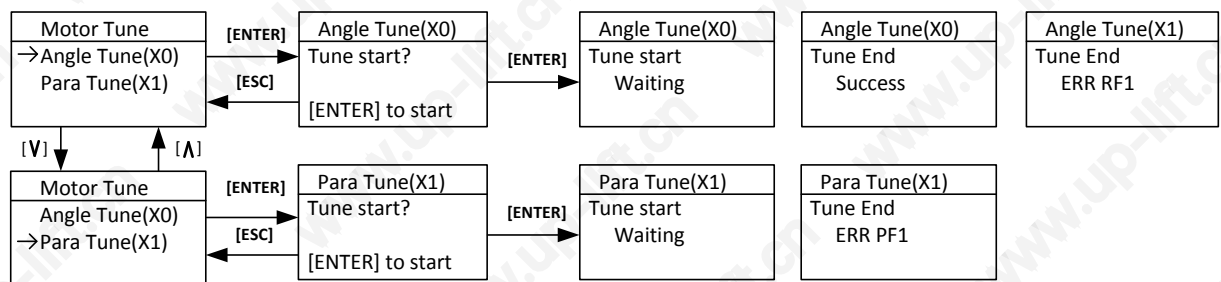


FIGURE 13 MOTOR AUTO-TUNING PROCESS

## 9. Motor Load Tuning

Motor Load Tuning also includes two parts: Light loaded tuning and Full-loaded tuning.

In the interface of load tuning: Press [UP] or [DOWN] move the arrow to select related tuning information; press [ENTER] key to enter the pointed tuning interface.

In light-loaded tuning or full-loaded tuning interface: Press [ENTER] to start tuning process, the operator display the present status. Press [ESC] key to return to the Previous Menu.

The load tuning process is shown in Figure 14.

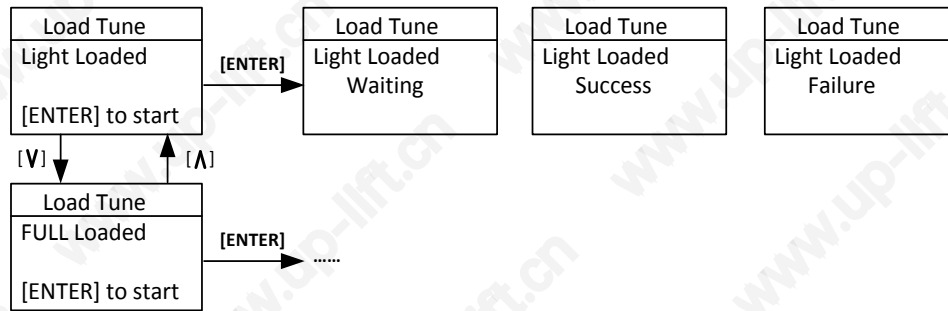


FIGURE 14 MOTOR LOAD TUNING PROCESS

## 10. Time Setting

In the interface of time setting, the last two digit of “Year”, “month”, “day”, “hour”, “Minute” and “second” are editable, press [LEFT] or [RIGHT] to move the arrow to the right place. Press [UP] or [DOWN] key to change the pointed value. After setting: Press the [ENTER] key to save. Press [ESC] key to return the Previous Menu.

The flowchart of time setting is shown in the Figure 15.

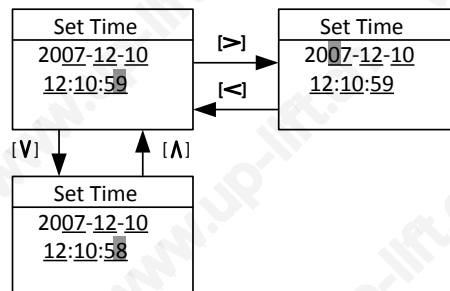


FIGURE 15 TIME SETTING

## 11. Fault Record Check

In the interface of Fault Record: Press [UP] or [DOWN] key to check the elevator and controller fault record. Press [ENTER] to enter the selected fault record, press [UP] or [DOWN] key to check the latest 30 fault history record.

Each elevator fault record includes error code, time, elevator status at fault (Floor number, running direction, running speed, I/O state), and related information. This helps to find the root cause of the elevator fault and guide the elevator maintenance.

Each controller fault record includes error code, time, elevator status at fault and other important data (Running speed, line/BUS voltage and current). This helps to find the root cause of the controller fault and guide the elevator maintenance.

The flowchart of the fault record check is shown in the Figure 16.

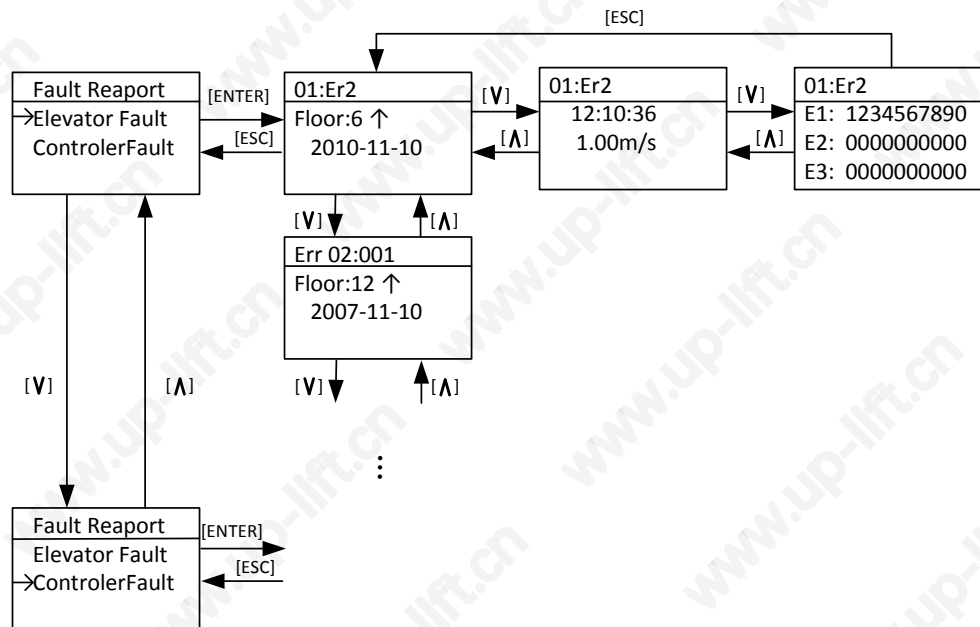


FIGURE 16 FAULT RECORD

Press [ESC] key to return to the Previous Menu.

## 12.Environment Initialization

In environment initialization interface, the display language, the parameter visit grade, input password and the shortcut menu of the operator can be set.

The flowchart for environment initialization is shown in the Figure 17.

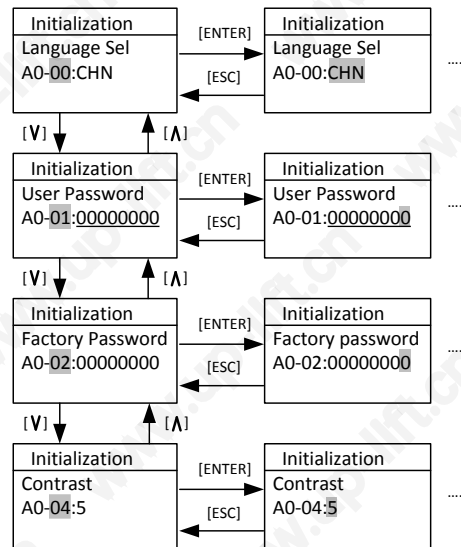


FIGURE 17 ENVIRONMENT INITIALIZATION

## 12.1 Language Selection

The flowchart for the language selection is shown in the Figure 18.

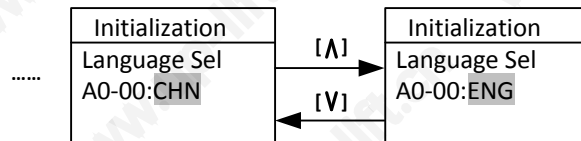


FIGURE 18 LANGUAGE SELECTION

Press [UP] or [DOWN] to select language, and press [ENTER] key to save the selection.

## 12.2 User password input and setting

In the interface of password, press the [LEFT] or [RIGHT] key to move the arrow to the pointed position, press [UP] or [DOWN] key to increase or decrease the pointed value, press the [ENTER] key to input the password. When password input is incorrect, "invalid password" will be displayed, and the password cannot be changed at this time. When the password input is correct, "Password OK" will be displayed, next press [ENTER] first then press [RES] key to enter the password setting interface and reset the password. Resetting password is similar to input password. Finally press the [ENTER] key to save the new password.

The flowchart of the password input and change is shown in the Figure 19.



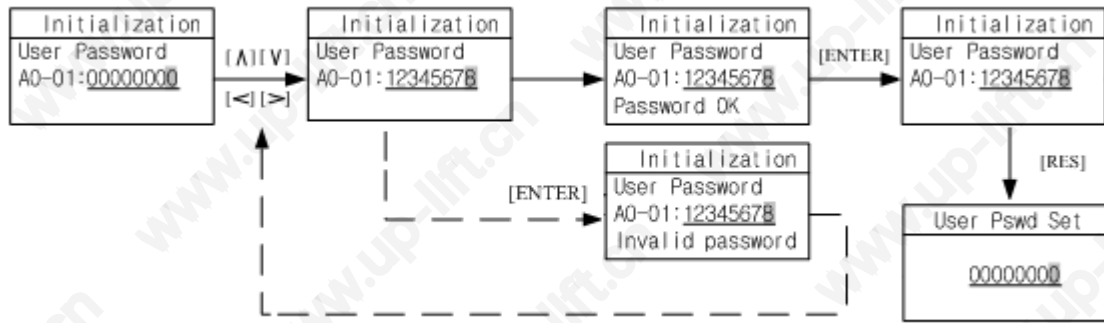


FIGURE 19 USER LEVEL PASSWORD INPUT/CHANGE

### 12.3 Factory level password Input and Setting

The process of the factory level password input and setting refers to the user level password input and setting.

### 12.4 Contrast setting

Set the LCD display gray scale. Press [RES] key to change the display grayscale.

## 13. Parameter Copy

The function parameter copy is to simplify the parameter setting and commissioning process, especially for multiple elevators with same configurations. After finishing the parameter setting and commissioning of one elevator, this function can copy all the parameters (Saved in the digital operator memory), take the digital operator and connect to other elevators, copy all the parameters to the controller, check parameters, and the elevator can run normally.

In the interface of parameter copy: Press [UP] or [DOWN] key to move the arrow to carry on the necessary operation, press the [ENTER] key to start operation.

The flowchart of parameter copy is shown in Figure 20.

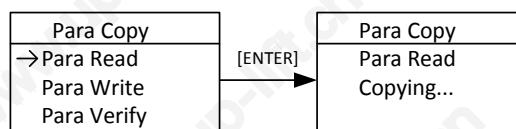


FIGURE 20 PARAMETER COPY

After copy operation, LCD display is shown below in Figure 21.

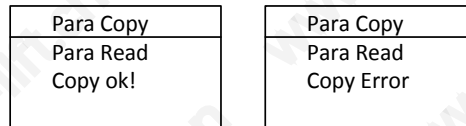


FIGURE 21 PARAMETER COPY FINISH

Press [ESC] key to return to the previous menu.

## 14. Restore to Factory Setting

If necessary, the controller can be restored to the factory (default) setting. Press the [ENTER] key to restore the factory setting, the interface will display the status and the result.

The flowchart of restore the factory setting is shown in the Figure 22.

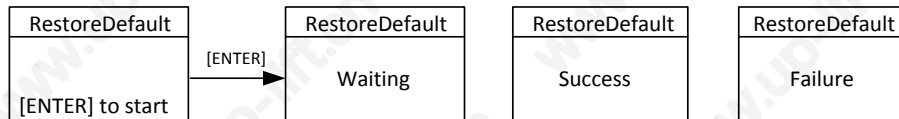


FIGURE 22 RESTORE TO FACTORY SETTING

Press [ESC] key to return the previous menu.

## 15. Blue-Light Traction machine Parameter Input

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 23(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 23(b).

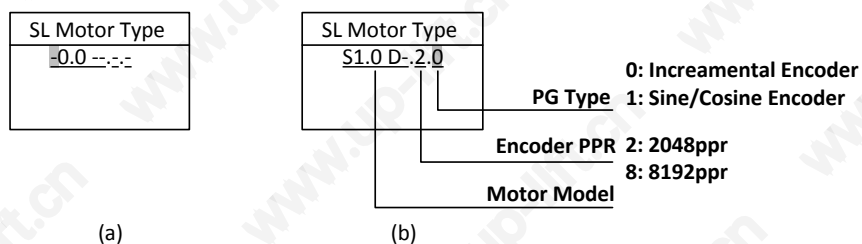


FIGURE 23 BLUE-LIGHT MACHINE INPUT

