

EWD-H-J5

USER' S GUIDE

(V2.2)

Xi'an Excellent Electromechanical Co., Ltd.

Technical File of the EWD-H-J5 Intelligent Elevator Load Weighing Device [User's Guide]

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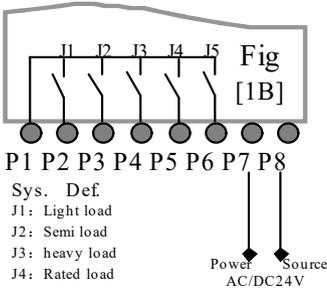
Caution: This system is applicable an elevator with 「moveable car platform」. Before use, please read the following content carefully.
The Inductive magnet is specially-made rare-earth magnet for this product with strong magnetic force. Special care should be taken during installation. Under no condition should it be away from the high temperature above 100℃ to avoid demagnetizing and the equipment damage and personal hurt from this is beyond our responsibility.

Notice: Our part is just responsible for the products quality in the guarantee period under any condition.

Declaration: Our company reserves the right of changing products for technical improvement and the related technical parameters should be referred to the USER’ S GUIDE along with the products.

Product Overview

1、Product Appearance, Interior Structure and Interface Directions:

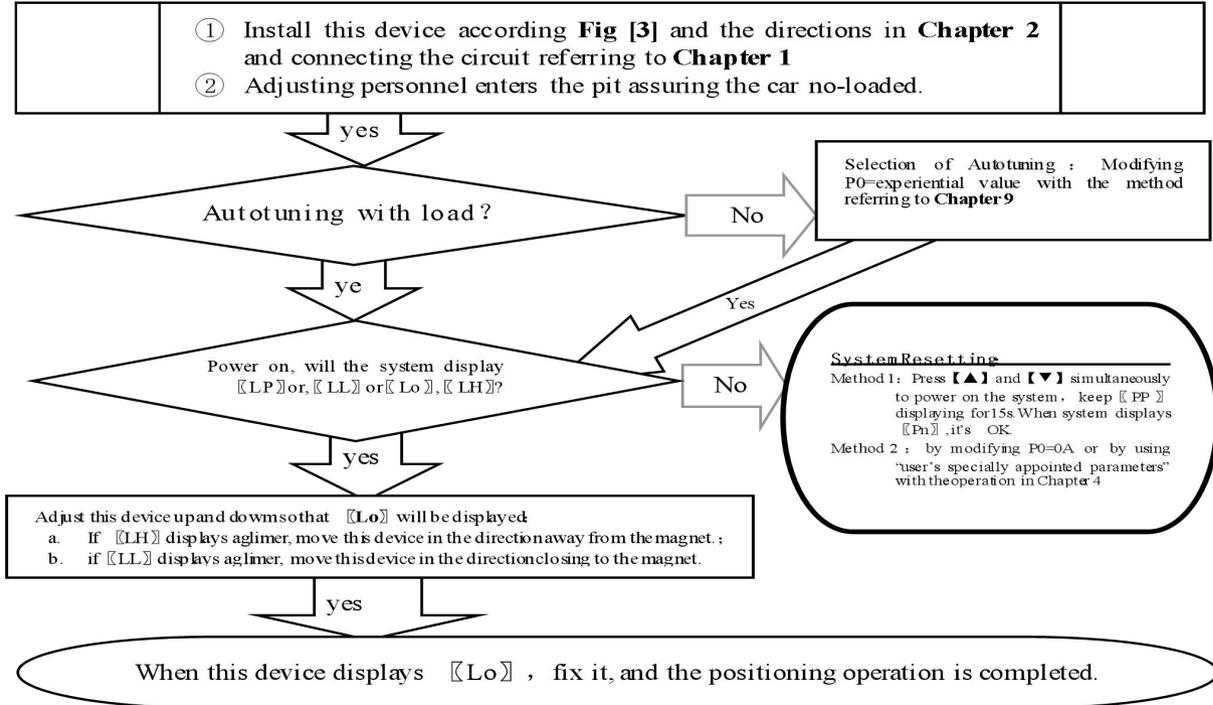
		EWD-H-J5														
Appearance			Interior Structure  <p style="text-align: center;"> P1 P2 P3 P4 P5 P6 P7 P8 Sys. Def. J1: Light load J2: Semi load J3: heavy load J4: Rated load J5: Over load </p>													
	Interface Directions	<table border="1"> <tr> <td>P1</td> <td>Com</td> <td rowspan="5">Common terminal</td> </tr> <tr> <td>P2</td> <td>J1</td> </tr> <tr> <td>P3</td> <td>J2</td> </tr> <tr> <td>P4</td> <td>J3</td> </tr> <tr> <td>P5</td> <td>J4</td> </tr> <tr> <td>P6</td> <td>J5</td> <td>J1,J2,J3,J4,J5 is 5 channel Solid State Relay Output</td> </tr> </table>	P1	Com	Common terminal	P2	J1	P3	J2	P4	J3	P5	J4	P6	J5	J1,J2,J3,J4,J5 is 5 channel Solid State Relay Output
P1	Com	Common terminal														
P2	J1															
P3	J2															
P4	J3															
P5	J4															
P6	J5	J1,J2,J3,J4,J5 is 5 channel Solid State Relay Output														
	P7	System Power Source: DC/AC24V($\pm 10\%$) / 150mA Absolutely not to connect the output terminals of this device except“P7、P8”to exterior power source directly, and the permanent damage from this is beyond our responsibility.														
	P8															
		1.J1~J5 are interior solid state relays with Max. loading capacity of DC/AC 32V/50mA。 2.To be programmed as “no load~over load” output signal to participate in elevator logic control.														

2、Exterior Dimensions & Installing Scheme

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Exterior Dimension</p>		<p style="text-align: center;"><u>Notice on Installation</u></p> <ol style="list-style-type: none"> 1. Install this device as near as possible to the center of elevator car platform or the original place of elevator overload switch. The system should be installed on the bottom bearing beam of elevator car platform with the inductive magnet adhering to the moveable car platform and the marking surface facing to the inductive point of the weighing device. 2. The system supporting frame should be made according to elevator concrete situation with the uneasily deforming material of thickness more than 4mm or with enforcing plate to avoid swaying. 3. Adjust this device so that the car platform magnet aiming to the center point of its upper section. Meanwhile, assure that the section of this device parallel to that of the magnet.
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Installing Method</p>		

3、System Adjustment and Directions

① System Positioning Operation:



②No load and Rated Load Operation Parameters for Autotuning:

When displaying [Lo], press [▲] and [▼] simultaneously, the system will start no-load operating parameters autotuning. When [PL] is displayed aglimer for 5s, it is the end of no-load autotuning.

yes

System will automatically enter the condition of rated-load autotuning. Displaying [PH] means the ready condition of rated-load

ye

1. Displaying [PH] means put elevator in the condition of rated-load. (eg : for elevator with RL=1000Kg, load 1000Kg);
2. Press [▼] system will begin RL parameters autotuning. Displaying [PH] aglimer for 4s, system will reset automatically.

ye

Displaying [L4] means the end of RL operating parameters autotuning

yes

By the way of setting

Displaying [L0] means the end of RL operating parameters

ye

By now, system RL autotuning is finished. System will enter normal operation condition. For the meaning of displaying code, please refer to Chapter 6

③ System Adjustment under other conditions:

For the following reason, it is necessary to modify the operating parameters of this device.

- ① For elevator car decoration change, the dead weight of the moveable car platform changes;
- ② The car platform appears mechanical deformation;
- ③ The temperature difference between winter and summer has an unneglecting effect on the elastic coefficient of car platform damping rubber;
- ④ The car platform appears damping rubber appears aging or deforming;
- ⑤ The elevator overruns at the top or at the bottom;
- ⑥ The weighing device becomes slack at the fixing end.

Operation Parameters Adjustment and the Implication

4、System Operation Parameters Adjustment (Annotation: * represents for a hexadecimal value of “0~9,A~F”)

- ① Simultaneously press **▲** and **▼** on system control keypad to power on , this moment $[[PP]]$ will be displayed aglimer, that means entering operation parameters modifying status.
- ② Release **▲** and **▼** buttons, system will display $[[P*]]$ and $[[**]]$ alternately. $[[P*]]$ is an indication of system operation parameters; $[[**]]$ is the interior data value of $[[P*]]$.
- ③ When displaying $[[P*]]$, press **▼**, indication of system operation increases; press **▲**, indication decreases.
- ④ When displaying $[[**]]$, press **▼** , data value increases; press **▲** , data value decreases.
- ⑤ Release buttons, system displays operation indication and configuring data alternately.
- ⑥ To modify other configuring datum, repeat the operation in item 3, item 4, item 5.
- ⑦ At the moment when system displays $[[P*]]$, Simultaneously press **▲** and **▼** , system will save modified datum for future use. This moment, system displays $[[Pn]]$ for 1 second. System operation parameters modification of this time is completed.

Example: Modify parameter P2 to 16;

- ① Simultaneously press **▲** and **▼** on system control keypad to power on , this moment **[[PP]]** will be displayed aglimer, that means entering modifying status.
- ② Release **▲** and **▼** buttons, system will display **[[P0]]** and **[[**]]** aglimer
- ③ When displaying **[[P0]]** , press **▼** to increasing it to **[[P2]]** ;
- ④ Release button **▼** , system alternately displays **[[P2]]** and **[[**]]** ;
- ⑤ When displaying **[[**]]** , press **▲** and **▼** to regulate its value as **[[16]]** ;
- ⑥ Release button, system alternately displays **[[P2]]** and **[[16]]** ;
- ⑦ At the moment when system displays **[[P2]]** , Simultaneously press **▲** and **▼** , system will save modified datum for future use. This moment, system displays **[[Pn]]** for 1 second. System operation parameters modification is completed.

5、 Implication of parameter P:

① Directions of Parameter **P0** [System Operation Mode]: :

Setting	Explanation	Default Setting	Normal Value
00	Normal Operation	01	00 This value will be modified in the course of autotuning.
01	Sensor installing positioning, system no-load and rated-load autotuning operation.		
02	Specifying system no-load autotuning operation.		
03	Specifying system Rated-load autotuning operation.		
04	Select “20% rated load” autotuning operation, being convenient for users special adjustment.		
25~99 × 0.1mm	For elevator with known “no-load→rated-load” compressing moveable car platform damping rubber pad, it may be set manually. The system may be put into use after system installation positioning. (This adjustment is very convenient for elevator manufacturers. For more detail, refer to Chapter 9.)		

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②Directions of Parameter P1

Setting	Explanation	Default Setting	User Setting
01	Solid state relay, breaks	01	

③Directions of Parameter P2 [Light load parameter setting]:

Setting	Explanation	Default Setting	User Setting
00~30	Light load signal output.	05	

④Directions of Parameter P3 [Half-load parameter setting]:

Setting	Explanation	Default Setting	User Setting
P2+1~60	Half-load signal output	30	

⑤Directions of Parameter P4 [Heavy-load parameter setting]:

Setting	Explanation	Default Setting	User Setting
P3+1~90	Heavy-load signal output	70	

⑥Directions of Parameter P5 [heavy-load parameter setting]:

Setting	Explanation	Default Setting	User Setting
P4+1~99	Full-load signal output	90	

⑦Directions of Parameter P6 [System overload coefficient]:

Setting	Explanation	Default Setting	User Setting
00~20	Rated load 105%*, overload signal output.	05	

⑧Directions of Parameter P7 [Operation Status setting of Solid state relay “J1”]:

Setting	Explanation	Default Setting	User Setting
00~1F	Light load motor output	01 (Light load action close)	

⑨Directions of Parameter P8 [Operation Status setting of Solid state relay “J2”]:

Setting	Explanation	Default Setting	User Setting
00~1F	Half load motor output	02(semi-load) dynamic close)	

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⑩Directions of Parameter P9 [Operation Status setting of Solid state relay “J3”]:

Setting	Explanation	Default Setting	User Setting
00~1F	Heavy load dynamic close	03(Heavy load dynamic close)	

⑪Directions of Parameter PA [Operation Status setting of Solid state relay “J4”]

Setting	Explanation	Default Setting	User Setting
00~1F	Full load motor output	04(FULL- load dynamic close)	

⑫Directions of Parameter PB [Operation Status setting of Solid state relay “J5”]

Setting	Explanation	Default Setting	User Setting
00~1F	The same as the above	1F(Over- load dynamic close)	

⑬Directions of Parameter D [Displacement-expanding Setting]:

Setting	Explanation		Default Setting	User Setting
01~03 11~13	Higher Bit	Lower Bit	01 displacement closing , 10mm valid	
	0-Load increases, 1-displacement approaches	Select sensor 0~9.9mm valid;		

Notice: ①Select unindicated setting will lead to system abnormal operation.

②For the variety of the fleeting of elevator no-load point, special care should be taken in the use of PA, PB and PC for No-load auto-zeroing. It is suggested to forbid or to allow this function according to the user's concrete situation.

③Even if auto-zeroing function is in use, autotuning operation should be done again in the course of periodical maintenance.

Explanation of Displaying Code:

6、System Normal Operation Code: (“W” is the present effective load)

Display Code			Indication	
System displays 〔L*〕	L0	No-load car	Output No-load signal	No-load: $00 \leq W \leq \text{Rated-load} \times P2\%$
	L1	Light-load car	Output Light-load signal	Light-load: $\text{No-load} < W \leq \text{Rated-load} \times P3\%$
	L2	Semi-load car	Output Semi-load signal	Semi-load: $\text{Light-load} < W \leq \text{Rated-load} \times P4\%$
	L3	Heavy-load car	Output Heavy-load signal	Heavy-load: $\text{Semi-load} < W \leq \text{Rated-load} \times P5\%$

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	L4	Rated-load car	Output Rated-load signal	Rated-load: Heavy-load $<W \leq \text{Rated-load} + \text{Rated-load} \times P6\%$
	LF	Over-load car	Output Over-load signal	Over-load: $W > \text{Rated-load}$
For user to save: the code of this elevator				Rated-load Compression: mm

7、Code for Other Operation and Failures

	Display Code	Indication	Solution
1	YS	System Startup	
2	Pc	System Resetting	
3	PP	Get into the status of operation parameters modification	
4	PL	Autotuning No load parameters (Static Displaying represents preparative status, twinkling displaying for the end of testing)	
5	PH	Autotuning Rated load parameters (Static Displaying represents preparative status, twinkling displaying for the end of testing)	
6	LL	Installation and positioning	Too big Positioning
7	LH		Too small Positioning
8	Lo		Accurately Position
9	LP		Interior Auto Correction
10	P*	System Configuration Indication	
11	Pn	Saved	
12	EA	Saving Failure	Modify the operation parameters
13	EJ	Without this system setting	Check system setting value
14	ED	Car platform deformation deficient	Affirm elevator in the condition of rated load
15	EC	Car platform deformation overflowing	Damping rubber is too soft, adjust PD
16	EH	Incorrect installation place of the magnet	Check the magnet installation place
17	EL	Incorrect installation place of the magnet	Check the magnet installation place, pay special attention to polarity and distance.

How to do?

8、Brief Analysis of Other Conditions:

①After installation of this weighing device, weighing signal changes in the course of operation?

The elevator load output value is not held after elevator starts, adjust the relative items of the inverter and controller.

②After long-term of operation, system no load zeroing point appears larger deviation?

May be caused by the reason described in section 3,Chapter 3. Set system Autotuning mode to calibrate again

③After the elevator weighing is changed from heavy load to light load, heavy load signal is still displayed?

The movement of the moveable car platform is blocked, it is not reset after pressing. Solute the relevant mechanic problems.

④System output signal doesn't change linearly along with the change of load?

Check the structure of the moveable car platform, pay more attention that there should only be one pair of damping rubber or spring moving relatively to the moveable car platform.

⑤During the system operation, analog output is abnormal or system resetting or speed-regulator cooperation is abnormal?

It may be caused by system power source series interference. Select another group of power to supply the system, or to provide an exterior power of AC/DC 24V/300mA to supply.

9、How to set an elevator with known “no-load→rated load” compression deformation?

For example: The max “no-load→rated load” compression deformation of this elevator is 5.8mm.

- | | |
|-----------|--|
| Operation | <ol style="list-style-type: none">1.Modify “P0=58” and save it. Refer to chapter 5;2.After system restarting, [LP] is displayed. Wait until [LL] , [Lo] or [LH] is displayed;3.When the car is empty, adjust system installation position to make it display [Lo] , fasten it;4.When [Lo] is displayed, press [▲] and [▼] simultaneously, system begins to autotune no-load operation parameters; |
|-----------|--|

5. After [PL] is displayed, the whole process of autotuning is finished.

10. How to do Re-Autotune operation for system?

Method 1: Simultaneously press **▲** and **▼** on system control panel to power on. This moment, system aglimer displays [PP] and [P-]. Keep 15 seconds, system will display [Pn]. On that occasion, all operation parameters reset to default settings.

Method 2: Modifying parameter P0=0A or user specified operation code will reset system immediately to default status. But for users with specified code. The method is mentioned in Chapter 5.

11. How to modify output status of a system after autotuning is finished?

Modify the corresponding controlling parameters of parameter P respectively. The method is mentioned in Chapter 4 and 5.

12. How to adopt 20% rated load for rated load autotune?

Modify P0=04. After [Lo] positioning and no-load [PL] autotuning, in the period of system displaying [PH], load 20% of the rated load, press **▼**, system displaying [L1] means the end of adjustment. This is an auxiliary method when 100% autotuning can be done.

13. The compression of car damping rubber exceeds the sensor inspection range?

Before autotuning, be assured to select "PD" = "02/03" and save it. Then, readjusting the installing position of the sensor is OK (See parameter PD for more details).

14. On adopting operation of "load increasing, displacement alooring" method?

Before autotuning, be assured to select "PD" = "1*" and save it. Then, readjusting the installing position of the sensor is OK.

System Characteristics

15. Working principle of "EWD-H-J5" elevator weighing device

With the constantly development of elevator technology, the impact of elevator weighing device on

elevator performance can not be neglected. The requirement of elevator for weighing devices with high accuracy, high reliability and multi-functions becomes extremely urgent. Presently, the progress of sensor technology and microcomputer is ceaseless. With the adoption of highly accurate Hall sensor, the change of displacement along with car platform load can be checked. Meanwhile, with the adoption of single chip microprocessor, scientific calculation can be done, making this device weigh the elevator car load effectively. With the cooperation of EWD—AL1 remote signal transferring device, analog or digital signal can be transferred far away, largely enlarging the user's application range and decreasing the additional cost in the course of use.

16、 Main property

- (1) Working in a contactless and inductive way. No mechanical movement. Solid-state relay outputs. Being directly installed in the original place of overloading switch. No necessity of changing the mechanism of elevator car.
- (2) The whole system is designed in the waterproof structure with small overall size, easy installation and adjustment and simple structure.
- (3) Wide induction range, high accuracy positioning, intelligent temperature compensation making the range of operating temperature wider.
- (4) The inner core consists of Hall sensor of high accuracy and single-chip microprocessor of high efficiency. All parameters may be set on the field.
- (5) Adopting strong inductive magnet, improving the anti-interference capability of the system to the utmost.
- (6) Each set of products undergo a rigorous aging process to ensure reliable work.
- (7) System based on mathematical equations for scientific computing, automatic detection error correction
- (8) On-site adjustment is easy, either by autotuning or by manual displacement setting.
- (9) The independent development of the programmable output signal control method can be used for all kinds of traction elevator with moveable car platform.

19、 Technical specifications:

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1.	Application	Being applicable to all moveable car platform elevators, with an auto inspection range of $(2.00\text{mm} \leq \text{car platform movement} \leq 10.00\text{mm})$; manual setting displacement range $2.5 \sim 9.9\text{mm}$ (relate to parameter PD)	
2.	Sensitivity	Elevator rated load/200 (With the rated load of 1T, it is 5.0Kg)	
3.	System Error	$\leq 1.5\%$ ($5 \sim 40^\circ\text{C}$)	In the whole temperature range $\leq 3.0\%$
4.	Non-Linearity	$\leq 1.0\%$	
5.	Output Mode:	Solid-state Relay Programmable universal signal	①3/5 channel programmable output modes are: No load, light load, semi full load, heavy load, rated load, overload (customer may set the changing range freely). ②Each channel can be programmed as dynamic Close or Open contact. ③Contact Capacity:DC/AC 32V/15mA。
6.	Working Temperature:	$-20 \sim 55^\circ\text{C}$	
7.	Relative Humidity:	$20\% \sim 99\% \text{RH}$	
8.	Reaction Time	≤ 0.25 Second	
9.	Power Supply:	AC/DC $24(\pm 10\%) \text{V}$ / 150mA	
10.	Installation Place:	Moveable car platform of elevator	
11.	Overall Size:	$45 \times 45 \times 90 \text{ mm}^3$	

☛: The intension exceeding the limit parameters listed above may result in the abnormality or permanent damage to the system.

Promise

- (1) If this system appears any quality problem of product itself in 1 year after delivery, it will be replaced freely (damage of the product seal will not be dealt with)。
- (2) For any requirement of special functions, make it out by mail.
- (3) Any system abnormality in adjustment or operation, please contact our company directly.

