ECW-S110

USER'S GUIDE

(V2.2)

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.

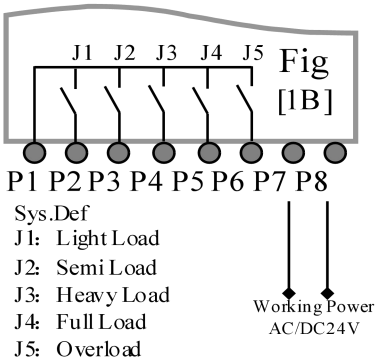
Notice: Our part is just responsible for the products quality in the guarantee period under any condition.

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：

Type	ECW-S110
Appearance	

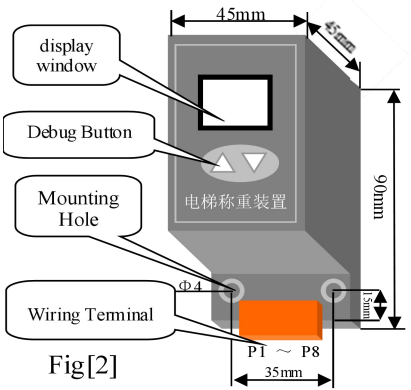


Interior Structure			
	P1	Com	Common Com terminal 5 solid state relay output
	P2	J1	
	P3	J2	
	P4	J3	
	P5	J4	
	P6	J5	
	P7/ P8	Weighing device system power：DC/AC24V(±10%) / 150mA	

1. J1～J3/J4/J5 Internal solid-state relay, maximum load capacity：DC/AC 32V/50mA。
2. Programmable "no-load ～ overload" output signal,used to participate in the elevator logic control。

二、Outline dimensions and installation diagram

Exterior Dimension And Installation Notice

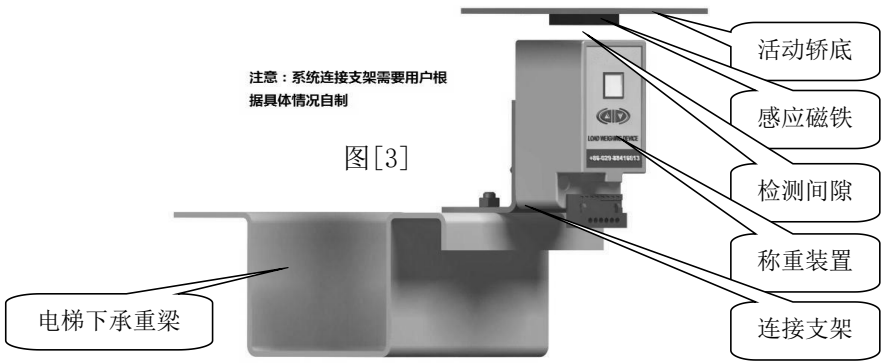


Fig[2]

Installation Notice

3. 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.
4. 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.
5. 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.

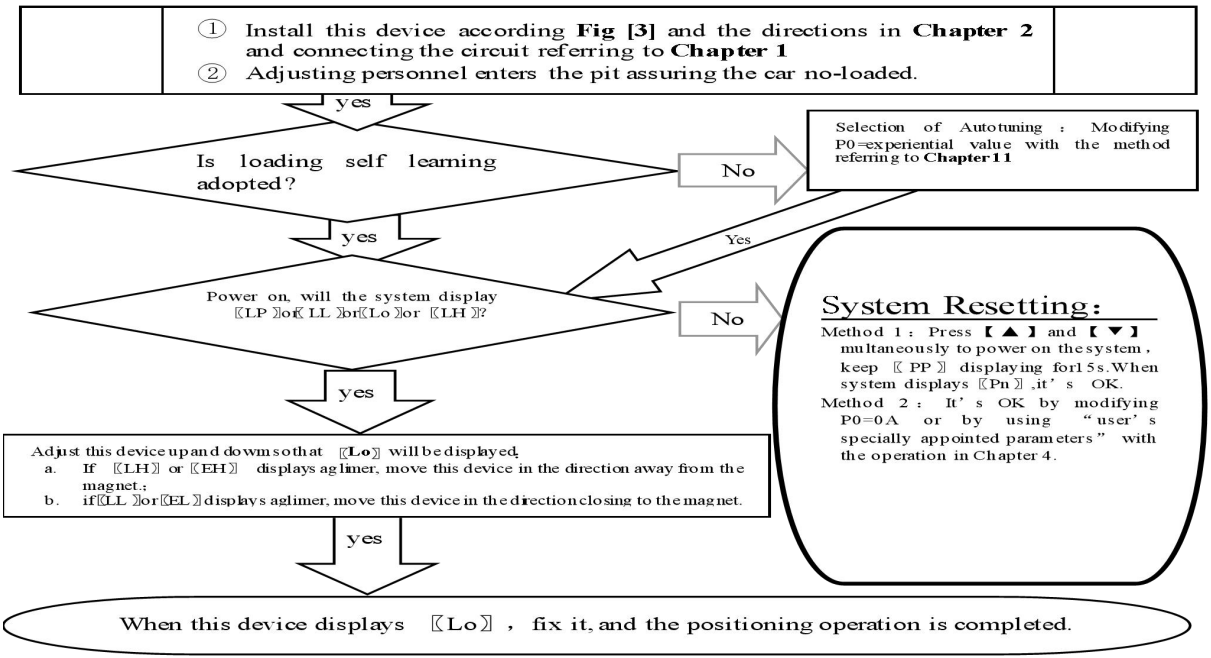
Installation Method



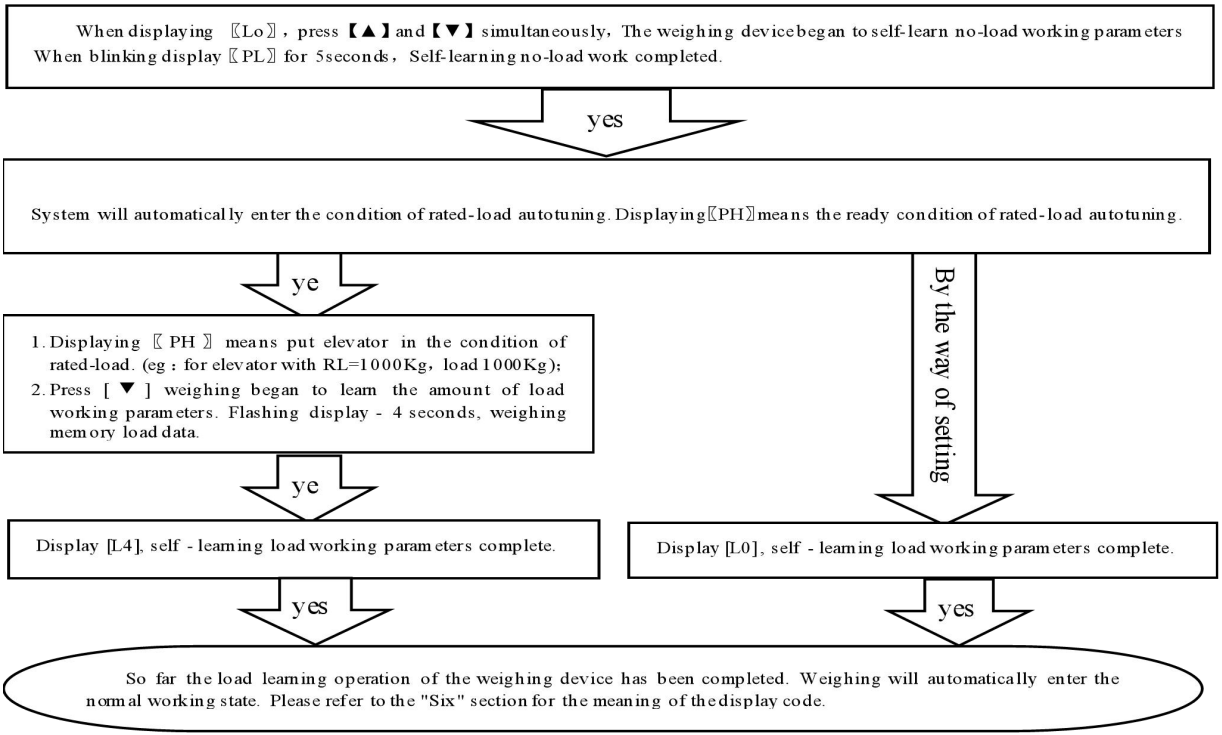
图[3]

三、Weighing Device Debugging method and description:

1.Weighing Device Positioning operation:



① Self-learning no-load and load working parameters:



② System Adjustment under other conditions：

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

①For elevator car decoration change，the dead weight of the moveable car platform changes；

②The car platform appears mechanical deformation；

③The temperature difference between winter and summer has an unneglecting effect on the elastic coefficient of car platform damping rubber；

④The car platform appears damping rubber appears aging or deforming；

⑤The elevator overruns at the top or at the bottom；

⑥The weighing device becomes slack at the fixing end.

Operation Parameters Adjustment and the Implication

2、 System Operation Parameters Adjustment (Annotation： * represents for a hexadecimal value of "0～9,A～F".)

①Simultaneously press【▲】and【▼】on system control keypad to power on ，this moment〖PP〗 will be displayed blinking, that means entering operation parameters modifying status.

②Release【▲】and【▼】buttons，system will display〖P*〗and〖**〗alternately. 〖P*〗is an indication of system operation parameters；〖**〗is the interior data value of〖P*〗.

③When displaying〖P*〗，press【▼】，indication of system operation increases；press【▲】，indication decreases.

④When displaying〖**〗，press【▼】，data value increases；press【▲】，data value decreases.

⑤Release buttons，system displays operation indication and configuring data alternately.

⑥To modify other configuring datum, repeat the operation in item 3, item 4, item 5.

⑦At 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；

①Simultaneously press【▲】and【▼】on system control keypad to power on ，this moment〖PP〗 will be displayed blinking, that means entering modifying status.

②Release【▲】and【▼】buttons，system will display〖P0〗and〖**〗blinking;

③When displaying〖P0〗，press【▼】to increasing it to〖P2〗；

④Release button【▼】，system alternately displays〖P2〗and〖**〗；

⑤When displaying〖**〗, press【▲】and【▼】to regulate its value as〖16〗;

⑥Release button, system alternately displays〖P2〗and〖16〗;

⑦At 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]:

<table>
<tr><th>Setting</th><th colspan="4">Explanation</th><th>Default Setting</th><th>Normal Value</th></tr>
<tr><td>00</td><td colspan="4">Normal Operation</td><td rowspan="8">01</td><td rowspan="8">00
This value is automatically corrected in the self-learning process of the weighing device</td></tr>
<tr><td>01</td><td colspan="4">Sensor installing positioning, system no-load and rated-load autotuning operation.</td></tr>
<tr><td>02</td><td colspan="4">Designated weighing device self-learning "no-load" working mode</td></tr>
<tr><td>03</td><td colspan="4">Designated weighing device self-learning "rated-load" working mode</td></tr>
<tr><td>04</td><td colspan="4">Select "20% load" self-learning, working mode, convenient users special debugging mode</td></tr>
<tr><td>0A</td><td rowspan="2">To modify system configuring parameters to default value forcibly.</td><td rowspan="2">"J1、J2、J3"solid state relay output</td><td>Dynamic closing</td><td rowspan="2">validate</td></tr>
<tr><td>0B</td><td>Dynamic opening</td></tr>
<tr><td>25～99
×0.1mm</td><td colspan="4">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 10.)</td></tr>
</table>

2.Directions of Parameter P1

a) For setting of **ECW-S110** : [Hold input signal status setting and relay output condition setting]:

<table>
<tr><th>Setting</th><th colspan="2">Explanation</th><th>Default Setting</th><th>User Setting</th></tr>
<tr><td rowspan="2">00~01</td><td>00</td><td>00</td><td rowspan="2">00</td><td rowspan="2"></td></tr>
<tr><td>Solid state relay operation</td><td>Solid state relay breaks</td></tr>
</table>

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

Setting	Explanation	Default Setting	User setting
00～30	Light load signal parameter	05	

4.Light load signal parameter**P3**[Semi load parameter setting]:

Setting	Explanation	Default Setting	User setting
P2+1～60	Semi load signal parameter	30	

5.Light load signal parameter**P4**[Heavy load parameter setting]:

Setting	Explanation	Default Setting	User setting
P3+1～90	Heavy load signal parameter	70	

6.Light load signal parameter**P5**[Full load parameter setting]:

Setting	Explanation	Default Setting	User setting
P4+1～99	Full load signal parameter	90	

7.Light load signal parameter**P6**[Overload coefficient of weighing device]:

Setting	Explanation	Default Setting	User setting
00～20	Over load signal parameter	05	

8.P7~PBParameter weighing device reserved parameters:

9.Light load signal parameter PD[Displacement spread setting]:

Setting	Explanation	Default Setting	用户设定值
01	Displacement approach,10mm effective	01	

Noted: ①If the setting value is not specified, the weighing device will not work properly.

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、Code description of normal operation of weighing device : ("W"is the present effective load)

Display Code			Indication	
System displays	L0	No-load car	Output No-load signal	Output no-load signal
	L1	Light-load car	Output Light-load signal	Output no-load signal

〖L*〗	L2	Semi-load car	Output Semi-load signal	Output no-load signal
	L3	Heavy-load car	Output Heavy-load signal	Output no-load signal
	L4	Rated-load car	Output Rated-load signal	Output no-load signal
	LF	Over-load car	Output Over-load signal	Output no-load signal

① Press【▲】, system displaying〖4.7〗means the max compression "no load→rated load" of this moveable car platform is"4.7mm".User may save this value for future use.

② Press【▼】,system will display the present moveable car platform load. Displaying 〖1.2〗means the compression of "1.2mm" from no load condition.

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	FY	Weighing device Startup		
2	Pc	Reset of this device		
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	Move this device closing to the magnet
7	LH		Too small Positioning	Move this device away from the magnet
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

	Display Code	Indication	Solution
			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

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 display aglimer for 5 second, the whole process of autotuning is finished.

10、How to re-perform the "self-learning" operation on the weighing device?

Method 1: Simultaneously press【▲】and【▼】on system control panel to power on. This moment, system

aglimmer 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 the output state of the weighing device after learning?

Modify the corresponding controlling parameters of parameter P respectively. The method is mentioned in Section 6, Chapter 5.

12、How to get the version code of the product?

Press【▼】to supply power. System displaying 〖L1〗〖20〗〖..〗〖1.2〗means that this product is of V1.2 relatively to **USER'S GUIDE**.

13、How to adopt 20% load self - learning method

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.

14、The compression of car damping rubber exceeds the sensor inspection range?

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

15、On adopting operation of "load increasing， displacement aloofing**"method?**

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

Weighing device characteristics

九. "ECW-S110"Working principle of weighing device

十. With the development of elevator technology, the influence of elevator weighing device on its performance has reached a point that cannot be ignored. Elevator weighing device of high precision, high reliability, multi-function demand is imminent. With the continuous development of sensor technology and microcomputer, the high precision Hall sensor is used to detect the displacement change

of elevator car bottom due to the load. At the same time, the single chip microcomputer is used to carry out scientific calculation and processing, so that the device can realize the function of weighing the elevator car payload.

(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) Having the controllable function of "automatically return-to-zero at no load"

(6) Having the analog voltage output ports, greatly improving elevator performance in coordination with elevator speed regulator.

(7) Adopting strong inductive magnet, improving the anti-interference capability of the system to the utmost.

(8) Each set has passed strictly aging treatment to assure reliable operation.

(9) The system is based mathematical equations and scientific calculation, correcting inspection error automatically.

(10) On-site adjustment is easy, either by autotuning or by manual displacement setting.

(11)The independent development of the programmable output signal control method can be used for all kinds of traction elevator with moveable car platform.

十八、Technical Index：

1.	Application	Being applicable to all moveable car platform elevators， with an auto inspection range of (2.00mm ≤car platform movement≤10.00mm)； manual setting displacement range 2.5～9.9mm (relate to parameter PD)	
2.	Sensitivity	Elevator rated load/200 (With the rated load of 1T, it is 5.0Kg)	
3.	System Error	≤1.5%(5～40℃)	
4.	Non-Linearity	≤1.0%	
	Solid-s		①3/5 channel programmable output modes are: No load, light load, semi

5.	Output Mode:	tate Relay	Programmable universal signal	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.	Storage Temp.		-25～75℃	
7.	Ambient Temperature:		Temperature:-20～55℃	
8.	Relative Humidity:		20%～99%RH	
9.	Reaction Time		≤0.25 Second	
10.	Power Supply:		AC/DC 24(±10%)V / 150mA	
11.	Installation Place:		Moveable car platform of elevator	
12.	Overall Size:		45×45×90 mm^3	

Note: 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.

Others

1 .Accessory: User's Manual 1piece Fixing Screw set 2sets
Inductive Magnet [20×20×4mm^3] 1piece

2.Technical Support: 0086-18092639752 0086-18092639750