EWD-RL-BSJ3

Villa elevator overload device Manual

(Version2.2)

XIAN EXCELLENT ELECTROMECHANICAL CO., LTD

		1、Product Appearance and inner structure		Page 2
	Product Overview	2. System interface description		Page 3
		3、Schematic Diagram for System Construction and Installing Method		Page 5
		4. Install Method of Sensor and Controller		Page 5
		5. Adjustment Method and Description of the System (Autotune		Page 5
τΛ	Installation & Adjustment	Operation)		
Ť		①. Initialization		Page 6
E C		2. No Load Autotune Operation Mode		Page 7
Ę		③. Rated Load Autotune Operation Mode		Page 7
on	Implication and Adjustment Method	6、Adjustment of the System Parameters		Page 8
	of the Operation Parameters	7、Explanation of the Meaning of Parameter P		Page 9
\bigcirc	Indicating Code Explanation	8、Explanation of System Normal Operation Code		Page 13
ц ц		9, Explanation of the Code of Other Operations and Fault		Page 13
Ö		10、Brief Analysis of Other Status		Page 14
()		11, How to re-do the "self-learning" operation of the weighing device?		Page 16
Ę	How To Do?	12、How to use 20% load for load self learning?		Page 16
5		13, Working princilple of the"EWD-RL-BSJ3" elevator load weighing		Page 16
σ_{r}	System Characteristics	device		
	System Characteristics	14、Main characteristics		Page 17
		15、Technical Specifications		Page 17
	Promise			Page 19
	Others			Page 19
	Attached Drawings			
	Attached Sheets			P 21-30

EWD-RL-BSJ3User's manual of technical documents of villa elevator weighing device

Note: This weighing device is suitable for traction drive or reel drive villa elevator, please read the following chapters carefully before use; **Statement:** Due to technological progress, the company reserves the right to change the product; For technical specifications, refer to the

manual delivered with the product.

System Overview

1.Product Appearance and inner structure

1.1 Diagram of the sensor appearance see figure[1]



1.2 Sensor selection and installation:

Load sensor		0		
Model	XCL-Y/3411	XCL-YH/5018	XCL-Y/5222	XCL-ZL/W
Dimensions	See attachment	See attachment	See attachment	See attachment
Load sensor				H H H
Model	XCL-T/A (20)	XCL-T/B (20)	XCL-ZL/P2	XCL-ZL/P3
Dimensions	See attachment	See attachment	See attachment	See attachment

Sensor size and mounting mode: see attached page for details

2. System interface description:

- 2.1 The schematic diagram of the system is shown in "figure [1]"
- 2.2 Interface description

	Function	Explanation
PG	connect system sensor	
PJ.1 ~2	J1: light load output Dynamic open/close	Max loading Conscitute DC/AC 4837/500m A
PJ.1~3	J2: full load output Dynamic open/close	Max loading Capacity: DC/AC 48 V/300mA;
PJ.1~4	J3: over load output Dynamic open/close	
PJ.5	Analog 0~10V Output	Being used for pre-torque compensation for
PJ.6	Analog com terminal	driving system
PM.1~2	 + For fuzzy intelligent compensation - 	compensation station deviation
PM.3~4	+ Used to lock system output-	See: attached pictures.
PV	System power supply port	AC/DC 24V/150mA

Absolutely don't connect the output terminals (except "PV") of this device to the external power source directly and the resulted permanent damage to the device is beyond our responsibility.

Installation and Adjustment

3. Schematic Diagram for System Construction and Installing Method:

Schematic diagram of the whole machine: See Figure [1] for controller part; Sensor section attached

4. Install Method of Sensor and Controller:

①Adjust traction ropes so that the pull of each rope keeps coincident.

⁽²⁾The sensor is installed at the place of the elevator- car-side traction rope shackle according to Fig. [2] and refer to it for more details.

③Control Section should be installed in the control cabinet placed in machineroom, being away from equipments such as the transformer, speed regulator of elevator electric control system. Under any condition, sensor and controller should be far away from heat source.

④It would be better not to put the connecting cable between sensor and controller in the same wire duct with dynamic power of 110V or 220V.

(5) Connect the sensor wiring terminal to PG terminal of the control, simultaneously, connect power line to PV according to system requirement. Pay attention to the voltage level.

⁽⁶⁾When no error is inspected, power on the system and the corresponding operation patterns will be displayed on the control.

5.Adjustment Method and Description of the System (Autotune Operation)

1 Initialization: Selection of Compensation Method





2 Lock the dead weight of elevator car:

(5)

System adjustment under other conditions:

For following reasons, the parameters of this system need re-modifying in the way described above.

- 1) Elevator car decoration changing causes its dead weight change.
- 2) Larger unbalance appears among traction ropes.
- 3) Sensor of weighing device becomes flexible.
- 4) Overrunning at the top or at the bottom occurs.

Operation Parameters Adjustment and the Implication 6.System Operation Parameters Adjustment

(1)Simultaneously press [A] and [V] on system control keypad to power on , this moment [PP] will be displayed aglimer, that means entering operation parameters modifying status.

②Release [\blacktriangle] and [\checkmark] 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 $[\checkmark]$, indication of system operation increases; press $[\checkmark]$, indication decreases.

- (4) When displaying $[]^{**}]$, press $[]^{\bullet}$, data value increases; press $[]^{\bullet}$, data value decreases.
- ⑤Release buttons, system displays operation indication and configuring data alternately.
- ⁽⁶⁾To modify other configuring datum, repeat the operation in item 3, item 4, and 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.

(Annotation: * represents for a hexadecimal value of "0~9,A~F".)

Example: Modify parameter P1 to 10; (the system effective load is 1000kg)

(1)Simultaneously press [\triangle] and [\checkmark] on system control keypad to power on , this moment [[PP]] will be displayed aglimer, that means entering modifying status;

②Release [A] and [V] buttons, system will display [P0] and [**] aglimer;

③When displaying [P0], press $[\lor]$ to increasing it to [P1];

(4) Release button [\checkmark], system alternately displays [P1] and [**];

(5) When displaying [] **], press []] and []] to regulate its value as [] 10];

GRelease button, system alternately displays $\llbracket P1 \rrbracket$ and $\llbracket 10 \rrbracket$;

(T) At the moment when system displays [P1], Simultaneously press [A] and [V], system will save modified datum for future use. This moment, system displays [Pn] for 1 second. System operation parameters modification is completed.

7. Implication of parameter P: Normally, it is unnecessary to modify parameter after "P0". System may

automatically modify them in the course of Autotuning.

Setting	Explanation	Default Setting	Normal Value
00	Normal Operation (Automatically modify by system after autotune.)	01	00
01	Sensor positioning, system autotuning	(Sensor	System Auto
09	Options for dealing with abnormality when Selecting" \pm "type intelligent	Positioning)	Modifying
0A	Forcibly set system settings as default values		

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

② Directions of Parameter P1 [System Rated Load Setting Mode]:

Setting	Explanation	Default Setting	Normal value
01/02	01 Select "load layer by layer" self-learning mode;	01	

EWD-RL-BSJ3User's manual of technical documents of villa elevator weighing device

or	02 Select "20% load layer by layer" self-learning mode;	(Rated load	
05~55	** - Select the load setting mode. Do not use it. For example, 10 indicates	Autotuning)	
×100kg	that the load is 1000kg. This method may have an error.		

③ Implication of parameters p2、p3、p4、p5[reserved]:

(4) Directions of Parameter P6 [Logic condition Setting Relay"J1", "J2", "J3"]:

Setting		E		Default Setting	Normal value		
	Higher Bits		Lov	ver Bits			
00 17	0- The value ranges	Contact Status	J3	J2	J1	03	
00~17	from 0 to 10V	3	Dynamic break	Dynamic closing	Dynamic closing	(J1,J2 relay actuating output; J3 break output;Effective analog dose 0 ~ 10V)	

(5) Directions of Parameter P7 [Setting Relay"J1"Operation Range]:

Setting	Explanation	Default Setting	Normal Value
	When the load is more than or equal to the amount load $\times P$ 9%, the output	10	
00~99	"J1" signal.	Set 10%	
	00~99: action value in 0~99% load action;	rated-load action	
		for "J1"	

(6) Directions of Parameter P8 [Setting Relay"J2"Operation Range]:

EWD-RL-BSJ3User's manual of technical documents of villa elevator weighing device

Setting	Explanation	Default Setting	Normal Value
The same as P7	The same as P7	80 Set "J2" to 80% rated-load action	

⑦Directions of Parameter P9 [Setting Relay"J3"Operation Range]:

Setting	Explanation	ation Default Setting	
The same as P7	The same as P7	A5 Set "J3" to 105% rated-load action load	

Attentions: ① When selecting not indicated settings, system will not normally operate.

② No load auto zeroing parameters PA, PB and PC should be used cautiously because of the cause variety of elevator no load point drifting. It is recommended for the user to allow or forbid this function according the concrete conditions.

③ Even if No load auto zeroing operation enabled, in the course of elevator periodical maintenance, autotuning operation of this system should be redone without exception.

Exlanation of Displaying Code:

8. System Normal Operation Code:

ℤ J0 ℤ	[[J3]]	$\llbracket J2 brace$	$\llbracket J1 brace$	
No Relay Output	Relay J3 Output	Relay J2 Output	Relay J1 Output	
	Default 105% of Rated Load	Default 80% of Rated Load	Default 10% of Rated Load	
	1. Press the $[\blacktriangle]$ button to display "HJ $\times \times \times \times$ " indicates the current car payload.			
	 During the fuzzy compensation period, "0.0." indicates that the compensation is effect and "0.1." indicates that the elevator enters the correction area. 			

9. Code for Other Operation and Failures

	Display	Indication			Solution
1	FY	System Startup, fl	ashing	indicates P	0 system parameter setting is not correct.
2	РС	Sensor Resetting			
3	РР	Get into the status	s of operations	ation param	eters modification
4	PL	Autotuning No lo	ad	(Still Disn	aving indicates preparation status, aglimmer displaying
5	PH	Autotuning Rated	load	indicates th	e end of inspection)
6	LL	Installation and	Too big	5	Sensor having no load
7	LH	positioning	Too sm	all	Sensor overload
8	Lo		Accurately Position		1
9	LP		Interior Auto Corre		ction
10	LY	Forcibly skip sens		y skip senso	r interior auto correction
11	Р*	System Configura	tion Ind	ication	
12	Pn	Saved			
13	EA	Saving Failure			Modifying operation parameters again
14	EJ	Without this system setting		g	Check system settings
15	EH	Applied Overflowing Pressure		sure	Sensor pressure may beyond its withstanding range
16	EL	Applied Insufficie	ent Press	ure	Sensor being not pressed
17	EF	Memorizing abno	rmally		Repeat this operation.

10. Brief Analysis of Other Conditions:

How to do?

1. The working stability of the weighing device is poor, which is mainly manifested in the static condition of the fixed load elevator, and the output fluctuation is large.

Please check whether the PV power supply meets the requirements of the weighing device.

2. After long-term operation, the no-load zero point of the weighing device has a large deviation?

It may be caused by part of the reasons mentioned in "V and 4". Please set the self-learning mode of the weighing device to recalibrate, or start the parameter " $PE \neq 0$ " to realize the no-load automatic zero clearing function of the weighing device.

3. Poor consistency of floor compensation?

Change the lower value of P4.

4. The same load up and down running on the same layer, weighing results are different?

① The drawstring is not even, please adjust; (2) The elevator guide boots are too tight, and the operation friction is large. It is suggested to adjust or correct the relevant mechanical part to make it run flexibly, and then re-learn the operation of the weighing device.

5. Weighing device output signal does not change linearly with the load?

Maybe the weighing device sensor is damaged.

6. How to view the current car payload?

Press the [\blacktriangle] button during the normal operation of the weighing device. At this time, the weighing device displays $[HJ] \rightarrow [**] \rightarrow [**] \bigcirc [**] \bigcirc [For example, the display - [HJ] \rightarrow [09] \rightarrow [50] \bigcirc -$ indicates that the current payload of the 1000kg car is 950kg;

If the elevator payload is not 1000 kg, it can be determined by modifying "P1" parameter after the learning operation of the weighing device is completed; The display data may fluctuate in a small range due to various influences of the external environment;

7. When the elevator is stationary, the weighing signal is normal, but there are abnormal phenomena in the process of opening and closing the door?

The elevator door dynamic weighing device produces the relative weight deviation of the car. The output signal of the door opening and closing relay plus the door lock signal can be used to participate in the PM.1~2 locking control of the weighing device.

8. During the operation of the weighing device, abnormal analog output or repeated reset or abnormal coordination with the governor occurs?

It may be caused by crosstalk of the power supply of the weighing device. Another set of power supplies should be used to power the weighing device, or AC/DC 24V/300mA external power supply should be used to power the weighing device.

11. How to re-do the "self-learning" operation of the weighing device ?

Method 1: Simultaneously press \land and \checkmark on system control panel to power on. This moment, system aglimmer displays $\llbracket PP \rrbracket$. Keep 15 seconds, system will display $\llbracket Pn \rrbracket$. On that occasion, all operation parameters reset to default settings. Method 2: Modifying parameter P0=0A will reset system immediately to default status. But for users with specified code, it is necessary to modify parameter P0 as appointed code. Detailed operation is described in chapter 6.

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

After system displaying [Lo], modify parameter "P1=02".Do no load autotuning operation as described in chapter 6. In the period of displaying [PH], load elevator car with a weight equal to 20% of rated load to do rated load autotuning operation. When operation is finished, [L1] is displayed.

System Features

13.Working principle of the"EWD-RL-BSJ3"elevator load weighing device

With the development of the elevator technology, the elevator load weighing has great effect on the the performance of the elevator. Higher accuracy, more reliable and more functional elevator load weighing is desperately needed. In the era of the high development of the sensor and the microcomputer, adopting the high accuracy" disc" load sensor to detect the electric signal to the change of the car load, meanwhile using the single chip microcomputer to have a scentific processing, to achieve the working function of the elevator car effective load weighing.

14.Main Characteristic:

(1) Adopting direct pressure type "disc" load weighing device, there is no need to change the pull rod of the tractive rope. (2) Weighing range is wide (effective load of $500 \text{Kg} \sim 5500 \text{ Kg}$), high-accuracy position, intelligent temperature compensation.

③Inner core consists of highly accurate load sensor and high performance single-chip micro-computer. All

operation parameters can be set on field.

(4)System may do scientific calculation according to mathematical equations with the function of no-load auto

zeroing, automatically modifying measuring error.

^⑤With the function of fuzzy compensation to improve the high requirements the elevator to the load signal.

⁽⁶⁾With the ability of load setting under auto tare or the working function of 20% or 100% autotuning rated load, it is

very convenience to the customers.

⑦Adjusting the autotuning at the spot, and it very convenient to do the adjustment.

[®]With the ability to modify the working parameters automatically and fuzzy compensation.

(9) The whole shoot starts from users' point of view, easy installation and adjustment, decreasing users' additional cost in use, high ratio of performance to price.

16, Technical Specifications:

1.	Application Range		Suitable for all traction drive or reel drive villa elevator use (load range depends on the				
			sensor range).				
2.	Landing		Auto adapting intelligent fuzzy compensation				
	Compensation Method						
3.	Sensitivity		Elevator Rated Capacity /200 (5.0kg for 1T load) [This will be affected by the mechanical properties of the lift]				
4.	System Error		≤0.5% (-20~55°C)				
5.	Non-linearity		≤0.5%				
6.	Output	Relay	Program mable common signals:	 2-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 48V/100mA. 			
	Niode:		Analog Output:	Elevator load "no load ~ amount load", do: 0~10V linear change			
7.	Operation Ambient Temperature		-20~55°C				
8.	Relative Humidity		20%~90%RH				
9.	Reaction Time		≤0.3 senconds				
10.	Power Supply:		AC/DC24(±10%)V / 150mA				
11.	. Install Position		Sensor Section: At the place of traction rope shackle Controller Section: Control Cabinet in machineroom. See the attached figure for installing				

		dimensions.
12.	Overall Size	Sensor part: See attachment sensor size diagram; Controller part: See Figure [1]

●^{*}: If the strength exceeds the limit parameters listed above, it may lead to abnormal operation or permanent damage of the weighing device.

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) \circ

(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.Packing List:	EWD-RL-BSJ3 Controller	1pcs	Sensors and accessories	1pcs			
	Φ 4×40mm Fastening Screw sets	2sets	User's Guide	1pcs			
2.Address books	: Xi'AN EXCELLENT ELECTROMECHANICAL CO.,LTD						
	(029) 88416613, 85565714, 85568478	0-	: 7D, Block A, Olympic Building	, 14th			
	65505714, 65506476		Chang An North Road, Xi'an, S	haanxi,			
			China				
	: (029) 85565714-886	\bowtie	: 710068				
Technical Su	pport: 0086-18092639750	0086	-18092639752				



Att. Fig: Wiring Method of Terminal PM and PX Under Auto accommodating fuzzy Landing compensation

Recommended Application Range of this mode: All elevators with better mechanical installation characteristic.

- **Notes:** 1. Directly parallel connect PX1~2 and PM1~2 to corresponding electric circuit. If user selects "mid landing" position signal, more accurate compensation effect may be received.
 - 2. If the common polarity of elevator signals is +COM (power source), reversely connecting the terminals of PX and PM, i.e., exchange PM.1 and PM.2. The rest may be deduced by analogy
 - 3. Voltage of terminal COM should be in the range of "DC12 \sim 32V".

Attched document:

Load cell / tension sensor dimensions and installation

1. XCL-Y/3411 load sensor dimensions:

1.1 size (range: 6KN, 12KN)



Supporting Screw

Note: 2 supporting screws per set



Installation diagram 2



Note: When the user makes the splint, the distance A should equal the distance B.

2. XCL-YH/5018 load sensor dimensions:

2.1 size (range: 15KN)



2.2 Installation Method



3. XCL-Y/52221oad sensor dimensions:

3.1 size (range: 6KN)





Compression Bar

3.2 Installation Method



Note: When the user makes the splint, the distance A should equal the distance B.

4.XCL-ZL/W load sensor dimensions:

4.1 size (range: 15KN)



Note: During installation, be sure to use \emptyset 6 wire rope to connect the safety ring and secure it on the support of the tractor, in case the sensor falls off during installation and debugging, to ensure personal safety!

4.2 Installation Method





5.XCL-T/A(20)load sensor dimensions: 5.1 size (range: 12KN)

5.2 Installation diagram







6. XCL-T/B (20) load sensor dimensions:

6.1 size (range: 10KN) 6.2 Installation diagram





7. XCL-ZL/P2 load sensor dimensions:

7.1 size (range: 5KN 8KN) 7.2 Installation diagram





8. XCL-ZL/P3 load sensor dimensions:

8.1 size (range: 5KN 8KN) 8.2 Installation diagram





