EWD-RL-SJ3

User's Guide

(Version 2.2)

XIAN EXCELLENT ELECTROMECHANICAL CO., LTD

Table of Contents

Caution: This system is applicable an elevator with fixed car platform. Before use, be sure to read the following sections carefully.

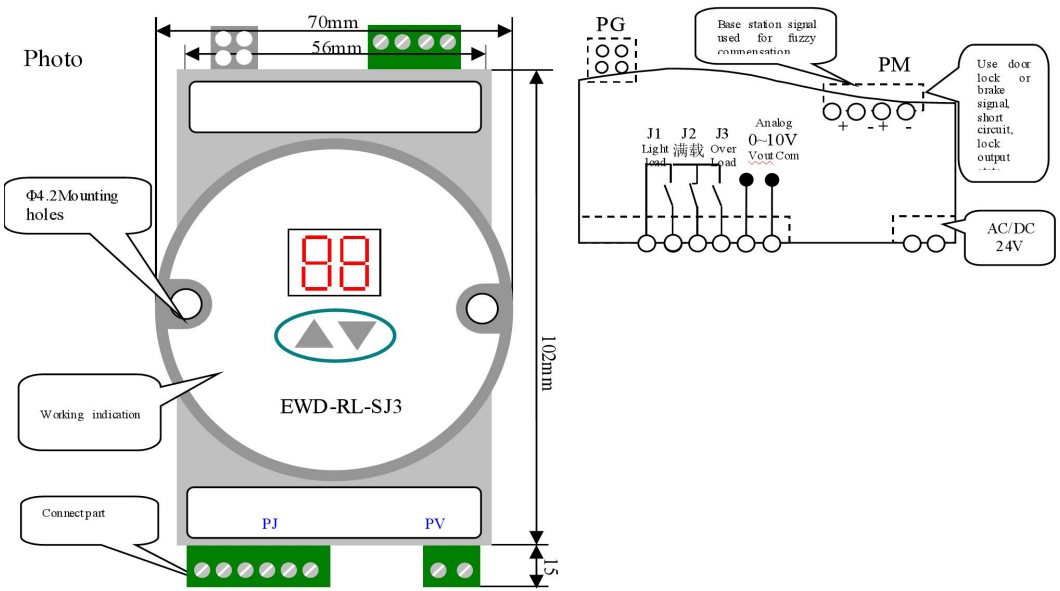
Note: Under any condition, our part is just responsible for the quality of product in the period of guarantee service.

Declaration: For the reason of technology advancement, our company reserves the right of improving product. As for the relevant technical parameters, Please refer to the technical handbook delivered with the product.

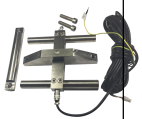
PRODUCT OVERVIEW

1. Product Appearance and Interior Structure:

Schematic Diagram of Controller Appearance See Fig[1]



Sensor models and appearance：

Sensor profile							
Naming	type	XCL-Y/8625	XCL-ZL/W	XCL-T/A	XCL-T/B	XCL-ZL/P2	XCL-ZL/P3
	Dimensions and mounting methods	See attached page for details					

2.Schematic Diagram of System Interior　　See “Fig[1]”

	Function		Description
PG	Connect system load sensor		
PJ.1 ~2	J1：Light load output, Dyn open/Close		Max load capacity DC/AC 48V/500mA
PJ.1 ~3	J2：Full load output:Dyn open/close		
PJ.1 ~4	J3：Over load output:dyn open/close		
PJ.5	Analog 0~10V output ports		Used for governor torque compensation
PJ.6	Analog com port		
PM.1~2	+	For fuzzy intelligence compensation	Compensate for landing deviation
	-		
PM.3~4	+	Used to lock the output of the weighing device	See: attached figure
	-		
PV	Weighing device 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 of System Structure and Installation

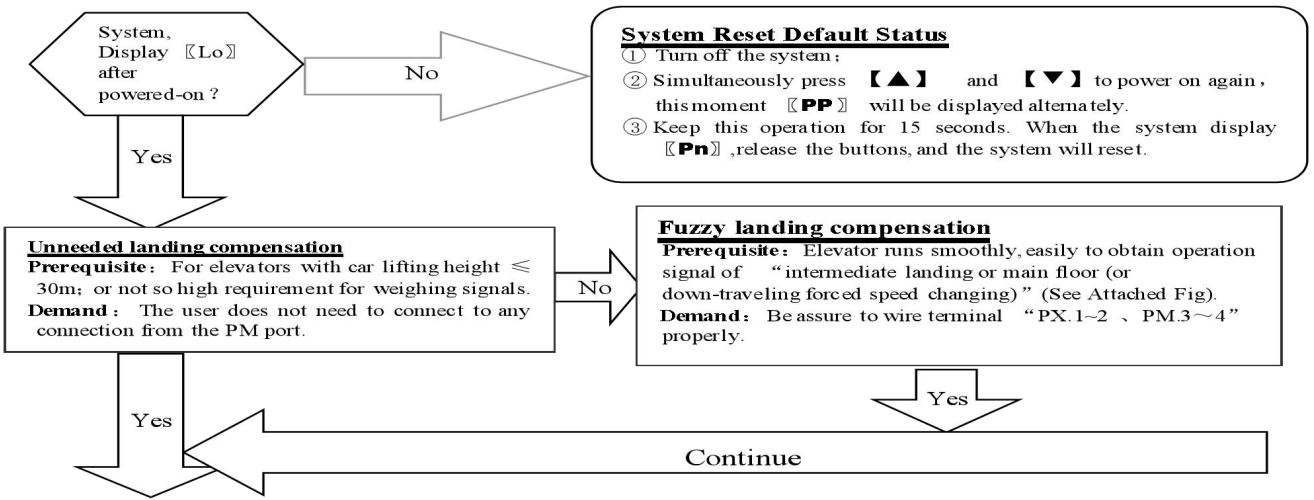
Schematic diagram of the whole machine: See Figure [1] for controller part; See sensor selection for the sensor section.

4. Install Method of Sensor and Controller

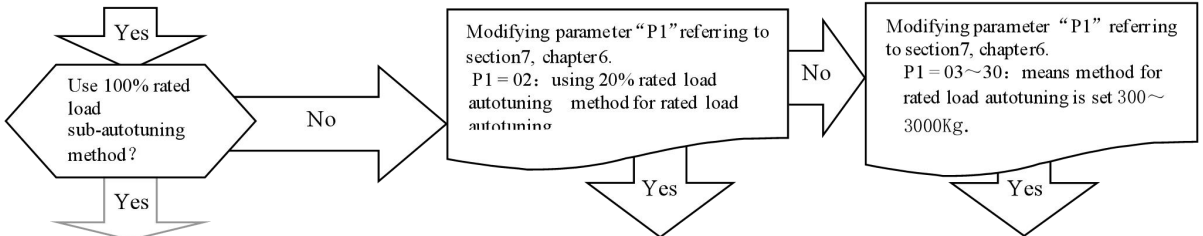
1. The controller should be installed in the control cabinet of the machine room, and it is better not to be close to the elevator electronic weighing device transformer, governor and other equipment. In all cases, sensors and controllers shall be installed away from heat sources;
2. The connection between the sensor and the controller, it is best not to 110V, 220V and other power supply in the same wiring slot;
3. Power on the weighing device after confirming that the check is correct, and the controller should be displayed in the corresponding working mode.

5. System Adjustment Method and Description (Autotune Operation)

①Initialization： Selection of Compensation Method



②Lock car self-weight, self-learning no-load working mode:



Let personnel leave car and car top and stop elevator at the bottom floor leveling position. Then adjusting personnel enters machineroom. When 〖Lo〗is displayed on the control, press key【▲】and【▼】simultaneously. -Flashing 〖PL〗 no - load self - learning completed, showing PH-01.

③Rated Load Autotuning Operation Mode:

① System displays〖PH-01〗.
② Load elevator car to effective rated load condition(for elevator of rated load 1000Kg，loading 1000Kg is necessary) or 20% effective load (for "P1=02").
③ Press key【▼】; When〖PH〗displayed aglimer, inspection is finished.

Yes

④The end of autotuning:

System resets automatically, 〖FY〗→〖J2〗will be displayed. **By now，the whole autotuning course is finished.** (〖J1〗is displayed for 20% effective load).

5.System adjustment under other conditions：

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

①Elevator car decoration changing causes its dead weight change.

②Larger unbalance appears among traction ropes.

③Weighing sensor becomes flexible.

④Overrunning at the top or at the bottom appears.

Operation Parameters Adjustment and the Implication

6. System Operation Parameters Adjustment

①Simultaneously press【▲】and【▼】on system control keypad to power on ， this moment 〖PP〗 will be displayed alternately, 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 of 3, 4, 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 is completed.（**Note：＊is any of the hexadecimal value in the range of** “0～9,A～F”.）

Example：Modify parameter P1 to 10；(System Setting effective load of 1000Kg)

Example：Modify parameter PJ to 03；(Pj3.1~2、Pj3.3~4 enabling for low voltage level compensation signal)

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

②Release【▲】and【▼】buttons，system will display〖P*〗and〖**〗aglimer

③When displaying〖P0〗， press【▼】to increasing it to〖P1〗；

④Release button【▼】， system alternately displays〖P1〗and〖**〗.

⑤When displaying〖**〗, press【▲】and【▼】to regulate its value as〖10〗.

⑥Release button，system alternately displays〖P1〗and〖10〗.

⑦At the moment when the weighing device displays 〖P1〗, press the [▲] and [▼] buttons at the same time, and the weighing device memorizes and revises the data. At this time, the weighing device displays 〖Pn] for 1 second. The working parameters of the weighing device have been revised.

7. Implication of parameter P：Under normal circumstances, users do not need to modify the parameters after "P0", and the weighing device will correct itself during the self-learning period.

①Directions of Parameter P0[System Operation Mode]：

Setting	Explanation	Default Setting	Normal Value
00	Normal Operation (Automatically modify by system after autotune.)	01 (Sensor positioning)	00 System Auto Modifying
01	Sensor positioning, System autotuning.		
09	Select "王" type intelligent sensor abnormal handling option		
0A	The weighing device is set to the factory setting		

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

Setting	Explanation	Default Setting	User’s Setting
01/02 or 05～55 ×100Kg	01---“100% Rated load,floor by floor” Autotuning Mode； 02---“20% Rated load,floor by floor” Autotuning Mode； **—Select rated load setting mode(Not Recommended)Example：“10”means rated load of 1000Kg. There is a certain error in this method.	01 (Rated Load Autotuning)	

③Directions of Parameter P2、P3、P4、P5[Reserved]：

④P6 Parameter description [Relay "J1, J2, J3" logic state setting]

Setting	Explanation		Default Setting	Default Setting
	Higher Bits	Lower Bits		

00～17	0--- Select 0~10V 1--- Select 10~0V	Contact condition	J3	J2	J1	03 (J1,J2 Relay output,J3 Dynamic open output，analog quatity 0～10V is valid)	
		3	Dynamic break	Dynamic closing	Dynamic closing		

⑤Directions of Parameter P7

Setting	Explanation	Default Setting	User’s Setting
00～99 A0~A9 b0~b9 C0~C5	When Load≥ Rated load×P9%， “J1” signal is output.	10 Set “J1”to actuate at 10% of rated load	
	00~99：Actuating for 0~99% rated load； A0~A9：Actuating for 100~109% rated load；		
	Example: P7=80：For effective load of 1T，system actuates at 800Kg.		
	Example: P7=A5：For effective load of 1T，system actuates at 1050Kg.		

⑥Directions of Parameter P8 [Operation Range Setting of Relay “J2”]：

Setting	Explanation	Default Setting	User’s Setting
The same as P7	The same as P7	80 “J2” Setting: actuating for 80% Rated Load	

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

Setting	Explanation	Default Setting	User’s Setting
The same as P7	The same as P7	A5 Setting“J3”: actuating for “J3”105% Rated Load	

⑧PA Parameter description [Reserved]:

⑨PB Parameter description [Reserved]:

⑩PC Parameter description [Reserved]:

Attention :

① If the setting value is not specified, the weighing device will not work normally.

② The no-load automatic zero parameter should be used carefully because of the diversity of the no-load point drift of the elevator; You are advised to disable or allow this function based on the elevator status.

③ Even if the no-load automatic zero function is opened, the weighing device should be re-carried out during the regular maintenance of the elevator

Self-learning work.

Explanation of Displaying Code:

8.System Normal Operation Code:

〖J0〗	〖J3〗	〖J2〗	〖J1〗
No Relay Output	Output of Relay J3	Output of Relay J2	Output of Relay J1
	The default load is 105% broken	The default load is 80% action	The default load is 10% action
1.Press【▲】, “HJ※※※※ ”displaying indicates present car effective load. Such as displaying“HJ0520 ”means load of 0520Kg. 2.During fuzzy compensation, displaying “0.0.”means compensation is “Enable”，“0.1.”indicates elevator entering modifying zone.			

9.Code for Other Operation and Failures

	Display Code	Indication		Solution
1	FY	Starting indicator of weighing device, flashing display indicates that P0 setting of weighing device parameter is incorrect		
2	Pc	Sensor Resetting		
3	PP	Get into the status of operation parameters modification		
4	PL	Autotuning No load parameters		(Still Displaying indicates preparation status，flashing displaying indicates the end of inspection)
5	PH	Autotuning Rated load parameters		
6	LL	Installation and positioning	Too big Positioning	Sensor having no load
7	LH		Too small Positioning	Sensor overload
8	Lo		Accurately Position	
9	LP		Interior Auto Correction	
10	LY		Forcibly skip sensor interior auto correction	

	Display Code	Indication	Solution
11	P*	System Configuration Indication	
12	Pn	Saved	
13	EA	Saving Failure	Modifying operation parameters
14	EJ	Without this system setting	Check System Settings
15	EH	Applied Overflowing Pressure	Sensor Standing Pressure beyond its bearing range
16	EL	Applied Insufficient Pressure	No applied pressure to Sensor
17	EF	Memorizing abnormally	Repeat this operation.

How to do?

10.Brief Analysis of Other Conditions：

⑴ Bad system Operation Stability with the main indication of large output fluctuation in the condition of fixed load and elevator motionless？

Check if PV power supply source fulfils system requirements?

⑵ After long-term of operation, system no load zeroing point appears larger deviation？

May be caused by the reason described in section 4 , chapter 5. Set system Autotuning mode to calibrate again，or startup parameter“PE≠0” to realize the function of system no load auto zeroing.

Poor Landing Compensation consistency？

Modify lower bits of Parameter“P4”.

⑷ Traveling Up and down with the same load and stopping at the same floor, but the weighing result is different?

Lift rope pull is not symmetrical，adjust please.

② Elevator guide shoes are too tightened，running friction is large. It is recommended to adjust or modify relevant mechanical part to make it move flexible，then operate the system to autotune again.

⑸ System output signal doesn’t change linearly along with load？

Maybe system sensor damaged.

⑹ How to descry present effective load of elevator car?

In the period of system normal operation, press button【 】.This moment, system displays〖HJ〗→〖**〗→〖**〗 .For example ：displaying 〖HJ〗→〖09〗→〖50〗 indicates a car with rated load of 1000 Kg presently bearing an effective load of 950Kg.

If elevator effective load is not 1000 Kg，it may be decided after system autotuning operation is finished by modifying parameter“P1”.

Because of various impacts from outer environment，displayed data may fluctuate in a small scope.

⑺ When elevator is motionless, weighing signal is normal. But in the course of door opening, it is abnormal?

Elevator door operation system causes relative car weight offset. It may be controlled by adopting door opening/closing relay output signals+ door lock signal jointly participating system PC.3～4 locking control.

⑻During system operation, analog output is abnormal, repeatedly resetting or abnormal coordination with speed regulator?

May be caused by crossing and interfering system power source. Select another set of power source to supply system，or equip another AC/DC 24V/300mA exterior power source to supply power.

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

Method 1：Simultaneously press【▲】and【▼】 on system control panel to power on. This moment, system aglimmer displays〖PP〗.Keep 15 seconds，system will display〖Pn〗.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?

Modify parameter "P1=02" after the weighing device displays 〖Lo〗. The no-load self-learning of the weighing device is completed in accordance with the "Five" chapter. During the display 〖PH〗, the weight equivalent to 20% of the rated load of the elevator should be added to the car for the load self-learning operation. After the operation is completed, the display 〖J1〗 will be displayed.

System Features

13.Working Principle of "EWD-RL-SJ3" Elevator Weighing Device

With the constantly development of elevator technology, the impact of elevator weighing devices 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. Nowadays, the progress of sensor technology and microcomputer is ceaseless. Inspecting electric signals producing by elevator car load changing with high accurate "Disc" type loading sensor, meanwhile, performing scientific calculation and procession with single-chip microprocessor, the aim of weighing elevator car effective load is fulfilled.

14. Main Characteristic：

①Selecting directly-compressing "Disc" type load sensor，it is unnecessary to change the pull rod of traction rope shackle.

②Weighing range is wide (effective load of 300Kg～5000 Kg)，high-accuracy position，intelligent temperature compensation.

③ Inner 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.

⑤The capability of fuzzy compensation improves the requirement of elevator for high accuracy weighing signals.

⑥Being provided with load setting or 20% or 100 %rated load autotuning sub-function under the condition of auto removing dead weight. It is easy to fulfill user's requirements.

⑦Autotuning for on-site adjustment makes it easy to be adjusted.

⑧Having the function of operation parameters auto modification and fuzzy landing compensation function.

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

15. Technical Specifications：：

1.	**Application Range**		Being applicable to all traction elevators with fixed car platform with the load of 500kg～3000/5000kg	
2.	**Landing Compensation Method**		Auto adapting intelligent fuzzy compensation	
3.	**Sensitivity**		Elevator Rated Capacity/200 (Example： The rated capacity is 1000kg, and the sensitivity is 5kg) [This data may be affected by elevator mechanical performance.]	
4.	**System Error**		≤0.5% (5～40℃)	
5.	**Non-linearity**		≤0.5%	
6.	**Output Mode：**	Relay	Programmable common signals：	①2-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。
			Analog Output：	It performs linear change (0～10V) when Elevator load is changing from "no load～rated load".
7.	**Operation Ambient Temperature**		Temperature:-20～55℃	
8.	**Relative Humidity**		20%～90%RH	
9.	**Reaction Time**		≤0.3Second	

10.	**Power Supply：**	AC/DC24(±10%)V / 200mA
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 Section：See the figure；Controller Section：See the figure

：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.Packing List：

Controller	1set
M4*40 mm Fastening Screw sets	2 sets
Load Sensor	1set
Load Sensor attachment	6 sets
User’s Guide	1copy

2.**Address book**：： Xi’AN EXCELLENT ELECTROMECHANICAL CO.,LTD

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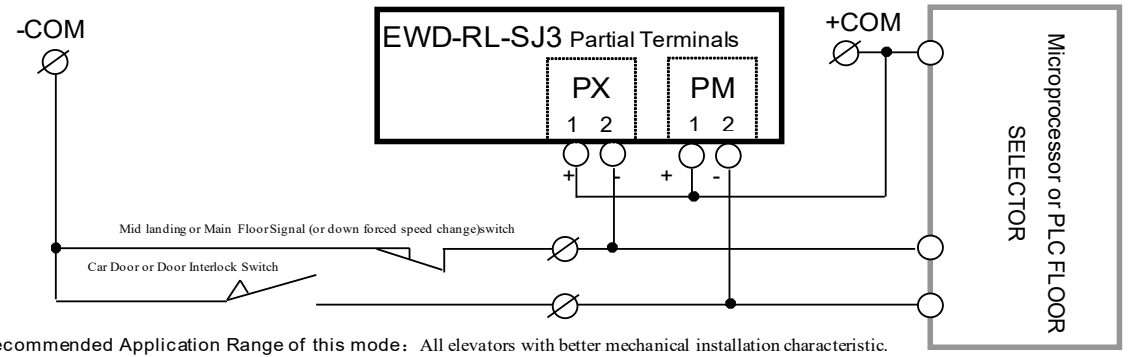
： 7D，Block A, Olympic Building, 14th Chang An North Road, Xi'an, Shaanxi, China

： (029)85565714-886

： 710068

Technical Support：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

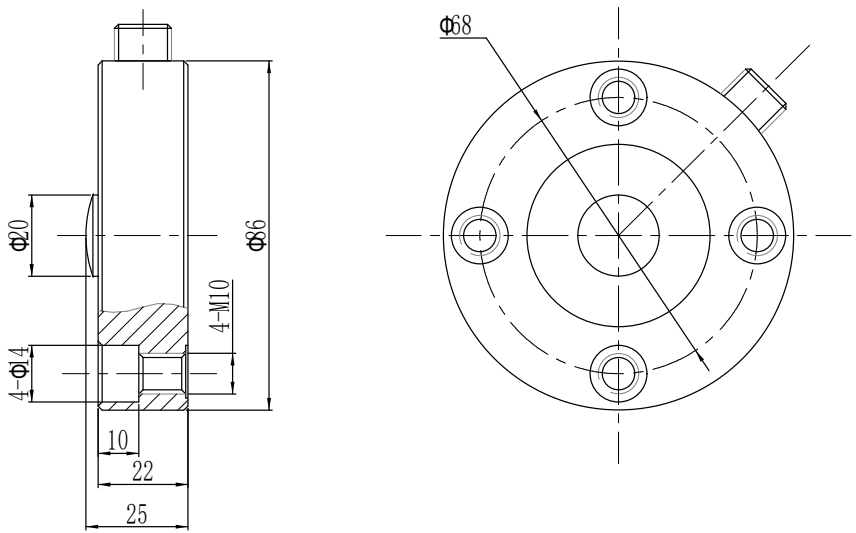
3. Voltage of terminal COM should be in the range of “DC12~32V”.

Attched document：

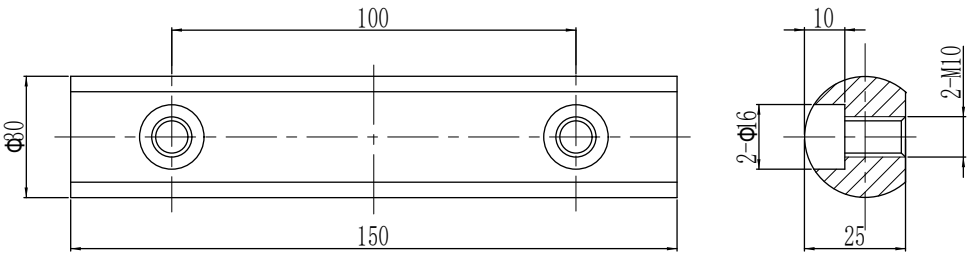
Load sensor dimensions and installation

1. XCL-Y/8625 loading Sensor size and installation method:

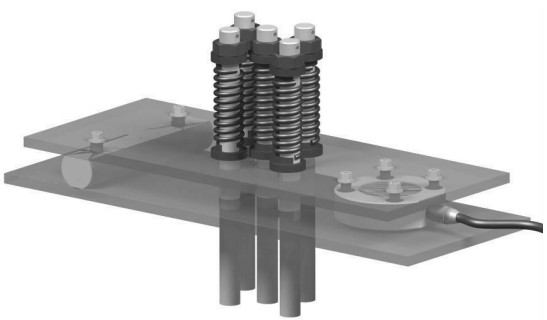
1.1 size （range：12KN、22KN、30KN、40KN、50KN、70KN）



Bar size chart

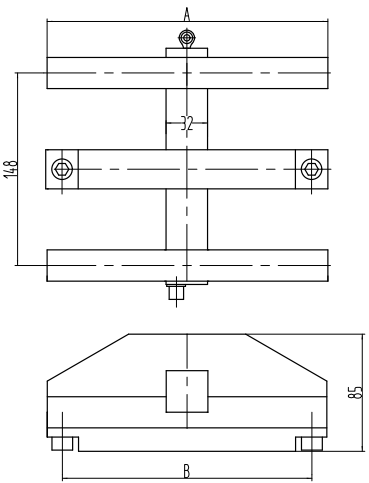


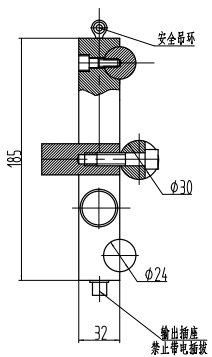
1.2 Install Method



2. XCL-ZL/W Load Sensor size and installation method:

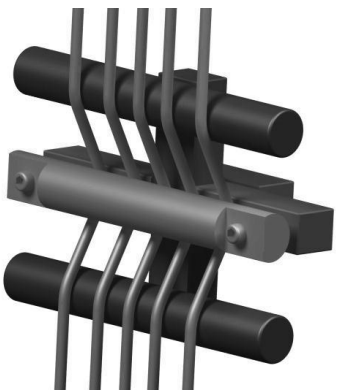
2.1 Load Sensor demensions:





传感器量程	传感器相关尺寸	
KN	A	B
20	216	192
50	260	238

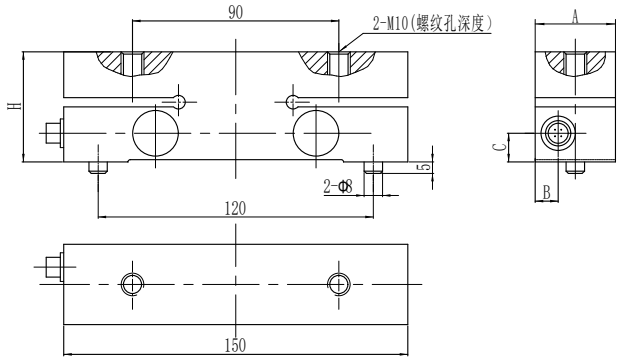
2.2 Install Method



Note: During installation, be sure to use Ø6 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!

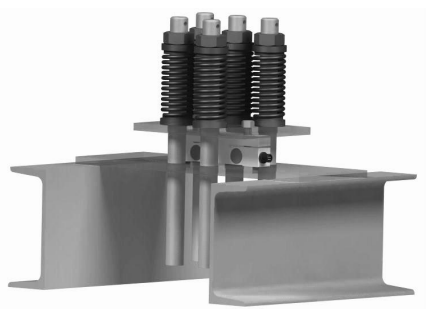
3. XCL-T/A Load Sensor size and installation method

3.1 Load Sensor demensions:



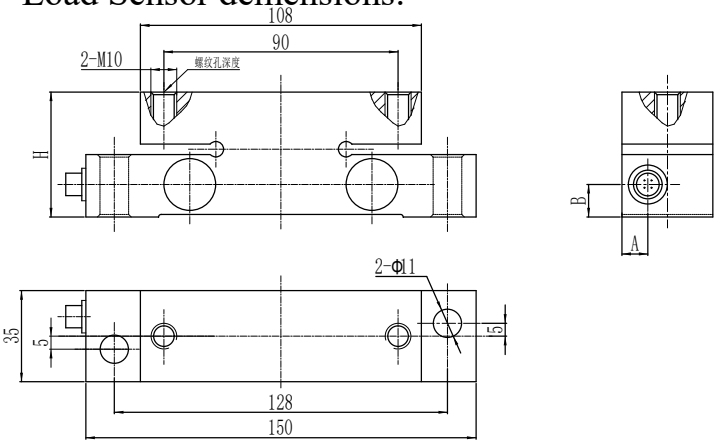
传感器量程	传感器相关尺寸				
KN	H	A	B	C	螺纹孔深度
10	41	25	8	12.5	通孔
15	41	25	8	12.5	通孔
20	41	25	8	12.5	通孔
30	48	35	10	12.5	通孔
50	48	35	10	12.5	通孔
70	60	35	8	17	18
100	60	35	8	17	18
150	70	35	8	21	18

3.2 Install Method:



4. XCL-T/B Load Sensor size and installation method

4.1 Load Sensor demensions:

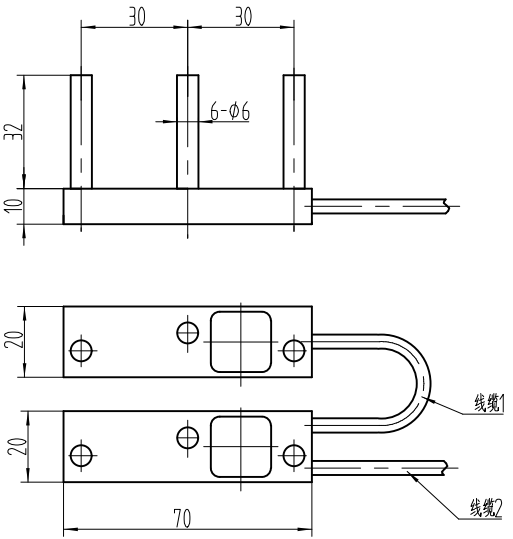


传感器量程	传感器相关尺寸			
KN	H	A	B	螺纹孔深度
30	48	10	12.5	通孔
50	48	10	12.5	通孔
70	60	8	17	18
100	60	8	17	18
150	70	8	17	18

4.2 Install Method:

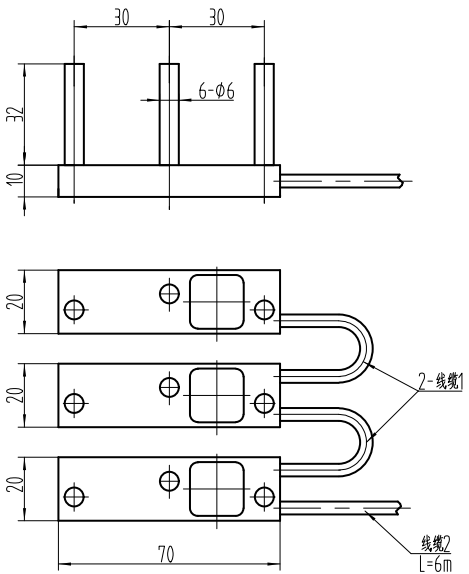
5. XCL-ZL/P2 Load Sensor size and installation method:

5.1 Load Sensor demensions（range：5KN、8KN）： 5.2 Install Method



6. XCL-ZL/P3 Load Sensor size and installation method:

6.1 Load Sensor demensions（range：5KN、8KN）:



6.2 Install Method