

## 01. Non-Weighing Apparatus Industries' Information Summary

Products	L.C. Model	Market Potential and Industry Speciality	Customer Requirements and Sells Experience	Notes
Torque Limiter Meter	XZ Series and SCB/BHS/BTW etc.	High Volume: High-End market with high profit and good requirement for load cells; Country mandatory to use in crane devices like tower crane, cranes etc.; 1-2 load cell is required in every set. The long-term reliability is required.; Load cell factories in Yuyao and Hangzhou qianjiang are doing good in it. Their quality is stable and price not high; There is quite some torque meter factories in Yichang.	Design the products according to customer requirements or we provide solution according to the parameters that the customer provide; The accuracy requirement is not high but must be long-term reliable; It is used together with indicator, which should purchase from outside now. Special technic is required to make the set.	The pin type load cell is mature which can meet customers' requirmets; Customer: Xuzhou haosiman, Jiangxi feida, yichang jingte, Jinan fuyou etc.
Crane Limiter	BTW Load Cell KQC-1 Series; SCB/SCE/SCN etc. KPX-1 Series QSK/XZ Series	It is mainly used in devices like transportation bridge(door) crane, electric hoist, etc. Country mandatory to use crane limiter for cranes above 10t. The mian factories include Changzhou Changxin, Jiangxi feida, etc.	Select the specification according to the distance from the travelling crane and the control room. Sometimes there is non-standard requirement. It requires certain technic so that easy to introduce the products to customers; Calibration according to the rate requirement before delivery. It needs anti-jamming ability	Indicator stability should be improved; Same customers as above
Crane Transportai on Machine	XZ series, ZX HNDEL (refer to the catalogue)	Market requirement increase quickly; Engineering construction machinery industry are increasing more than 30% every year since 2005. It also bring the accessory enterprices to grow; Most of the engineering machinery and port machine use XZ type load cell. But each of the users use different model number of XZ series. Most is with XZ series and 1 overload limter control indicator	High safety factor, meet the safety alarm function. The complete set of load cell, limiter and indicator is required. Even the field guide and installation is required. Please pay attention to customer required overload and installation condition in the application to understand the detailed installation and configuration	Some of the load cell is not very good in insulation. Our factory use laser welding instead of glue welding to solve the problem; Customer: Guangzhou jinlong etc.
	YLT302/501/201/101/YLT303/503 (pressure sensor)	These kind of devices is mainly for oil pressure test which has an features of application of impact, shake, high-temperature and interference	The product requires anti-impack, shake, high-temperature, interference ability. We design damp in the structure (anit shake, impact),	Stability should be improved; Customer: Beijing Puruisaite etc.

			cooling(anti-high temperature), aniti-jamming circuit	
big concrete pumping station	PST 、 SB 、 HSXA	Big market volume: it is the traditional market of pujian putian and shiquan also have a good market share; the customers' money return is not good and customer relations very hard to build and keep.	Usually one set of concrete pumping station uses 27pcs load cells. Mainly PST and SB, PST/SB1T 19pcs, PST/SB500Kg 6pcs, HSXA50Kg2pcs , should pay special attention to the working condition, it needs high IP level. OAP products is suggested for High-end customers.	The working condition now is good. The IP protection for PST small capacity is not good; Customers: Zhejiang huba, shaoguan xinyu etc.
small concrete mix devices	PST or SB0.5-2T		The accuracy requirement is not high but it has a high requirement for anti-impact and bad working environment. And require low price.	Market price low, sales people should be careful when quoting
Hanging basket/ Elevator	BHSP/ZL-AX1 T/ XZ series	Initial promoting stage, needs long term development; The country regulate the hanging basket should with overload protection devices while according to the Europe standard, if want to pass CE certificate it needs to mount with overload protection device. Currently, there is no industry standard and the regulation for the products is not union. The market need the process to accept it. The technology is perfect, however needs to research and cooperate with customers	Industrial monitor and alarm. It works with KQC-B indicator or develop special indicators	Customers are satisfied with our products. Needs to be specialized. Customer: wuxi shengxi, cygnet, jinan tianchen
Loader	YLT101 ( pressure transducer)、 YLK	Wheel loaders used in mine, station, port, dock, factory, stocks, etc. The market is scatted. The loader maker seldom install in mass. Usually users asks to install it according to their own needs; Currently, there are about 1000sets loader weighing system required in our country. Market quootaion is ually 30-50thousand/set. The indicator is produced by professional factory. High-end products with tough screen is	The field installing experience is required. The overload ability requires high. It needs to test angle and dynamic weighing. The sales should know the refit structure and function. The indicator needs to be stable. Customer includes loader factories, however, mainly for stock yard simple weighing requirements.	Stability should be increased; Customer" Chengdu hongliang etc.

		mainly used.		
Textile machine, port machine, construction machinery, chemical industries etc.	KM01E\XZ series\ZX series ( high anti-jamming ability , instead of KM01A ) 、 KM04 series transducers.	It is widely used in industrial process control systems. ( such as DCS system)	Sampling speed slow(10-50 times/second), accuracy is high 0.1%	The indicator needs to manage a variety of signals; Customer: Shunde Fengkai, Zheda zhongkong etc.
Vehicle inspection line	SBWJ/ SBYB/SBYE/ QCSC	Mainly used for vehicle yearly inspection, test vehicle brake foot press force value, usually can supply to Huayan vehicle inspection factory in Shijiazhuang. The requirement is low. High Potential : 1. The vehicle requirement increasing. 2. Mandatory policy for inspection. 3. Safety recognition of the vehicle owners; There is a lot of competition. The product is mature( Zemic developed it earliest). It is not difficult to enter. Our SQB replace Zemic H8C, CB replace zemic H8E, SBWJ replace Zemic H9G	Accuracy requirement low but zero output requirement high. Please communicate with technical people. It can combine the distributors and factories.	Our factory has mature products. Please pay attention to the correct installation place; Customer: Shanghai Jiwei, Shenzhen Dalei, etc.
Vehicle handbrake	SL	Market is huge. Customers mainly from vehicle brake system manufacturers to replace the original mechanical or electromagnetism structures; Two conditions technical reliability and suitable price limits. It will develop in our country after 2009; domestic factory very few. The technology is mainly with the foreign factories. There is some difficulty to find potential customer and supply the goods.	The original structure and its disadvantage should be well known. Understand vehicle electric control main principle and requirements. The products should do long term and variety condition environmental testing.	Basically our products can meet customers' requirements. Pay attention to the working temperature after installation; Customer: Wenzhou wanchao

Highway Overload Detection System	Axel Detector YBSFC/ YBSG-A1-2T	Equipped with overload detection systems.		Good stability and reliability. Low cost. High class of protection. Long fatigue lifetime.	
	Fixed Dynamic Axle Weighing Scale	ZSF	Common type with short lead time.	Good overload capacity. High class of protection. Long fatigue lifetime. Usually for use of weighing.	
		WB (175	Whole weighing set. The weighing signal together with system functions.	Easy for installation and maintenance. Good total error. High speed dynamic weighing.	
	Portable Dynamic Axle Weighing Scale GZB□	Mainly for highway management and vehicle testing. Note the requirement of vehicle speed and road condition.		Stable indicator with dynamic accuracy 1-5%. Portable. The vehicle speed should be less than 10KM/H.	
Civil Engineering	BLW	For maintenance of highway, monitoring of mountain and dam. Equipped with data analysis software. High requirement of on site condition, lifetime and stability. Acknowledgement of civil engineering is required. Cooperate with institute of designing and professional manufacturers to promote.		Whole set of analysis system is available to handle the data and make a complete analysis.	
Forklift Weighing Pad	CCY-A 2-5t	Equipped with portable forklift. It is necessary to use wireless display. Easy for installation. Suitable for manufacturers of logistic equipments.		Easy weighing and high accuracy and repeatability.	
Garbage Truck	LJB/LJ/SBP/H WXM	Promote the products mainly to environmental protection departments and vehicle repair companies. Different design is required according to different vehicle and applications.		Should be equipped with IC card and GPS system.	
Coal Car	XZNFF/XZNF			Note the weighing requirement during transportation of coal.	

High Temperature Weighing Module for Ladle or Ladle Carrier	QSN-H, QSNF-H, QSMC-H, NHS-H (Ladle scale) QSKM	Potential market: Steel maker; Iron Maker; metallurgical plant and manufacture of metallurgical vehicles.	Need indicator, load cell, remote display, mechanical parts to assemble together. It is easier to sell to metallurgical vehicle manufacturers.	
Tank weighing	FB-SQB/HSX/ QSB weighing modules ZSF/NHS/ZSK B weighing modules (alloy or stainless steel), XZFC	Potential market: Weighing system company; Packing company and equipment manufacturer.	There is need of weighing module, stainless steel products, high temperature and anti-explosion solutions.	XZFC is for capacity weighing and control.
	FB-XK3101/ XK3101	Anti-explosion. Online continuous measuring.	Stable display. Analog output. Digital communication. (Industrial on site bus: Profibus/Modbus/Canbus)	
Testing machine	S type/LFS serials /ZS serials /YBS serials	Steady growth in machinery, metallurgy and architecture, aviation, spaceflight, war industry, traffic, transportation, quality inspection, measuring, education, medical treatment and other industries applications; Large and medium-sized companies mainly choose the Celtron, transcell and Taiwan brands, but the proportion of homebred brands is increasing; customerized products, small batches or qty.	Big companies all need sample, unqualified sample cannot enter procurement procedures. Pay attention to the precision & linearity and the installation of the products; For bigger clients, recommend using OAP or Amcells brand.	Customer: Shanghai Longhua, material testing depots, etc
	KM06B transmitter (replace KM06)	Have a certain amount, high speed record data, peak measurement	With special data processing software	Products stored 10 groups calibration parameters
Industrial measuring instruments	KH pull/push force gage: XSCB/XSCE/XSGB	Suitable for all kinds of products of the push-pull load test, insertion force test and damage test; can be combined with all kinds of the machines and fixtures to composite different applications of small testing machines; assort testing machine factories.	Accuracy <0.5%	Accuracy can meet the requirements; appearance easy to scratch, the shell cover lax, sensor fixed rickety; Customer:

				Yueqing Haibao
Coal tax	YBSK、QSNB、QSP、GGF	A potential market in coal production, big province of producing coal is worth promoting, but be aware to instead of the belt scales; It's better to get the coal Ann certificate of for this series of products and confirm with customer about the certificate in advance, can be good cooperation in the special complete sets of products.	YBSK/YBSKB, QSNB are used in vertical shaft assembly with the rest of the occasion, accessories, requested strong lateral force, can transfer to the requirements of the alarm limit function requirement; the light rail loadcells such as GGF QSP can be used in the broken rail applications, matching with weight transmitter, suitable for long distance transmission and complete sets for application (including 2pcs loadcells and 1pc direction sensor)	Inclined shafts weighing: pay attention to the installation conditions, using beams or do basis; Shaft: apply complete weighing module; Customer: shanxi zhongxin electronics, etc.
Textile machinery	SQBE/PST	The market is in rise stage: foreign and domestic large enterprises mostly use Germany import sensor, product localization time soon, but domestic sensor marketing share will be rised.	Used for thread tension monitoring, long-term in the environment of vibration, high humidity, higher request for the long-term stability.	Our transmitter should be improved in the appearance & long-term reliability; Customer: shunde FengKai, etc.
	KM02	The market is big; used with transmitter together, higher expectation in integration of the samples, need to be tested in actual application, must pay attention to the environmental conditions including yfrequency conversation interference & vibration.	Sampling fastly (100 times per second above), low precision; Suggestion: integration of sensor in the domestic is blank, has a great development space.	
Elevator	DT serials 、DTZK serials SCB/SCE/SCE B/SCN, etc.	General customers are elevator manufacturer or its suppliers, there is a certain market and some clients already use them in bath, mainly overload Alarm applications.	Used for overload monitoring, alarm. After signal processing, then connect with relay, accuracy requirement is lower. Should pay attention to the application structure and principle, to help customers to make correct selection	Need to pay attention to the cost control; Customer: ningbo AITE, etc.

<p>Sleep weighing system</p>	<p>MK-01 serials</p>	<p>The preliminary market promotion stage, to be gradually promotion; Mattress enterprise area brands are leading consumer market, brand localization feature is apparent, the mattress companies using the sleeping weighing system to improve sales and to expand the brand effect.</p>	<p>Pay attention to the cooperation with the strong local mattress brand. need comprehensive knowledge of product application technology and industry status, and always will be to bring benefit for customers at the first place, must pay attention to service commitment</p>	<p>Non-standard customized software and industry standard to be expanded.</p>
<p>Automatic production -line testing</p>	<p>Mini loadcells NKE/TSGB/LK N/ NKL, etc.</p>	<p>Used for various automatic production lines, combined with the capacitance charging and discharging test such as a small motor assembly, automatic motor equipment, Labs, etc.</p>	<p>Can be used in stability for long-term with high the fatigue life, must pay attention to guide the influence of the impact, avoid overload of vehicles</p>	<p>Maintenance is not convenient, limit for the disposable use; Customer: YiYang baoji, hangzhou day torque, etc</p>
<p>Intelligent pipe valves electric device, electric actuators</p>	<p>SCG loadcell /KM02C(together with SCG seirals)、KM04 serials</p>	<p>The market is big in the high-tech fields, professional stronger, used in thermal power, hydroelectric, petrochemical, metallurgical and water treatment and other industries. The automatic control valves used in the industries are generally in a 24 hour uninterrupted state, with a remote automatic control (generally turbine) to realize the valve open or closed, but in actual applications, they are often excessive open or closed to cause the accidents by ignoring them. After the valve is installed on the loadcell, the control center can be monitoring the electric actual work conditions of each set of valves very convenient.</p>	<p>the input/output signal of Push and pull are absolute consistent, through the A/D conversion to voltage signal; Suggestion:make a complete set of principles technology, including the user manual of sensor and their functions, can do some related advertisements in the valve publications; Starting from the technical support to our customers, upgrade them, must be familiar with the valve electric working principles.</p>	<p>Have been used for mass production successfully; Customer: changzhou power plant auxiliary factory etc.</p>
<p>Cable tension measurement</p>	<p>DGJ-AD16t、DGK-AD32T</p>	<p>Warning the broken fo high voltage cables casued by snow ice. The customers are the power system equipment supporting enterprises;Now is the preliminary market promotion stage, market capacity still needs to be tested.</p>	<p>To master the situations of the power department and the system functions of the product.</p>	<p>High precision, lightning protection design; Customer: xian tongbu</p>

# TPS

Medical equipment s/baby scales	SE	Market is not big, export more; Each big hospital buys from the medical equipment manufacturers.	Used for weighing the babies incubator, customers are more satisfied with the product at present.	Our products can meet user requirements; Customer: ningbo daiwei.
Teaching instrument	SGEF	Have certain market capacity, mainly for testing by the school, education commission, which buy from manufacturers, with wide range.	No special requirements	Our company product quality can meet customer requirements; Customer: ningbo huamao
Oil exploration	HNDK HNDKB serilas KTJ,etc	At present, a few export through overseas distributors, don't know the product specifications in use, the domestic market has not developed yet.	No feedback	No feedback
Clutch testing equipment	Normal S type and SQB type	Our customers are mainly for clutch manufacturers	higher request for the precision and the displacement of the loadcell.	Our SQB products can meet the requirements
Medical injection force measurement equipment	SGB SGNB,etc.	Market dosage gradually to increase, the main point is to control thrust of the injection pump	Need to know the detailed equipment and structure of customer, can be customized to the special loadcells.	Need to improve the appearance; Customer: Shanghai Leien.

## II. New products introduction

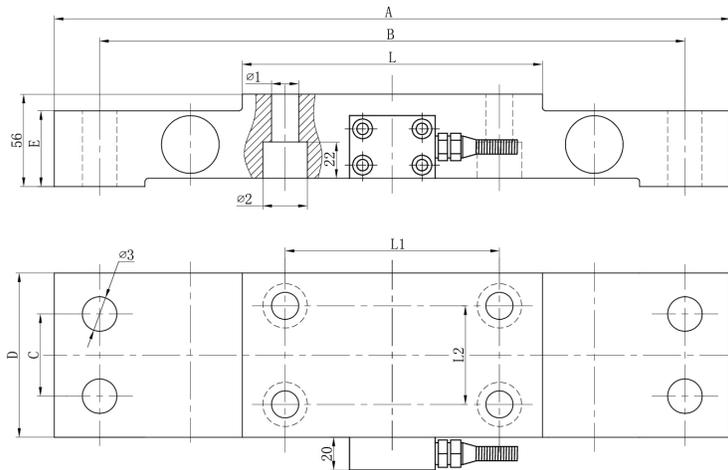
### Lifting Weight Limiter BTW-AX series load cell

#### I、 Introduction

BTW-AX series load cell, is mainly used at gantry crane lifting weight machines, and bearing type lifting machines. It is used for testing pressure. Flat shape make the loaded weight is stable, and good impact resistance.

For customer's different requirement on load cell, it has high-end load cell: BTW-AX1.5t~10t (YJ0143), Low-end load cell: BTW-AX2.5t~10t (M), BTWK-AX1.5t~10t.

#### II、 Dimension



Model Code	BTW-AX1.5t	BTW-AX2.5t	BTW-AX4~10t
A	350	410	410
B	310	355	355
C	38	50	50
D	75	100	100
E	46	44.5	46
L	151	181	211
L1	100	130	160
L2	40	60	60
Ø1	Ø17.5	Ø17.5	Ø17
Ø2	Ø28	Ø28	Ø27
Ø3	Ø18	Ø22	Ø21.5

#### III、 Technical parameters

Rated load	t	1.5, 2.5, 4, 5, 7.5, 10
Sensitivity	mV/V	1.2±0.01
Total error	%FS	± 0.2

# TPS

Creep(30min)	%F.S	± 0.1
Zero balance	%F.S	± 1
TCO	%F.S/10°C	± 0.05
TC SPAN	%F.S/10°C	± 0.05
Input resistance	Ω	750 ± 50
Output resistance	Ω	702 ± 3
Insulation resistance	MΩ	≥5000
Operating Temp Range	°C	-30~+70
Safe load limit	%F.S	120
Lateral load limit	%F.S	150
Recommend excitation	V DC	10~12
Maximum excitation	V DC	15
Seal type	IP67	
Materil	Alloy Steel	
Cable	Length: 0.8m	Diameter: φ6mm

## IV、 Picture from where it is used



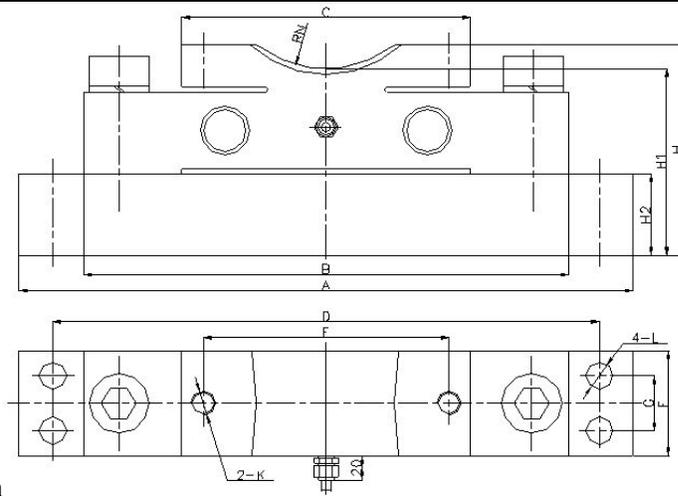
### Lifting machines used load cell QSK series

#### I、 Introduction

QSK series load cell is named as fixed pulley type, it is mounted under the axle of the fixed pulley. Also it could be used at other Balance shaft pulley. It uses the pulley to measure the loaded weight. It has a big range of capacity, high accuracy, stable performance, and good impact resistance.

This type is mainly used at the big capacity gantry crane lifting machine and other engineering lifting machines which have fixed pulley.

# TPS



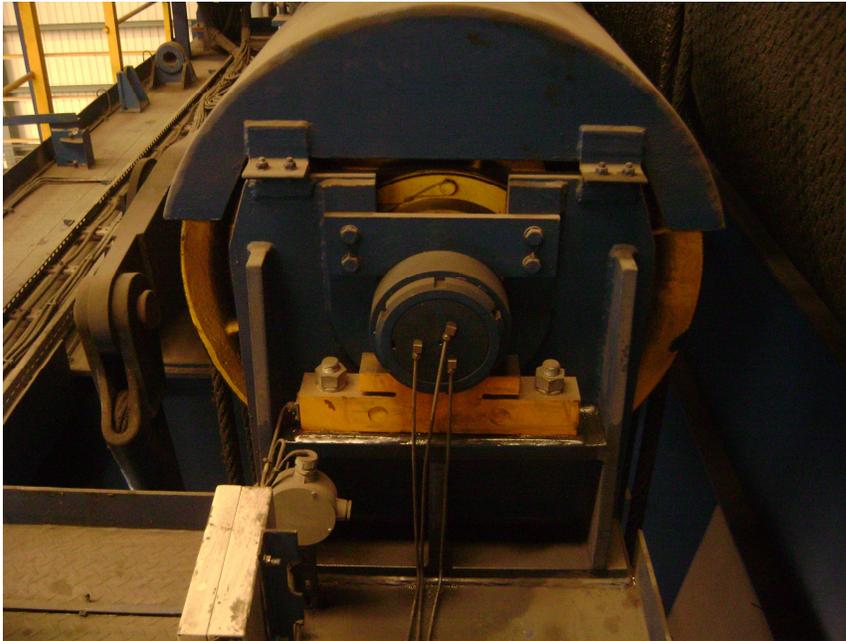
## II、Dimension

Rated load (t)	A	B	C	D	E	F	G	H	H	H	K	L	RN
10, 15, 20, 30	39 0	3 00	21 0	3 45	1 80	5 6	2 9	1 27	1 07	4 5	M1 6	∅ 18	R8 0
40, 50, 60	50 0	3 95	23 5	4 45	2 00	8 6	4 5	1 73	1 53	6 7	M2 0	∅ 22	R9 0

## III、 Technical parameters

Rated load	t	10, 15, 20, 30, 40, 50, 60
Sensitivity	mV/V	10~30t: 2.0±0.002 40~60t: 1.5±0.002
Total error	%F.S	±0.05, ±0.1
Creep(30min)	%F.S	±0.03
Zero balance	%F.S	±1
TC0	%F.S/10°C	±0.05
TC SPAN	%F.S/10°C	±0.05
Input resistance	Ω	750±10
Output resistance	Ω	702±3
Insulation resistance	MΩ	≥5000
Operating Temp Range	°C	-30~+70
Safe load limit	%F.S	150
Lateral load limit	%F.S	300
Recommend excitation	V DC	10~12
Maximum excitation	V DC	15
Seal type	IP68	
Material	Alloy Steel	
Cable	Length: 2m Diameter: φ6mm	

## IV、 Picture from where it is used

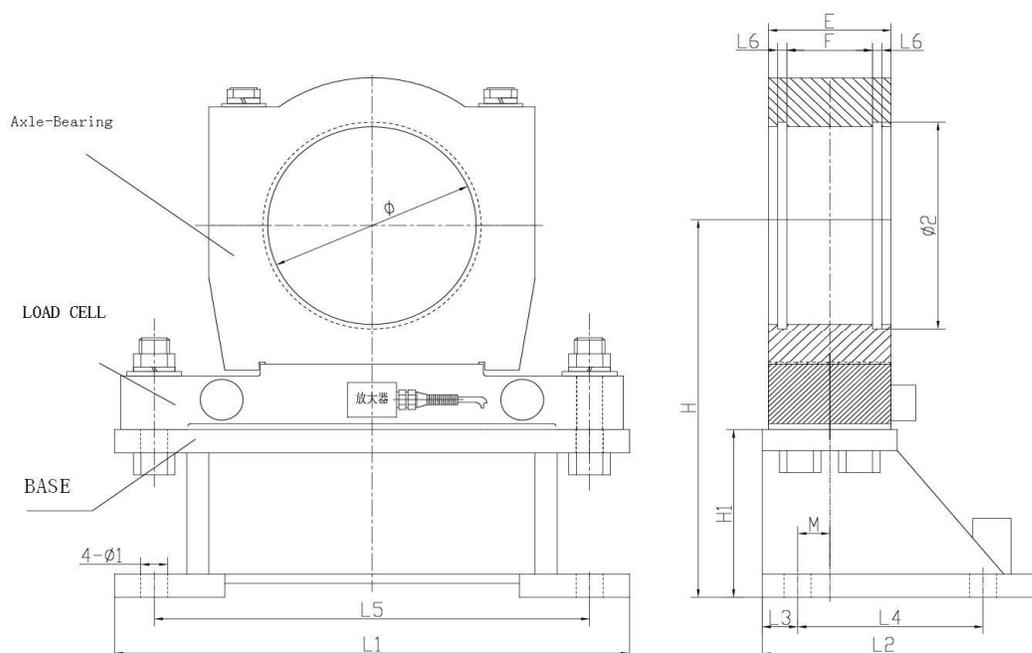


## Security restrictions used load cell KQC series

### I、 Introduction

KQC series lifting weight limiter is made of load cell, mountings, and electronic meter. It is safety protection device of crane, gantry crane, hoist and such devices. The electronic meter could match various kinds of load cells. If you want to order, the model is like " KQC type 4-20t/Ø170-320" Meaning: Pulley rate is 4, Rated load is 20t, bearing hole  $\Phi 170$ mm, The center height is 320mm

### II、 Dimension





### III、 Technical parameters

- (1) Action error:  $\leq 3\%FS$
- (2) Total display error:  $\leq 5\%FS$
- (3) Alarm point
  - Warning: 90% of rated load
  - Delay alarm: 105% of rated load (2 seconds after over that loaded weight,the relay works.)
  - Alarm immediately: 110% of rated load
- (4) Over load ability:150%
- (5) Power supply: AC 220V or 380V
- (6) Environment
  - Temperature range:  $-20^{\circ}C \sim +60^{\circ}C$ , Relative Humidity: 90%RH
- (7) Seal type of the load cell: IP68, Seal type of the meter box: IP42

### IV、 Choose correct load cell

Choose correct rated load and model of load cell,it is according to below parameters of the lifting weight machine,they are:Rated load(QT)、Pulley rate of the wire rope (I)、 Diameter of Bearing hole ( $\Phi$ ,the height from the base to the center of the bearing (H), bearing type load cell dimension is metioned above.

Example: Rated Load QT=5t

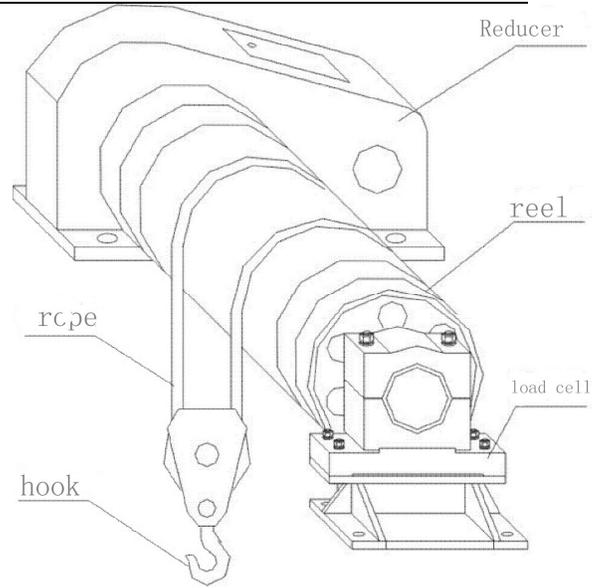
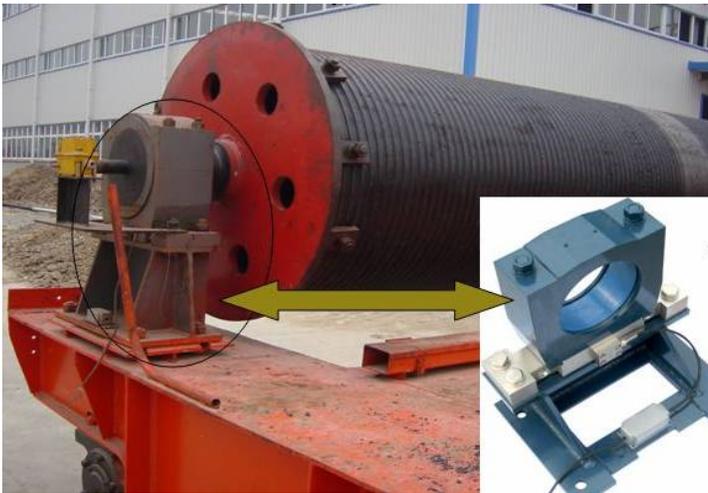
Pulley rate I=2 (total four wire ropes)

The loaded weight of the load cell:  $5t/(2 \times 2)=1.25t$

When you design of the system,you need think of safety coefficient 1.5~2 times.So you could choose 1.5t load cell this time.

### V、 Picture from where it is used

Normal standard series size																
L	Pulley Rate	Load cell capacity	$\emptyset$	H	H1	L4	L5	L1	L2	L3	M	$\emptyset 1$	$\emptyset 2$	E	F	L6
5	2, 3	1.5	140	300	149	140	300	355	220	55	0	22	148	75	45	7
1	3, 4	2.5	170	320	144	210	355	420	300	55	0	22	178	100	70	7
3	4	4	200	400	204	200	410	490	300	55	0	22	208	100	70	7
5	5	5	200	460	264	200	460	520	300	55	0	22	208	100	70	7
7	5	7.5	200	400	204	200	410	490	300	55	0	22	208	100	70	7
7	5	7.5	200	320	124	200	300	420	300	/	/	37	212	100	66	10
Eight-five standard series size																
5	2, 3	1.5	140	210	59	120	300	360	180	30	30	22	148	75	45	7
1	3, 4	2.5	170	260	84	140	350	410	200	30	30	22	178	100	70	7
3	4	4	200	360	164	160	400	470	230	35	35	22	208	100	70	7
5	5	5	200	420	224	180	450	520	250	35	35	26	208	100	70	7



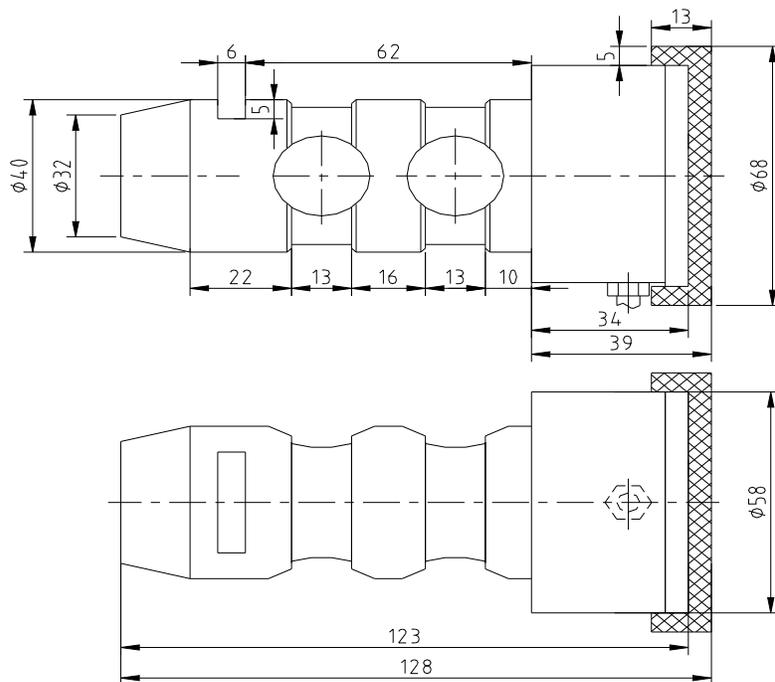
## Mechanical Engineering Sensor **XZBK-AX3t**、**XZBCB-X3t**、**XZMM-X3t**

### 1. Introduction

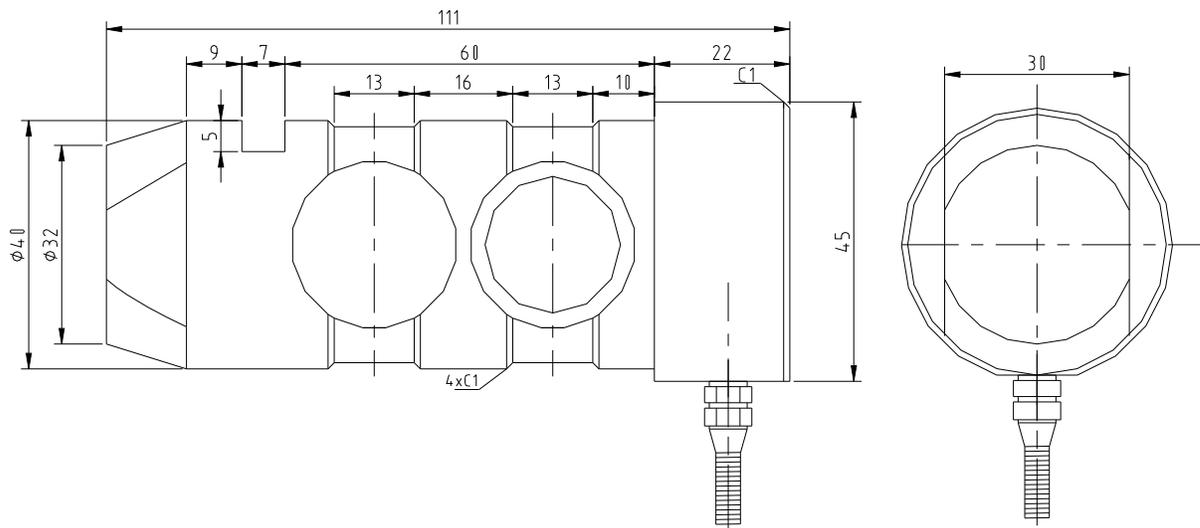
They are special sensor which used to measure bearings, pulleys and other components of the radial load or steel wire rope tension. They can replace the pulley pin installed in the function measuring radial force, to do that not only play instead of the original axis function, but also play a weighing force measurement capabilities.

Products is restricted by installing the pin and shaft size, which cause many non-standard series. In the annex there are table of products, installation size and capacity range, you can select the produced type in the table for application. Specially hot products like XZBK-AX3t, XZBCB-X3t, XZMM-X3t.

### 2. Dimension



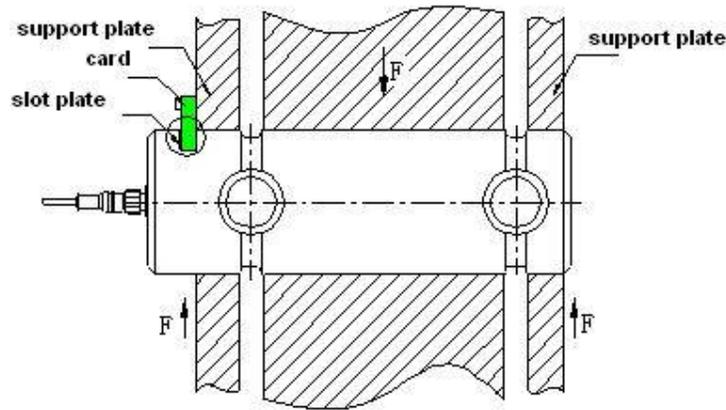
**XZBCB-X3t**



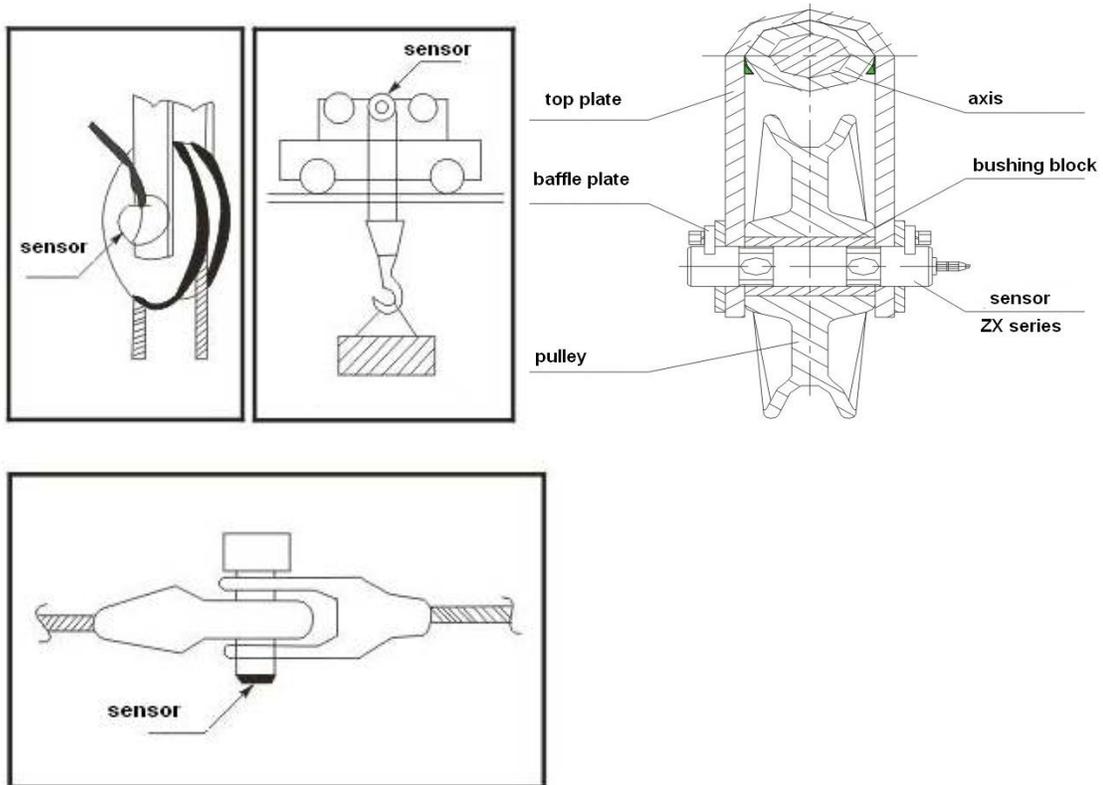
**XZBK-AX3t**



Through the hole axis ,the sensor is installed with equipment support plate instead of connecting shaft. To install a card in the slot plate and then fixed to the support plate (usually by bolts) to prevent axial movement of shaft rotation ,and determine the location and installation angle.



## 5. Installation Diagram



### Electric Hoists Weighing Limiter SCNEB、SCNZE Series

#### 1. Introduction

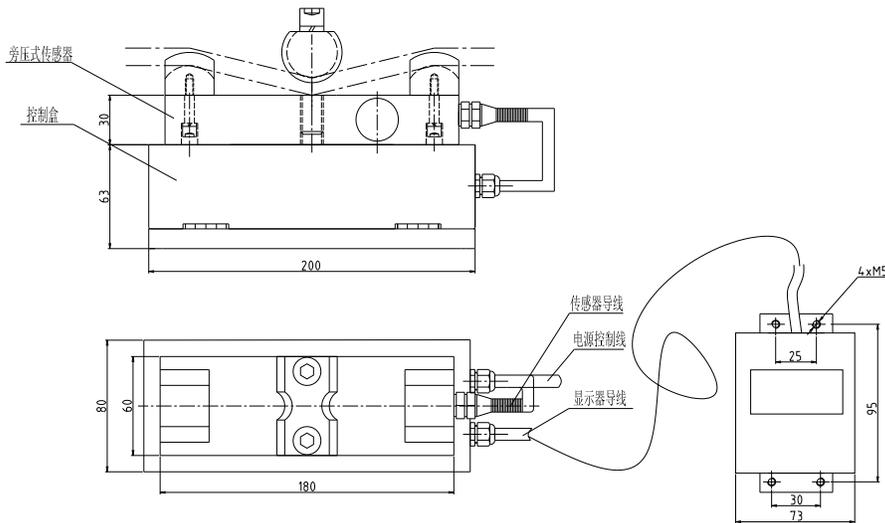
The two sensors are for low-end market, mainly used with kinds of electric hoists and other lifting equipment, easy installation, simple operation, the sensor can be directly manometry next

to the rope.

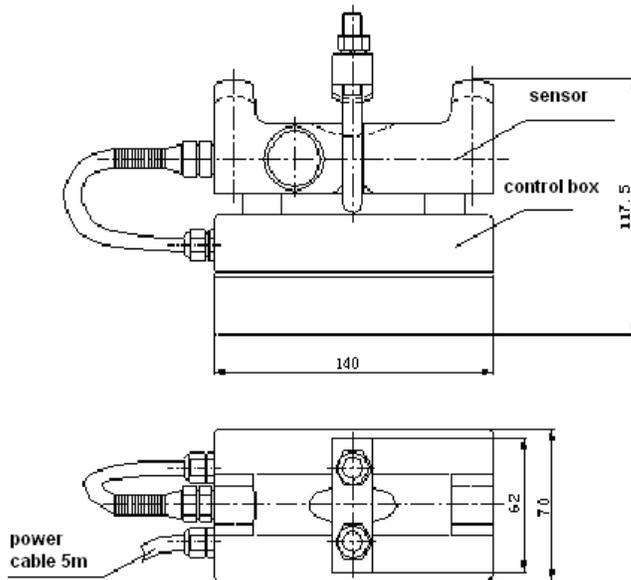
The height of SCNEB is 7mm shorter than SCNC, with the other dimensions all same. It can match up with control box optional like KPX-1, KPL-1L series.

SCNZE is a product that forged integratively. It consists one integrative sensor, a U-bolt, a steel block. Optional special indicator KPX-IB.

## 2. Dimension



**SCNEB-AX1t-5t**



**SCNZE-AX1t-5t**

## 3. Technical Parameters (SCNEB-AX1t-5t, SCNZE-AX1t-5t)

Rated load	t	1,2,3,5
Sensitivity	mV/V	0.7±0.1
Total error	%F.S	SCNZE:±1 SCNEB:±0.5

# TPS

Creep(30min)	%F.S	±0.1
Zero balance	%F.S	±1
TCO	%F.S/10℃	±0.05
TC SPAN	%F.S/10℃	±0.05
Input resistance	Ω	400±50
Output resistance	Ω	352±3
Insulation resistance	MΩ	≥5000
Operating Temp Range	℃	-30~+70
Safe load limit	%F.S	150
Lateral load limit	%F.S	200
Recommend excitation	V DC	10~12
Maximum excitation	V DC	15
Protection Class	IP67	
Construction	Alloy Steel	
Cable	Length: 0.3m	Diameter: φ5mm

## 4. Picture



## High Temperature multi-function load cell QSMPB-AHSS40t

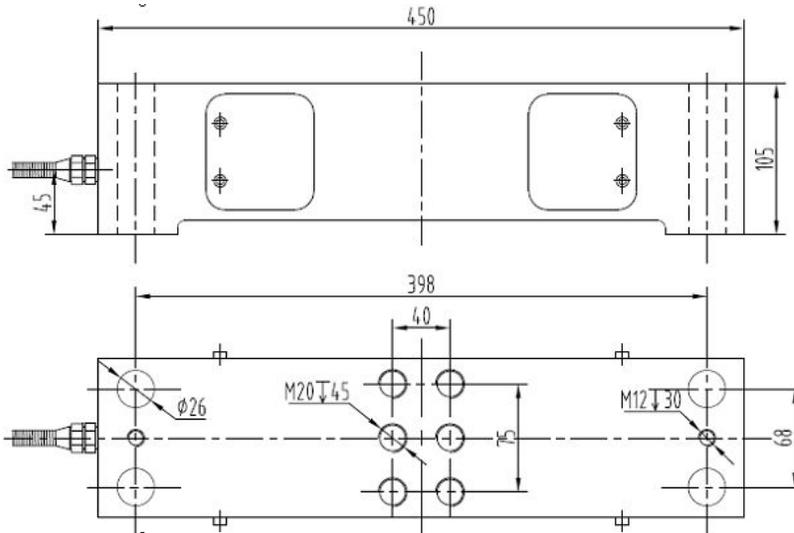
### 1. Introduction

The sensors is used in steel embody scale. When the steel factory reduces the temperature of the environment, they immerse the sensor and accessories in the coolant at about 200 ℃. So the requirement on the seal of the sensor is relatively high, at least IP67 .

The sensor structure is with Pt100 temperature sensor inside ,and output signal resistance. Pt100: thin-film platinum resistance, the resistance is 100Ω at 0℃, besides resistance changes while temperature changes

The sensor has temperature testing and temperature measurement function, multi-function sensor is one of trends in the future market development.

## 2. Dimension



## 2. Technical Parameters

Rated load	t	30
Sensitivity	mV/V	1.0±0.01
Total error	%F.S	±0.3
Creep(30min)	%F.S	±0.03
Zero balance	%F.S	±1
TCO	%F.S/10°C	±0.02
TC SPAN	%F.S/10°C	±0.02
Input resistance	$\Omega$	800±80
Output resistance	$\Omega$	702±5
Insulation resistance	M $\Omega$	5000
Operating Temp Range	°C	-10~+200
Safe load limit	%F.S	120
Lateral load limit	%F.S	200
Recommend excitation	V DC	10~12
Maximum excitation	V DC	15
Protection Class	IP66	
Construction	Alloy Steel	
Cable	Length:30M Diameter:Φ6mm	

## Mechanical Engineering Sensor XZNZB-A15kN

### 1. Introduction

Compared with the traditional pin sensor, the sensor is with below advantages: 1. The higher capacity of the anti-bias, the structure protects the load cell against improper installation. Some customers installed the sensor by mistake to make the sensor with 90 degrees against the normal mounting position, which causes no signal even scrapped; 2. It can achieve a small-scale structure of large-size sensors.

## 2. Picture

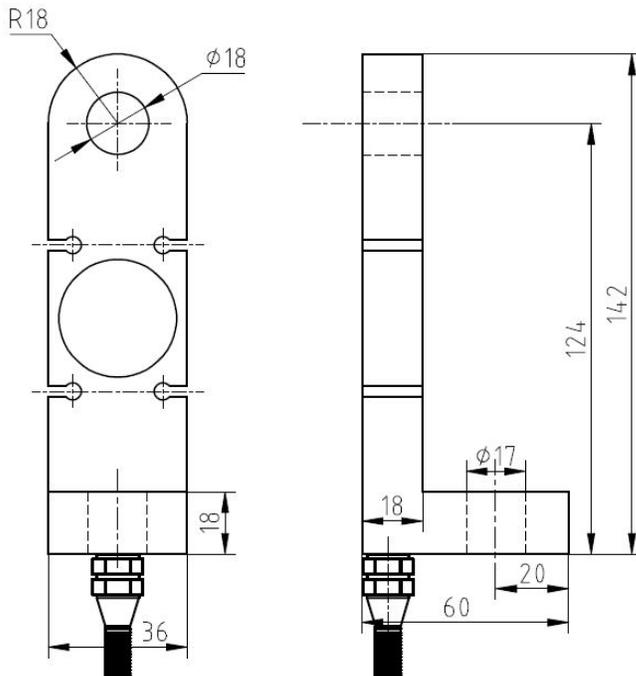


Basket Sensor BHSP

## 1. Introduction

This sensor is installed in the basket to act security limit operations. It can be used in aerial basket, tower crane, the basket used by driver, basket used in deep well, elevator, with advantage of simple structure, easy to install. Application with KQC-C2/C3/C4/C5.

## 2. Dimension



## 3. Technical Parameters

# TPS

Rated load	t	1.5
Sensitivity	mV/V	1.5±0.005
Total error	%F.S	±0.2
Creep(30min)	%F.S	±0.05
Zero balance	%F.S	±1
TCO	%F.S/10°C	±0.05
TC SPAN	%F.S/10°C	±0.05
Input resistance	Ω	400±10
Output resistance	Ω	352±2
Insulation resistance	MΩ	≥5000
Operating Temp Range	°C	-30~+70
Safe load limit	%F.S	150
Lateral load limit	%F.S	200
Recommend excitation	V DC	10~12
Maximum excitation	V DC	15
Protection Class	IP67	
Construction	Alloy Steel	
Cable	Length:3M	Diameter:Φ5mm

#### 4. Picture of the Application



## Brief introduction of Petro-pump project

### (one)、circumstances:

KTJ&HND series load cell for option. HND series will not use in the future and will be replaced by KTJ series ,the main reason is that HND series are un-convenient to install, and no spece for wire-less equipment.



KTJ series



HND series

Use under adverse circumstances , and there is a certain amount of oil open the air, now the back repair rate is 33%, of which 95% or more damaged by water caused by seal failure of rear cover  
The customer's KTJ sensor have a transmitter device and wireless transmitter, with two 3.6V batteries in side, about 1h powered per day, battery-powered cycle to less than one year, the specific needs combined with theoretical calculations. Telephone contact with customers, clients need only our company provides sensors, transmitters can be with or without, the wireless transmitter device installed by the customer's own production



Petro pump have two main behaviour, rise and down process,both process effected on the load cell with different direction, the smallest stress probably in about 3 ~ 5t, the largest in 9 ~ 12t or so (different wells with different value). Waveform curve as shown below:



**RISE**



**DOWN**

### (Two)、Customer demand:

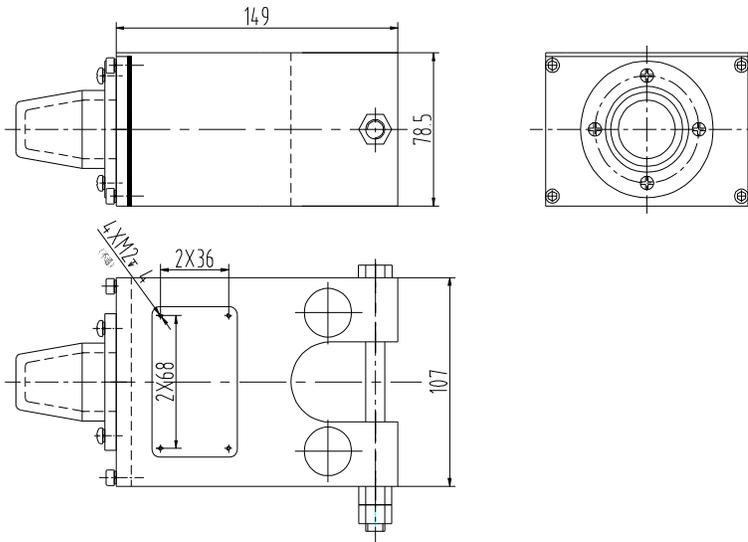
- 1, customer need a small plane contact surface, but not the ball arc, the original arc with the ball is astable, inextinguishable
- 2, requires low power consumption make the sensor to reduce the frequency replacement of battery, we can increase the resistance to achieve this purpose;
- 3, the customer requires a temperature of  $-40\text{ }^{\circ}\text{C} \sim 70\text{ }^{\circ}\text{C}$ , because in Daqing(a city in north china), the temperature is too low, temperture drift is big , customers want to solve quality problems of the sensor. ;
- 4, water-proof: return rates of 30% because of water problem, the water mainly comes from the rear bag, customers are put screws tightened with rubber to avoid water come in, waterproof is not so good after working long hours



## KTJ-02-150KN

Petro-pump load cell contact with a small flat,which install well and stable,low consumption with big resistance,in type installation, use and maintenance simple and convenient; built-in 0.1 ~ 1.5V transmitter, and with batteries , wireless transmitter receiver module space in side

### one、 installation diagram



### Two、 specification

# TPS

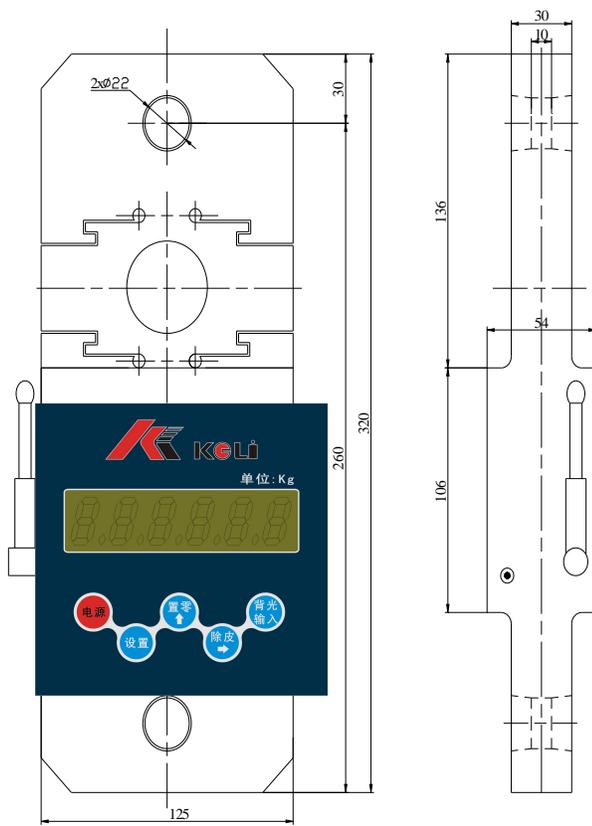
---

Rated load	kN	150
Input	VDC	3.6
Output	mA	0.1~1.5
Total error	%F.S	±0.5
TCO	%F.S/10℃	±0.2
TC SPAN	%F.S/10℃	±0.2
Safe load limit	%F.S	120
Lateral load limit	%F.S	150
Operating Temp Range	℃	-40~+70
Protection Class	IP65	
Construction	Alloy Steel	
Cable	Length: -m Diameter: -mm	

### **Wire less load cell of crane scale WX1-BHSUK-A5t**

The model is a multi-functional integrated sensors, low-power design, the use of rechargeable lithium batteries, green, with high precision, easy to use, reliable, compact appearance, weighing results and other characteristics easy to readable; used in wireless hook weighing occasions

#### **One、 installation diagram**



## Two、 main specification

Rated capacity	t	5
Numbers of division		2500
Total error	%F.S	0.1; 0.2
Creep	%F.S	±0.03
Zero balance	%F.S	±1
TCO	%F.S/10℃	±0.03
TC span	%F.S/10℃	±0.03
Input impedance	Ω	2200±50
Out impedance	Ω	2000±20
insulation impedance	MΩ	≥2000
Temperature range operating	℃	-10~+40
Max safe overload	%F.S	150
Ultimate overload	%F.S	400
Voltage ,operating	V DC	3.7
Frequent	MHz	915
Transmit distance	100m(without defilad)	

## Over load limiter KQC-C4

KQC-C4 instrument function is real-time monitoring and display the actual load, when the load reaches its set value of rated load, issue audible alarm signal, and switch output is aviable.

Applications: construction elevator tower crane, hanging baskets, winches, etc

### one、specification

Power: AC220V/50Hz;

Total error:  $\leq 5\%$ ;

Alarm range: 90%-130%

Bridge power: DC5V;

Capacity of relay output: 5A/AC240V;

Range of input signal: 0mV--15mV;

Demension: 130mm\*160mm\*64.5mm



### Two、Function:

Double channel input of signal of load cell;

One loop relay output;

One loop signal input to control rise and down of lifter(soft configure);

With a key to restore the default setting parameters (hardware locked);

One key to set zero (soft configure);

Alarm、one key to self-checking function;

Weight,percentage switch by manual

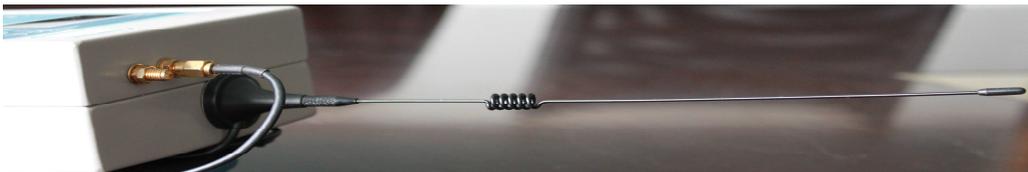
5000 pcs of real time record

200 pcs of over load record

Real GPRS data transmit

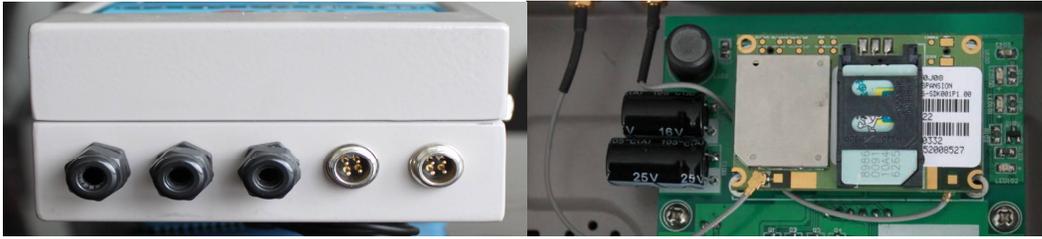
### Three、Characteristic:

Calibration is same as KQC-C2



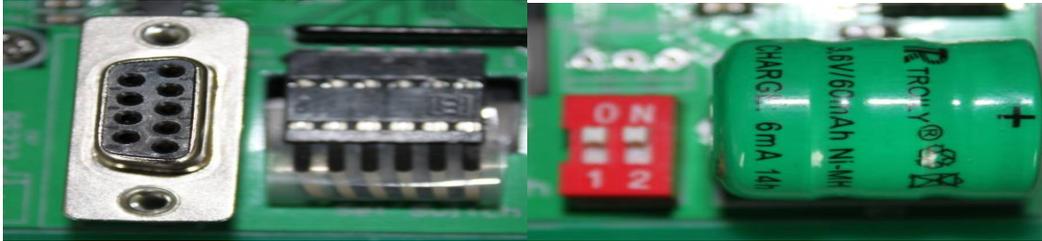
Wireless connecter

# TPS



Power interface、control wire interface、load cell interface

GPRS Module



RS232 interface

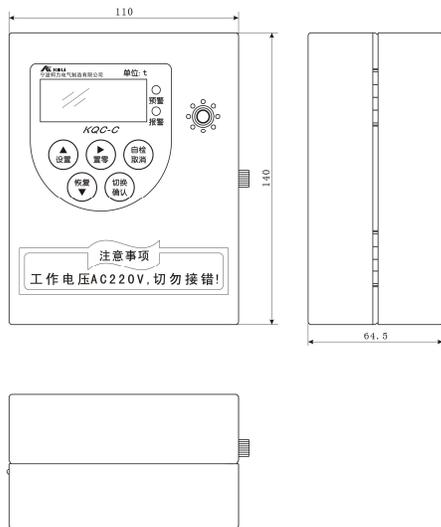
battery



Window of software manerment of Over load lilimiter KQC-C4

## Over load limiter KQC-C5

# TPS



KQC-C5 instrument function is real-time monitoring and display the actual load and rated load when the load reaches its set value, the audible alarm signal, and gives the switch output.

Applications: construction elevator tower crane, hanging baskets, winches, etc

## 一、specification

Power: AC220V/50Hz;

Total error:  $\leq 5\%$ ;

Alarm range: 90%-130%

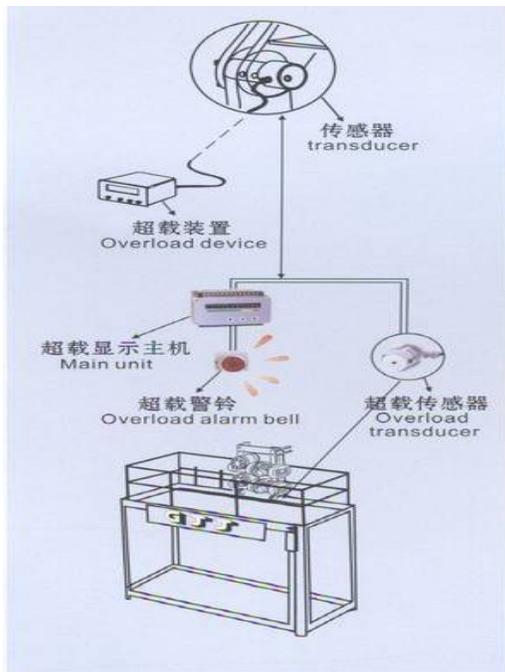
Bridge power: DC5V;

Capacity of relay output: 5A/AC240V;

Range of input signal: 0mV--15mV;

Demension: **110mm\*140mm\*64.5mm**

## Diagram of application of KQC on lifter



## Weight Limiter KQC-2DA

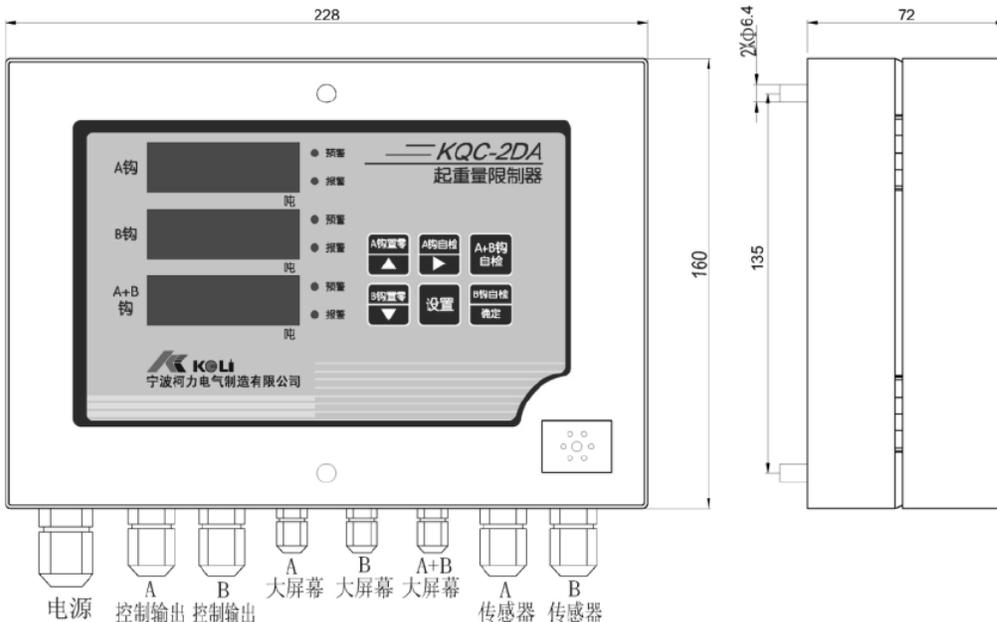
KQC-2DA weight limiter combined with dual sensor, dual-channel input, enabling sub- display sub-control, total displayed total control. Meet GB6067 "crane safety regulations" and GB3811 "crane design standards" requirements, the indicators are better than the relevant provisions of GB12602" crane overload protection device safety specifications, ".

KQC-2DA weight limiter indicator is used for the main sub-hook lifting, such as twin-lift gate hoist point lifting body. Sensors can be used bearing type (BTW), plate ring (BHS), pin-type (XZ) and other forms of combination.

The device consists mainly of two parts: the strain gauge sensors and control instruments. A, B roads and A + B when the total weight overload alarm and cut off the crane power, while display the lifting weight.

Control instruments using single-chip control, with precise weight display, alarm reliability, debugging convenient, in addition the instrumentation have two resolution.

Instrument Dimensions Figure



A CRANE      B CRANE      A+B CRANE (UNIT :TON)  
 POWER      A OUTPUT CONTROL      B OUTPUT CONTROL      A DISPLAY      B DISPLAY  
 A SENSOR      B SENSOR



---

I , the technical specifications and features

1, the main specifications:

Scope: 5 ~ 600t main and sub hook cranes, gate hoists and other lifting twin-lift-style body

Action error: -3% ~ +3% (F.S)

Comprehensive display error: -5% ~ +5% (F.S)

Alarm Point

Light-load control: 20% of rated capacity

Warning alarm: 90% of rated capacity

Alarm delay: 105% of rated capacity (overload 2 seconds relay work)

Alarm immediately: 110% of rated capacity

(Light-load value, alarm value, alarm delay, overrun time can be set manually)

max sensors overload 150%

Supply voltage: AC 220V/380V ± 10% 50HZ

Environmental conditions

Temperature range: -20 °C ~ +60 °C

Relative Humidity: 90% RH

Relay contact capacity: 30A/220V, 15A/380V

Sensor protection class: IP68

Meter box protection class: IP42

2, the main features

Two sub-display ,sub- control, total display total control.

Optional light load control

The actual calibration and simulation Calibration in two ways

Two resolutions level Can be set

Optional overrun delay time

Clear function key

Optional large screen display connected

Optional stainless steel or metal material (outer surface paint) shell

Four bright red 0.56 'LED display

Power preventing Surge, EMI Anti-interference filter design surface

## **Weight Limiter KQC-3DA**

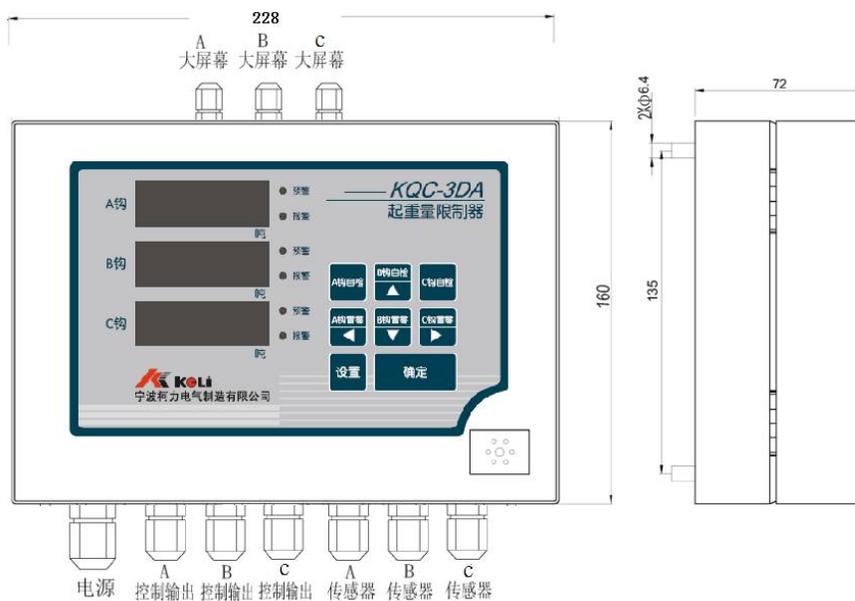
KQC-3DA Weight Limiter combined with three sensor, three-channel input, enabling sub- display sub-control, total displayed total control. Meet GB6067 "crane safety regulations" and GB3811 "crane design standards' requirements, the indicators are better than the relevant provisions of GB12602" crane overload protection device safety specifications, ".

KQC-3DA weight limiter indicator is used for the main 3 hooks lifting. Sensors can be used bearing type (BTW), plate ring (BHS), pin-type (XZ) and other forms of combination.

The device consists mainly of two parts: the strain gauge sensors and control instruments. A, B roads and A + B when the total weight overload alarm and cut off the crane power, while display the lifting weight.

Control instruments using single-chip control, with precise weight display, alarm reliability, debugging convenient, in addition the instrumentation have two resolution.

Instrument Dimensions Figure



- A SCREEN    B SCREEN    C SCREEN
- A CRANE    B CRANE    C CRANE            (UNIT :TON)
- POWER    A OUTPUT CONTROL    B OUTPUT CONTROL    C OUTPUT CONTROL
- A SENSOR    B SENSOR    C SENSOR

I , the technical specifications and features

1, the main specifications:

Scope: 5 ~ 600t main and sub 3 hook cranes

Action error: -3% ~ +3% (F.S)

Comprehensive display error: -5% ~ +5% (F.S)

Alarm Point:

Light-load control: 20% of rated capacity

Warning alarm: 90% of rated capacity

Alarm delay: 105% of rated capacity (overload 2 seconds relay work)

# TPS

---

Alarm immediately: 110% of rated capacity  
(Light-load value, alarm value, alarm delay, overrun time can be set manually)

Max sensors overload 150%

Supply voltage: AC 220V/380V  $\pm$  10% 50HZ

Environmental conditions

Temperature range: -20 °C ~ +60 °C

Relative Humidity: 90% RH

Relay contact capacity: 10A/220V, 5A/380V

Sensor protection class: IP68

Meter box protection class: IP42

2, The main features

Three sub-display ,sub- control.

Optional light load control

Inner amplified can be setting

The actual calibration and simulation Calibration in two ways

Two resolutions level Can be set

Optional overrun delay time

Clear function key

Optional large screen display connected

Optional stainless steel or metal material (outer surface paint) shell

Four bright red 0.56 'LED display

Power preventing Surge, EMI Anti-interference filter design surface

## Lifting Limiter KPX-1F

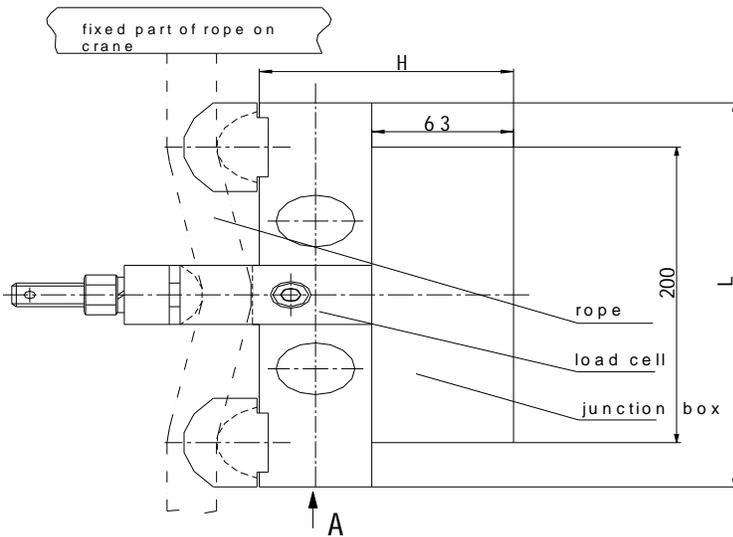


## 1、 Main parameters:

- (1) Display: 4 bits LED
- (2) Power supply: AC220V/50Hz or AC380V/50Hz (choose according to marks).
- (3) Working temperature:  $-20^{\circ}\text{C} \sim +60^{\circ}\text{C}$ .

## 2 、 Installation

Load cell is installed in the fixed position of steel rope of the lifting machines, and steel ropes is embedded in the load cell fixed plate, and then tighten it with nuts.



## 3、 Main characteristics

- (1) Display box and electrical box are one-piece design, it can be equipped with remote display box
- (2) 4 bits LED display
- (3) SCM control

## Lifting limiter KPX-1S



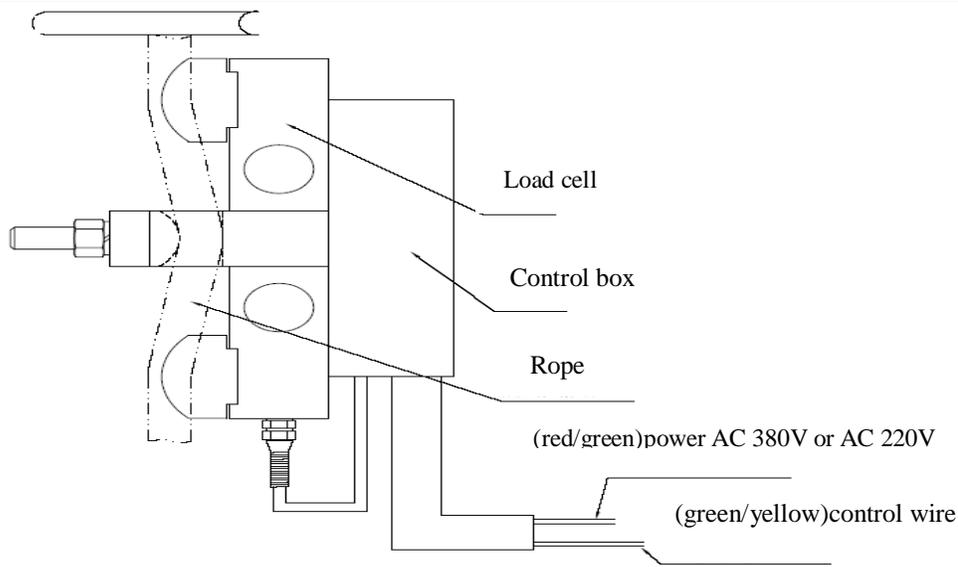
## 1、 Main parameters:

- (1) Application range: 0.5t ~ 6t various kinds of electric hoists
- (2) Power voltage:  $24V \pm 10\%$
- (3) Total error:  $-5\% \sim +5\%$  (F.S)
- (4) Load cell overloading: 150%
- (5) Power supply: AC 220V+10% -15% or 380V+10% -15%, specify when ordering
- (6) Load cell sensitivity : 1.0mV/V --- 2mV/V
- (7) Using conditions:  
Temperature range:  $-20^{\circ}\text{C} \sim +60^{\circ}\text{C}$ , humidity: 90%RH
- (8) Relay contact capacity: 5A/380V
- (9) Load cell protection class: IP65
- (10) Indicator box protection class: IP42

## 2、 Installation

Load cell is installed in the fixed position of steel rope of the lifting machines (the position which does not affect normal working of lifting machine), steel rope is embedded in the load cell fixed plate, and then tighten it with hexagon bolt.

fixed part of rope on crane



## Lifting limiter KPX-1L



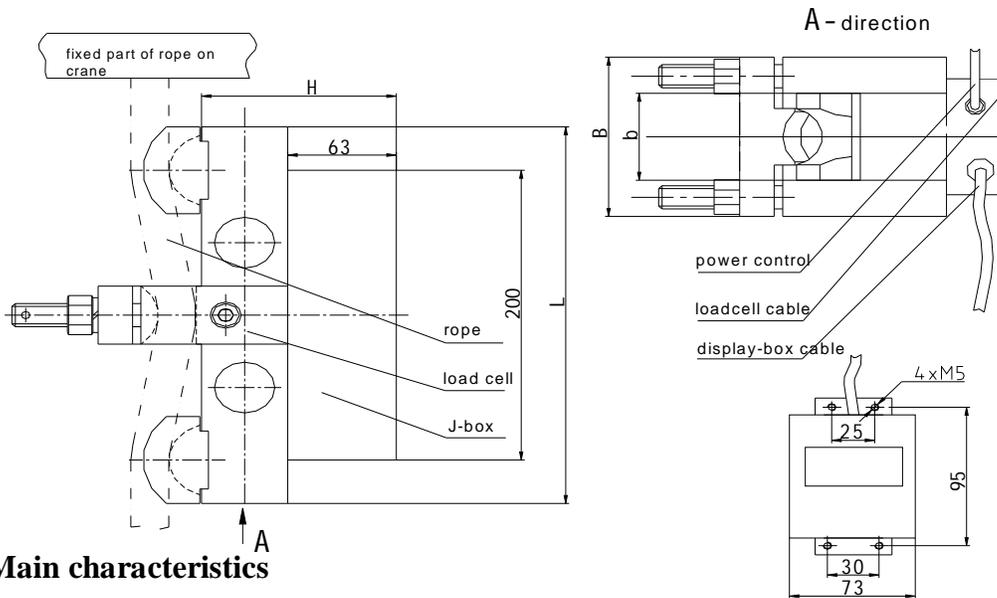
### 1、 Main parameters

- (1) Application range: crane which single rope loading is not more than 10t
- (2) Action error:  $\cong 5\%FS$
- (3) Total display error:  $\cong 5\%FS$
- (4) Alarm point
  - Pre-alarm: 90% of rated capacity
  - Alarm delay: 105% of rated capacity (relay works after continuous 2 seconds)
  - Immediate alarm: 110% of rated capacity
- (5) Load cell overloading: 150%
- (6) Power supply: AC 220V+10% -15% or 380V+10% -15%, specify when ordering
- (7) Using conditions:
  - Temperature range:  $-20^{\circ}C \sim +60^{\circ}C$ , humidity: 90%RH
- (8) Relay contact capacity: 5A/380V

- (9) Load cell protection class: IP68
- (10) Indicator box protection class: IP42

## 2 、 Installation

Load cell is installed in the fixed position of steel rope of the lifting machines, and steel ropes is embedded in the load cell fixed plate, and then tighten it with nuts.



## 3 、 Main characteristics

- (1) SCM control
- (2) 4 bits LED display
- (3) Power surge protection design
- (4) buttons for zero-clear function

Cost is lower than KPX-1, zero clear, calibration and alarm point setting are all operated by keyboard, no need to open the host, DIP switch

## Lifting limiter KPX-1B

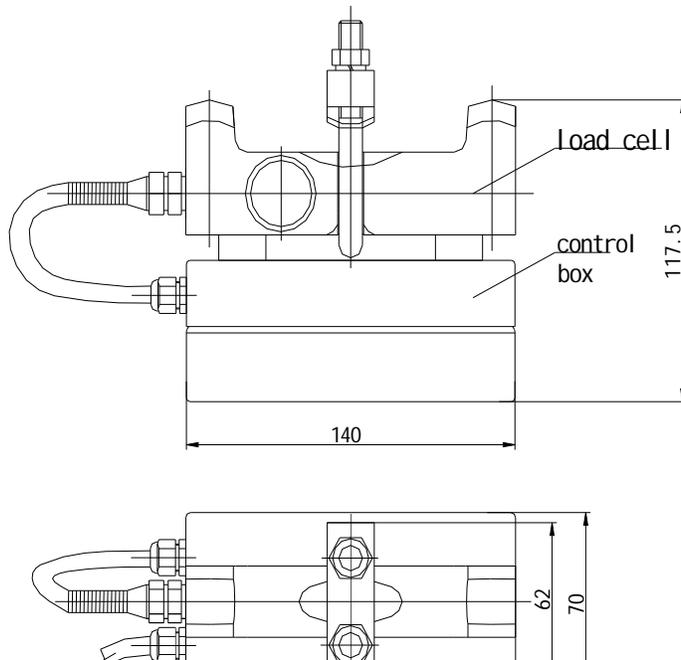


## 1、 Main parameters

- (1) 4 bits LED display
- (2) Action error:  $\leq 5\%FS$
- (3) Total error:  $\leq 5\%FS$
- (4) Load cell sensitivity range: 0.4mV/V-1.5mV/V
- (5) Alarm point
  - Pre-alarm: 90% of rated capacity, buzzer has intermittent sound, yellow light is bright
  - Alarm: 105% of rated capacity, buzzer has continuous sound, red light is bright, relay works
- (6) Power supply: AC 380V $\pm$ 10% , or AC 220V $\pm$ 10% , (choose according to customer's requirement)
- (7) Using conditions:
  - Temperature range: -20 $^{\circ}$ C--+60 $^{\circ}$ C , humidity: 90%RH
- (8) Relay contact capacity: AC250V、10A
- (9) Application: various types of conventional electric hoists

## 2 、 Installation

Load cell is installed in the fixed position of steel rope of the lifting machines (the position which does not affect normal working of lifting machine), steel rope is embedded in the load cell fixed plate, and then tighten it with hexagon bolt.



### 3、 Main characteristics

- (1) SCM control
- (2) 4 bits LED
- (3) Display box and control box are one-piece design,  
The cost is lower than KPX-1L, zero, full capacity and alarm point setting are all operated by buttons; size is small, easy for installation

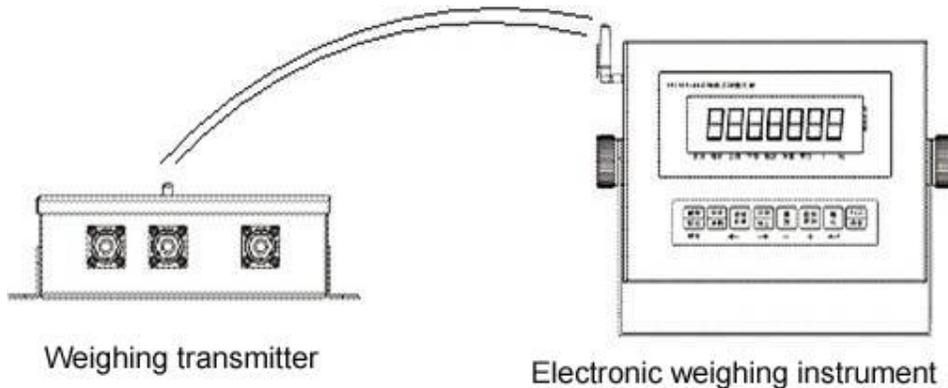
## **Wireless electronic weighing instrument (transmitter) XK3101-A1**

### **I 、 Summary**

XK3101-A1 type wireless electronic weighing instrument is developed by our company itself ,It will send the weighing signal by a way of wireless digital to the ground instrument room to display and control, Solve the problem of long-distance transmission wiring industrial field , Users can know the weighing condition outdoor in the workroom conveniently ,users should assure there is no sunscreen near the instrument antenna when using, And as far as possible put the antenna near the position of the window to ensure the wireless signal strength., This instrument including XK3101-A1 wireless electronic weighing instrument and XK3101-A1 wireless transmitter two parts,

schemes are as follows:

**Figure 1: XK3101-A1 wireless electronic weighing instrument working composition schemes**



XK3101-A1 type wireless transmitter is responsible for collecting weighing data. XK3101-A1 type wireless electronic weighing instrument will be responsible for calculating and displaying data which send by wireless transmitter on the meter, and then send to the computer through RS232 or RS485 mode, or displays on the big screen through RS232 or 20 mA current loop transmission, and so on function.

The instrument of wireless data collection using the way of response, first wireless electronic weighing instrument send a data order to weighing transmitter, then weighing transmitter send data to wireless electronic weighing instrument. All transmission using test data parity to ensure the data transmission accurate and reliable.

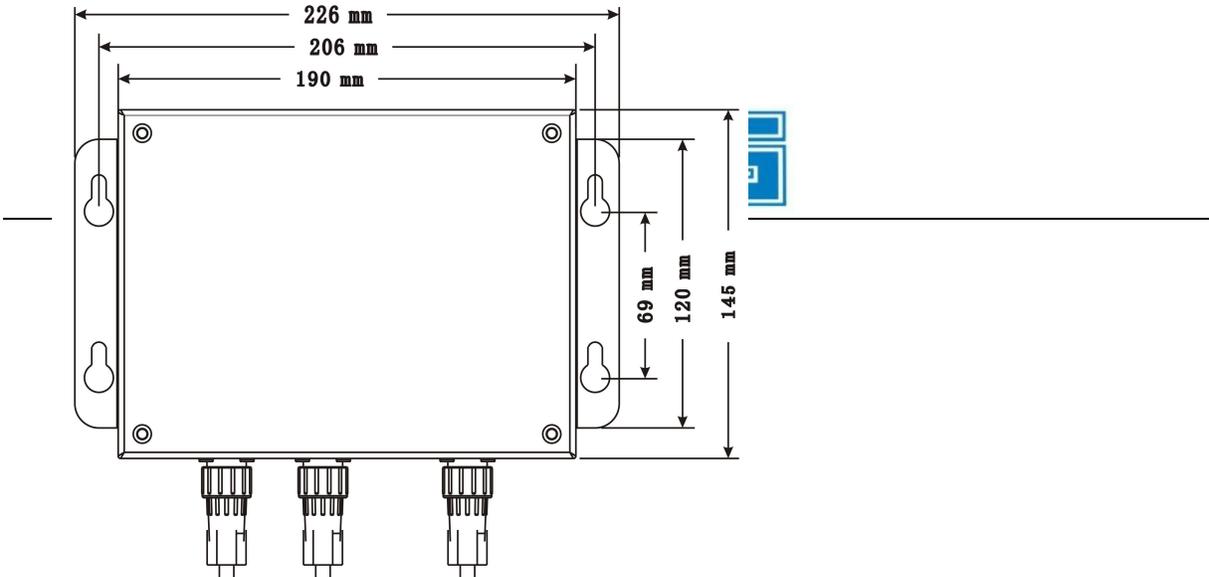
## 1, XK3101-A1 type wireless transmitter

XK3101-A1 type wireless transmitter, with high strength anti-interference single chip microprocessor, with high precision train- $\Sigma$  A/D conversion technology, sending measurement data to wireless electronic weighing instrument after the weighing system connected to the weighing load cell, the power supply way is the ac/dc power supply. The user can use 220 V ac power supply, also can use 12 V -24 V dc power supply, or use the 12 V battery power supply, but must pay attention to the same time can use a power supply mode. if the battery voltage is too low, and the instrument will be automatic power outages.

### 1.1 XK3101-A1 wireless weighing transmitter main technical specification:

- ◆ A/D conversion way: Use the  $\Delta$ - $\Sigma$  technology, 10 times per second
- ◆ Load cell incentive: dc 5 V, current is not less than 120 mA (can drive 8 pcs 350 ohms Load cells)
- ◆ The highest sensitivity:  $\geq 1.5 \mu\text{V/e}$
- ◆ Analog signal input range: 0 ~ + 20 mV
- ◆ Power supply:
  - ※ Wireless transmitter power supply: ac 220 V + 10%-15%; Frequency: 49 ~ 51 Hz
  - ※ Dc wireless transmitter power: dc 12 to 24 VDC
  - ※ Power consumption:  $\cong 3$  watts
- ◆ Use temperature: 0 oC ~ 60 oC, humidity < 85% RH
- ◆ The storage temperature: -20 oC to 70 oC, humidity < 90% RH
- ◆ Weight: 1.7 Kg

### 1.2 wireless module related technical parameters and performance index



- ◆ Modulation: GFSK
- ◆ Working frequency: 470 MHz
- ◆ Work channel: 0-115 (can set through wireless electronic weighing instrument)

◆ Transmission distance: in the open air <300 meters (antenna height from the earth> 1 m )  
 Instruction: specific transmission distance depends on the site condition, the more open, the less keep out near the instrument, the transmission distance is more far. The transmission distance above is the nominal transmission distance for the open space.

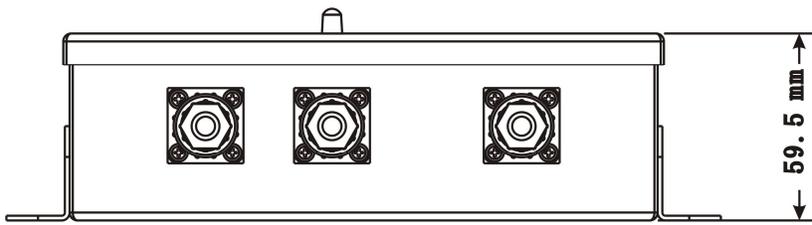
**1.3 wireless weighing transmitter installation size and wiring way**

When using Wireless weighing transmitter, please note the connection between antenna and wireless weighing transmitter.

In order to minimize the influence of industrial site to the transmitter, wireless transmitter itself does not bring weighing display window, only provides two indicator. Red light instructions power; Green lights instructions wireless communication.

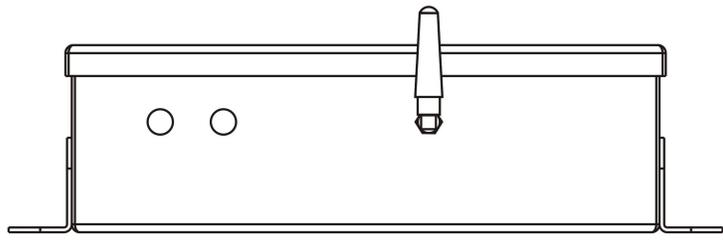
**1.3.1 Wireless weighing transmitter installation size**

From top to bottom were transmitter front view, behind view , the top view port.  
 Shell size: 226 \* 145 \* 60 mm installation size: 206 \* 69 mm



Material: iron hide spray paint      installation: wall hung  
 Connector: aviation plug connection (increase protection grade, and prevent connection loose when mobile)

In some mobile occasions, when use please make the transmitter fixed through fixing hole on





both sides , avoid antenna broken or damage phenomenon because of impact when moving  
**2, XK3101-A1 type wireless electronic weighing instrument**

Wireless electronic weighing instrument used for calculating and display weighing data that send by wireless transmitter. Wireless electronic weighing instrument also provides a big screen display, serial communication, relay upper output, analog output (optional), and other functions. Instrument used stainless steel shell. Instrument designed according to GB/T7724-2008 "wireless electronic weighing instrument" standard , accurate level class 3, can be applied to various industrial measurement applications, and meet the customers' various needs.

### **2.1 wireless electronic weighing instrument function and main technical indexes**

◆ Input signal: standard RS232 level signal (data format is consistent to wireless weighing transmitter)

◆ Display mode: six 0.8 "LED digital tube add 8 led add 3 battery power indicator

◆ Serial communication output: (1) hardware: RS232 or RS485

(2) Software: can choose continuous delivery methods 1, continuous delivery methods 2, continuous delivery methods 3, MODBUS agreement

Baud rate, parity, etc .all can set through the software (see the parameters setting)

◆ The big screen: (1) hardware: RS232 and current loop in two ways

(2) Baud rate 600 bit/s

◆ Simulation output: 4-20 mA and 0-10 V two ways (through software choice)

(1) 4-20 mA: The load more than 500  $\Omega$

(2) 0-10 V: the load more than 100 K  $\Omega$

Precision:  $<0.2\% \text{ F} \cdot \text{S}$

◆ Relay output: Upper and lower limit on alarm function

Output (AC250V, 5 A no-sense load) : output 1 (Maximum output) , the output 2 (lower limit output )

◆ Environmental conditions:

Power supply: ac 220 V + 10%-15%; Frequency: 49 ~ 51 Hz ac

Power consumption: more than 10 watts

Use environment: temperature 0  $^{\circ}\text{C}$  ~ 40  $^{\circ}\text{C}$ ; Humidity:  $< 85\% \text{ RH}$

Storage environment: temperature -20  $^{\circ}\text{C}$  ~ 60  $^{\circ}\text{C}$ - Humidity:  $< 90\% \text{ RH}$

Instrument needs good ground, and not with motor, ac contactor, heater, and other

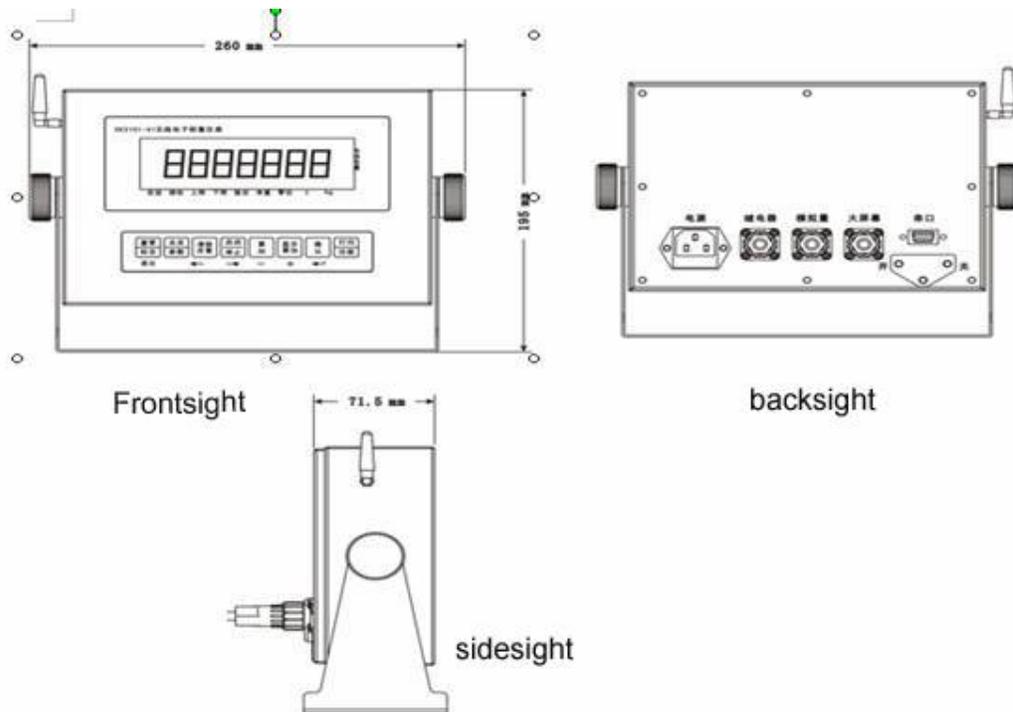
equipments easy to produce the power supply noise use a power!

◆ Weight: 2.6 Kg

◆ Shell size: 260 \* 195 \* 72 mm materials: stainless steel installation: hanging or scaffolding

### **2.2 wireless electronic weighing instrument appearance and size installation**

#### **2.2.1 appearance dimension and drawing**



## Dry mortar silo weighing instrument KL3101-S

KL3101-S is a dedicated dry mortar silo weighing instrument, designed the program based on the actual application requirements, you can achieve rapid calibration, calibration data backup, restore, quick zero adjustment function, with universal serial communication interface, can connect GPRS Remote data terminal. Aluminum shell, can be easily embedded control cabinet, the instrument has two film keyboard in the front and back, to accommodate both installation (tailgate film keyboard is optional.)

### 1.1 Main feature

- $\Sigma$ - $\Delta$  A/D convert, resolution: 24
- Two (normally open) relay output, the output mode can be set: the weight sorting mode and setting mode
- Three calibration methods, to adapt to a variety of occasions
- 5-digit LED display, digit height 20mm
- a percentage of the indicator (LED)

### 1.2 Technical parameter

#### 1.2.1 Load capacity

Excitation voltage: 5.0VDC, can drive 6pcs of 350 $\Omega$  analogy load cells

#### 1.2.2 Performance

Input sensitivity: more than 1.5uV / e  
 Nonlinearity: better than 0.01% FS

### 1.2.3 Power supply

Power: 220VAC Frequency: 50Hz/60Hz

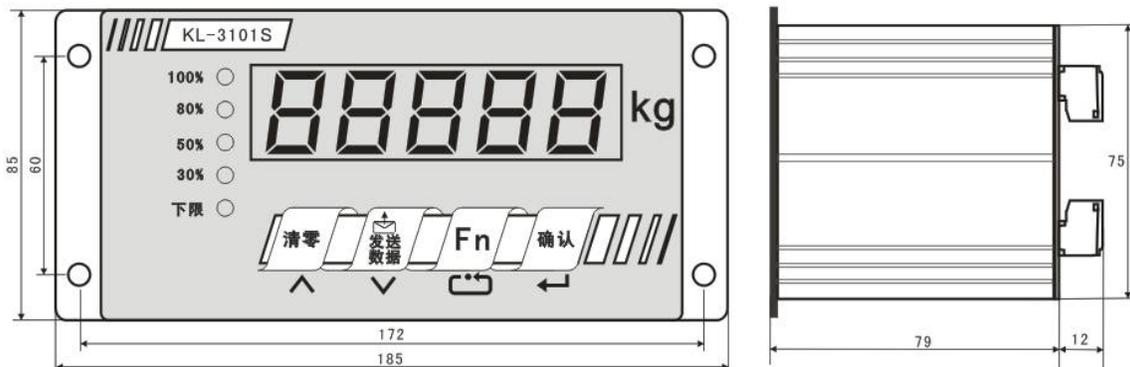
Power consumption:  $\leq$  6W

### 1.2.4 Temperature and humidity

Working temperature: -10°C~40°C, less than 85%RH, non-condensing

Storage temperature: -20°C~60°C, less than 85%RH, non-condensing

### 1.2.5 Indicator outline dimension (mm) 85×185×79



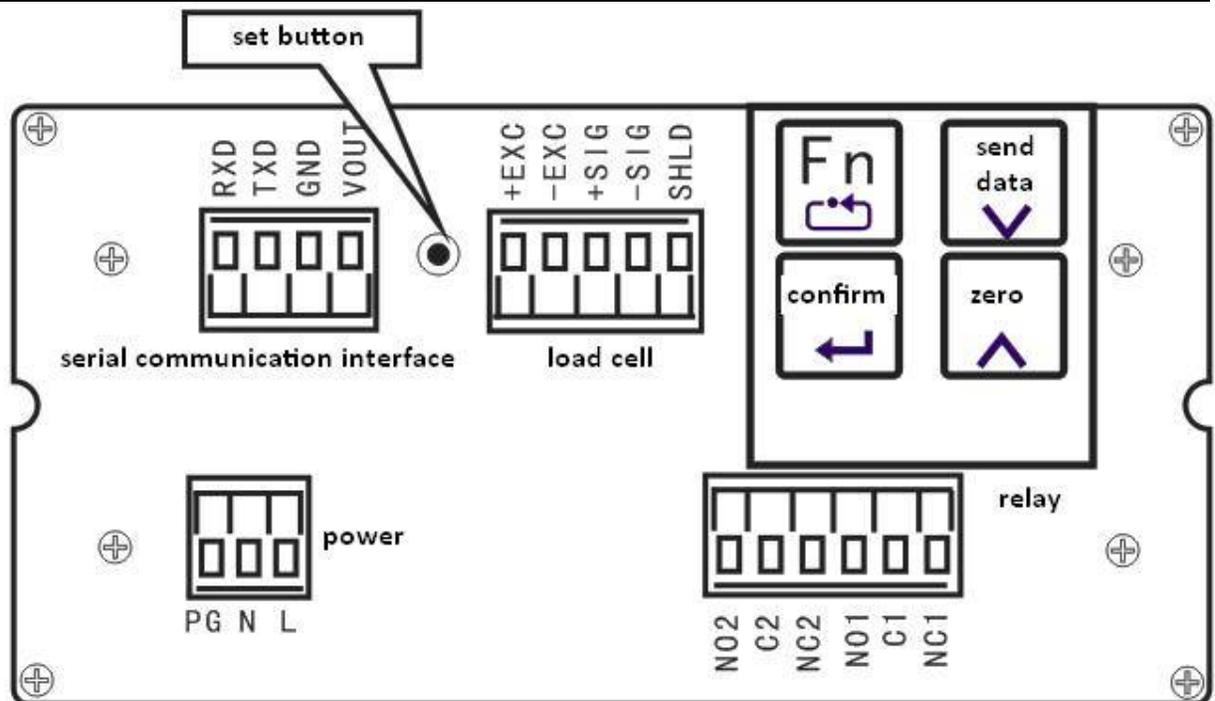
Embedded hole dimension : 151mm×76mm

1.2.6 Net weight (kg): about 0.98

## 2.0 Installation

### 2.1 Back view

# TPS



## Weighing Transducer KM02GA1

KM02GA1 provide 10V load cell excitation power supply, can amplify a weak signal of load cell, output standard 4mA-20mA analog signal. widely used in data acquisition, signal conversion and transmission DCS distributed control system. In some industrial control applications, the transducer needs to be installed inside the control cabinet, the shell of transducer use wide 35mm DIN standard rail for easy inspection and maintenance.

### 1. Technical parameter

Input: receive load cell sensitivity range 1mV/V~2mV/V

load cell excitation voltage 10VDC  $\pm$ 1%

load cell drive capability: can parallel connect 3pcs of 350 $\Omega$  load cells max.

Output: 4mA~20mA

Zero adjustment:  $\pm$ 25%FS

Linearity: 0.2%F.S

Temp shift: 0.2%F.S/10 $^{\circ}$ C

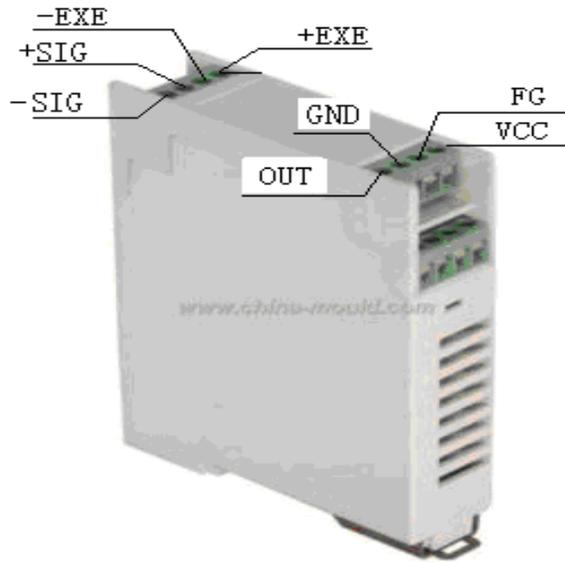
Load resistance: <500 $\Omega$

Working temperature range: -20 $^{\circ}$ C/+50 $^{\circ}$ C

Power supply: 24Vdc with anti-connection protection

Standard installation: standard 35mm DIN rail

Shell: ABS plastic shell, outline dimension is shown as below:



(picture 1)

## 2. Installation

Each side of KM02GA1 transducer top has one 4-pin terminal, respectively, the load cell input and power input and signal output, each signal wiring sequence is shown above. Thereinto power input and signal output wiring correspondence marked as follows:

marking	VCC	FG	GND	OUT
name	Power input positive +	Signal negative -	Power input negative -	Signal positive +

The corresponding relationship of four wire color of load cell input terminal and signal name is shown as following table:

Marking	+EXE	-EXE	+SIG	-SIG
Name	Load cell excitation +	Load cell excitation -	Signal +	Signal -

## 3. Debugging

Connect power supply and analogy load cell in accordance with marking of picture 1.

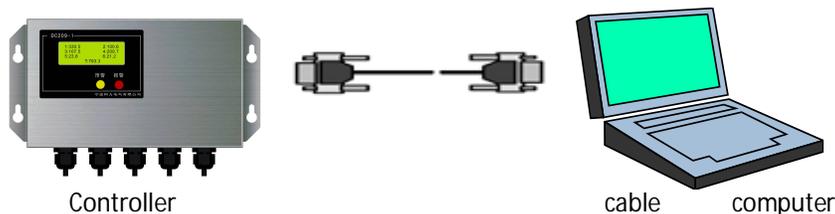
- 3.1 Zero adjustment: load cell is under no load, adjust ZERO potentiometer and use digital indicator to monitor output, to make output to be  $4\text{mA} \pm 0.016\text{mA}$ .
- 3.2 Gain adjustment: load cell is under loading, adjust SPAN potentiometer to increase or decrease gain till getting a correct output.
- 3.3 Unload for load cell, retest if zero output is within  $4\text{mA} \pm 0.016\text{mA}$ . if over the value, repeat step 1 and step 2.

## 4. Attention

- 1) Before installation, please check the power voltage and polarity carefully.
- 2) Do not pull the cable heavily, or the cable will break off
- 3) Pay attention to protect from damp and water, and strong shock.

## DC209-1 Torque Limiter

DC209-1 torque limiter is mainly used in port bridge crane. The controller uses an advanced high-speed DSP core processing system, with high-speed on-site data processing and rapid response capacity of the relay, and with a single rope relay alarm, unbalance alarm, total weight alarm, hanging cabin alarm etc alarming way, to effectively prevent the crane lifting process from the damage to crane in a variety of overload and hanging cabin. Stainless steel housing, wall mounting. LCD display, all the data one screen display without switch. The controller comes with a dedicated PC software, input and output calibration and various parameter setting are set via PC software, the operation is more simple and intuitive. At the same time, all parameters are stored in the computer, if the controller is damaged accidentally, without re-calibration and configuration, backup data to the controller can be downloaded directly



## Functions and features

- ◆ with protection from power voltage overload、 power reverse connection、 lightning strike
- ◆ LCD display, real time display single rope weight, total weight, relay status info
- ◆ Can gather 8 routes of 4—20mA input analog signal
- ◆ Provide 8 routes relay control output, can extend to 16 routes, all routes output can be programmed
- ◆ With RS232/RS485 serial communication interface, adopts international universal MODBUS protocol
- ◆ 4 routes optional analog output, one of 0-20mA、 4—20mA、 0—5V、 0—10V
- ◆ Can use PROFIBUS interface as option, to realize the data switching with PLC
- ◆ With real time clock display function
- ◆ With overload data save function, can record locale overload situation and save 3200 groups of data
- ◆ Calibration、 configuration etc are operated on PC software, operation is easy and convenient
- ◆ All calibration data can be stored in the format of file into computer, easy to use in future

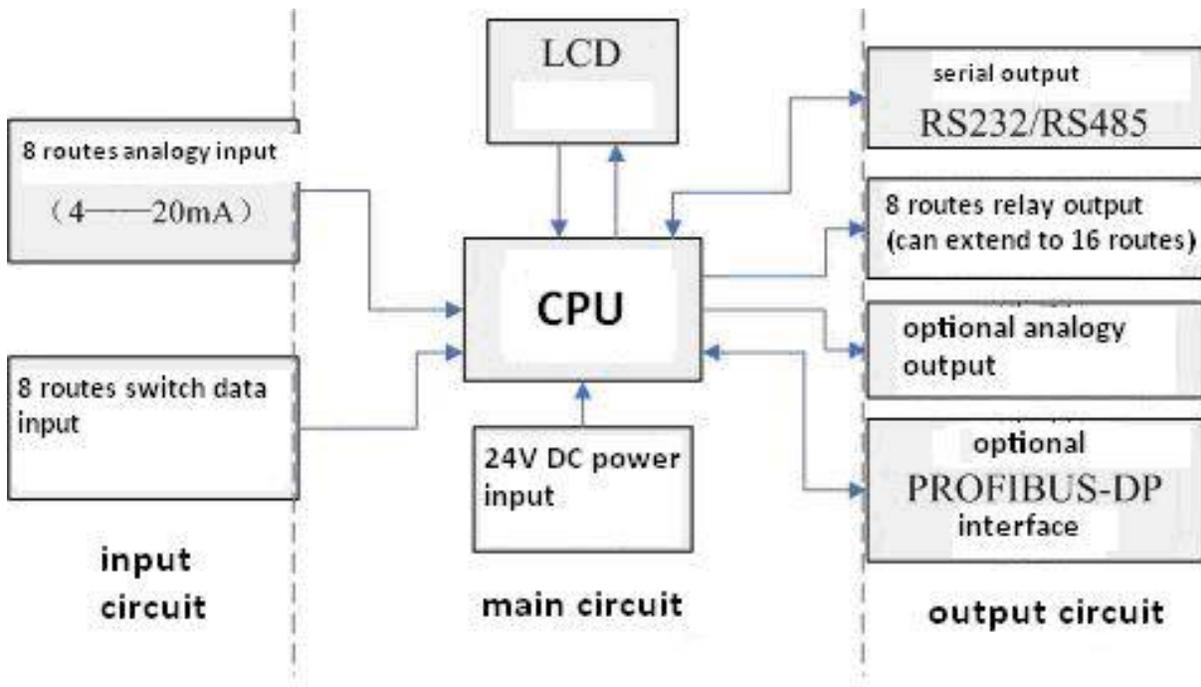
## Technical parameter

# TPS

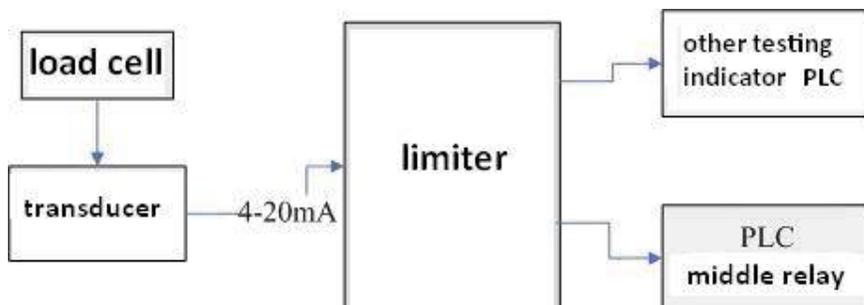
- ◆ Power voltage: DC 20V—28V
- ◆ Working environment temperature: -20°C—60°C
- ◆ Working environment humidit: ≤90%
- ◆ Storing temperature: -20°C—70°C
- ◆ IP class: IP54
- ◆ net weight: about 3.5kg
- ◆ power consumption < 20W
- ◆ Working mode: continuous
- ◆ accuracy: 5‰

## Working principle

The controller is made from the power supply, CPU processor, LCD screen, the input circuit, output circuit 5 parts. Input circuit and output circuit and external devices are connected to constitute the whole control system. Controller internal function block diagram is as follows:

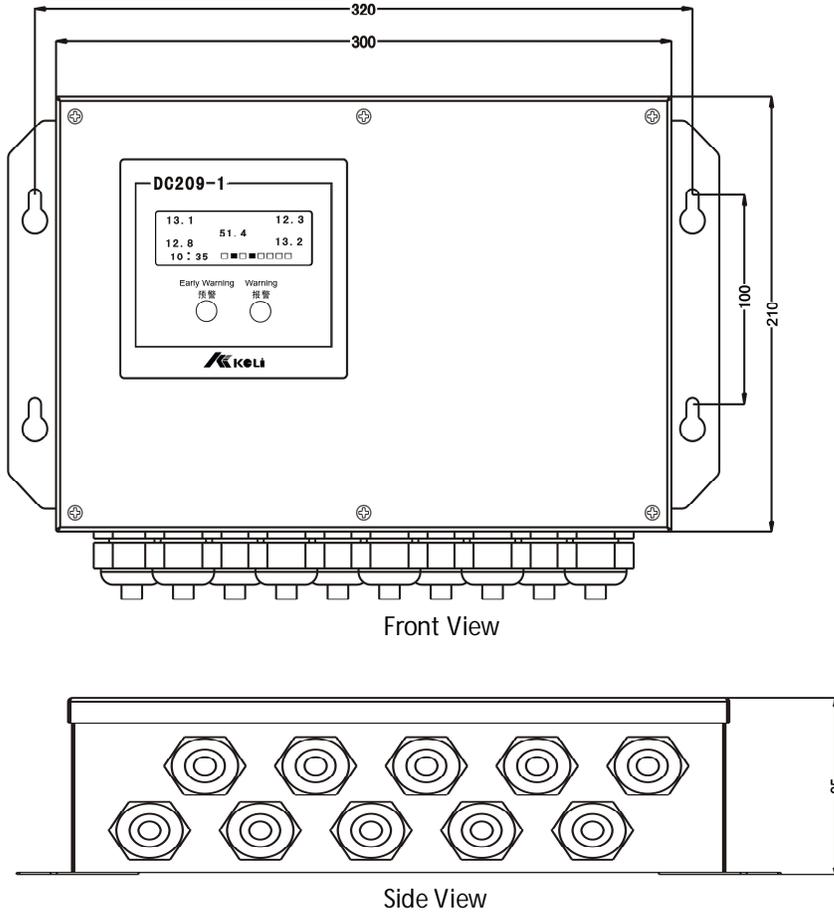


Control system:



Shown as above, limiter, load cell, transducer and PLC etc other devices constitute the whole torque protection system

## Outline dimension and installation



Dimension: length-300mm、width-210mm、height-95mm (not include installation part)

Shell material: stainless steel

Installation: wall type

IP class: IP54

Connector: plastic waterproof connector, suitable for  $\Phi 6$ — $\Phi 12$  cable

## III、List of non-weighing load cell



Item	Model number	Item	Model number	Item	Model number	Item	Model number
1	BHS3~50t	55	QSK-A10~60t	109	XZBBC2.5t	163	XK3101A
2	BHSE-A18~28t	56	QSKCB-A50t	110	XZBBE-Th5t	164	XK3101A1
3	BHS-H5t	57	QSMCE-H50t	111	XZBBF-Ta5t	165	KL-3101S
4	BHSK25t	58	QSMCF-H50t	112	XZBB-Ta12t	166	XK3101E
5	BHSM30t	59	QSNB-A10~30t	113	XZBCB-X3~5t	167	KQC-1C
6	BHSP1.5t	60	QSNF-H50t	114	XZBC-X3~5t	168	KQC-1A
7	BHSUB-Tc40/50t	61	QSP-A5t	115	XZBEC-SST2t	169	KQC-3A
8	BHSU-Th130t	62	QSPGB-A ( I ) 5t	116	XZBEG-DSS60/150t	170	KQC-C
9	BLW-A-1MN	63	QSPGB-A ( II ) 5t	117	XZBEK-T150~200t	171	KQC-C2
10	BTW-AX2.5t(Y3712)	64	QSPJ-A30t	118	XZBEM-ASSTc100t	172	KQC-C4
11	BTWE-A5t	65	SAPB100~500kg	119	XZBEM-SST10/15/70t	173	KQC-C5
12	BTWEB-AX15t	66	SAP100~500kg	120	XZBEZ-Tc100t	174	KQC-2DA
13	BTWI-X5/10/11/15t	67	SAPL100~500kg	121	XZBFB-SST9t	175	KQC-3DA
14	BTW-X1.5~10t	68	SBGB500kg	122	XZBGB700kg	176	KPX-1L
15	CCY2~3t	69	SBP-ASS10t	123	XZBJ30t	177	KPX-1B
16	DGJ-AD16t	70	SBTJ-SS1t	124	XZBL-T200t	178	KPX-1S
17	DSS100、1000kg	71	SBWJ1~2t	125	XZBMC-ASS50t	179	KPX-1F
18	DT5t	72	SBYB2~5t	126	XZBME-ASSTc220t	180	DTZK-A/A1
19	DTB5t	73	SBYE1t	127	XZBMF-SST1.5t	181	YLK-02
20	DTC2.5t	74	SCE1~6t	128	XZBMK-ASS100t	182	KM01A/B
21	DTE5t	75	SCEB1~6t	129	XZBMK-ASSTc100t	183	KM02
22	FB-LFSGY10t	76	SCG350~1.3t	130	XZBN15t	184	KM04
23	GGBG-A7.5t	77	SCN-A1~10t	131	XZBNB15t	185	KM06 ( B )
24	GGF(22)-A2~3t	78	SCNB-A1~10t	132	XZBO5t	186	KQC-5~50t
25	GGFE(15)-A(I)3t	79	SCNC-AX1~5t	133	XZBW10t	187	KQC-5~50t(DQ85)
26	GGFE(15)-A(II)3t	80	SCNE-X5t	134	XZ-DSS180t	188	KPX-A1~10t
27	GZB ( III ) B-X15t	81	SCNF-AX1~3t	135	XZ-DSS40~70t	189	KH pull -push meter
28	GZBII	82	SCNEB1~5t	136	XZFC-ASS30~500t	190	MK-01
29	GZBIII(30t)	83	SCNEC1~5t	137	XZG90t	191	DC209-1
30	HNDEL-SST3.5~20t	84	SEBC-SS200kg	138	XZMZE-A20t		
31	HNDKB-A30klb	85	SGEF2kg	139	XZNF10t		
32	HNDK-SS15~30t	86	SGNB8kg	140	XZNFF20t		
33	HNDM200t	87	SL300kg	141	XZNFFB20t		
34	HND-SS3klb	88	SEBB200kg	142	XZNG-AXTj7t		
35	HSX-AW5~500kg	89	SQBE100kg~1t	143	XZNI-AXTj15t		
36	HSX-A5-500kg	90	SQBEB250kg~850kg	144	XZPC10t		
37	HSXB-SS50kg	91	SQBYE-A5klb	145	XZWKC-A25t		
38	HSXP-SS50kg	92	SZS30t	146	YBSFC3t		
39	HSXU-A150kg	93	SZSC500t	147	YBSG-A2t		
40	KTJ-02-150KN	94	SZS-D50t	148	YBSGM-A2t		
41	LFSC-A2~20t	95	SZSCM-A500t	149	YBSK10A140		

# TPS

					mounting		
42	LFSNC10t	96	TSGB-SS0.05~10klb	150	YBSK-A5t		
43	LFSQ3t	97	WB (175) bending type	151	YBSW-ASS30kN		
44	LFSW-Ti60t	98	WX1-BHSUK-A5t	152	ZL-AX1t		
45	LJ-A5~10t	99	XSCB1~50kg	153	ZSC-A20~400t		
46	LJB-A3t	100	XSCC20kg	154	ZSEN-SS200klb		
47	LKN-SS100lb	101	XSCE8kg	155	ZSP-A40~300t		
48	NHS-AH33~220t	102	XSGB100kg	156	ZSP-A500t		
49	NKE-SS3klb	103	XZB3t	157	ZSCP-XS50t		
50	NKL500N	104	XZBB1t	158	XK3101		
51	NKEF200kg~2.5t	105	XZBB2.5t	159	FB-XK3101		
52	NKJ500N	106	XZBB22t	160	XK3101+		
53	NKEG-SS2t	107	XZBB6t	161	XK3101C		
54	QSCB-H45t	108	XZBB8t	162	XK3101 (appointed D type)		

(above are primary models)

## IV、contrast table:

### Contrast table of BTW series

Currently, there are many improved versions based on different outline and improved workmanship, pls refer to the details as following contrast table.

Model difference	Image and dimension	Concave dimension	Surface roughness	Electroplate thickness	Quantity of strain gauge	The ability against rust	Compensation of elastic modulus	Cable length	Glue seal	Installation for waterproof connector	remarks
<b>Common version</b>											
BTW-AX1.5t~10t		5mm	low	no	4pcs	standard	no	0.8m	yes	yes	
<b>High-class version</b>											
BTW-AX1.5t~10t (YJ0143)	the same as common BTW-AX1.5t~10t	5mm	好	yes	4pcs	better	yes	2m	yes	yes	Enhanced plate thickness Refined appearance
<b>Low-class version</b>											
BTW-AX2.5t~10t (M)	the same as common BTW-AX1.5t~10t	2mm	low	no	2pcs	standard	no	0.8m	yes	yes	Min. capacity 2.5t

# TPS

BTWK-AX1.5t~10t	 <p>Other dimensions are the same as common BTW-AX1.5t~10t</p>	2mm	low	no	2pcs	standard	no	0.8m	no	no	Waterproof connector with concave of $\varnothing 36$ depth 8mm
BTWP-AX2.5t~10t	 <p>Only length is shorted 14mm, other dimensions are the same as BTW-AX1.5t~10t</p>	2mm	low	no	2pcs	standard	no	0.8m	yes	yes	Min. capacity 2.5t <b>Dimension is not changed</b>

## Contrast table of SCN series based on configuration

Model \ difference	Dimension of steel element	Quantity of strain gauge	Compensation of elastic modulus	cable (m)	image	remarks
Common product						
SCNEB-AX1t-5t	180x60x30	2pcs	no	0.3		
SCNC-AX1t-5t	180x60x37	2pcs	no	0.5		Thicker 7mm than SCNEB, other dimensions are the same as SCNEB.
High-class product						

# TPS

SCNB-A1t-20t	180x40x35 (1t~3t) 200x40x40 (5t) 260x60x50 (10t~20t)	4pcs	no	0.5		Mainly for international customers
SCNB-AX1t-20t	The same as above	4pcs	no	0.5		Just different material from SCNB-A1t-20t
Miniature product						
SCNF-AX1t-5t	100x40x30	2pcs	no	10		Not yet in mass production
Forged product						
SCNZE	140x53x28	2片	no	0.3		Forged support combined with element, not installed with KPX indicator due to dimension restriction
Suspend product						
SCN-A1t-10t						Unavailable due to old version

## Contrast table of KPX series indicator

Item	contrasted item	KPX-1B	KPX-1L	KPX-1S	KPX-1
1	With screen	4-digit LED (30mm*14mm*7.2mm , 0.36'')	4-digit highlight red LED	2-digit LED	4-digit highlight red LED
Hardware fuction					

# TPS

2	Control output	one-channel relay (10A/AC250V)	one-channel relay (5A/380V)	one-channel relay (10A / ~ 380V)	one-channel relay (5A/380V)
3	DB of buzzer	≤80	90	90	90
<b>Enclosure and installation</b>					
4	Installation type	suspending	suspending	suspending	suspending
5	<b>Enclosure material</b>	plastic	steel	steel	steel
6	<b>Power supply</b>	380VAC	220VAC/380VAC	220VAC/380VAC	220VAC/380VAC
<b>Load cell</b>					
7	<b>Excitation voltage</b>	5VDC	5VDC	5VDC	5VDC
8	<b>Quantity of load cell</b>	1	1	1	1
<b>Software function</b>					
9	<b>Pre-alarm</b>	90% rated capacity	90% rated capacity	/	90% rated capacity
10	<b>Delay alarm</b>	105% rated capacity	105% rated capacity	/	105% rated capacity
11	<b>Immediate alarm</b>	110% rated capacity	110% rated capacity	/	110% rated capacity
12	<b>application</b>	available to various electric hoist	Available to various crane, tension for single cord is less than 10t	Various 0.5t ~ 6t electric hoist	Available to various crane, tension for single cord is less than 10t

**Contrast table of KQC-C series overload limiter**

# TPS

Content Item	Model KQC-C2	KQC-C3	KQC-C4	KQC-C5
Digits of LED	4 digits	4 digits	4 digits	4 digits
Dimension of LED	0.56 inch	0.56 inch	0.56 inch	0.56 inch
Control output	one-channel relay (10A/250V)	one-channel relay (10A/250V)	one-channel relay (10A/250V)	one-channel relay (10A/250V)
DB of buzzer	90	90	90	90
Enclosure material	steel	steel	steel	steel
130mm*160mm*64.50mm	130mm*160mm*64.50mm		130mm*160mm*64.50mm	130mm*160mm*64.50mm
Excitation voltage	DC 5V	DC 5V	DC 5V	DC 5V
Quantity of load cell	2-channel	2-channel	2-channel	2-channel
Pre-alarm	85%~95%	85%~95%	85%~95%	85%~95%
Delay alarm	100%~110%	100%~110%	100%~110%	100%~110%
Immediate alarm	115%~130%	115%~130%	115%~130%	115%~130%
Record volume	no	real-time record: 5000pcs overload record: 200pcs	real-time record: 5000pcs overload record: 200pcs	no
Communication type	no	RS232	RS232 and GPRS	no
cost	moderate	higher	highest	low

## Contrast table of KQC series overload indicator

Item	contrasted item	KQC-2DA	KQC-3DA	KQC-1	KQC-1A	<del>KQC-3</del>	KQC-3A
1	With screen	3-screen with 4-digit highlight LED	Already suspend production, replaced by	double-screen with 4-digit highlight			

# TPS

		LED	LED	LED D		KQC-3A	LED
Hardware function							
2	Function of remote display	2pcs channels	3pcs channels	no	yes		yes
3	<b>Control output</b>	double-channel relay (10A/380V)	3-channel relay (5A/380V)	one-channel relay (10A/380V)	one-channel relay (10A/380V)		2-channel relay (10A/380V)
4	<b>DB of buzzer</b>	90	90	90	90		90
Enclosure and power supply							
6	Enclosure material	steel	steel	steel	steel		steel
7	power supply	220VAC/380VAC	220VAC/380VAC	220VAC/380VAC	220VAC/380VAC		220VAC/380VAC
Load cell							
8	Excitation voltage	5VDC	5VDC	5VDC	5VDC		5VDC
9	Quantity of load cell	2 只	3 只	1 只	1 只		1 只+1 只
Software function							
10	<b>Pre-alarm</b>	85% ~ 95% rated capacity	85% ~ 95% rated capacity	90% rated capacity	90% rated capacity		rated capacity 90%
11	<b>Delay alarm</b>	100% ~ 110% rated capacity	100% ~ 110% rated capacity	105% rated capacity	105% rated capacity		105% rated capacity
12	<b>Immediate alarm</b>	110% rated capacity	110% rated capacity	110% rated capacity	110% rated capacity		110% rated capacity
13	Alarm control	2-channel separate control & 2-channel control	2-channel control	2-channel control	2-channel control		2-channel control

**TPS**

---

# TPS

---