XK3190-DS3

Weighing Indicator

Instruction for Calibration and Adjustment

V 1.01

Shanghai Yaohua Weighing System Co., Ltd.

Contents

Dear customers,

Please read this instruction before using the indicator. During the use, for ensuring safety, the reliable power ground shall be made.

XK3190-DS3

Chapter 1 Technical Parameter

1. Model: XK3190-DS3

2. Interface of digital load cell:

Interface mode:	RS485
Transmission distance:	≤1000 meter
Transmission speed:	9600 baud
Signal power source:	DC10V，≤400mA
Interface capability:	≤16 digital load cells
Compatible protocol:	Digital module protocol of the Company
Supporting manufacturers:	Zhonghang Electronic Measuring Indicators Co., Ltd., Guangzhou Electrical Measuring Indicators Factory, Ningbo BENUI Electric Co., Ltd. and Ningbo Board Electric Co., Ltd. etc. manufacturers support the digital load cell of protocol of the Company. **Note: Each manufacturer may use different protocol.**

3. Display: 7-digit super brightness white light LED display, 10 state indicating lights

4. Keyboard:

Number keys	0~9
Function keys	24 (10 composite keys with number keys)

5. Clock: For displaying year, month, date, hour, minute, second, intercalary year/month automatically without the influence from power failure.

6. Scoreboard display interface

Transmission mode	Serial output, 20mA electric current loop signal (constant-current source output)
Transmission baud rate	600
Transmission distance	≤2000 meters

7. Serial communication interface

Transmission mode	RS232/RS422 (optional)
Baud rate	600/1200/2400/4800/9600 optional
Transmission distance	RS232 ≤30 meters; RS422 ≤1200 meters

8. Printing interface

The indicator is equipped with a standard parallel printing interface for connecting with of ESPON LQ-300K(＋), Panasonic KX-P1131 and KX-P1121, etc. wide line printers.

9. Data storage

1000 sets of vehicle numbers and tare, 201 sets of article numbers and 1001 sets of weighing records.

10. Application environment

Power source	AC 100～264V, 50～60Hz
Operating temperature	－10℃～40℃
Storage and transportation temperature	-25℃～55℃
Relative humidity	≤85%RH
Preheating time	≤30 minutes
Fuse	0.5A

11. Shape (mm) 290×75×210 (do not contain the size of bracket)

12. Weight about 2.7 kilograms

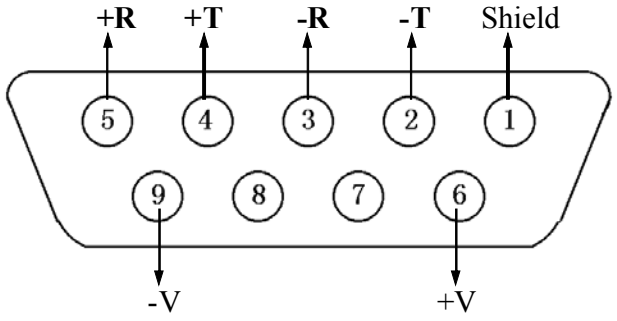
Chapter 2 Installation and Connection

Connection between digital load cell and indicator:

XK3190-DS3 is a digital weighing indicator. Therefore, it can only be connected with **digital load cell. For the purpose of convenient statement, the product is called as load cell for short. Please note that during reading the instruction.**

1. The load cell is equipped with 9 core connector assembly for connection. Meanings of all pins are marked in Figure 2-1-1.

2. XK3190-DS3 load cell interface adopts the interface mode of four-wire RS485 mode. See detailed connection mode in Figure 2-1-2.



Pin	Note
-T	Signal transmission negative (－TXD)
+T	Signal transmission positive (＋TXD)
-R	Signal reception negative (－RXD)
+R	Signal reception positive ＋RXD）
+V	Digital load cell positive source (＋)
-V	Digital load cell negative source (－)

Figure 2-1-1 Digital load cell interface and description

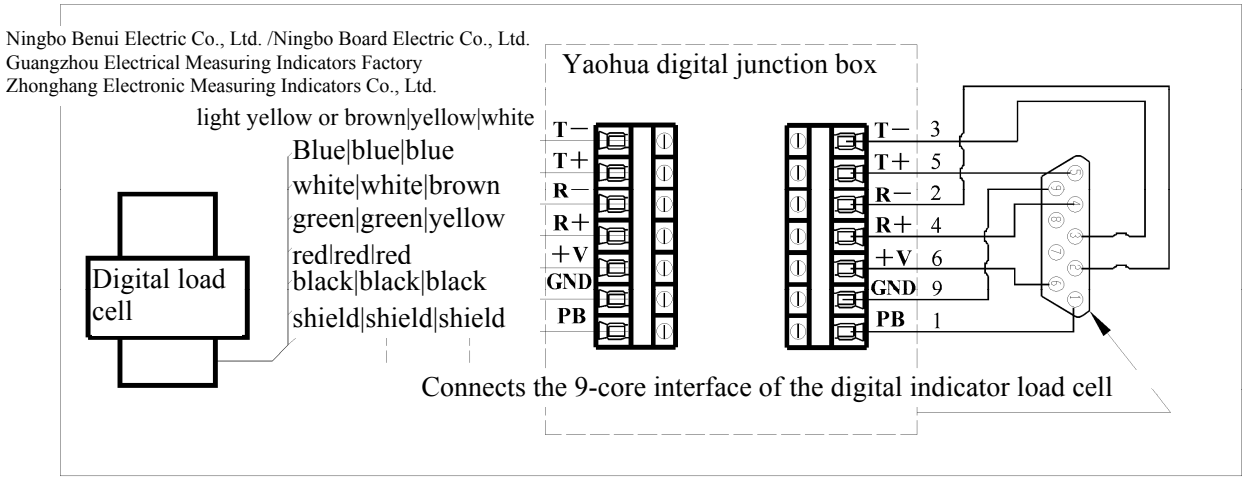


Figure 2-1-2 Schematic diagram for connection of digital load cell

▲! Positive and negative poles of power supply shall not be connected reversed; otherwise, the digital load cell and indicator may be damaged.

▲! Power and signal shall not be connected reversed; otherwise, the digital load cell may be damaged.

▲! Connection between load cells and indicator and the grounding of load cell shielded wire must be reliable. Do not plug or unplug the connecting lines while the indicator is energized so as not to cause damage to indicator or load cell by static electricity.

▲! Load cells and indicators are static-sensitive equipment. Therefore, feasible anti-static measures shall be taken in use. Electric welding or other heavy current operations are strictly prohibited on the weighing platform. In season of thunder, reliable lightning protection measures shall be taken for preventing damage of load cell and indicator that may be caused by lightning strike. Meanwhile, ensure the personnel safety of operators and safe operation of weighing equipment and relevant equipment.

Chapter Three Address of Digital Load cell

▲! Address of the load cell is the unique mark for the indicator to recognize the digital load cell. Before use of the load cell in matched group, please ensure that the addresses are not repeated.

Section One What's the address of digital load cell?

Address of the digital load cell is commonly refers to the "serial number of load cell".

XK3190-DS3 conducts communication connection with different digital load cells by use of different addresses. For connecting several digital load cells, address of each digital load cell shall be unique and not repeated with other load cells.

Address range of the digital load cell protocolled by the Company may be "00"~ "31".

Address of XK3190-DS3 is also the basis for marking angular position and suggesting load cell error accurately.

Digital load cells have generally been given the address according to different groups and marked with relevant marks. For load cell that has no address or repeated address, set according to operation method defined in the next chapter.

Section Two Manual view/modification of digital load cell address

Turn the calibration switch of indicator to position of calibration and operate according to following steps:

1. Connect one digital load cell to the indicator, press [Address] to see [AdF 0] on the indicator (Note 3-2-1); press [Input] to see the indicator displaying [----] and starting scanning and then displaying [ad **] on it (Note 3-2-2). "**" is the original address of the load cell. (Without the need of modification, press [Weighing] to exit)
2. For any modification, input the new address and press [Input] for confirmation to see [d ****] displaying on the indicator. **** is the outgoing weight code of load cell. After successful setting, the weight code may change along with the load of load cell.
3. Press [Input] to return to the state of weighing.
4. Disconnect the digital load cell after setting and re-connect another digital load cell for setting. Repeat the steps 2~3 until completing settings of all digital load cells.

Note 3-2-1: While using the function of calibration adjustment for the first time after starting up, calibration password is required. (Tge below is same.) Please refer to the chapter of timed shutdown.

Note 3-2-2: In case of connecting several digital load cells of different addresses at the same time, [oAd --] will be displayed for suggesting your input the original load cell address to be modified. After this, press [Input] for confirmation. [Ad **] will be displayed on the indicator. Input the new address and press [Input] for confirming and completing load cell address setting. In case the new address is the same as that of other load cells, the two addresses may be exchanged automatically.

▲ Addresses of the same scale shall not be repeated. For convenience of memory, we suggest your setting according to steps 1, 2, 3… one by one.

▲ For connecting or disconnecting the digital load cell, power of the indicator shall be off. Electrified operation is strictly prohibited.

Section Three Auto view/modification of digital load cell address

For examining the address of a load cell in a certain position after installation of a scale, turn the calibration switch of indicator to the position for calibration and operate as follows,

1. Press [Address], indicator displays [AdF 0] ; press [1] and [Input], indicator displays [noLoAd].

2. The scale is now in the state of no load. After the weighing platform is stable, press [Input] for confirmation. [----] displayed on the indicator indicates the start of null point confirmation.

3. After confirmation, displaying [nn - 00], the indicator enters into the state of viewing/modifying address of load cell in a certain angular position.

4. Load the heavy object (or instead of 1 to several persons) on the load cell to be viewed/ modified; address of current load cell will be displayed in the position of "nn" (Note 3-3-1). For any modification, input the new address and press [Input] (Note 3-3-2).

5. Repeat Step 4 to view/modify address of different digital load cells.

Note 3-3-1: If address of any angular position cannot be identified, check whether the angular position load cell is compacted.

Note 3-3-2: If the newly modified address of a load cell is the same as that of another load cell in connection, address of the other load cell will be automatically converted into original address of the newly modified load cell.

Note 3-3-3 In case the content displayed isn't restored to [nn- **] after the heavy object is removed from the scale, please press the button [Zero Setting] to confirm the null point once again.

Section Four Examine numbers and addresses of load cells that are connected to the indicator

Press [Test], [1] and [Input] than see [dno **] displayed on the indicator (quantity of load cells) and press [Input] to view addresses of all load cells one by one. After this, the indicator returns to weighing state automatically.

Examining won't modify the parameter

Section Five Parameter Initialization of Digital Load cell

XK3190-DS3 may initialize digital interface parameters of load cells in connection. After initialization, number and address of load cells will be identical with practical situation and all angular difference parameters will be recovered to 1.00000. Operation method is as follows:

Press [Address] [9] and [Input] than see [AtSCAN] on the indicator and start automatic load cell scanning. After scanning, [SUrE 0] will be displayed on the indicator for inquiring if you need to initialize parameters. If yes, please press [1] and [Input]. (Without the need of initialization, press [Weighing] to quit)

▲ Loss of angular difference parameter may be caused by the initialization operation. Please operate carefully.

Chapter Four Calibration and Adjustment

Section One Calibration

I. Connect the load cells and make the indicator enter normal work state.

II. Turn the calibration switch to the allowable calibration position.

III. Carry out calibration according to operation steps defined in the following tables.

(Table 4-1-1)

Step	Operation	Displayed content	Note
1	Press [Calibration]		Turn the calibration position to allowable calibration position (right side)
2	Press [8] Press [Input]	[dno **] [dno 08] [-----]	Input the quantity of load cells in connection, E.g.: 8 After automatic scanning of load cells in connection, inconsistence between quantity of load cells and value input will be displayed as "Err 11"
3	Press [1] [0] Press [Input]	[E **] [E 10]	Input the scale interval: 1/2/5/10/20/50/100 for selection E.g.10
4	Press [0] Press [Input]	[dc *] [dc 0]	Input the digits of decimal point (0~4) E.g.: 0 means no decimal point
5	Press [1][2] [4] Press [Input]	[Pn VWXYZ] [Pn 00124]	Input system parameters V: Occasion of use W: Null point tracking speed X: Null point tracking range Y: Zero setting range Z: Starting up zero setting range E.g.: 00124
6	Press [3][0][0] [0][0] Press [Input]	[F ******] [F 30000]	Input the full scale value When calibration is necessary, input the value of F and press [Input]; or press [Input] directly to go to Step 10 or press [Weighing] to return to state of weighing. (Note: full scale value plus nine scale interval value is the overload alarming value of the system) E.g.: 30000
7	Press [Input]	[noLoAd]	Null position confirmation. When there is no article on the scale at this moment, press [Input] after stable designator lights up.
8	Press [1][0][0] [0][0] Press [Input] Press [Check]	[AloAd1] [10000]	Load weights, e.g.:10000; After stable designator lights up, For non-linear correction(two-point calibration), press [Check] to go to Step 9; Without the need of non-linear correction(one-point calibration), press [Check] to go to Step 10 (Note 3);
9	Press [3][0][0] [0][0] Press [Input]	[ALOAd 2] [30000]	Load weights(heavier than weights that loaded of ALOAD 1); E.g.: 30000 press [Input] after stable designator lights up.

Step	Operation	Displayed content	Note
10	Press [Input] Press [Input] Press [Input] Press [Input] Press [Input] Press [Input]	[H ******] [C ******] [CH **.**] [b ******] [u ******] [uH **.**]	Do not modify the calibration parameters (Without the need of viewing, press [] to log out from the state of calibration) Note 4
11	Press [1] Press [Input]	[Adr **] [Adr 01]	Address (01~26) E.g.: 1
12	Press [1] Press [Input]	[bt *] [bt 1]	Baud rates of serial communication (0~4) means following baud rates respectively: 600, 1200, 2400, 4800 and 9600 baud rates. E.g.:1
13	Press [0] Press [Input]	[tF *] [tF 0]	Way of serial communication: 0—Continuous send mode, no reception 1—Appointed answering mode E.g.:0
14		Weighing state	After calibration, turn the calibration position to non calibration position (left side)

Note 1: Press [Weighing] in Step 7, 8 and 9 to skip the step and go to next step directly. Other than that, pressing [Weighing] means logging out from keyboard operation and going to the displaying state of weighing mode.

Note 2: Setting method for Pn parameter

(Table 3-2)

Value of V	0	1
Operating Occasion	Nontrade scale	Scale for trade

(Table 3-3)

Value of W	0	1	2	3
Null position tracking speed	0.4s	0.3s	0.2s	0.1s

Time listed in the above table is the time required for correcting 0.05e (one inner code)

(Table 3-4)

Value of X	0	1	2	3	4	5	6	7	8	9
Null position tracking range	No tracking	0.5e	1.0e	1.5e	2.0e	2.5e	3.0e	3.5e	4.0e	4.5e

(Table 3-5)

Value of Y	1	2	3	4	5
Zero setting range after pressing [Zero setting]	2%F.S	4%F.S	10%F.S	20%F.S	100%F.S

(Table 3-6)

Value of Z	1	2	3	4	5
Startup zero setting range	2%F.S	4%F.S	10%F.S	20%F.S	100%F.S

Note 3: non-linear correction method: in Step 8, press [Check] to start non-linear correction. Two loading points at most; press [Input] to start one-point calibration (the operation of non-linear correction may also be carried out by the way of compensation calibration).

Note: Different value between non-linear loaded weight and the original

loaded weight shall be larger than 10% F.S.

Note 4: parameter H is the AD code of calibrated null position, parameters C and CH is the first section standardized rate, parameter b is the AD code of subsection point (i.e. AD code loaded at the first time), parameters u and uH is the second section standardized rate, two places before the decimal point of parameters CH, uH is the exponent of corresponding standardized rate and two higher places after the decimal point plus parameters C and u (six lower places) constitute corresponding standardized rate.

Note 5: After commissioning, relevant calibration parameters may be printed out by printer (Operation method: plug into the calibration socket, press [Report]), [5] and [Input]) and save it for further re-entry in case of unforeseen circumstances. Before entering new data, input the value F at first and press [Weighing] twice. Parameters C, CH or u, uH shall be completed once only.

After calibration, the calibration switch shall be turned to non-calibration position

Section Two Compensation Calibration

1. Operating Occasion

During the process of calibration and adjustment, in case of finding any difference between displayed value on indicator and actual weight after full-scale loading is about to achieved (e.g. lighter weight used during the process of calibration may cause the error of full-scale), the function of compensation calibration may be used for correcting the error without the need of dismounting the weights. (Compensation calibration cannot be used for correcting the error caused by null drift etc. reasons)

There are two methods of compensation calibration:

a、 Compensation calibration way 1: Calibrate once more with a new loaded weight. The original calibrated loading point is invalid. The method is applicable to the situation when the original calibrated loaded weight is not rather reliable or the original loaded weight is close to the loaded weight of compensation calibration.

b、 Compensation calibration way 2: on the basis of original calibrated loading point, conduct non-linear correction with a new loaded weight. The original calibrated loading point is still valid. This method is applicable to the situation when the original loading point is comparatively small and error nearby full scale is caused by non linearity of scale.

2. Method of operation

a. Compensation calibration 1: in the weighing mode, turn the calibration switch to calibration mode (right side), press [Set], enter the passwords [7] and [8] and press [Input] to see [AdLoAd1] displayed on the indicator. At this moment, input the actual weight on the weighing platform and press [Input] to complete compensation calibration. The indicator then returns to weighing state. After this, turn the calibration switch to non-calibration state.

b. Compensation calibration 2: in the weighing mode, turn the calibration switch to the calibration mode (right side), press [Set], enter the passwords [7] and [9] and press [Input] to see [AdLoAd2] displayed on the indicator. At this moment, input the actual weight on the weighing platform and press [Input] to complete the operation of compensation calibration. The indicator then returns to weighing state. After this, turn the calibration switch to non-calibration state.

Section Three Automatic Switch of Scale Interval

1. Use method

The function of scale interval automatic switch is mainly adopted for increasing the display precision of large weighing scale when it is used for weighing light weight. The indicator can be set with a scale interval switching point (Parameter A). When weight is

larger than this setting value, the indicator displays according to scale interval set during the process of calibration and when weight is less than this setting value, the indicator automatically switches to a scale interval smaller than the scale interval set during process of calibration (for example, scale interval set during process of calibration is 100kg and the indicator automatically switches to the one of 50kg; and when scale interval set during process of calibration is 50kg, the indicator automatically switches to 20kg).

2. Setting Method for Scale Interval Switching Point (Parameter A)

In weighing mode, turn the calibration switch to calibration mode (right side), press [Set], enter the passwords [5] and [0] and press [Input] to see [A******] displayed on the indicator. Input the weight at switching point of scale interval and press [Input] to complete the setting operation and returns to weighing mode. After this, turn the calibration switch to non-calibration state (left side).

The parameter can only be set after calibration. After this, the parameter will be reset automatically (i.e. do not use the automatic switching function of scale interval).

XK3190-DS3 is equipped with a dedicated back-up chip for calibration data and important parameters' backup. Detailed operation way is as follows,

After completing all calibration and adjustment operations, turn the calibration switch to allowable calibration position (right side), press [Set], [4], [0] and [Input] one by one to see [SAUE] displayed on the indicator for 2 seconds for giving operator a suggestion,

Then [SUrE 0] is displayed. Press [1] and [Input] to start data backup operation. After successful backup, [SAU PAS] will be displayed on the indicator; otherwise [SAU Err] will be displayed.

For ensuring that backup parameters will not be lost, please turn the calibration switch to non-calibration position (left side) after backup operation.

In case of data loss, indicator parameters can be recovered according to following operation steps:

Turn the calibration switch to allowable calibration position (right side), press [Set], [4], [1] and [Input] one by one to see [LoAd] displayed on the indicator for 2 seconds for giving operator a suggestion,

Then [SUrE 0] is displayed. Press [1] and [Input] to start data recovery operation. After successful recovery, [Ld PAS] will be displayed on the indicator; otherwise [Ld Err] will be displayed.

In case of indicator replacement, you only have to install the U15 chip of the original indicator in the new indicator and follow the above data recovery operation. (**Do not plug or unplug the chip while the indicator is energized!**)

After completing data recovery, please turn the calibration switch to non-calibration position (left side).

The operation of data recovery will clear the original indicator parameters. So please be careful.

Chapter Five Correction of Angular Difference

Section One View weight code of all load cells and weighing platform leveling

For ensuring precision of angular difference correction and long term stability of scale, digital weighing system has the same requirements of foundation and machinery installation as analogue scale. Weighing platform leveling is also required.

Viewing weight code of load cells is helpful to weighing platform leveling. See method of viewing weight codes in following table:

Table 5-1-1

Step	Operation	Displayed content	Note
1	Press [Test] Press [Input]	【tESt 0】	Select test function 0: View the weight code of a load cell in the system
2	Press [2] Press [Input]	【dAd **】 【dAd 02】	Input the address of a load cell to be viewed E.g.: address 02
3	Press [Input]	【d ****】	Display the weight code of the selected load cell. Note: without finding load cell of the current address, [d---] will be displayed.
4	Press [Weighing]	【dAd 03】	Go to next load cell automatically. For further viewing other load cells, conduct the operation in Step 2; otherwise, press [Weighing] to quit.
5		Return to weighing mode	

Section Two Semi-automatic correction of angular difference

Semi-auto angular difference correction adjusts the angular difference by modifying parameters of one load cell (angular position) or two load cells (shaft mode). Detailed operation method is as follows,

1. Press [Angle modulation] to see [TJF 0] displayed on the indicator; at this moment, input "0" (angular position mode) or "1" (shaft mode) and press [Input] to see [noLoAd] displayed on the indicator.
2. The weighing platform in now in unload scale state. Wait till it is stable and press [Input] for confirmation. [----] displayed on the indicator means the start of null point confirmation.
3. After confirmation, the indicator displays [A ****] (angular position mode) or [b ****] (shaft mode) and then enters into semi-auto angular difference correction state. "****" is the value of current weight. Now you can press [Test] to switch between angular position mode and shaft mode.
4. There are angular position self-correction, shaft self-correction and manual input of angular difference parameter three correction modes:
   a. single point self-calibration correction: switch to single point mode, press different angular positions (load cells) with a fixed weight, find the angle with biggest deviation, press the angular position with heavy object and press [Self-calibration] to input the correct weight. After this, press [Input] for completing confirmation and calibration of the angle. Then find the next angle with biggest deviation and repeat following steps till all errors are eliminated. (As pressing an angular position may influence other angular positions, the angular positions that have been adjusted may be changed. Therefore, repeated adjustment is necessary. The below is same.)
   b. Shaft self-calibration correction: switch to shaft mode, press different shafts with a fixed weight, find the shaft with biggest deviation, press the shaft with heavy object and press [Self-calibration] to input the correct weight. After this, press [Input] for completing confirmation and calibration of the shaft. Conduct repeated operations till all errors are eliminated.
   c. Single point parameter modification: switch to single point mode, find the angle with biggest deviation by pressing different angular positions with a fixed weight, then press the angular position with heavy object and press [Check]. With [Ad **] (** is the address of the angular position) displayed for 2 seconds, [*.*****] will be displayed on the indicator. Now you may parameters of the angular position and press [Input] for confirmation. Without the need of parameter modification, press [Input] directly. Principle for adjusting the angular position is that, with large deviation, the

parameter shall be adjusted smaller (and vice versa). Adjustment range shall generally be a bit larger than the percentage of deviation.

Section Three Automatic correction of angular difference by angular position

See operation methods in the following table,

Table 5-3-1

Step	Operation	Displayed content	Note
1	Turn the calibration switch to calibration position; Press [Angle modulation] Press [2] Press [Input]	【tJF 0】 【tJF 2】	Select 2 angular position mode full-auto angle modulation
2	Press [Input]	【noLoAd 】 【 ----- 】	Unload scale confirmation; wait until the indicator is stable and press [Input] for confirmation
3	Press "1000" Press [Input]	【L *****】 【L 1000】	Input weight of weights at pressure angle (estimated weight is also OK) E.g.: 1000
4	Load weight at an angular position; Wait till the AD code is stable; Press [Input] for confirmation	【An 01】 ******* -----	Serial number of the pressure angle is displayed as "01" and it automatically switched to the AD code displaying state after 1.5 seconds; The indicator starts data sampling of all angle positions. Go to next step automatically after data sampling. **(Note: serial number of pressure angle here has no corresponding relation with address of load cell. Whichever angle position to be pressed, it shall be different each time)**
5	Move the loading weight to an angular position which hasn't been pressed. Wait till the AD code is stable and press [Input] for confirmation	【An 02】 ******* -----	Serial number of the pressure angle is displayed as "02" and it automatically switched to the AD code displaying state after 1.5 seconds; The indicator starts data sampling of all angle positions. Go to next step automatically after data sampling.
……	……	……	Other angle positions, by parity of reasoning
6		Weighing mode	After pressing all angle positions, the indicator will return to weighing mode automatically.

Note 5-3-1: For convenient observation, the overall AD code displayed here has been compressed (8 times diminished).

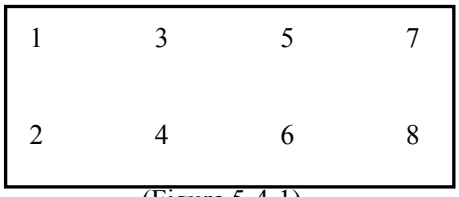
▲ In automatic angular difference correction, function of the key [Check]: viewing the angular position to be pressed at this moment.

▲ In automatic angular difference correction, function of the key [Tare]: return to the last angular position.

▲ In automatic angular difference correction, function of the key [Printing]: quit automatic angular difference correction.

Section Four Full automatic correction of angular difference by shaft

Shaft full auto angular difference correction requires arrangement of load cell addresses according to shaft. Addresses of load cells corresponding to the first shaft are 01 and 02; those corresponding to the second are 03 and 04; by parity of reasoning (see chart below). In case arrangement of addresses does not meet relevant requirements, adjust the addresses according to contents defined in Section Three of Chapter 3.



(Figure 5-4-1)

See detailed operation ways in following table:

Table 5-4-1

Step	Operation	Displayed content	Note
1	Turn the calibration switch to calibration position; Press [Angle modulation]; Press [3] Press [Input]	【tJF 0】 【tJF 3】	Choose 3: shaft mode full-auto adjustment
2	Press [Input]	【noLoAd 】 【 ----- 】	Unload scale confirmation; wait until the indicator is stable and press [Input] for confirmation
3	Press “1000” Press [Input]	【L *****】 【L 1000】	Input the weight of weights (estimated weight is also OK) E.g.: 1000
4	Load weight on a shaft; wait until the AD code is table and press [Input] for confirmation	【bn 01】 ******* -----	Serial number of the pressure shaft is displayed as “01”; and it automatically switched to the AD code displaying state after 1.5 seconds; The indicator starts data sampling of all angle positions. Go to next step automatically after data sampling.
5	Move the loading weights to the shaft that hasn’t been pressed. Wait until AD code is stable and press [Input] for confirmation.	【bn 02】 ******* -----	Serial number of the pressure shaft is displayed as “02” and it automatically switched to the AD code displaying state after 1.5 seconds; The indicator starts data sampling of all angle positions. Go to next step automatically after data sampling.
……	……	……	Other shafts, by parity of reasoning
6		Weighing mode	After pressing all shafts, the indicator will return to weighing mode automatically.

Section Five Initialization of angular difference coefficient

In case there is angular difference of any other weighing platform or error in angular difference, we suggest your initializing angular difference parameter before conducting calibration and angular difference correction. See operation method as follows,

Press [Angle modulation], [9] and [Input] to see [SUrE 0] displayed on the indicator. Then, press [Input] to complete data initialization of angular difference.

The operation of angular difference data recovery will clear the original angular difference data. So please be careful.

Section Six Input angular difference coefficient of a load cell

Conduct manual angular difference correction by "inputting the angular difference of a load cell". See detailed operation method in the following table,

Table 5-5-1

Step	Operation	Displayed content	Note
1	Turn the calibration switch to calibration position; Press[Angle modulation] Press [8] Press [Input]	【tJF 0】 【tJF 8】	Select 8 and input the angular difference parameter of the address of a load cell
2	Press [3] Press [Input]	【Ad ** 】 【 ----- 】	Input the address of load cell to be set with angular difference parameter, E.g.: 03
3	Input "110000" Press [Input]	【*.*****】 【 1.10000】	Input the angular difference parameter, E.g.: 1.1
4		Weighing mode	Return to weighing mode after input relevant parameters

Chapter Six Password of Calibration and Timed Shutdown

I. Password of Calibration

For XK3190-DS3, only one time of entering calibration password is required when conduct calibration and adjustment for the first time after startup every time (excluding timed shutdown parameter setting and modification of calibration password).

When conduct calibration and adjustment, input the calibration password if [C000000] is displayed. After entering the password (the initial password when it leaves factory is "888888"), please press [Input] to go to next step.

II. Method for setting tryout days

1. In weighing state (turn the calibration switch to position of calibration), press [Set], input the password "31" and press [Input];
2. When [L 000000] is displayed, input the calibration password (the initial password when it leaves factory is "888888") and press [Input]; (with correct password being entered, the indicator goes to next step; otherwise, it returns to state of weighing).
3. 3. When [Fre 0] is displayed, decide if you want to renew the calibration password: "0" means not to renew it but go to Step 6 directly; when the number displayed is not "0", it means renewing of password before going to next step;
4. When [n 000000] is displayed, input the new password and press [Input]; (please keep the new word properly)
5. When [r 000000] is displayed, please re-enter the new password; if the password entered here is different from the one entered in the last step, the indicator will return to the last step for entering new password again; if password here is the same as that entered in the last step, password renewal is valid and the indicator goes to next step; (the new password should be entered in Step 2 later and the initial password "888888" is no longer valid).
6. When [day ***] is displayed, you may set the number of days for tryout. After entering the number of days, press [Input] to complete the setting and return to state of weighing.

III. Method for removing or modifying the setting of timed shutdown

1. After the number of days set before, [Err 26] will be displayed on the indicator for suggesting you that the function of weighing is unavailable. However, the keys are still effective. Number of days for tryout now is changed to be "0"; (number of days for tryout will be decreased along with days of use)
2. If you want to cancel the operation of shutdown, please modify the number of days for tryout as "999";
3. Before and after shutdown, number of days for tryout may be modified freely.

Note: 1. During the process of setting number of days for tryout, you may press [Weighing] to quit the current setting and return to the weighing state.

2. Date and time may both be modified freely by customer without affecting the function of timed shutdown; however, several times' going back to time setting may cause decrease of number of days for tryout (every 24 hours' being set may cause about decrease of one day).

3. Please keep the password properly.

IV. Random Code Unlocking

In case of losing the password, operate according to following method,

In weighing state, turn the calibration switch to calibration state (right side), press [Input] to enter password [3] and [2] and press [Input] to see [r ******] displayed on the indicator. "******" is the random code of the indicator. Record this random code, press [Input] to return to weighing state and turn the calibration switch to non-calibration state (left side).

Then, please contact salesman of the Company. With this random code, you may obtain a random unlock password. Timed shutdown parameters of the indicator may be modified by using this random unlock password (i.e. you may cancel the setting of shutdown). However, the password or timed shutdown parameters of other indicators cannot be modified. Random code generates at random after modifying the password.

For safeguarding the rights of person who set the password and preventing vicious indicator decryption by others, the Company has registered the unlock password we provided. In case of being decrypted by others, please complain to salesman of the Company.

Chapter Seven Overload Record

XK3190-DS3 may keep 16 groups of overload record with max. weight data at most for viewing and printing. Detailed operation method is as follows:

1. Generate overload record

When weight on weighing platform is larger or equal to overload alarm value, a group of overload record will generate (including date, time of overload and actual overloaded weight). Actual overloaded weight in the record is the overloaded peak value; after recording one time of overload, only overload happens after weight on scale is less than 50% of the full scale will be judged as the second overload for generating new overload record; with new record generated after there are 16 groups of records, the group with smallest overload data will be deleted automatically before saving the new record.

2. Delete overload record

The overload record will only be deleted automatically after the indicator's completing a successful calibration.

3. View overload record

Table 7-1-1

Step	Operation	Displayed content	Note
1	Press [Set]	In weighing displaying state	
2	Press [6][6] Press [Input]	[P 00] [P 66]	Input the password "66" for viewing overload record
3	Press [Input] Press [Input] Press [Input] Press [Input]	[no 1] [d **.**.**] [t **.**.**] [0 *****]	The first group overload record Display the date Display the time Display the actual weight overloaded
4	Press [Input] Press [Input] Press [Input] Press [Input]	[no 2] [d **.**.**] [t **.**.**] [0 *****]	The second group overload record Display the date Display the time Display the actual weight overloaded
	. . .	. . .	. . .
5		[End] Return to weighing display	End

4. Print out overload record

Print [Set] and input the password "67" to print the overload record out.

Appendix: Indicator Information Cue

I. Regular information cue:

1. …… means: Please wait, the indicator is conducting internal calculation. Do not carry out any operation now.
2. Prnt means: Please wait a moment; data is transmitted between the indicator and printer.
3. LoAd means: Data save. It will be displayed for less than two seconds for giving a cue to the operator.

II. Error operation information cue:

1. Err 03 means: overload alarm, all or part of the load must be unloaded at once.
2. Err 08 means: No matched record is found or inquiry condition is wrong.
3. Err 10 means: Vehicle number saved are more than 1000.
4. Err 11 means: Quantity of load cells set is not in agreement with the actual quantity in connection; load cell fault or repeated address.
5. Err 12 means: Angular difference correction cannot be conducted when quantity of load cell is only one.
6. Err 13 means: The angular position being pressed cannot be recognized and its address cannot be set.
7. Err 14 means: Too light weight is loaded. Fail to conduct angular difference correction.
8. Err 15 means: Error serial number of parameter is selected.
9. Err 17 means: Parameter setting does not meet the requirement, please reset it.
10. Err 19 means: Printing cannot be conducted in occasion of zero or negative weighing, unstable weighing or unfulfilled zero reset condition.
11. Err 28 means: When the print date is earlier than that saved in weighing record, please reset date and clear all record.

IV. Error connection information cue:

1. Err P means: Printer connection error or printer fault. Press any key to exit and re-connect the printer or replace it with another one.
2. Erd ** means: The digital load cell with address "**" has communication failures.
   (1) If this is a scale in use, we may judge whether there is a connection failure or the communication interface of load cell is damaged.
   (2) If this is the scale without debugging, you can check according to the following order
   a. Check carefully if the connection wire of load cell is connected properly.
   b. Check if address of load cell is right without replication.
   c. Please re-set the quantity of load cells.
3. ErN ** means: The protocol of digital load cell with address "**" is not compatible.
4. Err 05 means: Damaged CPU, please return it to the manufacturer for maintenance.
5. Err tJ means: failed automatic angular difference correction; all angular difference parameters have been initialized as "1.00000".

V. Component failure and troubleshooting information cue:

1. Err 18 means: The keyboard fails. This will be displayed for 10 seconds before entering into weighing displaying page. The keyboard shall be replaced.
2. Err 20 means: a part of the data in RAM has been lost. Plug the calibration socket into the indicator and restart it for self-check. After this, without finding the occurrence of Err 20, the calibration socket may be unplugged.
3. Err 21 means: RAM and E^2PROM calibration data has both data lost. Please plug the calibration socket, re-enter the original calibration data and restart the indicator or conduct calibration again.
4. Err 22 means: RAM destroyed; please replace it and then conduct calibration again.
5. Err 23 means: destroyed E^2PROM; please replace it with a new chip, re-enter the original

calibration data and then restart the indicator or conduct calibration again.

VI. Other information cue:

1. Err 25 means: illegally duplicated software or E^2PROM destroyed.
2. ctnu 0 means: in Step 8 or 9 during the process of calibration, if the indicator cannot collect data which it judges as stable ones within 25 seconds, the error information will be displayed. Operator now may enter 0, 1 or 2. Their functions are as follows,

Entering 0: (Abort) inform the indicator of not continuing this step of operation but going to next step;

Entering 1: (Retry) inform the indicator of trying again

Entering 2: (Ignore) inform the indicator that these instable data is still useful.

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