Digital Weighing Indicator

User Manual
V 1.10

Content

DEAR CUSTOMERS, PLEASE READ THE USER GUIDE CAREFULLY BEFORE USING THE INDICATOR!

Chapter 1 Main Specifications

1. Model：	XK3190 - A12+SS weighing indicator
2. Accuracy:	Grade III, n=3000
3. Sample Rate：	10 times / second
4. Load cell sensitivity：	1.5 ~ 3mV / V
5. Scale interval：	1/2/5/10/20/50 for option
6. Display：	6 bits LCD，6 state indicating signals
7. Scoreboard interface (optional)：	In serial output mode：current loop signal, transmission distance≤2000m
8. Communication interface (optional)：	RS232C；Baud rate 1200/2400/4800/9600 optional
9. Power supply:	Battery DC 6V/2.8AH
10. Operating temperature:	0 ~ 40℃
11. transporting temperature:	-25 ~ 55℃
12. relative humidity:	≤85%RH

Features：

1. High precision A/D conversion，readability 1/30000;
2. call and display inner code to replace weight observing and analysis tolerance
3. special digital filtering technology to strengthen anti-vibration ability
4. able to set up digital filter intensity, range and stable time
5. with counting function (unit weight data save protection in case of power off)
6. selectable backlight mode
7. Optional RS232 interface, baud rate selectable, communication method selectable.
8. Optional 20mA current loop as interface for scoreboard
9. Non standard function (customized modification)
   （1）KG/LB switch function
   （2）Live stock (animal) weighing
   （3）TTL two fixed value output；
   （4）Peak value

CHAPTER 2 APPEARANCE AND INSTALLATION

2.1 KEY FUNCTIONS

Key	Function
【 # 】	When turning on the indicator, keep pressing this key to enter the calibration mode
【Func 】	In weighing mode, keep pressing this key for more than 5 seconds to enter the user parameters setting mode, less than 5 seconds will enter into counting mode.
【 * 】	In counting mode, press this key for sample taking
【 Tare 】	In weighing mode, press this key to tare
【 Zero 】	In weighing mode, press this key to zero
【ON/OFF】	Power on/off

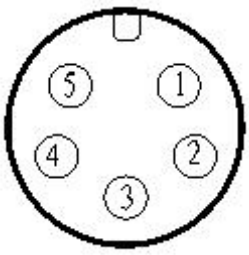
2.2 LOAD CELL CONNECTION

1. load cell adopts the 5-pin interface. Definition of each feet refers to picture 2-3.
2. Indicator adopts 4-wire connection as default.

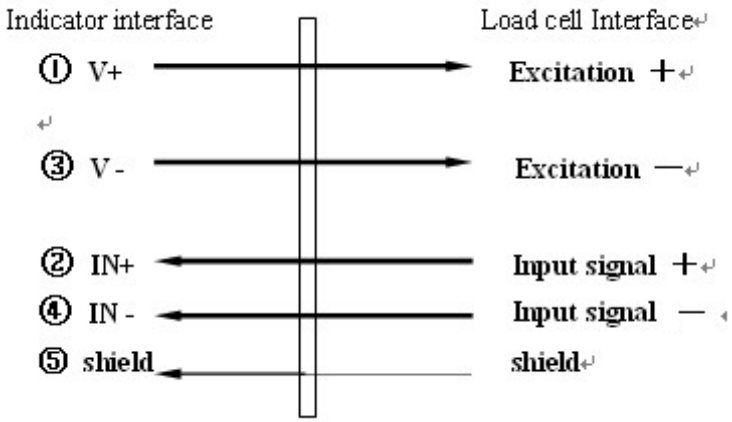
▲. Indicator must be reliably connected to load cell, and the shielded-cable of load cell must be reliably connected to underground.

▲. To protect the indicator and load cell, we cannot plug or withdraw the connector when the indicator is power on.

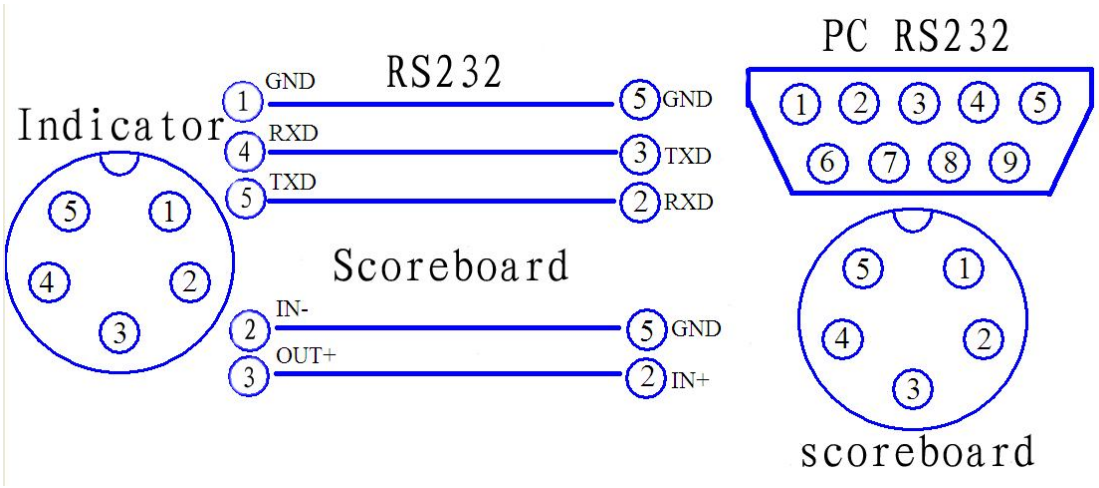
▲. Both the load cell and indicator are static sensitive devices. You must adopt anti-static measures. The electric welding operation and other strong electric operation on the scale platform are strictly prohibited. In order to protect the operator, indicator, and relevant devices, you should install lightning rod in the thunderstorm frequently happen area.



Indicator 5-pin interface



(picture 2-3 load cell connection)



(picture 2-4 indicator connection with computer and scoreboard)

2.3 SCOREBOARD CONNECTION TO THE INDICATOR (OPTIONAL)

Scoreboard signal is 20mA current loop, output in ASC II, output baud rate 600. connection method refer to picture 2-4.

Make sure that scoreboard and output lead wires are connected correctly. If there is something wrong with connection, damage will happen to output port of instrument and input port of scoreboard, sometimes, the damage is so big to influence the instrument and scoreboard. Only specially provided connecting cable is allowed to be used.

2.4 SERIAL COMMUNICATION AND INDICATOR CONNECTION (OPTIONAL)

Make sure that communication interface output lead and computer are correctly connected, if there is something wrong with connection, damage will happen to output port of instrument and input port of computer, sometimes, the damage is so big that instrument, computer and corresponding peripherals are got involved.

Necessary computer technology and programming expertise are required for computer communication, which should be participated and instructed by professionals.

Non-professional staff is supposed not to be involved in this regard.

XK3190-A12+SS can use optional RS232 serial communication interface to communicate with computer. The connection method, please refer to picture 2-4.

With RS232(optional) serial communication interface.All data are ASCII code, every set of which is composed of 10 bits: the 1st is starting bit, the 10th is stop bit, the middle in between are 8 data bits.

Communication mode as follows:

(1) In continuous mode:

The data transmitted is weight (Gross weight, net weight or tare)

The format of G.W.：ww000.000kg or ww000.000lb

The format of N.W： wn000.000kg or wn000.000lb

The format of Tare: wt000.000kg or wt000.000lb

Note：The position of above decimal is decided by the decimal set on the indicator.

(2) In command mode (all of them are ASCII):

The indicator performs the corresponding operation according to the command transmitted from the indicator.

Command R The indicator receives and sends weight data once time (the format is the same as the continuous mode)

Command T The indicator receive the command and tare (the same as tare key); if no receipt of the command. The indicator returns CR LF

Command Z The indicator receives the command and zero (the same as zero key); if no receipt of the command, the indicator returns CR LF.

Chapter 3 Calibration

3.1 GENERAL CALIBRATION

Connect load cell properly, then turn on the indicator, keep pressing **[#]** key while it's initializing, it will enter the calibration mode, and display 【d X 】.

STEP	OPERATION	DISPLAY	NOTES
1	Press **[TARE]** to change the division, and press **[#]** to confirm	**[d X]**	Division setting. For example: Press **[#]** when displayed【d 5】, then the division is set to be"5", and the indicator enters decimal point setting. Note: The 10, 20, 50 divisions are only valid when there is no decimal point. When there is a decimal point, the 10, 20, 50 divisions will be turned to 1, 2, and 5 automatically.
2	Press **[TARE]** to change the decimal point, and press**[#]** to confirm	**[P X]**	Decimal point setting For example: Press **[#]** when displayed【P 0.000】, then the decimal point is set to be "0.000", and the indicator enters full capacity setting Note: When there is a decimal point, division 10, 20, 50 are invalid, and will be turned to 1, 2, and 5 automatically.

3	Press **[TARE]** to select the digit bit; Press **[ZERO]** to change the value; Press **[#]** for confirm the input of full capacity	**[FULL]**	Full capacity setting For example: Press **[#]** when displayed【025000】, then the full capacity is set to be “25000”, and the indicator enters zero point calibration
4	Make sure there is no load on scale, and press **[#]** when the stable indication sign is on	**[nOLOAD]**	Zero point calibration
5	Add full capacity load, press **[TARE]** to continue	**[AdLOAD]**	Calibrate the full capacity For example: Load 25000 weight on scale(as we set in step 3) Use **[TARE]** and **[ZERO]** to change the value to be 25000. When stable indication sign is on, press **[#]** to confirm.
	Press **[TARE]** to select the digit bit; Press **[ZERO]** to change the value accordingly with the full capacity; Press **[#]** to confirm when the stable indication sign is on	**[025000]**	
6	Press the calibration switch at the back housing of the indicator.	**[End]**	It saves the calibration parameter and back to the weighing mode. **Note**: if no pressing the calibration switch at back of indicator, all the parameters won’t be saved.

3.2 FAST CALIBRATION

Connect load cell properly, then turn on the indicator, keep pressing **[#]** key while its initialization, it will enter into the calibration mode, and display 【d X 】.

3.2.1 Fast calibration of zero point

At any time before it showing **[nOLOAD]**, press **[FUNC]**. Indicator will keep the original division, decimal point, full capacity, and enter the zero point calibration directly. Making sure there is no load on the scale, and the stable indication sign is on, press **[ZERO]** to re-calibrate the zero point. The indicator will display **[End]**. Press the calibration switch at the back of the indicator to save the setting and get back to the weighing status.

3.2.2 Fast calibration of full capacity

At any time before it showing **[AdLOAD]**, press **[*]**. It keeps the original division, decimal point, full capacity, zero point, and enters into the full capacity calibration directly. After the full capacity is reset, press the calibration switch at the back of the indicator to save the setting and get back to the weighing status.

Chapter 4 Operation

4.1 POWER ON AND AUTO ZERO-SETTING

4.1.1 The indicator will perform “000000-999999” to self-checking when turning on. Then it will enter weighing mode.

4.1.2 When power on, if loading weight on the scale deviates from the zero point, but still within zero set range, the indicator will set zero automatically; if out of range, it is necessary to adjust the zero point or recalibrate or reset.

4.2 MANUAL ZERO SETTING (AUTOMATICALLY)

4.2.1 In weighing mode, when there is some error when unloaded, press [Zero] to make the indicator to be zero.

4.2.2 If the displayed value deviates from zero point, but still within zero-range, pressing [Zero] key is available. Otherwise, [Zero] key is invalid. (In this status, please recalibrate or reset zero parameters)

4.2.3 Only when stable annunciator is on, zero operation can be available.

4.3 TARE FUNCTION

When Indicator at weighing status, and displaying positive weight stable, press [Tare] key, indicator will deduct the displayed weight value as tare weight. Then indicator displays net weight as “0 ”, and Tare sign annunciator is on.

4.4 COUNTING FUNCTION

In weighing mode, press [Func] to enter the counting state, it will display “count”, and press [*], it will display “C00000”, then press [Tare] to move the digit corresponding with the small triangle, press [ZERO] key the digit where the triangle is will increase one, input sample number, press [*] to enter into counting mode, the corresponding indicating triangle light will be on. Press [Func] to return back to weighing mode.

In counting mode, the display will show “count”, press [*] twice, it will enter into counting mode directly, indicator will calculating the sample and display it. (in this process, if “ERR 4” shows, it means the sample is failed, indicator will show last time’s sample.)

4.5 ACCUMULATING FUNCTION

In weighing mode, press [*] key, indicator will accumulate current weight, press [*] again, it will return back to weighing mode.

In zero mode, press [*], it will show current accumulating value, in the accumulating mode, press [Func] to zero the weight.

4.6 USER’S FUNCTION SETTING

In weighing mode, keep pressing [Func] for 5 seconds more, it will enter operator setting mode (mode P), there are 12 modes from P1 to P12 for option, press [*] to choose the mode and press [Tare] to change the parameter. The description of parameter as follows:

1、P1	x	kg Lb change
	x=1:	kg display
	x=2:	Lb display
2、P2	x	automatically power off
	x=1:	No this function
	x=2:	Power off 10 minutes later
	x=3:	20 minutes
	x=4:	30 minutes
3、P3	x	Baud rate setting
	x=1:	9600
	x=2:	4800
	x=3:	2400
	x=4:	1200
4、P4	x	RS232 Net/Gross weight output option
	x=1:	Net weight output
	x=2:	Gross weight output
	x=3	Tare weight output
5、P5	x	RS232 output mode option
	x=1:	No transmission (RS232 stop)
	x=2:	Continuous transmission
	x=3:	Continuous transmission when stable
	x=4:	Command mode
		（Z：zero，T：tare，R：transmit weight data once time）
	x=5:	scoreboard display (Current loop output)
	x=6:	scoreboard and RS232 simultaneously perform
6、P6	x	Power saving function setting
	x=1:	No power saving function
	x=2:	With power saving function
	x=3:	Invalid
7、P7	x	Zero-tracking scope
	x=1:	0.5e
	x=2:	1.0e
	x=3:	1.5e
	x=4:	2.0e
	x=5:	2.5e

	x=6:	3.0e
	x=7:	5.0e
	x=8:	Tracking forbidden
8、P8	x	Zero key scope
	x=1:	2%FS
	x=2:	4%FS
	x=3:	10%FS
	x=4:	20%FS
	x=5:	100%FS
9、P9	x	Zero scope upon starting
	x=1:	2%FS
	x=2:	4%FS
	x=3:	10%FS
	x=4:	20%FS
	x=5:	100%FS
	x=6:	Start ZERO forbidden
10、P10	x	Digital filtering intensity
	x=1:	high
	x=2:	middle
	x=3:	low
11. P11	x	Stable time
	x=1:	high
	x=2:	middle
	x=3	low
12. P12	x	Stable extent
	x=1:	low
	x=2:	middle
	x=3:	high

Chapter 5 Maintenance

5.1 To ensure the clarity and service life of the indicator, it must be kept away from direct sunlight during using, and the ground where the indicator stands must be smooth.

5.2 It is improper to use this indicator in a dustful or vibrant or damp environment.

5.3 The load cell and indicator need good connection. System must have a good ground connection, and kept away from strong electric field, strong magnetic field. The load cell and indicator must be kept away from strong corrosive substances and inflammable&

explosive materials.

▲！ Do not use it where inflammable gases or steams exist. Don’t use it for canning system of compressive container.

▲！ In the area where lightning and thunder happen frequently, reliable lightning arrester should be installed to ensure the personal safety and to prevent any damage to the indicator and relative equipment caused by lightning stroke.

▲！ The load cell and indicator are both static sensitive equipments, so anti-static measures must be taken during the use. It is strictly invalid to carry out welding operation or other operations with high current on the weighing platform. In the stormy season, lightening prevention measures must be taken reliably to prevent any damage to load cell and indicator caused by lightening stroke, and to guarantee the personal security of operators and safe running of weighing devices and relative equipments.

5.4 Strong solvents such as benzyl and nitro oils are forbidden for cleaning the housing

5.5 Don’t inject any liquid or other conductive particles so as to avoid any damage of indicator and electric shock

5.6 Before plugging in or out of the connecting line between indicator and external equipment, the power of both indicator and equipment should be cut off

5.7 Advice of the company: our company is responsible for the indicator quality, but not responsible for the problems of the system where the indicator locates. Your attention is required when making purchase.

5.8 Please use the indicator outward interfaces strictly as per the operating instruction manual. Do not change the connection at random. If failure occurs in the using process, draw the plug immediately, and send it for professional factory for reparation. Non professional balance manufacturers are not supposed to do the repairing to avoid any worse damage. It is not allowed to open the indicator at will, or else, repairing will be refused.

5.9 If non artificial defects and failures happen after normal use within one year after the sale date, the users can mail the product and guarantee repair card (with correct code) to the appointed reparation station or supplier. The manufacturer guarantees the life-time maintenance for the indicator.

Chapter 6 Error Indication

ERR 1	The AD value is too small when calibrating the full capacity Please change proper capacity load cell
ERR 2	The zero point is out of range when calibrating the zero point Please make sure no load is on the scale
ERR 3	The zero point is out of range when turning on

	Please make sure no load is on the scale when turning on
ERR 4	The input sample quantity is zero when sampling in counting mode Please input the right sample quantity
ERR 5	When full capacity calibrating, the weight input is zero Please input the weight in accordance with the load on scale
ERR 6	The unit weight is less than 0.25e when sampling in counting mode Please re-input the sample quantity
ERR 7	Load cell connection wire with problem, add load in calibration leads AD negative increase.
bAt-lo	Low battery

Warning: when this indicator is installed to electronic weighing instrument, a tag conform with national regulation must be stick on products.