

Weighing Indicator

XK3190-A10

User Manual

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Chapter 1 Main Specification

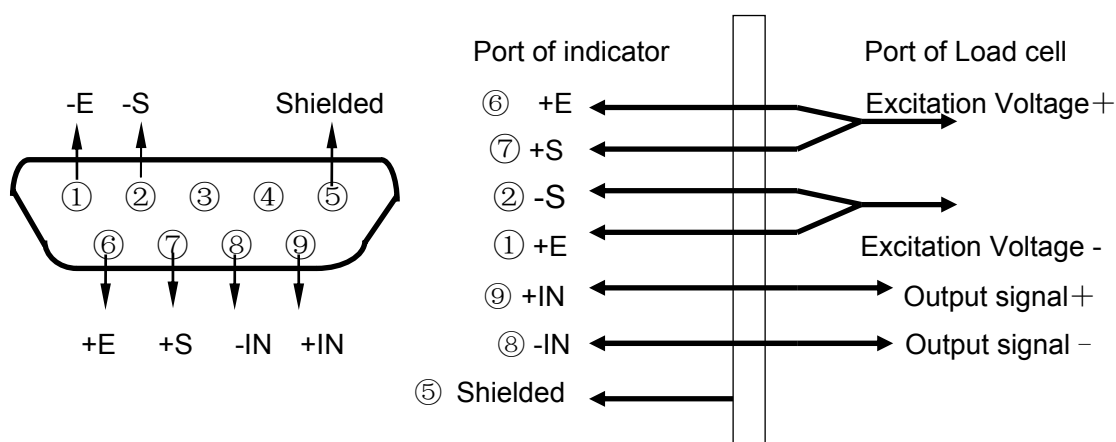
1. Model :	XK3190 - A10 weighing indicator
2. Accuracy:	Grade III , n=3000
3. Sample Rate :	10 times / second A/D conversion: $\Delta - \Sigma$
4. Load cell sensitivity :	1.5 ~ 3mV / V
5. Non-linearity	$\leq 0.001\%$ F.S
6. Load cell excitation :	DC 5V
7. Temperature coefficient at F.S:	≤ 2.5 PPM/ $^{\circ}\text{C}$
8. Division	1/2/5/10/20/50 for selection
9. Max. quantity for load cell connection:	4 at 350 ohm (with long distance compensation)
10. Display:	6 bits LCD , display lightness 7 grades adjustable, green LED back light 7 grades adjustable
11. Keyboard:	5 function key, 1 on/off key
12. USB interface (optional):	compatible with USB 1.1 and USB2.0
13. Communication interface (optional)	RS232C ;Baud rate 1200/2400/4800/9600 optional
14. Power supply:	AA 1.5V NH/alkaline cell X2
15. Operating temperature/humidity:	0 ~ 40 $^{\circ}\text{C}$; $\leq 90\%$ RH
16. transporting temperature:	-20 ~ 50 $^{\circ}\text{C}$

★★★ Note: Only one communication interface can be selected between USB and RS-232C. Which one will be used please inform us when you order the indicator.

Chapter 2 Installation

2.1 CONNECTING LOAD CELL TO INDICATOR

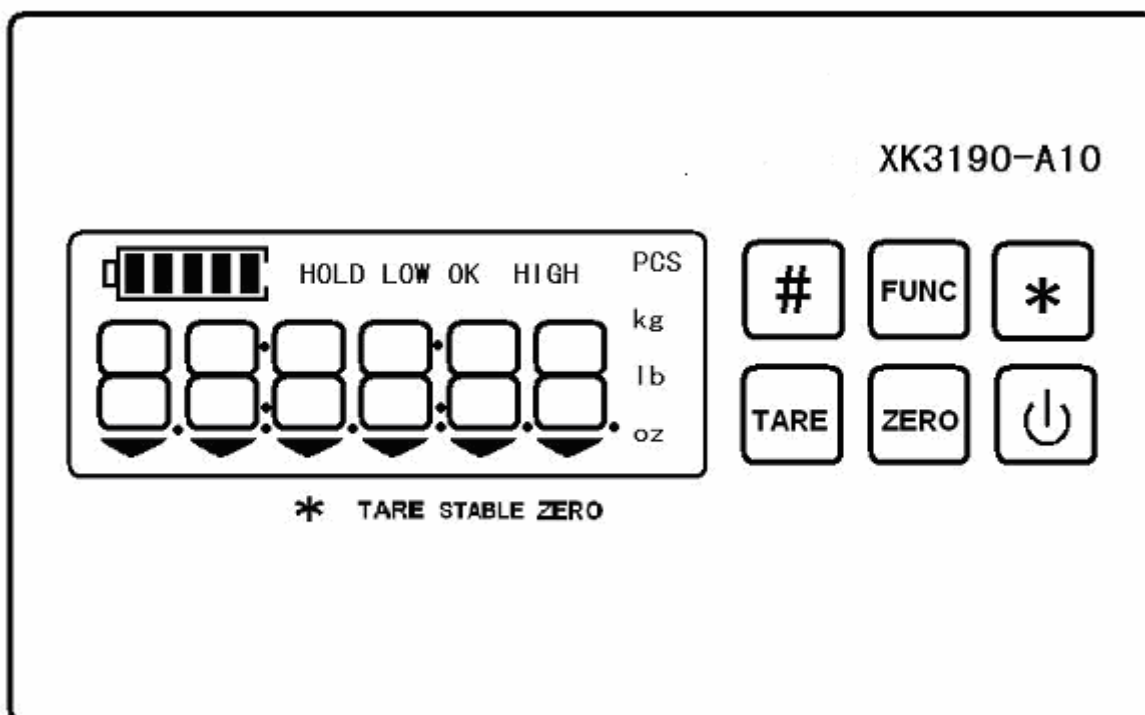
1. The 9-pin socket is used for the connection of load cell, which has been clearly shown in the graph 2-1.
2. The 6-pin shielded cable is used, and the indicator has function of long distance compensation.
3. Indicator must be reliably connected to Load cell and shielded-cable of load cell must be reliably connected to underground. If indicator is powered on, the user should not insert or withdraw the plug in order to protect the indicator and load cell.
4. Load cell and indicator are static sensitive devices; you must adopt anti-static measures. The electric welding operation and other strong electric operation are prohibited. In order to protect the operator, indicator, and relevant devices, you should install lightning rod in the thunderstorm frequently happening area



(Graph 2-1) Drawing of connecting of load cell

Note: If the user do not use the function of long distance compensation, please short connect pin ①② and pin ⑥⑦ of the male plug-pin DB9 of the port of load cell. Otherwise the indicator cannot be calibrated and work.

2.2 FRONT VIEW OF THE INDICATOR



2.3 KEY FUNCTIONS

[FUNC] Keep pressing this button for 3 seconds more in weighing mode, it will come into user function setting mode

[*] Press this button to accumulate the weight in weighing mode.

[TARE] Press this button to tare in weighing mode.


[ZERO] Press this button to zero in weighing mode.

[] Press this button for 1 second more to start the indicator when it is off; and press it to turn off when it is on.

[#] Press this button for 3 seconds more in weighing mode, it will come into high and low value setting mode: Press this button for 1 second more in clock mode, it will come into the clock setting mode

Chapter 3 Operation

3.1 POWER ON AND ZERO AUTO

- 3.1.1 After put into two AA 1.5V NH or alkaline cell, the indicator start the clock at 00 :00 :00, at that time the indicator costs the power lest, two pieces of AA 1.5V alkaline cell can continuously use for above two years. (Nickel-metal hydride durability depends on its self electricity leakage).
- 3.1.2 Press [] key for more than 1 second, indicator first display “on” ,then start “000000 ~ 999999” self-checking , then show the software version thus finishing initialization and come into weighing mode.
- 3.1.3 When power on, if loaded weight on the scale deviates from the zero point, but still within auto zero set ting range, the indicator will zero automatically; if out of range, it is necessary to adjust the zero point or recalibrate or reset.

3.2 ZERO MANUALLY

- 3.2.1 In weighing mode, when there is some tolerance when unloaded, press [Zero] to make the indicator zero.
- 3.2.2 If the displayed value deviates from zero point, but still within manual zero-range, pressing [Zero] key is effective Otherwise, [Zero] key is invalid. (In this status, please recalibrate or reset zero parameters)
- 3.2.3 Only when stable indication light is on, zero operation can be effective

3.3 TARE

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 indication is on.

3.4 ACCUMULATION

In weighing mode, when the displayed value is positive and stable indication light is on, press [*****] key to accumulate the present weight and display the accumulated weight, the accumulate indication light“(*)”will be on. Press this key again, it will come back to weighing mode and the accumulate indication light“(*)”will be off. The next accumulation operation must be performed after the weight returns to zero. When the accumulation weight is displayed, press [**Func**] key to clear the accumulation weight in memory and press [*****] to return weighing mode. If one wants to check the accumulation weight, please keep the load of platform to be zero, then press [*****] to display the accumulation weight.

3.5 CLOCK SET

In clock display mode, press [**#**] for more than 1 second, entering the clock setting mode, the triangle cursor below the first digit of the monitor will be on, press [Tare] can move the cursor in sequence circularly, press [Zero] can change the value of the current cursor,



at last press [#] to save the change and back to the clock display mode. If press [] key during the setting, then it will exit clock setting mode without saving and back to clock display, the original clock set will not be changed.

3.6 USER'S FUNCTION SETTING

In weighing mode, keep pressing [Func] for 5 seconds more, it will enter user's setting mode (mode P), there are 12 parameters in this mode from P1 to P12 for setting, press [*] to choose the parameter value and press [Tare] to choose the parameter. The description of parameter is as followed:

1、 P1 UNIT kg--Lb change

The right side indication of the display shows the chosen unit, default unit is Kg.

2、 P2 x auto power off setting (X=10 default setting)

X=0: No function of auto power off

X=10: Auto power off if no keyboard operation and weight change for 10 minutes

X=20 : Auto power off if no keyboard operation and weight change for 20 minutes

X=30 : Auto power off if no keyboard operation and weight change for 30 minutes

X=60: Auto power off if no keyboard operation and weight change for 60 minutes

3、 P3 x Baud rate setting

X=9600: 9600bps

X=4800: 4800bps

X=2400: 2400bps

X=1200: 1200bps

4、 P4 x Data output selection

X=USB USB output

X=232 RS232 output

Note: Communication interface is optional, please choose the right one according to need.

Data Format: Indicator will send out the weighing data in ASCII code after receiving "read" command from PC in command mode or automatically send out in continuous mode. Each frame conclude 8 bytes (including the decimal), the sequence of the data transmission is from low to high, mark of the interval will be "="

For example: The current display shows 31.90, the indicator will continuously send out 09.1300=09.1300=09.1300=

5、 P5 x RS232 output mode option

X=OFF: No transmission (RS232 stop)
 X=Cont: Continuous sending mode
 X=comd: on command mode
 "Read" command is ASCII code "R(0x52)" or "r(0x72)", the indicator will send the current weighing data once it gets command from PC.

6、 P6 x Backlight setting

X=OFF: No backlight
 X=AUto: Automatic backlight
 X=On: Keep backlight all the time

7、 P7 x Backlight brightness setting

x=1-7 totally have 7 brightness , 1=darkest, 7= brightest, default set=4

8、 P8 x LCD contrast setting

x=1-7 totally have 7 grade, 1=darkest, 7= brightest, default set=4

9、 P9 x Zero-tracking range

X=0.5E: 0.5e
 X=1.0E: 1.0e
 X=1.5E: 1.5e
 X=2.0E: 2.0e
 X=2.5E: 2.5e
 X=3.0E: 3.0e
 X=5.0E: 5.0e

10、 P10 x Manual zero range

X=2: 2%FS
 X=4: 4%FS
 X=10: 10%FS
 X=20: 20%FS

11、 P11 x Auto zero range

X=2: 2%FS
 X=4: 4%FS
 X=10: 10%FS

X=20:	20%FS
X=50:	50%FS
X=100	100%FS

12、P12 p-x For future usage


13、xxxxxxx Calibration coefficient

Inputting the calibration coefficient after change the indicator or PCB can let you using the new Product immediately without re-calibration.

We hereby strongly recommended: Before using the indicator, please record this coefficient and keep it with you safely for standby.

3.7 HIGH AND LOW LIMIT VALUE SETTING AND APPLICATION

In weighing mode, press [#] for more than 3 seconds, then HIGH indication is on, the displayed value is just for HIGHT LIMIT. Pressing [Func] key can switch between HIGH AND LOW LIMIT value. The corresponding indication of HIGH or LOW will be on and related value for HIGH or LOW limit will be displayed.

Press [Tare] can move the triangle cursor below the monitor in sequence circularly, press [Zero] can change the value at the current cursor, at last press [#] to save the change and back to the weighing mode. Or you can press [] key to power off without saving the change.

If you set High or Low limit value exceed the maximum capacity of the indicator, the setup is invalid, so it is if the low limit value is more than the high limit value.

The High and Low limit value will be automatically cleared to "0" if you switch the weighing unit or re-calibrate the indicator.

If the setting is effective, after the stable indication light is on

If the current weight is less than the low limit value, LOW indication will be on;

If the current weight is between HIGH and LOW, OK indication will be on;

If the weight is more than the high limit value, HIGH indication will be on.

When any one of the indication among HIGH, LOW, OK is on, the related pin at the PCB will output the high electrical level, and other pins output the low electrical level, these simple output can be applied for easy control.

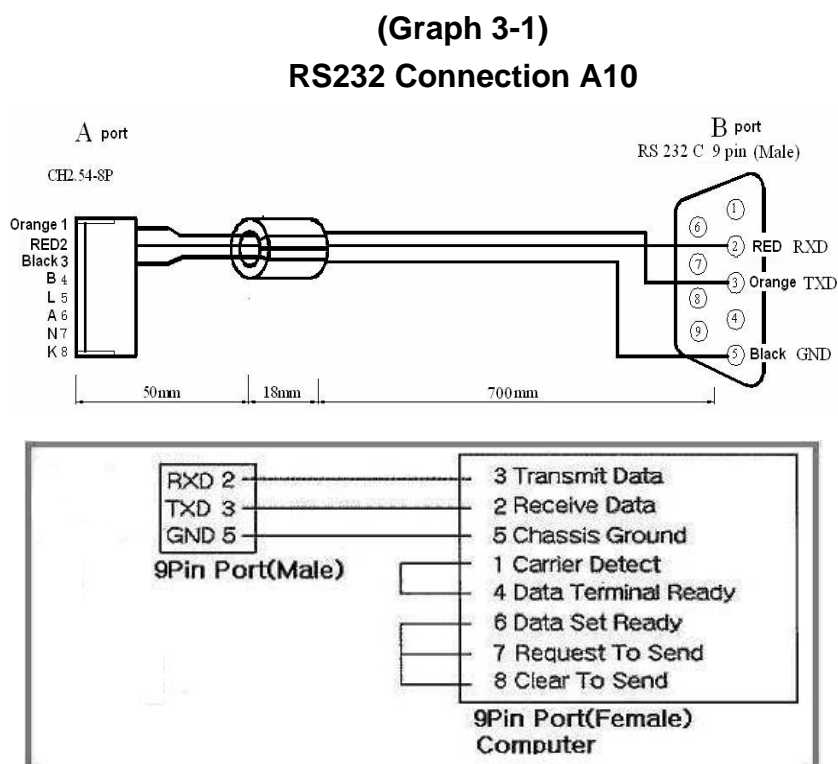
3.8 CONNECT SCOREBOARD TO INDICATOR (FUNCTION OPTIONAL)

3.8.1. RS232 signal is used for scoreboard connection, which is transmitted in serial binary code style. The baud rate is changeable.

- Make sure that scoreboard and signal output is 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.

3.9 SERIAL COMMUNICATION AND INDICATOR CONNECTION

- Make sure that communication interface output and computer is 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.



Chapter 4 Calibration

4.1 Connect load cell properly, then turn on the indicator, press [#] key while it is initialization, it will enter into the calibration mode and calibrate as following:

STEP	OPERATION	DISPLAY	NOTES
1	Press [TARE] for selection of division	[d X] [d 20]	Select division optional (1/2/5/10/20/50), press [#] for confirm and will go to next step. Example: 20 (When [d 1] means 5 times press [TARE] to select.
2	Continue by Step 1 Press [TARE] for selection of DECIMAL POINT selection	[P X] [P 0.000]	Select decimal point optional: 0~0.000, press [#] for confirm and will go to next step Example:0.000 (when [p 0] means 4 times press [TARE] to select
3	Continue by Step 2 Set the full range Press [TARE] for selection of the digit bit; Press [ZERO] for selection of the digit;	[FULL] [000000] → ▼ → ▼	press [TARE] key, move indication"▼" to right in sequence to select the digit bit, then press [ZERO] , the digit above the indication "▼" will add from 0 to 9, repeated the operation till the target full range finished Press [#] for confirm the input of full range and will go to the next step
4	Continue by Step 3 Zero point calibration: Press [#] when the stable signal is on	[nOLOAD]	Assure there is no load and wait for "▼" Press [#] to finish the zero point calibration and go to the next step.
5	Continue by Step 4 Full range point calibration:	[AdLOAD] [000000] → ▼ → ▼	1. Weight calibration method: First when [AdLOAD] occur put on the weight. Then inputting the loaded weight, press [TARE] key, move indication"▼" to right in sequence to select the digit bit, then press [ZERO] , the digit above the indication "▼" will revolve from 0 to 9, repeated the operation till the target full range finished Press [#] when the value input is the same as the loaded weight and the stable signal is on and will go to the next step 2. Coefficient calibration method: No need to add the Weight. press [TARE] key, move indication"▼" to right in sequence to select the

			digit bit, then press [ZERO] , the digit above the indication "▼" will revolve from 0 to 9, repeated the operation till the target full range finished Press [FUNC] when the value input is the same as the inside calibration coefficient and the stable signal is on and will go to the next step
6		[End]	
7	Press the calibration span under the lead sealing board at the back of the indicator		It saves the calibration parameter and back to the weighing status. Attention: if no pressing the calibration switch, all the parameters won't be saved.

★★★REMARK 1: Coefficient calibration is not allowed in the situation of first time calibration or calibration after change the weighing load cell. The coefficient calibration is only allowed in the situation of changing the indicator or PCB .

★★★REMARK II: No matter what calibration methods to be used, you must first get the qualification according to the local measuring law.

★★★REMARK III: The Method to check the calibration coefficient: In weighing mode, press **[FUNC]** more than 3 seconds, it will display **[P1 X X X X]**, continuously press **[TARE]** key, the display will change to **[P 2 X X X X]**, **[P 3 X X X X]** in sequence....., after shows **[P 1 2 X X X]**, press **[TARE]** key will show u a number " X X X X X X". This number is the calibration coefficient. Finally directly press **[]** Finish.

Chapter 5 Error Indication

EER 1	The AD value is too small when calibrated at full range point.
EER 3	The zero point is out or auto zero range upon starting

Chapter 6 Maintenance

- 7.1 To guarantee indicator clarity and using life, the indicator shouldn't be placed directly under sunshine and should be set in the plain space.
- 7.2 The indicator can't be placed into the place where the dust pollution and vibration are serious.
- 7.3 Load cell should connect with indicator reliably, and the system should be well connected into ground. The indicator must be protected from high electrical field and high magnetic field.
- Please avoid to use the indicator in the place that have burnable gas or burnable steam: Also cannot apply to the filling system for the pressure case.
 - In order to protect the operator, indicator and relevant device, you should mount lightning rod in thunderstorm frequently happening area.
 - Load cell and indicator are static sensitive device, you must adopt anti static measures.
- 7.4 It is strictly forbidden to clean the case of indicator with intensive solvents (for example: benzene and nitro oils)
- 7.5 Liquid and conducting particle should not be poured into the indicator, otherwise the electronic components will be damaged and electric shock is likely to happen.
- 7.6 You should cut off power supply of indicator and relevant device before you pull-in and out the connecting line of indicator and external device.
- You must cut off power supply of indicator, before pulling out connecting line of load cell.
- 7.7 During operation, if trouble occurs, operator must pull off the power supply plug immediately, and user should return this indicator to our company for repair. Non-weighing manufacturer should not repair it, or by yourself, otherwise further destruction may happen.
- 7.8 The storage is not granted the free repair guarantee, because it is easily exhausted products.
- In order to prolong using life, please charge the cell fully before using it. If you don't use the indicator for a long time, you must charge the cell every two month and for eight hours/each charging time.
 - Moving or installation must be carefully taken and must avoid strong vibration, impact and bump in order to protect the storage cell from being damaged.
- 7.9 From invoice date, the indicator has a one-year free repair period. If any non-artificially obstacle about the indicator happens under correct using conditions within this period, the user is allowed to send the product with its guarantee card (of the correct number) back to our corporation for free repair. The indicator shouldn't be taken apart, otherwise free guarantee will be cancelled.