VI 120 USER MANUAL

WEIGHING INDICATOR

USER MANUAL

（1.00 VERSION）

VI 120 INDICATOR

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CONTENT

VI 120 INDICATOR

Chapter 1 Main Parameters

1. Model：   VI 120 INDICATORWeighing Indicator

2. Accuracy：   3 degree, n=3000

3. Sampling speed：   10 times/ second

4. Sensor sensitivity range.：   1.5～3mV / V

5. Division：   1/2/5/10/20/50 options

6. Displayer：   6 digits LED，12 indicating lights

7. The Scoreboard interface (optional): serial output mode is adopted, current loop signal is adopted, transmission distance is ≤ 2000 m

8. Communication interface (optional): RS232C; baud rate 1200 / 2400 / 4800 / 9600 optional

9. Power：   Lithium Battery DC3.7V/4.4Ah

10. Service temperature：   0℃～40℃

11. Storage and transportation temperature：   -25℃～55℃

12. Humidity：   ≤85%RH

13. Instrument features:

a. High precision A / D conversion, readability up to 1 / 30000;

b. It is convenient to call the internal code to display and replace the tolerance of weight observation and analysis;

c. Special software technology to enhance the anti- vibration ability of the system;

d. The speed, amplitude and stable time of digital filtering can be set;

e. Weighing and counting function (single piece weight has power-off protection);

f. Choose RS232 communication port, baud rate and communication mode;

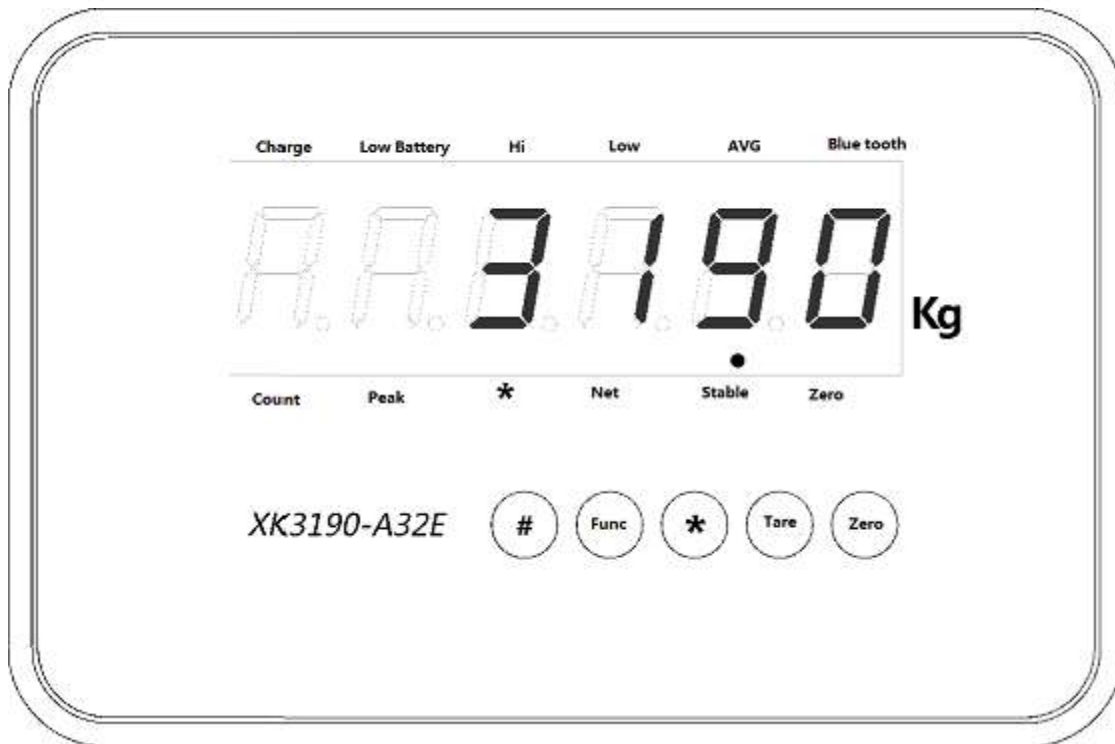g. 20 mA current loop large screen communication port is selected;

VI 120 INDICATOR

h. Select USB communication port and communication mode;
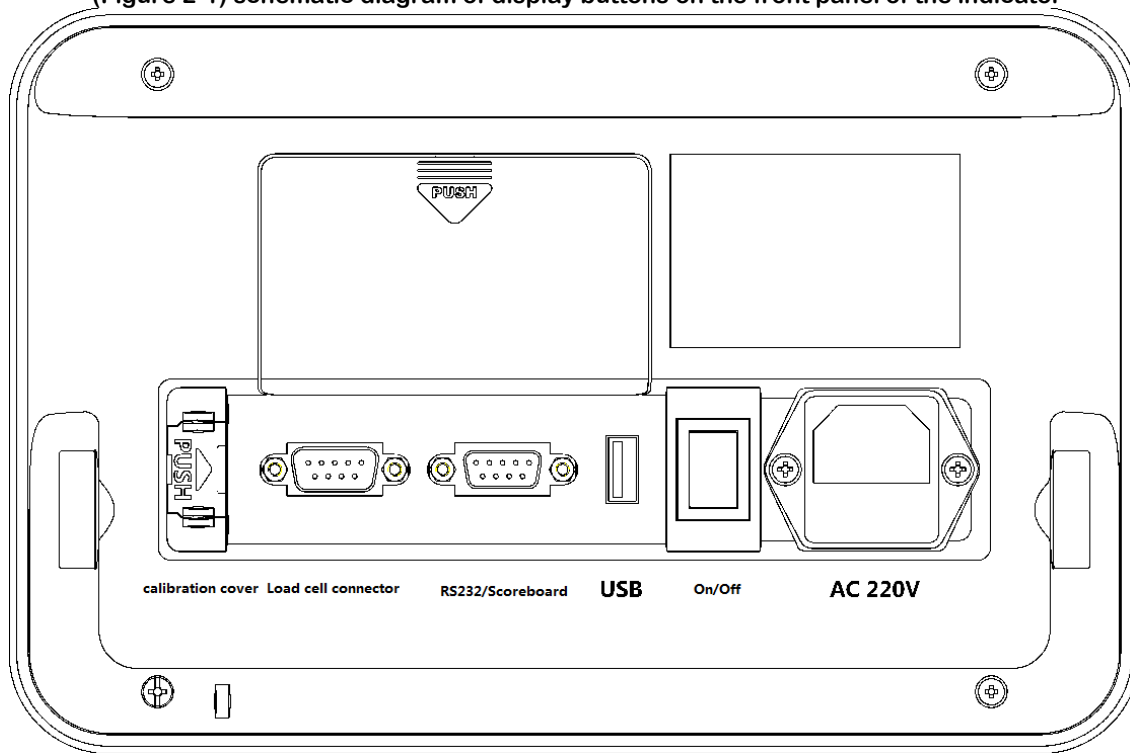
i. Select 2.0 Bluetooth module;

Chapter 2 Appearance & Connection

1. **Schematic Diagram Of Instrument Housing:**

VI 120 INDICATOR

(Figure 2-1) schematic diagram of display buttons on the front panel of the indicator

(Fig. 2-2) schematic diagram of rear cover plate interface

2. Keyboard Function

1) 【 # 】: Press this key and hold for a while to enter the calibration mode.

2) 【Function】： In the weighing status, press this key for more than 3 seconds to enter the user setting mode

3) 【 * 】： In the weighing status, press this key to accumulate the current weight

4) 【Tare】： Press this key to remove the tare weight when weighing

5) 【Zero】： In the weighing status, press this key to display the weight as zero.

3. Connection between Load Cell And Indicator

1). The load cell is connected with a 9-core plug socket. The definition of each pin is shown in Figure 2-3.

2). Please use six core shielded cable to ensure good metering performance of the indicator. If there are only four core shielded cables on site, make 1 pin and 2 pin short circuit, make 6 pin and 7 pin short circuit at the 9-core sensor connector.

VI 120 INDICATOR

▲！ **The connection between the load cell and the indicator must be reliable, and the shielding wire of the load cell must be reliably grounded. The connecting line is not allowed to be plugged in and out when the indicator is powered on to prevent the indicator or load cell from being damaged by static electricity.**

▲！ **Sensors and instruments are electrostatic sensitive equipment. In use, anti-static measures must be taken. It is strictly forbidden to carry out welding operation or other strong current operation on the scale platform. In thunderstorm season, reliable lightning protection measures must be implemented to prevent the damage of sensors and instruments caused by lightning strike, so as to ensure the personal safety of operators and the safe operation of weighing equipment and related equipment.**
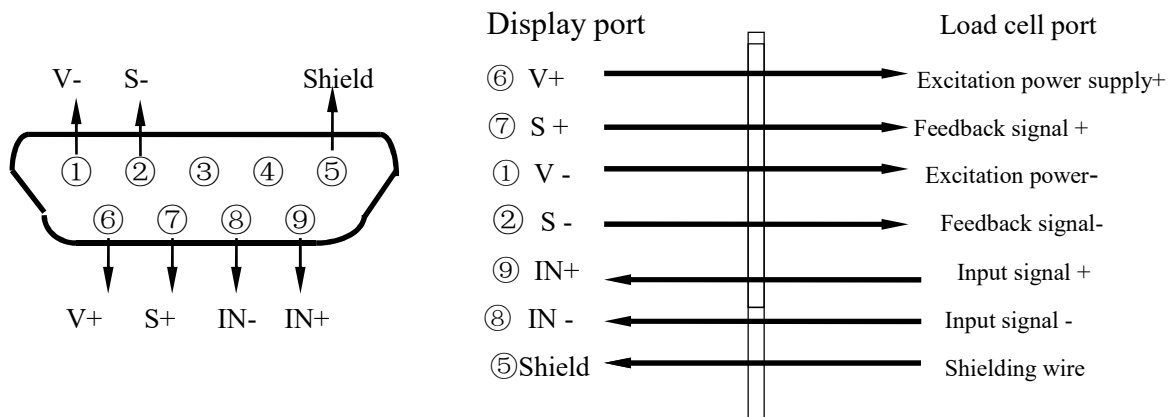
(Figure 2-3) Load cell connection diagram

If four core shielded cable is used, short connect V-and s-, v+ and s+. If s- and s+ are not connected, the indicator indication may drift.

(Figure 2-4) Connection diagram of indicator, computer and scoreboard

4. Connection between large screen and indicator (optional function)

The scoreboard signal is 20mA constant current loop signal, which is serial output with binary code and baud rate is 600. Please refer to figure 2-4 for the connection method between indicator and scoreboard.

> The connection between the output lead of the indicator and the scoreboard display must be accurate and correct. If the connection is incorrect, it will damage the output port of the indictor or the input port of the scoreboard display, or even seriously damage the indicator and the scoreboard display. It is required to use the special connecting wire.

5. Connection between serial communication interface and indicator (optional function)

> The connection between the output lead of communication interface and computer must be accurate. If the connection is incorrect, the output port of indicator or computer will be damaged.
>
> Communication input port, and even serious damage to the indicator and computer and the corresponding external equipment. Computer communication must have the necessary computer technology and programming ability, and must be participated or guided by professional and technical personnel. Non- professionals please do not connect at will.

Xk3190-A32E indicator has RS232 serial communication interface, which can communicate with computer. Please refer to figure 2-4 for the connection method between indicator and computer.

RS232C is used as communication interface, and all data are ASCII. The data format is 1 start bit, 8 data bits, 1 stop bit, and no check. The communication modes are as follows:

Mode 1:   P5 = 2: continuous transmission

The data transmitted is the weight (gross weight, net weight or tare weight, determined by P4 parameter).

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

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

T.W format(Tare weight)：   wt000.000kg   or   wt000.000lb

Model 2   P5=3： Continuous transmission after stabilization

The database sent is the same as mode one.

Model 3   P5=4：

Instruction mode (all command words are ASCII characters)

Command R – the indicator receives the command and sends the weight data once (the format is the same as the continuous mode 1)

Command t – the indicator receives the command, the instrument peels (the same as peeling key), and the indicator returns to CR LF

Command Z – the indicator receives the command, sets the instrument to zero (with the zero key), and the indicator returns to CR LF

Model 4 P5=5: Continuous transmission (A7 format)

Data format: = < weight data (including decimal point) >: six digit signed weight data including decimal point, ASCII code.

Weight data are the lowest in the front, high and symbol bit in the last. The negative sign bit is sent as "-" and the positive sign bit is sent as 0.

For example: if the weight of the current meter is 500.00kg, the serial output data is: = 00.0050.

6. Connection between USB interface and indicator (optional function)

The baud rate of the indicator must be set to 9600 (P3 is set to 1), and the communication mode is consistent with the protocol and the serial communication mode. For details, please refer to the chapter of serial communication interface and instrument connection;

Note: USB connected computer needs to install relevant drivers. Please download the driver and installation instructions from Yaohua official website

Chapter 3 Operating instructions

1. Power on and automatic zero setting

1) After the power is turned on, the indicator carries out self-test of "000000 ~ 9999", and enters the weighing state after initialization.

2) When starting up, if the weight of the scale platform deviates from the zero point, but is still within the set range of zero setting, the indicator will automatically set to zero; if it is within the set range of zero setting, the indicator will automatically set to zero

If it is beyond the zero range, the indicator will alarm "err 3", indicating that it is beyond the zero range. At this

time, it is necessary to remove the weight on the scale platform or adjust the zero position of the scale body, or recalibrate and set it.

2. Manual zero setting (semi-automatic zero setting)

1) In weighing status, if there is deviation when empty scale, press [zero] key to return the indicator to zero.

2）when the display value deviates from zero but is still within the zero setting range, press the [zero] key that can work out, Otherwise, press the [zero] key that can't work out. (At that time, the calibration must be re-set up or the zero parameter must be re-set up)

3). only when the stability light is on, the zero setting operation can be carried out.

3. Tare function

In the weighing status, when the displayed weight is positive and stable, press the [Tare] key to deduct the current weight as tare weight. At this time, the indicator shows that the net weight is 0 and the net weight light is on.

4. Peak value holding, average value and counting function: select enable through function setting P2. After selection, you can start or stop the selection function through [#]. For example:

P2 select 2, press the [#] key, and the average value light will be on. At this time, the indicator will judge automatically. When it is relatively stable, the indicator will start to calculate and display the average value, and the average value will be displayed after flashing. After the current weight returns to zero, the average value will be cancelled, and the next average value can be weighed;

P2 select 3, in the weighing state, press the [#] key, the peak light is on, the instrument is in the automatic peak keeping working state, the maximum weighing data can be maintained, and the data can be released after the weight returns to zero.

P2 select 4, counting scale mode, press [#] key, weighing status press [#] to display "count", press [#] to display "c00000"; after placing the sample, press [zero] and [tare] keys to input its quantity, and press [#] to confirm; after the indicator automatically calculates the unit weight, the "CN in" counting indicator light will be on, and enter the counting status; if the input sample quantity is 0, The indicator prompts "err 4" and calls the last stored unit weight as the calculation benchmark;
In the counting state, press [#] to display "CN end", and the meter will exit the counting state.

5. Accumulative function:

1）Manual accumulation: under the normal weighing status, when the measured data is greater than or equal to 20 divisions and the data is stable, press the [*] key, and the indicator will execute the function of

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"manual accumulation of measured value". At this time, the indicator will first display the accumulated total data (in two steps): [total =] (prompt that the content displayed below is the accumulated total data) display about 1 second, then display the accumulated data [* *], and then display the total accumulated times (in two steps): [n =] (prompt that the content displayed below is the times) display about 1 second, then display the accumulated times [*], and then the accumulated indicator light [*] is on.

2) When the scale is empty, press the [*] key to display the accumulated value and times.

3) Short press the [function] key to clear the current cumulative value in the cumulative state.

6. **Pre-set tare weight and upper and lower limit alarm: under normal weighing state, long press [#] key. The steps are as follows**

Step	Operation	Display	Representative
1		[******]	Weighing status
2	Press[#] key	[P00000]	Prompt the user to input the preset tare value. The preset tare weight can only be set to 5-digit tare weight at most.
3	Enter the preset tare value, such as "6000"	[6000]	Press the [#] key to confirm and enter step 4
4	Upper alarm value, e.g. "3000"	[H 00000]	Press the [#] key to confirm and enter step 5
5	Lower alarm value, e.g. "0"	[L 00000]	Press the [#] key to confirm and enter step 6
6		[******]	Return to the weighing status and display the net weight after taring

7. User function setting

In the weighing status, press the [function] key for more than 5 seconds to access to the user setting mode. There are 14 parameter settings from P1 to P14 in the user setting mode. Press the [tare] key to change the value, and press the [*] key to select the next parameter. The parameters are described as follows:

1、P1   x   kg / Lb. Switch

	x=1:	kg display
	x=2:	Lb. display
2、P2 x		function selection
	x=1:	none function
	x=2:	Start-up animal function
	x=3:	Turn on peak hold function
	x=4:	Start-up counting functions
3、P3 x		Baud rate setting
	x=1:	9600
	x=2:	4800
	x=3:	2400
	x=4:	1200
4、P4 x		RS232 selection of output net weight, gross weight and tare weight
	x=1:	output net weight
	x=2:	output gross weight
	x=3:	output tare weight
5、P5 x		RS232 Output mode selection
	x=1:	No transmission (RS232 stop)
	x=2:	Continuous transmission
	x=3:	Continuous transmission under stable status
	x=4:	Command mode (Z: zero setting, t: peeling, R: sending primary weight data
	x=5:	232 scoreboard communication format (A7 format continuous transmission)
	x=6:	for extension
6、P6 x		Power saving function setting
	x=1:	Turn off power saving function
	x=2:	Power saving mode 1, about 30 seconds
	x=3:	Power saving mode 2, about 60 seconds
	x=4:	Power saving mode 3, about 30 seconds, only pressing the key can exit the power saving state
	x=5:	Power saving mode 4, about 60 seconds, only pressing the key can exit the power saving state
7、P7 x		Range of zero track
	x=1:	1.0e
	x=2:	2.0e
	x=3:	3.0e
	x=4:	4.0e
	x=5:	5.0e
	x=6:	Track prohibited
8、P8 x		Zero range
	x=1:	2%FS
	x=2:	4%FS
	x=3:	10%FS
	x=4:	20%FS
	x=5:	100%FS
	x=6:	Manual zeroing is prohibited
9、P9 x		Start-up zero range
	x=1:	2%FS
	x=2:	4%FS
	x=3:	10%FS
	x=4:	20%FS

	x=5:	100%FS
	x=6:	start-up zero is prohibited

10、P10 x   Time intensity of digital filtering

       x=1:   Slow

       x=2:   Medium

       x=3:   Fast

       x=4:   Fastest

11、P11 x   Time for stability

       x=1:   Fast

       x=2:   Medium

       x=3:   Slow

12、P12 x   Stable range

       x=1:   Slow

       x=2:   Medium

       x=3:   High

13、P13 x   Refresh time of power indicator

       x=1:   Slow

       x=2:   Fast

14、P14 x   Display settings

       x=1-5:   Brightness 1-5

Chapter IV maintenance and precautions

1. In order to ensure the clear display and service life of the indicator, the indicator should not be used in

direct sunlight, and the place should be flat.

2．It is not suitable to use in places with serious dust and vibration, and avoid using in humid environment.

3．The load cell and indicator shall be reliably connected, the system shall be well grounded, away from strong electric field and strong magnetic field, and the sensor and instrument shall be away from strong corrosive objects and inflammable and explosive articles.

> ▲！ **Before plugging in and out the connecting line of the sensor, the power supply of the indicator must be cut off (shut down)!**
>
> ▲！ **Before plugging in and out the connecting line of the large screen, the power supply of the indicator and the scoreboard must be cut off first!**
>
> ▲！ **Before plugging in and out the communication connection, the power supply of the indicator and upper computer must be cut off first!**

4．It is strictly forbidden to use strong solvents (such as benzene, nitro oil) to clean the casing.

5．Liquid or other conductive particles shall not be injected into the instrument to prevent damage and electric shock.

6．Cut off the power supply of the indicator and corresponding equipment before connecting the indicator and external equipment!

> ▲！ **Do not use it in places with combustible gas or steam; do not use it in pressure vessel canning system.**
>
> ▲！ **In areas where lightning frequently occurs, reliable arresters must be installed to ensure the personal safety of operators and prevent the indicator and corresponding equipment from being damaged by lightning**
>
> ▲！ **Sensors and indicators are electrostatic sensitive equipment. In use, anti-static measures must be taken. It is strictly forbidden to carry out welding operation or other strong current operation on the scale platform. In thunderstorm season, reliable lightning protection measures must be implemented to prevent the damage of sensors and instruments caused by lightning strike, so as to ensure the personal safety of operators and the safe operation of weighing equipment and related equipment.**

7. The company advises customers: before using the company's indicator, the indicator should be tested and accepted. The company is only responsible for the quality of the indicator itself, and the maximum amount of compensation is less than 2 times of the value of the faulty indicator itself. It is not responsible for the system problems of the indicators.

8. The external interface of the indicator shall be used in strict accordance with the method indicated in the operation manual, and the connection shall not be changed without authorization. This table is in use

   In case of failure, the plug should be removed immediately and sent to a professional factory for maintenance. General non weighing professional manufacturers do not repair themselves, so as not to cause more serious problems. This

indicator is not allowed to be opened at will, otherwise it will not be guaranteed.

9. Within one year from the date of sale, under normal conditions of use, the non-human fault of this instrument is within the scope of warranty. Please send the product and

    The warranty card (with the same number) shall be sent to the special maintenance point or supplier together. The manufacturer carries out life-long maintenance for the instrument.

10. Indicator charging instructions:

    1）As long as the 220 V AC or USB cable is connected, the charging indicator light will be red, that is, the battery can be charged, and it can be charged in the on-off state. The green charging indicator indicates that the battery is full.

    2）The low voltage alarm under power indicator is on. If it is not charged in time, the instrument will shut down automatically.

Chapter 5 information tips

Error operation information prompt and Countermeasures:

1. `Err 1`   It means that the AD value is too small in full calibration. (Please select the appropriate sensor)

2. `Err 2`   Indicates that manual zero setting is beyond the allowable range. (Please check whether there are heavy objects on the platform)

3. `Err 3`   Indicates that the zero position exceeds the setting range when the machine is started. (The weight on the scale platform should be kept at zero when starting up)

4. `Err 4`   Indicates: counting status. When sampling, the number of input samples is zero. (When err 4 is displayed for 1 second, it will enter the counting state. At this time, it will work according to the result of the last sample sampling. When resampling, the sample number input cannot be zero.)

5. `Err 5`   Indicates: calibration status, full calibration time, input weight is zero. (Please input the same weight as that on the platform)

6. `Err 6`   It means: counting status. When sampling, the weight of a single piece is less than 0.25e. (Please re-enter the number of samples)

7. `Err7`   Indicates that the sensor wiring is faulty, and the ad code increases negatively during calibration loading.

VI 120 INDICATOR

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Calibration

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]**	Select division optional(1/2/5/10/20/50),press **[#]** for confirm Example: 20
2	Press **[TARE]** for selection of DECIMAL POINT selection	**[P X]**	Select decimal point optional: 0~3, press **[#]** for confirm Example:3
3	Set the full range	**[FULL]**	Press **[TARE]** for selection of the digit bit; Press **[ZERO]** for selection of the digit; Press **[#]** for confirm the input of full range
4	Zero point calibration: Press **[#]** when the stable signal is on	**[nOLOAD]**	Assure there is no load
5	Full range point calibration: Press **[#]** when the value input is the same as the loaded weight and the stable signal is on	**[AdLOAD]**	While inputting the loaded weight, Press **[TARE]** for selection of the digit bit; Press **[ZERO]** for selection of the digit; when the input value is the same as the loaded weight and the digit bit is at the highest bit, press **[#]** when the stable signal is on
6		**[End]**	

7	Press the calibration switch 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.