

XK3101M2 Portable WIM Indicator

# Operator' s Manual

REV1.0

## **1. Introduction**

WIM (weigh-in-motion) is the top technology in weighing field. Our company has long been engaged in the research, development and production of the axle load WIM system. In 2000, we developed the XK3101 indicator, which has the function of axle testing. And, due to its high reliability and precision in WIM, it gained the acceptance of most customers. And also our company is one of the few firms who have the intellectual property right of their own. This system (XK3101M2) was improved on the base of XK3101B; it is more reliable and more precise and can be used in portable vehicle scales and other axle load WIM systems.

## **2. Features**

- ◆ Excellent weighing function and high precision;
- ◆ Backlight lattice LCD, Clear both in daytime and nighttime;
- ◆ Can conveniently input full vehicle license number with letters;
- ◆ Can put in the name of the testing organization and operators;
- ◆ Built-in high speed printer to print the whole testing report form;
- ◆ Can store as many as 1300 vehicle testing records;
- ◆ mature inquiry and statistic function;
- ◆ AC/DC, real time battery capacity indicating. The battery can be used for 40 hours on end. Automatic shut off;
- ◆ The auto power supply system can be used for providing electricity and charging;
- ◆ The instrument can work independently. And it also can upload testing data to computers.

## **3. Main Technical Index**

- (1)full-scale temperature coefficient: 5ppm/°C
- (2) inner resolution: 24 bits
- (3) Sampling speed: 200 times/sec
- (4) the speed of display renewal: 12.5times/sec
- (5) system non-linearity <0.01%
- (6) impulse source of sensor: DC 5V±2%
- (7) operating temperature range: 0°C--40°C

**(8)Power supply sink (without the sensor): 70mA(no printing and no back lighting), 1000mA(printing)**

**(9) power supply: built-in 6V/10AH leading acid accumulator, and can connect with DC source (7.5V/3A or 12V/3A)**

#### **4.panel and the outer circuit connection**

##### **1) Panel diagram**

**[Truck]: truck number;**

**[Axle]: axle type(1,2,3,4,5,6,7);**

**[OP]: operator;**

**[SN]: serial number;**

**[Route]: route number(useless);**

**[Blight]: backlight;**

**[No.]: memory times;**

**[CE]: clear error input;**

**[LW]: input limit weight;**

**[TC]: total clear;**

**[DEL]: delete last record;**

**[DATE]: show date;**

**[Store]: store the current record;**

**[SUM]: show sum total weight;**

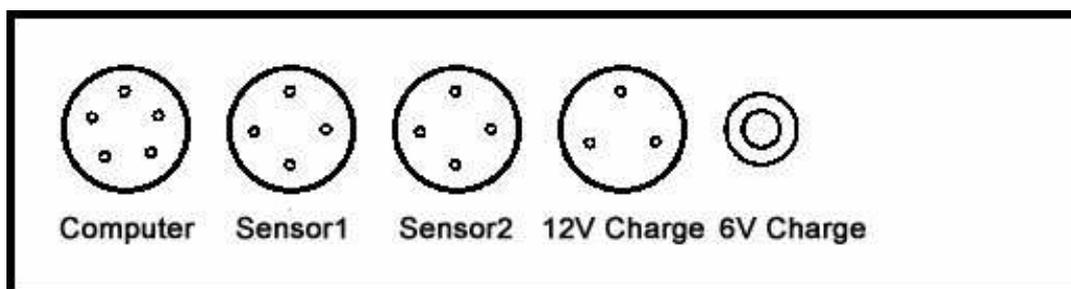
**[Last]: show the last record;**

**[Lock]: lock the current weight;**

**[TIME]: show time;**

**[Print]: print records;**

**[Zero]: zero the weight.**



## 2) Communication interface (optional)

A five-prong aeronautic-socket connects with the computer communication interface, its pins distribute as follows:

1: null    2:GND    3:TXD    4:RXD    5:null

## 3) Connection of sensor

A four-prong aeronautic-socket with four wires connects with the sensor, its pins distribute as follows:

1: signal(-)    2: signal(+)    3: Bridge (-)    4: Bridge(+)

## 4) DC source and charger interface

Two DC source interfaces are provided, one is 12V auto-power interface, which is a three-prong aeronautic-socket, pins distribute as follows:

1: 12V power anode    2: null    3: power cathode

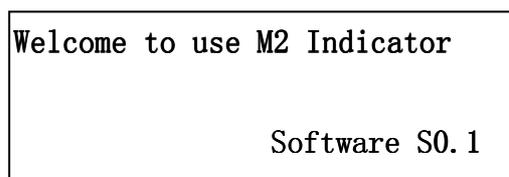
The other is charger jack, plug in this jack when using the charger provided by our factory

## 5.Operating manual for the instrument

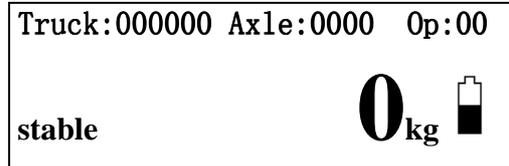
### 1) Start up

Ensure that no vehicles and persons on the scales before turn on the system.

(1) Turn on the electricity and the monitor showing the start-up interface:



(2) About 10 seconds later the instrument gets to the testing state, showing:



The battery icon on the right showing the residual capacity, recharge when it indicating that the battery is exhausting.

*Note: the symbol block of battery icon and residual capacitor of battery is just a rough proportional relativity.*

## 2) Testing Operation

You have to input the vehicle number and axle type in every testing operation

You only need to input operator and testing route at the first testing

The testing serial number is an optional.

The following is how to input the above-mentioned parameters:

(1) set the vehicle license number

Press **【Truck】** , and the cursor flashes at the first place of the vehicle license number:

The image shows a rectangular display area with a black border. At the top, it reads "Truck: 0000000 Axle:0000 Op:00". The first '0' in "0000000" has a small vertical line (cursor) under it.

Input the vehicle license number following the format of: XXXXXX

XXXXXX is the 6-bit vehicle license number including letters and numbers. The numbers can be input directly and the letters have to press 2 keys: first press the key containing the letter and then press the number indicating the location of the letter (1, 2, or 3). For example, If you need to input “A”, first press **【ABC】**, and then press **【1】**, if you want to input “E” then press **【DEF】** and **【2】**.

E.g.: A12345 input “ABC” “1” “1” “2” “3” “4” “5”

AF2356 input “ABC” “1” “DEF” “3” “2” “3” “5” “6”

If you confirm the input then press **【Truck】** again, if there are some errors in the input, you can press **【CE】** to correct the mistake.

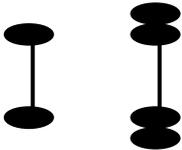
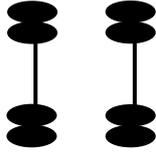
(2) input axle type

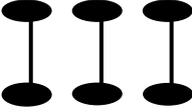
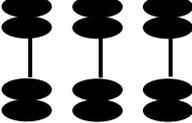
press **【Axle】**, and the cursor flashes at the first place of the axle type:

**Truck:0000000 Axle:0000 Op:00**

Input the axle type of the vehicle to be tested. For example the vehicle has three groups of axles, the types are 1 (single axle single wheel), 5 (two joint axles double wheels) and 5 (two joint axles double wheels) respectively, then input “155”, if confirmed press **【Axke】** if not correct press **【CE】** to modify.

**Axle Type Comparison Chart**

<b>Axle type</b>	<b>Number of axle type</b>	<b>Illustration</b>
<b>single axle , single wheel on either side</b>	<b>1</b>	
<b>single axle, double wheels on either side</b>	<b>2</b>	
<b>Two joint axles, single wheel on each side</b>	<b>3</b>	
<b>Two joint axles, a single-wheel and a double-wheel on each side</b>	<b>4</b>	
<b>Two joint axles, double wheels on each side</b>	<b>5</b>	

<p>Three joint axles, single wheel on each side</p>	<p>6</p>	
<p>Three joint axles, double wheels on each side</p>	<p>7</p>	

(3) set the Operator's number

Press **【OP】**, and the cursor flashes at the first place of the operator's number:

Truck:0000000 Axle:0000 Op:00

Input the operator's number and if correct press**【OP】** again, if not press**【CE】**to modify.

(4) set the testing serial number

Press **【SN】**, the upper row remains the same and the lower row indicating

Serial number: 18  (original serial number)

If no modification needed, press**【SN】**and quit, if modification needed, then input the new serial number(maximum 6 bits), confirm it and press**【SN】** again, or else press**【CE】** to modify it.

This system doesn't require the input of testing serial number. If the user doesn't set it, the system will automatically add one to the former number. The time you turn on the instrument, the value is the same as the one when you turn it off.

(5) vehicle testing

You should set vehicle license number and axle type on every testing, while the operator's number and the testing route only need to set during power on, and you don't need to set other parameters. The setting should be completed before the vehicle gets onto the scale platform. After the vehicles past the platform, the instrument will print the testing report form and indicating the testing result as following:

Truck:000000 Axle:0000 Op:00

Total weight 12560kg



You can press **【ZERO】** to come back to the weighing state.

The report form printed as follows:

**WEIGHING REPORT**

Serial No. :000005

Date:03/01/2005

Time:10:18

Truck:AC12345

Operator:01

Drive:

-----  
Total weight: 36780kg

-----  
No 1 axle type: 1

Axle weight: 5280kg

-----  
No 2 axle type: 2

Axle weight: 13250kg

-----  
No 3 axle type: 5

Axle weight: 18250kg

*Note: if there have been 624(or 1300) records stored, it will indicate "Memory full", so that you cannot store or print testing results any more.*

### 3. Other functions of the instrument

#### (1) Memory Display

press **【NO.】** , the lower part of the indicator will show the records stored and the maximum storage (one vehicle one record):

Memory Display: 158/624

The numerator indicating the records stored, and the denominator is the maximum storage (624 or 1300).

Pay attention to the memory space in case after the testing the result cannot be stored.

When the records stored are approaching the limit, you should Clear the memory.

(2) Eliminate the records stored

When there is no more memory for storing and the records have no further use, you should eliminate the records.

Press **【TC】** , the upper row of the indicator remain the same and the lower row showing:

Are you sure Delete?

If you really want to eliminate the records then press **【TC】** again, if no, press other keys.

*Note: this instrument will provide protection to the data stored; the data will not lose when power off. They can be only eliminated by hand.*

(3) Delete the record newly stored

If you don't need to store the record of the testing, press **【DEL】** , the upper row of the indicator remain the same and the lower row showing:

Are you sure Delete?

If you really want to delete the record then press **【DEL】** again, if no, press other keys.

(4) Reprint the Testing Report Forms

(a) print the testing report form afterwards

if after the vehicle leaves the platform but for some reason, the report form is not printed, you can press **【PRINT】** to print the testing results of that vehicle. And meanwhile, the instrument will show the corresponding testing result.

(b) print the previous testing report form

This system enable you to print any testing result stored in the memory. Set the vehicle license number of the record you need to print( see “set the vehicle license number”), then press **【SUM】【Truck】【PRINT】** in turn. The printer will print the testing result of that vehicle. And if there are several records of that vehicle, the printer will print all out. During the process of printing, the indicator will show every testing result in turn.

(c) print the records according to the operator

If you need to sum up the records of every operator and print them out, first set the operator's number and then press **【SUM】【OP】【PRINT】** , the printer will print out all

the records tested by that operator.

(d) print the records according to the date

print the records list of the day: press【SUM】【DATE】【PRINT】(year use the last two bits, the same in the following date setting)

print the records list of the month: press 【SUM】 【DATE】 【DATE】 【PRINT】

print the records list of other days: press 【DATE】 【××××××】 【DATE】 , and ×××××× is the date you want to print out and then 【SUM】 【DATE】 【PRINT】

(e) print the multi-parameter report form

Sometimes we need to check more than 1 parameter, for example if you need to print out the list of records of one specific operator on one specific day, so we need to refer to operator and date these two parameters. This system enables you to print out the records list with more than 1 parameter. Before this system this function could be only seen in the system of the PC equipped.

After set the parameters needed, press 【SUM】 【PARAMETER1,PARAMETER2,...】 【PRINT】 , and then the printer will do the rest of the job.

E.g. to print out the records tested by Peter Zhang (operator's number is 06) on 2005, March 18<sup>th</sup>, we've got 2 parameters to set: operator's number and date. Then we operate as follows:

set the operator's number: 【OP】 , 【06】 , 【OP】

set the date need to print: 【DATE】 , 【050318】 , 【DATE】

input the sum up order: 【SUM】 【OP】 【DATE】 【PRINT】

Users can easily figure out how to operate when it is needed to print out the record list of combination of other parameters.

Note: if the date is reset during the printing, then the date in the system is changed. User should correct it after printing so to avoid date confusion.

(f) Inquire/ print every weight record

This function is designed for inquiry or printing weight record, you can search at reverse order.

Press 【LAST】 , the monitor will show the previous inquire testing result at reverse order. If you need to print this record press 【PRINT】 , then a full list is in your hand.

If you press **【LAST】** again it will show the next record. If all the records stored in memory are showed, it will show “last record”. If you need to suspend the display, you just need to press **【ZERO】** .

(g) Zero Clearing

if the gross weight is not zero when the scale is empty and the zero indicate light is not light, then you can press **【ZERO】** , and the indicator shows zero, and the zero indicate light lights. And the **【ZERO】** key also unlock the axle mass set. Note: the zero Clearing range is 2%F.S.

(h) show/set time

there is a high-precision clock build in the instrument, press **【TIME】** and the current time will be showed. And press **【TIME】** again you will quit time showing. And you can input new time (24 hour) and then press **【TIME】** to set the new time. Say now it is 12:18:50, key in “121850”, the zero cannot be omitted.

(I) show/set date

The instrument has a built-in calendar, press **【DATE】** to show the current date, if it is correct press **【DATE】** again and quit. If not, input the new date and press **【DATE】** . For example 2005,march 18<sup>th</sup> should input “050318” .

*Note: if the date or the time input is wrong (like the date is not 6 bits or the value is not correct), the system will give a sound to alarm but will leave the date or time the way you input, and turn back to normal weighing state.*

The clock in the instrument is driven by chargeable battery. After the instrument powers off, it can continue running for 6 months, and the battery will automatically charge when the instrument powers on. If the battery runs out, it will cause the loss of time, date, and records, but it will not affect the weighing accuracy and other parameters set.

## 6. Automatic Shutoff

This instrument has the function of automatic shutoff. If no operation for 30 minutes, the backlight will be shutoff. But any pressing on the button occurs; the backlight will

turn on again.

### **7.charge and outer DC power supply**

When plugging the output line of the equipped charger-module into the instrument's charging jack, the battery inside is charged. Turn on or turn off the instrument, charging is not affected by the power supply. About 10 hours are needed for the battery to be fully charged. Because the leading acid batteries are embedded in the instrument, they should be charged in time in order to avoid being destroyed by over-discharged.

This instrument can be supplied and charged by 11V auto battery. An igniting device equipped with customer's auto should be purchased before hand. The igniting device should be welded to the 3-prong aeronautic plug line provided by our factory (pay attention to the polarity). When needed, just connect the igniting device with the instrument's igniting device.

### **8. Operation and Maintenance Guidelines**

- 1) Ensure that there is no vehicles or persons on the scale platform before you turn on the instrument;
- 2) To ensure the accuracy of the testing, the speed of the vehicle should be below 5km/h; the slower the speed is the more accurate the result is;
- 3) The vehicle should pass the scale at an even speed and a steady direction, so when being tested avoid braking, accelerating, or changing direction;
- 4) Don't press the keys too hard to protect the pellicle keys;
- 5) To make the battery last longer, please turn off the back light when used in daytime;
- 6) Avoid water or chemical solvent wet the surface of the instrument;
- 7) Avoid direct exposure to sunshine to make the LCD last longer;
- 8) the instrument is very precise, and should be handled with care.

## Parameter set-up(only for engineer)

### 1. Set up static state enter

Power on, and press **【DATE】** after finishing check-self. Input cryptogram “878586”, then press **【DATE】** again, and the indicator display “please select menu(0,1,2,...)” to enter parameter setting/ calibration state.

The contents of the menu are as follows (★ represents it must be set up before the adjustment, and others can be set up when used or uses the setting when manufactured. Inside ( ) is the scope of the enable inputting data. Inside [ ] is the implicit setting when manufactured. \* represents it can not correct by the user cryptogram):

- ★ **【 0 】**: Working mode(0,1,2) [1]
- ★ **【 1 】**: Full range (1-9999) [20]
  - 【 2 】**: Calibration parameter (8192-65535)
  - 【 3 】**:Wait for input data of standard weight for automatic calibration (applied in on-site calibration)
  - 【 4 】**:Analog gain (0-7) [5]
  - 【 5 】**:Delay time (0-24) [4]
- ★ **【 6 】**:Graduation (1,2,5,10,20,50) [1]
- ★ **【 7 】**:Decimal point position (0-3) [0]
- ★ **【 8 】**:Unit of weighing indicator (0,1,2) [1]
  - 【 9 】**:Filtering set-up (1-5) [5]
  - 【Store】**:Non-linear correction
  - 【LW】**:Open the secondary menu
  - 【DATE】**:Exit

On the “please select menu(0,1,2,...)”, press the proper menu key, which can display and correct relevant parameters. And the sequence of the correction is random. When inquire or correct parameters, **【DATE】** is the confirm key. It should confirm according to **【DATE】** after every parameter finished correction. To finish setting up the parameter, press **【DATE】** on the “please select menu(0,1,2,...)” and go back to the weighing state. The following will orderly introduce the contents of the menu. The menu content of “2”, “3” is in the Part-four: “On-site calibration method”.

### 2. Detailed introduction of the menu

All of following operate in after the indicator displays “please select menu(0,1,2,...)”:

#### (1) Working mode

Press **【 0 】**, it displays front working mode, for example “mode 1”. Press “0” or “1” to select your working mode, then press **【DATE】** to exit. If needn't change, press **【DATE】** to exit.

**0: static mode**

**1: dynamic mode**

#### (2) Weighing capacity display and correction

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Press【1】to display the indicator's full range. If needn't change, press【DATE】. Otherwise after inputting the new weighing capacity data (1-9999), press 【DATE】 .

### (3) Analog gain set-up

Analog gain refers to the multiple of the built-in amplifier. The indicator allows the user to set up amplifier and provides eight analog gains: 1,2,4,8,16,32,64,128, which represented by 0-7.

***If the user don't set up analog gain, the indicator will set up automatically when on-site calibration.***

Press 【4】 to display the code of current analog gain, just as “amplifier 05”. Press 【DATE】 if needn't change analog gain. Otherwise press 【DATE】 after inputting new gain code.

### (4) Division set-up

Press【6】to display current division “d 05”. “d” represents division display, which can be one of the following values: 1,2,5,10,20,50. Press 【DATE】 if needn't change. Otherwise press 【DATE】 after inputting new division.

### (5) Decimal set-up

Press 【7】 and the lowest bit displays the decimal position code “P 0”.

“P” represents decimal. The lowest bit means:

- 0: no decimal, display “0” when no load.
- 1: one decimal, display “0.0” when no load
- 2: two decimals, display “0.00” when no load
- 3: three decimals, display “0.000” when no load

Press 【DATE】 if not correct. Otherwise press 【DATE】 after inputting new code(0-3).

### (6) Weighing display unit set-up

Press【8】to display weighing display unit code “U 1”. “U” represents unit display. The lowest bit means:

- 0: weighing capacity/display unit is kg/kg (it means capacity unit is kg and weighing display is kg)
- 1: weighing capacity/display unit is t/kg;
- 2: weighing capacity/display unit is t/t.

Directly press 【DATE】 if not correct. Otherwise press 【DATE】 after inputting new code (0-2).

### **For example:**

Capacity is 30t, division is 20kg, there are several kinds of setting:

Method 1:

- input capacity “30”
- input division “20”
- input unit “1”
- input decimal “0”

it shows capacity 30t, division 20kg

Method 2:

- input capacity “30”
- input division “20”
- input unit “2”

- input decimal “3”  
it shows capacity 30t, division 0.020t

Method 3:

- input capacity “30”
- input division “2”
- input unit “2”
- input decimal “2”  
it shows capacity 30t, division 0.02t

(7) Filter set-up

The indicator static state treatment uses advanced digital filtering method to well overcome the contradictory of steady time and resisting the scale’s vibration. The system offers 5 selections (1-5). The deeper the depth of the filter is, the better the steady performance is and the slower the acknowledge speed is.

Press **【9】** to display filter depth “filter 5”.

Press **【DATE】** if not correct. Otherwise press **【DATE】** after inputting new values (1-5).

(8) Enter secondary menu

Press **【Store】** and enter secondary menu. The indicator displays “second menu”.

It is unnecessary to use this menu in general application. And it is prepared for some special requirement. Now secondary menu has following selection:

- 【2】** : Power-on re-zeroing scope (0-100)      **【100】**
- 【3】** : Zero track scope (0-9)                      **【6】**
- 【5】** : Communication baud rate set-up (0-2)      **【0】**
- 【7】** : A/D rate set-up (0-3)                      **【2】**
- 【8】** : Dynamic speed equalizing (0)
- 【9】** : Two joint axles equalizing(10.0)
- 【Truck】** : Three joint axles equalizing(7.0)

Same as main menu operation, if need to correct the parameter of the secondary menu, only need to input relevant data and then press **【DATE】** and the indicator return to main menu simultaneously. The following will introduce the parameters of the secondary menu.

1). Power-on re-zeroing scope

On “second menu ” press “2”. The indicator displays “zero 100”. The digit is power-on re-zeroing specific scope (%F.S). For example, “10” represents it will directly re-zero if the stored zero is under 10%F.S when the platform of the scale is on zero drift adjusting when power-on. Otherwise it will make adjusting zero as a current zero bit. Re-zeroing scope can be set up during 0-100% when power-on.

The indicator’s zero adjusting is automatically set up when calibration. And it needs no people to intervene. (Refer to “on-site calibration method”).

2). Zero bit track scope

On “second menu” press “3”. The indicator displays “autozero 06”. The digit “06” represents the displayed content is zero track scope. The digit is zero track specific scope:

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0: 16d      1: 8d      2: 2d      3: 2d      4:1d      5: 0.5d  
6: 0.25d    7: 0.13d    8: 0.06    9: no track

### 3). Baud rate set-up

On “second menu ” press “5”. The indicator displays “baud-rate 02”. The digit is the specific baud rate set-up:

0: 1200BPS      1: 2400BPS      2: 4800BPS

### 4). A/D rate set-up

On “second menu ” press “7”. The indicator displays “A/D rate 02”. The digit is the specific A/D rate set-up:

0: 50Hz      1: 100Hz      2: 200Hz      3: 400Hz

### 5). Dynamic speed equalizing

When weigh-in-motion, if the speed is higher, the weight displayed will lower. It is according to the capability of platforms.

On “second menu”, press “8”, the indicator displays original coefficient “speed adj 0”, input new coefficient (0~65000) then press **【DATE】** to enter. The correctional quantity has direct proportion with correctional coefficient. “speed adj 0” means don't be corrected.

### 6). Two joint axles equalizing

Joint axles equalizing: if the axles are weighed respectively, the total weight is heavier than real weight, the difference is according to the platform's structure and truck type. Joint axles equalizing makes the difference smaller.

On “second menu”, press “9”, the indicator displays “axle2 adj 10.0”, input new digit and press **【DATE】** to enter. The range is 0~250(0~25%).

### 7). Three joint axles equalizing

On “second menu”, press **【Truck】** , the indicator displays “axle3 adj 7.0”, input new digit and press **【DATE】** to enter. The range is 0~250(0~25%).

Three joint axles equalizing is based on two joint axles equalizing, so the coefficient of two joint axles will affect the coefficient of three joint axles, but three joint axles won't affect two joint axles.

Representative coefficient: two joint axles: 10.0; three joint axles: 7.0. If the difference between two weight is higher, can correct the coefficient.

Press **【CE】**after weight clocked, the indicator displays the time(unit:0.01s) of axle through the platform.

### (9) Non-linear correction

To integrative platform, its linearity is not good, so it need to be corrected. Our indicator has 7 points to correct. The correction as following:

- ①、 Weigh in static;
- ②、 Load the weight, if the display weight is very higher or lower than real weight, using non-linear correction. Press **【DATE】【878586】【DATE】** , it displays “please select menu(0,2,3,...)”, press **【Store】** , the indicator displays “linear adj ” on the left-down, input the weight, then press **【DATE】** to enter.

- ③、 If need to correct on different weight, repeat ②, but the distance between two correcting points should more than 5%FS, or the second will cover with the first point. So you can correct the same point many times.
- ④、 Note: If weighing calibration after non-linear correction, non-linear correction will be canceled automatically.
- ⑤、 Check the correction record, Press【DATE】【878586】【DATE】, it displays “please select menu(0,2,3,...)”, press【Store】, the indicator displays “liner adj ” on the left-down, press 【Store】, it displays the first point value before correct, after 2s displays corrected value, then press 【Store】 to display the second, the third point...press 【Store】 to exit.

## On-site calibration method

### 1. Weighing calibration

You must calibrate in static mode, turn back to dynamic mode after calibrated. This indicator offers two on-site methods:

#### Method 1: automatically calibration

The electronic scale loads the weight load first after re-zeroing. (The number of the weight load is no limitation. But it is better to be close to the full range). Then enter the calibration state (display “please select menu... ”). Inputting the actual values of the weight load after pressing 【3】.(**Note that the inputting values are the desired displayed value after calibration**). Such as 5t weight, should input 5000. Press 【DATE】 and the indicator will automatically calculate and store the calibration coefficient and analog gain. The indicator zero will not be influenced after correction, and need not to re-zero.

Example: 30t electronic scale is calibrated by the 10t weight loads. The steps of the operation are as follows (Suppose the parameter has been set up):

- (1). Re-zero when no load (display “0”).
- (2). Load 10t weight loads and the indicator displays the values before calibration, such as “6570kg”.
- (3). Enter calibration state and display “please select menu ”. Then press【3】and the display is all disappeared.
- (4). Input “10000” and press 【DATE】. Later the indicator makes a long sound and displays the weight of weight load.
- (5). Exam the weighing performance according to the examination specification after finishing calibration.
- (6). After adjusting, press 【T.C】 to clear the stored useless data.

Sometimes when calibration, it will display warning information “Error parameter”, which represents it is out of the scope of the calibration. Please exam the following problems:

① Dose it display 0 when no load? Pay attention to the display should be 0 before loading the weight load. If adjust the indicator by human, the analog gain will change the zero bit. So it needs to re-zero (turn off then power-on).

② Is the inputting of the weight load right? Such as 100kg electronic scale, the division is 10g and load 100kg weight loads. The actual display is 100.00kg. So when calibration the load weight should be input “10000”.

③ Is load cell bridge and signal line connection right? If the connection is wrong, when loading the weight loads, it must have many differences between the displayed weight and load weight actual weight.

#### **Method2: Directly input calibration coefficient**

Directly inputting calibration coefficient is mainly used to change indicator and slightly adjust the sensitivity.

On the calibration, press **【2】** and the indicator displays original calibration coefficient “K-adjust \*\*\*\*”. Add or reduce calibration coefficient, which make the displayed weight is proportional to adding or reducing. Inputting new calibration coefficient will not influence the zero bits. So it needs not to re-zero.

## **Appendix II Operation Quick-Checking Forms:**

### **Mode One (operate of road politics mode):**

1. Set testing route
2. Set the operator
3. Set the testing serial number
4. Set the vehicle license number
5. Set the axle type
6. The vehicle should be with the uniform speed (not more than 5km/h) get through the testing scale platform
7. Auto-print the testing report forms of the instrument

Attention: Step one to three only should be set once before setting up, the continuous checking only need step four to seven.

### **Mode Two (operate of traffic police mode):**

1. Set the vehicle license number
2. Set the limited weight (total allowable weight of vehicle and cargo), methods: press **【LW】** , the instrument will display the total weight which is set before (defaulted is 40t), then input the allowable weight, then press **【LW】**
3. Set the allowable weight, methods: press **【ABC】** , the instrument will display the weight of the cargo which is set before (defaulted is 10t), then input the actual weight of the cargo, then press **【LW】**
4. The vehicle should be with the uniform speed (not more than 5km/h) get

through the testing scale platform

5. Press **【Store】** after the vehicles pass the platform, the instrument will print the testing report form and indicating the testing result is as follows:

**TRAFFIC POLICE OFFICE**

**WEIGHING REPORT**

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**Serial No.:000005**

**Date: 03/01/2005**

**Time: 10:15**

**Truck: AC12345**

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**Total actual weight: 24580kg**

**Total allowable weight: 30000kg**

**Total weight of the cargo: 20000kg**

**Total overweight: 0kg**

**Overweight rate: 70.3%**

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**Operator:**

**Driver:**

**This is the same as Mode One, because of no axle type input, the vehicle should be get through the platform with the uniform speed, thus make sure the axle type is correct.**