XK3190-DS3

Weighing Display Controller（control system weighing indicator）

Operation Command

V 1.01

Dear customers,

Please read this command before using the indicator.

XK3190−DS3

Chapter 1   Technical Parameter

1. Model: XK3190-DS3

2. Interface of digital load cell(s):

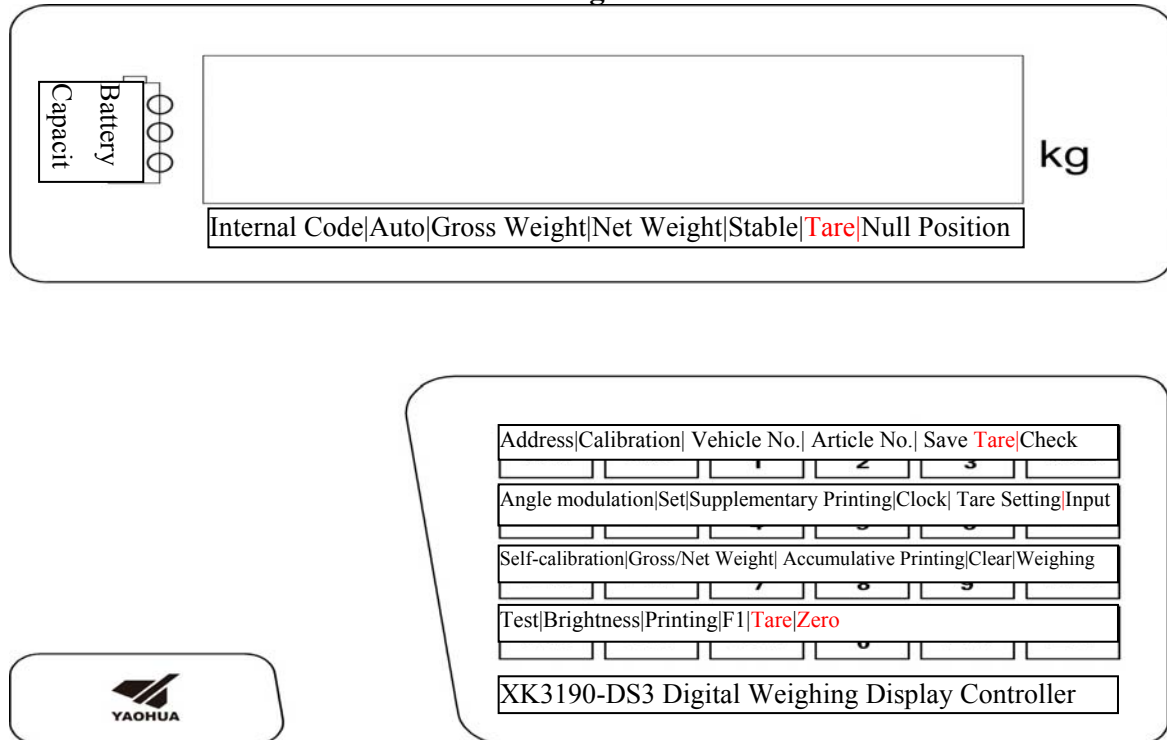|	
Interface mode:	RS485
Transmission distance:	≤1000 meter
Transmission speed:	9600 baud
Signal power source:	DC10V，≤400mA
Interface capability:	≤16 digital load cell(s)
Compatible protocol:	Digital module protocol of the Company
Supporting manufacturers:	Zhonghang Electronic Measuring Indicators Co., Ltd., ZEMIC Guangzhou Electrical Measuring Indicators Factory, Ningbo BENUI Electric Co., Ltd.BENUI and Ningbo Board Electric Co., Ltd. etc. manufacturers support the digital sensor (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 status 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, leap year/month automatically, without the influence from power break down.

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 ESPON LQ-300K(＋), Panasonic KX-P1131 and KX-P1121 etc. wide line printers.

9. Data storage

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

10. Application environment

Power source	AC 100～264V, 50～60Hz DC 12V7AH battery (optional)
Operating temperature	－10℃ ~ 40℃
Storage and transportation temperature	-25℃ ~ 55℃
Relative humidity	≤85%RH
Preheat time	≤30 minutes
Fuse	0.5A

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

12. Self weight   about 2.7 kilograms

Chapter 2   Installation

I. Front and Back Function Schematic Diagrams of Indicator

Battery Capacit

kg

| Internal Code | Auto | Gross Weight | Net Weight | Stable | Tare | Null Position |

Address|Calibration| Vehicle No.| Article No.| Save Tare|Check

Angle modulation|Set|Supplementary Printing|Clock| Tare Setting|Input

Self-calibration|Gross/Net Weight| Accumulative Printing|Clear|Weighing

Test|Brightness|Printing|F1|Tare|Zero

XK3190-DS3 Digital Weighing Display Controller

(Figure 2-1) Front Functional Schematic Diagram

Interface of load cell   Interface of printer

Interface of communication and scoreboard

Socket of DC power

Power switch

Socket of AC power

Calibration switch
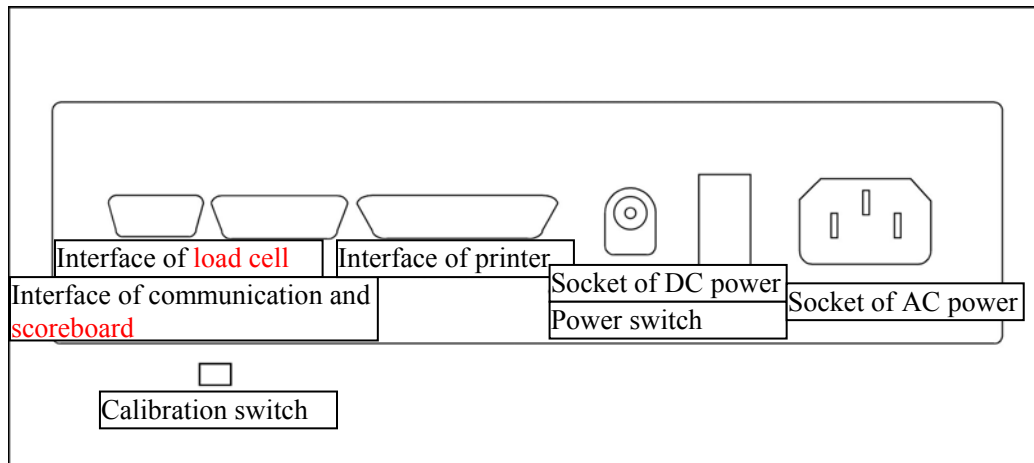
(Figure 2-2) Back) Function Schematic Diagram

II. Connection between Load cell and Indicator

XK3190-DS3 is a digital weighing indicator. Therefore, it can only be connected with **digital load cell (indicator). For easy indication, the product is called as load cell (indicator) for short.**

1. The load cell is equipped with 9 core connector for connection. Meanings of all pins are marked in Figure 2-3.

+R   +T   -R   -T   Shield

⑤   ④   ③   ②   ①

⑨   ⑧   ⑦   ⑥

-V   +V
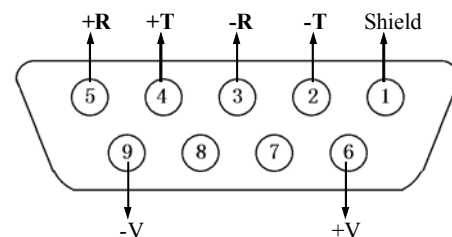
(Figure 2-3) Digital load cell interface

2. Load cell interface of XK3190-DS3 adopts the interface mode of four-wire RS485 mode.

| Indicator Interface Pins		Sensor (load cell) Interface Pins ……	Color of Corresponding Wire		
Pin No.	Definition	Connection Method	Zhonghang Electronic Measuring Indicators Co., Ltd.	Guangzhou Electrical Measuring Indicators Factory	Ningbo Benui Electric Co., Ltd. /Ningbo Board Electric Co., Ltd.
2	Signal transmission negative (−T)	Connect Signal reception negative (−R)	Brown	White	White
4	Signal transmission positive (+T)	Connect Signal reception positive (+R)	Yellow	Green	Green
3	Signal reception negative (−R)	Signal transmission negative (−T)	White	Yellow	Light yellow or brown
5	Signal reception positive (+R)	Signal transmission positive (+T)	Blue	Blue	Blue
6	Positive pole of power source (+ V)	Connect positive pole of power source (+V)	Red	Red	Red
9	Negative pole of power source (−V)	Connect negative pole of power source (−V)	Black	Black	Black
1	Shield	Connect the shielded wire	——	——	——

Table 2-1-1 Digital Load Cell Connection

III. Connection between Printer and Indicator

1. The printer is equipped with standard parallel output interface and 25-core RS232 connector assembly. See definition of its pins in Figure 2-4.
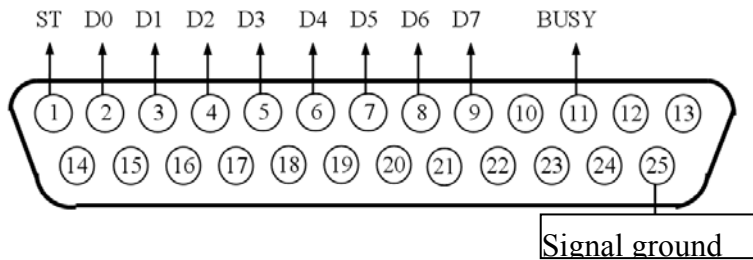
(Figure 2-4) Printer interface signal

2. Printing directions:

▲! The printer may be used only after completing relevant settings. All relevant paremeters of the printer must be set before using it.

▲! Connection between printing interface output pin of the indicator and the printer must be accurate without fault. Only dedicated connecting wire for printing may be used. (Indicator must be connected with printer by appropriative cable accurately.) If wrong connection occurs, output interface of the indicator or that of the printer and even the indicator and printer may be damaged.

▲! When using printer, connect all lines accurately at first, then switch on the power of indicator and at last the power of printer. After use, please turn off the printer first and then turn off the power of indicator and disconnect all the cables. Any reversed operation may damage the indicator and printer. Please be careful.

▲! Printers are of various model and parameters, they may be not be compatiable with our indicator. Please choose printers as remmended.

The printer must be equipped with reliable ground. Otherwise, this may disturb regular performance of the indicator or even damage the indicator and printer.

IV. Connection between Scoreboard and the Indicator and Their Use

▲ ! Output pin of the scoreboard shall be connected accurately without fault. Error connection may damage the output interface of indicator or that of scoreboard or even damage the indicator and scoreboard seriously. The connection requires the use of dedicated connection wires.

1. Interface of the scoreboard is 15-core RS232 connector (use in common with the serial communication

Optional

(3)

interface 《sharing with serial communication interface》). See Pins 9 and 10 for definition of its pins in Figure (2-5).
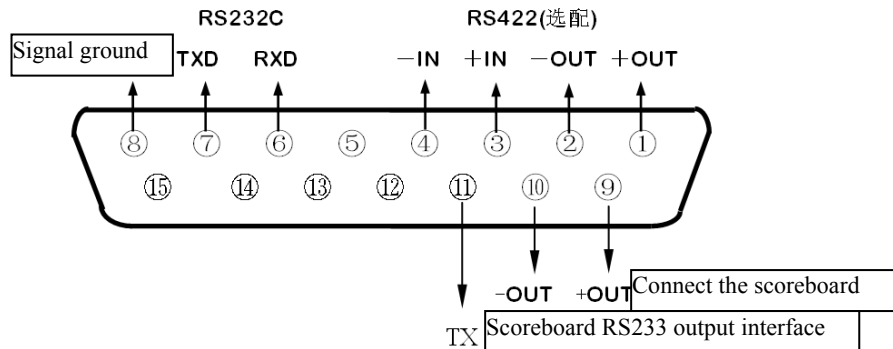
(Figure 2-5) Serial communication and scoreboard output interface signal back scheme of the machine housing

Signal of scoreboard is current loop or RS232 signal and it is output serially in binary code with baud rate of 600. Each frame has 11 bits, i.e. one start bit (0), 8 data bits (lower bits in front), one mark bit and one stop bit (1).

3. The indicator sends out a group of data every 100ms with 3 frames of data contained. See the meaning in Figure (2-6).
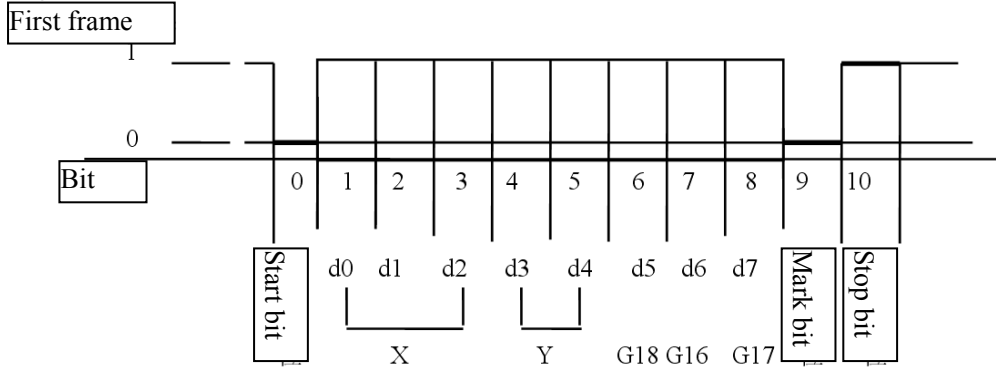
(Figure 2-6.1) First frame oscillogram
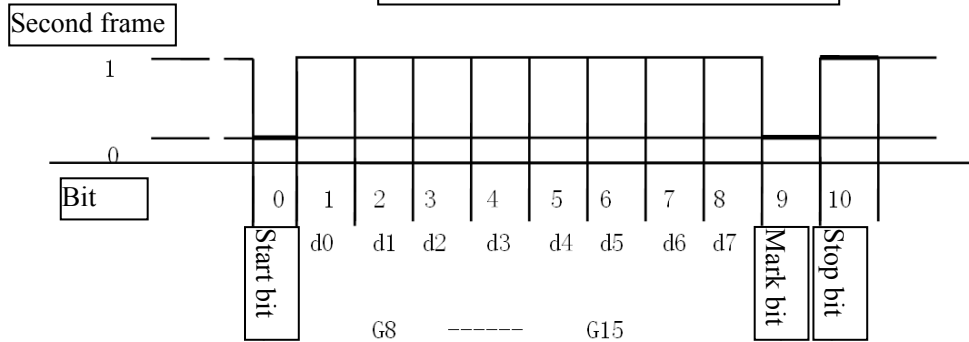
(Figure 2-6.2) Second frame oscillogram
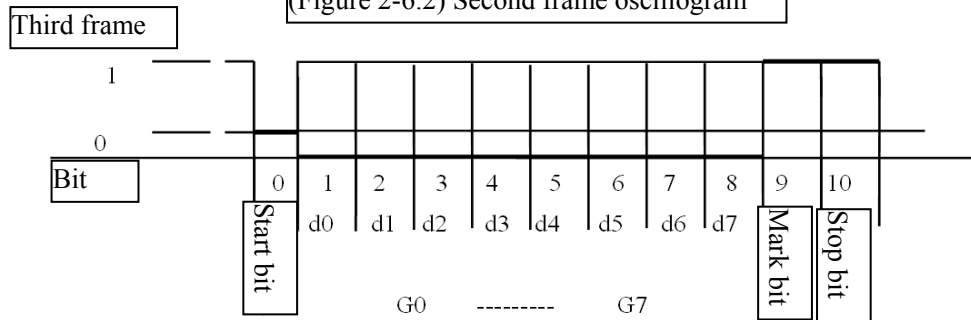
(Figure 2-6.3) Third frame oscillogram

First frame data: the mark bit is 0;

X : D0、D1、D2 – is the position of decimal point (0～4)

Y : D3 — is the symbol of weight (1－negative, 0－positive)

D4 — standby

G 18~G16: data of weight (net weight)

Second frame data: the mark bit is 0;

G 15~G8: data of weight (net weight)

Third frame data: the mark bit is 1;

G 7~G0: data of weight (net weight)

G0~G18: constitute the 19 bits binary codes of weight from low to high (net weight)

V. Connection between Serial Communication Interface and the Indicator and Their Use

▲! Output lead of the communication interface and computer shall be connected accurately. Error connection may damage the output interface of indicator, communication input interface of computer or even damage the indicator, computer and corresponding external equipment.

▲! Operation related to computer communication requires necessary computer technology and capability of programming. Therefore, it shall be participated or guided by professional technician. Non-professionals are not allowed to connect the indicator.

The indicator XK3190-DS3 is equipped with RS232/RS422 (optional)/RS485(optional) serial communication interface for communication purpose with computer.

1. Communication interface is equipped with 15 core RS233 connector assembly (shared with scoreboard). See definition of pins 6, 7, and 8 (RS232) or 1, 2, 3, 4 and 8 (RS422/RS485) in Figure 2-5.

2. All datas are of ASCII code. Every group of data is constitute of 10 bits of data, the first bit is start bit, the 10th bit is stop bit and the mid eight bits are data bits. Communication methods are divided into:

(1) Continuous mode:

Data being sent is the current weight (gross weight or net weight) displayed on indicator. Data of each frame is comprised of 12 groups of data. See the forms as follows,

Byte X	Content and Note	
1	02(XON)	Start
2	+ or -	Sign bit
3	Weighing data	Higher bit
:	Weighing data	:
:	Weighing data	:
8	Weighing data	Lower bit
9	Decimal points	From right to left (0~4)
10	Xor checking	Four higher bits
11	Xor checking	Four lower bit
12	03(X0FF)	End

Xor =2 ⊕ 3 ⊕ ……8 ⊕ 9

(2). Command mode:

Corresponding data is sent by the indicator by command from host computer. With an command sent from the host computer, the indicator outputs a frame of corresponding data. Commands sent by host computer are as follows,

X byte	Content and Note	
1	02(XON)	Start
2	A~Z	Serial No. of Address
3	A~E	Command （command） A: Hand shaking
		Command B: Reading gross weight
		Command C: Reading tare
		Command D: Reading net weight
4	Xor checking	Four higher bits

X byte	Content and Note	
5	Xor checking (	Four lower bits
6	03(X0FF)	End

Xor=2 ⊕ 3

Contents output by the indicator:

X byte	Content and Note	
1	02(XON)	Start
2	A~Z	No. of Address
3	A~E	Command A: Hand shaking
		Command B: Input the gross weight
		Command C: Input the tare
		Command D: Input the net weight
4	Press command to output corresponding data	
:	Press command to output corresponding data	
n-1	Press command to output corresponding data	
n	Press command to output corresponding data	
n+1	Xor checking	Four higher bits
n+2	Xor checking	Four lower bits
n+3	03(X0FF)	End

Xor=2 ⊕ 3 ⊕ ……(n-1) ⊕ n

Contents of 4~n output by the indicator are as follows,

Command A	No data		Each frame is composed of six groups of data
Command B	Gross weight, form:		Each frame is composed of 14 groups of data
	a:	Symbol (+ or -)	
	b:	Gross weight value (6 bits）	
	:	(From higher to lower)	
	g		
	h: Decimal point from right to left (0～4)		
Command C	Tare, form:		Each frame is composed of 14 groups of data
	a:	Symbol (+ or -)	
	b:	Tare value (6 bits）	
	:	(From higher to lower)	
	g		
	h: Decimal point from right to left (0～4)		
Command D	Net weight, form:		Each frame is composed of 14 groups of data
	a:	Symbol (+ or -)	
	b:	Net weight value (6 bits)	
	:	(From higher to lower)	
	g		
	h: Decimal point from right to left (0～4)		

Note 1: Xor checking four higher and lower bits' confirmation: Xor value and four higher and lower bits are smaller than or equal to 9 will be added with 30h and turned to be ASCII code number for sending, for example, four higher bits of Xor checking is 6, and this plus 36h is 6 in ASCII for sending out; Xor, four higher bits and four lower bits which are larger than 9 will be added with 37h and turn to

be ASCII code letter for sending, for example, Xor checking four higher bit is B. With 37h added, it is 42h, i.e. letter B in ASCII code for sending out.

3. Command list sent by host computer (set address of the indicator as 01):

Category	Content of Command	Host computer sends out commands (hexadecimal)
Command A	Hand shaking	02 41 41 30 30 03
Command B	Reading gross weight	02 41 42 30 33 03
Command C	Reading tare	02 41 43 30 32 03
Command D	Reading net weight	02 41 44 30 35 03

4. Indicator communication parameter setting:

 (1). Communication parameters

Communication parameters are made up of three groups of parameters, i.e. communication address, baud rate and communication method.

 (2) Steps for setting communication parameters:

Step	Operation	Displayed content	Note
1	Press [Parameter setting]	In the weighing and displaying state	
2	Press [9][8] Press [Input]	[P 00] [P 98]	Input the setting password "98"
3	Press [1] Press [Input]	[Ad r **] [Ad r 01]	Address (01～26) E.g.: 1
4	Press [1] Press [Input]	[b t *] [b t 1]	Baud rates of serial communication (0~4) means following baud rates respectively: 600, 1200, 2400, 4800 and 9600 baud rates. E.g.:1
5	Press [0] Press [Input]	[t F *] [t F 0]	Way of serial communication: 0—Continuous send mode, no reception 1—Appointed answering mode 2—Old D2+ continuous communication format, 8 bits every frame 3—New D2+ continuous communication format, 9 bits every frame （See Note 2） E.g. 0
6		Weighing state	Communication parameter setting is completed

Note 2: In the old D2+ continuous communication format, data is output in form of ASCⅡ code with 8 bits in every frame (including the decimal point). Lower bits of the data are sent at first and then the higher ones. The frames are divided by "=". Data being sent is the net weight (i.e. the value displayed on indicator), for example, when the value 70.15 is displayed, the indicator continuously sends out 51.0700＝51.0700＝51.0700…….

  In the new D2+ (300 tons) continuous communication format, data is output in form of ASCⅡ code with 9 bits in every frame (including the decimal point). Lower bits of the data are sent at first and then the higher ones. The frames are divided by "=". Data being sent is the net weight (i.e. the value displayed on indicator), for example, when the value 70.15 is displayed, the indicator continuously sends out 51.07000＝51.07000＝51.07000…...

Chapter 3   Operation Method

I. Startup and Auto Startup Zero Setting

1. Connect the AC power source or external battery and turn on the power to conduct stroke self-check of "9999999"~ "0000000" and then enter into weighing state automatically after this.
2. During the process of stroke self-check, you may press any key to stop the self-check.
3. After starting up, if weight on the scale is deviated from null point but still within the setting range, the indicator will conduct zero setting automatically. See detailed parameter selection and setting methods of startup zero setting in relevant chapter of calibration.

__During normal operation, please turn the calibration switch to non-calibration position.__

II. Manual Zero Setting (Semi-auto Zero Setting)

1. Press [Zero] to make the indicator setting return to zero. At this moment, null position identifier lights up.
2. When the displayed value is deviated from null point but still within range of zero setting, the key [Zero] will work; otherwise, it will not work. See detailed parameter selection and setting methods of zero setting in relevant chapter of calibration.
3. Zero setting may only be conducted when the stable identifier is on.

III. Tare operation

1. There are three tare methods:
   (1) Normal tare:
   Under weighing displaying state, when weight is positive and stable, press [Tare] to deduct the value displayed as tare weight. At this moment, the instrument displays the net weight 0 and the tare light is on.
   (2) Preset tare:
   Under weighing displaying state, press [Tare] to see [P ***.**] displayed on the indicator. This is the original tare weight. For setting a new tare weight, please input the value with number keys and press [Input] for confirmation.
   (3) Call tare weight by vehicle no.:
   Under weighing displaying state, press [Vehicle No.] to see [o *****] displayed on the indicator. Please input the correct vehicle no. with number keys and press [Tare]. At this moment, the indicator may find a tare weight corresponding to the vehicle no. from its memory for use.

   Under weighing displaying state, continuous tare operation may be conducted. When tare weight is 0, the tare light is off; when the indicator meets the requirement of zero setting, press [Zero] to set the tare weight to zero. At this moment, the tare light is off.

IV. Set Date and Time

Under weighing state, press [Clock] to see current date $d******$ on the indicator. Enter the correct date and press [Input] for confirmation. The indicator then displays current time $t******$ and runs automatically. At this moment, input the correct time and press [Input] for confirmation to complete date and time setting.

V. Use of Battery

1. When using battery for power supply, it displays "Battery capacity" on the left side of display window for indicating the remaining electricity; when three indicating lights are all on, there is sufficient electricity; when the lower two identifiers are on, there is still comparatively sufficient electricity and when only the bottom one is on, it indicates the electricity is low. When the electricity is not sufficient, please charge the battery. Further use may decrease the battery capacity till the instrument automatically power off for protecting the battery.
2. After connecting the battery to the indicator and switching on the AC power, the indicator may charge the battery (full charge needs about 20 hours). Whether the power switch is turned on or off, the battery will be charged. However, it is recommended to charge .
3. The first time the battery is used, make sure it is fully charged.
4. On the connecting line of battery, the plug marked with red color is the positive pole (+) and it shall be connected with the positive pole of battery and the one marked with black color is the negative pole (-) and it shall be connected with the negative pole of battery.
5. For protecting the indicator and battery, both wrong connection of the battery's positive and negative poles or short-circuit may cause circuit broken of DC resettable fuse to protect the indicator and battery. Then, please connect the battery properly and restart the indicaotr for regular service.
6. As batteries are consumables, they are not in warranty scope.

VI. Internal Code Display

1. Under weighing state, press [Set] and input [2] and [8] to enter the inner code displaying state with inner code indicating light on; then re-press [Set] and input [2] and [8] to quit the inner code displaying state with inner code indicating light off.
2. Under inner code displaying state, keys except [Zero] and [Set] are invalid.
3. 20 internal codes are equal to a division value. For example, a scale with its n=3000, the full capicity inner code is 60000.

VII. Save Data Record

1. Vehicle no. of the indicator is 5-bit number and article no. is 3-bit number. 1000 vehicle numbers and 201 article numbers can be saved.
2. The record of a group of data will be printed out at after a complete set of data is saved (relevant printing setting shall be valid).
3. Three methods of data storage:
   1) Save weight for empty vehicle at first and then for full vehicle or save weight for full vehicle at first and then for empty vehicle, i.e. a complete record is composed of two times' data saving.
   2) For weighing full vehicle with known tare weight, one time of data saving may form a complete record.
   3) For weighing just article, one time of data saving may form a complete record.

For recognizing and classifying three above situations, we make following agreement for XK3190-DS3:

▲ The vehicle no. shall be a number within the range of 00001～99999, i.e. 00000 cannot be kept as a real vehicle number. When being set as 00000, it means that the object being weighed is not a vehicle with article but only a article.

▲ When [Tare] light is on, the tare is known and therefore one time data saving may constitute a complete record.

▲ When vehicle no. is an any 5-bit number other than 00000, the highest bit of parameter Y in the printing parameters is set as 0 and the tare light of indicator is not on, two times' saving may constitute a complete record.

4. Saving Method:

(Table 3-1)

Step	Operation	Displayed content	Note
1	Press [Print]	Under weighing displaying state	
2	Input the vehicle no. by pressing number keys Press [Input]	[o *****] [o 03217]	Input the vehicle no. E.g.: 03217
3	Input the article no. Press [Input]	[hn **] [hn 35]	Input the article no. E.g.: 35
4	Press [10] Press [Input]	[BFL **] [BFL 10]	Input the percentage of discount rate E.g.: 10
			Complete saving

Data saving of indicator may adopt the way of vehicle number. or not. See detailed information in the chapter printing settings. If setting as not using vehicle number, there will be no operations, steps or printing contents about vehicle number. Similarly, data saving of indicator may adopt the way of article number or not. See details in the chapter about printing settings.

▲ **! When data is unstable or when gross weight ≤0 or net weight≤0, data cannot be saved.**

5. About automatic save and printing:
   1) See setting about automatic save and printing in the chapter about printing settings.
   2) Automatic save and printing have no operation method of two times' saving.
   3) The vehicle number and article number saved during the process of automatic saving are the vehicle number and article number set before saving.
   4) Tare weight during the process of automatic saving has following three detailed occasions,
      (1) When tare light is on, the current tare weight will be recorded in the group of data.
      (2) When tare light isn't bright, the indicator will automatically search for tare weight of the vehicle from its memory and save this tare weight in current group of record.
      (3) When tare light isn't bright and there is no tare weight of the vehicle saved in memory, 0 will be judged

as the tare weight and saved in the group of record.

6. When vehicle numbers are more than 1000, [Err 10] will be displayed on the indicator. A vehicle number or all contents recorded may be deleted in the way introduced in Chapter 11.

VIII. Operation of Printing

1. Printing settings (Table 3-2)

Step	Operation	Displayed content	Note
1	Press [Set] Press [9] [7] Press [Input]	[P 00] [P 97]	Input the password 97
2	Press [1] Press [Input]	[Auto *] [Auto 1]	Select auto/manual printing （0-Manual 1-Auto） E.g.: Select 1 (Automatic printing)
3	Press [3] Press [Input]	Auto identifier lights up [Type *] [Type 3]	Select type of printer 0--Invalid printing 1--TPup16 micro-printer (English) 2--TM800 printer 3—Panasonic KX-P1121 4--EPSON LQ-1600K, LQ300K＋, Panasonic KX-P1131 5--Reserved 6—External thermal micro-printer POS58 and T58D etc. E.g.: Select 3
4	Press [5] [0] Press [Input]	[HL **] [HL 50]	Print only when: 00-Back to zero 25-Back to <25% F.S. 50- Back to <50% F.S. 75- Back to <75% F.S. 99- Even it's F.S. for example: 50
5	Press [3] Press [Input]	[Arr *] [Arr 3]	Select print form Arr= 0: record format 1: 1-page linked format 2: 2-page linked format 3: 3-page linked format for example: 3
6	Press [1] [0] [0] Press [Input]	[L *****] [L001.00]	Set min. weight for auto print function It must be lager than 10d for example: 1.00
7	Press [0] [5] Press [Input]	[b **] [b 05]	Rows for printer(0~30) for example: 05
8	Press [1] Press [Input]	[odE *] [odE 0]	Select filled-in print: 0-Not select 1-Select for example: 0
9	Press [1] Press [Input]	[dct *] [dct 0]	Select discount rate at filled-in print form: 0-Not use discount rate 1-Use discount rate for example: 0
10	Press [0] [0] [0][1][1] Press [Input]	[Y *****] [Y 00011]	Parameter Y has 5 digits, they are respectively 1st~5th digit from left to right. Their functions are as follows, 1st digit: 0 twice weighing and printing mode; 1 once weighing and printing mode; 2nd digit: 0 Do not use the function of power saving; 1 Use the function of power saving;

Step	Operation	Displayed content	Note

			3rd digit: 0 Unit of weight is kilogram
			           1 Unit of weight is ton;
			4th digit: 0 Do not use article number in data record
			           1 Use article number in data record;
			5th digit: 0 Do not use vehicle number in data record
			           1 Use vehicle number in data record;
			E.g.: Select 00011

		End of operation	

Note: (1) When using an external printer, types of printers are 1, 2, 3, 4 and 6 according to different style of printers.

(2) Steps 8 and 9 are only applicable to printers of type 2 and 3 Instead of others.

▲! **Discount rate will be selected only when the print format is filled-in.**

★ See detailed printing forms in appendix.

★ Special format carbon-free duplicating and typing paper can be used for Filled type printing for quick print in triplicate. Special format normal typing paper may also be used for quick print in one copy.

★ For commanding filled type printing of special format, please contact the distributor.

2. Data saving and printing of the indicator are conducted at the same time. Press [Print], you may print the weighing record while a complete group of record is saved (setting of printing have to be valid).

3. For printing failure of weighing record caused by some reasons (for example, printer fault), current record may be printed by press [Suppl Print] after relevant fault is removed.

4. After weighing, you may press [Accumulated Printing] to print the accumulated recording amount of this group.

5. When twice weighing and printing mode is set in the indicator, with the twice saving method of empty vehicle at first and then heavy one or heavy vehicle at first and then empty one, as the record is still not complete during the first time of saving, [LoAd] will be displayed on the indicator for about 1.5 seconds for reminding the operator. However, printing will not be conducted now. At this moment, you may press [Suppl Printing] to print the incomplete record out.

    Results of printing will always be: 1,Serial no.:blank;
                              2,Gross W, net W:0
                              3,Tare W: Current display

  (See information about setting of twice weighing and printing mode in contents about parameter Y in printing setting)

6. When once weighing and printing mode is set in the indicator, data for each time of weighing will be saved and printed as a complete record. Under tare state, the indicator will regard current tare weight as the one to be recorded. If not, the indicator will call the corresponding memorized tare weight saved in indicator and regard the value as tare weight to be recorded (tare weight will be recorded as 0 if there is no memorized tare weight). See information about setting of once weighing and printing mode in contents about parameter Y in printing setting.

IX. Report Printing

1. Press [Report], input the date and press [Input] to print daily report on the basis of classified statistics (i.e. statistical form made according to time sequence, vehicle number and article number).

2. Press [Report] and [1] to print summary report 1 (i.e. statistical form made according to time sequence)

3. Press [Report] and [2] to print summary report 2 (i.e. statistical form made according to vehicle number)

4. Press [Report] and [3] to print summary report 3 (i.e. statistical form made according to article number)

5. Press [Report] and [4] to print summary report 4 (i.e. tare report made according to vehicle number)

X. Inquiry Record

All kinds of recorded contents in the indicator can be checked by using the key [Check] in different ways. See detailed operation ways as follows,

1. Check weighing record according to date (Table 4-4)

Step	Operation	Displayed content	Note
1	Press [Check] Press [Check]	Under weighing state [rEAd 1]	Select the content and format to be checked rEAd＝1-- Check all record of a day 2--Check all record of a vehicle number 3-- Check all record of a article number 4—Check vehicle number
2	Input the date Press [Check]	[d **.**.**] [d 08.08.25]	Select the date you want to check: E.g.: August 25 Each time of record of August 25th, 2008 will then be displayed in sequence.
3	Press [Check] Press [Check] Press [Check] Press [Check] Press [Check] Press [Check] Press [Check]	[no 0001] [t**.**.**] [o *****] [hn ***] [A *****] [t *****] [n *****]	First time Time (Hour/Minute) Vehicle No. Article No. — Record of the first time Gross Weight Tare Net Weight
4	Press [Check] Press [Check] Press [Check] Press [Check] Press [Check] Press [Check] Press [Check]	[no 0002] [t**.**.**] [o *****] [hn ***] [A *****] [t *****] [n *****]	Second time Time (Hour/Minute) Vehicle No. Article No. Record of the second time Gross Weight Tare Net Weight
…	…	…	
	Press [Check]	[End]	End
		Return to weighing and displaying state	

(1) At Step 2, you may delete all weighing record of the date by pressing [Zero Setting]. (Reset mode ④)
(2) In Step 3 and after that, you may delete the group of weighing record you are checking by pressing [Zero]. (Reset mode ⑦)
(3) After entering in the state of checking, [Check] and [Input] keys have same functions.

2. Check weighing record according to vehicle number (Table 4-5)

Step	Operation	Displayed content	Note
1	Press [Check] Press [2]	In weighing state [rEAd 1] [rEAd 2]	Select 2 means check record according to vehicle number
2	Press [Check] Input the vehicle number	[o *****] [o 12345]	Select the vehicle number for checking E.g.: 12345 Then, all weighing record of vehicle 12345 will be displayed.
3	Press [Check] Press [Check] Press [Check] Press [Check] Press [Check] Press [Check] Press [Check]	[no 0001] [d**.**.**] [t**.**.**] [hn ***] [A *****] [t *****] [n *****]	Date (Month/Date) Time (Hour/Minute) Article No. Record of the first time Gross Weight Tare Net Weight
4	Press [Check] Press [Check]	[no 0002] [d**.**.**]	Date (Month/Date)

Step	Operation	Displayed content	Note	
	Press [Check]	[t**.**.**]	Time (Hour/Minute)	
	Press [Check]	[hn ***]	Article No.	Record of the second time
	Press [Check]	[A *****]	Gross Weight	
	Press [Check]	[t *****]	Tare	
	Press [Check]	[n *****]	Net Weight	
…	…	…		
		[End]	End	

(1) At Step 2, you may delete all record of the vehicle number but maintain its memorial tare weight by pressing [Zero]. (Reset mode ⑤)

(2) At Step 4 and after that, you may delete the group of weighing record you are checking by pressing [Zero Setting]. (Reset mode ⑦)

(3) After entering in the state of checking, [Check] and [Input] keys have same functions.

3. Check weighing record according to article number (Table 4-6)

Step	Operation	Displayed content	Note
1	Press [Check] Press [3] Press [Check]	In weighing state, [rEAd 1]	Select 3 means checking record according to article number
2	Input the article no. Press [Check]	[hn **] [hn 23]	Select the article number for record checking, e.g.:23; Then all weighing record of article with serial number 23 will be displayed.
3	Press [Check] Press [Check] Press [Check] Press [Check] Press [Check] Press [Check]	[no 0001] [o *****] [d**.**.**] [t**.**.**] [A *****] [t *****]	Vehicle Number ⌐ Date (Month/Date) Time (Hour/Minute) ⊢ Record of the first time Gross Weight Tare ⌐
4	Press [Check] Press [Check] Press [Check] Press [Check] Press [Check] Press [Check]	[no 0002] [o *****] [d**.**.**] [t**.**.**] [A *****] [t *****]	Vehicle Number ⌐ Date (Month/Date) Time (Hour/Minute) ⊢Record of the second time Gross Weight Tare ⌐
…	…	…	
		[End]	End

(1) In Step 2, you may delete all record of the article number by pressing [Zero]. (Reset mode ⑥)

(2) In Step 3 and after that, you may delete the group of weighing record you are checking by pressing [Zero]. (Reset mode ⑦)

(3) After entering in the state of checking, [Check] and [Input] keys have same functions.

4. Vehicle no. checking (Table 4-7)

Step	Operation	Displayed content	Note
1	Press [Check] Press [4] Press [Check]	In weighing state [rEAd 1] [rEAd 4]	Selecting 4 means vehicle number checking
2	Press [Check] Press [Check]	[no 001] [o *****]	The first vehicle no.
3		[no 002]	

		[o *****]	
	Press [Check] Press [Check]		The second vehicle no.
…	…	…	
n	Press [Check] Press [Check]	[no nnn] [o *****]	The last vehicle no.
		[End]	
	Press [Check]		
		Return to weighing displaying state	

(1) During the process of above operation, when the vehicle number is displayed, you may delete the vehicle number, its memorial tare and all weighing record of the vehicle number by pressing [Zero]. (Reset mode ②)

(2) After entering in the state of checking, [Check] and [Input] keys have same functions.

XI. Operation of Clearing Record

1. The indicator has following record clearing modes:

Mode ①: Clear all record (inlcuding all vehicle numbers and memorized tare weight)

Mode ②: Clear a vehicle number, memorized weight and all the corresponding weighing records of the vehicle number;

Mode ③: Clear the weighing record saved at last time;

Mode ④: Clear all records of a certain date;

Mode ⑤: Clear all the corresponding weighing records of a vehicle number (but reserve the vehicle number and its memorized tare)

Mode ⑥: Clear all the corresponding weighing records of a vehicle number;

Mode ⑦: Clear a random weighing record in the instrument.

2. Using any record clearing mode, [] will be displayed on the indicator for operator's confirmation. When [Sure]= a non-zero number, press [Input] for confirmation. For negation, set [Sure]=0 and press [Input] or [Weighing] to quit.

3. Operation method:

1) Under weighing state, press [Clear] to clear all records. [Mode ①]

2) Under weighing state, press the key [Vehicle No.], input the vehicle number with number keys and press [Clear] to clear the vehicle number, its corresponding memorized tare weight and record. [Mode ②]

3) Under weighing state, press [Clear], [9] and then [Input] to clear the record saved at last time. [Mode ③]

4) See clearing modes ④, ⑤, ⑥ and ⑦ in the chapter of data record and check.

▲! The 1000 groups of records contain the records cleared by modes ②, ③, ⑤, ⑥ and ⑦, i.e. clear records by pressing ②, ③, ⑤, ⑥ and ⑦ may cause the decreasing of max capacity of record quantity. Clearing by mode ①, the max capacity of record quantity will be recovered to 1000 groups. If not clearing records by mode ① all the while, decreased records will be recovered gradually.

▲! Cleared data is nonrecoverable. So please be careful to avoid incorrect operation and data loss.

▲! All weighing records shall be cleared after calibration or printing parameter modification.

XII. Input Method of Saving Tare weight

The indicator can save 1000 tare weight for a long time. Three input modes are as follows,

1. Input tare with number keys: (* is the original setting value)   (Table 3-8)

Step	Operation	Displayed content	Note
1	Press [Vehicle No.]	Under weighing and displaying state	
2	Input the vehicle no. Press [Input]	[o *****] [o 35790]	Input the vehicle number, e.g.: 35790
3	Input the tare Press [Input]	[P *****] [P 01000]	Input the tare, e.g.: 1000(kg)
4		Return to weighing and displaying state	End

2. Tare saving by weighing

Under tare displaying state, load an empty vehicle on the weighing platform, wait until the scale is stable, press [Tare Storing], input the vehicle number and press [Input].

3. For saving a group of weighing record, if there is no memorized tare weight of the vehicle number in memory of the indicator, the tare value of this group recorded will be regarded as memorized tare of the vehicle and saved in memory.

XIII. Power Saving Function

When the function of power saving is set as valid, the indicator will automatically come into power saving state after at null position (before tare) for 30 seconds (LED display is off and state indicating sign maintain). At this moment, it will be back to normal display state by pressing any key or getting out of the null position state.

See information about setting of power saving in contents about parameter Y in print setting)

XIV. Adjustment of Brightness

XK3190-DS3 has 6 levels of brightness for adjustment.

Press [Brightness] once to adjust the brightness to a higher level. When the brightness is adjusted to the highest level, the buzzer will send out a long alarm sound to remind the operator. At highest brightness level, the brightness will be darkest by pressing [Brightness] again. Repeat this procedure for proper brightness.

XV. Switch between Gross Weight and Net Weight

Under weighing state, when there is tare weight(net weight displaying state), the indicator may be switched to gross weight displaying state by pressing [Gross/Net Weight] and then switched back to the original net weight displaying state by pressing [Gross/Net Weight] again.

After tare or preset tare weight, the indicator enters into net weight displaying state automatically.

When there is no tare weight, the indicator will stay under gross weight displaying state and the key [Gross/Net Weight] will be invalid.

Chapter Four Maintenance and Attentions

1. To ensure clarity of display and service life of indicator, the indicator should be used off direct sunlight and should be kept at flat place.
2. Do not use the indicator in place of much dust, serious vibration or humidity .
3. Connection between load cell and indicator shall be reliable and the system should have valid grounding. Keep them away from high electric and high magnetic fields. Load cell and indicator shall be kept away from highly corrosive object and inflammable and explosive materials.

▲! **Do not use in occasion with inflammable gas or stream or system with pressure vessel tank.**

▲! **Do not use in area with high frequency of thunder. Reliable lightning protectors shall be installed for ensuring personnel security of operators and preventing damage of indicator and relevant equipment caused by thunder.**

▲! **As load cell and indicator are both static-sensitive equipment, feasible anti-static precautions must be taken during the process of use. Welding operation or other high electric field operations are strictly prohibited on weighing platform; in the season of thunder storm, reliable lightning protection measures must be taken for preventing load cell and indicator from damage caused by thunder and ensuring personnel security and safe operation of weighing equipment and relevant equipment.**

4. Do not use strong solvent (e.g. benzene or nitro oil) for cleaning the machine housing.
5. Do not inject fluid or other conductive particle into the indicator so as to prevent damage of instrument and electric shock.
6. Before plugging or unplugging connecting wire between indicator and external equipment, please cut off the electricity supply of indicator and relevant equipment.

 ▲ **! Before plugging or unplugging connecting wire of load cell, please cut off the power supply of indicator at first.**

 ▲ **! Before plugging or unplugging connecting wire of printer, please cut off the power supply of printer and indicator at first.**

 ▲ **! Before plugging or unplugging connecting wire of scoreboard, please cut off the power supply of scoreboard and indicator at first.**

 ▲ **! Before plugging or unplugging connecting wire for communication, please cut off the power supply of indicator and host computer at first.**

7. **The Company advises our customers to check and accept before using instrument products of the Company. We are only responsible to quality of the indicator itself. The highest compensation amount is within double value of the fault indicator. We assume no responsibility for system problem of the indicator.**
8. External interfaces of the indicator shall be used according to methods defined in the operation commands. No unauthorized modification to the connection is allowed. In case of any failure, please unplug the plug and send the indicator to professional manufacturer for maintenance. Unprofessional weighing apparatus manufacturers are not allowed to fix the indicator by themselves in command to avoid greater damage. **The indicator shall not be opened at random. Otherwise, we will provide no warranty service.**
9. Batteries are consumables and they are not in warranty scope.

▲! For extending service life of battery, please use it after full charge.
  For long time unused, please charge the battery once every two months for 20 hours each time.

▲! Handle with care during transportation and installation. Avoid strong vibration, strike or impact in command to avoid short circuit inside the batteries and damage of batteries.

10. Within 1 year since the indicator is sold, under normal use conditions, damages not caused by man-made fault belong to the warranty scope. Please mail the product and warranty card (with matched ID) to authorized maintenance point or the supplier. The manufacturer provides life-long maintenance service for the indicator.

Chapter Five 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; 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 numbers saved are more than 1000.

4. | Err 17 | means: Parameter setting does not meet the requirement, please reset it.

5. | Err 19 | means: Printing cannot be conducted in occasion of zero or negative weighing, unstable weighing or unfulfilled zero reset condition.

6. | Err 28 | means: When the print date is earlier than that saved in weighing record, please reset date and clear all record.

III. Error connection information cue:

1. | Err   P | means: Error printer connection 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 is not debugging, you can check according to the following command

   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.

IV. Information cue of components and parts failure and elimination methods

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 are 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 with a new chip and then conduct calibration again.

5. | Err 23 | means: E^2PROM destroyed; please replace it, re-enter the original calibration

data and then restart the indicator or conduct calibration again.

6. | Err 25 | means: illegally duplicated software or E^{2}PROM. destroyed

Appendix 1: (applicable to printers of TYPE=2, 3 and 4)

Bills in a set:

Weighing Sheet

No.	0001
Date	1999-07-
Time	12.02.31
Vehicle No.	12345
Article No.	022
Gross Weight	2.000(kg)
Tare Weight	0.300(kg)
Net Weight	1.700(kg)

Weighing Sheet

No.	0001
Date	1999-07-28
Time	12.02.31
Vehicle No.	12345
Article No.	022
Gross Weight	2.000(kg)
Tare Weight	0.300(kg)
Net Weight	1.700(kg)

Weighing Sheet

No.	0001
Date	1999-07-28
Time	12.02.31
Vehicle No.	12345
Article No.	022
Gross Weight	2.000(kg)
Tare Weight	0.300(kg)
Net Weight	1.700(kg)

Recording format:

Weighing Sheet   **Date: July 28, 1999**

No.	Time	Vehicle No.	Article No.	Gross Weight(kg)	Tare (kg)	Net Weight(kg)
0002	12.03.24	12345	033	2.000	0.300	1.700
0003	12.03.24	00888	033	2.000	0.300	1.700
0004	12.04.11	00888	022	2.000	0.300	1.700
Accumulated amount:			Gross weight: 8.000(kg)		Net weight: 6.800(kg)	

Filled type: (the printing procedure will take only 5 seconds)

WEIGHT BILL	
For Operator	
SERIAL No.	123
DATE	1999-07-28
TIME	12 .35 .28
VEHICLE No.	
ARTICLE No.	
GROSS	1580
TARE	80
DISCOUNT RATE	10
NET	1350
REMARK	

Appendix 2: (applicable to printers of TYPE=2, 3 and 4)

Daily Sheet 1   **Date: July 28, 1999**

No.	Time	Vehicle No.	Article No.	Gross Weight (kg)	Tare (kg)	Net Weight (kg)
0002	12.03.24	12345	033	2.000	0.300	1.700
0003	12.03.24	00888	033	2.000	0.300	1.700
0004	12.04.11	00888	022	2.000	0.300	1.700
Accumulated amount:			Gross weight: 8.000(kg)		Net weight: 6.800(kg)	

Daily Sheet 2   **Date: July 28, 1999**

No.	Vehicle No.	Vehicle Weight (kg)	Times	Gross Weight (kg)	Total Net Weight (kg)
0001	12345	0.300	0002	4. 000	3. 400
0002	00888	0.300	0002	4. 000	3. 400

Daily Sheet 2   **Date: July 28, 1999**

No.	Article No.	Times	Total Net Weight (kg)
0001	022	0002	3.400
0002	033	0002	3.400

Appendix 3: (applicable to printers TYPE=6)

Bills in a set:

No.	**0001**
Date	**02−03−14**
Time	**10 . 57 . 27**
Vehicle No.	**00001**
Article No.	**001**
Gross Weight	**10 . 00kg**
Tare Weight	**1 . 00kg**
Gross Weight	**9 . 00kg**
tel:	**1 2 3 4 5 6 7 8**

Total gross weight:

10 . 00kg

Total net weight:

9 . 00kg

Recording format:

Date	**02−03−14**
No.	**Weight (kg)**
0001	**9 . 00**
0002	**9 . 00**

Accumulated amount:

18 . 00kg

Appendix 4: Printing examples

1. An example of manual gross weight preset weighing sheet printing

Step	Condition	Operation	Displayed content	Note
1	Load article on the scale	Press [Tare setting]	[P00.000]	
2	Input the preset tare	E.g.: [1000]	[P1. 000]	
3		Press [Input]	[*****]	Deduce the tare weight
4		Press [Printing]	[o *****]	Original vehicle no.
5	Input the vehicle no.	E.g.[00123]	[o 00123]	To obtain the original vehicle no., please press [input] directly. Do not input the new vehicle no.
6		Press [Input]	[hn **]	Original article no.
7	Input the article no.	E.g. [11]	[hn 11]	To obtain the original article no., please press [input] directly. Do not change the article no.
8		Press [Input]	[Prnt]	Weighing sheet printing

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2. An example of manual and direct article weighing sheet printing

Step	Condition	Operation	Displayed content	Note
1	Load article on the scale	Press [Printing]	[o *****]	Original vehicle no.
2	Input "0"	E.g. [0]	[o 00000]	"0" vehicle no. means the object being weighed is article
3		Press [Input]	[hn **]	Original article no.
4	Input the article no.	E.g. [11]	[hn 11]	Tp obtain the original article no., please press [input] directly. Do not change the article no.
5		Press [Input]	[Prnt]	Weighing sheet printing

3. Weighing sheet printing (storage method for twice weighing, i.e. empty vehicle at first and then a heavy one or heavy vehicle at first and then an empty one)

Step	Condition	Operation	Displayed content	Note
1	Loading empty vehicle (wait till the stable indicating light lights up)	Press [Printing]	[o *****]	Original vehicle no.
2	Input the new vehicle no.	E.g. [00123]	[o 00123]	To obtain the original vehicle no., please press [input] directly. Do not input the new article no.
3		Press [Input]	[hn **]	Original article no.
4	Input the new article no.	E.g. [11]	[hn 11]	To obtain the original article no., please press [input] directly. Do not input the new article no.
5		Press [Input]	[LoAd]	Return to weighing state after 1.5 seconds
6	Loading heavy vehicle (wait till the stable indicating light is on)	Press [Printing]	[o 00123]	Vehicle no. input in Step 2
7		Press [Input]	[hn 11]	Article no. input in Step 3
8		Press [Input]	[Prnt]	Weighing data printing

Note: 5: If Step 1 is heavy vehicle, Step 6 will be empty vehicle. Other operation methods are same.

4. Auto weighing sheet printing with preset tare

Step	Condition	Operation	Displayed content	Note
1		Press [Set]	[Auto *]	Select 1 for auto printing
2		Press [1]	[Auto 1]	
3		Press [Input]	[type *]	No modification is required hereinafter
4		Press [Weighing]	[0000]	Return to weighing state
5		Press [Tare setting]	[P ***]	
6	Tare preset	E.g. [100]	[P 00100]	
7		Press [Input]	[-100]	
8	Loading heavy vehicle (wait till the stable indicating light lights up)		[400]	Heavy vehicle: 500, minus tare: 100
9			[Prnt]	Weighing sheet auto printing

5. Invoking and printing weighing sheet according to vehicle no.

Step	Condition	Operation	Displayed content	Note
	Vehicle no. and tare have been preset			The instrument has had relevant data saved
1	Loading heavy vehicle (wait till the stable indicating light lights up)	Press [Vehicle No.]	[o *****]	Original vehicle no.
2	Input the required vehicle no.	E.g. [00123]	[o 00123]	If the original vehicle number matches, please press [Tare] directly. Do not input the

			vehicle no.
3		Press [Tare]	[***]	Deduce the tare
4		Press [Printing]	[o *****]	Required vehicle no.
5		Press [Input]	[hn **]	Original vehicle no.
6	Input the new article no.	E.g. [11]	[hn 11]	If the original article number matches, please press [input] directly. Do not input the new article no.
7		Press [Input]	[Prnt]	Weighing sheet printing
8	Negative number in the table	Press [Tare]	[000]	Return to weighing state

Note: table above has columns Step, Condition, Operation, Displayed content, Note.

6. Manual weighing sheet printing with tare of several kinds of vehicle preset

Step	Condition	Operation	Displayed content	Note
1		Press [Vehicle No.]	[o *****]	Original vehicle no.
2	Input the new vehicle no.	E.g. [00123]	[o 00123]	To obtain the original vehicle no., please press [input] directly. Do not input the new vehicle no.
3		Press [Input]	[P *****]	Tare preset
4	Input the preset tare	E.g. [100]	[P 100]	
5		Press [Input]	[000]	Return to weighing state
	Saving several kinds of vehicles Tare preset	……	[……]	Set preset tare of several kinds of vehicle. Steps 1-5.
6	Loading heavy vehicle (wait till the stable indicating light lights up)	Press [Vehicle No.]	[o *****]	Original vehicle no.
7	Input the required article no.	E.g. [00123]	[o 00123]	If the original vehicle number matches, please press [input] directly. Do not input the new vehicle no.
8		Press [Tare]	[***]	Deduce the weight of tare
9		Press [Printing]	[o *****]	Required vehicle no.
10		Press [Input]	[hn **]	Original article no.
11	Input new article no.	E.g. [11]	[hn 11]	If the original article number matches, please press [input] directly. Do not input the new article no.
12		Press [Input]	[Prnt]	Weighing sheet printing
13	Negative number in the table	Press [Tare]	[000]	Return to weighing state (vehicle leaves away)

7. Weighing Sheet Printing (Once weighing and storing mode)

Step	Condition	Operation	Displayed content	Note
1	Loading heavy vehicle (wait till the stable indicating light lights up)	Press [Printing]	[o *****]	Original vehicle no.
2	Input new vehicle no.	E.g. [00123]	[o 00123]	To obtain the original vehicle no., please press [input] directly. Do not input the new article no.
3		Press [Input]	[hn **]	Original vehicle no.
4	Input new article no.	E.g. [11]	[hn 11]	To obtain the original vehicle no., please press [input] directly. Do not input the new article no.
5		Press [Input]	[Prnt]	Print weighing data