

WB SERIES + p

WB Series + p

Weighing Indicator

USER' S GUIDE

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Attention:

Please read this User's Guide carefully when you use the indicator!

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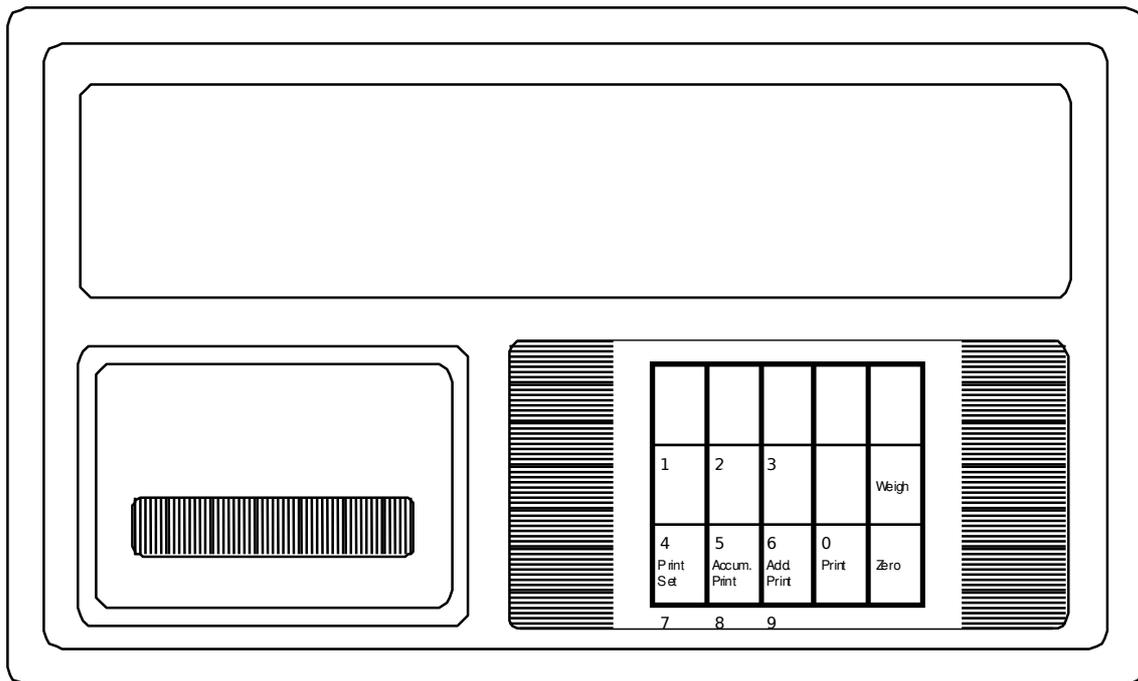
2 Specification

1	Model	WB + p
2	Sample rated	10~15 times / sec
3	Load cell sensitivity	1~ 2mv/v
4	Division	1/2/5/10/20/50/100 optional
5	Display	7-bits LED digital display 0.56" in character height and 7 status indicating.
6	Clock	can display day/month/year and second/minute/hour
7	Scoreboard display interface	Using serial output method : current loop signal, transmission distance ≤50m RS323 signal, transmission distance ≤30m
8	Communication port	RS-232C Baud rate: 600/1200/2400/4800/9600 optional
9	Printing Port	Standard parallel output port, can connect with Tpup16 micro-printer, TM800,LX-300, KXP— 1121and LQ-1600k wide-line printer.
10	Power Supply	AC 187~242V ; 49~50Hz
11	Operating Temperature and Relative Humidity	0~40°C, ≤ 90% RH
12	Storage /transportation Temperature	-25 ~55°C
13	Fuse	500mA

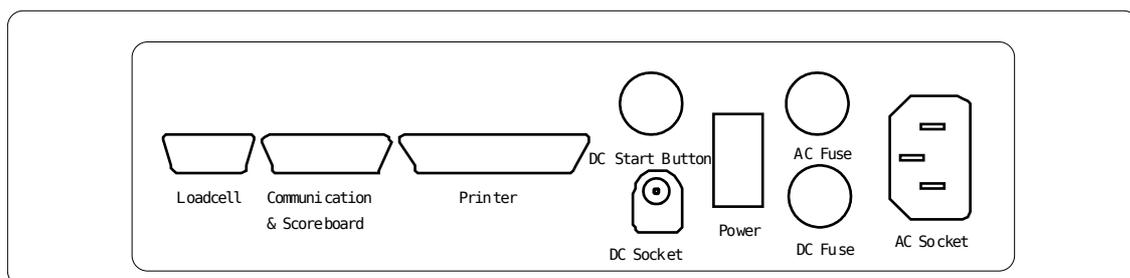
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2. Installation

2.1 Front & Back View of the Indicator



(Graph 2-1) Front View

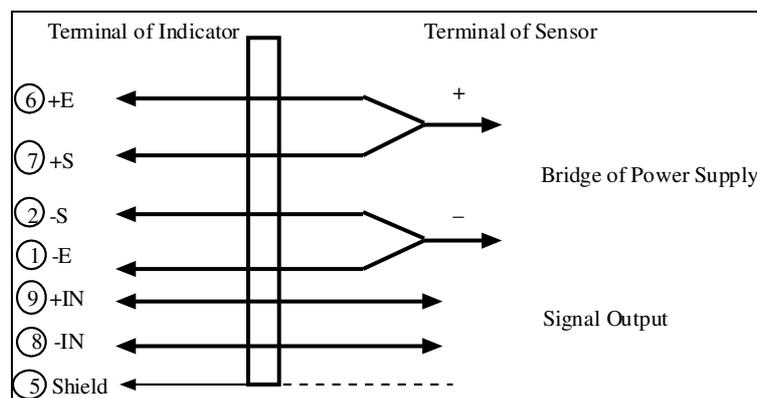
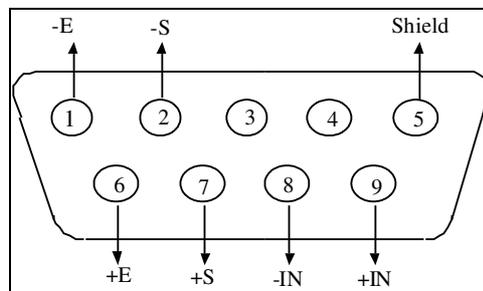


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(Graph 2-2) Back View

2.2 Connecting Load cell to Indicator

1. The 9-pin socket is used for the link-up of loadcell, which has been clearly shown in the graph 2-3.
2. The 4-pin shielded cable is used, +S must be short connected with +E, -S and -E. The indicator does not have the function of long distance compensation.
3. **▲ ! Indicator must be reliably connect ed to Load cell and shielded-cable of load cell must be reliably connect ed to underground . If indicator is powered on, the user should not insert or withdraw the plug in order to protect the indicator and loadcell.**
4. **▲ ! Sensor and indicator are static sensitive devices; you must adopt anti-static measures. In order to protect the operator ,indicator, and relevant devices, you should install lightning rod in the thunderstorm frenquently happening area**

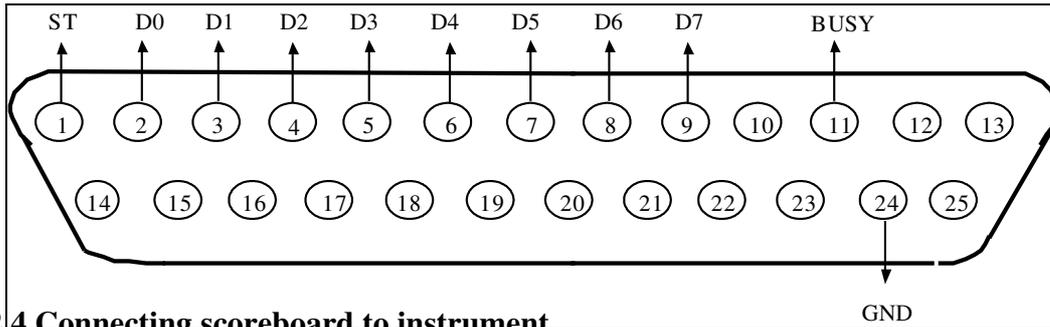


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Connection of the load cell

2.3 Connecting the printer to indicator

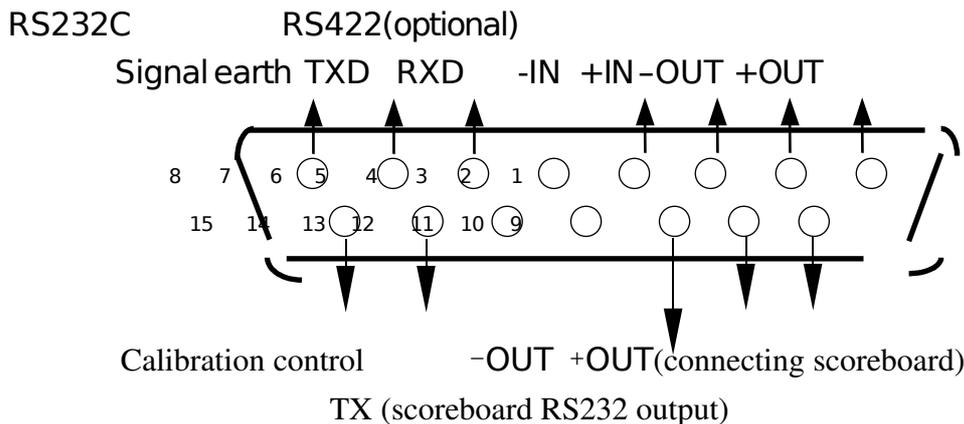
The printing interface adopts the standard parallel interface. The 25-pin RS232 socket is illustrated below:



2.4 Connecting scoreboard to instrument

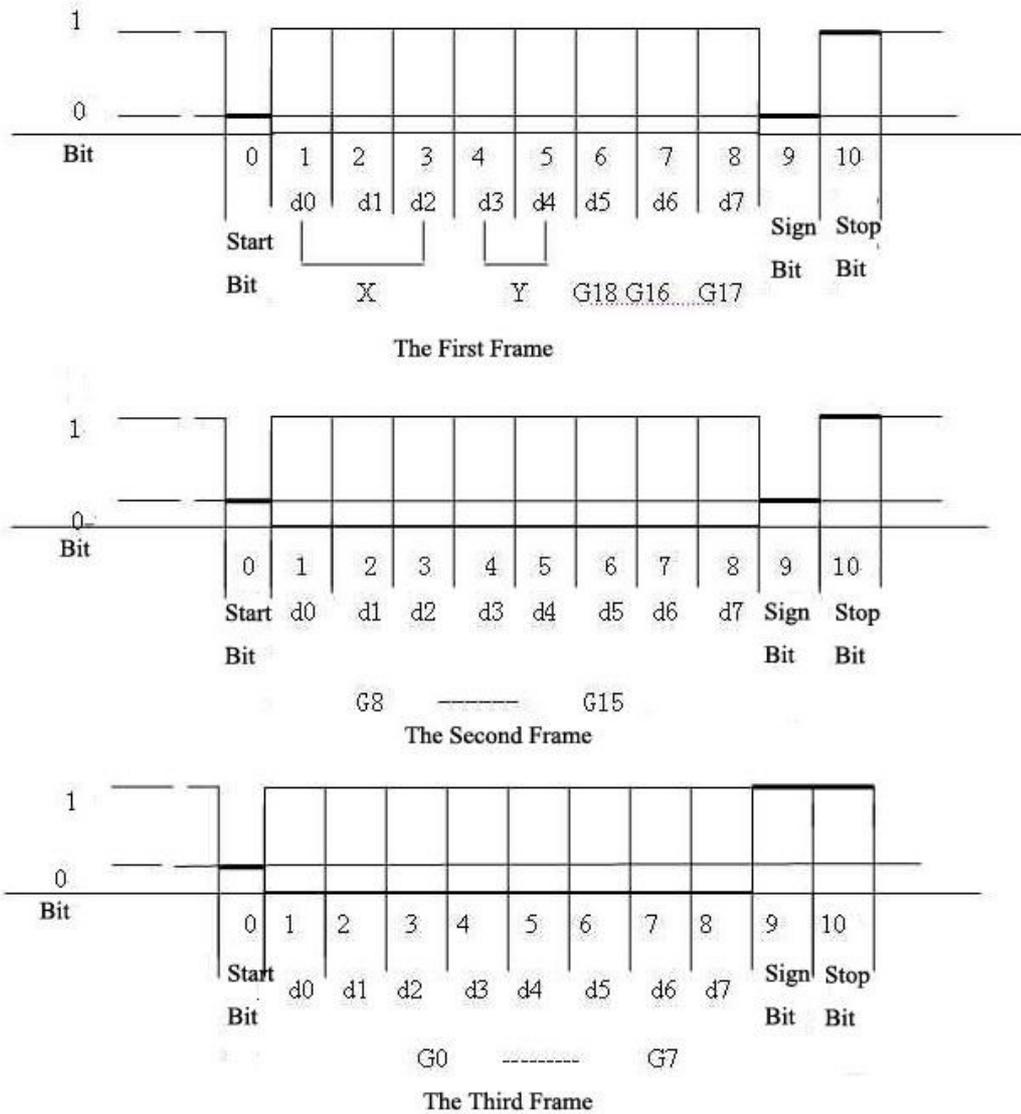
▲ ! Make sure that scoreboard and output lead are connected correctly. If there is something wrong with connection, damage will happen to output port of instrument and input port of scoreboard, sometimes, the damage is so big to influence the instrument and scoreboard. Only specially provided connecting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

1. The scoreboard interface adopts a 15-pin socket (jointly used with serial communication interface). Pins 9 and 10 in Figure (2-5) define the leads.



2. Electric current or RS232 interface is used for scoreboard signal, which is transmitted in serial binary code style. The baud rate is 600. Each frame data has 11 bits: 1 start bit, 8 data bits (the low bit is in the front), 1 symbol bit and 1 stop bit.
3. One set of data be sent every once 100ms, and each set including 3 frame data as follows:

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(Figure 2-6)

The first frame data: 0 as symbol bit

X: D0, D1, D2—as decimal digits (0-4)

Y: D3- weight signal (1-minus, 0-plus)

D4-spare

G15-G16: weight data

The second frame data: 0 as symbol bit

G15-G8: weight data

The third frame data: 1 as symbol bit

G7-G0: weight data

G0-G18: constructing 19 bit binary code of net weight (from down upward)

2.5 Serial communication and indicator connection .

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

▲! Necessary computer technology and programming expertise are required for computer communication, which should be participated and instructed by professionals. Non-professional staff is supposed not to be involved in this regard.

With RS232/RS422 (optional) serial communication interface, the Wb Series + p indicator can be connected to computer for communication.

1. Communication port use 15 pin RS232 socket (shared with scoreboard), the leads of which are Pins 6,7,8 (RS232) or Pins 1,2,3,4(RS422) in Figure 2-5.
2. All data are ASCII code, every set of which is composed of 10 bits: the 1st is starting bit, the 10th is stop bit, the middle in between are 8 data bits.

Hereunder are the communication modes

(1). Sequential mode:

The transmitted are present gross weight datum. Each frame is composed of 12 sets of data. Hereunder is the format:

Byte No.	Description
1	02(XON) start
2	+ or - symbol bit
3	Weighing data high bit
:	Weighing data :
:	Weighing data :
8	Weighing data low bit
9	Decimal digits from right to left(0~4)
10	XOR verify high 4 bits
11	XOR verify low 4 bits
12	03(XOFF) end

OR=2⊕⊕.....8⊕

(2). Instruction mode:

Indicator transmits corresponding data according to instruction of the connected computer. Every time when the connected computer delivers an instruction, the instrument will transmit a frame of datum.

Byte No.	Description
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1	02(XON) start
2	A~Z address No.
3	A~E Instruction A: handshaking Instruction B: read gross weight Instruction C: read tare Instruction D: read net weight Instruction E: get truck No. Order F: get cargo No.
4	XOR verification high 4 bits
5	XOR verification low 4 bits
6	03(XOFF) end

$$OR=2 \oplus$$

Transmitted content from indicator:

Byte No.	Description
1	02(XON) start
2	A~Z address No.
3	A~F Instruction A: handing Instruction B: send gross weight Instruction C: send tare Instruction D: send net weight
4	Transmitting corresponding data according to instruction
....	Transmitting corresponding data according to instruction
n-1	Transmitting corresponding data according to instruction
n	Transmitting corresponding data according to instruction
n+1	XOR verification high 4 bits
n+2	XOR verification low 4 bits
n+3	03(XOFF) end

$$OR=2 \oplus \oplus \dots (n-1) \oplus$$

Hereunder is the 4-n content while datum is transmitted from indicator:

Instruction A	No data	Each frame is composed of 6 sets data
Instruction B	Gross weight, format: a : symbol (+ or -) b : gross weight(6 bits) ... (from down upward) g : h :decimal digits from right to left(0~4)	Each frame is composed of 14 sets data

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Instruction C	Tare , format: a : symbol (+ or -) b : tare (6 bits) ... (from up downward) g h :decimal digits from right to left (0~4)	Each frame is composed of 14 sets data
Instruction D	Net weight, format: a : symbol (+ or -) b : net weight data (6 bits) (from up downward) g h :decimal digits from right to left (0~4)	Each frame is composed of 14 set data

Remarks: XOR verification sum high/low 4 bits confirmation: If XOR verification sum high/low 4 bits ≤ 9 , add 30h to become ASCII, and then sent out. For example: When XOR verification sum high 4 bits=6, add 30h, then become 6 in ASCII and sent out. If XOR verification sum high/low 4 bits > 9 , add 37h, then become ASCII to be sent out. For example: When XOR verification sum high 4 bits=B, add 37h, then become 42h, i.e., B of ASCII to be sent out.

3. Indicator communication parameter setting:

(1) Communication parameter

Parameter is composed of 3 sets of parameters: communication address, baud rate, communication mode.

(2) Connecting with load cell, make indicator into normally status.

On the back of 15 pins socket, plug special setting plug-head. (parts including one 15-pin socket, it's 14 feet & 15 feet short connected.) please set on the following instruction.

Communication parameter setting step:

Step	Operation	Display	Explanation
1	Press[function]		Insert calibration head
2	Press[input]	[E **]	Non-communication parameter setting, not change it. Press [enter] to next step.
3	Press[input]	[dc *]	Non-communication parameter setting, not change it. Press [enter] to next step.
4	Press[input]	[Pn *****]	Non-communication parameter setting, not change it. Press [enter] to next step.

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5	Press[input]	[F *****]	Non-communication parameter setting, not change it. Press [enter] to next step.
6	Press[1] Press[input]	[Adr **] [Adr 01]	Communication address(01-26) Example:1
7	Press[1] Press[input]	[bt *] [bt *]	Serial communication baud rate(0-4), indicate the baud rate respectively. 600,1200,2400,4800,9600 Example:1
8	Press[0] Press[input]	[tF *] [tF *]	Serial communication type: 0---continual sending type, not received 1—instruction response type Example: 0
9		Weigh status	Communication parameter setting end.

(Please note explanation instruction, don't modify other parameter setting at your will)

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3. Calibration

According to the Graph 2-3, connecting Indicator and loadcell, and the indicator enters weighing mode.

1. Connecting calibration jumper to the 15- pin socket on the indicator back panel.
(There is a 15-pin plug in the packing carton with its 14-pin short connected with 15-pin.)
2. According to table 4-3, carry out calibration step by step.

Table 4 – 1

step	Operation	Display	Explanation
1	press [FUNC]		after calibration jumper is inserted
2	press [1] [0] press [Input]	[E **] [E 10]	Enter division value selecting 1/2/5/10/20/50/100/200 Example: 10
3	press [0] press [Input]	[dc *] [dc 0]	Enter decimal point (0 -4) Example: without Decimal point 0
4	press [0] [2] [3] press [Input]	[pon XYZ] [pon 023]	Enter Parameters X: Applying Field (0-1) 0: Non Commercial 1: Commercial Y: Zero setting range (1-5) Representing respectively The percentage of F.S. For example: 2% 4% 10% 20% 100% Z: Power on Zero Set Range (1-5) Representing respectively The percentage of F.S. 2% 4% 10% 20% 100%
5	press [3] [0] [0] [0] [0] [0]	[F *****] [F 30000]	Inputting the F.S. If the calibration is needed. You should enter F, then push [Input]. You will

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			enter directly to step 10 by pushing [Input]. And you can return to [weigh] Status by pushing [weigh] key.
6	press [Input]		Example: 30000
7		[noLoadn]	Confirming Zero position. At this time there is no load on the scale.Pressing [Input] when the stable light is on.

step	Operation	Display	Explanation
8	press [2] [0] [0] [0] [0] press [Input]	[Aload1] [20000]	The weight loaded should be no less than 50% Max F.S.. It is better that the loaded weight is near to the F.S. for example: 20000. You should press [Input] to confirm when the stable light is on.
9	press [Input] press [Input] press [Input]	[H *****] [C *****] [CH *****]	Don't change H,C,CH which are three calibration coefficients.
10	press [1] press [Input]	[Adr **] [Adr 01]	Communication Address (01-26) for example 1
11	press [1] press [Input]	[bt *] [bt 1]	Band rate for serial communication : (0-4) representing respectively the band rate of 600,1200,2400,4800,9600 For example: 1
12	press [0] press [Input]	[tF *] [tF 0]	Serial Communication Mode 0- consecutive transmission, not receiving 1- command response For example :0
13		Weigh status	Calibration is over

CAUTION!

When calibration is over, the calibration jumper must be pulled out.

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4. Operating Instructions

4.1 power on and auto zero-setting

- 1 The indicator will perform “999999-000000” selfchecking when turning on. Then it will enter “WEIGH” status.
- 2 The selfchecking can be stopped by pushing any key.
- 3 When power on, if loading weight on the scale deviates from the zero point, but still within zero set range, the indicator will set zero automatically.
- 4

4.2 Manual zero setting:

- 1 The indicator will perform zero-setting by pushing [Zero] key, the “zero” light is on at this time.
- 2 If displayed value deviates from zero point, but still within zero-range, pressing [Zero] key is available. Otherwise, [Zero] key is invalid. (In this status, please recalibrate or reset zero parameters)
- 3 Only when stability lamp is on, you are allowed to set zero operation.

4.3 Tare function

- 1 Normal Tare :

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

- 2 Preset tare:

When Indicator at weighing status, press [Pre Tare] key, indicator will display [P *****], Using digital key entering known tare weight value, then press [Enter] key, the pre-tare is finished. At this time indicator displays net weight and tare sign lamp is lighted.

4.4 Date and Time

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1. The indicator will display the present date and the “date” light is on if you push [Date] key in “weigh” status. If the date is correct. You can exit by pushing [Input] or [weigh] key. If the date is not correct, you should enter the correct date by numerical key, then push [Input]
2. The indicator will display the present time and the “time” light is on if you push [time] key in “weigh” status. If the time is correct. You can exit by pushing [Input] or [weigh] key. If the time is not correct, you should enter the correct time by numerical key, then push [Input]
3. The clock will stop when powered off, so you should have the correct time and date when power on each time.

4.5 Rechargeable battery

1. There are 3 battery lights to indicate the battery electricity. The battery electricity is insufficient if only one light is on. You should charge the battery at this time. The continual use in the insufficient battery status will result in the power-off.
2. You can charge the battery by connecting the battery to indicator and turning on the AC power (charging time is 30 hours)

4.6 Internal code

1. The indicator will display the internal code if you push [print set] key and input [2], [8] in “weigh” status, at this time the internal code light is on. You can exit the “internal code” status by pushing [print set] key again, and inputting [2], [8], the “internal code” light will be off.
2. In “ internal code” status, all the keys except [Zero] and [Print Set] keys are null.

4.7 Printing

1. Printing set

Step	Operation	Display	Note
1	Push [print set] Push [9] [7] Push [Input]	[P 00] [P 97]	Input 97

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2	Push [1] Push [Input]	[Auto *] [Auto 1]	Selecting Auto/Manual Printing 0- Manual 1- Auto
3	Push [3] Push [Input]	[Type *] [Type 3]	Selecting printer: 0-invalid printing 1-TPup16 micro-printer[English] 2-TM800 printer 3-Panasonic KX-P1121 Printer 4-Epson CQ-1600K
4	Push [5] [0] Push [Input]	[HL **] [HL 50]	Selecting Printing Restriction 00-print only when display returns zero 25-print only when display <25% F.S. 50- print only when display <50% F.S. 75- print only when display <75% F.S. 99 Print even when it is at F.S.
5	Push [3] Push [Input]	[Arr *] [Arr 3]	Selecting Printing format: Arr=0: record format 1: 1-page format 2: 2-page format 3: 3-page format
6	Push [1] [0] [0] Push [Input]	[L *****] [L001,00]	Setting the minimum weight which can see printed out in auto printing mode. L must be lager than 10 divisions for example: 1.00
7	Push [1] Push [Input]	[Ode *] [Ode *]	Selecting blank- filling print format: 0-blank-filling print not selected 1-blank filling print selected
8	Push [1]	[Dct *]	Selecting the discount rate at

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	Push [Input]	[Dct 1]	blank-filling print form: 0-discount rate is not used 1-discount rate is used
9	Push [0] [1] [1] Push [Input]	[Sys ***] [Sys 011]	All the number entered except 0 are regarded as 1 in this status

Record Format:

Weight Bill

Date 97-01-31

NO.	Time	Gross (kg)	Tare (kg)	Net (kg)	Accumulating(kg)
0001	08.56.16	299.98	1	298.98	298.98
0002	09.00.09	299.98	2	297.98	596.96
0003	09.00.28	299.98	3	296.98	893.94

Document Format

Weight Bill

NO. :	007
Date :	96-09-25
Time :	09.03.21
Gross :	299.98 (kg)
Tare :	9.98 (kg)
Net :	290.00 (kg)
Total :	2059.90 (kg)

Blank filling format (Compelet printing only in five sconds)

WEIGHT BILL	
Fist bill for operator	
SERIAL No.	123
DATE	1999-05-28
TIME	12.35.28
VEHICLE No.	
CARGO No.	
GROSS	1580 kg
TARE	80 kg
DISCOUNT	10 %

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NET	1350 kg
REMARK	

5. Maintenance and Announcements

- 5.1 To guarantee the clarity and using life, the indicator shouldn't be placed directly under sunshine and should be placed in the plain space .
- 5.2 The indicator should avoid dust pollution, vibration and moisture.
- 5.3 Loadcell should connect with indicator reliably, and the system should be connected into ground properly. The indicator must be detected from high electrical fields.
 - ▲ ! **In order to protect the operator ,indicator, and relevant device, you should mount lightning rod in thunderstorm frequently happening area.**
 - ▲ ! **Load cell and indicator are static sensitive devices, you must adopt anti-static measures.**
- 5.4 It is strictly forbidden to clean the case of indicator with intensive solvents (for example: benzene and nitro oils)
- 5.5 Liquid and electrical conducting particles should not poured onto the indicator, otherwise the electronic components will be damaged and electric shock is likely to happen.
- 5.6 You should cut off power supply of indicator and relevant device before you pull-in and out the connecting line of indicator and external device.
 - ▲ ! **You must cut off power supply of the indicator , before you plug the connecting line of the load cell in and out.**
 - ▲ ! **You must cut off power supply of the indicator and the printer, before you plug in connecting line of the printer.**
 - ▲ ! **You must cut off power supply of the indicator and the scoreboard, before you plug connecting line of the scoreboard in and out.**
 - ▲ ! **You must cut off power supply of the indicator and the master computer,**

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before you pull connecting line of communication in and out.

▲ ! You must cut off power supply of the indicator and external connecting system, before you pull connecting line of control output in and out.

- 5.7 The user should return this indicator to our company for repair. Non-weighing manufacturer should not repair it, or by yourself, otherwise further destruction may occur.
- 5.8 From invoice date, the indicator has a total one-year free repair period. If any non-artificially obstacle about the indicator occurs while under correct using conditions within the period, the user is allowed to send the product with its guarantee card (of the correct number) back to our corporation for free repair.
- 5.9 The indicator shouldn't be taken apart, otherwise free guarantee will be cancelled.

6. Errors and Information

6.1 Normal information

- 1 Wait a moment, and this is a normal display.
- 2 Wait a moment, the data are being transmitted between indicator and printer.
- 3 Storing data, it will indicate for not less than 2 seconds to prompt the operator.
- 4 No meaning.

6.2 Error information indicating

- 1 Overload warning
- 2 Zero or Negative weight value, can't be printed.
- 3 dissatisfing demands of document format , or printing set is wrong.
- 4 dissatisfing demands of the printer set.
- 5 Date or Time is illegal.
- 5 This truck No does not exist.
- 6 The truck No restored exceeds 255.

6.3 Wrong setting information indicating

- 1 Wrong setting of the division value .
- 2 Decimal point must be less than 5, please reset the decimal bit.

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3 **Err 15** Overload warning must be > 100 , please reset it.

Err 17 Enter new data which should be less than 65000.

6.4 Wrong connection information indicating

1 **Err P** It means the printer has trouble or is wrongly connected. push any key to quit.

2 **Err 01** It means the load cell signal line is wrongly connected, or its signal is negative.

(1) If this scale is under usage, then can be sure: the load cell connecting wires had troubles, or load cell has been damaged.

(2) If this scale hasn't been calibrated, the user should check the load cell's connective wires first. (Whether the signal line has been negatively connected). If the loadcell cable is correctly linked, but the indicator still indicates Err01, the problem can then be solved by short connecting pin 4 and pin 6.

3. **Err 02** It means the load cell's wires are wrongly linked, or the signal value exceeds the A/D converting range.

(1) If this scale is under usage, then can be sure: the load cell's connective wires had troubles, or load cell is damaged.

(2) If this scale hasn't been calibrated, please check as following:

a) Carefully check the load cell's connective wires is right or not.

b) Check if load cell is suitable or not: It should satisfy the following terms: the "scale's dead load + scale's rated capacity" must be less than the load cell's rated capacity.

c) This may happen in case that there are more than one load cell in the weighing system.

d) Short connecting the pin 4 and pin 1 on the socket of the load cell.

4. **Err 05** : Long-distance compensation feedback voltage is not correct.

1) If 4-pin shielded cable is used, please check if you had short-connected the tE and tS, -E and -S.

2) Please check if the connection of load cell is correct.

6.5 Error of components and solving method

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- 1 **Err 18** Key board has problems, It will indicates for ten seconds, then indicator enters weighing mode.
- 2 **Err 20** The data is partly lost in RAM. Operator should put in the calibration plug to self-check, and then pull it out.
- 3 **Err 21** Calibrating data have been lost in RAM and EPROM, Operator must put in the calibration plug, then reenter the original calibration data, turn on the indicator again or re-calibrate it.
- 4 **Err 22** EPROM has been damaged.
- 5 **Err 23** RAM has been damaged.

6.6 Other information indicating

1. **Err 24** In normal operation, you must pull off the calibration jumper. The indicator is under normal operation, and the calibration jumper shouldn't be put in. If calibration is needed, the calibration jumper should be put in at set-up. You should pull out the calibration jump when turning off the indicator. If the indicator finds that the calibration jump was inserted when turning on, it will display **Err 24** for **6 seconds** to prompt the operator.
2. **Err 25** Illegal software, or E2PROM was damaged.
3. **ctnu 0** The indicator will display this if it can not receive the stable data within 25 seconds during the step 8 or step 9 of the calibration process. At this time, the operator can input 0, 1 or 2.
0: (Abort) The indicator will not do this step and enter next step.
1: (Retry) Try again.
2: (Ignore) The unstable data can be used..