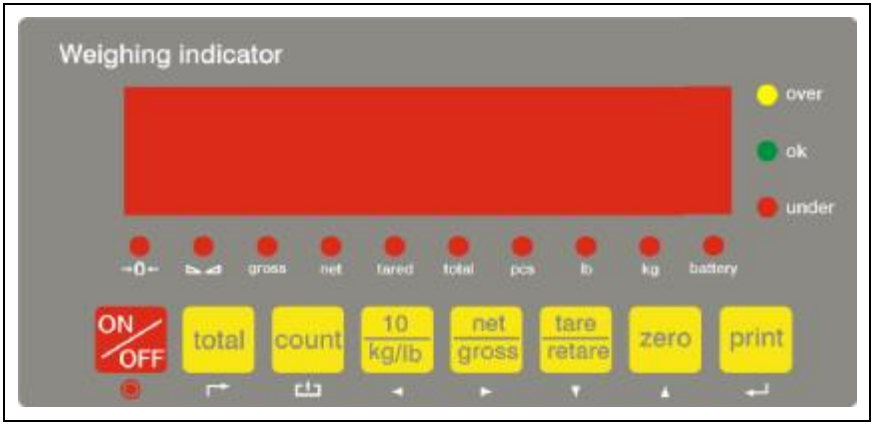
Sauter

LP7510

Weighing Indicator

www.souter-eg.com

User's Manual



■ Load Cell ■ Controller ■ Scale

Preface

Thanks for using LP7510 Weighing indicator, ALL products are been strictly tested and inspected before shipment. You will benefit from its strong function and good quality.

Locosc is devoted to weighing technology development, industrial scales produce and technical service. If you have any suggestion on our product, do not hesitate to contact us. Contact info. Is as bellows:

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1 Safety instruction and notice for battery use

safety instruction

For safety operation pls. follow the safety instruction.

WARNING
The Non professional staff can not set. Calibrate, inspect or fix the the weighing display

WARNING
Pls. make sure the weighing display have good ground in using

	WARNING The indicator is the static and sensitive equipment, cut off the power when doing electrical connections, internal components touched by hand is prohibited, and please take the measure of anti-static.

Battery use instruction

The Company provided for the maintenance-free and rechargeable battery , low self-discharge rate, long life, and work temperature -10-40 ℃. The new battery will make the best effective after two or three complete charge. Each time charge should keep at 6 to 8 hours, not more than 12 hours. when use battery-powered, the work time is 20-30 hours when the battery fully charged, when the indicator showed that "LOBATT", means the battery is under power. Pls. charge at once.

Charging method:

1. Random specific power adapter plugged into AC power outlet, the circular DC power supply plug into "DC" jack on the indicator back cover.
2. Open the power switch to "on", power-on self test, go into weighing status . "batter" status light does not on, in a battery is charging
3. Charging time 6 to 8 hours later , take off the adapter, "battery" light on, means battery-powered.

Note:

1. In order to keep the battery in best use condition, so suggest that monthly charge and discharge the battery completely at least once, the method is to use the indicator until the battery if finished automatically shut down the indicator and then recharging again.
2. If the battery when not in use for a long time, please take out the batteries from the indicator in order to avoid battery leakage and damage the indicator .Do not use the battery for a long time, it is essential to charge the batter every 2 or 3 month. Or the battery will expire.
3. Pls. make sure the indicator is powered off then change the batteries, or it will have an impact on the indicator life.

4. when replace the battery. The correct connection is : connect the red line to the plugs in red mark; and the black line to the plugs in black mark, Be sure wiring is correct, or it will cause damage to load cell, explosive, and the main board damage

5. Our Company only responsible for approved the standard battery and power adapter by our company. And not take any responsibility for any damage by the accessories offered by third-party.

2 Main functions and parameter

2.1 main functions：

Weighing function:

Zero, gross, net, accumulating, printing, counting, animal -weighing.

Toggle operation: kg/lb

Options:

Pinter

RS232/RS485 serial interface or second display

Classifying scales (with I/O card)

2.2 technical parameter

Accuracy class	6000 e	
Resolution	display: 30, 000	ADC: 2,000,000
Zero stability error	TK_0 < 0.1μV//K	
Span stability error	TK_{spn} < ± 6 ppm//K	
Conversion time	50 ms	
Sensitivity (internal)	0.12 μV /count	
Input voltage	-30~30mV DC	
Excitation circuit	5 VDC, 4 wire connection, all strain gauge, min. 50Ω, e.g.: 6 load cell of 350Ω	
AC power	AC100~250V	
DC power	DC6V/4Ah rechargeable batter,700mA。	
Operation temperature	- 10 °C ~ + 40 °C	
Storage temperature	- 40 °C ~ + 70 °C	

3 Installation and connection

3.1 Installation method

There are 3 installation method for LP7510

1. Wall mounting: Use screw M5 to fix the base of the weighing display to the wall
2. Table mounting：Adjust the elevation of the weighing display and the base. And then put it on the table.
3. Column mounting：Take off the base, then use screw M8 to fix the feet to the column

3.2 Connection

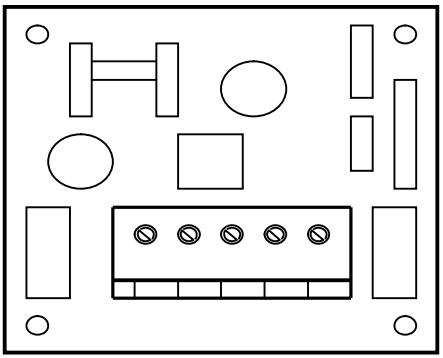
3.2.1 Supply power connection

2 kinds of power supply : One is AC 100-240V; another is in-built storage battery DC supply power, with charger.

AC powered connection method:

1. Open the back cover of the weighing display. And take off the Water-proof connector with AC mark. And insert the equipped power Line insider the back cover.

2. Fix the 3 core line to 5 bit terminal block J1 on the back cover AC power board. Shown as the below picture.



J1 pin	Pin symbol	AC supply power
1	GND	Power ground line（yellow）
2	L	Power fire line（brown）
3	N	Power zero line（blue）

Built-in rechargeable connection method:

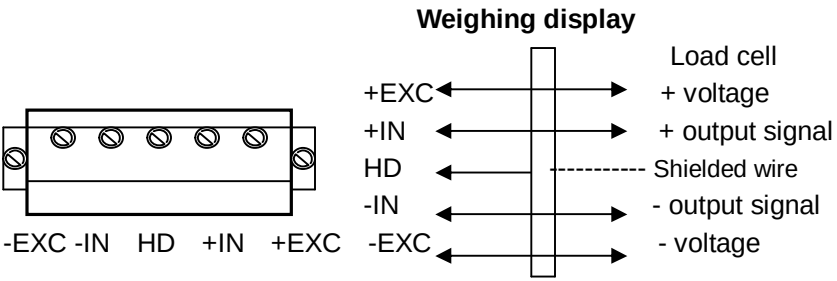
Open the back cover of the weighing display controller. Connect the red lines of the terminals to battery terminal (positive) with red mark; Black line connect battery terminals(negative) with black mark.

3.2.2 Connection of load cell and indicator

1. Weighing display of the incentives voltage for the load cell is 5VDC, the largest output current 120mA, maximum connect 6 pcs 350-ohm load cell;

2. Load cell (or the signal cable for the junction box) is connected with 5 bit Connection terminal (J2) on the weighing display circuit-board。

3. Open Weighing display controller back cover, insert signal line into the water-proof joint with "Load cell" signs. And conect signal cable to terminals J2, and make sure screw fixed tightly. Connection as below drawing:

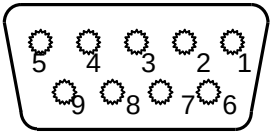


3.2.3 Serial interface connection method(option)

To connect with computers, second display, printer, and other communications equipment, Pls. purchase RS232 with DB9 joint and COM port together with the indicator. better choose the shielded twisted-pair. Length no longer than 15 meters.

1. Through RS232 or RS485 interfaces can be connected to the big screen;
2. Through RS232 or RS485 interfaces can be connected to the computer;
3. Through RS232 or RS485 interfaces can be connected to a printer and have printing function.

4. Serial communication interface at the back of the display controller marked the RS232-joint BD9 as the below drawing:



Pin function and definition as bellows:

DB9 joint	Definition	Function
2	TXD	Sending data
3	RXD	Receiving data
5	GND	Ground interface
6	V+	Printer power (positive)
8	V-	Printer power(negative)

Note: Only 2 pin and 5 pin connecting with second display

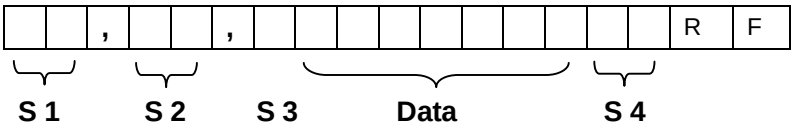
5. Serial interface reception command:

RS232COM serial interface can receive simple ASCII command. And Command word and role as follows:

Command	Name	Role
T	Tare off command	Save and clear tare
Z	Zero command	Zero the gross weight
P	Print command	Print the weight
G	Gross/net weight shift command	Gross/net weight shift
R	Read gross/ net weight	Read gross/net weight

6. Continuous output:

Reaction of command "R" are same as continuous output



S1: weight status, ST=standstill, US= not standstill,
OL= overload
S2: weight mode, GS=gross weight, NT=net weight
S3: weight value sign, “+” or ” –“
S4: weight unit sign, “kg” or “lb”
Data: weight value, including decimal point
CR: carriage return
LF: line feed

3.2.4 I/O connection(option)

1. The indicator I / O card can achieve external control command operation via an external input 4, and to complete remote control by computer or other controlling instrument.

2. Output 4 signal through the I / O card and can be connected with external control equipment for the realize the automatic control function of the external control or the executive instrument. The indicator can set 4 function pack, the function of each function pack can output respectively 4 different signals.

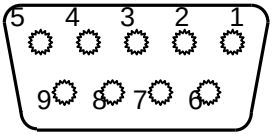
3. input function. Input port and input signals as bellows:

Input port	Port definition	Function instruction
In1	Zero input port	External zero signal input
In2	Tare output port	External tare signal input
In3	Print input port	External print signal input
In4	Gross/net weight input port	External gross and net weight signal input

4.functions include output port and info. As bellows:

Function pack	Output port	Port definition	Function instruction
0	Out1	Overload output port	Indicator output overload signal
	Out2	Eligible output port	Indicator output eligible overload signal
	Out3	Under load output port	Indicator output under load signal
	Out4	Reserve	No output signal
1	Out1	Overload output port	Indicator output overload signal
	Out2	Eligible output port	Indicator output eligible overload signal
	Out3	Under load output port	Indicator output under load signal
	Out4	Zero output port	Output zero bit signal
2	Out1	Overload output port	Indicator output overload signal
	Out2	Eligible output port	Indicator output eligible overload signal
	Out3	Under load output port	Indicator output under load signal
	Out4	Stable output port	Output stable signal
3	Out1	Zero output port	Output zero bit signal
	Out2	Tare output port	Output tare signal
	Out3	Stable output port	Output stable signal
	Out4	Reserved	No output signal

5. I/O card port is on I/O BD9 type joint of weighing display. The pin Definition and connection as bellows:

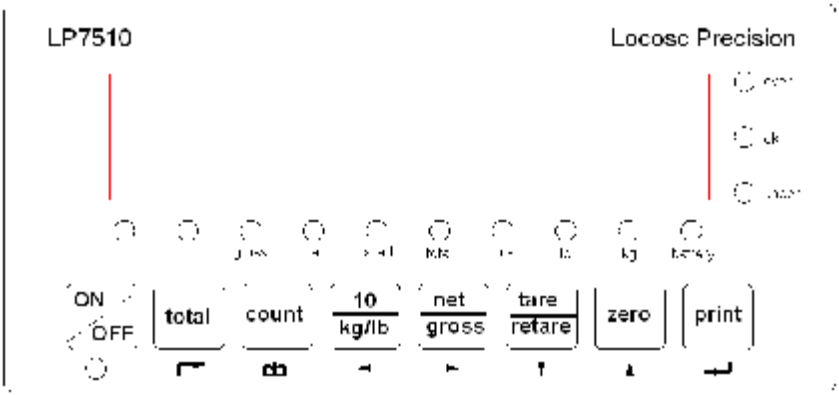


DB9	Pin definition	Port
1	First input pin	In1
2	Second input pin	In2
3	Third input pin	In3
4	Fourth input pin	In4
5	GND	I/O public groud
6	First output pin	Out1
7	Second output pin	Out2
8	Third output pin	Out3
9	Fourth output pin	Out4

Note: above is transistor output for I/O card install. When you select the relay output for I/O card. Pls. refer to Relay output I/O card manual.

4 Instruction

4. 1 Display and main key



Instruction:

When the light of status is on, the means are as follows:

【kg】——weight unit sign kg

【lb】——weight unit sign lb

【count】——count function

【battery】——in-built battery is working

【zero】——weight is zero

【stable】——weight is standstill

【gross】——weight is gross

【net 】——weight is net

【tare】——have set tare

【total】——totalizing function level

【over】——weight is over upper limit

【ok】——acceptable weight

【under】——weight is under lower limit

LED light on means- the weighing data show on the display or setting the is working

Key functions of weighing level and operation

total	Press 5s to enter into and leave totalizing-scale operation Press 1s to totalize a weighing value during totalizing on
count	Press 5s to enter into and leave totalizing-scale operation Press 1s to convert pcs mode to weight mode for 4s during counting on
10 / kg/lb	Press first times to convert display kg/lb to lb/kg for 4s Press second times to higher resolution display×10 for 4s Remarks: pressing two times continuously is invalid
net / gross	Press first times to convert gross mode to net mode Press second times to convert net mode to gross mode
tare / retare	Press first times to set gross weight > 0 into memory tare, the weight display changes automatically to net mode and light status of net and tared. Press second times to clear memory tare the weight display changes automatically to gross mode and light status of gross. Conditions: status light of standstill is on
zero	Press to set the gross weight to zero within ±1/4d Conditions: status light of standstill is on & actual gross weight is with zero setting range
print	Press to print current weighing documents Conditions: status light of standstill is on

Open/Close —— open or power off the indicator

4.2 Basic operation

4.2.1 Switch on & off

1. **Switch on：** pls. connect the power for AC power supply. and

connect the battery line for rechargeable battery. Before switch on the indicator. the “kg” light on. It means the connection is ok. then press

after 2s. the indicator show”000000-999999”. After the self inspection. It go the weighing mode.

2. Switch off: Press the

key, 2s latter. Auto power off, only kg light is on. Take off the AC power supply or the battery. The kg light off.

4.2.2 Zero operation

1. Initial zero setting

When switching on the indicator, if the weight on the scale is within the initial zero range, indicator will put is zero automatically, and gross weight will show zero.

2. Zero setting

It is effective in gross weight status, when the minus data or nonzero data is within the zero setting range. Press

key. Than go to the zero.

4.2.3 10 times higher resolution and toggle operation.

1. Press UNIT key. the 10 times higher resolution weighing data shown on the display. And after 4s back to weighing status. Press UNIT again, the indicator proceed the toggle operation. And after 4s return.

2. Weight unit---kg/lb toggle operation. If the unit is kg, the kg light

is on. Press UNIT key. it change to lb. and lb light on. After 4s back to kg automatically. And kg light on at the same time.

4.2.4 Tare operation

1. Tare function

When gross weight shown on the display, Press TARE key. the TARE light on. Indicator save the data and at same time NET light on. Net weight is zero.

2. Retare function

When NET light on. Press TARE key, the TARE and NET light off . It means the indicator already clean the tare. And show the gross weight.

3. Tare operation condition.

Only the weight on the scales keep standstill and the light on. The tare operation is effective.

4.2.5 G.W/N.W operation switch

When the indicator show the gross weight. Press

key, the net weight show. And light on. Press

again. Back to gross weight display. And N.W light off. G.W light on.

4.2.6 Weight accumulating operation

1. weight accumulating operation

1. when the weight is zero.. Press

and keep it 2s latter.

“SUON” show on the indicator. The light is on at same time.

2. when adding the weight to the scales. if you want the present weight be added. Press

2s, and “ n 01” (means the first time accumulating)show on the indicator, after 2s back to the present weight.

3. when the first weighing and accumulating is finished. Take off the weight. And enter second weighing. Press

2s for confirmation “(n 02)(means second accumulating). Then the total weight for the first & second weighing show on the display. After 2s back to the actual weight on the scales. repeat this operation again can accumulating many times.

4. when accumulating finish. Press

for 2s. and “ SU OFF” show on the indicator. Back to normal weighing status.

Note: when weight is accumulated, the weight on the scale should be standstill. And light on steadily

2. Check the total weight

Press

. Firstly show the accumulating times(for example” n 02) then show the total weight. 2s latter back to the weighing.

4.2.7 Count operation

Two ways for count operation.

1. sampling and then get the average unit weight.:

If you don't know the unit weight. firstly get the total weight. Then do sampling and get unit weight. Then input the quantity. and go to the count operation.

2. Input the average unit weight: if already known the unit weight, add the goods. Then input the unit weight. We can get the quantity

How to get the unit weight:

1. Press 置零 to display zero. Then put goods on the scales that you know the quantity.

2. Press count till it show " PC on", then automatically show "000" means it already go to the count

3. Press the count and print key, till " PC 1" show on the display, and 1 means sampling and then get the average unit weight.

Press print and "PCS 00" show on the indicator

4. Use ← and → to shift the cursor, and ↑ and ↓ to adjust the parameter. Input the goods quantity on the scales. and suppose there are 5 pcs. Then input " PCS 05"(Note: the sample qty should be below 99)

5. Press print to perform parameter setting. And count.

6.Put goods on the scales. and the quantity show on the indicator.

If you want the weight, Press count. It will show on the indicator.

The weight status light and “ PCS” light on. 4s latter back to show qty.

4.3 Input the known average unit weight method:

1. when the weight is zero. Put goods that you already known the unit weight.

2. Press count till “ PC on” show on the indicator and then “000” automatically show. Means already into counting.

3. Press count and print 1s and release, and “ PCS 1” show on the indicator. use ← and → to shift the cursor, and ↑ and ↓ to adjust the parameter. And change the “ PCS 1” to “ PCS 2” 2 means input the known average unit weight mode.

4. Press print and input known unit weight to count. “ 0000.00” Show on the indicator. use ← and → to shift the cursor, and ↑ and ↓ to adjust the parameter. Input known average unit weight. Suppose the unit weight is 1 kg, then input “0001.00”

5. Press print perform the set average unit weight to count. Put goods on the scales. and the quantity will show on the indicator. If you want the weight. press count, weight will show on the indicator.

And weight & “PCS” status light on. 4s latter automatically show quantity

4.4 Indicator for livestock scales(animal scales)

When the indicator used for livestock scales. only set the digital filter C13 1.and C14 2 is ok. steps as follows

1.Press total and print at the same time, enter into C13 by pressing the ↑ ↓ ← → , press print for confirmation. Then the press ↑ key to change “ C13 0” to “ C13 3”. At last press print again can enter into C14.

2. Press print. Enter into” C14 3”. Change “C14 2” to “C14 1” . and the setting for livestock scales finish.

Note: when for livestock weighing, set the digital filter 1 for C13. The No. is bigger, the weighing will be more stable. And change is slower.

Set the digital filter 2 for C14, The No. is smaller. The weighing change faster. Adjust the C13 and C14 . can control the weighing stability and speed suitable for animal weighing.

4.5 Classifying scales operation

The classifying function is optional, set the C20 C21 C22 C23 and it

can have the overload or under load alarming function. As follows

Menu	Optional function	Parameter
C 20	Value for upper limit alarm on	When the weight reach this value. Indicator output the overload signal
C 21	Value for upper limit alarm off	When the weight reach this value. Indicator stop the overload signal
C 22	Value for lower limit alarm on	When the weight reach this value. Indicator output the underload signal
C 23	Value for lower limit alarm off	When the weight reach this value. Indicator stop the underload signal

1. when set C20 C21 C22 C23 default=000000, it means close the upper limit(overload) and lower limit(under load) alarm

2. when set C20=C21, C22=C23, it means open upper limit(overload) and lower limit(under load) alarm. It mainly suit for classifying mode. For example:

The accepted range for a bag of rice is 24.9-25.0kg, setting as follows

1). Press

and

. Till it show C01. enter into setting parameter

2). Use ← → ↑ ↓ to set the C20. Press

. And it show “0000 00”

3). Follow the above steps. Set the C20 C21 C22 C23 as follows

Upper limit: C20=C21=25.10 kg

Lower limit: C22=C23=24.90 kg

4). Finish the setting. Press

. Than back to weighing status

If the actual weight is 25.00kg,status light is ok

If the actual weight is 24.80kg, status light is under

If the actual weight is 25.20kg, status light is over

3. when set “0000.00” for C20=C21. and C22=lower limit

C23=upper limit. It means use lower & upper limit independent. for example the application for hopper scales:

for a hopper scales. the target control weight is 100-150kg, the I/O card in the indicator to control the open & close the valve. As follows:

1). Set C20 C21 C22 C23 as above

2). Set C20=C21=0000.00

3). Set C22=lower limit alarm. C22=100kg

4). Set C23=upper limit alarm. C23=500kg

5). Return the menu. Back to weighing status.

If the actual weight is under 100kg, UNDER light on. Indicator output the Under weight signal. Open the valve to add goods

If the actual weight is over 500kg, OVER light on. Indicator output the Over weight signal. close the valve

4. when set C20>C21,C21<C23. it means delay the alarming. For example:

If the actual weight is over 90.00, open the over load alarm; when the actual weight is under 12.00kg. open the under load alarm.

Set an alarm delay data can avoid some untrue alarm. For example when the actual weight is 89.90. it is within the acceptable arrange, but if the hopper is moved by wind or shake. The value possibly come to 90.1t. than the untrue alarm will happen. To avoid it. We can set a 0.5t alarm delay. As follows:

C20=90.00t，C21=89.50t；

C22=12.00t，C23=12.50t；

In application:

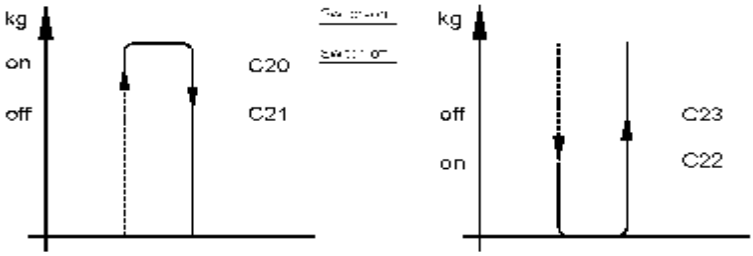
When the actual weight =90.00t. open overload alarm. Indicator output over load alarm signal;

When the actual weight =89.50t. close overload alarm. Indicator stop over load alarm signal;

When the actual weight =12.00t. open under load alarm. Indicator output under load alarm signal;

When the actual weight =12.50t. close under load alarm. Indicator stop under load alarm signal;

C20 与 C21，C22 与 C23 relationship as follows：



Upper Limit Alarm (Over)　　Lower Limit Alarm (Under)

4.6 **Second display, printer, computer communication(optional)**

The print function is optional. If it is needed, it should add RS232 on the main board and build-in serial interface mini type printer or outside Portable printer. Pls. see the details in the manul"3.2.3" serial interface connection method.

1. Second display. Printer. Computer communication parameter Setting.

Press print and total. Enter to the menu. Use ←→↑↓ to adjust the C27 C28 C29. steps as follows：

Menu	Option function	Parameter setting
C27	Communication mode	**C27=0 means shut off** **C27=1 means continuous sending. Connect to big display** **C27=2 connect printer** **C27= 3 command mode from supervisory**
C28	Serial interface Baud rate	**C28=0 baud rate**=1200 **C28=1 baud rate=**2400 **C28=2 baud rate** =4800 **C28=3 baud rate**=9600
C29	Data bit and calibration bit	**C29=0 means** 8，none **C29=1 means** 7，even **C29=2 means** 7，odd

2. Second display using method

Connect with second display according to the “3.2.3” in this manual and Set C27=1. and C28 & C29 the same data bit and calibration with second display. After finish setting. Restart the indicator and second display. If the same data shown on the indicator and second display. Means it works regularly

3. Printer operation:

This indicator can connect with built-in mini serial interface printer and outside serial interface portable printer. And built-in printer is setted Within the factory

Indicated need setting according to the communication data for the outside portable printer.

1. communication method set: Press

and

enter

to function menu. Adjust to C27. press print for confirm. And set "C27 2" press print again.

2. Serial interface baud rate set: after set the C27. indicator show C28. press print enter to C28 setting. Set the serial interface baud rate the same with equipped printer. For example: the printer baud rate is 9600 bt/s. set " C28 3". Press print. Save the setting. Enter to C29

3. Data bit and calibration bit set: the indictor show C29. Press print. Set the serial interface data bit and calibration bit the same with equipped printer.

4. Print operation: after the above setting is finished. Press print. Then press the count back to the weighing. Press print.

The print result as bellows:

NO: XX
Gross: XXXX
Tare: XXXX
Net: XXXX
Date: XXXX.XXXX
Time: XX.XX.XX

5. Error resolution and daily maintenance

Error code list

Error code	Reason	Resolution
UUUUUU	Overflow: measuring value is above FSD + overload range	1. Take off the goods from scales 2. Recalibration 3. Check load cell 4. Chang main board
nnnnnn	Underflow: measuring value is below negative display range	1. Recalibration 2. Check load cell 3. Chang main board
ERR1	During calibration: no enter the calibration weight value	Input weight of the calibrated weights
ERR2	During calibration: the used calibration weight value is too low	Add weights. Recommend the weights is 15-80% the Max. capacity
ERR3	During calibration: input voltage is negative	1. Check the installation is ok or not 2. Check the connection for load cell is ok or not
ERR4	During calibration: measuring value is not standstill	Check the scales installation is ok and the make sure the goods on the scales is stable
ERR5	Checksum error of EEPROM	1.Power off the indicator and re open again 2. Change main board
Lobat	The voltage of rechargeable battery is too low	Recharge the battery

Daily maintenance

1. Regularly clean the panel and body with soft cotton sheets and cleaning detergent. Industrial cleaning solvents can not be used to clean keyboard and display panel, and the solvent can not spray directly on the instrument.

2. In order to ensure indicator display clearly and useful life, the instrument should not be placed directly on sunlight. And can not be placed on dust and vibration serious area.

3. Sensors and indicator should be well connected , the system should have a good ground, away from strong electric field, magnetic field, sensors and indicator should stay away from flammable and explosive materials.

Battery maintenance:

1. Please note that when used in the emerging low-voltage meter "LOBATT" suggests that this occurred when prompted, for charging the battery immediately.

2. Under charging and over charging is prohibited; when replace and maintain the battery you should know the distinction between negative electrode to prevent short-circuit and anti connection so as not to damage the battery and instrumentation.

3. Battery can not close to flame or heat source to prevent damage of the batteries and indicator or others