D12

Digital Electronic Weighing Indicator

Calibration Manual

Version: December. 2019

- Please read this manual carefully before using
- Please keep this manual properly for reference

Indicator ground wire must be complying with electrical safety regulations, junction box; load cell must be well grounded.

Connection between digital load cell and indicator must be reliable, load cell shield wire must be grounded.

▲ all cable does not allow plug / unplug when indicator is connecting to power supply, to protect indicator or load cell from electrostatic.

▲ Thunderstorm season, system must have reliable lightning protection measures, to protect load cell and indicator.

Make sure operators' safety and weighing equipments running safely.

▲ limited using for flammable gas, or flammable vapor areas, or tank system with pressure.

▲ keep indicator and load cell away from strong electric magnetic field, corrosive substances and explosive materials.

▲ do not sue strong solvents(such as: benzene, nitro-class oil) to clean the cover.

▲ do not inject liquid or other conductive particles into indicator.

▲ without technical supervision department's promise, no one can open the seals, or calibrate..

◆ to ensure indicator display clearly, and work longer, do not use it under direct sunlight, and put it stable.

◆ indicator should be away from dust, vibration, wet environment.

◆ before plugging/unplugging, pls cut off indicator or other equipments' power.

◆ connecting each connector as the manual book.

◆ That indicator is precision measuring instrument, to ensure accuracy, do not open it without authorization.

◆ exceeding maintenance time, factory should charge for repairing.

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one： Technical parameter

1 Type： D12-B+、D12-BP+、D12-BP1+
D12-Y+、D12-YP+、 D12-YP1+
D12-R+、D12-RP1+

2 Digital load cell interfaces:

Communication mode RS485

Signal transmission distance: 30 M if connecting 12 pcs load cells, if need longer, please contact us.

Transmission baud rate 9600、19200bps

Excitation power DC12~14.8V

Digital interface ability connect max 16 pcs digital load cells

Available communication protocol : C type、E type and K type digital protocols.

3 Display： 7 digits of LED，7 digits of status symbols

4、keyboard

Number keys 0 ~ 9

Function keys 24 pcs（10 combined with number keys）

5、clock： display year, month, date, hour, minute and second, leap year and leap month automatically.

6、Scoreboard display interface (isolated from load cell connectors)

Transmission mode current loop and RS232

Transmission baud rate 600bps

7、Serial communication interface (isolated from load cell connectors)

Transmission mode RS232

Baud rate: 1200/2400/4800/9600/19200 optional

8、printing interface (isolated from load cell connectors)

With standard parallel printing interface, such as EPSON LQ-300K＋Ⅱ、EPSON LQ-300K、EPSON LQ-680K 、EPSON LQ-730K 、EPSON LQ-1600K（＋）、KX-P1131、KX-P1121、DS-300…etc printers.

Out-connecting micro-printer： POS58 printer （thermal-printer）、 AB_300K （needle-printer）

9、Operating environment

Can store 1000 groups of vehicle numbers and tare weight, 1500 groups of latest weighing records, 300 groups latest unfinished weighing records, 6 groups of over load records.

10、Operating environment

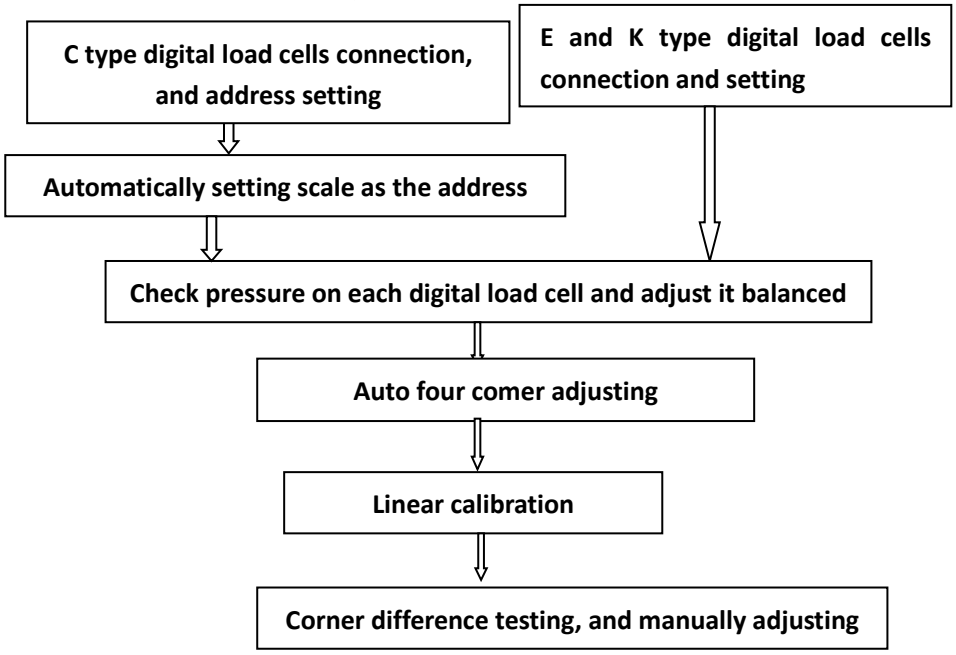
Power input AC110~220V 50~60HZ
DC 12V

Operation temperature 0℃ ~ 40℃

Storage temperature -25℃ ~ 55℃

Relative humidity ≤85%RH

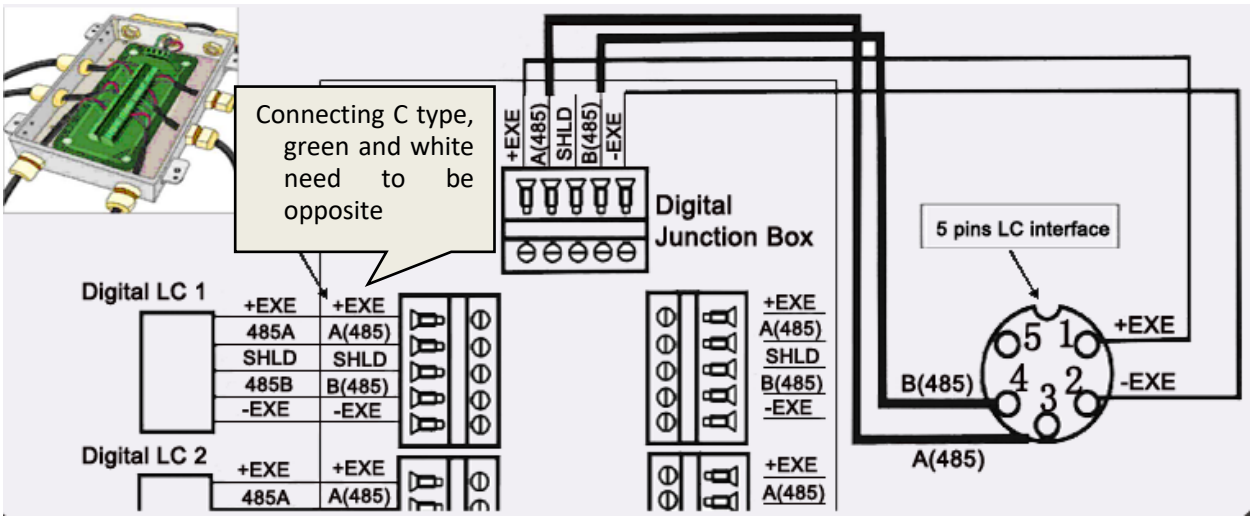
two： scale calibration steps



Three： Installation and connection

Indicator and digital load cell connection

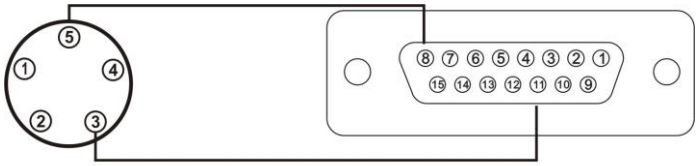
That indicator can connect C, E or K type digital load cells.



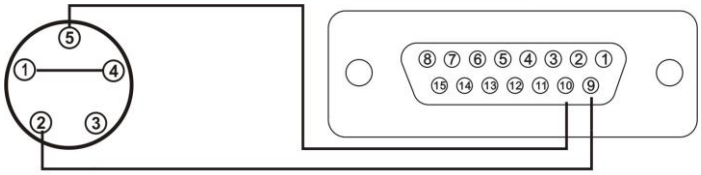
Indicator and scoreboad connection

Connecting KELI or YAOHUA scoreboad,

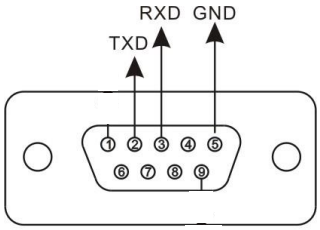
1. RS232 connection



2. Current loop connection



Indicator and computer connection



Indicator PC connector	Computer 9 cores connector
2	2
3	3
5	5

Indicator PC connector with indicator and computer RS 232 connection

Indicator and battery connection

Indicator have auto-charging module inside, and please use 12V/7Ah battery。

Four： Digital load cell debugging

Modifying load cell communication address, and scale digital load cell.

Keep the address unit, and stable. Diagram 4.1.1。

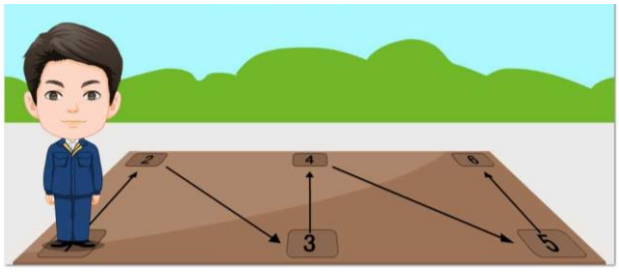


Diagram 4.1.1

Solution 1、C type digital module modifying load cell communication address and setting load cell type & numbers.

C type digital module modifying load cell address, load cell must be modified one by one, other load cells should be connected from 1 to N continuously, or it can not work.

Operation：

Step	Operation	Display	Explanation
1	press【ADD】	**C-CodE**	Input initial code, and not be introduced in following steps.
	press【888888】	**C- - - - - -**	Initial code “888888”
2	press【input】	**FunC 00**	Selection function type 0： setting address singly.
3	press【input】	**S Adr**	Scan connected digital load cells. Note: if not find any load cell, indicator display **Err adr**。
4	press【input】	---	scanning
5	press【0】【1】	**Xd** n##** **Xd** n01**	X: load cell communication protolos 1: KELI C type 2: KELI E type 3: KELI K type d** digital load cell original communication address. n## new communication address 01(range: 01~16)
6	press【input】	******.	Displaying internal code when setting successfully. E、C can display internal code, K can not display if code is different.
7	press【input】	**S Adr**	Return to step 3

1、 Automatic group scale after modifying address.

Operation:（calibration switch on）

Step	Operation	Display	explanation
1	press【ADD】 press【1】	**FunC 0** **FunC 1**	Selection function type1，scan load cell as address number, and automatically group scale.
2	press【input】	--- **dno 8**	scanning displaying scanned load cells’ address

3	press【input】	**SurE 0**	Not reserve/ reserve scanned results. 0：not reserve； 1：reserve
4	press【1】	**SurE 1**	reserve
3	press【input】	*****	Weighing interface

Method 2、 Modify the communication address for E type or K type digital load cell

There are two methods to modify digital load cells with E or K type digital module. Method 1: Operate like C type digital load cell. Connect signal load cell to modify address. After that run auto scale forming【FunC 01】. Method 2: Both digital load cell with E and K type digital module support auto networking. Connect all of the load cells directly. And that carry out auto networking operation. Then go ahead with the operation steps of pressing corner to set address.

Operation method please refer to the following table: (calibration switch should be on)

Step	Operation	Display	Note
1	Press【ADD】 Press【3】	**FunC 00** **FunC 03**	Select function category number 03, E and K type digital load cell auto networking (calibration switch should be on)
2	Press【ENTER】	--- **no ****	Scanning Found **number digital load cells
3	Press【ENTER】	**SurE 0**	unsave/save scanning result 0：unsave；1：Save
4	Press【**1**】	**SurE 1**	Save scanning result and random allocation address 1~n
5	Press【ENTER】	**noLoAd**	Zero point confirmation, At this moment, there is no loading on scale
6	Press【ENTER】 Put weight（It can also be replaced by one or several people） on the first load cell	**d01 ****	Set No. 1 address ** means the previous address for the current load cell If press【Enter】 and display Err17， It means repeat confirmation to this load cell address or load cell is error. Please press 【Weigh】and check the each load cells stressing status according to the chapter IV, section three test 0.
7	Press【Enter】 Loading on to the next load cell	**d02 ****	Confirm No. 2 address.
8		------	
9	Press【Enter】	End Weighing Status	It will exit automatically after pressing the corner

Note: Step 3: It can exit to the weighing status if you press 【weigh】at this time.

Step 6： If press【Enter】 and display Err17， It means repeat confirmation to this load cell address or load cell is error. Please press 【Weigh】and check the each load cells stressing status according to the chapter IV, section three test 0.

Section Two Pressing corner to identify the digital load cell address

When the testing person is not clear about the load cell address distribution or not sure if the load cell is pressed tight or not, the following methods can be adopt to for testing.

Operation method is as follows:

Step	Operation	Display	Note
1	Press【TEST】	**S-CodE**	Enter test password
	Press【111111】	**S- - - - - -**	Password is fixed“111111”
	Press【ENTER】	**tESt 0**	Test Main Interface
2	Press【6】	**tESt 6**	Select category number 6 and enter to identify the address by corner pressing.
3	【ENTER】 Put weight（It can also be replaced by one or several people ） on a certain load cell	**Adn 03**	Display current load cell address Note: 03 stands for current load cell address. At this time, it will be changing according to the weight movement. Load cell communication error or press 【Weigh】 to exit to weighing interface.
4	Press【Enter】	**tESt 0**	Testing Main Interface

Section Three ISN code for each corner

In order to make sure the accuracy of corner difference coefficient modification and long term stability of scale, the requirement that digital weighing system needs for foundation and mechanical installation is same as analog scale. User shall adjust scale platform to be horizontal

Checking ISN code of each corner is helpful for adjusting scale platform. Refer to the method in Form 4-3-1

Well installed scale, the ISN code at corresponding corner should be close. As the above picture as an example: The outside circle, no.1, no.2, no.6, no.5 should be near to each other; inside circle no.3, no.4 inner code should be near and should be about double than the outside circle. The phenomena like "seesaw" must be avoid.

Form 4-3-1

Step	Operation	Display	Note
1	Press【Test】	**S-CodE**	Enter Password
2	Press【111111】	**S- - - - - -**	Password is fixed "111111"
3	Press【Enter】	**tESt 0**	Select function category"0" to check each load cell ISN
4	Press【Enter】	**dd 01**	ENTER the load cell ISN which is going to check
5	Press【0】【1】	**dd 01**	
6	Press【Enter】	**E******.**	Display ISN for No.01 load cell. The ISN= Load cell ISN* corner coefficient
7	Press【Enter】	**dd 02**	Display ISN for no.02 load cell
8	Press【Enter】	……	……
9	Press【Enter】	**tESt 0**	Testing Main Interface

Note: Step6: Press【Gross/Net】can select to check the ISN without scale itself【*.*.*.*.*.*.*.】or ISN with scale itself【*******.】, For example: When the scale is no load, the load cell ISN is 500, then the ISN without scale itself will display 0.

Section IV Corner-difference correction

After scale platform is horizontal and loaded solid by heavy truck, corner-difference correction shall be started. Indicator has two methods of automatical correction and manual correction.

One, Automatical corner difference correction

Operation method is as follows：

Table 4-4-1

Step	Operation	Display	Note
1	Press【**Corner**】	**C000000**	Input calibration password（calibration switch should be on）
	Press【**888888**】	**C- - - - - -**	Initial password is "888888"
2	Press【Enter】	**ACty 0**	Select function category no. 0 to enter into automatic corner error correction
3	Press【Enter】	**noLoAd**	Confirm zero position，at the moment there should be nothing on scale, wait stable indication lights and then press【ENTER】
4		**---** **dCr ****	Reading the data of stable scale. Put heavy weight on one corner, indicator will display the address for the load cell **
5	Press【Enter】	**---** **PASS** **dCr ****	Reading the data of stable scale. Confirmed all of the load cell weighing data. Put heavy weight on another corner, indicator will display the address for the load cell **
5	---	---	---
6		**End** Weighing Status	Automatic Corner difference correction

Note：Step 3： If display 【Err 17】, it means the load cell number do not meet the requirement of auto corner difference correction or the load cell is error.

Step 4：Display [---] means it is reading the stable data, if it can not read the data within 25

seconds,it will display [ctnu 0]

Enter 0： Cancel the current operation and return to the weighing status directly.

Enter 1： Read stable data again.

Enter 2： Consider the current readed data as the stable data

Step 7： When all the load cell has been pressed, the indicator will calculate the corner coefficient automatically. If the corner coefficient is abnormal (>1.5 or <0.5), it will display [**Err 30]**，please check all the corner coefficient and adjust the scale platform.

Two、Enter weight for corner difference correction

Step	Operation	Display	Note
1	Press【**Corner**】	**ACty 0**	
2	Press【1】	**ACty 1**	select function category number 1 to enter into direct input weight value for corner difference correction.
3	Press【Enter】	**AdJ ****	** stands for the current pressing load cell weight
4	Press 【 **ideal weight value**】	**---** **o******** **o weight value**	Reading the stable data Reading current weight value correct to idea weight value.
5	Press【**Enter**】	**PASS** **Weighing status**	Setting complete and return to weighing interface.

Note：Step 3： Can enter the corner that the user want to correct. If the weight is pressing between 1 and 2 then can enter 1 or 2 manually to confirm which corner want to correct. If load cell number is less than two or load cell address error, indicator will display【Err 17】

Three、Enter corner coefficient for corner difference correction.

Step	Operation	Display	Note
1	Press【**Corner**】	**ACty 0**	
2	Press【2】	**ACty 2**	Select function category no. 2 to enter to input corner efficient.
3	Press【Enter】	**SAdJ 01**	**Set No. ** corner difference effieicent directly**
3	Press【**0**】【1】	**SAdJ 01**	**For example as set no. 1 corner difference efficient**
4	Press【Enter】	***.********	**No. 01 corner difference efficient.**
5	Press【**100120**】	**1.00120**	**Correct No. 01 corner difference coefficient.**
6	Press【Enter】	**SAdJ ****	Correct the other load cells corner difference coefficient one by one

Note：Step 5: when indicator releasing from factory the corner difference coefficient is 1.00000。Note：Manual input corner difference coefficient is 0.5~1.5。（The corner difference coefficient is more differet from 1.00000 than the scale installation condition is worse ）.

Chapter V. Calibration

1. Calibration

Put calibration switch on the calibration position, do calibration as following table. Table 5-1-1

Step	operation	display	Notes
1	press 【calibration】	**C-CodE**	need to press calibration button
2	Press 【888888】	**C********	input calibration password, the delivery default password is " 888888"
3	press【input】	**E *****	display the current division
4	Press【←or→】	**E 10**	Input division: 1/2/5/10/20/50/100 can be selected, e.g.: 10
5	press【input】	**dC ***	The current decimal point number (after decimal point changed, it will delete all weighing records automatically)
6	Press【0】	**dC 0**	input decimal point number （0~3）, for example: no decimal point 0 (note 5-1-0)
7	press【input】	【Pn VWXYZ】	display system parameter

			V：application W: zero-setting range in N.W X：zero tracing range Y：manual zero setting range Z： 13455 power-on zero setting range (note 5-1-1)
8	Press【13455】	**Pn13455**	input system parameter
9	Press【input】	**FLt ***	display current filter parameter range 0~4，number more bigger and filter strength more stronger
10	Press【2】	**FLt 2**	Input current filter parameter, e.g.2
11	Press【input】	**F********	Display full scale capacity, overloading alarming value= full scale +9***E**
12	Press【050000】	**F050000**	input full scale value
13	Press【input】	**noLoAd**	Zero confirmation, there is nothing on the scale, after indication light is bright, press 【input】, **press 【→】take current zero as zero, and skip to the first loading point to operate**
14	Press【input】	--- **ALoAd 1**	reading stable data calibrate the first loading point
15	press【010000】	**A010000**	Load weights until stable indication light is bright, input the real weight of weights on the scale. For example: 10000 **Press** 【check】calibrate the first loading point and enter to step 10 multi-point calibration; Press 【F1】can check ISN " 10000." Of related empty scale Press 【input】, two points calibration is finished and quit to **weighing interface**
16	press【check】	--- **ALoAd 2**	reading stable data calibrate the second loading point
16	**Press【20000】**	**A020000**	Load weights until stable indication light is bright, input the real weight of weights on the scale. For example: 20000
17	press【input】	End Weighing status	calibration is finished

Note: step 7: Pn parameter set method

Pn parameter, meaning of every bit and parameter range please see table 5-1-2、5-1-3、5-1-4、5-1-5、5-1-6

（table 5-1-2）

Value of V	-
application	

（table 5-1-3）

Value of W	0	1	2	3
zero setting in net weight	Not use	1e	2e	3e

If current indicator status accord to zero setting range in net weight, then indicator quit net weight status, and set zero. Otherwise display [Err 19]

（table 5-1-4）

Value of X	0	1	2	3	4	5	6	7	8	9
zero tracing range	Not trace	0.5e	1.0e	1.5e	2.0e	2.5e	3.0e	3.5e	4.0e	4.5e

（table 5-1-5）

Value of Y	0	1	2	3	4	5
Press 【set zero】button, zero setting range	0%F.S	2%F.S	4%F.S	10%F.S	20%F.S	100%F.S

（table 5-1-6）

Value of Z	0	1	2	3	4	5
Switch on zero setting range	0%F.S	2%F.S	4%F.S	10%F.S	20%F.S	100%F.S

2. Division auto switch and calibrate linearity

Table 5-2-1

step	operation	display	Notes

1	press【set】	**PSt 00**	need to open calibration switch
	Press【input】	**C-CodE**	
2	Press【888888】	**C- - - - - -**	input calibration password, default password is " 888888"
3	Press【input】	**E 10**	Display the current division, press 【←or→】to select division 1、2、5、10、20、50 and 100
4	press【input】	**dC 0**	Current decimal point number （0~3）(after decimal point changed, it will delete all weighing records and vehicle number tare weight)
5	Press【input】	【Pn VWXYZ】	display system parameter V：application W：set zero range in net weight X：zero tracing range Y：manual set zero range Z： 13455 power-on set zero range, e.g. 13455
6	Press【13455】	**Pn13455**	input system parameter
7	Press【input】	**FLt 2**	Display current filter parameter range 0~4，number more bigger and filter strength more stronger
8	Press【input】	**F030000**	Display full scale capacity, overloading alarming value= full scale +9***E**
9	Press【input】	**n********	division value switch point 1
10	Press【0】	**n000000**	For example:000000（not use division value switch function）
11	Press【input】	**h********	division value switch point 2
12	Press【0】	**h000000**	For example:000000（not use division value 2 switch function）
13	press【input】 press【↓】 press【↓】 press【↓】 press【↓】 press【↓】	**A** ******* **L****** **Lh***** **b** ******* **o****** **oh*****	Display calibration parameter, not change it randomly: if not to check, can press 【weigh】button to quit calibration status, press 【↓】button not save current operation interface input value. (when change indicator, can input data directly, no need calibrate again) specification： A ：zero AD code L、LH：the first calibration rate b ： the first phase demarcation point AD code o、oH：the second calibration rate
14		Weight status	parameter setting is finishe

Note: Step 9 to 12: indicator supplies three phase division auto switch function. Can set two division switch point: when gross weight is smaller than division switch point 1, display division downward switch 1 grade (for example: 50 switch to 20, 10 switch to 5); when gross weight is bigger than division switch point 2, display division upward switch 1 grade (for example: 1 switch to 2, 5 switch to 10). Switch point set as " 000000", means not use related switch function. When division is 1, it can not switch division downward.

Note: Step 6: if not do the second phase calibration, then the demarcation point AD code of the first phase is symbol number 9999999, the AD code is **（load cell ISN*10）+1000000**

Chapter IV. Other Operation

1. Date and time setting

step	operation	display	Notes
1	press【lock】	**d12.05.13**	display current date
2	press 【 number button】	**d12.05.13**	change date
3	Press 【120515】	**d12.05.15**	input the correct date
4	press【input】	**d09.08.15**	display current date
5	Press【input】	**t12.53.48**	note: after timing switch-off function starts, can not change date any more
6	press 【 number	**t12.53.30**	display current time

	button】		
7	Press 【125345】	**t12.53.45**	input correct time
8	press【input】	**t12.53.45**	display current time

2. Calibration password management

Password management includes add-password selection, password change and random code unlock （table 6-2-1）

Steps	Operation	Display	Explanation
1	press【setting】	**PSt 00**	calibration switch should be open
2	press【2】【0】	**PSt 20**	select parameter/function category 20, setting modification of calibration password
3	press【ENTER】	**C-CodE**	input calibration password
4	press【888888】	**C- - - - - -**	Eg. 888888
5	press【ENTER】	**n-CodE**	input new calibration password
6	press【123456】	**n------**	Eg.123456
7	press【ENTER】	**r-CodE**	Re-input calibration password
8	press【123456】	**r------**	Eg.123456
9	press【ENTER】	**PASS** Back to status of weighing	modification is successful, back to status of weighing

Note：Step 5： In order to ensure the newly input password correct, it is required to input the new password again. If the password that input in two times are same then password is modified successfully. After display【PASS】it automatically returns to the weighing status. If the password that input in two times are different then back to the step 5 asking to input the new Password

。After one-time password of calibration is input into indicator, not need to input password of calibration; but password of calibration must be input again when indicator re-start or modify password.

3. Timing Off

①、The way to set the expire date of probation

Steps	Operation	Display	Explanation
1	Press【set】	**PSt 00**	
2	Press【21】	**PSt 21**	Select Parameter/Function category no. 21 to enter timing off setting
3	Press【ENTER】	**C-CodE**	input calibration password
4	Press【888888】	**C- - - - - -**	Eg: 888888
5	Press【ENTER】	**d**.**.****	indicating current date
6	Press【090428】	**d12.04.28**	Input expire date Eg: 12/04/28
7		Weighing status	Setting is finished

②、Remove and modify the timing off:

1) After exceeding the set off time, the indicator will display 【Err 26】and can not weigh
2) If want to cancel timing off, only need to set the date of timing off as 99.99.99

4. System testing

①、Check total internal code

each load cell internal code plus are the total internal code.

Procedure	operate	display	annotation
1	press【2】	**tESt 02**	Choose functional category number 2 enter into total internal code
2	press【input】	**1123.**	display total internal code
3	press【input】	**tESt 00**	

Note：Procedure 2： press【gross/net】Can choose to check the internal code when remove the empty balance 【*.*.*.*.*.*.】or not to remove the empty balance【*******.】。

②、Check the battery voltage

Proced	Operate	Display	Annotation

ure			
1	press【5】	**tESt 05**	Choose functional category number 5 enter tp check the battery voltage
2	press【input】	**U 11.9**	11.9 Said the battery voltage is 11.9V
3	press【input】	**tESt 00**	

③、Check the key function and instrument PC interface RS232 communication

Procedure	Operate	Display	Annotation
1	Press【testing】	**tESt 00**	enter into the test interface according to table 6-3-1
	press【8】	**tESt 08**	Choose the functional category number 8 and check the key and instrument PC interface RS232 communication
2	press【input】	**t ** r ##**	** Said the key value that press, and at the same time the instrument send out this value from the feet 2 of PC from the PC interface. ## Said the value that the instrument PC interface 3 feet received, if not will display [— —]。 If the above two values are the same, show that the RS232 interface normal. When there is no button **display [— —]，If the serial accept sending and receiving is normal ##display[88]。
3	press【weigh】	**Weighing interface**	

5 PC Communication parameter Settings

Procedure	Operate	Display	Annotation
1	press【setting】	**PSt 00**	
2	press【1】	**PSt 01**	Input parameter/functional category number“01”
3	press【input】	**Adr *****	Display the current address (instruction way to effective)
4	press【1】	**Adr 001**	Communication address（1~255）choose the 001
5	press【input】	**bt 600**	Serial communication baud rate
8	press【←/→】	**bt 9600**	Optional baud rate 600、1200、2400、4800、9600 、19200bps. Choose 9600
9	press【input】	**tF ***	Show the current way of communication
10	press【0】	**tF 0**	Communication mode selection. Choose 0 Mode selection range：0~8，**Specific see appendix A**
11	press【input】	**Jn ****	The current check way
12	press【←/→】	**Jn nonE**	Check mode selection，Options are as follows: choose nonE nonE：No check；odd Odd parity； EvEn：even parity check ；mArk： mark；SPAcE： space；
13	press【input】	**bit ***	the Number of data bit
14	press【←/→】	**8**	7bit or 8bit(default)
15	press【input】	**cyc ***	Continued transmission method interval
16	press【←/→】	**cyc 200**	50、100，200（default）、250、300、400、500、600or1000ms
17	press【input】	weighing status	

6 save printing parameter Settings

Procedure	Operate	Display	Annotation
1	press【setting】	**PSt 00**	Input parameter/functional category number
2	press【2】	**PSt 02**	Choose parameter/functional category number enter into storage printing parameter Settings
3	press【input】	**S-CodE**	Please enter the password Settings
4	press【111111】	**S- - - - - -**	Enter Password“111111”（retaining）
5	press【input】	**AUto 0**	The current automatic printing（0~2） 0：Manual printing； 1：Automatic printing（Keep off automatic printing condition）； 2：Automatic printing (shutdown didn't keep automatic printing state).

6	press【input】	**tyPE 1**	The current printer types（0~3）choose： 0：Print invalid； 1：Panel micro play Chinese characters； 2：EPSON LQ-300K（+）、LQ1600K、DS-300、 Panasonic KX-P1131； 3：Panasonic KX-P1121 4：POS58
7	press【input】	**hL 50**	The current print back to zero limit choice，such as ： 25：Return the full amount 25% After weighing the following can print；
8	press【input】	**Arr 1**	The current number of forms（1~4）1 to 4 reprsent the 1 and 4 bill
9	press【input】	**L000200**	The current automatic print the minimum weight limit is greater than the automatic printing 200
10	press【input】	**b 03**	The current forms printing on paper line number（0~99）
11	press【input】	**odE 01**	Print format selection（0~9） Zero: record format 1: vertical duplicate format; 2: transverse single format 3: custom record format; 4: custom vertical duplicate format 5: custom transverse single format; 6: filling type; 7: micro DaHeng duplicate format; 8: micro hit record format; 9: micro play custom transverse single format. 10: custom filling type;
12	Press【input】	**uo 1**	If the car use: 0: no use; 1: use (when not in use car number 0)
13	Press【input】	**uhn 1**	Whether to use the article number: 0: no use; 1: use (when not in use article number 0)
14	Press【input】	**So 1**	Storage is the input of the car： 0：Don't input（Direct call the current car number）； 1：input
15	Press【input】	**Shn 1**	Storage is input article no： 0：Don't input（Direct call the current car number）；1：input
16	Press【input】	**ut 0**	Unit of weight selection（0~1）：0＝kg；1＝t。
17	Press【input】	**Print 1**	Store the current weighing record whether print 0：Don't print ，1：print。
18	Press【input】	**PAbc 0**	(spare)
19	Press【input】	**do 00**	Print out a set of data after printer automatic feed line number and print on paper line number (**Mainly used for convenient tearing**)

7. The initialization function

This interface includes all parameter initialization，Now an initialization angle difference coefficient operation shows as below，The rest of the operation is the same as this one.

step	operate	display	explaination
1	press【F1】	**C-CodE**	entre calibration password（turn on the calibration switch）
2	press【888888】	**C- - - - - -**	Factory initial password “888888”
3	press【enter】	**rESt 0**	Select function category number 0, Enter the initial angle difference coefficient. 1、Initialization of communication parameters 2、Initialization of print parameters 3、Initialization of the custom print parameters and the license plate number 4、Initialization of calibration parameters 5、Initialization of the Weighing records and wagon tare 9、Initialization of all the above parameters.

4	press【0】	**rESt 0**	Eg.0，Initialization Coefficient of angle different and the number of types of sensor communication.
5	press【enter】	**SurE 0**	Confirmation interface
6	press【**1**】	**SurE 1**	Confirmation operate。 0: no initialization，and back to Weighing interface 1: Initialize。
7	press【enter】	------ **End** weighing interface	Initializing Initialization over Check result and return to the weighing interface or restart

Charpter 6 In formation tips

1 Normal information tips：

No.	Display	Notes
1	【 **-------** 】	Please wait a moment, indicator internal operations, don't make any operation
2	【 **Print** 】	Indicator is to printer transmission data.
3	【 **Load** 】	The first two weighing data storage.
4	【 **End** 】	end of operation
5	【 **PASS** 】	Modify Settings success
6	【**Lo bAt**】	Low power, the instrument will be shut down.
7	【 **-**】	Battery voltage is lower than 10.2 V please promptly to the battery charge
8	【 **SAvE** 】	Data saving

2 Wrong information tips

No.	Display	Notes
1	【**Err 03** 】	Overload alarm shall be discharged immediately all or part of the load
2	【**Err 08** 】	This condition no record
3	【**Err 11** 】	Car number storage is full, please delete part or all of the memory tare.
4	【**Err 12** 】	Can't use micro play or POS machine to print it
5	【**Err 13** 】	Parameter/functional category selection is not correct
6	【**Err 16** 】	A password is not correct
7	【**Err 17** 】	Parameter setting is not in conformity with the requirements, please refer to the relevant parameters of the input range of requirements
8	【**Err 18** 】	Weighing platform linear calibration, the calibration weight less than the calibration weights
9	【**Err 19** 】	Zero and negative weighing or unstable cannot print, do not satisfy the reset condition not print; Storage input parameters not adhesion requirements; Discrepancy zero conditions; Do not conform to the peeling condition: unstable, negative; Call no weight information of the car
10	【**Err 23** 】	Memory U10 damage, please repair
11	【**Err 26** 】	Calibration timing shutdown time
12	【**Err 28** 】	Print date less than already stored weighing record date
13	【**Err 30** 】	Automatic or manual Angle difference adjusted abnormal results
14	【**Ecc 01~16** 】	No. n loadcell communication error
15	【**EccP 01~16** 】	No. n Digital loadcell communication encryption not consistent
16	【**ErrP** 】	Printer connection error, printer error or printer didn't paper, please add paper or by weighing key exit
17	【**Err 91** 】	Please press the instrument at the back of the "calibration button" (after the boot in a can)

3 Other information tips

No.	Display	Notes

1	【Ctun 0 】	Do not gather stable data, can enter 0, 1 or 2, its function is: 0: tell instrument is no longer do this step work, direct return weighing state. Input 1: tell instrument try again. Input 2: tell instrument these not too stable data can be used
2	【--S-- 】	nstrument is on the zero
3	【S-CodE 】	Operation codes "111111"
4	【C-CodE 】	Input calibration password

Appendix A: communication protocol

Serial data format can be set to: 7/8 bits, 1 stop bit, none(parity) parity bit; Serial communication mode is divided into continuous communication mode and command communication way two kinds,

(1). Continuous mode (TF = 0) : the transfer of data for instrument display gross weight.

Continuous mode (TF = 17) : the transfer of data for instrument display Net weight.

Each frame data from 12 groups of data. Format are shown below:

Bite X	Content	Note		Example (transmit＋20.00)	
		Content	Code	Cotent	Hex Code
1	Beginning	(XON)	02	**XON**	02
2	+or-	Sign bit	2B/2D	**+**	2B
3	Weighing Data	Highest order	30～39	**0**	30
4			30～39	**0**	30
5			30～39	**2**	32
6			30～39	**0**	30
7			30～39	**0**	30
8		Lowest order	30～39	**0**	30
9	Number of decimal	From right to left （0～4）	30～34	**2**	32
10	Vertify	High four		Vertify ＝0x1B	31
11		Low four			'B'
12	End	X0FF	03	**XOFF**	03

X or＝2⊕3⊕……8⊕9。

Note 1：If X or vertify high or low four bit: Xor and high,low four digitals lower than or equal to 9, must add 30h, become ASCII code and send , eg:Xor vertify higher than 4 digits and it is 6 digits

Sending data ASCII code，for example：Xor vertify larger than 4 which is 6, after add 30h, which become 36h, send ASCII code 6；Xor high, low 4 bits. If it is bigger than 9, it will add 37h, become ASCII code sending. For example: Xor vertify higher than 4 which is B, after adding 37, become 42h which send ASCII code B.

(2) MODBUS order mode (TF=1):

Communication of indicator and upper computer adopt MODBUS.

(3) Continuous mode (TF=2): (compatible D2+) the transfer of data for instrument display gross weight.

Continuous mode (TF=18): (compatible D2+) the transfer of data for instrument display net weight.

All data is ASCII code, each frame data forms 8 bytes (contain decimal point), data transfer from low to high-order position. There is a separator between every frame "=" , sending data which is weighing value. If weigh data currently display 188.5, continuous send 5.88100=5.88100=……. If weigh data currently display -188.5, continuous send 58810-=.58810-=…….

(4)Continuous mode (TF=3): the transfer of data for instrument display gross weight

Continuous mode (TF=19): the transfer of data for instrument display net weight

All data is ASCII code, each frame data forms 8 bytes (contain decimal point), data transfer from low to high-order position. There is a separator between every frame "=" , sending data which is weighing value. If weigh data currently display 188.5, continuous send 5.88100=5.88100=……. If weigh data currently display -188.5, continuous send 58810-=.58810-=…….

(5) Continuous mode (TF=4): （T800）without checksum, Invalid 0 before weight data,expressed as 0x30

Continuous mode (TF=5): （T800）with checksum, Invalid 0 before weight data,expressed as 0x30

Continuous mode (TF=14): （T800）without checksum, Invalid 0 before weight data,expressed as 0x20

Continuous mode (TF=15): （T800） with checksum, Invalid 0 before weight data,expressed as 0x20

Continuous output every frame which is 18 bytes.

Continuous output mode 2																	
StX	A	B	C	X	X	X	X	X	X	X	X	X	X	X	X	CR	CKS
1	2			3						4						5	6

Among ：

1. <StX> ASCII start character (02H) 。
2. Status words A , B , C 。
3. Displaying weigh, which is gross or net weigh. 6 bits data without symbol and decimal point.
4. Tare weigh, 6 bits data without symbol and decimal point.
5. <CR> ASCII
6. <CR> ASCII return character (ODH) 。
7. <CKS> checksum。

Status word A			
Bits 0 , 1 , 2			
0	1	2	Decimal place
0	0	0	KGKG00
1	0	0	KGKGX0
0	1	0	KGKGKG
1	1	0	KGKGX.X
0	0	1	KGKG.KG
1	0	1	KGX.KGX
0	1	1	KG.KGKG
1	1	1	X.KGKGX
Bits 3 , 4			
3	4		Division value factor
1	0		X1
0	1		X2
1	1		X5
Bit 5			Permanent 1
Bit 6			Permanent 0

Status word B	
Bits	Function
Bit 0	GW = 0 , NW = 1
Bit 1	Sign : positive = 0 , negative = 1
Bit 2	Overload (or smaller than 0) = 1
Bit 3	Condition = 1
Bit 4	Unit: kg = 1
Bit 5	Permanent 1
Bit 6	Indicator in power which display 1

Status word C	
Bit 0	Permanent 0
Bit 1	Permanent 0
Bit 2	Permanent 0
Bit 3	Printing order = 1
Bit 4	Expanding display (X10) = 1
Bit 5	Permanent 1
Bit 6	Permanent 0

(6). Continuous mode (TF=6)：（Chaman8803）

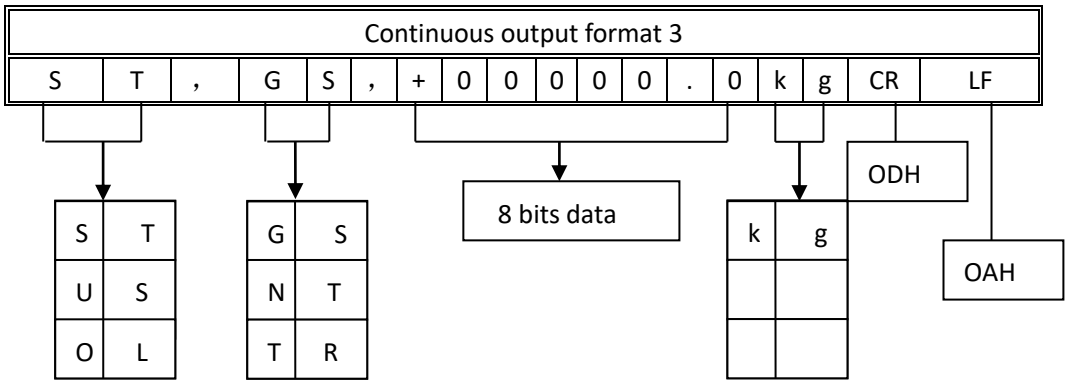
Each byte data 8 bits， check bit is optional, stop bit is 1 bit。

In order to reduce transferring bytes number, status describe by status byte. Data compression becomes three bytes BCD code, a frame data with signal byte FF（HEX）, consist of 5 bytes. FF(HEX) status word BCD1 BCD2 BCD3

Definatin for status word as below:

D7	D6	D5	D4	D3	D2 D1 D0				
Overflow	Stable	Symbol	Unit	GW/NW	Decimal places				
1 overflow 0 normal	1unstable 0stable	1 positive 0 negative	1 ton 0kg	1 GW 0 NW	000	001	010	011	100
					X.	.X	.XX	.XXX	.XXXX

(7). Continuous mode (TF=7):



Header1 Header2

Header 1

ST weight（Stable）

US weight（Unsable）

OL （Over Load）

Header 2

GS （Gross data）

NT （Net data）

TR （Tare data）

(8). continuous mode (TF=8) ：（same as HT9800-D7 mode1）

1、Data format for serial communication as below:

10/11 bit：1 start bits，7/8 data bits，1 stop bit。

2、Serial communication sends important data which is ASCII code， sending 12 bytes for each time.

Defination as follow：

First byte：start bit（02H）

Second byte：Status word A

Third byte：Status word B

Fourth byte：Status word C

Fifth byte：Weigh value high-order of 6 bits.

Tenth byte：Weigh value low-order of 6 bits.

Eleventh byte：enter（0DH）

Twelveth byte：line feed（0AH）

Status word A

D7	D6	D5	D4	D3	D2	D1	D0
0	0	1	0	0			

Decimal point：

	X	.X	.XX	.XXX	.XXXX	.XXXXX
D2 =	0	0	1	1	1	1
D1=	0	1	0	0	1	1
D0=	0	1	0	1	0	1

Status word B

D7	D6	D5	D4	D3	D2	D1	D0
0	0	1	1				0

D3 = Static is 0， dynamic is 1。

D2= within weighing range is 0, overload is 1.

D1= weigh value positive is 0, negative is 1.

Status word C = 20H

AppendixB：Example weighing record sheet format：

（Standard）Record format：

Weighing record sheet Date：2008-03-05

SERIAL No.	Time	VEHICLE No.	CARGO No.	Gross (t)	Tare (t)	Net (t)
0004	20:44:36	00001	001	1.000	0.100	0.900
0005	20:45:00	00002	001	1.000	0.100	0.900
0006	20:45:10	00003	001	1.000	0.100	0.900
Total:			GW： 7.003 t		NW： 4.603 t	

（Standard）Duplicate format：(Vertical)

Weighing record sheet

SERIAL No.： 0001
Date ： 2008-03-05
Time ： 20.45.10
Car No. ： 00002
Number ： 001
Gross： 1.000(t)
Tare： 0.100(t)
Net： 0.900(t)

Weighing record sheet

SERIAL No.： 0001
Date ： 2008-03-05
Time ： 20.45.10
Car No. ： 00002
Number ： 001
Gross ： 1.000(t)
Tare： 0.100(t)
Net： 0.900(t)

Weighing record sheet

SERIAL No.： 0001
Date ： 2008-03-05
Time ： 20.45.10
VEHICLE No.： 00002
CARGO No.： 001
Gross： 1.000(t)
Tare： 0.100(t)
Net： 0.900(t)

（Standard）Duplicate format：(Horizontal)

Weighing record sheet Date： 2008-03-05

SERIAL No.	Time	VEHICLE No.	CARGO No.	Gross (t)	Tare (t)	Net (t)
0002	20.46.10	00002	001	1.000	0.100	0.900

Infill format：(eg)

WEIGHT BILL	
Operator keep first unite	
SERIAL No.	123
DATE	2012-03-05
TIME	12 .35 .28
VEHICLE No.	00001
CARGO No.	001
GROSS	1580 **kg**
TARE	80 **kg**
DISCOUNT	**%**
NET	1350 **kg**
CUSTOMER	
REMARK	

Applicable model：D12-B+、D12-BP+、D12-BP1+
D12-Y+、D12-YP+、 D12-YP1+
D12-R+、D12-RP1+