XK3190-DS8

Weighing Indicator

Instruction for calibration and adjustment

(V 1.00)

Shanghai Yaohua Weighing System Co., Ltd.

Contents

Dear customers,

Please read this instruction before using the indicator. During the use, for ensuring safety, the reliable power ground shall be made.

Chapter 1 Technical Parameter

1. Model: XK3190-DS8

2. Interface of digital load cell:

Interface mode:	RS485
Transmission distance:	≤1000 meter
Transmission speed:	9600 baud
Signal power source:	DC10V，≤400mA
Interface capability:	1-16 digital load cells
Compatible protocol:	Digital module protocol of the Company
Supporting manufacturers:	Zhonghang Electronic Measuring Indicators Co., Ltd., Guangzhou Electrical Measuring Indicators Factory, Ningbo BENUI Electric Co., Ltd. and Ningbo Board Electric Co., Ltd. etc. manufacturers support the digital load cell of protocol of the Company. **Note: Each manufacturer may use different protocol.**

3. Display: 7-digit super brightness white light LED display, 10 state indicating lights

4. Keyboard: Number keys 0~9
Function keys 24 (10 composite keys with number keys)

5. Clock: For displaying year, month, date, hour, minute, second, intercalary year/month automatically without the influence from power failure.

6. Electronic lead sealing: It can inspect and record the opening status of indicator

7. Scoreboard display interface

Transmission mode	Serial output, 20mA electric current loop signal
Transmission baud rate	600
Transmission distance	≤1200 meters

8. Serial communication interface

Transmission mode	Serial port 0 :RS232/RS422 Serial port1 : RS232
Baud rate	600/1200/2400/4800/9600/19200/38400 optional
Transmission distance	RS232 ≤30 meters; RS422 ≤1200 meters

9. Printing interface

Standard parallel output interface： DS-300、LQ300K$^+$、KX-P1121、KX-P1131etc. wide line printers.

POS58、T58D etc. thermal printers；

TpuP16 mini-printer、LX300+ wide line printer（it just supports English print）.

Panel printer： ①.dot-matrix（96 dot each line），adoptM-150Ⅱ head。

②.print paper：common white paper，wide 44.5±0.5mm，thickness 0.07mm。

10、Data storage It can stores 1023 sets vehicle numbers and tare weights，255sets article numbers and 4096 sets weighing records.

11、Application environment

AC power supply	AC 220V（-15%～+10%）50Hz（±2%）
DC power supply	outside rechargeable12V/7Ah battery
Operating temperature	－10℃～40℃;Storage temperature -25℃～55℃
Relative humidity	≤85%RH

Preheat time ≤30 minutes

Fuse 0.5A

12、Shape（mm） 320×217×183

13、Self-weight about 2.5kg

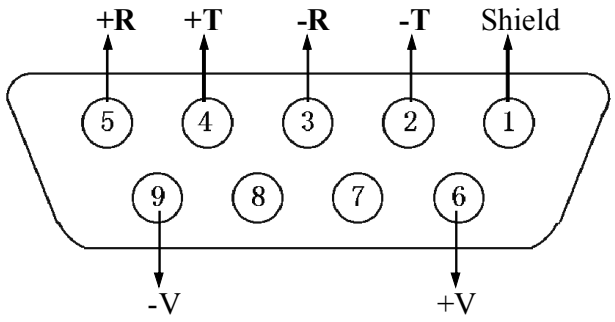
Chapter 2 Installation and Connection

Section One Connection between digital load cell and indicator:

XK3190-DS8 is a digital weighing indicator. Therefore, it can only be connected with **digital load cell. For the purpose of convenient statement, the product is called as load cell for short. Please note that during reading the instruction.**

1. XK3190-DS8 load cell interface adopts the interface mode of full duplex RS485 port, which can compatiable with 6 and 4-line digital load cell.

2. XK3190-DS8 load cell is equipped with 9 core connector assembly for connection. Meanings of all pins are marked in Figure 2-1-1.



Pin	Note
-T	Signal transmission negative (－TXD)
+T	Signal transmission positive (＋TXD)
-R	Signal reception negative (－RXD)
+R	Signal reception positive ＋RXD）
+V	Digital load cell positive source (＋)
-V	Digital load cell negative source (－)

Figure 2-1-1 Digital load cell interface and description

Section Two Connection of 6 lines Digital load cell

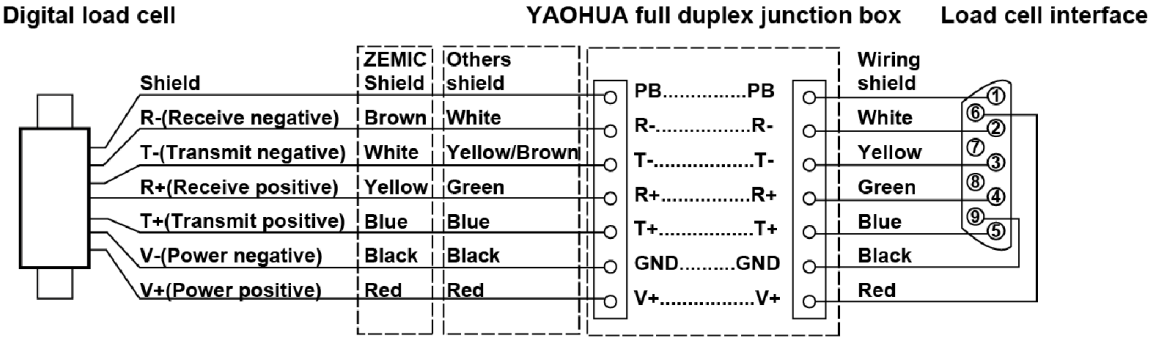


Figure 2-1-2 Schematic diagram for connection of 6 lines digital load cell by junction box

1、 Using"Yaohua full duplex digital junction box" and "6 cores shield which matching with indicator"（See above figure，colour line just for reference）

Connection method from 6 cores shield of DS8 to full duplex digital junction box:

Red(6)connect withV+；Black(9)connect with GND；White(2)connect with R-；Yellow (3)connect with T-；Green (4)connect with R+；Shield connect with PB。

Connection method from ZEMIC digital load cell to full duplex digital junction box:

Red connect with V+；Black connect with GND；Brown connect with R-；White connect with T-；Yellow connect with R+；Blue connect with T+；Shield connect with PB。

Connection method from other manufacturers' digital load cell to full duplex digital junction box:

Red connect with V+；Black connect with GND；White connect with R-；Yellow or Brown connect with T-；Green connect with R+；Blue connect with T+；Shield connect with PB。

（Note：T and R of indicator respective connect with R and T of load cell，e.g. No. 2 foot –T of indicator should to be connected with R- of junction box.）

Section Three Connection of 4 lines Digital Load Cell

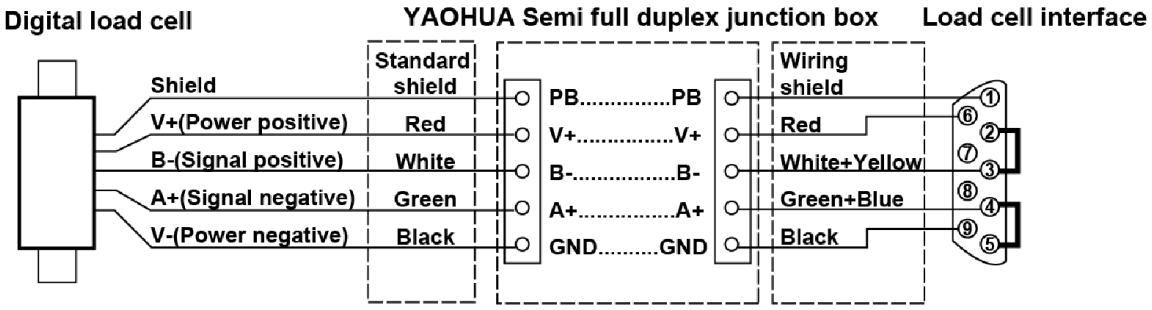


Figure 2-1-3 Schematic diagram for connection of 4 lines digital load cell and junction box

1.Using"Yaohua full duplex digital junction box" and "6 core shield which matching with indicator"（See above figure，colour line just for reference）

Connection method from 6 core shield of DS8 to Semi full duplex digital junction box:

Red connect with V+；Black connect with GND；Green combine with Blue to connect withA+；White combine with Yellow to connect with B-；Shield connect with PB。

Connection method from digital load cell to Semi full duplex junction box:

Red connect with V+；Black connect with GND；Green connect with A+；White connect with B-Shield connect with PB.

2、Using"Yaohua Semi full duplex digital junction box" and "4 cores shield which is made by User"（See above figure，colour line just for reference）

Connection method from indicator to Semi full duplex junction box when users make the 4 cores shield by themselves:

Connect with junction box A+ when short circuit of no.4 and no. 5 foot of load cell;

Connect with junction box B- when short circuit of no.2 and no. 3 foot of load cell;

No.6 foot connect with V+；No.9 foot connect with GND；Shield connect with PB。

Load cell connector for digital load cell connecting with Semi full duplex digital junction box:

Red connect with V+；Black connect with GND；Green connect with A+；White connect with B-；Shield connect with PB。

3、Using"Yaohua full duplex digital junction box" and "6 core shield which matching with indicator or 4 cores shield which is made by users"（See above figure，colour line just for reference）

The recommended connection method: T+ instead of A+; T- instead of B- of digital junction box（R+、R- are not connected）. Please reference the above two items of other connection methods.

▲! Positive and negative poles of power supply shall not be connected reversed; otherwise, the digital load cell and indicator may be damaged.

▲! Power and signal shall not be connected reversed; otherwise, the digital load cell may be damaged.

▲! Connection between load cells and indicator and the grounding of load cell shielded wire must be reliable. Do not plug or unplug the connecting lines while the indicator is energized so as not to cause damage to indicator or load cell by static electricity.

▲! Load cells and indicators are static-sensitive equipment. Therefore, feasible anti-static measures shall be taken in use. Electric welding or other heavy current operations are strictly prohibited on the weighing platform. In season of thunder, reliable lightning protection measures shall be taken for preventing damage of load cell and indicator that may be caused by lightning strike. Meanwhile, ensure the personnel safety of operators and safe operation of weighing equipment and relevant equipment.

Chapter 3 Communication Address of Digital Load cell

▲! Communication address of the load cell is the unique mark for the indicator to recognize the digital load cell.

Section One What's the communication address of digital load cell?

Communication address of the digital load cell is commonly refers to the "serial number of load cell".

XK3190-DS8 conducts communication connection with different digital load cells by use of different communication addresses. For connecting several digital load cells, address of each digital load cell shall be unique and not repeated with other load cells.

Address range of the digital load cell protocolled by the Company may be "00"~ "31".

Communication address of XK3190-DS8 is also the basis for marking angular position and suggesting load cell error accurately.

Digital load cells have generally been given the address according to different groups and marked with relevant marks. For load cell that has no address or repeated address, set according to operation method defined in the next chapter.

Section Two Manual view/modification of digital load cell address

Turn on the calibration switch (turn the calibration switch to left, allow the operation of calibration and adjustment, the same as follows) according to the following steps:

1. Connect one digital load cell to the indicator, press [Address] to see [ADF 0] on the indicator (Note 3-2-1); press [Input] to see the indicator displaying [----] and starting scanning and then displaying [AD **] on it (Note 3-2-2). "**" is the original address of the load cell. (Without the need of modification, press [Weighing] to exit)
2. If it need any modification, it need to input the new address, press [Input] to confirm, indicator display【 *****】,"*****" is the output weight code of load cell. After successful setting, the weight code may change along with the load of load cell.
3. Press [Input] to return to the state of weighing.
4. Disconnect the digital load cell after setting and re-connect another digital load cell for setting. Repeat the steps 2~3 until completing settings of all digital load cells.

Note 3-2-1: While using the function of calibration adjustment for the first time after starting up, calibration password is required. (Below is the same.) Please refer to the chapter 6 of timed shutdown and calibration password.

Note 3-2-2: In case of connecting several digital load cells of different addresses at the same time, [OAd **]("**" is the address for the largest load cell) will be displayed for suggesting your input the original load cell address to be modified. After this, press [Input] for confirmation. [AD **] will be displayed on the indicator. Input the new address and press [Input] for confirming and completing load cell address setting. In case the new address is the same as that of other load cells, the two addresses may be exchanged automatically.

▲ Addresses of the same scale shall not be repeated. For convenience of memory, we suggest your setting according to steps 1, 2, 3… one by one.

▲ For connecting or disconnecting the digital load cell, power of the indicator shall be off. Electrified operation is strictly prohibited.

Section Three Auto view/modification of digital load cell address

For examining the address of a load cell in a certain position after installation of a scale, turn the calibration switch of indicator to the position for calibration and operate as follows,

1. Press [Address], indicator displays [ADF 0] ; press [1] and [Input], indicator displays [NOLOAD].

2. The scale is now in the state of no load. After the weighing platform is stable, press [Input] for confirmation. [----] displayed on the indicator indicates the start of null point confirmation.

3. After confirmation, displaying [-- - 00], the indicator enters into the state of viewing/modifying address of load cell in a certain angular position.

4. Load the heavy object (or instead of 1 to several persons) on the load cell to be viewed/ modified; address of current load cell will be displayed in the position of "--" (Note 3-3-1). For any modification, input the new address and press [Input] (Note 3-3-2).

5. Repeat Step 4 to view/modify address of different digital load cells.

Note 3-3-1: If address of any angular position cannot be identified, check whether the angular position load cell is compacted.

Note 3-3-2: If the newly modified address of a load cell is the same as that of another load cell in connection, address of the other load cell will be automatically converted into original address of the newly modified load cell.

Note 3-3-3 In case the content displayed isn't restored to [-- -- **] after the heavy object is removed from the scale, please press the button [Zero Setting] to confirm the null point once again.

Section Four Examine numbers and addresses of load cells which are connected to the indicator

Press [Test], [1] and [Input] than see [DNO **] displayed on the indicator (quantity of load cells) and press [Input] to view addresses of all load cells one by one. After this, the indicator returns to weighing state automatically. Examining won't modify the parameter.

Note: If it just need to check the quanity of load cells which are connecting with indicator, it can be realized by checking the display "Fnd" of starting up indicator, "**" represent the quantity of load cells which are detected by indicator.**

Section Five Parameter Initialization of Digital Load cell

XK3190-DS8 may initialize digital interface parameters of load cells in connection. After initialization, number and address of load cells will be identical with practical situation and all angular difference parameters will be recovered to 1.00000. Operation method is as follows:

Press [Address] [9] and [Input] than see [------] on the indicator and start automatic load cell scanning. After scanning, [SURE 0] will be displayed on the indicator for inquiring if you need to initialize parameters. If yes, please press [1] and [Input]. (Without the need of initialization, press [Weighing] to quit)

1、 Loss of angular difference parameter may be caused by the initialization operation (Recovery as 1.00000). Please operate carefully.

Section Six Auto set address of digital load cell（note: 3-6-1）

If there are repeated addresses of matched load cells, it can use the function of Auto set address of digital load cell to process self-addressing. Operation method as follows:

1. Please well connection of all digital load cells, press【Address】，indicator display【ADF 0】.

2、Press【2】at this momonet，press【input】，indicator display【 ----- 】means start scanning highway.

3、After scanning，indicator display【FD** **】,left"**"means find the quantity of repeated addresses.

4、If there is no repeated address, it will return to weighing status after 2 seconds ; If there are repeated addresses, indicator will display after 2 seconds.

【SURE 0】remind users whether to carry out the function of Auto setting.

5、If carry out, press【1】，press【input】to confirm，indicator display【 ----- 】meas on setting,，indicator will return to weighing status after setting.（Note: 3-6-2）.

If not, press【weighing】directly to quit.

6、After setting, please re-setting the quantity of next load cell because of the modification of communication address.

Note 3-6-1：This function is available for the digital load cells of YAOHUA protocol (higher than V2). Please confirm whether the protocol version of load cell is meen the requirement first if it needs to use this function.

Note3-6-2: This function just set the repeated address of load cell different from other addresses of load cells, and there is no influence of load cells which addresses is un-repeated.

Chapter Four Calibration and Adjustment

Section One Calibration

I. Connect the load cells and make the indicator enter normal work state. Turn the calibration switch (turn the calibration switch to right, allow the operation of calibration and adjustment, below is the same) . Carry out calibration according to operation steps defined in the following tables.

(Table 4-1-1)

Step	Operation	Display	Note
1	Press [Calibration]		Turn the calibration switch
2	Press [8] Press [Input]	[DNO **] [DNO 08] [-----]	Input the quantity of connecting load cells (note:4-1-1) E.g.: 8 After automatic scanning of load cells in connection, inconsistence between quantity of load cells and value input will be displayed as "Err 11"
3	Press [1] [0] Press [Input]	[E **] [E 10]	Input the scale interval: 1/2/5/10/20/50/100/200 for selection E.g.10
4	Press [0] Press [Input]	[DC *] [DC 0]	Input the digits of decimal point (0~4) E.g.: 0 means no decimal point
5	Press [1] Press [input]	[FLT *] [FLT 1]	Input intensity of smoothing（0～3） The large of the number, the stable of the weight, but the reaction speed is slower. E.g.：1
6	Press [1][2] [4] Press [Input]	[PN VWXYZ] [PN 00124]	Input system parameters(Note:4-1-2) V: Occasion of use W: Null point tracking speed X: Null point tracking range Y: Zero setting range Z: Starting up zero setting range E.g.: 00124
7	Press [3][0][0] [0][0] Press [Input]	[F ******] [F 30000]	Input full capacity When calibration is necessary, input the value of F and press [Input]; or press [Input] directly to go to Step 11 or press [Weighing] to return to state of weighing. (Note: full scale value plus nine scale interval value is the overload alarming value of the system) E.g.: 30000
8	Press [Input]	[NOLOAD]	Null position confirmation. When there is no article on the scale at this moment, press [Input] after stable designator lights up.
9	Press [1][0][0] [0][0] Press [Input] Press [Check]	[ADLOAD1] [10000]	Load weights, e.g.:10000; After stable designator lights up, For non-linear correction(two-point calibration), press [Check] to go to Step 10; Without the need of non-linear correction(one-point calibration), press [Check] to go to Step 11 (Note:4-1- 3);

10	Press [3][0][0][0][0] Press [Input]	[ALOAD *] [30000]	* as 2-5 (which can support 5 points non-linear correstion) Load weights(heavier than weights that loaded before); E.g.: 30000 After the stable symbol is on if it's continue to non-liner correction, press [check] to repeat this step; or else, press [Input] to enter into the step 11.

Step	Operation	Display	Note
11		[A ******]	Do not modify the calibration parameters (Without the need of viewing, press [weighing] to log out from the state of calibration)
	Press [Input]	[L ******]	
	Press [Input]	[LH **.**]	
	Press [Input]	[B ******]	
	Press [Input]	[O ******]	
	Press [Input]	[OH **.**]	
	Press [Input]	[C ******]	
	Press [Input]	[T ******]	
	Press [Input]	[TH **.**]	
	Press [Input]	[D ******]	
	Press [Input]	[U ******]	
	Press [Input]	[UH **.**]	
	Press [Input]	[E ******]	
	Press [Input]	[Y ******]	
	Press [Input]	[YH **.**]	
12		Weighing state	After calibration, turn the calibration position to non calibration position (left side)

Note 4-1-1: Press [Weighing] in Step 8, 9and 10 to skip the step and go to next step directly. Other than that, pressing [Weighing] means logging out from keyboard operation and going to the displaying state of weighing mode.

Note4-1- 2: Setting method for Pn parameter

(Table 4-1-2)

Value of V	0	1
Operating Occasion	Nontrade scale	Scale for trade

(Table 4-1-3)

Value of W	0	1	2	3
Null position tracking speed	0.4s	0.3s	0.2s	0.1s

Time listed in the above table is the time required for correcting 0.05e (one inner code)

(Table 4-1-4)

Value of X	0	1	2	3	4	5	6	7	8	9
Null position tracking range	No tracking	0.5e	1.0e	1.5e	2.0e	2.5e	3.0e	3.5e	4.0e	4.5e

(Table 4-1-5)

Value of Y	1	2	3	4	5
Zero setting range after pressing [Zero setting]	2%F.S	4%F.S	10%F.S	20%F.S	100%F.S

(Table 4-1-6)

Value of Z	1	2	3	4	5
Startup zero	2%F.S	4%F.S	10%F.S	20%F.S	100%F.S

setting range					

Note 4-1-3: non-linear correction method: in Step 9 or step 10, press [Check] to start non-linear correction, five loading points at most; press [Input] to start one-point calibration on step 9; press [Input] to cancel the following loading point on step 10; (the operation of non-linear correction may also be carried out by the way of compensation calibration).

Note: Different value between non-linear loaded weight and the original loaded weight shall be larger than 10% F.S.

Note 4-1-4: After adjusting, relevant calibration parameters may be printed out by printer (Operation method: open the calibration switch, press [Setting]), [9] and [Input]) and save it for further re-entry in case of unforeseen circumstances. Before entering new data, input the value F at first and press [Weighing] twice. It must be input the completed parameters at once when Input calibration parameters.

After calibration, the calibration switch shall be turned to non-calibration position

Section Two Compensation Calibration

1. Operating Occasion

During the process of calibration and adjustment, in case of finding any difference between displayed value on indicator and actual weight after full-scale loading is about to achieved (e.g. lighter weight used during the process of calibration may cause the error of full-scale), the function of compensation calibration may be used for correcting the error without the need of dismounting the weights. (Compensation calibration cannot be used for correcting the error caused by null drift etc. reasons)

There are two methods of compensation calibration:

4、 Compensation calibration way 1: Calibrate once more with a new loaded weight. The original calibrated loading point is invalid. The method is applicable to the situation when the original calibrated loaded weight is not rather reliable or the original loaded weight is close to the loaded weight of compensation calibration.

5、 Compensation calibration way 2: on the basis of original calibrated loading point, conduct non-linear correction with a new loaded weight. The original calibrated loading point is still valid. This method is applicable to the situation when the original loading point is comparatively small and error nearby full scale is caused by non linearity of scale.

2. Method of operation

a. Compensation calibration 1: in the weighing mode, turn the calibration switch to calibration mode (right side), press [Set], enter the passwords [7] and [8] and press [Input] to see [ADLOAD1] displayed on the indicator. At this moment, input the actual weight on the weighing platform and press [Input] to complete compensation calibration. The indicator then returns to weighing state. After this, turn the calibration switch to non-calibration state.

b. Compensation calibration 2: in the weighing mode, turn the calibration switch to the calibration mode (right side), press [Set], enter the passwords [7] and [9] and press [Input] to see [ADLDAD2] displayed on the indicator, ("*"is the current correction point),at this moment, input the actual weight on the weighing platform and press [Input] to complete the operation of compensation calibration. The indicator then returns to weighing state. After this, turn the calibration switch to non-calibration state.

Section Three Automatic Switch of division value (double divisions)

1. Use method

The function of division value automatic switch is mainly adopted for increasing the display precision of large weighing scale when it is used for weighing light weight. The indicator can be set with two division value switching point (Parameter A and B).

When weight is less than the division value switch point A, the indicator automatically switches to a division value which is smaller than the setting division value.

When weight is larger than the division value switching point B, the indicator automatically switches to a division value which is large than the setting division value.

Others use the division value during calibration. (For example, the setting division value during process of calibration is 100kg, then the smaller division value

is 50kg, and the larger division value is 200kg)

2. Setting Method of division value switching point

In weighing status, turn on the calibration switch, press [Set] to input the passwords [5] and [0] and press [Input] to display [A******] , input the weight of division value switching point A, press [Input] ; indicator display [B******], input the weight of division value B, press [Input] to complete the setting operation and returns to weighing status. After this, turn off the calibration switch.(If the weight is Zero, it means don not use the switch function of this point).

The parameter can only be set after calibration. After calibration, the parameter will be reset automatically (i.e. do not use the automatic switching function of division value).

Section Four Parameter Back-up and Recovery

1.Parameter Back-up

XK3190-DS8 is equipped with a dedicated back-up chip (U8) for calibration data and important parameters' backup. Detailed operation way is as follows,

After completing all calibration and adjustment operations, turn on the calibration switch, press [Set], [4], [0] and [Input] in turns, indicator display [SAV] for 2 seconds for giving operator a suggestion,

Then display [SURE 0], press [1] and [Input] to start data backup operation. After successful backup, [SAV PAS] will be displayed on the indicator; otherwise [SAV ERR] will be displayed.

Turn off the calibration switch after back-up in order to the guarantee the back-up parameter will not be lost.

2. Parameter Recovery

In case of data loss, indicator parameters can be recovered according to following operation steps:

Turn on the calibration switch, press [Set], [4], [1] and [Input] in turns, indicator display [LOAD] for 2 seconds for giving operator a suggestion,

Then display [SURE 0], press [1] and [Input] to start data backup operation. After successful backup, [LD PAS] will be displayed on the indicator; otherwise [LD ERR] will be displayed.

In case of indicator replacement, you only have to install the U8 chip of the original indicator in the new indicator and follow the above data recovery operation. (**Do not plug or unplug the chip while the indicator is energized!**)

After completing data recovery, please turn the calibration switch to non-calibration position (left side).

The operation of data recovery will clear the original indicator parameters. So please be careful.

Section Five Calibration parameter Auto Initialization and Calibration without weights

1、Calibration Parameter Auto Initializaion（note 4-5-2）

a、Open the calibration switch，press【Setting】，input【7】、【2】，press【input】；

b、When indicator display"C000000", press 【input】after inputing calibration password；

c、When indicator display" ----- "，scanning load cell automatic, indicator display"FND **" after scanning,"**" is the number of scanning，if the number is not zero, indicator will go on to display"SURE 0"，remind whether it requires to Auto Initialize calibration and digital load cell parameter. If the displayed load cells quantity is the same the actual connecting quantity and requires initializion parameter，press【1】and【input】to confirm，indicator will process parameter initialization automatic, otherwise, press【weighing】to quit.

d、After successfully initialization，indicator display"PASS "，otherwise, display"ERR 13" to mean the unsuccessful operation，please check the hardware.

e、After successfully initialization，keep the scale on empty，then restarting，indicator display the approximate weight，which is similar to calibration without weights.（note 4-5-1）

If it needs to using the status for a long time, it needs to confirm the Zero as mentioned in the

section one of this Chapter, when indicator display【ADLOAD1】, press【weighing】twice to quit.（note 4-5-3）

f、Parameter initialization status is defaulted when indicator leave factory， so if the indicator has not passed the process of calibration operation，matching the load cell address correctly，turn on calibration switch， restarting to see the approximate weight when the scale is empty.

Note 4-5-1： The big deviation will be existing of approximate weight if this function is used in load cells of version V1 YAOHUA protocol rather than 30T, please use carefulfly.

2、Calibration without weights（note 4-5-2）

Calibration according to normal process， it needs to confirm null point when indicator display【NOLOAD 】， keep the scale empty, then press【Check】to confirm， indicator display【LCLOAD1】after confirmation of null point, after inputing the full capacity of single load cell， press【Input】 to confirm to finish the calibration without weights，，return to weighing status（note 4-5-3）.

Note 4-5-2:This function will be influenced by scale structure and installation condition， the measuring accuracy can not be ensured， and can not be used in legal measure occasion for trade settlement!

Note 4-5-3: Scale structure, installation condition and gravitational acceleration influence the calibration without weights, the weight will has some difference with the actual wight.It can eliminate error by compensation calibration or amend systematic correction factor (see next section).

Section Six System Correction Factor

DS8 indicator has the function of system correction. After calibration, the incorrect weigh which is caused by the difference between loading calibration and the actual weight of weights, or weighing error is caused by calibration without weights, which can be amended by amending the system correction factor, operation method is as follows:

Work out the system correction factor first by the following formula:

$$\textbf{System correction factor } E = \frac{\textbf{Actual weight}}{\textbf{Indicator displays value}}$$

Turn on the calibration switch on weighing status，input the system correction factor according to the operation method as the below table for error correcting:

Table 4-6-1

Step	Operation	Display	Note
1	Press【Setting】	【P 00】	Turn on the calibration switch
2	Press【7】【1】 Press【Input】	【P 00】 【P 71】	Input the password ”71” of system correction factor
3	Press【98333】 Press【Input】	【E*.*****】 【E0.98333】	Input the total calibration factor after calculating. E.g.: 0.98333
4		Weighing status	Turn off calibration switch after finishing setting

Fox example：The actual loading weight is 29500kg of platform scale, the inputing weight is 30000kg when loading calibration（i.e. calibrate 29500kg as30000 kg）， which lead to the big difference from

the actual weigh. Adopting system correction factor method to amend the error:

6、 Calculating system correction factor:

$$\textbf{System correction factor E} = \frac{29500}{30000} = 0.98333$$

2）Input system correction factor according to the method as above table 4-6-1.

Section Seven Check Inner code and Subdivision code

During calibration, the function of check inner code or subdivision code can be used for improving the display resolution to observe the error.

1、Check the inner code

The resolution of indicator has been improved 20 times on inner code displaying status, one inner code equal to 1/20 division value.

On weighing status,press【Setting】，press input after pressing【2】、【8】，indicator enter into the status of inner code displaying . Inner code indicator light and the unit decimal point will be lighted at the same time, remind that it's on weighing status currently. Repeat the above operation or re-starting，indicator quit the status of inner code displaying.

2、Check the subdivision code

The resolution of indicator has been improved 10 times on subdivision code displaying status, division value shrink to 1/10 of the original. The weight which is displayed by subdivision code is equal to the normal weight, it's convenient for customers to estimate error.

On weighing status, press【Setting】，press【2】、【9】, then press input，indicator enter into the subdivision displaying status. Inner code indicator light is bright, remind that it's on subdivision displaying status. Repeat the above operation or re-starting，indicator quit the status of subdivision code displaying.

Note：Inner code and subdivision code just can be used for analysis error during calibration and adjustment, can not be treated as final weight for saving、printing and so on.

Chapter 5 Diagnostic Function

Section One Summarize of Diagnose

In order to keep the long stable of scales, the requirement of basis and mechanical installation for weighing system is the same as analog scales. The difference is DS8 provide abundant functions for users to adjust scale structure and the installation of load cell, judging its status.

It's recommended to use the function of this chapater before calibration and adjustment, well adjust the scale structure and the installation of load cell.

Section Two Check whether the load cell is compacted and the condition of stress

1、Turn on calibration switch, press【Diagnose】;

2、Indicator display【DTCT 0】, press【Input】;

3、Indicator display【NOLOAD 】to make the scale on empty, press【Input】;

4、Indicator display【-- --%】, the ahead "--" is the max. stress load cell address, the after "--%"is the precentage of stress for load cell/whole loading."Check whether the load cell is compacted "and"Check the stress of load cell"these two dignose functions can be proceed.

5、Check whether the load cell is compacted: One to two persons stand above the bearing point of each load cell, indicator can display the accurate address of load cell, otherwise, the load cell is not compacted.

6、Check the stress of load cell: Load certain weight (e.g. one forklift) above the bearing point of each load cell, indicator can display the accurate address of load cell, and the stress percentage more than 40%, it means the well stress of load cell.

7、During testing, indicator dones't display【-- --%】in the event of empty scales, press【Zero】to reconfirm the zero. However, if this condition will be happened again and again, expecially happened when the goods unload from scales, it means the bad back to zero of scales.

Section Three View weight code of all load cells and platform leveling

Viewing weight code of load cells is helpful to weighing platform leveling. See method of viewing weight codes in following table:

Table 5-3-1

Step	Operation	Displayed content	Note
1	Press [Test] Press [Input]	【TEST 0】	Select test function 0: View the weight code of a load cell in the system
2	Press [2] Press [Input]	【AD **】 【AD 02】	Input the address of a load cell to be viewed E.g.: address 02
3	Press [Input]	【 ****】	Display the weight code of the selected load cell.

			Note: without finding load cell of the current address, 【ERR 17】will be displayed
4	Press [Weigh]	【AD 03】	Go to next load cell automatically. For further viewing on other load cells, conduct the operation in Step 2; otherwise, press [Weigh] to quit.
5		Return to weighing mode	

To make the weighing platform with 8 load cells as an example, weight code of outer 4 load cells should be approximately equal (error control within range of 20%), weight code of the internal 4 load cells should also be approximately equal and make its value double. After above all set, it means the weight platform is already leveled .

Note: this function is affected by the load cell no-load output, which shall be reduced to do judgment in case the load cell no-load output value is higher, or do the platform leveling with functions in next section.

Section Four Check force center of the single platform and platform leveling.

1、Turn on the calibration switch, press【Diagnose】;

2、Indicator display【DTCT 0】, 【1】, 【Input】;

3、Indicator display【NOLOAD 】, make the platform under empty state, press【Input】;

4、Indicator【A---99%】, indicator enters into the displaying state for checking single platform center

5、Generally speaking, if to upload the weight onto the center of the single platform , its corresponding 4 load cells should have consistent force .mean 25% each.

When uploading the article to a certain location, if Max. error lower than 5%,the indicator suppose to find the force center of this section platform and it'll display【 OK 】, if the force center near to the geometric center (or comply with the principle of the current scale structure), then it means this section platform force is in balance.

6.By observing the displayed content on the indicator, it could be easier to find the force center and do analysis about force issues of the platform.

"A" on the indicator's content shows that we're currently checking the load cell with Max.error, press[Switch] to switch among A,B,C,D, which respectively represents 1st error to 4th error.

"—" behind A is for this load cell address, "--"means not recognized.

The -99% at last means force error percentage of this load cell, "-"means smaller force, "+"means larger force.

Section Five Check relative weight code and AD code of all load cells

By checking relative weight code and AD code could help analyze fault, see operation method in below table.

The relative weight code shows the last weight code after calibration point deducted, by analyzing the relative weight code under empty state , the force change could be seen.

AD code is for the internal A/D conversion code inside the load cell, by analyzing the AD stable situation, performance of the analog part could be analyzed

Table 5-5-1

Step	Operation	Displayed content	Note
1	Press【Test】	【TEST 0】	Test the performance：
2	Press【6】 Press【Input】	【TEST 0】 【TEST 6】	Select checking relative weight code or AD code(6,7) 6：Check AD code 7：Check relative weight code(E.g.6)
3	Press【2】 Press【Input】	【AD **】 【AD 02】	Input address of the load cell you want to check E.g. address 02
4	Press【Input】	【 ****】	Display relative weight code or AD code of the selected load cell. Note:【ERR 17】will be displayed if load cell with this communication address cant be found
5	Press【Weigh】	【AD 03】	Go to next load cell, press[Input]If for further checking other load cells, otherwise, press[Weigh] to quit
6		Return to weighing status	

Chapter VI Angular difference correction

Section 1 Semi-automatic correction of angular difference

Semi-auto angular difference correction adjusts the angular difference by modifying parameters of one load cell (angular position) or two load cells (shaft mode). Detailed operation method is as follows,

1. Press [Angle modulation] to see [TJF 0] displayed on the indicator; at this moment, input "0" (angular position mode) or "1" (shaft mode) and press [Input] to see [noLoAd] displayed on the indicator.
2. The weighing platform in now in unload scale state. Wait till it is stable and press [Input] for confirmation. [----] displayed on the indicator means the start of null point confirmation.
3. After confirmation, the indicator displays [A ****] (angular position mode) or B****] (shaft mode) and then enters into semi-auto angular difference correction state. "****" is the value of current weight. Now you can press [Switch] to switch between angular position mode and shaft mode.
4. There are angular position self-correction, shaft self-correction and manual input of angular difference parameter three correction modes:
   a. single point self-calibration correction: switch to single point mode, press different angular positions (load cells) with a fixed weight, find the angle with biggest deviation, press the angular position with heavy object and press [Self-calibration] to input the correct weight（note 5-2-1）. After this, press [Input] for completing confirmation and calibration of the angle. Then find the next angle with biggest deviation and press [Self-calibration] to modify(no need repeatly inputing weight) till all errors are eliminated. (As pressing an angular position may influence other angular positions, the angular positions that have been adjusted may be changed. Therefore, repeated adjustment is necessary. The below is same.)
   b. Shaft self-calibration correction: switch to shaft mode, press different shafts with a fixed weight, find the shaft with biggest deviation, press the shaft with heavy object and press [Self-calibration] to input the correct weight. After this, press [Input] for completing confirmation and calibration of the shaft. Conduct repeated operations till all errors are eliminated.
   c. Single point parameter modification: switch to single point mode, find the angle with biggest deviation by pressing different angular positions with a fixed weight, then press the angular position with heavy object and press [Check]. With [Ad **] (** is the address of the angular position) displayed for 2 seconds, [*.*****] will be displayed on the indicator. Now you may parameters of the angular position and press [Input] for confirmation. Without the need of parameter modification, press [Input] directly. Principle for adjusting the angular position is that, with large deviation, the parameter shall be adjusted smaller (and vice versa). Adjustment range shall generally be a bit larger than the percentage of deviation.

Note 5-2-1：the Semi-auto angular difference correction function can also be used when the indicator is under inner code or subdivision code displaying state, correct inner code or subdivision code shall be input seperately when pressing [Self-calibration],and then press[Input] for confirmation.

Section 2 Automatic correction of angular difference by angular position

See operation methods in the following table:

Table 5-2-1

Step	Operation	Displayed content	Note
1	Turn on the calibration switch; Press [Angle modulation] Press [2] Press [Input]	【TJF 0】 【TJF 2】	Select 2 angular position mode for full-auto angle modulation
2	Press [Input]	【NOLOAD 】 【 ----- 】	Unload scale confirmation; wait until the indicator is stable and press [Input] for confirmation
3	Input "1000" Press [Input]	【L *****】 【L 1000】	Input weight of weights at pressure angle (estimated weight is also OK) E.g.: 1000
4	Load weight at an angular position; Wait till the AD code is stable; Press [Input] for confirmation	【AN 01】 ******* -----	Serial number of the pressure angle is displayed as "01" and it automatically switched to the AD code displaying state after 1.5 seconds; The indicator starts data sampling of all angle positions. Go to next step automatically after data sampling. **(Note: serial number of pressure angle here has no corresponding relation with address of load cell. Whichever angle position to be pressed, it shall be different each time)**
5	Move the loading weight to an angular position which hasn't been pressed. Wait till the AD code is stable and press [Input] for confirmation	【AN 02】 ******* -----	Serial number of the pressure angle is displayed as "02" and it automatically switched to the AD code displaying state after 1.5 seconds; The indicator starts data sampling of all angle positions. Go to next step automatically after data sampling.
……	……	……	Other angle positions, by parity of reasoning
6		Weighing mode	After pressing all angle positions, the indicator will return to weighing mode automatically. Turn off the calibration switch

Note 5-3-1: For convenient observation, the overall AD code displayed here has been compressed (8 times diminished).

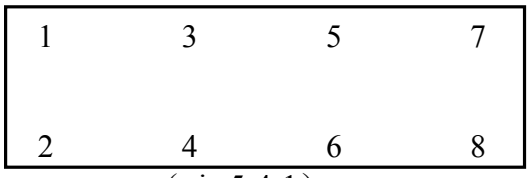
1、 In automatic angular difference correction, function of the key [Check]: viewing the angular position to be pressed at this moment.

2、 In automatic angular difference correction, function of the key [←]: return to the last angular position.

3、 In automatic angular difference correction, function of the key [Weigh]: quit automatic angular difference correction.

Section 3 Full automatic correction of angular difference by shaft

Shaft full auto angular difference correction requires arrangement of load cell addresses according to shaft. Addresses of load cells corresponding to the first shaft are 01 and 02; those corresponding to the second are 03 and 04; by parity of reasoning (see chart below). In case arrangement of addresses does not meet relevant requirements, adjust the addresses according to contents defined in Section Three of Chapter 3.



（pic.5-4-1）

See detailed operation ways in following table:

Table 5-4-1

Step	Operation	Displayed content	Note
1	Turn on the calibration switch; Press [Angle modulation]; Press [3] Press [Input]	【TJF 0】 【TJF 3】	Choose 3: shaft mode full-auto adjustment
2	Press [Input]	【NOLOAD 】 【 ----- 】	Unload scale confirmation; wait until the indicator is stable and press [Input] for confirmation
3	Press “1000” Press [Input]	【L *****】 【L 1000】	Input the weight of weights (estimated weight is also OK) E.g.: 1000
4	Load weight on a shaft; wait until the AD code is table and press [Input] for confirmation	【BN 01】 ******* -----	Serial number of the pressure shaft is displayed as “01”; and it automatically switched to the AD code displaying state after 1.5 seconds; The indicator starts data sampling of all angle positions. Go to next step automatically after data sampling.
5	Move the loading weights to the shaft that hasn’t been pressed. Wait until AD code is stable and press [Input] for confirmation.	【BN 02】 ******* -----	Serial number of the pressure shaft is displayed as “02” and it automatically switched to the AD code displaying state after 1.5 seconds; The indicator starts data sampling of all angle positions. Go to next step automatically after data sampling.
……	……	……	Other shafts, by parity of reasoning
6		Weighing mode	After pressing all angle positions, the indicator will return to weighing mode automatically. Turn off the calibration switch

Section 4 Initialization of angular difference coefficient

In case there is angular difference of any other weighing platform or error in angular difference, we suggest your initializing angular difference parameter before conducting calibration and angular difference correction. See operation method as follows,

Press [Angle modulation], [9] and [Input] to see [SUrE 0] displayed on the indicator. Then, press [Input] to complete data initialization of angular difference.

The operation of angular difference data recovery will clear the original angular difference data. So please be careful.

Section 5 Input angular difference coefficient of a load cell

Conduct manual angular difference correction by "inputting the angular difference of a load cell". See detailed operation method in the following table,

Table 6-5-1

Step	Operation	Displayed content	Note
1	Turn on the calibration switch; Press[Angle modulation] Press [8] Press [Input]	【TJF 0】 【TJF 8】	Select 8 and input the angular difference parameter of the address of a load cell
2	Press [3] Press [Input]	【AD ** 】 【 ----- 】	Input the address of load cell to be set with angular difference parameter, E.g.: 03
3	Input "110000" Press [Input]	【*.*****】 【 1.10000】	Input the angular difference parameter, E.g.: 1.1
4	Press【Weigh】	【AD ** 】	Go to next load cell automatically, if for further modification, do as in step 2,3, otherwise, press[Weigh] to quit
5		Weighing mode	Turn off the calibration switch

Chapter VII Password of Calibration and Timed Shutdown

Section 1.Password of Calibration

For DS8, All calibration operation relative to the metering shall be protected by the calibration password. when conducting calibration and adjustment, input the calibration password if [C000000] is displayed. Then calibration password will be required input, after inputting the calibration password(the initial password when it leaves factory is "888888"), please press [Input] to go to next step.

After every boot, when firstly conduct operations where calibration password is required, the calibration password will be required input, after inputting the calibration password, the indicator will enter into password valid status; on the password valid status, there'll be no need to input calibration password when entering into relevant operations again where calibration password is required(except for Timed Shutdown parameter setting or calibration password modification)

After the adjustment, re-starting is suggested to for indicator to exit password valid status.

Section 2 Timed Shutdown and Timed Shutdown note

1. Indicator DS8 is equipped with Timed Shutdown function, after setting the number of days for tryout (0～998), number of days for tryout will be decreased along with days of use, when number of days tryout are decreased into 0, the indicator will display 【ERR 26】on weighing state, weighing operation cant be conducted(seen as below section for the setting method on number of days for tryout)

2. Timed Shutdown note

The indicator provides with Timed shutdown note function which could set note days FCST（0～99）.Before Timed shutdown the FCST starts，after each boot and self-inspection, 【ERR 26】 will be displayed for appro.5 seconds to remind users that it'll be soon for timed shutdown.

Section 3 Calibration password and timed shutdown parameter setting

Under the weighing state, turn on the calibration switch and operate as below table:

Table 6-3-1

Step	Operation	Displayed content	Note
1	Press[Set]	Under weighing state	turn on the calibration switch
2	Press[3] [1] Press[Input]	[P 00] [P 31]	Input "31"for set calibration and timed shutdown password
3	Input original calibration password, press[Input]	[L000000] [C******]	Input original calibration password, the initial factory password is"888888"
4	Press[1] Press[Input]	[FRE 0] [FRE 1]	Select if to modify the calibration password 1：Yes（go to the next step） 0：No (go to 7th step directly)
5	Input new calibration	[N000000] [N******]	Input new calibration password Please keep the password

	password Press[Input]		
6	Repeatly input new password Press[Input]	[R000000] [R******]	Repeatly input new calibration password Note 6-2-1
7	Input the number of days for tryout Press[Input]	[DAY ***] [DAY ***]	Input the number of days for tryout for timed shutdown Setting number of days for tryout as “999 “ is for removing timed shutdown function
8	Input the note day Press[Input]	[FCST **] [FCST **]	Input the note day for timed shutdown Setting the note day as “00” is for canceling note.
9		Return to weighing state	Return to weighing state after setting finished Turn off the calibration switch

Note 6-2-1：the password modification will be valid only when the twice inputting password is the same, Later for step 3 and other occasions where the calibration password is required to be input , new password will be required to be input, meantime the old password turn invalid; if the twice inputting password not the same, go back to step 5 and re-input the new password.

Section 4 Method for removing or modifying the setting of timed shutdown

1. After the number of days set before, [Err 26] will be displayed on the indicator for suggesting you that the function of weighing is unavailable. However, the keys are still effective. Number of days for tryout now is changed to be “0”; (number of days for tryout will be decreased along with days of use)
2. If you want to cancel the operation of shutdown, please modify the number of days for tryout as “999”(described as above);
3. Before and after shutdown, number of days for tryout may be modified freely.

Note 6-4-1： Date and time may both be modified freely by customer without affecting the function of timed shutdown; however, several times’ going back to time setting may cause decrease of number of days for tryout (every 24 hours’ being set may cause about decrease of one day).

Section 5 Random Code Unlocking

In case of losing the password, operate according to following method,

In weighing state, turn the calibration switch to calibration state (right side), press [Input] to enter password [3] and [2] and press [Input] to see [r ******] displayed on the indicator. “******” is the random code of the indicator. Record this random code, press [Input] to return to weighing state and turn the calibration switch to non-calibration state (left side).

Then, please contact salesman of the Company. With this random code, you may obtain a random unlock password. Timed shutdown parameters of the indicator may be modified by using this random unlock password (i.e. you may cancel the setting of shutdown). However, the password or timed shutdown parameters of other indicators cannot be modified.

Random code generates at random after modifying the password.

For safeguarding the rights of person who set the password and preventing vicious indicator decryption by others, the Company has registered the unlock password we provided. In case of being decrypted by others, please complain to salesman of the Company.

Chapter VIII Anti-Cheating

Section 1 Introduction for anti-cheating

Anti-cheating function is one of the features for digital weighing system.Indicator DS8 and V3 version digital load cell with Yaohua protocol adopts multi anti-cheating measures such as Encrypted communications, E-Seal, impedance testing, load cell matching etc, it provides with a higher level of anti-cheating ability to allow users able to configure according to demand(find in section 2 of this chapter for operation method)

7、 Note：Please refer to the encipher manual for more anti-cheating configuration

8、 Note：Turn off the calibration switch when normally using(turn to the left side to make the indicator on disabled calibration status) and make a seal

9、 Note：Regularly check indicator seal and load cell appearance

10、 Note ：Observe on the indicator if the boot prompt information is【SAF *.】to make sure the anti-cheating function is effective**

Section 2 Parameter setting for anti-cheating

1、General

After all calibration and adjustment is finished(note 7-2-1)，make configuration on the anti-cheating parameter according to demand to improve system's anti-cheating ability.

When all set anti-cheating parameters are>0 and the calibration switch is off, the indicator boot prompt information will turn into :【SAF *.**】 to remind users that the indicator is on strengthened anti-cheating status.

2、Setting method

Under weighing state, turn on the calibration switch, and operate as below table

Table 7-2-1

Step	Operate	Displayed content	Note
1	Press[Safe]	Under weighing state	Turn on the calibration switch
2	Press [Input]	[SECU 0]	Enter into safety function
3	Input the encryption method Press [Input]	[CMOD *] （note7-2-3）	Communication encryption method for digital load cell 0：no encryption 1：normal dynamic encryption 2：Advanced dynamic encryption（V3） 3：AES dynamic encryption（V3） Note 7-2-2，Note 7-2-4
4	Input alarming method Press [Input]	[LALM *] （note 7-2-3）	E-seal alarming function 0：no alarm 1：interval alarm, low frequency， 2：interval alarm, high frequency 3：alarm lasts
5	Input alarming method Press [Input]	[MALM *] （note 7-2-3）	Load cell matching and check alarming method 0：no alarm 1：interval alarm, low frequency

			2：interval alarm, high frequency 3：alarm lasts
6	Input alarming method Press [Input]	[IALM *] （注 7-2-3）	Impedance matching detection alarm 0：no alarm 1：interval alarm, low frequency 2：interval alarm, high frequency 3：alarm lasts
7	Input Impedance matching mode Press [Input]	[IDM *] （注 7-2-3）	Impedance matching mode 0：no detection 1～4：Detection（intensity from low to high） （note 7-2-5）
8	Input Impedance alarm threshold Press [Input]	[THER *] （Note 7-2-3）	Input Impedance alarm threshold 0～6：（intensity from high to low） （note 7-2-6）
9		STEP ** Approx.1 second OK Approx.1 second Under Weighing state	During Impedance sampling process, no operation. After setting, return to weighing state

Note 7-2-1：after the calibration operation, some anti-cheating modes could possibly be set as invalid. anti-cheating configuration can only be conducted after all calibration operation finished.

Note 7-2-2：（V3）means load cell which only support s V3 version protocol

Note 7-2-3：if the unit bit of the parameter contains decimal point, then this parameter means to be fixed by the encipher and cant be modified

Note **7-2-4：if the communications is found abnormal after CMOD set during the new indicator adjustment, E.g.（ERD **error），it means the digital load cell not support this encipher and parameter value of CMOD need reduced.**

Note 7-2-5：if all used load cells are for V3 protocol, IDM is recommended as 3 or 4, otherwise “1”or “2” suggested.

Note 7-2-6：if all used load cells are for V3 protocol, THER is recommended as 1～3,other wise 3～5 suggested.

Note **7-2-7：turn off the calibration switch after setting finished, and make seal .**

3.Anti-cheating cue information

【ERRS 01】Impedance matching have error
【ERRS 02】E-seal testing has error 1
【ERRS 03】E-seal testing has error 2
【ERRS 04】communication Encryption is abnormal
【ERRS 05】load cell matching has error, load cell parameter checking has error

Chapter IX Overload Record

Section 1 Generation and deletion of overload record

1. Generate overload record

XK3190-DS8 may keep 16 groups of overload record with max. weight data at most for viewing and printing.

When weight on weighing platform is larger or equal to overload alarm value, a group of overload record will generate (including date, time of overload and actual overloaded weight). Actual overloaded weight in the record is the overloaded peak value; after recording one time of overload, only overload happens after weight on scale is less than 50% of the full scale will be judged as the second overload for generating new overload record; with new record generated after there are 16 groups of records, the group with smallest overload data will be deleted automatically before saving the new record.

2. Delete overload record

The overload record will only be deleted automatically after the indicator's completing a successful calibration.

Section 2 check and printing of the overload record

1. Check record for overload

Table 7-2-1

Step	Operation	Displayed content	Note
1	Press [Set]	In weighing displaying state	Turn on the calibration switch
2	Press [6] [6] Press [Input]	[P 00] [P 66]	Input the password "66" for viewing overload record
3	Press [Input] Press [Input] Press [Input] Press [Input]	[NO 1] [D **.**.**] [T **.**.**] [O *****]	The first group overload record Display the date Display the time Display the actual weight overloaded
4	Press [Input] Press [Input] Press [Input] Press [Input]	[NO 2] [D **.**.**] [T **.**.**] [O *****]	The second group overload record Display the date Display the time Display the actual weight overloaded
5	……	……	……
6		[END] Return to weighing display	End

2. Print out overload record

After the printing parameter setting finished, connect the printer correctly , turn on the calibration switch，Print [Set] and input the password "67" to print the overload record out.

Appendix: Indicator Information Cue

I. Regular information cue:

1. ----- means: Please wait, the indicator is conducting internal calculation. Do not

carry out any operation now.

2. PRINT means: Please wait a moment; data is transmitted between the indicator and printer.

3. LOAD means: Data save. It will be displayed for less than two seconds for giving a cue to the operator.

II. Error operation information cue:

1. ERR 02 means：Angular difference coefficient is abnormal
2. ERR 03 means: overload alarm, all or part of the load must be unloaded at once.
3. ERR 09 means：Digital load cell protocols are not compatible.
4. ERR 10 means: Vehicle number saved are more than 1023
5. ERR 11 means: Quantity of load cells set is not in agreement with the actual quantity in connection; load cell fault or repeated address
6. ERR 12 means：hardware saving has error
7. ERR 13 means: operation mistake,or not meet the operation condition
8. ERR 14 means：not meet the angle adjusting condition。
9. ERR 15 means：Function No. selection error.
10. ERR 17 means: Parameter setting does not meet the requirement, please reset it.
11. ERR 19 means: Printing cannot be conducted in occasion of zero or negative weighing, unstable weighing or unfulfilled zero reset condition.
12. ERR 27 means：Digital load cell not support the software version
13. ERR 28 means: When the print date is earlier than that saved in weighing record, please reset date and clear all record.
14. ERR 29 means ： The number& address of current connected load cell is unmatched with those set.
15. NO DATA means：No record, or the inquiry condition has error
16. DELETE means：The current record is for empty, “added printing” not allowed
17. ERR TJ means:Automatic angular difference modification fails.

III. Error connection information cue:

1. Err P means: Printer connection error or printer fault. Press any key to exit and re-connect the printer or replace it with another one.
2. Erd ** means: The digital load cell with address “**” has communication failures.
   (1) If this is a scale in use, we may judge whether there is a connection failure or the communication interface of load cell is damaged.
   (2) If this is the scale without debugging, you can check according to the following order
   a. Check carefully if the connection wire of load cell is connected properly.
   b. Check if address of load cell is right without replication.
   c. Please re-set the quantity of load cells.
3. ERN ** means: The protocol of digital load cell with address “**” is not compatible.
4. ERM ** means ： The protocol of digital load cell with address “**” is not compatible.

IV. Component failure and troubleshooting information cue:

1. ERR 05 means: Damaged CPU, please return it to the manufacturer for maintenance.
2. ERR 18 means: The keyboard fails. This will be displayed for 5 seconds before entering into weighing displaying page. The keyboard shall be replaced.
3. ERR 20 means: a part of the data in E^2PROM has been lost. Plug the calibration socket into

the indicator and restart it for self-check. After this, without finding the occurrence of Err 20, the calibration socket may be unplugged.

4. ERR 21 means: E^2PROM calibration data has data lost. please operate as follows:

(1) please do recovery according to section 4 in chapter IV if the calibration parameter has been backed up

(2) turn on the calibration switch, and after re-inputting the original calibration data , restart the indicator

(3) Re-calibration。

5. ERR 22 means ： Real-time clock broken, please replace with a new chip
6. ERR 23 means :E^2PROM is broken, please replace with a new chip。
7. ERR 24 means : FLASH is broken, please replace with a new chip。

V. other cue information:

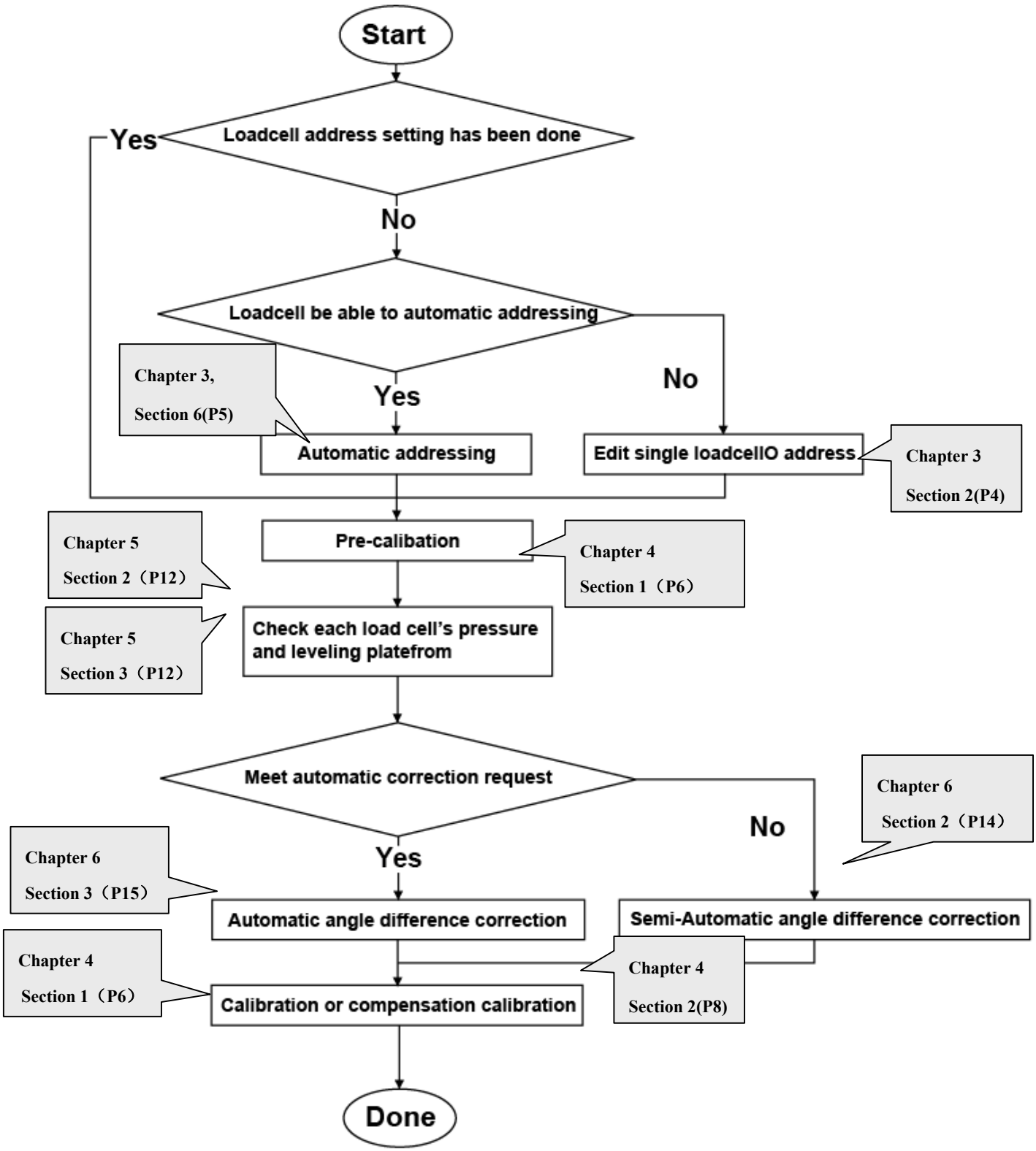
1. ERR 25 means: illegally duplicated software or E^2PROM destroyed.
2. CTNU 0 means: in Step 8 or 9 during the process of calibration, if the indicator cannot collect data which it judges as stable ones within 25 seconds, the error information will be displayed. Operator now may enter 0, 1 or 2. Their functions are as follows,

   Entering 0: (Abort) inform the indicator of not continuing this step of operation but going to next step;

   Entering 1: (Retry) inform the indicator of trying again

   Entering 2: (Ignore) inform the indicator that these instable data is still useful.

Appendix: Quick operation process



I. Load cell address

Please connect the indicator and all digital load cells according to method described in Chapter 2,turn on the calibration switch（during the whole calibration and adjustment process, keep the calibration switch on）and start up，the indicator will display【FND **】after all"8" and version no. displayed, "**"means the detected load cell number by indicator. If the displayed quantity conform to the actual quantity, then it means the load cell already addressed, go directly to next step for "pre-calibration" operation.

If the displayed quantity less than the actual , please carefully check if the connection is correct. If the connection no problem, then it shows load cell address have repetition and need to reset. There're two methods for resetting:

1、Automatic addressing（recommended） **Chapter 3 Section 6（P5）**

Press【Address】、【2】、【Input】，press【1】, 【Input】when indicator displays 【SURE 0】。

note 8-2-1：start the first calibration adjustment operation after boot, the indicator will display【C 000000】to note for calibration password input. Input the correct calibration password(initial password is "888888")and later press 【Input】to enter into required operation process

2、Single address setting（use it when the load cell not support automatic addressing） **Chapter 3 Section 2（P4）**

Connect with single load cell, press【Address】、【Input】to see indicator display 【AD **】,"**"is for current address, at this time, input the new address and then press【Input】to confirm. Repeat the operation, set all load cells with different address.

II. Pre-calibration **Chapter 4 Section 1（P6）**

Conduct the first calibration process according to method described in Chapter 4 section 1：Press【Calibration】and input calibration parameter by follows to confirm the zero point and upload the weight, replace with heavy vehicle or heavy article when confirming to upload the weight（ADLOAD 1）,the input weight dont have to be much accurate.

The function of the pre-calibration is to confirm load cell number ,division value etc, which makes it convenient for the platform leveling and angular difference correction .

III. Platform leveling **Chapter 5 Section 2(P12)** **Chapter 5 Section 3(P12)**

1.Press【Diagnose】、【Input】，check if all load cells are compactly pressed

2.Press【Test】,【Input】,input the load cell address and press【Input】to check the force condition of this load cell and conduct platform leveling.

IV. Angular difference correction

DS8 has two methods for angular difference correction, please select according to actual situation

11、 Full automatic angular difference correction(recommended) **Chaper6 Section 3**

（**P15**）

Press【Angle adjustment】、【2】、【Input】 to see indicator display【NOLOAD 】，Press【Input】 when the scale is under empty state;

The indicator displays【L ******】，input the estimated presser weight and press【Input】，the indicator will display【AN 01】；

Add the article to a certain angle and wait till the data is stable(beating is less than 10) and then press【Input】，the indicator will display【AN 02】；

Add the article to a certain angle and wait till the data is stable and press 【Input】, repeat this operation till the angular difference correction finished.

2. Semi-automatic angular difference correction(use it when not qualified with angle presser condition or the full automatic correction effect not good) **Chapter 6 Section 2（P14）**

Press【Angle adjustment】、【Input】，the indicator will display【NOLOAD 】，press【Input】to make the scale at empty state.；

The indicator will display【A *****】，"*****" is for the current weight. at this time, press each corner with the same heavy article, and find out the corner with Max. error to press this article on, press【Self -calibration】to input the correct weight and press【Input】to confirm ，the indicator will automatically finish correction for this angle. Repeat above operation till angular difference correction finished.（no need to input the weight again when secondly press【Self -calibration】）

V. Calibration

Please conduct the calibration process according to method mentioned in Chapter 4 Section 1 **Chapter 4 Section 1（P6）**

If there is pre-calibration before, a quick compensation calibration is also available, operation method is as follows： **Chapter 4 Section 2（P6）**

Upload to the standard weight(the closer to the full capacity the better),press【Set】、【7】、【8】、【Input】，the indicator will display【ADLOAD 1】，at this time input standard weight and press【Input】to confirm. After all calibration and adjustment finished, turn off the calibration switch.