

D2008F (A/P/P1)

Digital Electronic Weighing Indicator

Technical Manual

Version: Mar. 2009

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

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1 Technical parameter

Type D2008F (A/P/P1)

Digital load cell interface

Communication mode RS485
Signal transmission distance $\leq 1000\text{m}$
Transmission baud rate 9600、19200 bps
Excitation power DC12V
Digital interface ability ≤ 16 digital load cells or digital modules

Display

7 digits of LED, 7 digits of status symbols

Keyboard

Number Keys 0 ~ 9
Function keys 30 pcs (10 of 30 are combined with Number keys)

Clock

display year, month, date, hour, minute and second, leap year and leap month automatically.

Scoreboard display interface

transmission mode: Serial transmission mode , current loop and RS232
Transmission baud rate: 600bps

Serial communication interface

transmission mode: RS232/RS485
Baud rate: Options of 600/1200/2400/4800/9600/19200

Printing interface

With standard parallel printing interface, which can be connected with the wide line printers , such as ESPON LQ-300K+ II 、 ESPON LQ-300K 、 ESPON LQ-680K、 ESPON LQ-730K、 ESPON LQ-1600K(+)、 KX-P1131、 DS-300, etc.

D2008FP is with thermal mirco-printer, D2008FP1 is with matrix printing.

Data storage

can store 1,500 groups of vehicle numbers and tare weight, 201 groups of cargo numbers and cargo name in Chinese and English, 100 groups of customer numbers and customer names in Chinese and English, and 100 sets of figures or note information in Chinese and English, 2400 groups weighing records, 20 groups overload records.

Operating environment

Power input : AC110~220V 50~60HZ
DC 12V
Operating temperature: $0^{\circ}\text{C} \sim 40^{\circ}\text{C}$
Storage temperature : $-25^{\circ}\text{C} \sim 55^{\circ}\text{C}$
Relative humidity : $\leq 85\%\text{RH}$

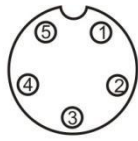
Sizes 339×110×230 mm

Weight about 3.7kg

2 Installation and Connection

2.1 The connection between indicator and digital load cell

The indicator can connect with C and E series digital load cells, the connection is shown as below:



5 cores load cell interface

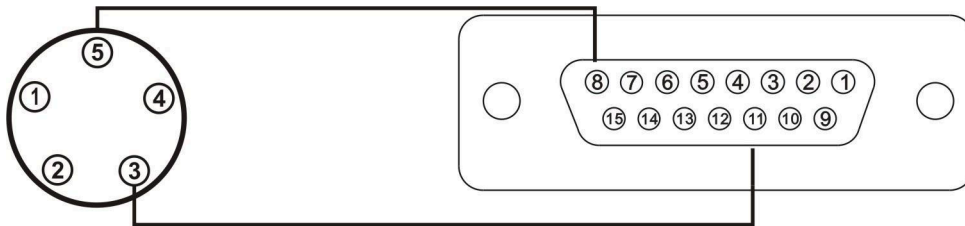
face and description

Pin	Description	C series	E series
1	Power +	Red	Red
2	Power -	Black	Black
3	Signal A(+)	White	Green
4	Signal B(-)	Green	White

2.2 The connection between indicator and scoreboard

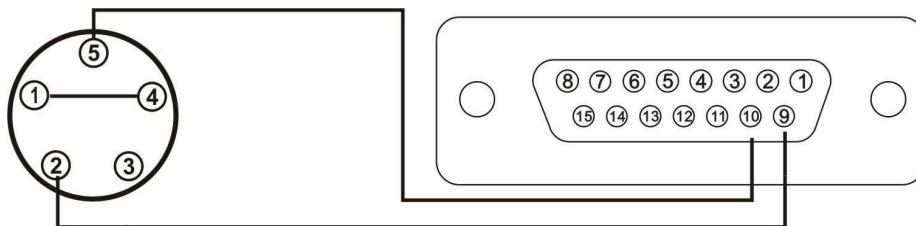
Connection with Keli scoreboard is shown as below:

2.2.1. RS232 connection



2.2.2.

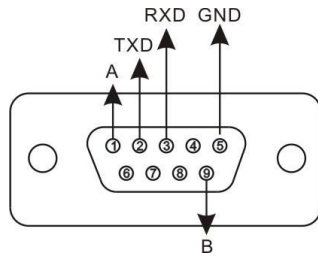
Current loop



2.3 The connection between indicator and computer

The indicator has two kinds of serial communication, one is RS232, the other one is RS485.

PC interface of indicator	RS485 communication device
1 (Signal A)	Signal A
9(Signal B)	Signal B
PC interface of indicator	9 cores serial port of computer
2	2
3	3



PC interface of indicator

5	5
---	---

RS232 connection between indicator and computer5 cores load cell interface

RS485 connection between indicator and RS485 communication device

2.4 The connection between indicator and battery

Indicator itself has battery charging module. Please use 12V/7Ah battery; At converse connection, the supply loop of battery will be cut off.

3 Truck scale debugging step introduction

1st step: set up address and assemble scale

Method 1 : suitable for C and E type digital load cells

1、 set up address for every digital load cell (FUNC 0 of 4.1)

2、 indicator search and assemble scale (FUNC 1 of 4.2)

Method 2: when use E type module which has automatic assemble net function, the operation is as below

1、 automatic assign address (FUNC 3 of 4.1)

2、 load for each corner to confirm position (dtype of PST5 in 4.3)

2nd step: check the loading status of each digital load cell

Method in 4th section **test 0** of Chapter 4 to check the loading status of each digital load cell.

Therein the ISN display unit of Keli digital load cell is kg.

Adjust scale to reasonable status according to ISN status.

3rd step: automatically adjust corner error (can not be done)

Method in 4.5, adjusting corner error under good scale environment is better than manual adjusting corner error.

4th step: linearity calibration for scale

Method in 5.1, use standard calibration method.

5th step: check corner error and adjust by hand

Manual corner error adjustment has two kinds, please refer to 4.6, when separate load each corner and test corner error, can input weight value to adjust, under other status, can input adjusting coefficient.

4 Digital load cell debugging

4.1 Modify the communicating address of load cell

4.1.1 The address of all digital load cells in scales can not be repeatable. Setup address for each digital load cell in accordance with form 3-1-1.

Operation :

Step	Operation	Display	Explanation
1	Press [F1] Press [888888] Press [ENTER]	c000000 c- - - - -	Input calibration password Initial password is "888888"
2	Press [F1] Press [ENTER]	FUNC 0	Select function category no. zero to enter and setup address
3	Press [ENTER]	S adr - - - - -	Search connected digital load cells Searching
4	Press [01] Press [ENTER]	Xd** N## Xd** N01	Note 3-1-0 X: load cell communication protocol 1: keli C type 2: keli E type d**digital load cell originalcommunication address N## new communication address Setup new communication address as 01(range is 1~16)
5	Press [ENTER]	*****.	Setup successfully and display ISN code of digital load cell
6		S adr	Back to step 3

Note 3-1-0:when indicator find more than one piece or zero piece of digital load cells, indicator send error prompt of Err adr

4.1.2 Automatically assign address for digital load cells with E type communication proposal, **so no need to assembly operationin for digital load cells, method is shown as below:**

Step	Operation	Display	Explanation
1	Press [F1] Press [888888] Press [ENTER]	c000000 c- - - - -	Input calibration password Initial password is "888888"
2	Press [3] Press [ENTER]	FUNC 0 FUNC 3	Select function category no. 3 to enter into assign address automatically
3		NET	Net assembling---
4		NO **	**net assembly successfully, there are ** pieces of digital load cells in the net. Note 3-1-2
5	Press [1] Press [ENTER]	SUR 0 SUR 1	If carry out to assign address automatically 0: no and exit 1: yes, to assign address
6		Weighing status	Parameter setting is finished

4.2 Digital load cells assemble scale

4.2.1 Automatically identify digital load cell type and quantity

Step	Operation	Display	Explanation
1	Press [F1] Press [888888] Press [ENTER]	c000000 c- - - - -	Input calibration password Initial password is "888888"
2	Press [1] Press [ENTER]	FUNC 0 FUNC 1	Select function category no. 1 to net assembly procedure
3	Press [ENTER]	T** N**	T load cell communication protocol N load cell quantity
4		SUR 0	If save searched info

	Press [1] Press [ENTER]	SUR 1	0: no, not save 1: yes, save type, quantity, and automatically setup corner position according to address
5		Weighing status	Parameter setting is finished

Note: after finishing above operation, if all digital load cell address are known, and put it at assigned scale position, then no need to do the operation of modifying communication corner position of digital load cell in 4.3 section, corner position 1~N match 1~N address' digital load cells by size accordingly.

4.3 Modify the communication corner position of digital load cells

Modify the corner position of digital load cells, indicator fix the position for each digital load cell by setting the address of each corner position, there are two kinds of operation, one is automatic load corner to setup corner position (form 4-3-1), the other one is input the address of each corner position (form 4-3-2), detail operation is as below:

Form 4-3-1

Step	Operation	Display	Explanation
1	Press [SET] Press [0],[5] Press [ENTER]	PST 00 PST 05	Select parameter/function category no. 05 to enter into modify address procedure
2	Press [888888] Press [ENTER]	c000000 c-----	Input calibration password Initial password is "888888" example 888888
3	Press [0] Press [ENTER]	P5 00	00: load cell type 01: load cell quantity 02: setup corner position address
4	Press [0] Press [ENTER]	dtp ** dtp 00	01: Keli C type module 02: Keli E type module Other are spare options
5	Press [ENTER]	dno **	Load cell quantity ** in net (parameter range : 0~16) Can modify (suggest not to modify)
6	Press [1] Press [ENTER]	dtype 0 dtype 1	Setup load cell communication address for corner position 0: manual set 1: automatic set by loading corner
7	Press [ENTER]	noLoAd	Zero position is confirmed, at the moment nothing is no scale, and wait stable indication lights and then press [ENTER] 。
5	Put a certain weight on a corner which will be set and then press [ENTER]	d01 **	Setup No. corner ** is the load cell address which will be loaded currently
6		d02 **	Setup No.2 corner ** is the load cell address which will be loaded currently

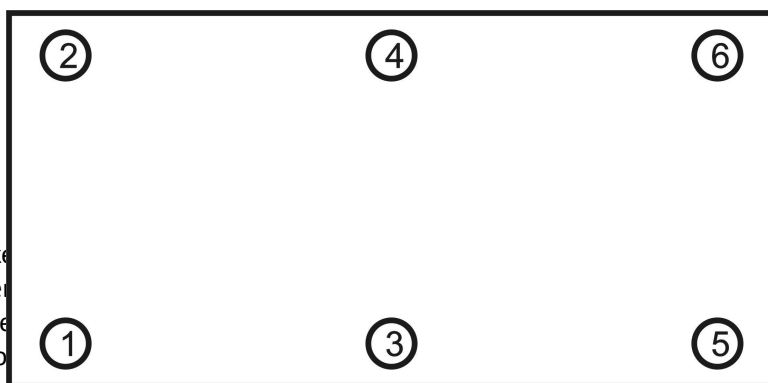
7	Automatically exit after loading corner	Weighing status	Parameter setting is finished

Form 4-3-2

6 (02 function parameters)	Press [0] Press [ENTER]	dtype 0 dtype 0	Setup communication address of load cell at corner position 0: manual setting 1: automatic setting by loading corner
7		d01 **	Input the address for the load cell at No. 1 corner position:

	Press【03】 Press【ENTER】	d01 03	Display the load cell address at this corner Known current the load cell address of No. 1 corner position is 03, then input 03
8	Press【05】 Press【ENTER】	d02 ** d02 05	Input the address for the load cell at No. 2 corner position: Display the load cell address at this corner Known current the load cell address of No. 2 corner position is 03, then input 05
9	Automatically exit after finishing corner loaded	Weighing status	End parameter setting

Note: After modifying address, then can layout the corner position in accordance with the picture below, if the quantity of load cell is more than 6, then can layout the corner position in the same way too.



4.4 Check ISN code

In order to make of scale, the required same as analogy scale

Checking ISN code 3-4-1

and long term stability mechanical installation is

the method in Form

In order to install scale platform well, User shall install scale well first, the ISN code at corresponding corner should be close (the difference value shall be within 400, more smaller is more better. If confirm all load cells are loaded, the difference within 800 is acceptable too.) take an example of above picture, the ISN code of No.1, No.2, No.6 and No.5 shall be close. And the ISN code of No.3 and No.4 shall be close too, and its value is twice of outside corner's.

If the ISN code of a corner is smaller, then the corresponding load cell is not loaded well, need to increase the height of load cell.

Form 4-4-1

Step	Operation	Display	Explanation
1	Press【ENTER】 Press【888888】 Press【ENTER】	c000000 c- - - - -	Input calibration password Initial password is "888888"
2	Press【ENTER】	tEst 0	Check AD code of each corner
3	Press【0】【1】 Press【ENTER】	dd 01	Input the load cell no. which will be checked
4	Press【ENTER】	*****.	Display the ISN code of No.01 load cell
5	Press【ENTER】	dd 02	Display the ISN code of No.02 load cell Press【CHECK】 to see (such as) : dd 01
.....			
6		Weighing status	Checking ends

4.5 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.

4.5.1 Automatic corner-difference correction

Operation:

Step	Operation	Display	Explanation
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1	Press【F1】 Press【888888】 Press【ENTER】	c000000 c-----	Input calibration password Initial password is “888888”
2	Press【2】 Press【ENTER】 Press【ENTER】	FUNC 0 FUNC 2 noLoAd ----	Select function category no. 2 to enter into automatic corner error adjustment Confirm zero position, at the moment there should be nothing on scale, wait stable indication lights and then press【ENTER】。
3	Press【ENTER】	DCR **	Display loaded corner no. ** currently
4	Press【ENTER】	*****.	Display the ISN code of load cell at the current corner
5		DCR **	Load other corners note 3-5-1
6		END	Automatic corner-difference correction coefficient is normal Automatic corner-difference correction coefficient is abnormal(>1.2 or <0.8), display ERR 30 , please check every corner-difference coefficients, and adjust scale platform
7		Weighing scale	Parameter setting is finished

Note 3-5-1: It automatically calculate coefficient and exit after loading all load cells.

4.5.2 Manual Corner-Difference Correction

Manual corner-difference correction is that adjust single corner-difference coefficient to correct “eccentric load error”. Corner-difference coefficient input method is as following table 4-5-2 and table 4-5-3.

Manual corner-difference correction mainly applies for following conditions:

1. “Eccentric load error” itself is small
2. Some small eccentric load still exists after auto corner-difference correction
3. Auto corner-difference correction can not be carried on.
4. If heavy thing is loaded on adjusting corner only, then can use the adjusting corner method of inputting weight in Form 3-5-2, under other conditions, please use the method of setting corner-difference coefficient.

Form 4-5-2

Step	Operation	Display	Explanation
1	Press【SET】 Press【0】,【6】 Press【ENTER】	PST 00 PST 06	Choose parameter/function type No.06 to enter manual corner-difference correction step
2	Press【888888】 Press【ENTER】	c000000 c-----	Input calibration password Initial password is “888888”
3	Press【Enter】	P6 00	Enter manual corner-difference coefficient setting mode 0: enter weight mode directly 1~n: set corner-difference coefficient directly
4	Press【Enter】	ADJ **	**means the corner where the current heavy thing is . Do not recommend to modify
5	Press【Enter】	*****	Current displaying weight*****
6	Press numbers Press【Enter】	o*****	Modify to perfect weight
7		Weighing status	Parameter setting is finished, and back to weighing status

Form 4-5-3

Step	Operation	Display	Explanation
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1	Press【SET】 Press【0】,【6】 Press【ENTER】	PST 00 PST 06	Choose parameter/function type No.06 to enter manual corner-difference correction step
2	Press【888888】 Press【ENTER】	c000000 c-----	Input calibration password Initial password is “888888”
3	Press【1】 Press【ENTER】	P6 00 P6 01	Enter manual corner-difference coefficient setting mode 0: enter weight mode directly 1~n: set corner-difference coefficient directly
4	Press【100200】 Press【ENTER】	0*.***** 01.00200	Modify corner-difference coefficient of No.1 load cell 0~F means No. 1~16 corners Note:3-5-3
4	Press【100120】 Press【ENTER】	11.***** 11.00120	Modify corner-difference coefficient of No. 2 load cell
5	Press【ENTER】	-----	Modify other load cell corner-difference coefficient within network one by one
6		Weighing status	Parameter setting is finished

Note 3-5-3: reference formula of modifying coefficient

Coefficient of correction = 1+ (corner loading weight-current display weight) *0.9/corner loading weight

▲ Corner-difference formula coefficient number = corner number -1

▲ Corner-difference coefficient of the new member of load cell when networking is 1.00000

5 Calibration Debugging

5.1 Calibration

The linearity calibration of scale has three methods:

1. Under condition of calibration switch on the calibration position (up), carry on calibration debugging as following steps.

Form 5-1-1

Step	Operation	Display	Explanation
1	Press【Cal】		Put calibration switch (upside) to calibration position
2	Press【888888】 Press【ENTER】	c000000 c*****	Input calibration password Initial password is “888888”
3	Press【10】 Press【ENTER】	E *** E 010	Input division: 1/2/5/10/20/50/100 optional For example, 10
4	Press【1】 Press【ENTER】	dc * dc 0	Enter radix point number (0-4) For example, no radix point 0 Notes: if radix point is changed, the indicator will automatically delete weighing records and vehicle number and tare information
5	Press【13955】 Press【ENTER】	【Pn VWXYZ】 Pn13455	Enter system parameter V: application W: zero tracking speed X: zero tracking range Y: manual zero-setting range Z: zero-setting range when power on (remark 5-1-1) for example, 13455

6	Press【0】 Press【ENTER】	Flt * Flt 0	Filter strength (0~4): the bigger the number is, the stronger the filter is. For example, 0
7	Press【50000】 Press【ENTER】	F***** F050000	Input full span value. (notes: full span plus 9 division is the alarming value of overloading) For example, 50000
8	Press【ENTER】	noLoAd	Zero point confirmation, confirm there is nothing on the scale at this time, and press 【ENTER】 after stable identifier is bright. AD value must not be less than zero
9	Press【ENTER】 Press【10000】 Press【ENTER】 or Press【CHECK】	AdLoAd1 A000000 A010000	Add weights and after stable identifier bright, enter real weight of the weights on the scale. (note 5-1-2), for example, 10000 Press 【CHECK】 to step 10, multi-point calibration Press 【ENTER】, two-point calibration and finish it
10	Press【ENTER】 Press【20000】 Press【ENTER】 or Press【CHECK】	AdLoAd2 A000000 A020000	Add weights and after stable identifier bright, enter real weight of the weights on the scale. For example, 20000
11		END	Calibration is finished
12		Weighing status	Calibration is finished (note 5-1-3)

Note 5-1-1: Pn parameter setting

Meanings and ranges of each Pn parameter are shown in the tables below 5-1-2, 5-1-3, 5-1-4, 5-1-5, 5-1-6.

(Form 5-1-2)

Value of V	0	1
Working area	Non-trade scale	Trading scale

(Form 5-1-3)

Value of W	0	1	2	3
Zero trace speed	0.4 second	0.3 second	0.2 second	0.1 second

(Form 5-1-4)

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

(Form 5-1-5)

Value of Y	1	2	3	4	5
Zero area by typing【zero】 key	2%F.S	4%F.S	10%F.S	20%F.S	100%F.S

(Form 5-1-6)

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

Note 5-1-2: Relevant parameters can be printed after debugging. (Details: Type【FORM】, enter【8】【0】, and press 【ENTER】 to save parameters in case of repeat input)

2, When calibration switch is in the calibration position, do as follows to realize quick calibration of two-points.

Form 5-1-7

Step	Operation	Display	Explanation
1	Press【cal】		Dial calibration switch (upward) to calibration area
2	press 【888888】 press 【ENTER】	c000000 c-----	Initial password is "888888"
3	press 【999】 press 【ENTER】	E *** E 999	Input division : 1/2/5/10/20/50/100 optional 999 stands for entering quick calibration
4	Input password	669687	authority reserved
5	press 【ENTER】	noLoAd	Prompt to confirm zero
6	press 【ENTER】 press 【WEIGH】	AdloAd1	press 【ENTER】to reconfirm zero and prompt load calibration press 【WEIGH】, no change of zero, prompt load calibration
7	press 【10000】 press 【ENTER】	End A10000	press 【WEIGHT】, no change of calibration ratio. Calibration is finished. After loading weights, input value and calibrate again.
8		End 123456	Calibration is finished Back to weighing status

3, When calibration switch is in the calibration area, do as follows to realize quick calibration of three-points.
Form 5-1-8

Step	Operation	Display	Explanation
1	Press 【cal】		Move calibration switch (upward) to calibration area
2	press 【888888】 press 【ENTER】	c000000 c-----	Input calibration password, Initial password is "888888"
3	press 【999】 press 【ENTER】	E *** E 999	Input division : 1/2/5/10/20/50/100 optional 999 stands for starting quick calibration
4	Input password	669687	Rights reserved
5	press 【ENTER】	【 noLoAd】	Prompt to confirm zero
6	press 【ENTER】 press 【WEIGH】	【AdloAd1】	press 【ENTER】to reconfirm zero and prompt to load calibration press 【WEIGH】, no change of zero, prompt to load calibration
7	press 【10000】 press 【CHECK】	【 10000】	press 【TARE】, no change of calibration ratio 1, hint to continually load calibration After loading weights, input values and confirm calibration by pressing【CHECK】
8	press 【2500】	【AdloAd2】	After loading weights, input values and confirm

	press [CHECK]		calibration by pressing [CHECK]
		[End] [123456]	Calibration is finished Back to weight condition

5.2 Division automatic switchover

D2008FA provides 3 divisions auto switchover function. Two division auto switchover points can be set: when gross weight is less than division switchover point 1, it shows to switch division 1 grade downwards (eg: switchover 50 to 20, switchover 10 to 5); when gross weight is higher than division switchover point 1, it shows to switch division 1 grade upwards (eg: switchover 1 to 2, switchover 5 to 10). See Form 4-2-2 for setting division switchover points.

▲ If setting division switchover points to be "000000", it means relative switchover functions will not be used.

▲ If division is 1, it is not allowed to switchover division downwards.

Form 5-2-1

Step	Operation	Display	Explanation
1	press [SET] press [ENTER]	PSt 00	Choose parameter/function category number 00, enter calibration parameter setting program.
2	press [888888] press [ENTER]	c000000 c-----	Input calibration password Initial password is "888888"
3	press [6] press [ENTER]	PO 00 PO 06	Input parameter number 00-division; 01-digit of decimal point 02-parameter; 03- filter intensity. 04-full capacity; 05- modify coefficient 06-division auto switchover point 1 07- division auto switchover point 2 08- calibration linearity parameter
4	press [0] press [ENTER]	n***** n000000	division auto switchover point 1 eg, 000000 (no using division 1 switchover function)
5	press [0] press [ENTER]	H***** H000000	division auto switchover point 2 eg, 000000 (no using division 2 switchover function)
6	press [ENTER]	A***** L***** LH***** b***** o***** oH*****	It displays calibration parameters, do not modify. If you do not check this, press [WEIGH] to exit calibration status. (you can directly input data when changing the indicator, free of calibration) Note: A AD code L, LH of Zero digit are calibration ratio for first section b AD code of deviding point of first section, o, oH are calibration ratio for section section Note: All Deviding point AD code is sign number 999999 if not processed via non-linearity correction. For example: b is 999999 if only single point calibration is done.
7		Weighing status	Parameter setting is finished

5.3 Calibration error correction

After calibration, if finding you input wrong weight value when loading weights, there are two ways to correct:

- (1) Repeat full capacity calibration: repeat quick calibration while keeping the weights (see above section for quick calibration).
- (2) Calculate and modify system correction coefficient: use following formula to calculate correction coefficient, and input it into system as Form 4-3-1:

coefficient of correction = corner loaded weight / current display weight

Example 1: Actual loading weight is 29500kg, while you input the weight to be 30000kg (that is, 29500kg is incorrectly set to be 30000kg), which leads to weight error. Modify as following formula:

- 1) Calculate system correction coefficient:

coefficient of correction = $29500 / 30000 = 0.98333$

- 2) Input correction coefficient, see table below for details:

Step	Operation	Display	Explanation
1	press [SET] press [ENTER]	PSt 00	Move calibration switch (upward) to calibration area
2	press [888888] press [ENTER]	c000000 c- - - - -	Input calibration password Initial password is "888888"
3	press [5] press [ENTER]	P0 00 P0 05	Input parameter number 05, set general calibration coefficient Eg, 05
4	press [98333] press [ENTER]	E1.00000 E0.98333	Input general calibration coefficient after calculation Eg, 0.98333
5	press [WEIGH]	n*****	Exit after input
6		Weighing status	

6 Other Operation

6.1 Password management

Password management includes encryption selection, password modification and random code unlock

6.1.1 Encryption selection and password modification:

D2008FA has encrypting function for operation. Besides for the fixed required to input calibration Password for the measurement related operations, it can also set Password through encryption options for the options like testing, parameter setting, weighing record delete or checking, etc. The calibration password before delivery from factory is "888888"

Change the Password to any numbers except for "000000" and select the encryption options at the same time. Detailed steps are as follows:

(Form 6-1-1)

Steps	Operation	Display	Explanation
1	[SET] [20] [ENTER]	PSt 00 PSt 20	Select Parameter/Function category 20 to modify the calibration password
2	[888888] [ENTER]	C000000 C- - - - -	Input old calibration password Example 888888
3	[ENTER]	P20 00	Input parameter number

4	【1111】 【ENTER】	【UP WXYZ】 UP 1111	Encryption Selection : W Testing Function Encryption 0=No 1=Yes X Parameter Setting Encryption 0=No 1=Yes Y Record Parameter Encryption 0=No 1=Yes Z Record Checking Encryption 0=No 1=Yes (Note 6-1-1)
5	【111111】 【ENTER】	n000000 n111111	Input New calibration password Calibration Password can not be modified to 000000" Example 123456
6	【123456】 【ENTER】	r000000 r123456	Input new calibration password Example 123456 (Note 6-1-2)
7		PASS Weghing status	Password modification is successful, Back to weighing status

Note 6-1-1: Encryption Selection is actually to select if the password protection is required or not when operating the corresponding functions. If select no encryption, there is no need to input password to finish the corresponding operations. On the other hand, the password must be input before finishing the corresponding operation.

Note 6-1-2: 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 3 asking to input the new Password.

Note 6-1-3: Please keep the modified password properly!! If it is lost then the calibration will not be able to carried out. it has to be sent back to the factory to initialize the password or reset according to the Password unlock mode

6.1.2. Random code unlock :

This function is adopted when the password is lost or forgotten. You may use following methods to get the temporary password and use it to do some operation like unlock, calibration etc. Details is shown as follows:

- 1). Get the unlock random code: switch the calibration plug (Up) to the calibration position and then follow the steps according to form 6-1-2.
- 2). Phone sales service number of our company (On the back cover of the manual) and tell the unlock random code to our technical service people to get a temporary password.
- 3). Use the temporary password to do the unlock, calibration operations etc again.

Form 6-1-2

Step	Operation	Display	Explanation
1	【SET】 【22】 【ENTER】	PSt 00 PSt 22	Select Parameter/Function category no. 22 to check the random code
2	【ENTER】	r*****	Write down the data on paper
3		Weighing status	

6.2 Timing Off

6.2.1 The way to set the expire date of probation

Step	Operation	Display	Explanation
1	Switch the calibration plug(Up) to the calibration position, 【SET】 【21】 【ENTER】	PSt 00 PSt 21	Select Parameter/Function category no. 21 to enter timing off setting
2		c000000	Enter calibration password selection

	【888888】 【ENTER】	C- - - - -	Example 888888
3	【090428】 【ENTER】	t**.**.**.*** t09.04.28	Input expire date Example 09/04/28
4		Weighing status	Setting is finished

6.2.2 Remove and modify the timing off:

- 1) After exceeding the set off time, the indicator will display 【HELP】and can not weigh
- 2) If want to cancel timing off, only need to set the probation time to 999999

6.3 System testing

D2008FA provides the assistant inspection function for the indicator itself and load cells. It is easier for the user to analysis and judge the malfunctions in the spot with easy and convenient operation and visual observation

6.3.1 Check overloading record

D2008FA can automatically save the top 20 overloading record

The overloading record will be cleaned up after calibration is successfully done. The overloading record can not be manually cleaned up. Press【FORM】, 【70】to print out overloading record.

Form 6-3-1

Step	Operation	Display	Explanation
1	【TEST】 【888888】 【ENTER】	c000000 C- - - - -	Enter calibration password Initial password is “888888”(Password can be changed) Example 888888
2	【1】 【ENTER】	tEst 0 tEst 1	Select testing type : 0: Check the ISN code of each load cell 1: Check overloading record
3	【ENTER】	no 01	Display record serial no.
4	【ENTER】	d**.**.**.***	Display the overloading date
5	【ENTER】	t**.**.**.***	Display the overloading time
6	【ENTER】	o*****	Display the overloading weight
7	【ENTER】	no 02	Display the next record
.....			
8	【ENTER】	End	Record display is finished

6.4 Parameter save and recovery

24C04 is a backup chip. When doing save and recovery operation, it must be inserted to U15 , and after operation it must be pulled out insert to U16* to protect the electricity and usage safety of the chip.

6.4.1 Backup operation methods:

S tep	Operation	Display	Explanation
1	【SET】 【26】 【ENTER】	PST 00 PST 26	Select Parameter/Function category no.26 to enter parameter backup Calibration plug is ON
2	【888888】 【ENTER】	c000000 C- - - - -	Enter calibration password The original password“888888”
3	【1】 【ENTER】	SURE 0 SURE 1	Enter 1 to confirm
4		SAVE END	Saving Saving complete

5		Weighing status	Parameter setting is finished
---	--	-----------------	-------------------------------

6.4.2 Restore methods

Restoring operation will clear original parameters of indicator, please be careful

Step	Operation	Display	Explanation
1	[SET] [27] [ENTER]	PST 00 PST 27	Select parameter /function category no 26 to enter into parameter backup Calibration switch is ON
2	[888888] [ENTER]	c000000 c- - - - -	Enter calibration password Initial password is“888888”
3	[1] [ENTER]	SURE 0 SURE 1	Enter 1 to confirm
4		Load END	In restoring Restoring is finished
5		Restart automatically	Parameter setting is finished and indicator will automatically restart.

6.5 PC communication parameter setting

Step	Operation	Display	Explanation
1	Press [SET] Press [1] Press [ENTER]	PSt 00 PSt 01	Input parameter/function category no. “01” If select to input calibration password, then need to enter password input interface C000000 .
2	Press [ENTER]	P1 00	Input parameter no. e.g. select 00 0 communication address; 1 baud rate; 2 communication type 3 calibration method
3	Press [1] Press [ENTER]	Adr *** Adr 001	Communication address (1~255) e.g. select 001
4	Press [4] Press [ENTER]	bt * bt 4	Serial communication baud rate (0~5) 0 to 5 stand separately for 600、1200、2400、4800、9600、19200 baud rate e.g. 4
5	Press [0] Press [ENTER]	tF * tF 0	Communication type selection, e.g. select 0 0:continuous transmission 1 ;1:MODBUS command type; 2 continuous transmission 2; 3:continuous transmission 3; 4:continuous transmission 4。Refer to appendix A
6	Press [0] Press [ENTER]	jn * jn 0	Check mode selection (0~2) 0: no check 1: even check; 2: odd check; e.g. select 0
7		Weighing status	Communication parameter setting is finished, back to weighing status

6.6 Print parameter setting

Step	Operation	Display	Explanation
------	-----------	---------	-------------

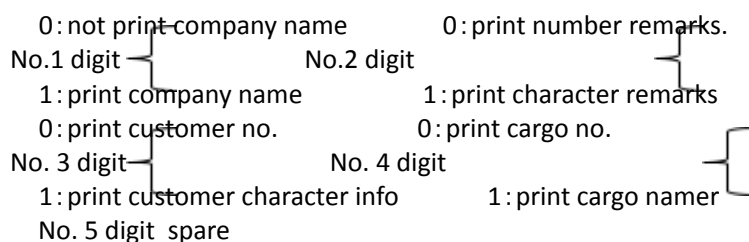
1	Press【SET】 Press【2】 Press【ENTER】	PSt 00 PSt 02	Input parameter/function category no. "02" to enter into print parameter setting procedure. If select need to input calibration password, then enter into password input interface C000000 first
2	Press【ENTER】	P2 00	Input parameter no. 0 automatically print 1 printer category 2 printer limit selection 3 sheet quantity 4 minimum printing weight when printing automatically 5 form feeding quantity at sheet printing mode 6 print format selection 7 discount rate selection when filling print 8 store content 9 information print type 10 printing control parameter 11 weight unit 12 working parameter 13 automatic form feeding line quantity e.g. select 00
3	Press【0】 Press【ENTER】	AUto * AUto 0	Automatic printing selection (0~2) 0: manual printing; 1: automatic printing (do not keep automatic printing status when power off); 2: automatic printing (keep automatic printing status when power off) e.g. select 0
4	Press【1】 Press【ENTER】	tyPE * tyPE 1	Printer category (0~3) selection: 0: printing is invalid; 1: faceplate Chinese character micro print; 2: EPSON LQ-300K(+), LQ1600K, DS-300, Panasonic KX-P1131; 3: Panasonic KX-P1121
5	Press【99】 Press【ENTER】	HL ** HL 99	Printer limit selection (as follows): 00: print after back to zero; 25: print after back to 25% of weighing capacity; 50: print after back to 50% of weighing capacity; 75: print after back to 75% of weighing capacity 印; 99: print at full weighing capacity e.g. select 99
6	Press【3】 Press【ENTER】	Arr * Arr 3	Sheet quantity (1~3) 1 to 3 separately stands for 1 to 3 sheets e.g. select 3
7	Press【1000】 Press【ENTER】	L***** L001000	Minimum printing weight at automatic printing (must be bigger than 10 times division value) e.g.: 1000
8	Press【3】 Press【ENTER】	b ** b 03	Form feeding line quantity when sheet printing (0~30) e.g. select 3
9	Press【1】 Press【ENTER】	odE * odE 1	Printing format selection (0~9) 0: record format 1: vertical sheet format; 2: horizontal sheet format 3: customized record format; 4: customized vertical sheet format 5: customized

			horizontal sheet format; 6: filling type; 7: mirco-printing horizontal sheet format; 8: micro-printing record format; 9: micro-printing customized horizontal sheet format. 10: customized filling format; e.g. select 1 refer to appendix B
10	Press【0】 Press【ENTER】	dct * dct 0	Discount rate selection when filling printing(0~1) 0: not use discount rate; 1: use discount rate e.g. select 0
11	Press 【11111】 Press【ENTER】	Uy***** Uy11111	Store contents selection(note 3-1-6) : remarks:inputting any non-zero numbers in the step is regarded as 1, the following is same) e.g. select “11111”
12	Press【11111】 Press【ENTER】	Hy***** Hy11111	Information printing type selection:select the output of printing is character or numbers(note 3-1-7)。 e.g. select “11111”
13	Press【110000】 Press【ENTER】	y***** y111111	Printing control parameter(note 3-1-8) e.g. select “111111”
14	Press【0】 Press【ENTER】	Ut * Ut 0	Weight unit selectioin (0~1) :0= kg; 1=t。 e.g. select 0
15	Press【0110】 Press【ENTER】	yr wxyz yr 0110	Working parameter selection : W spare X printing selection 0=store but not print 1=store and print Y storing time selection 0=first weighing time 1=second weighing time Z spare
16	Press【00】 Press【ENTER】	do ** do 00	Automatic form feeding line quantity after printing group data and form feeding line quantity before printing(mainly used in conveniently tearing paper) e.g. :0(line) note : set as 00 when using DS300 printer
17		Weighing status	Printing parameter setting is finished , and back to weighing status

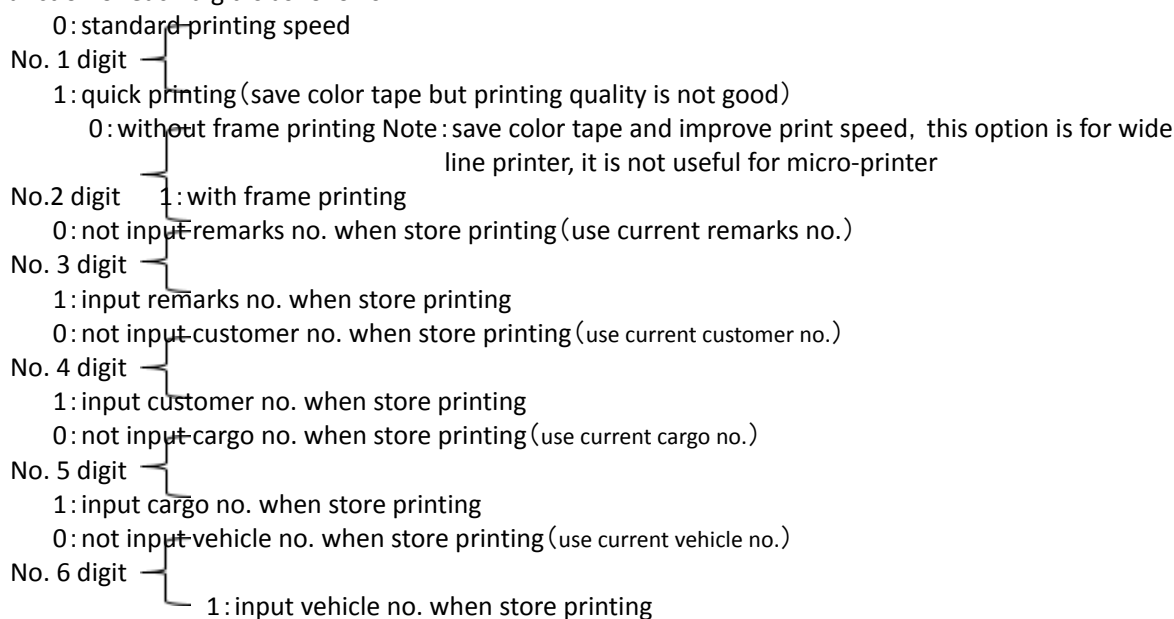
note 3-1-6:store contents(Uy parameter)have five digits, they are separately 1~5 from left to right, the function of each digit is as follows:

0: not use company name	0: not use remarks	}
No.1 digit	No.2 digit	
1: use company name	1: use remarks	}
0: not use customer	0: not use cargo no.	
No. 3 digit	No. 4 digit	}
1: use customer	1: use cargo no.	
0: not use vehicle no.		
No. 5 digit	1: use vehicle no.	

note 3-1-7: information printing type selection(Hy) have five digits, they are separately 1~5 from left to right , the function of each digit is as follows:



note 3-1-8: printing control parameter(y parameter) have 6 digits, they are separately 1~6 from left to right, the function of each digit is as follows:



Remarks: If select not input remarks no. , customer no. , cargo no. , vehicle no. for store printing, then need to **【SAVE】** to setup not input contents first

6.7 Customized printing format

6.7.1 There are 3 press s of customized printing format

- ◆ Vertical format;
- ◆ Record format (incl. horizontal format, detailed report and micro typing);
- ◆ Fill-in format.

6.7.2 Setup printing content: Set the printing content in each line. Parameters are as below:

- 00: No printing
- 01: Serial no.
- 02: Date
- 03: Time
- 04: Vehicle no.
- 05: Cargo no.
- 06: Gross weight
- 07: Tare weight
- 08: Net weight
- 09: Customer
- 10: Remark
- 11: Date/hour (effective only when customized format is used)
- 12: Discount rate(effective only when customized format is used)
- 13: Empty (effective only when fill-in format is used)

6.7.3 Setup method:

- ▲ Setting printing contents of horizontal format and detailed report.

Step	Operation	Display	Explanation
1	Press [SET] Press [1][4] Press [ENTER]	PSt 00 PSt 14	Input parameter/function number. 14: customized record format (incl. horizontal format, detailed report). 15: customized vertical format (incl. vertical format and micro typing). 16: customized fill-in format. e.g.: 14
2	Press [111111] Press [ENTER]	C000000 C-----	Input password. Press 111111
2	Press [ENTER]	P14 00	Select the line to be set. e.g.: 00, set from the first line. Note: 6-7-3.
3	Press [1] Press [ENTER]	AL0 ** AL0 01	Input the printing content of the first line. Note 6-7-4 e.g.: select 01
4	Press [2] Press [ENTER]	AL1 ** AL1 02	Input the printing content of the second line. e.g.: select 02
5	Press [3] Press [ENTER]	AL2 ** AL2 03	Input the printing content of the third line. e.g.: 03
...	...	...	...
6	Press [0] Press [ENTER]	AL9 ** AL9 00	Input the printing content of the tenth line. e.g.: 00 Note 6-7-5
7		Weighing status.	Finish setting and return to weighing status.

Note 6-7-3: The indicator supports the customized input up to 10 lines (rows). Because of the width limitation of the printer, one line may be divided to 2 lines and printed. At this time it's necessary to reduce the number of lines (namely set the printing content of extra part as "00").

Note 6-7-4: If the vertical format and micro typing are selected, bL0** will be displayed. (the same below)

Note 6-7-5: The printing content of 10 lines should all be setted. Set it as 00 if no printing is requested and the indicator will skip this line (no blank line/row appears during printing)

Ex. below horizontal format is requested to be printed out

Weighing Bill **YearMonth**Day**

Serial no.	Time	Venhical no.	Net weight
0001	12. 00. 00	12345	3.000kg

Set parameter AL0 as "01", AL1 as "03", AL2 as "04", AL3 as "08", AL4~AL9 as "00".

▲ Customized fill-in type includes setting of printing content and margins. The method of printing content setting is similar to setting of horizontal format and detailed report stated in table 3-2-3. The display is CLO** and there are 15 lines in all.

E.g.: Setting of weight bill below picture 6-7-1: Set the printing content according to the request of the weight bill. Detailed operation is as below:

Step	Operation	Display	Explanation
0		[xxxxxx]	Weighing status.
1	Press [SET] Press [1][6] Press [ENTER]	PSt 00 PSt 16	Input parameter/function category number. 16: Printing content setting of customized fill-in format. e.g.: select 16
2		c000000	Input password.

	Press【111111】 Press【ENTER】	c111111	111111(fixed).
3	Press【1】 Press【ENTER】	CL0 ** CL0 01	Input the printing content of the first line. e.g.: 01
4	Press【2】 Press【ENTER】	CL1 ** CL1 02	Input the printing content of the second line. e.g.: 02
...	...	...	...
5	Press【0】 Press【ENTER】	CL14 ** CL14 00	Input the printing content of the fourteenth line. Ex.: 00
6		Weighing status.	Finish setting and return to weighing status.

Note: 1, The indicator supports the input of customized format up to 15 lines.

2, The printing content of 15 lines should all be set. Set it as 00 if no printing is requested and the indicator will skip this line/row (no blank line/row appears during printing). Input 13 for blank line (blank line appears during printing).

Form head length

PH=30.40mm

distance between two lines

PG=7.82mm

**Form
PE=22.60mm**

WEIGHT BILL	
Operator	
SERIAL No.	123
DATE	2004-03-05
TIME	12 .35 .28
VEHICLE No.	00001
CARGO No.	orange
GROSS	1580 kg
TARE	80 kg
DISCOUNT	10 %
NET	1350 kg
CUSTOMER	Ningbo Trading Company
REMARK	Mr. Zhang
footer	

Left margin PA=41.00mm

length

Serial no. of no. 0
line CL0=01

Serial no. of no. 0
line CL1=02

Weight bill width PG=94.00mm

Picture 6-7-1

Then set the printing margin:

Measure the PH, PG(overall printing width divided by number of lines), PE, PA, PB with ruler (refer to picture 6-7-1). Input separately and print.

Adjust the parameters like PE, PF according to the printing result and make all contents to be printed in corresponding position.

Step	Operation	Display	Explanation
0		【xxxxxx】	Weighing status
1	Press【SET】 Press【1】,【7】 Press【ENTER】	PST 00 PST 17	Select parameter/function category no. 17: enter into printing margin setting of customized fill-in format
2	Press【11111】 Press【ENTER】	c000000 c-----	Input password Press 111111
3	Press【0】 Press【ENTER】	P17 00	Input function category no., can skip corresponding setting content
4	Press【3040】 Press【ENTER】	PH xx.xx PH 30.40	Prompt to input form head length of weigh bill e.g. PH=30.40mm, see appendix: fill-in weighing bill
5	Press【0782】 Press【ENTER】	PG xx.xx PG 07.82	Prompt to input line distance e.g. PG=7.82mm, see appendix: fill-in weighing bill
6	Press【0226】 Press【ENTER】	PE xx.xx PE 22.60	Prompt to input form tail distance of weigh bill e.g. PE=22.60mm, see appendix: fill-in weighing bill
7	Press【4100】 Press【ENTER】	PA xx.xx PA 41.00	Prompt to input left margin distance of weigh bill. e.g. PA=41.00mm, see appendix: fill-in weighing bill
8	Press【9400】 Press【ENTER】	PB xx.xx PB 94.00	Prompt the width of weigh bill e.g. PB=94.00mm, see appendix: fill-in weighing bill
9	Press【0000】 Press【ENTER】	PF xxxx PF 0000	Prompt to input form feeding adjustment e.g. PU=0000, 当多页走纸后若有偏差可通过它进第1点长度=0.14毫米

6.8 Indicator character info input and delete

6.8.1 General

- 1) The indicator provides two kinds of text information input methods, one is direct input, the other one is computer programmed information conversion mode, When inputting few words or do not have PC, can use direct input, otherwise, recommend to use computer programmed information conversion mode.
- 2) The indicator can save the company name of 20 pieces letter including numbers, cargo name, customer name or remarks of 10 pieces letter including numbers.

6.8.2 Direct input

- 1) Input regulation:

▲ ! Letter including numbers are inputted by inputting code enclosed along with indicator. Code form is shown as Form 6-8-1《D2008FA letter、numbers code》。

▲ ! In order to divide Chinese character and letter, the indicator specify that the info whose top two digits are not “0” completely is Chinese character, if they are “0” complete, then it is letter or numbers., if four digits are “0”, means finish.

▲ ! Text information input has two kinds of ending methods, one is automatic finish after inputting 10 or 20 pieces of letter, the other one is that required text is less than 10 or 20 letters and end with "0000"

▲ ! Inputted info will be saved after finish, during the operation, press 【WEIGH】 is to exit, inputted info will not be saved.

▲ ! Under the status of inputting info, the top two digits (left two digits of indicator) display current inputting position (1 letter take 0.5 position)

▲ ! Printing output is align right edge, if need align left edge or align center, then need to add relative quantity letters or numbers' blank at the end, that is "0001".

D2008FA letter、number code (Form 6-8-1)

Code	Character	Code	Character	Code	Character	Code	Character	Code	Character
01		21	4	41	H	61	\	81	p
02	!	22	5	42	I	62	]	82	q
03	"	23	6	43	J	63	^	83	r
04	#	24	7	44	K	64	-	84	s
05	\$	25	8	45	L	65	'	85	t
06	%	26	9	46	M	66	a	86	u
07	&	27	:	47	N	67	b	87	v
08	'	28	;	48	O	68	c	88	w
09	(	29	<	49	P	69	d	89	x
10	)	30	=	50	Q	70	e	90	y
11	*	31	>	51	R	71	f	91	z
12	+	32	?	52	S	72	g	92	{
13	,	33	@	53	T	73	h	93	
14	-	34	A	54	U	74	i	94	}
15	.	35	B	55	V	75	j	95	~
16	/	36	C	56	W	76	k		
17	0	37	D	57	X	77	l		
18	1	38	E	58	Y	78	m		
19	2	39	F	59	Z	79	n		
20	3	40	G	60	[	80	o		

2) Text information input method of cargo no.: e.g. input the text information "a3b4" of cargo no., operation is as follows

Step	Operation	Display	Explanation
1	Press【C.N】 Press【123】 Press【CHECK】	Under weighing status Hn *** Hn 123	Input cargo no. which will be set e.g. 123
2	Press【66】 Press【ENTER】	0.0 **** 0.0 0066	Input first ASCII code e.g.: 66 (a)
3	Press【20】 Press【ENTER】	0.5 **** 0.5 0020	Input second ASCII code e.g.: 0020 (3)
4	Press【67】 Press【ENTER】	1.0 **** 1.0 0067	Input third ASCII code e.g.: 67 (b)
5	Press【21】 Press【ENTER】	1.5 **** 1.5 0021	Input 4 th ASCII code e.g.: 0021 (4)
6	Press【0】 Press【ENTER】	2.0 **** 2.0 0000	Input 5 th ASCII code e.g.: 0000 (end)
		Weighing status	Finish inputting text information

3) Input the text information of individual customer no., remarks no.:

Inputting method is almost same as cargo no. , the only difference is to change press **【C.N】**to press **【Clt】** or press **【Rem.】**。

- 4) Input text information of continuous cargo no., customer no., remarks no. and company name: inputting method is almost same.

Step	Operation	Display under weighing status	Explanation
1	Press 【SET】 Press 【11】 Press 【ENTER】	PSt 00 PSt 11	10: input cargo no. 11: input customer 12: input remarks 13: company name Input e.g.: (1)
2	Press 【66】 Press 【ENTER】	0.0 **** 0.0 0066	Input first ASCII code e.g.: 66 (a)
3	Press 【20】 Press 【ENTER】	0.5 **** 0.5 0020	Input second ASCII code e.g.: 0020 (3)
4	Press 【67】 Press 【ENTER】	1.0 **** 1.0 0067	Input third ASCII code e.g.: 67 (b)
5	Press 【ENTER】	cn 21	Finish corresponding text input of customer no. 20 Start to input next customer no.
...	...	...	...
	Press 【WEIGH】	Weighing status	Finish all input content, return to weighing status

6.8.3 Transmit text information by computer (conversion function of programmable information) :

Besides input text info by area code, number code etc, indicator can also input text info by computer program, therefore, take good use of the convenient and visible text inputting function of computer, it improved inputting speed and accuracy and flexibility. As long as master simply program command and method, user can input and modify the text info of indicator more conveniently and flexibility .

6.8.3.1 Programmed command explanation of information conversion program :

D2008FA totally support 6 pieces of useful text conversion commands, two of them are programmed control command, the other four pieces are information conversion command. The 6 pieces of commands in a certain order compose a text file, it is information conversion program accepted by indicator. All commands begin with '@', then follows A、B、C、D、E etc. command type, and end with ';'.

Common command format:

@ command type [information inside indicator] [:' text information']

Note: there should not be blank in the first part of command format, the content in "[]" is not useful in programmed command.

Explanation for the 6 pieces of command as follows:

1) Programmed control command: mainly used in the begin and end of conversion program, to help indicator to execute the begin and end of information conversion. Control command are two pieces, they are as follows:

(1) Initial command

Command format: **@ S ;**

Function : initialize conversion schedule, indicator starts information conversion when receiving the

command.

(2) Program end command

Command format: @ E;

Function: let indicator end information conversion; in addition, the command is also ending mark of information conversion program.

Each information text program starts by initial command, and ends by program ending command.

2) Information conversion command:

(1) Cargo no. Information conversion command:

Command format: @ A*** :'\$\$\$\$\$\$';

Function: convert a cargo no. to corresponding cargo name.

“***”is cargo no. which will be converted(000~200), must be 3 digits, if not enough, then add 0 in the front. “\$\$\$\$\$” is corresponding cargo name after conversion, it must be included by the mark of single quote “ ’ ”, its length are 10 bytes, namely at most 10 english letters(including number), the redundant part is invalid (below is same).

The content of “\$\$\$\$\$” is what have been seen, for example “\$\$\$\$\$” is “LIVE”, then printing result will be “LIVE”. Can use upper computer to support any one input method to input.

For example: @A001:'apple';

Namely convert 001 cargo no. to be cargo name “apple”.

(2) Customer no. information conversion command:

Command format: @ B*** :'\$\$\$\$\$\$';

Function: convert a customer no. to be customer name.

“***”is customer no.(000~099), must be 3 digits, if not enough, then add 0 in the front. “\$\$\$\$\$”is corresponding customer name after conversion, it must be included by the mark of single quote “ ’ ”, its length are 10 bytes, namely 10 english letters(including number) , the redundant part is invalid.

For example: @B001:'tem';

Namely convert 001customer no. to be customer name “tem”.

(3) Remarks no. conversion command:

Command format: @ C*** :'\$\$\$\$\$\$';

Function: convert a remarks no. to be text remarks name.

“***” is customer no.(000~099), must be 3 digits, if not enough, then add 0 in the front. “\$\$\$\$\$”is corresponding remarks content after conversion, it must be included by the mark of single quote “ ’ ”, its length are 10 bytes, namely 10 english letters(including number) , the redundant part is invalid.

For example: @C001:'num1';

Namely convert 001 remarks no. to be text remarks content “num1”.

(4) Setting command of user company name:

Command format: @ D:'\$\$\$\$\$\$\$\$\$';

Function: add company name in the indicator, for outputting when printing weight bill.

“\$\$\$\$\$” is set company name, it must be included by the mark of single quote “ ’ ”, its length are 20 bytes, namely 20 english letters(including number) , the redundant part is invalid.

For example: @D: 'live';

Namely set company name is : “live”

After knowing above programmed command, can start programme.

For example : combine above examples together to be a complete information conversion program.

@S;

@A001:'apple';

@B001:'tem';

@C001:'num1';

@D: 'live';

@ E;

In computer save as text file format(rename is “.txt”)to backup to indicator for down load. Note: After information conversion, original number no. still exits, When printing weight bill, please follow print setting

parameter to select print content.

6.8.3.2 Operation of computer programmed information conversion.

- (1) First write information conversion program according to above command, the better way is to contain one command only in one line, at the time, do not have blank, after finishing program, save it as a text file for spare use (*.txt).
- (2) Connect indicator and upper computer well
- (3) Open serial port communication software in upper computer (e.g. **Windows itself own super terminal or other serial debugging tool software of sending text file**), it is better to adjust baud rate etc parameter.
- (4) Press **[SET]**, indicator display **PSt 00**, input function no. "30" and then press **[ENTER]**, indicator display **L 00000**, input download password "200801" and then press **[ENTER]**, indicator display **Ld ----waiting download.**
- (5) Select sending the information conversion program file written in no. 1 step in the serial port debugging software of upper computer, indicator display **Ld *****(*** byte numbers of downloaded information conversion)
- (6) After sending is finish, indicator display **[End]**, and then it return automatically to weighing status. At the moment, user can print out information comparison list for future daily use.
After finishing above operation, related numbers etc information conversion inside indicator is finished. If selected print text information function and connected with printer, then weight bill including corresponding text information can be printed out.

6.8.4 Delete information comparison list :

Step	Operation	Display	Explanation
1	Press [SET] Press [40] Press [ENTER]	PSt 00 PSt 40	Select parameter/function category no. 40 delete the text information of all cargo no. 41 delete the text information of all customer no. 42 delete the text information of all remarks no. 43 delete text company name 49 delete all information comparison list e.g. : 40 (delete the text of all cargo no.)
2	Press [888888] Press [ENTER]	c000000 c-----	If not select "record delete encrypt", then the step will be jumped, and enter into step 3 directly
3	Press [1] Press [ENTER]	SUR 0 SUR 1	Confirm to delete : 0 : do not delete 1 : delete e.g. : select 1
4		Weighing display status	Delete successfully, return to weighing display status

▲ ! Deleted comparison can not be restored, so the operation should be careful.

7 Information prompt

7.1 Normal information prompt :

- 1) **.....** : Please wait for a moment, inside of indicator is calculating, and do not do any operation.
- 2) **Prnt** : Please wait for a moment, there is data transmission between indicator and printer.
- 3) **LoAd** : The first time data of two time weighing is saved, displaying time will not over 2 seconds to prompt operator.
- 4) **SAUE** : when do not select printing or printer press is 0, only save the complet data records.
- 5) **EnD** : End operation.
- 6) **PASS** : Successfully revise password.

7.2 Information prompts of wrong operations:

- 1) **Err 03** : Overload alarming, must unload all or part of loads.

- 2) **Err 08**: There is no record under this condition.
- 3) **Err 09**: no this truck number.
- 4) **Err 10**: you can only save truck number or weighing records less than 10pcs.
- 5) **Err 12**: You can not use micro-printer to print report form.
- 6) **Err 13**: Selection of parameter or function is not correct.
- 7) **Err 16**: Entering password is not correct.
- 8) **Err 17**: Parameter setting is not according to requirement , please refer to requirments of entering range of mentioned parameters.
- 9) **Err 18**: When scale do linearity calibration, the calibrating weight is less than former one (indicatorcan use multi-point calibration, but it asks for calibrating from light to heavy).
- 10) **Err 19**: You can not print when it is zero, minus weight or unstable, also can not print when not meet the conditions to return to zero.
- 11) **Err 28**: Print date is earlier than date of saved weighing record. Please delete the record of later date or revise present date, make it not earlier than date of saved weighing record.
- 12) **Err 30: The result is abnormal after doing coner auto-rectify.**
- 13) **Err 31: When set coner position of scale, the scanned load cell press is different from set value of indicator.**
- 14) **Ecc 01~16**: no 01~16 load cell is error.
- 15) **Ecc 71~86**: n-70 digital load cell with C type communication protocol with different communication encrypt.
- 16) **Err adr**: When set load cell communication address, you can only connect with one digital load cell, but here you connect with several digital load cells.
- 17) **Err add**: load cell interface is shortcut.

7.3 Information prompts of wrong setting:

Err P: Wrong connection with printer, there is problem with printer or the printer is out of paper, please add new paper or key [WEIGH] to exit, then reconnect printer or change printer.

Err 23: Memorizer U14 is broken, you must use new chip for replacement.

Err 24: Memorizer U15 is broken or without installment, must install it or use a new chip for replacement.

Err 25: When restore the backup information, there is no backup information in memorizer.

Err 90: There is error on chip of charater base.

Err 91: It is failed to save set parameters.

7.4 Other information prompts:

ctnu 0: When read stable weighing datas, if indicator can not collect the stable data judged by itself, the indicator will show this prompt. At this time, operator can enter 0 or 1 or 2, the functions are as follows:

Enter 0: Tell indicator that there is no need to continue this operation, it can switch to next step.

Enter 1: Tell indicator to try again.

Enter 2: Tell indicator it can use these unstable data.

Appendix A: Communication protocol

Serial data format can be set as: 8 digits data bits , one stop bit, none(even-odd)check bit; Serial communication includes continuous communication and command communication two ways, therein, continuous type includes three kinds according to different communication protocol. User can make flexible selection by TF parameter.

(1). Continuous mode (TF=0):

Transmitted data is current weight (gross weight) that indicator display (the weight value is 999999 when overloading). Each frame data is made of 12 groups of data, format is shown as follows:

No. X bit	Content	Note		Example (send +20.00)	
		Content	Code	Content	Hexadecimal code
1	begin	(XON)	02	XON	02

2	+ or -	Symbol bit	2B/2D	+	2B
3	Weighing data	Top bit	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 bit	30~39	0	30
9	Decimal digits	From right to left (0~4)	30~34	2	32
10	Block check	Higher 4 bits		Block check =0x1B	31
11		Lower 4 bits			3b
12	End	XOFF	03	XOFF	03

$XOR = 2 \oplus 3 \oplus \dots \oplus 8 \oplus 9$.

(2). MODBUS command mode (TF=1):

The communication between indicator and upper computer adopts MODBUS mode.

1. Computer reads indicator data

Wait	Bit 0	1	2	3
Time of 4 bits	1~247	0x03	High 8 of beginning address	Low8
	Indicator address	Function code	Beginning address of reading register	

4	5	6	7	Wait
N/2 bit high 8	Low 8	CRC16 low 8	CRC16 high 8	Time of 4 bits
Sending quantity		CRC16 check		

Data is sent in the format of ASCII

2. Indicator feedback

Normal feedback

Wait	Bit 0	1
Time of 4 bits	1~247	x030
	Indicator address	Function code

2	3			3+n	3+n
N	Data 0		Data N(odd number)	CRC16L	CRC16h
Data length	Data				

1) Read gross weight 0x01(ASCII code)

0	1	2	3	4	5	6	7
Indicator address	0x03	0x00	0x01	0x00	0x04	CRC16L	CRC16H

Return

0	1	2	3	4	5	6	7	8
Indicator address	0x03	0x08	Symbol +/-	Data5	Data4	Data3	Data2	Data1

9	10	12	13
---	----	----	----

Data0	Decimal (right to left)	CRC16L	CRC16H
-------	-------------------------	--------	--------

2) Read tare 0x02 (ASII code)

0	1	2	3	4	5	6	7
Indicator address	0x03	0x00	0x02	0x00	0x04	CRC16L	CRC16H

Return

0	1	2	3	4	5	6	7	8
Indicator address	0x03	0x08	Symbol +/-	Data5	Data4	Data3	Data2	Data1

9	10	12	13
Data 0	Decimal (right to left)	CRC16L	CRC16H

3) Read net weight 0x03(ASII code)

0	1	2	3	4	5	6	7
Indicator address	0x03	0x00	0x03	0x00	0x04	CRC16L	CRC16H

Return

0	1	2	3	4	5	6	7	8
Indicator address	0x03	0x08	Symbol +/-	Data5	Data4	Data3	Data2	Data1

4)

9	10	12	13
Data 0	Decimal (right to left)	CRC16L	CRC16H

5) Get current vehicle no. 0x04(ASII code)

0	1	2	3	4	5	6	7
Indicator address	0x03	0x00	0x04	0x00	0x03	CRC16L	CRC16H

Return

0	1	2	3	4	5	6	7	8
Indicator address	0x03	0x06	Blank	Data4	Data3	Data2	Data1	Data0

9	10
CRC16L	CRC16H

6) Get current cargo no. 0x05(ASII code)

0	1	2	3	4	5	6	7
Indicator address	0x03	0x00	0x05	0x00	0x02	CRC16L	CRC16H

Return

0	1	2	3	4	5	6	7	8
Indicator address	0x03	0x04	'0'	Data2	Data1	Data0	CRC16L	CRC16H

7) Get current customer no. 0x06(ASII code)

0	1	2	3	4	5	6	7
Indicator address	0x03	0x00	0x06	0x00	0x01	CRC16L	CRC16H

Return

0	1	2	3	4	5	6
---	---	---	---	---	---	---

Indicator address	0x03	0x02	Data1	Data0	CRC16L	CRC16H
-------------------	------	------	-------	-------	--------	--------

8) Read total ISN code after corner-difference correction 0x07(ASII code)

0	1	2	3	4	5	6	7
Indicator address	0x03	0x00	0x07	0x00	0x04	CRC16L	CRC16H

Return

0	1	2	3	4	5	6	7	8
Indicator address	0x03	0x08	Symbol +/-	Data5	Data4	Data3	Data2	Data1

9	10	12	13
Data0	Decimal (right to left)	CRC16L	CRC16H

9) Read the load cell ISN code at No. N corner after corner-difference correction (ASII code)

0	1	2	3	4	5	6	7
Indicator address	0x03	0x00	10+ corner no. N	0x00	0x04	CRC16L	CRC16H

Return

0	1	2	3	4	5	6	7	8
Indicator address	0x03	0x08	Symbol +/-	Data5	Data4	Data3	Data2	Data1

9	10	12	13
Data0	Decimal (right to left)	CRC16L	CRC16H

(3). Continuous mode (TF=2):

All data are ASCII code, each frame of data is made of 8 bits(including decimal point), data transmission is from low to high bit, there is a group of separator "=" among every frame, sending data is current display weight value, if current display weight is 188.5, continuous sending 5.88100=5.88100=..... If current display weight is -1885, continuous sending .58810=-.58810=-..... Under overload, the weight value is 999999, For example: 9.99999=9.99999=.....

(4). Continuous mode (TF=3):

All data are ASCII code, each frame of data is made of 9 bits(including decimal point), data transmission is from low to high bit, there is a group of separator "=" among every frame, sending data is current display weight value, if current display weight is 188.5, continuous sending 5.88100=5.88100=..... If current display weight is -1885, continuous sending .58810=-.58810=-....., Under overload, the weight value is 9999999, for example: 9.999999=9.999999=.....

(5). Continuous mode (TF=4):

Each byte digit is made of 10 bits, no. 1 is beginning bit, no. 10 is stop bit, middle 8 bits are data bit, each frame of continuous transmission is 18 bytes.

Continuous output format 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	

Therein :

1. <StX> ASCII beginning symbol (02H) 。
2. status character A , B , C 。
3. display weight , it might be gross weight, also net weight. 6 bits are not with symbol and decimal numbers.
4. tare , 6 bits are not with symbol and decimal numbers.
5. <CR> ASCII enter symbol (ODH)
6. <CKS> check sum

Status character A			
Bits 0 , 1 , 2			
0	1	2	Decimal point position
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			Division factor
3	4		
1	0		X1
0	1		X2
1	1		X5
Bit 5			Always 1
Bit 6			Always 0

Status character B	
Bits	function
Bit 0	Gross weight = 0 , net weight = 1
Bit 1	Symbol : positive = 0 , minus = 1
Bit 2	Overload (or less than zero) = 1
Bit 3	dynamic = 1
Bit 4	unit : kg = 1
Bit 5	Always 1
Bit 6	When Indicator is charged power, the value is 1

Status character C	
Bit 0	Always 0
Bit 1	Always 0
Bit 2	Always 0
Bit 3	With print command = 1
Bit 4	Extend display (X10) = 1
Bit 5	Always 1
Bit 6	Always 0

Appendix B : weight bill format example :

(standard) record format :

Ningbo Trading Company
Weight Bill

Date : 2008-03-05

No.	Time	Vehicle No.	Cargo No.	Gross weight (t)	Tare (t)	Net Weight (t)	Customer	Remarks
0004	20:44:36	00001	Orange	1.000	0.100	0.900	FAS.Co	Mr. Wang
0005	20:45:00	00002	R3 steel	1.000	0.100	0.900	FAS.Co	Mr. Zhao
0006	20:45:10	00003	R3 steel	1.000	0.100	0.900	FAS.Co	Mr. Zhao

Total: gross weight: 7.003 t net weight: 4.603 t

(standard) sheet format : (vertical)

Ningbo Trading Company
weight bill

No.	0001
Date	2008-03-05
Time	20.45.10
V.N.	00002
C.N.	R3 steel
G.W.	1.000(t)
Tare	0.100(t)
N.W.	0.900(t)
Customer	FAS.Co
Remarks	赵六

Ningbo Trading Company
weight bill

No.	0001
Date	2008-03-05
Time	20.45.10
V.N.	00002
C.N.	R3 steel
G.W.	1.000(t)
Tare	0.100(t)
N.W.	0.900(t)
Customer	FAS.Co
Remarks	Mr. Zhao

Ningbo Trading Company
weight bill

No.	0001
Date	2008-03-05
Time	20.45.10
V.N.	00002
C.N.	R3 steel
G.W.	1.000(t)
Tare	0.100(t)
N.W.	0.900(t)
Customer	FAS.Co
Remarks	Mr. Zhao

(standard) sheet format : (horizontal)

Ningbo Trading Company

Weight Bill

Date : 2008-03-05

No.	Time	Vehicle No.	Cargo No.	Gross weight (t)	Tare (t)	Net Weight (t)	Customer	Remarks
0002	20.46.10	00002	R3 steel	1.000	0.100	0.900	FAS.Co	Mr. Zhao

Fill-in format :

WEIGHT BILL	
No. 1 sheet shall be kept by Operator	
No.	123
DATE	2004-03-05
TIME	12 .35 .28
VEHICLE No.	00001
CARGO No.	orange
GROSS	1580 kg
TARE	80 kg
DISCOUNT	10 %
NET	1350 kg
CUSTOMER	Ningbo trading company
REMARK	Mr. Zhang

Appendix C : Detail list and statistic form example

Detail list (complete)

No.	Date Time	Vehicle No.	Cargo No.	G.W. (t)	Tare (t)	N.W. (t)	Customer	Remarks
0001	05 20:06	00001	gas	2.003	1.000	1.003	FAS.Co	Mr. Zhang
0002	05 20:21	00123	coal	1.000	1.000	0.000	NB company	Mr.Zhang
0003	05 20:41	00001	orange	1.000	0.100	0.900	FAS.Co	Mr. Wang
0004	05 20:44	00001	orange	1.000	0.100	0.900	FAS.Co	Mr. Wang
0005	05 20:45	00001	R3 steel	1.000	0.100	0.900	FAS.Co	Mr. Zhao

0006	05 20:45	00002	R3 steel	1.000	0.100	0.900	FAS.Co	Mr. Zhao
Total: G.W.: 7.003 t N.W.: 4.603								

Detail list (customer)

No.	Date Time	Vehicle No.	Cargo No.	G.W. (t)	Tare (t)	N.W.(t)	Customer	Remarks
0001	05 20:21	00123	coal	1.000	1.000	0.000	NB company	Mr. Zhang

Statistic form 1 as vehicle no.

No.	Vehicle No.	Times	G.W.(t)	Total G.W. (t)	Total N.W.(t)
0001	00001	1.000	0004	5.003	3.703
0002	00123	1.000	0001	1.000	0.000
0003	00002	0.100	0001	1.000	0.900

Statistic form 1 as cargo no.

No.	Cargo No.	Times	Total G.W.(t)	Total N.W. (t)
0001	Coal	0001	1.000	0.000
0002	Orange	0002	2.000	1.800
0003	R3 steel	0002	2.000	1.800
0004	gas	0001	2.003	1.003

Statistic form 3 as remarks (04-03-05.04-03-05)

No.	Remarks	Times	Total gross weight (t)	Total net weight (t)
0001	Mr. Zhang	0002	3.003	1.003
0002	Mr. Wang	0002	2.000	1.800

Appendix D D2008FA default parameters

Calibrate parameters	Name	Default parameters
E	Division value	10
Dc	Decimal	0
Pn	System parameter	13455
FLt	Filter coefficients	2
F	Full scale	50000
E	Correction factor	1.00000
N	Change point 1 of division value	0
H	Change point 2 of division value	0
A	AD code of zero position	0
L	The later part of 1 st coefficient	000000
LH	The former part of 1 st coefficient	01.00
B	AD code of 1 st antimode	500
O	The later part of 2 nd coefficient	000000
oH	The former part of 2 nd coefficient	01.00
Dtp	load cell communication	1(C type)

	protocol	
Dno	quantity of load cell	1
d01~d16	Corresponding position of scale angle 1~16	99 (invalid)
0.~F.	Corner difference coefficients of load cell 1~16	All of them are 1.00000
Communication parameters	Name	Default parameters
Adr	Indicator address	001
Bt	Serial interface baud rate of PC	4
tF	Method of communication	0
Jn	Method of verification	0
Print parameters	Name	
Auto	Selection of automatically print	0
Type	type of printer	D2008FA 2 D2008FP/P1 1
HL	Selection of print limitation	50
Arr	Sheet quantity	1
L	Minimum automatically printing weight	1000
B	Lines of sheet printing	D2008FA 3 D2008FP/P1 4
Ode	Selection of printing format	D2008FA 1 D2008FP/P1 7
Dct	Select discount rate while doing fill-in print	0
Uy	Select saving items	11111
Hy	Select information printing method	11111
Y	Print controlling parameter	111111
Ut	Select weight unit	0
Ya	Select working parameter	0110
Do	Line of printing paper (convenient to tare off the paper)	00
Customized print format		
AL0~9	Printing contents of line N	All of them are 0
BL0~9	Printing contents of line N	All of them are 0
CL0~14	Printing contents of line N	All of them are 0
PH	Length of weigh bill head	0
PG	Distance between two lines of weigh bill	0
PE	Length of weigh bill footer	0
PA	Left margin of weigh bill	0
Pb	Width of weigh bill	0
PF	Fine tuning of running paper	0
Timing off		
D-----	Timing off	999999 (Timing is close)



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