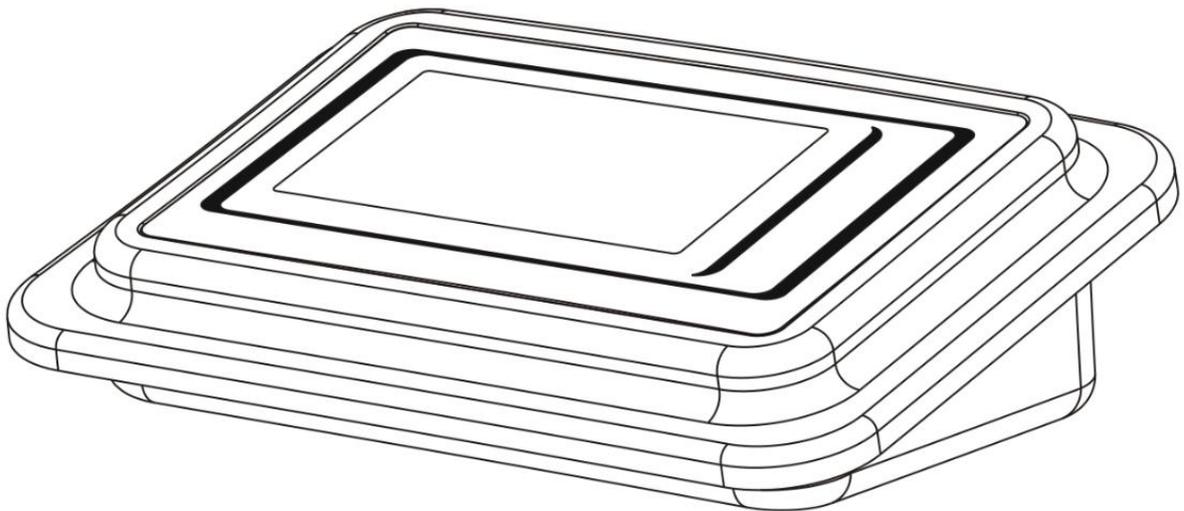
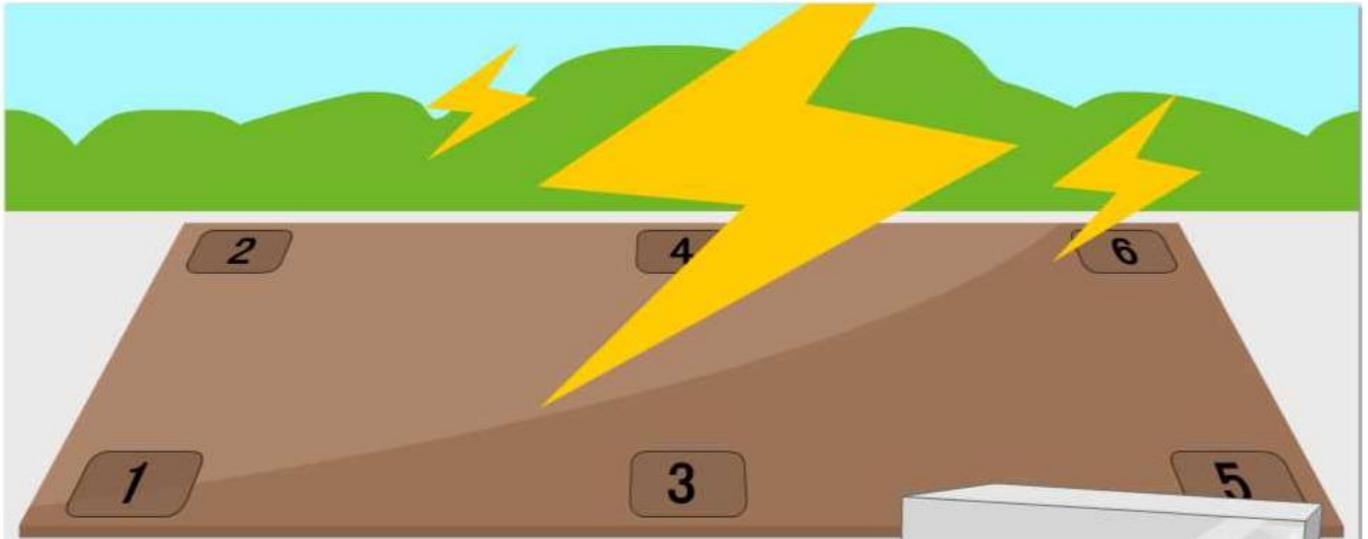


Calibration manual

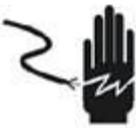
# D39-WE

Electronic Weighing Indicator





- ▲ Indicator ground wire must be complying with electrical safety regulations, junction box; load cell must be well grounded.
- ▲ Connection between digital load cell and indicator must be reliable, load cell shield wire must be grounded.
- ▲ During Thunderstorm season, system must have reliable lightning protection measures, to protect load cell and indicator. Also it shall keep the worker safe and weighing equipment safe.
- ▲ It is not suitable to use at where it has flammable gas, or flammable vapor areas, or tank system with pressure.
- ▲ Keep indicator and load cell away from strong electric magnetic field, corrosive substances and explosive materials.
- ▲ Do not use strong solvents (such as: benzene, nitro-class oil) to clean the housing.
- ▲ **Without technical supervision department's promise, no one can open the seals, or calibrate..**
- ◆ To ensure indicator display clearly, and work longer, do not use it under sunlight directly, and put it at a flat place. stable.
- ◆ Indicator should be away from dust, vibration, wet environment.
- ◆ That indicator is precision measuring instrument, to ensure accuracy, do not open it without authorization.
- ◆ Exceeding maintenance time, factory should charge for repairing.

	<b>Pay attention to static electricity</b>
1. Prohibit to insert and pull out the plug with electricity. 2. Please cut off the power supply, and connect the electrical equipment after wait for 5 seconds.	
	 <b>Warning</b>
1. Please ask Professional personnel to have a debugging, testing and maintenance 2. Please be sure to keep the equipment being well grounded.	
	<b>Pay attention to static electricity</b>
This product is an electrostatic sensitive equipment, pay attention to take anti-static measures in the use and maintenance.	

## Functions and features

D39-WE is an IOT digital truck scale indicator with TFT display and touch operation which is a greater degree of play digital advantages. It is much intuitive and efficient that all processes for scales are shown in front of the operator in form of graphics and text interface. Many kinds of common errors operation or faults are shown in the form of a dialog box. The instructions in the dialog box make troubleshooting become simple and accurate. Because of weighing records storage management interface with clear display data, the weighing records management becomes simple.

- Support network, RS232 and RS485 communication
- colorful graphics, text and error tips
- The content can be input by keyboard touch
- The operation is convenient, and display interface is intuitionistic.
- The detection function is strong
- Intuitive wiring diagram
- The weighing records management function
- The variety of weighing print format
- intuitive personalized filling type weighing design
- Strong protection for creepage and lightning surge
- Encryption function for encryption machine and JMQ03
- The operation interface with clear operating tips
- Support IOT of KeLi



Specific IOT function see "Ke Li IOT Andrews APP" and "Ke Li IOT PC client" manual

## menu

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## Chapter 1 Technical parameter

**1 Type:** D39-WE

**2 Maximum test index value:** n=3000

**3 Error distribution coefficient:**  $\pi = 0.5$

### 4 Digital load cell interfaces:

Communication mode RS485

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

Transmission baud rate 9600、19200bps

Excitation power DC12~14.8V

Digital interface ability connect max 16 pcs digital load cells

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

**5 Display:** 7inch 800\*480TFT screen

**6 Keyboard:** Resistive touch screen

**7 Clock:** display year, month, date, hour, minute and second, leap year and leap month automatically.

### 8 Scoreboard display interface (isolated from load cell connectors)

Transmission mode current loop and RS232

Transmission baud rate 600bps

### 9 Serial communication interface (isolated from load cell connectors)

Transmission mode RS232 and RS485

Baud rate: 2400/4800/9600/19200/38400/115200bps optional

### 10 Ethernet interface

Support remote communication

### 11 Printing interface (isolated from load cell connectors)

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

Out-connecting micro-printer: POS58 printer (thermal-printer)、AB\_300K (needle-printer)

### 12 Data storage

Can store 1000 groups of vehicle numbers and tare weight, 4000 groups of latest weighing records, 300 groups latest unfinished weighing records, 6 groups of over load records.

### 13 Operating environment

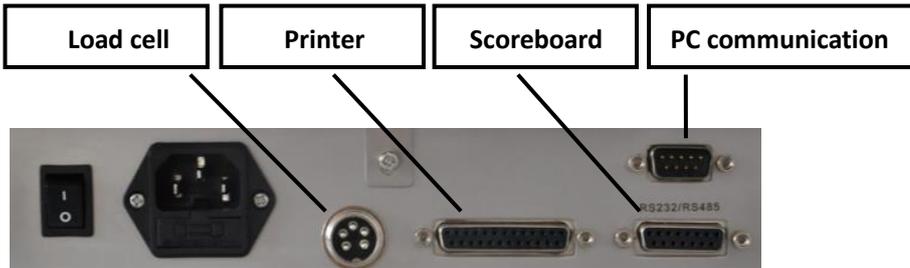
Power input 110~220VAC 50~60Hz

Operation temperature  $-10^{\circ}\text{C} \sim 40^{\circ}\text{C}$

Storage temperature  $-25^{\circ}\text{C} \sim 55^{\circ}\text{C}$

Relative humidity  $\leq 85\%RH$

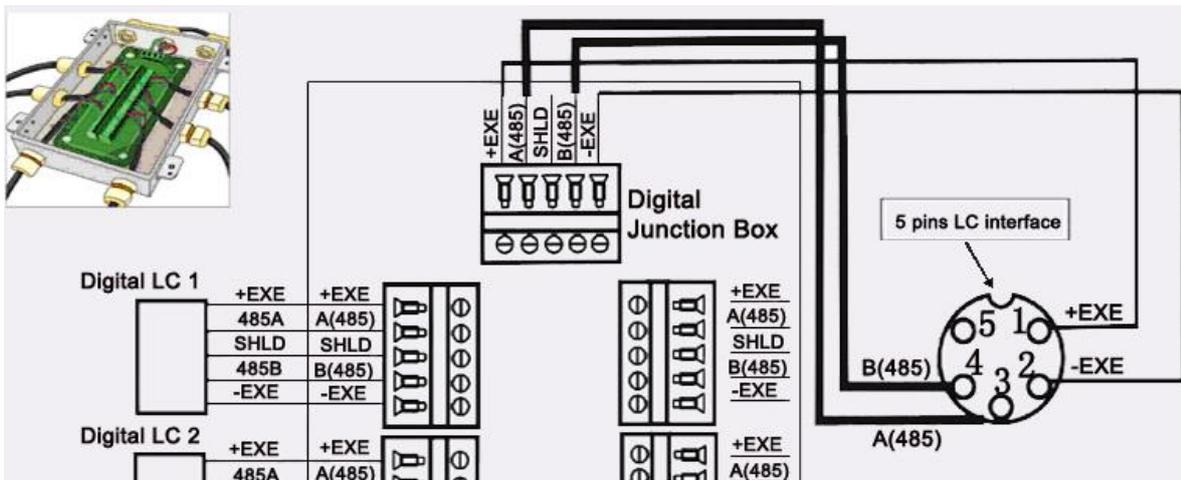
## Chapter 2 Installation and Connection



Users can also directly check the wiring diagram of the connection method in the indicator menu interface.

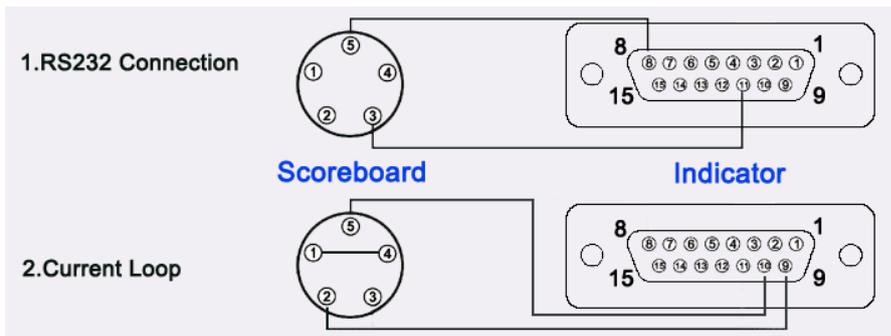
### 2.1 The connection between indicator and digital load cell

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

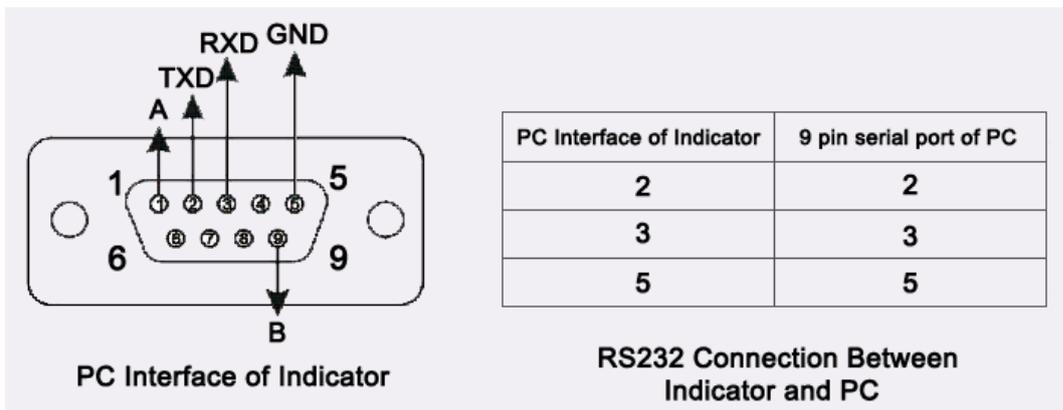


### 2.2 The connection between indicator and scoreboard

Connecting KELI scoreboard:

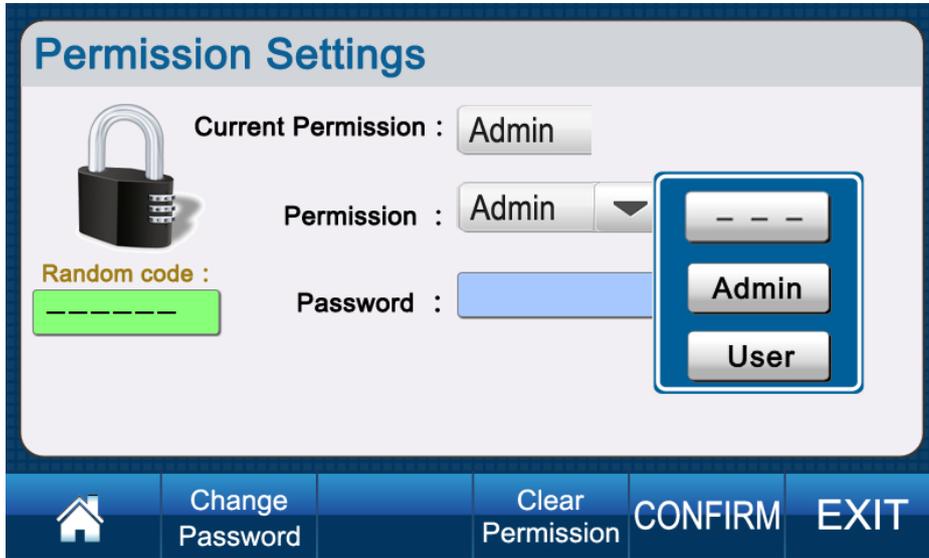


### 2.3 The connection between indicator and computer



### Chapter 3 Permission settings

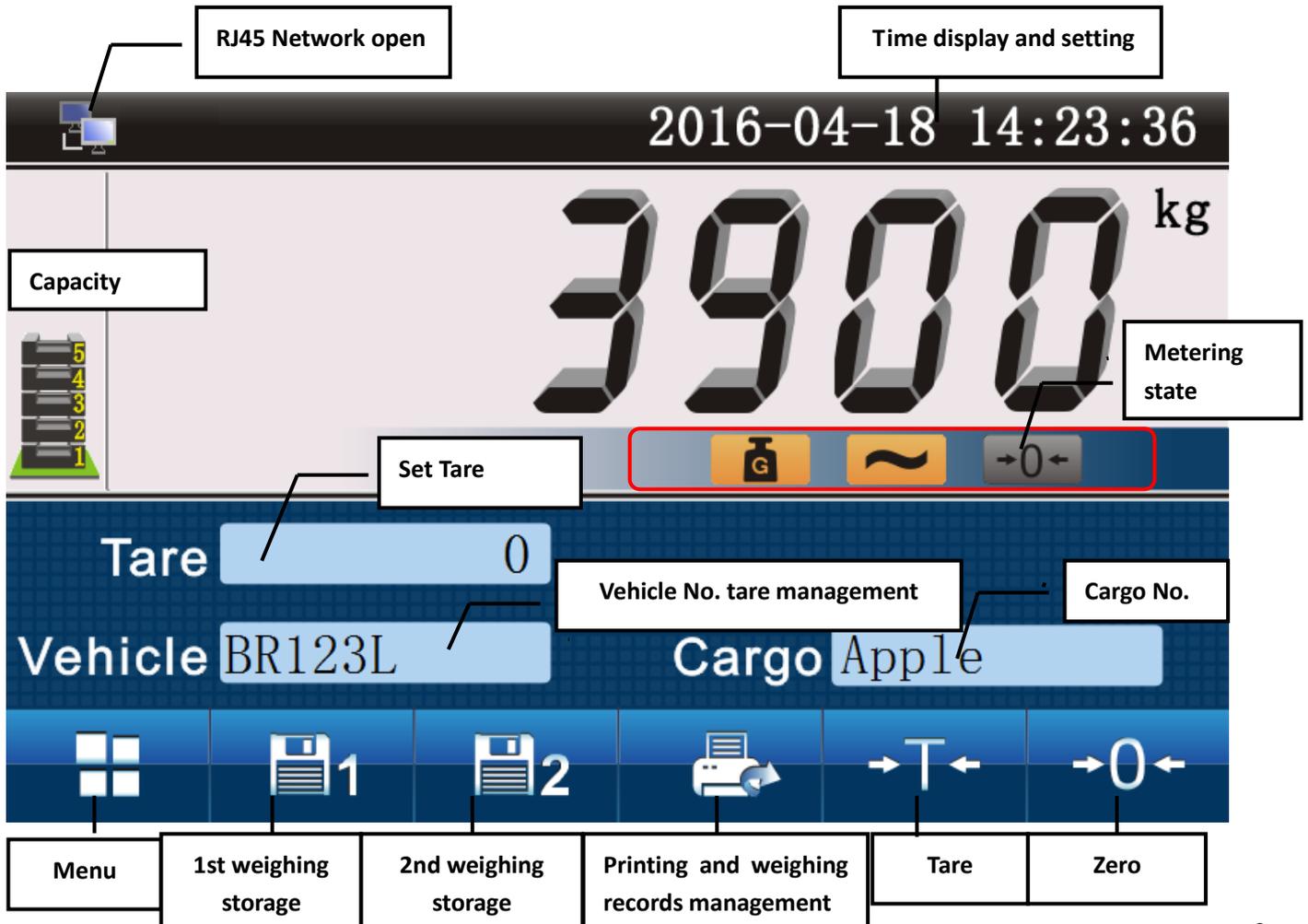
There are 4 permission modes: manufacturer, debugging, user, Admin. After the indicator is open, the permission is in no authorization mode. See as follows:



**User permission:** All functions except impacting measurement.  
**no authorization:** only tare and Zero operation.

**Note:** When the user's password is set to 0, the default is access to user permission.

### Chapter 4 Main interface function

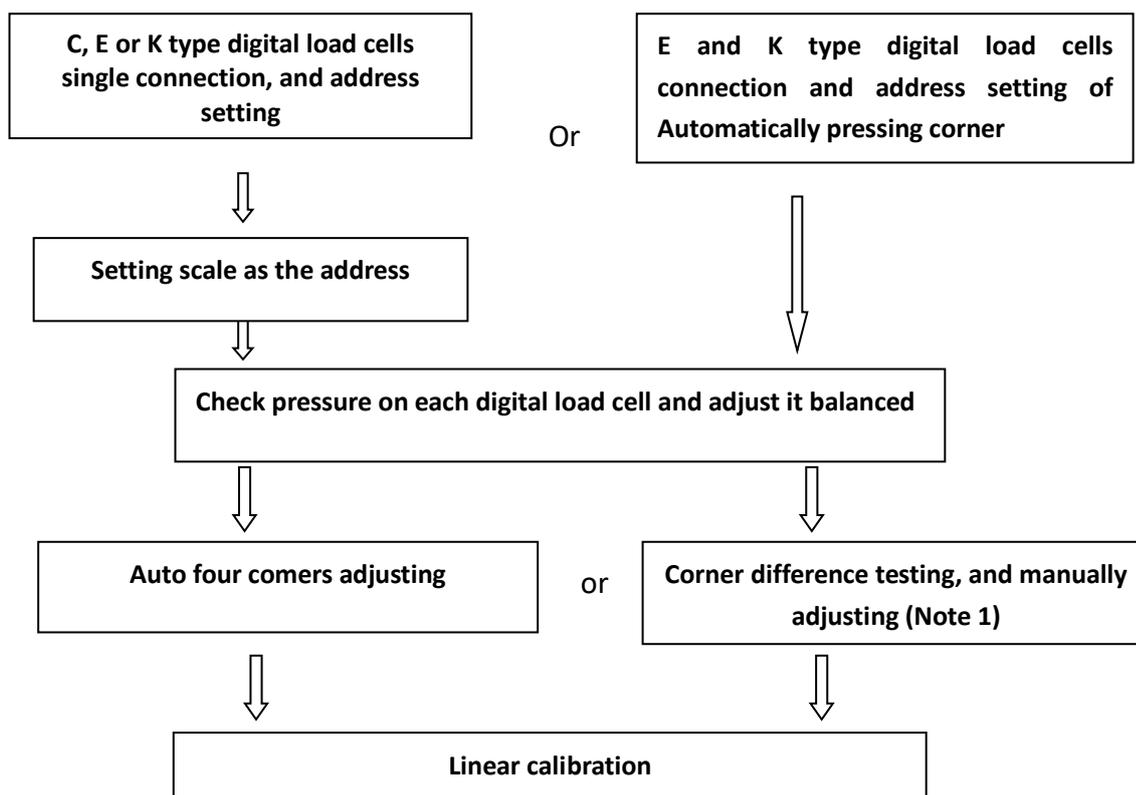


## Chapter 5 Interface structure diagram

main interface	First	Second	Third	Remark	
main interface	Permission setting			Including permissions password settings	
	Wiring diagram	Digital load cell interface			
		Scoreboard interface			
		RS232 and RS485 interface			
	Debugging	Address		Single address setting	
				assigned address configuration	
				Automatic networking	
				Quantity and protocol	
		corner adjustment		Automatic Corner-difference Correction	
				Enter weight for corner correction	
				Enter coefficient for corner correction	
				Automatic Axle Correction	
			Scale status		
			Scale Parameters calibration		
			Installation test		
			Parameter backup		
			Parameter Restore		
		Overload query			
		Communication protection		Load cell encryption related functions	
	Detection		Indicator information		
			Detection of PC RS232		
			Detection of Storage		
			Detection of Displayer		
			Touch screen check		
			Backlight adjustment		
			After-sales service		
			Weighing signal waveform		
			Open shell detection		
			Detection of IOT		
		Power supply state			
	Communication setting				
	Printing setting		Printing parameters		
			Customized Filled Type Content		
		Customized Filled Type alternation			
Network Setting					
Initialization					
	Other Initializations				
Time setting					

Main interface	First	Second	Third	Remark
Tare setting				
Vehicle No. Memory tare	Current Vehicle No. Tare Setting	All Vehicle No. Tare Management		
Current Vehicle No.				
Storage 1				
Storage 2				
Store print extension	Reprint			
	Paper Feed			
	accumulate-print			
	Complete record search			Include clearing functions according to factors
	Incomplete record search			Include clearing functions according to factors and a certain record
	Form print			
	Clear			Include clearing all complete Weighing Records, incomplete weighing records, Vehicle No. Memory tare, latest weighing records
Tare				
Zero				

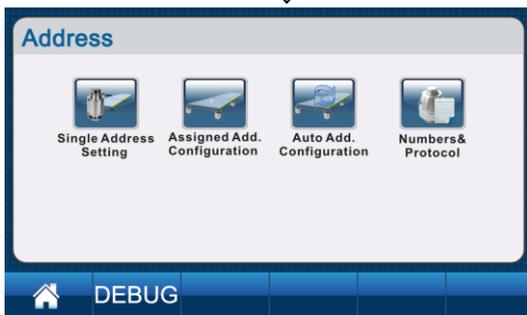
## Chapter 6 scale calibration steps



**Note 1:** The units of load cells' ISN code is kg, the linear parameter is 1.00000 after factory default or initialization, corner adjustment is 1.00000 and it's purpose is the same weight is displayed in the different positions of the scale, so when using the new digital indicator or the digital indicator is through the corner initialization of load cell and calibration parameters , first heavy object press every corner, then calculated the average, and this value is as the standard weight, and finally input coefficient to adjust corner or pressure corner and input weight to adjust corner values.

# Chapter 7 scale calibration process

## Step 1 Setting address and debug scale



## Step 2 Check the installation condition



**Note Step 2 1:** In order to make sure the accuracy of corner difference coefficient modification and long term stability of scale, the requirement that digital weighing system needs for foundation and mechanical installation is same as analog scale. User shall adjust scale platform to be horizontal, Checking ISN code of each corner is helpful for adjusting scale platform. Well installed scale, the ISN code at corresponding corner should be close. For example a scale 60t (3×12m), dead load 10t (see as follows)

01	03	05
02	04	06

After checking, ISN code is ①800 ②1200 ③2460 ④2000 ⑤1140 ⑥1180 , The outside circle, no.1, no.2, no.6, no.5 should be near to each other; inside circle no.3, no.4 inner code should be near and should be about double

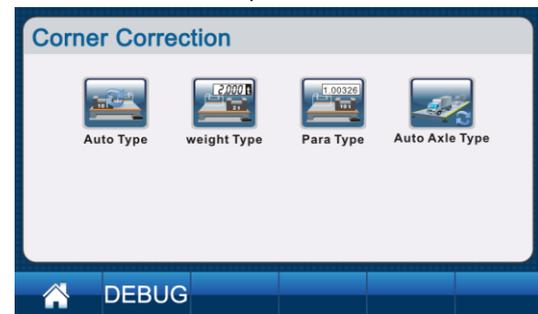
than the outside circle. The phenomena like “seesaw” must be avoid.

**Note Step 2 [2]** : ISN code in the indicator is the output code of load cell. When new load cells’ ISN code is almost equal to the actual stress values, but due to the use state of the load cell, as the steel structure of the scale, it will have some changes, so when the maintenance of the old scale, artificially minus the current force ISN code value without force.

**Step 3 Setting Scale Parameters**



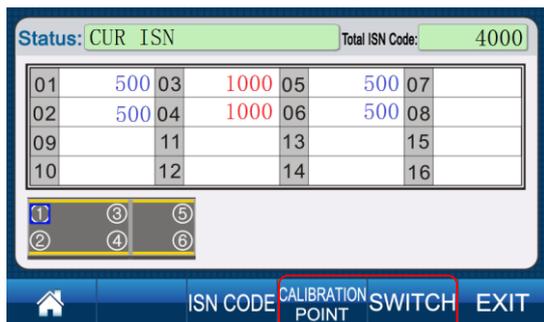
**Step 4 Corner-difference Correction**



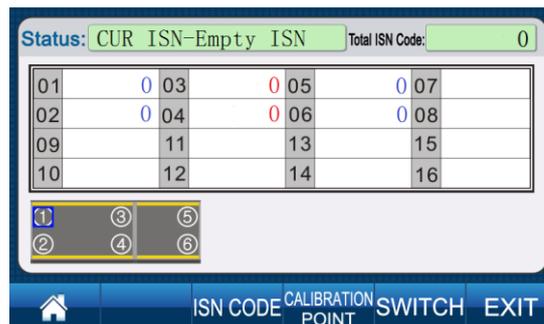
**Step 5 calibration**



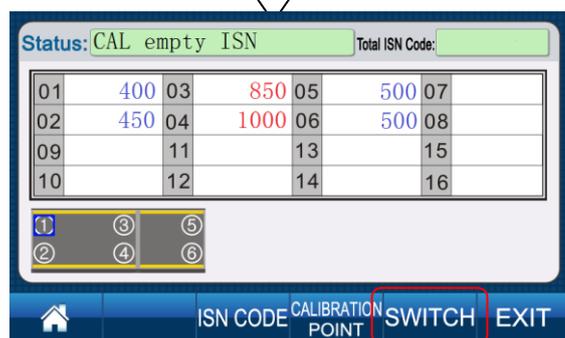
## Chapter 8 scale status Detection



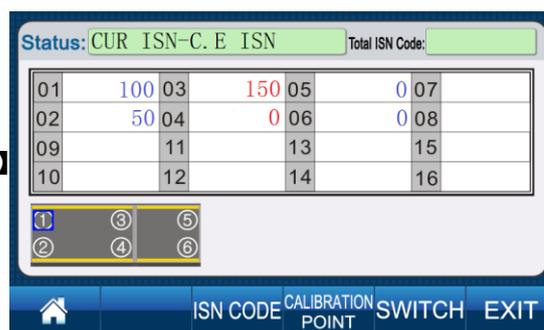
Press 【SWITCH】



press 【CALIBRATION POINT】



press 【SWITCH】



Using method:

**Current ISN code:** It is used to check whether the load cell compaction, especially the phenomena like “seesaw” must be avoided.

**Current ISN code- Empty scale ISN code:** When the weight is placed on the platform, the force of each load cell can be viewed and the weight of the center of gravity can be analyzed simultaneously.

**When calibrated, Empty scale ISN code:** When Zero calibration, the ISN code of each load cell.

**Current ISN code- Zero calibration:** Check the change of the each current ISN code and the original calibration ISN code under empty scales, analyze the health of load cells and scales.

## Chapter 9 IOT signal



Networking:   In connection with the server

  The connection to the server is OK  
Note1: After the indicator is powered on, usually within 1minute can be successfully connected to the server.

Note2:  means through the SIM card way networking.

 means through the WIFI networking, specific configuration see the indicator and mobile phone interface description.

## Appendix A: PC and RJ45 interface communication protocol

### Mode 1

**Characteristics of communication mode:** All data are ASCII code, with a total of 9 bytes per frame (including decimal point).

**Format:** data transfer from low to high-order position. There is a separator between every frame "=", sending data which is weighing value.

**Data for example:** If weigh data currently display 188.5, continuous send 5.881000=5.881000=..... . If weigh data currently display -188.5, continuous send .588100=-.588100=-..... .

### Mode 2

**Characteristics of communication mode:** If the transmitted data display the current weight (gross or net weight) data (overload weight value is 999999), each frame of data consists of 12 groups of data.

**Format is as follows:** ( x or = 2 ⊕ 3 ⊕ ..... 8 ⊕ 9 )

X byte	content	Note		Example (transmit +20.00)	
		content	Code	content	Hex Code
1	Beginning	(XON)	02	XON	02
2	+or-	Sign bit	2B/2D	+	2B
3	Weighing Data	Highest order	30~39	0	30
4			30~39	0	30
5			30~39	2	32
6			30~39	0	30
7			30~39	0	30
8		Lowest order	30~39	0	30
9	Number of decimal	From right to left (0~4)	30~34	2	32
10	Verify	High four		Verify = 0x1B	31
11		Low four			42
12	End	XOFF	03	XOFF	03

**Data for example:** N.W=1.800, G.W=1.230, transmit: 02 2B 30 30 33 30 33 30 33 31 38 03。

**Mode 3:** compatible Toledo T800 with checksum

**Mode 4:** (compatible Toledo T800) without checksum

**Characteristics of communication mode:** Every data composite 10 bits, first bit is start bit, tenth bit is stop bit. 8 bits in the middle which is data bit; Continuous output every frame which is 18 bytes.

**Format:**

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

Among :

1. <StX> ASCII start character (02H)。
2. Status words A, B, C。
3. Displaying weigh, which is gross or net weigh. 6 bits data without symbol and decimal point.
4. Tare weigh, 6 bits data without symbol and decimal point.
5. <CR> ASCII return character (0DH)。
6. <CKS> checksum。

Status word A			
Bits 0, 1, 2			
0	1	2	Decimal place
0	0	0	KGKG00
1	0	0	KGKGX0
0	1	0	KGKGKG
1	1	0	KGKGX.X
0	0	1	KGKG.KG
1	0	1	KGX.KGX
0	1	1	KG.KGKG

1	1	1	X.KGKGX
Bits 3 , 4			Division value factor
3	4		
1	0		
0	1		
1	1		X5
Bit 5			Permanent 1
Bit 6			Permanent 0
Status word B			
Bits	function		
Bit 0	G.W = 0 , N.W = 1		
Bit 1	Sign : positive = 0 , negative = 1		
Bit 2	Overload ( or smaller than 0 ) = 1		
Bit 3	Condition = 1		
Bit 4	Unit: kg = 1		
Bit 5	Permanent 1		
Bit 6	Indicator in power which display 1		

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

**Data for example:** N.W:1.800, G.W: 1.230, Unit: kg

①without checksum: 02 2D 31 20 30 30 31 38 30 30 30 30 31 32 33 30 0D;

②with checksum: 02 2D 31 20 30 30 31 38 30 30 30 30 31 32 33 30 0D**D1**;

### Mode 5

**Characteristics of communication mode:** All data is ASCII code, each frame data forms 8 bytes (contain decimal point).

**Format:** data transfer from low to high-order position. There is a separator between every frame "=", sending data which is weighing value.

**Data for example:** If weigh data currently display 188.5, continuous send 5.88100=5.88100=..... . If weigh data currently display -188.5, continuous send .58810=-.58810=..... .

### Mode 6

**Characteristics of communication mode:** Each byte data 8 bits, check bit is optional, stop bit is 1 bit.

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

Definition for status word as below:

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

**Application:** D2008 series, D20 series, D12 series 【tF】 =6

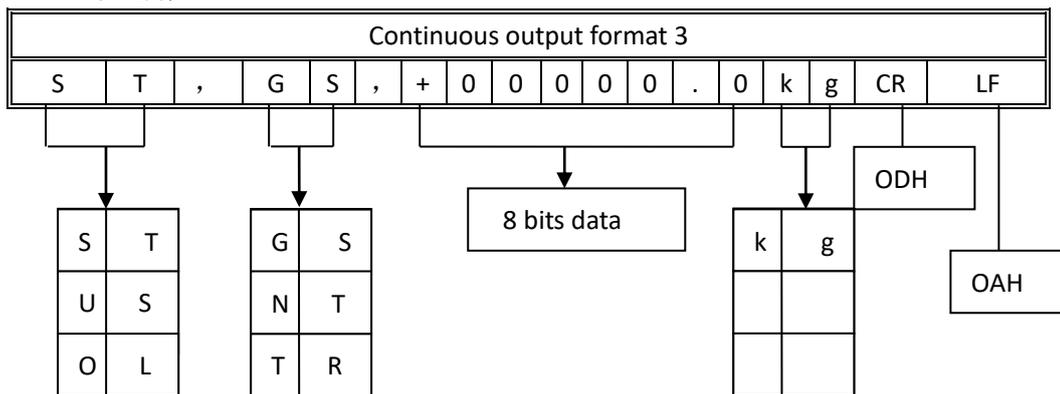
**Data for example:** Displaying weigh: 149.0, G.W: 149.0, Tare:0, date stable, sending date: FF 09 90 14 00.

### Mode 7

**Characteristics of communication mode:** Each byte data are composited by 10 bits. First bit is start bit, tenth is

stop bit, 8 bits in the middle which are data bit and parity data;

**Format:**



**Header1 Header2**

**Header 1**

- ST weight (Stable)
- US weight (Unstable)
- OL (Over Load)

**Header 2**

- GS (Gross data)
- NT (Net data)
- TR (Tare data)

**Data for example:** Displaying weigh: 149.0, G.W: 149.0, Tare:0, date stable, Unit: Kg, sending date:

53 54 2C 47 53 2C 2B 30 30 31 34 39 2E 30 6B 67 0D 0A。即 ST,GS,+00149.0kg

**Mode 8**

**Characteristics of communication mode:** 10 bit: 1 start bits, 8 data bits, 1 stop bit.

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

Definition as follow:

- First byte: start bit (02H)
- Second byte: Status word A
- Third byte: Status word B
- Fourth byte: Status word C
- Fifth byte: Weigh value high-order of 6 bits.
- 
- Tenth byte: Weigh value low-order of 6 bits.
- Eleventh byte: enter (ODH)
- Twelfth byte: line feed (OAH)

Status word A

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

Decimal point:

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

Status word B

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

- D3 = Static is 0, dynamic is 1.
- D2= within weighing range is 0, overload is 1.
- D1= weigh value positive is 0, negative is 1.
- Status word C = 20H

**Note:** For communication with the PC communication command mode 2 or RJ45 interface communication protocol, please contact the business manager.

<< health technology reliable convenient.

### Abbreviation:

- 1、 E-COMM : Communication Error;
- 2、 Err-PD : The manager password of indicator is different with LCs;
- 3、 PW : password
- 4、 INFO : information
- 5、 ERR : Error
- 6、 LC : Load cell
- 7、 CUR ISN : Current ISN
- 8、 CAL empty ISN : ISN while calibrating empty scale
- 9、 CUR ISN-C.E ISN : Current ISN - ISN while calibrating empty scale



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Post code:315033

Service hotline : 400-887-4165

800-857-4165

Fax : 0574-87562271

<http://www.kelichina.com>



# 说明书印刷要求

## 一、印刷要求

序号	项目	选项	
1	印刷尺寸	<input checked="" type="checkbox"/> A5	<input type="checkbox"/> A4
2	封面封底纸张	<input type="checkbox"/> 70g 进口双胶纸	<input checked="" type="checkbox"/> 200g 铜版纸, 付亚膜, 四色印刷
3	封面封底颜色	<input type="checkbox"/> 黑色	<input checked="" type="checkbox"/> 彩色
4	封面封底留白	<input checked="" type="checkbox"/> 不要求	<input type="checkbox"/> 是
5	内页纸张	<input type="checkbox"/> 70g 进口双胶纸	<input checked="" type="checkbox"/> 157g 铜版纸, 四色印刷
6	内页颜色	<input type="checkbox"/> 黑色	<input checked="" type="checkbox"/> 彩色
7	装订方式	<input checked="" type="checkbox"/> 骑马钉	<input type="checkbox"/> 胶装

**注：此页不印刷，不翻译**