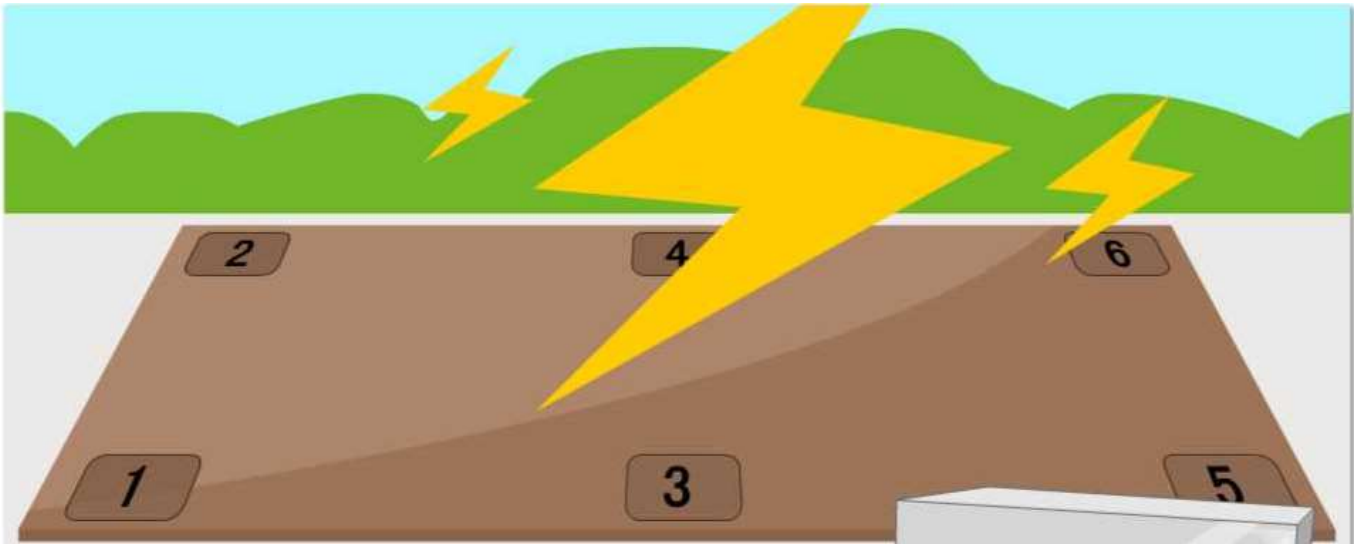
D38-3(B)

Digital Weighing Indicator

User Manual

2025 November Edition



▲ 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.

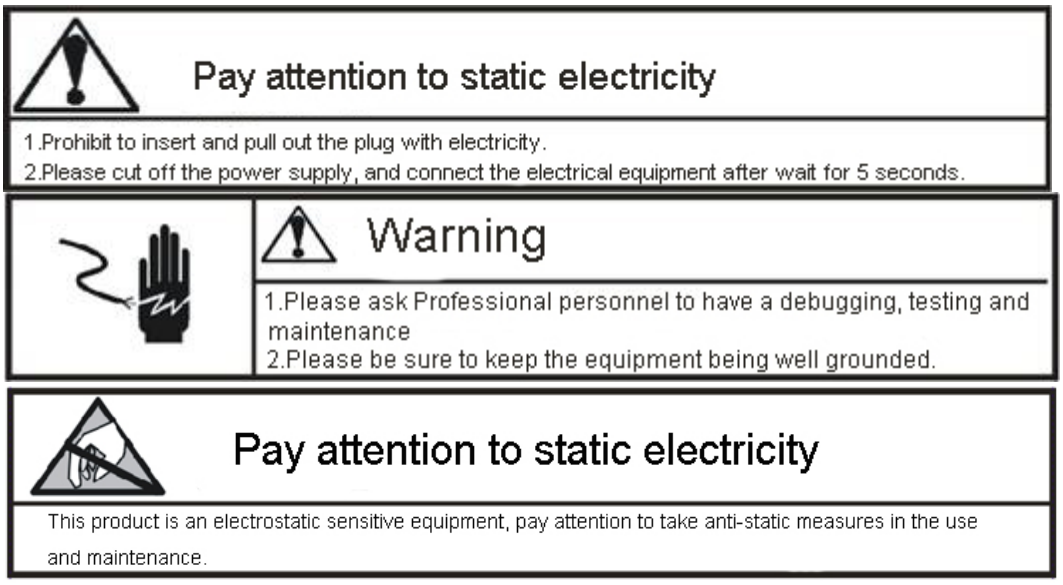
▲without technical supervision department's promise, no one can open the seals, or calibrate..

◆ 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.



Index

1. Technical Parameters

1.1 Model: D38-3(B), D38-3(BX1)

1.2 Digital Sensor Interface:

Communication Method: RS485

Signal Transmission Distance:

Up to 30 meters when connecting 12 digital sensors; contact the company for longer distances.

Transmission Baud Rate: 9600, 19200 bps

Excitation Power Supply: DC12~14.8V

Digital Interface Capacity: Supports up to 16 digital sensors

Supported Communication Protocols: Type C, E, and K digital protocols

1.3 Display: 1280*800 color LCD screen

1.4 Keyboard: Capacitive touch virtual keys; also supports mouse and external keyboard

1.5 Clock: Displays year, month, day, hour, minute, second; automatic leap year and leap month adjustment

1.6 Serial Ports (Electrically Isolated):

Serial Port 1: RS232 or RS485

Serial Port 2: RS232

1.7 Large Screen Display Interface:

Transmission Method: Current Loop

Transmission Baud Rate: 600 bps

1.8 Network:

Wired Ethernet: 10/100M, RJ45 (supports Modbus TCP/IP)

WiFi (optional)

4G (optional)

1.9 Printer Interface:

Parallel Interface: EPSON LQ-300K + II, EPSON LQ-300K, EPSON LQ-680K, EPSON LQ-730K, EPSON LQ-1600K(+), KX-P1131, KX-P1121, DS-300, DS1900 and other wide-format printers; external POS58 machines (Weihuang WH-T2AR10-00ABPB, KL58-MY black/white)

USB Interface: EPSON LQ-300K+II, EPSON LQ-730K, Dascom 520

1.10 Camera: Supports 4 cameras for real-time video and weighing photos;

Model: Hikvision DS-2CD7T27DWD-IZS; customers can test other models in the DS-2CD series

1.11 U Disk: Maximum support for 32G ,FAT32

1.12 Audio Output: 3.5mm interface

1.13Data Storage: 60,000 weighing records, 10,000 vehicle information entries, 4,000 weighing photos (automatically deletes the earliest data when full)

1.14 IoT: Supported

1.15Unattended Control Cabinet: WG2210

1.16 License Plate Recognition Camera: Ruitong VX50-B200P

1.17 Operating Environment:

Power Input: AC110~220V 50~60HZ, DC 12V

Operating Temperature: -10℃ ~ 40℃

Storage and Transportation Temperature: -25℃ ~ 55℃

Relative Humidity: ≤85%RH

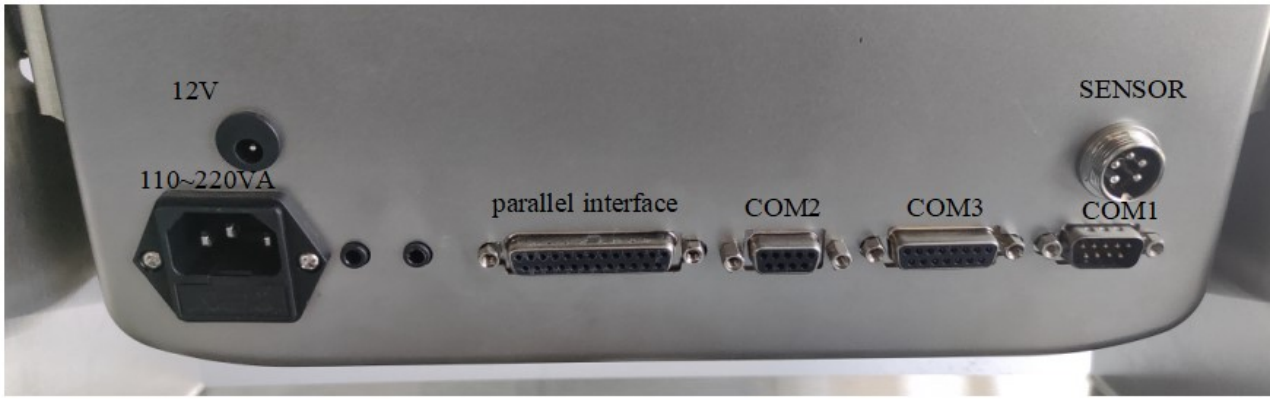
2. Function Directory

Level I	Level II	Level III	Remarks
Account Management	Admin Management Account	Sub-account Management	Including permission management
	Management Password		
Indicator Information			
Weighing Management	Storage Content Management	Storage Items	Customize storage items and conditions
		Common Name Editing	Including various common names
		Vehicle Management	
		Cargo Management	
		Other Parameters	
	Weighing Records	Weighing Records	For managing and exporting weighing data
		Statistical Reports	
		Weighing Record Backup and Restoration	Weighing record protection
		IoT Weighing Record Upload	Can be enabled or disabled
	Print Management	Printer Type	Print content and methods
		Print Format Editing	
Time Management			Set time
Scale Calibration	...		See calibration manual for details
Serial Port 1 Settings			Configure serial port functions
Serial Port 2 Settings			Configure serial port functions
Serial Server Settings			Configure serial port functions
Camera Settings			Configure camera-related parameters
Network Settings			
Network Functions	D39 Protocol Configuration		Configure various network function parameters
	Modbus TCP Configuration		
	D38-3Server Service Configuration		
Testing		Test Serial Port, Configure 4~20mA	
U Disk			Operate U disk-related functions such as upgrade, parameter export, etc.

Initialization			
Log			
Unattended	MPLC Wiring	Configure KL-MPLC(S)	
	License Plate Recognition		Settings for license plate recognition camera
	Process Management		Configure two-way process actions
	Peripheral Testing		Test license plate recognition, card reader, digital input/output, and text display on large screen
	Other Parameters		Unattended-related parameters
	Configuration Initialization		Various common unattended configurations
	Import		Import unattended parameters from U disk
Language			Chinese and English selection

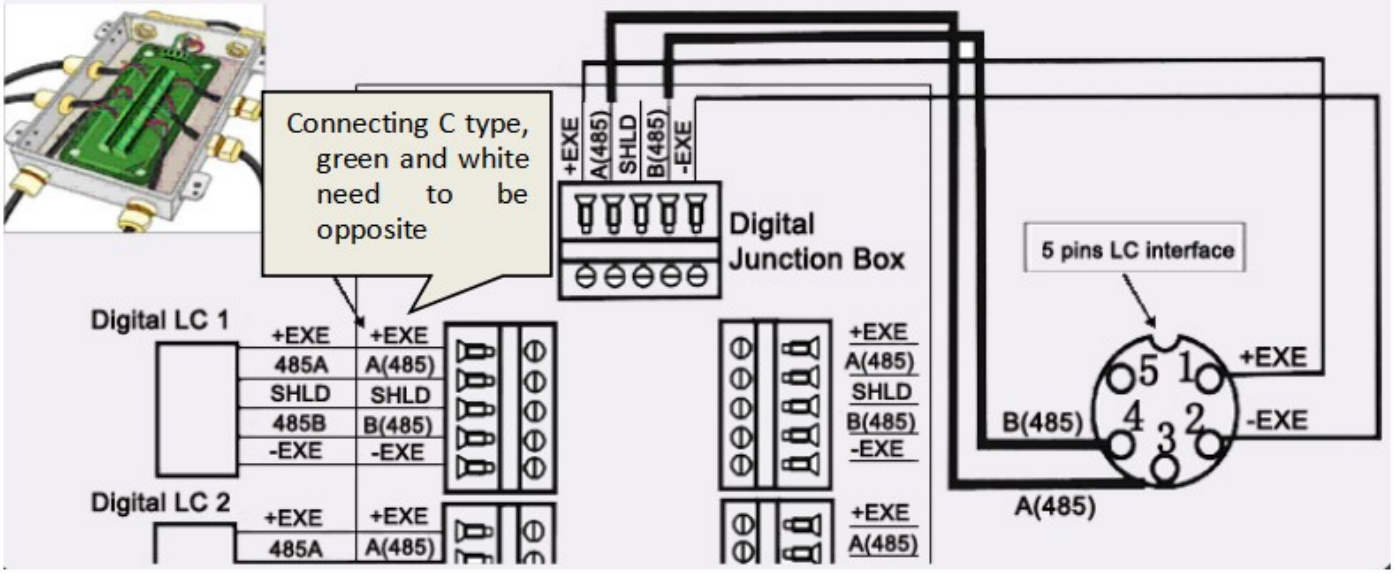
3. Installation and Connection

3.1 Indicator Rear Connectors

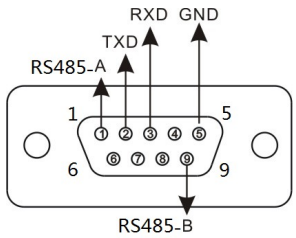


3.2 Connection between Indicator and Digital Load Cell

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



3.3 Serial Port 1

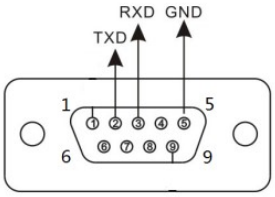


Indicator PC connector	Computer 9 cores connector
2	2
3	3
5	5

COM1

Serial Port 1 functions can be configured according to protocol requirements; refer to "Appendix A: Serial Communication Protocol" for specific protocols.

3.4 Serial Port 2



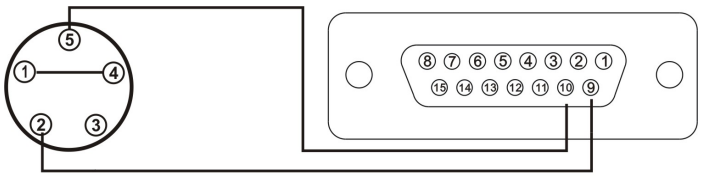
Indicator PC connector	Computer 9 cores connector
2	2
3	3
5	5

Functions can be configured according to protocol requirements. Compared with Serial Port 1, it lacks RS485 and KL-MPLC modes.。

3.5 Serial Port 3 (Large Screen)

Connecting KELI scoreboad,

Current loop connection



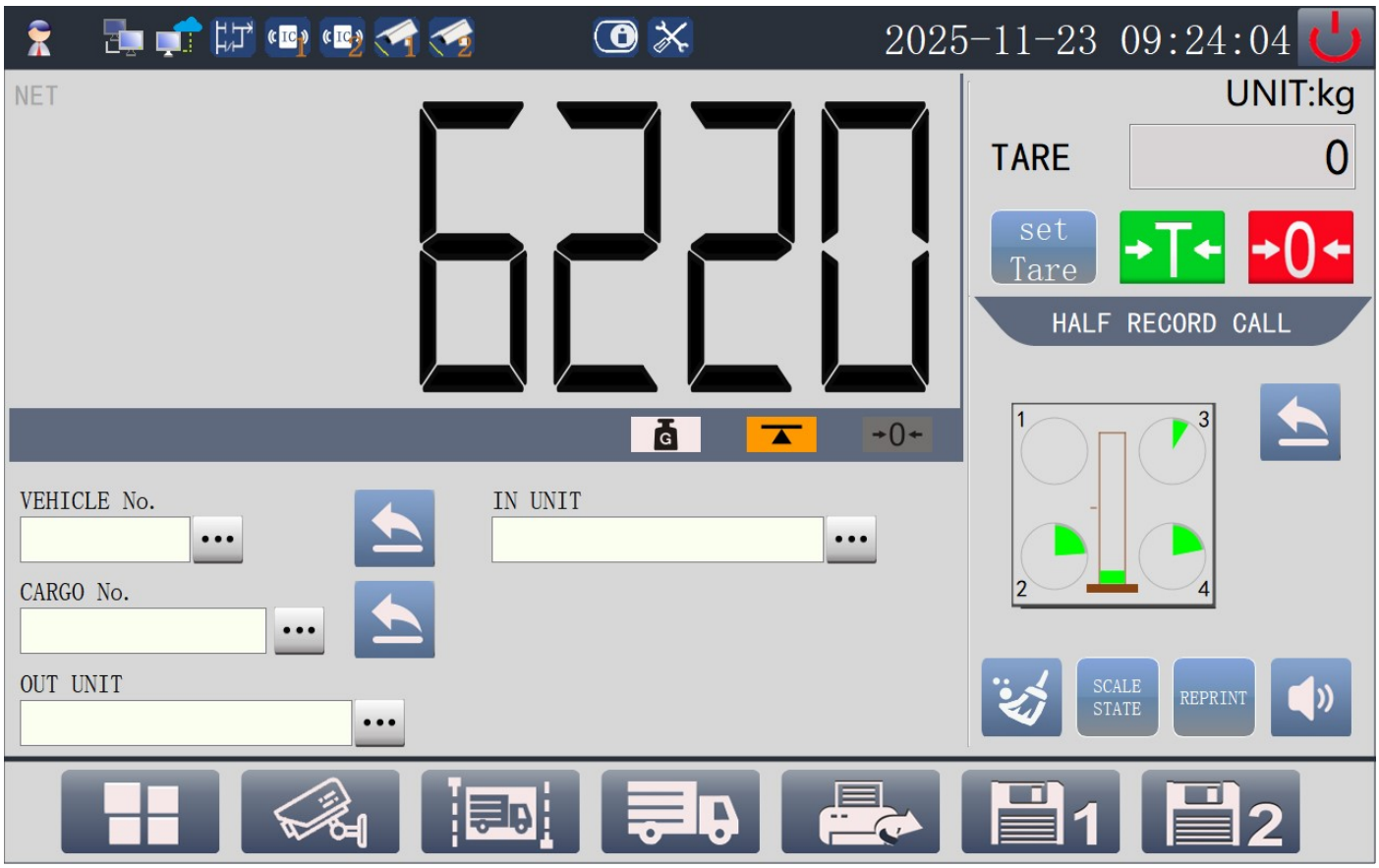
Communication format: Fixed at 600 bps and 3-byte dedicated format

3.6 Parallel Interface

Used for connecting parallel interface printers; refer to technical parameters for specific models.

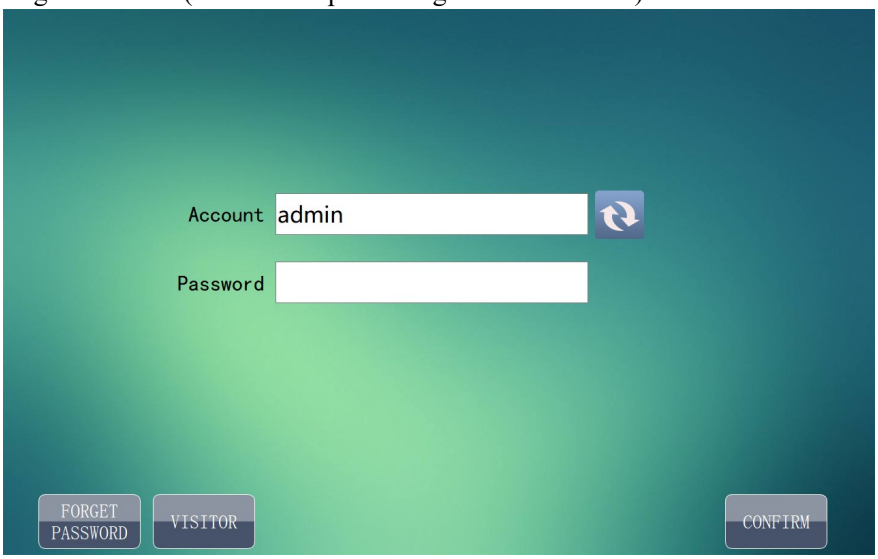
Note: The listed printers are tested models. If the used printer model is not in the list, please test it yourself.

4. Main Interface Introduction

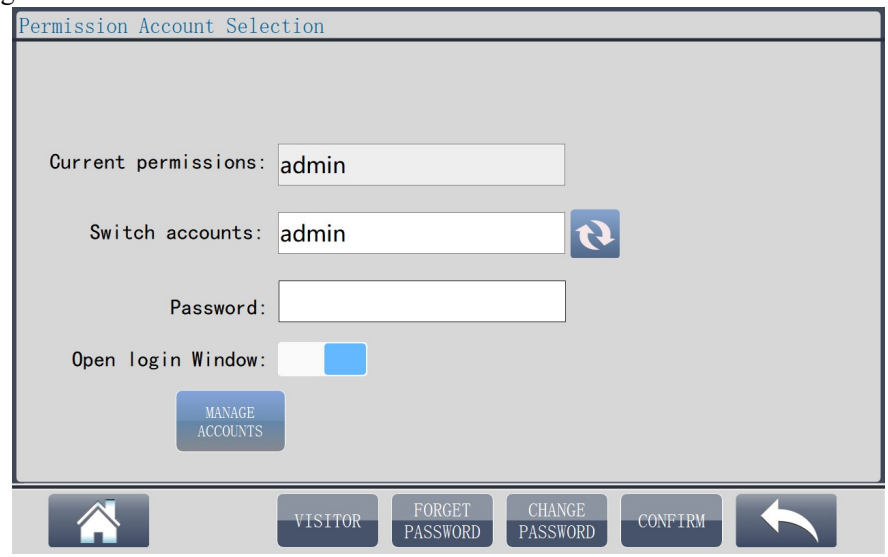


5. User Account Management

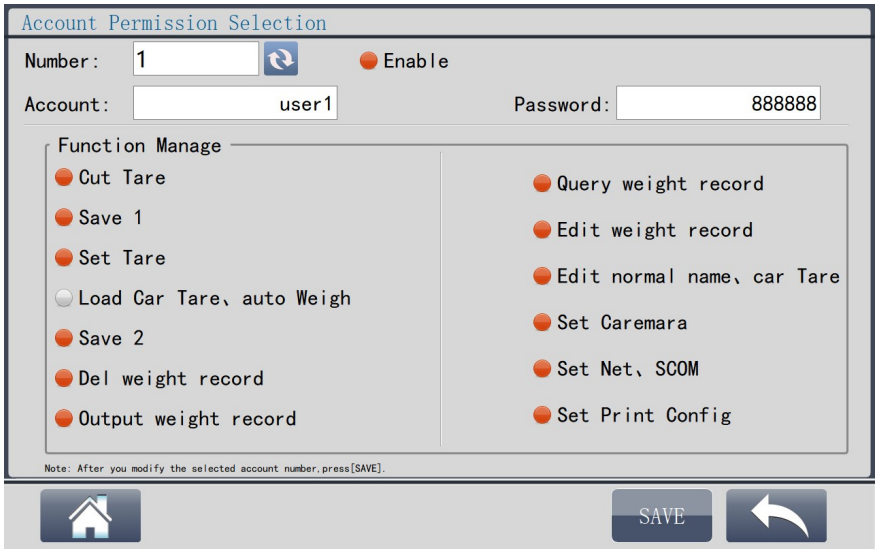
The indicator has one "admin" account and 8 customizable sub-accounts; the default password is "888888".
Sub-accounts are managed by the "admin" account.
Login Interface (User can import background via U disk)



Permission Management Interface：

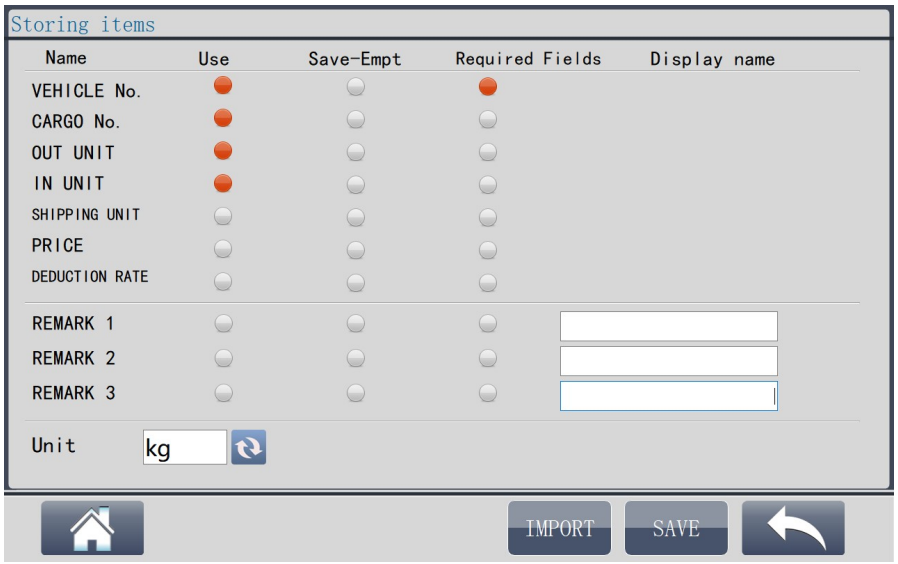


When "Show Boot Login" is disabled, the indicator will directly enter the main interface as a "Visitor" after startup.
Sub-account Management Interface:



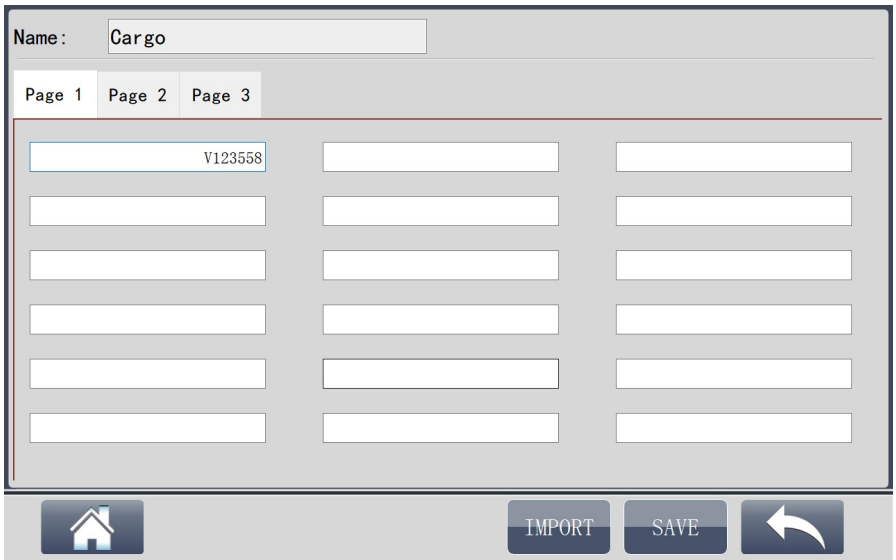
6. Weighing Storage Entry Management

Users can set the following storage items according to weighing needs, and the main interface will be laid out accordingly.



7. Common Name Editing

This function is mainly for facilitating users to enter content during weighing.

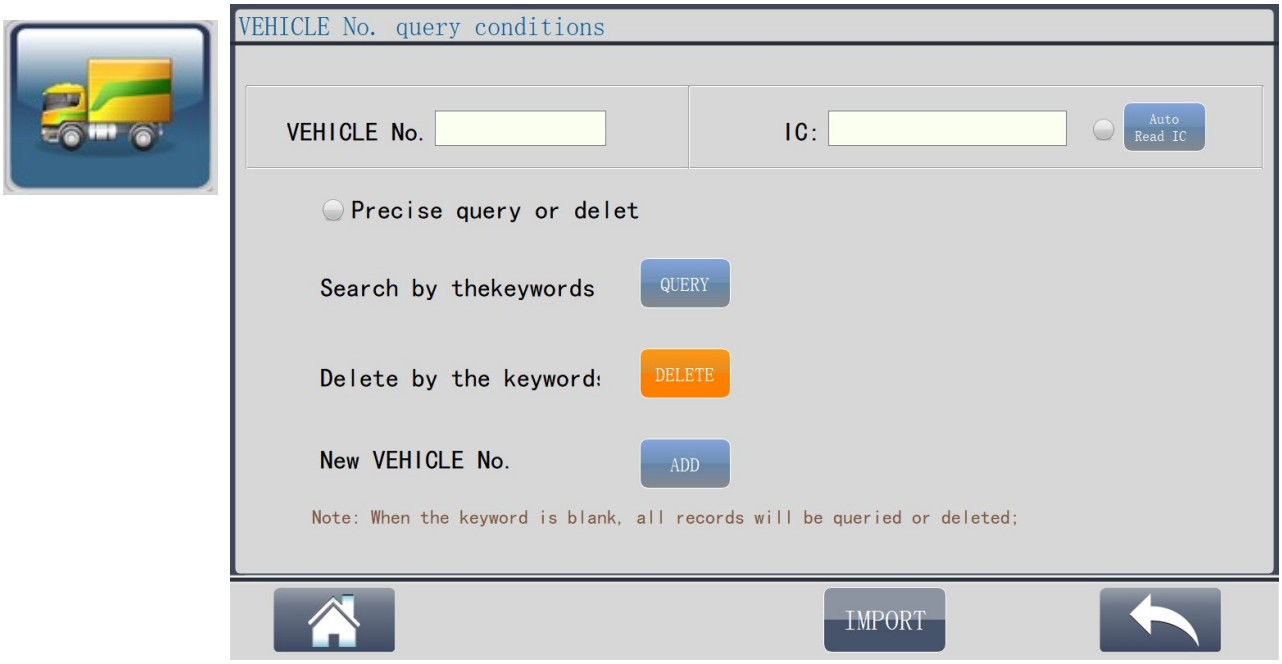


8. Vehicle Management

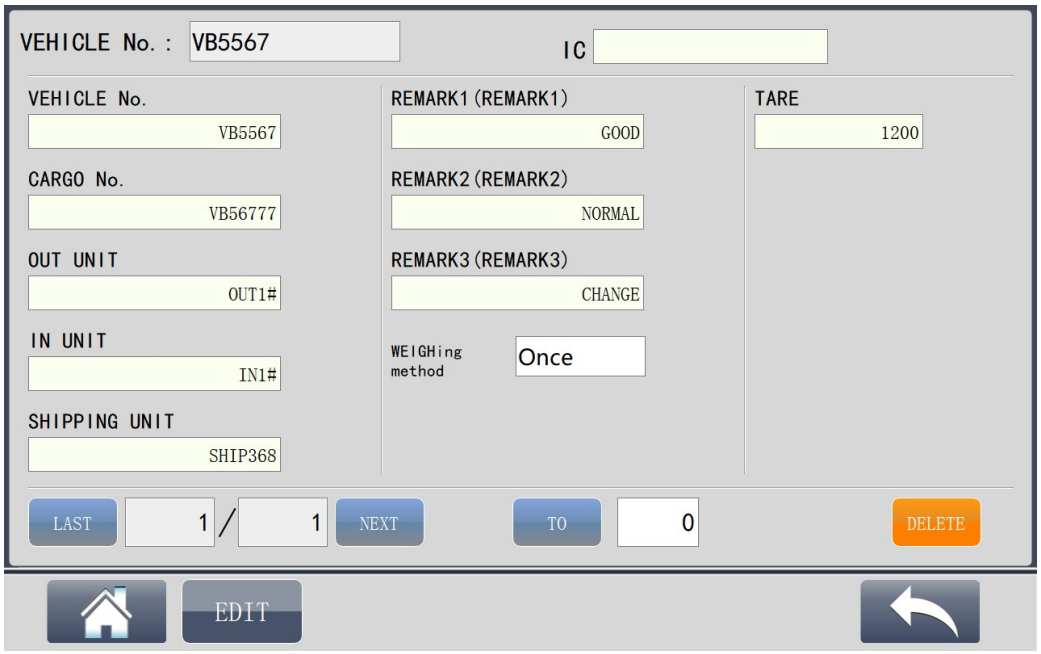
For vehicles with regular weighing, vehicle information can be stored in advance to facilitate future calls and improve data entry efficiency.

Tare weight of vehicles can also be preset for future weighing by calling the vehicle number and tare weight.

The product supports import via U disk to avoid massive manual entry.

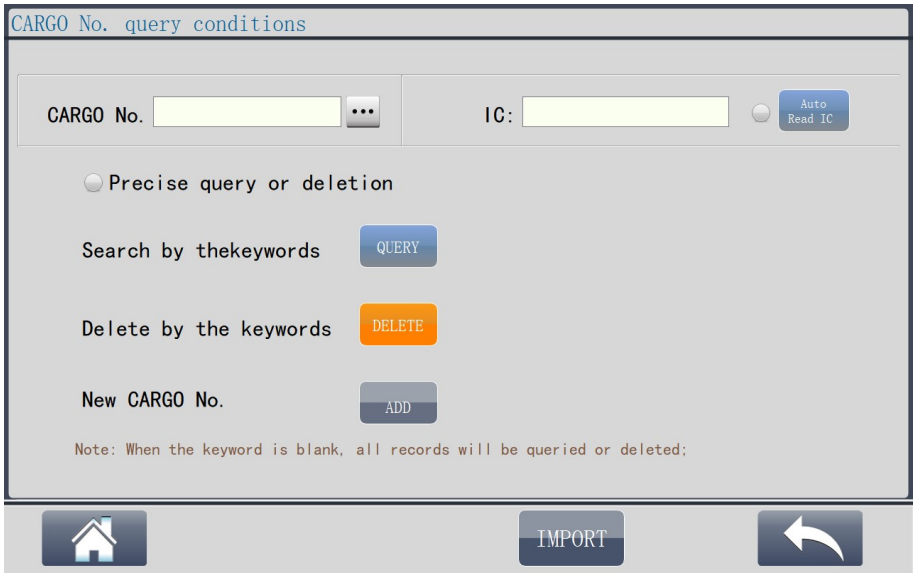


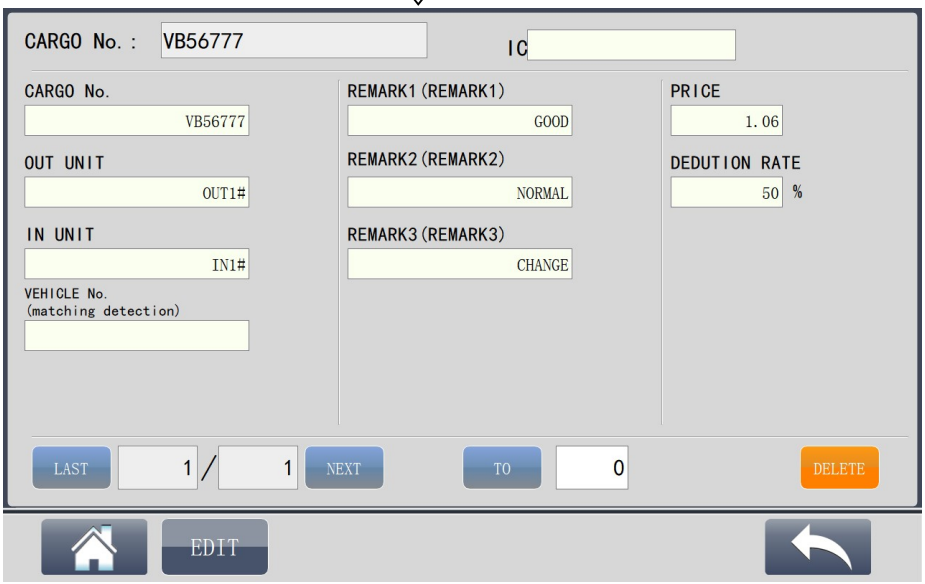
When there is a large amount of stored vehicle information, it is recommended to enter keywords (e.g., "VB") to display all vehicle information containing "VB" in the license plate



9. Cargo Management

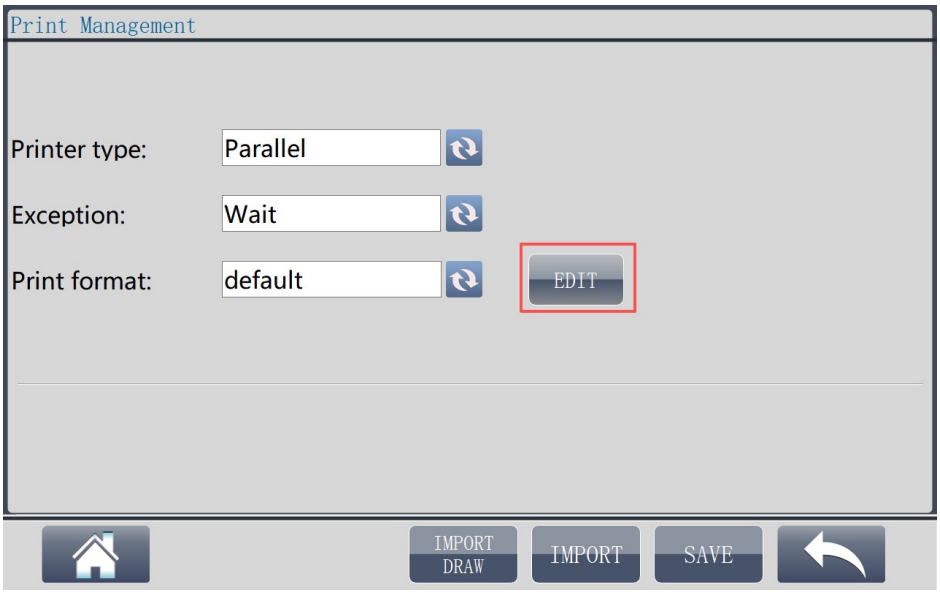
For fixed cargo, cargo information can be stored in advance to facilitate future calls and improve data entry efficiency. The product supports import via U disk to avoid massive manual entry.

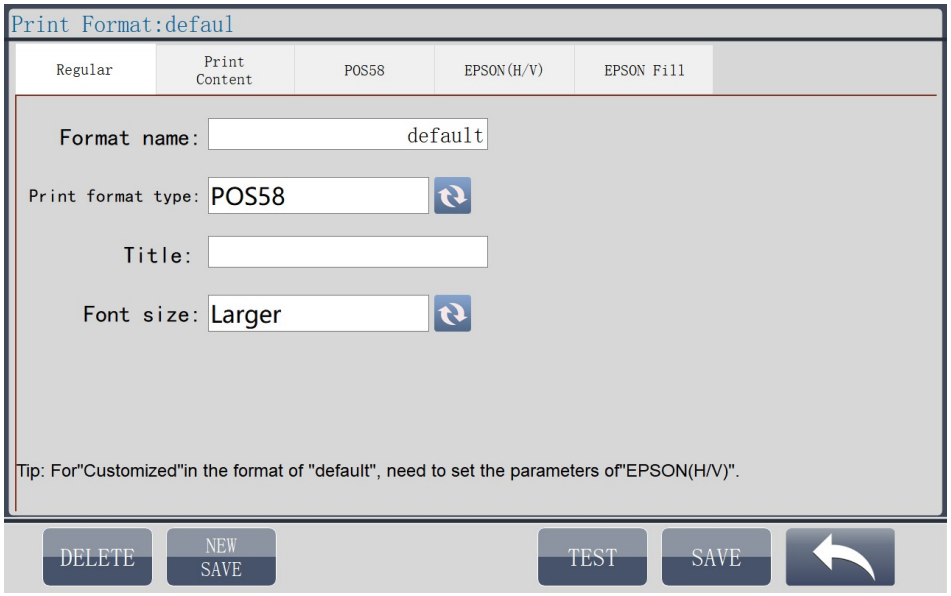




10. Print Management

Used for setting printer type and print content.





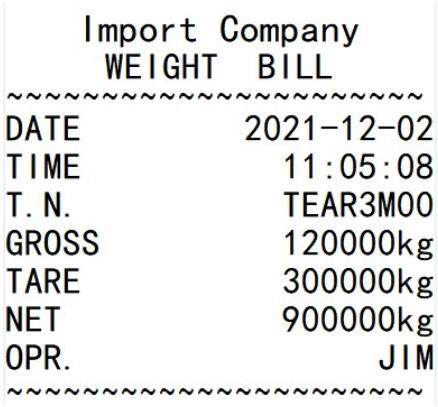
Note: "Auto stop" in exception handling means that when the printer malfunctions, the indicator will not wait indefinitely (which may affect subsequent weighing). This function is mainly used for unattended operations.

Supported Print Formats:

Import Company

WEIGHT BILL

DATE	2021-12-02
TIME	11:05:08
T.N.	TEAR3M00
GROSS	120000kg
TARE	300000kg
NET	900000kg
OPR.	JIM



POS58 Print Format

Import Company

WEIGHT BILL

DATE2	2021-12-02
TIME2	11:05:08
VEHICLE	TEAR3M00
GROSS	120000kg
TARE	300000kg
NET	900000kg
WEIGHER	JIM

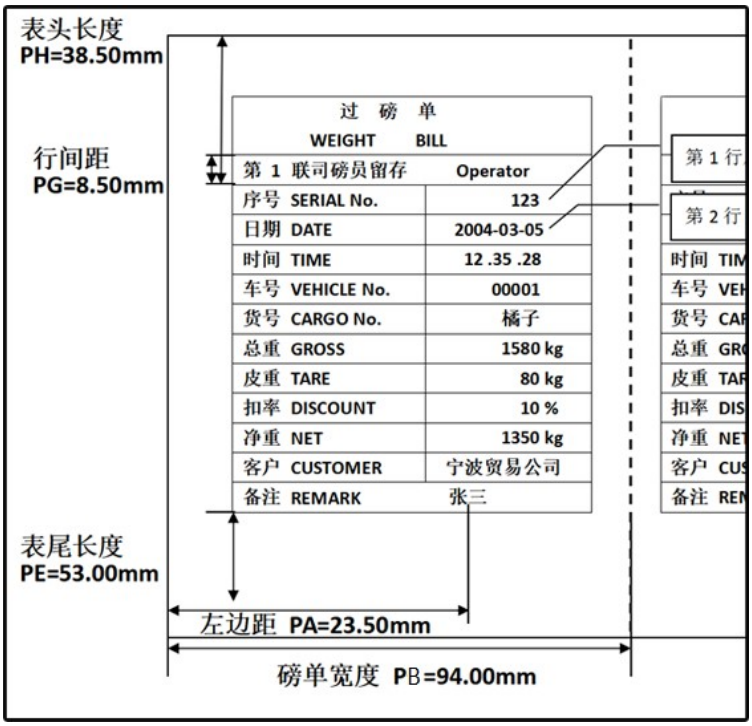
"EPSON(V)" Print Format "

Import Company

WEIGHT BILL

DATE2	2021-12-02	TIME2	11:05:08
VEHICLE	TEAR3M00	GROSS	120000kg
TARE	300000kg	NET	900000kg
WEIGHER	JIM		

EPSON(H)" Print Format



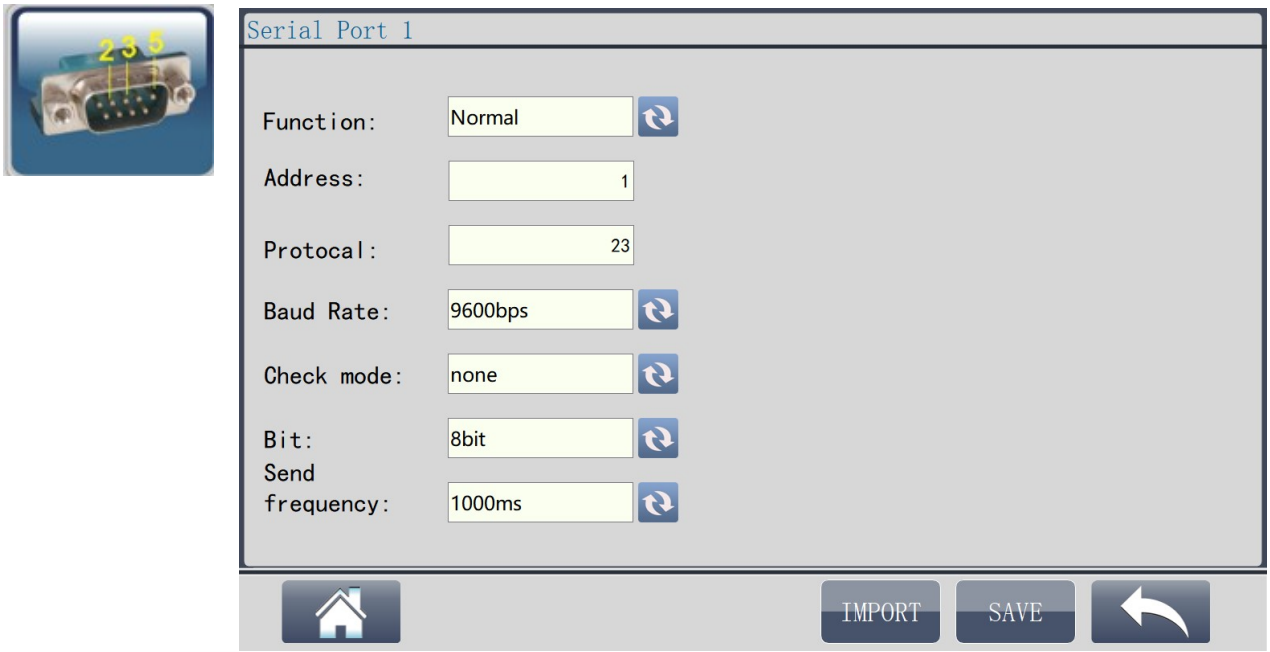
Custom Fill Print Format

If the above formats do not meet requirements, the print format can be edited on a computer using the dedicated D38-3 tool "D38-3Tools" and downloaded to the indicator via U disk.

11. Serial Port 1 and 2 Settings

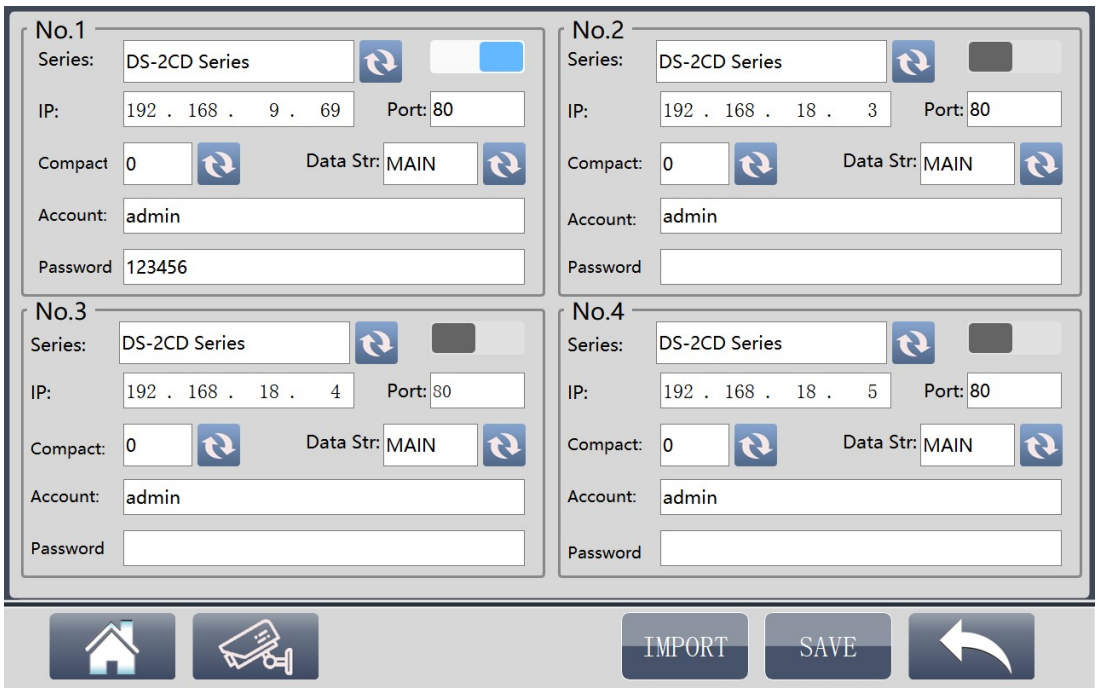
The indicator supports various communication protocols; refer to Appendix A for specific protocols.

Serial Port 1 also supports RS485.

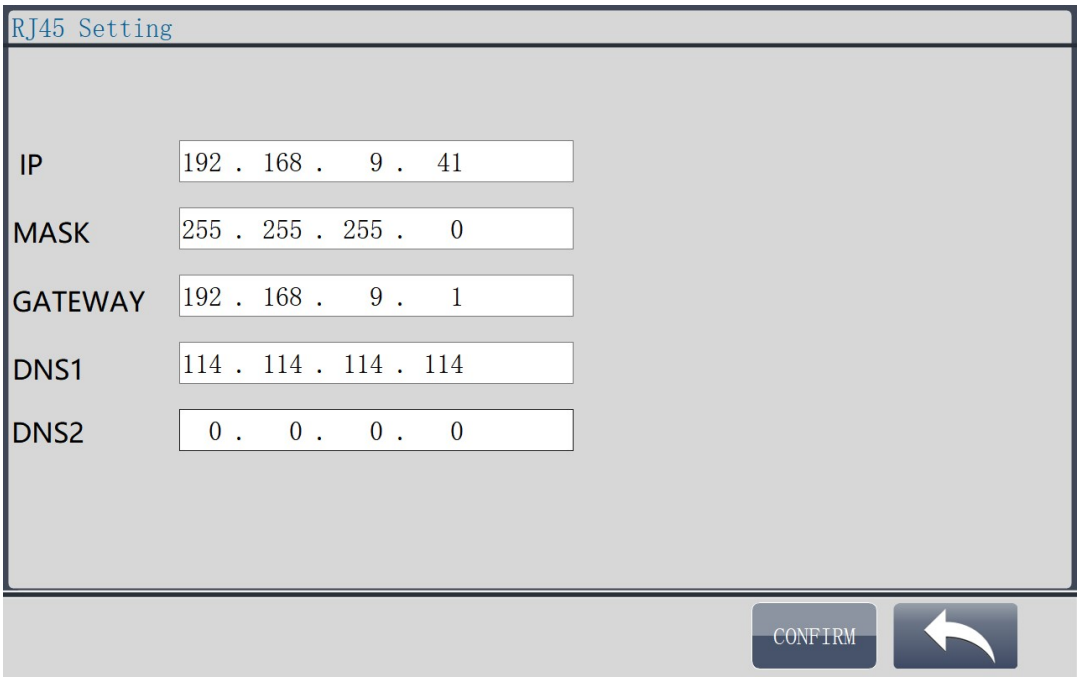


12. Camera Settings

Used for configuring camera parameters; currently mainly supports the DS-2CD series.



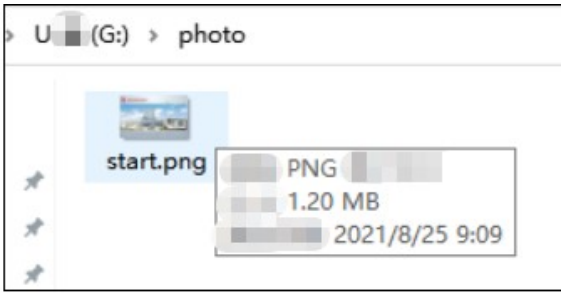
13. Network Settings



14. Setting Login Interface Background

Users can set the login interface background by following these steps:
Create a folder named "photo" on the U disk.

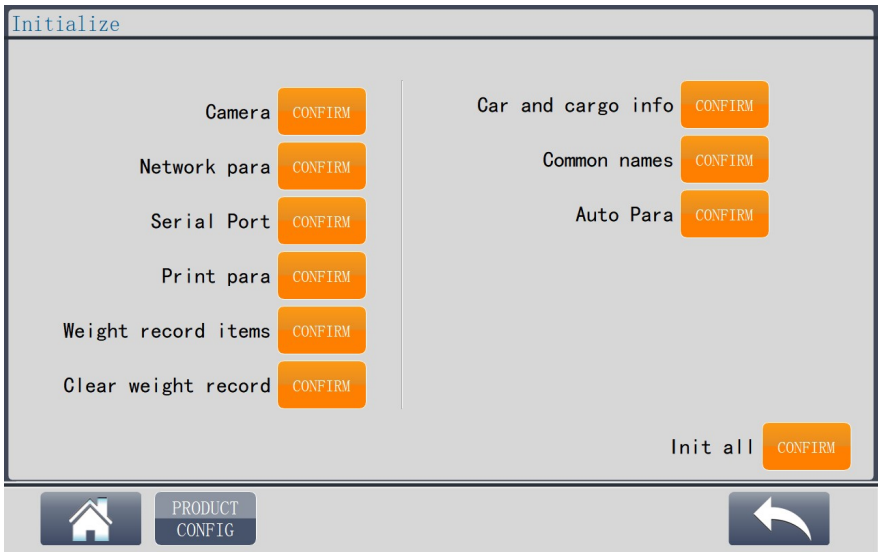
Create a PNG image with a resolution of 1280 (width) × 800 (height), name it "start.png", and save it in the "photo" folder of the U disk.



Import the image to the indicator:
Insert the U disk into the indicator (supports USB HUB expansion)

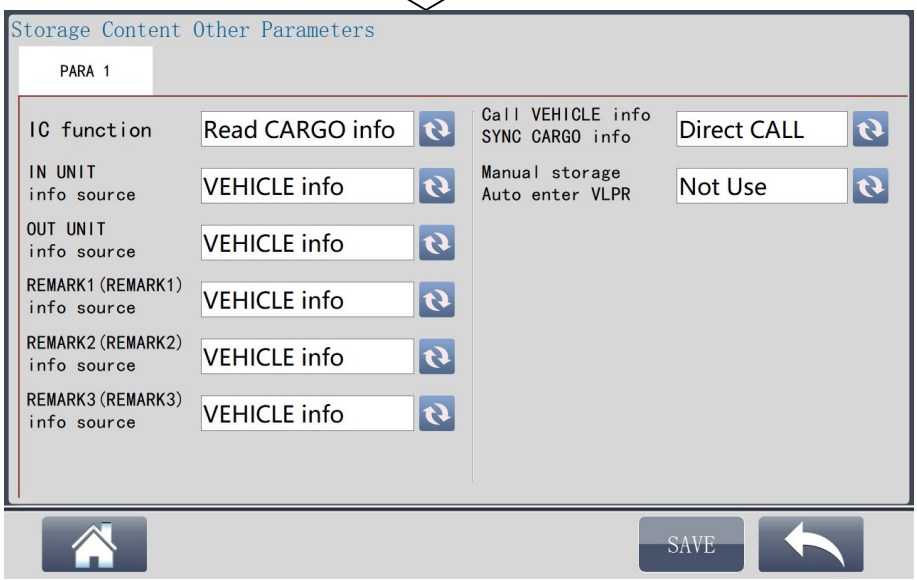
15.Initialization

Users can perform initialization as needed.



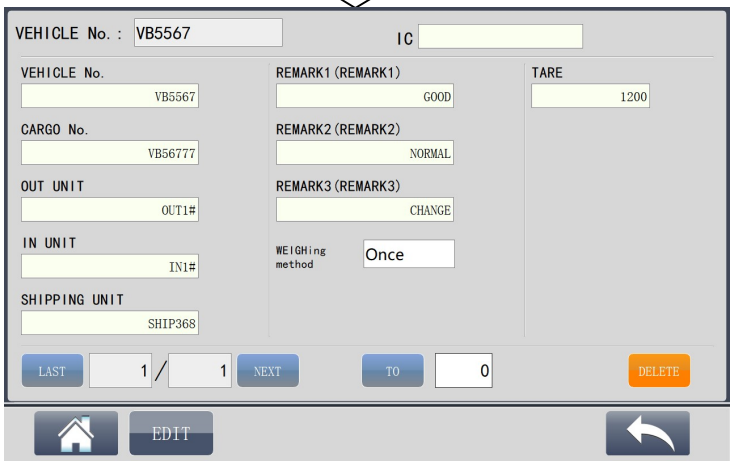
16. Weighing Storage

When calling vehicle and cargo information, some data comes from the vehicle and some from the cargo; relevant configurations are required:

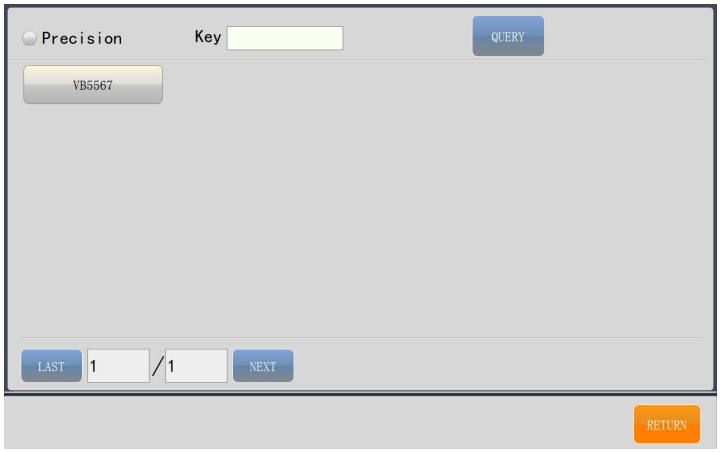


16.1 Calling Pre-stored Vehicle Number and Tare Weight

1.Pre-store the vehicle number and tare weight (skip if already stored)

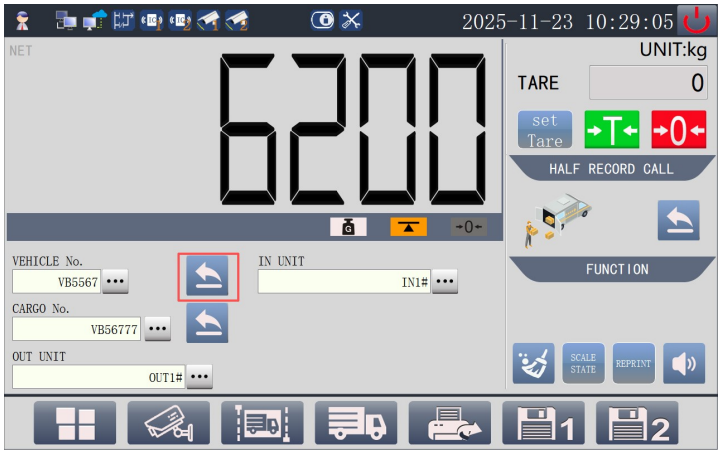


2.Call the vehicle number

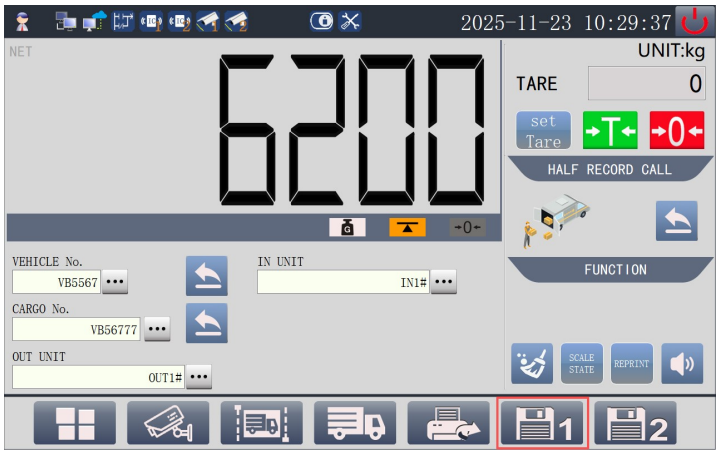


Select the vehicle number on the above interface.

3.Call additional information (skip if only the vehicle number is needed).

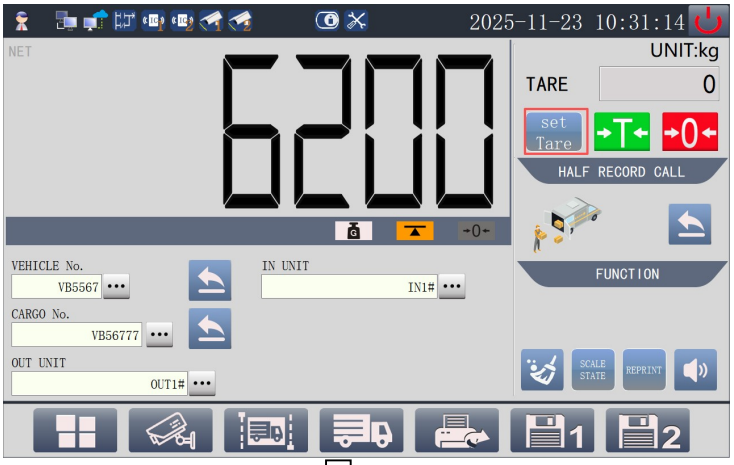


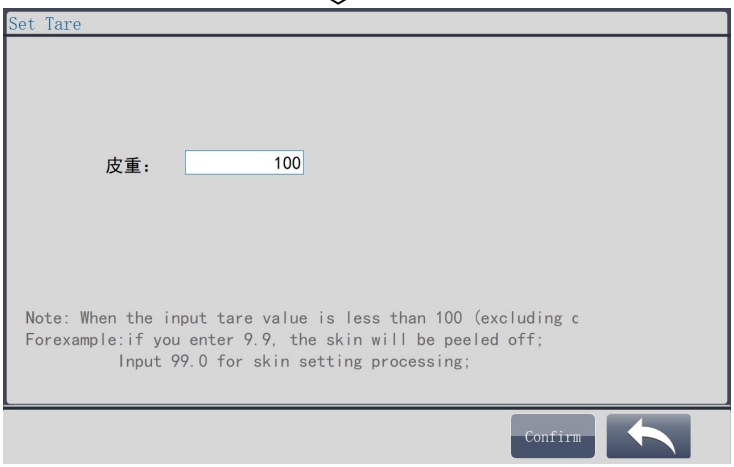
4.Store the data.

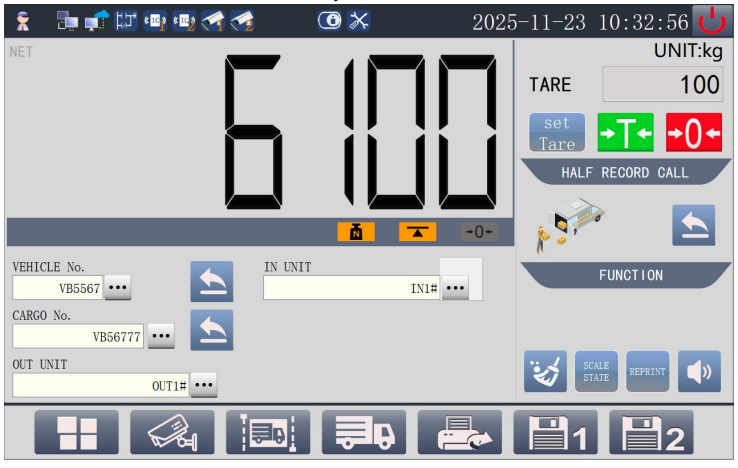


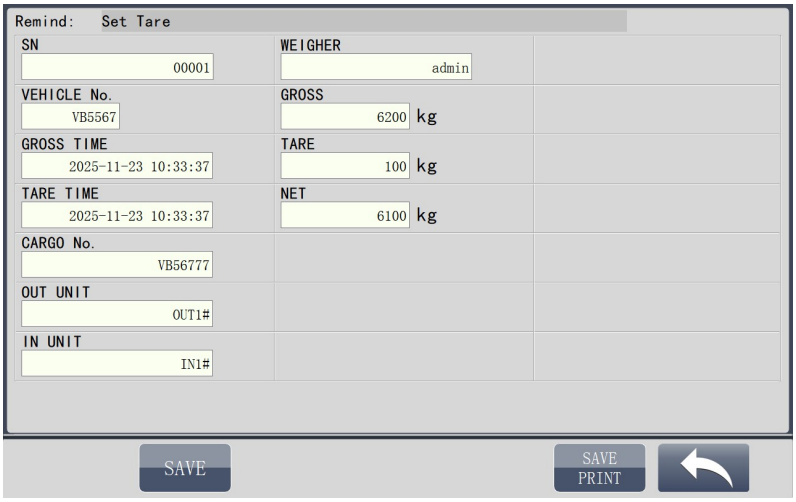
After confirming the information is correct, press [SAVE] or [SAVE PRINT] as needed. Press Return to exit if there is an issue.

16.2 Storage and Printing of Temporarily Preset Tare Weight or Tare Removal









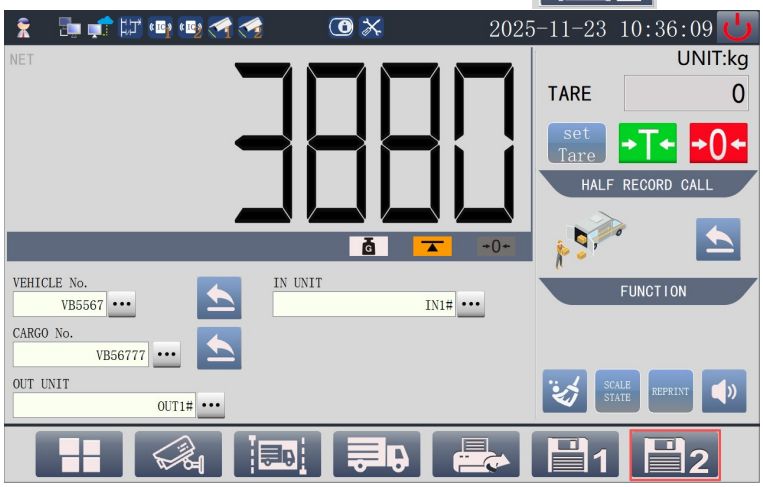
After confirming the information is correct, press [SAVE] or [SAVE PRINT] as needed. Press Return to exit if there is an issue.

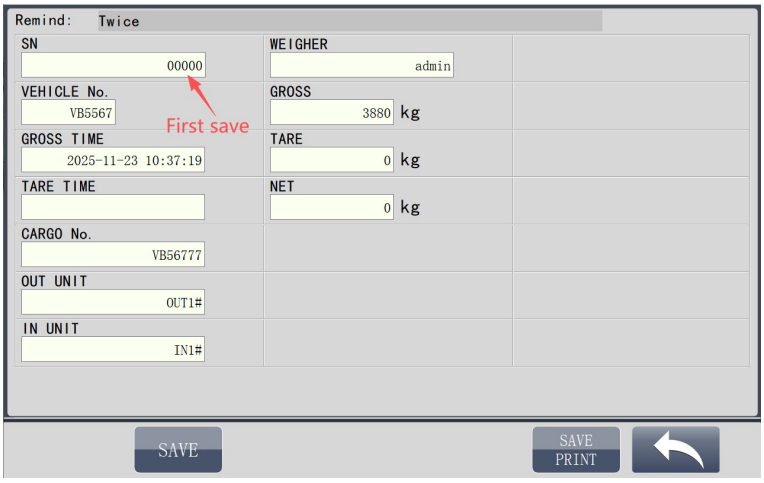
Press 

cancel the current tare weight.

16.3 Two-time Weighing

1.First weighing: Enter information and press 

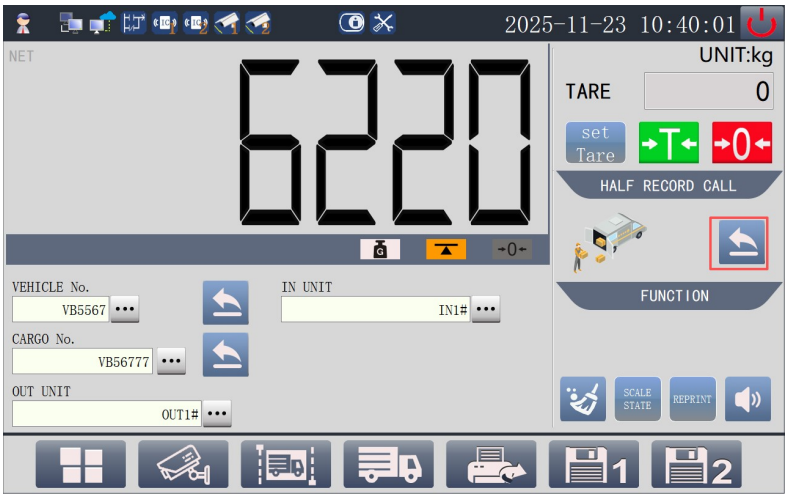


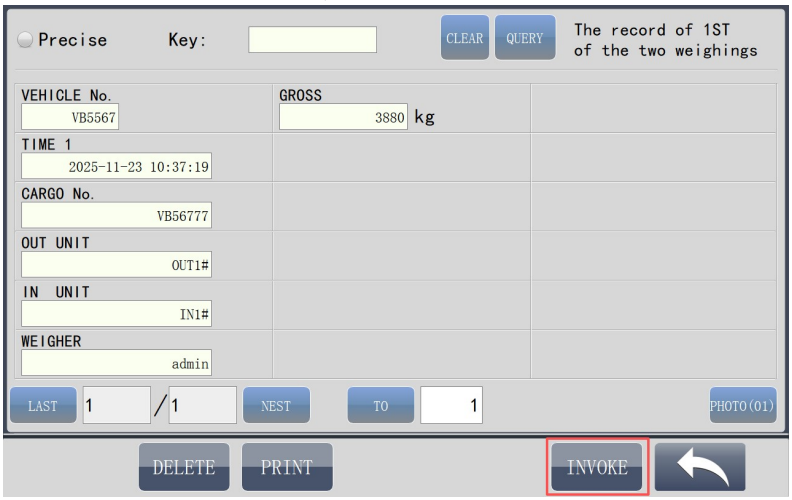


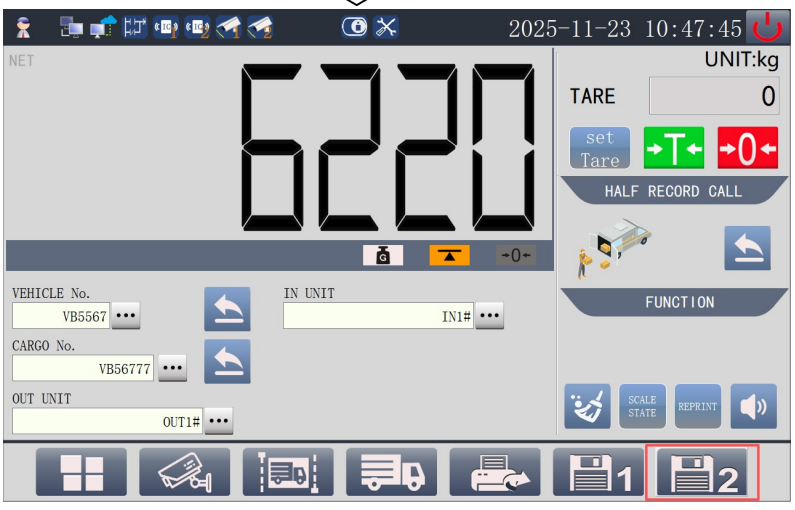
2.Second weighing: Two methods are available:

Method 1: Enter information the same way as the first weighing.

Method 2: Call the first weighing record as follows







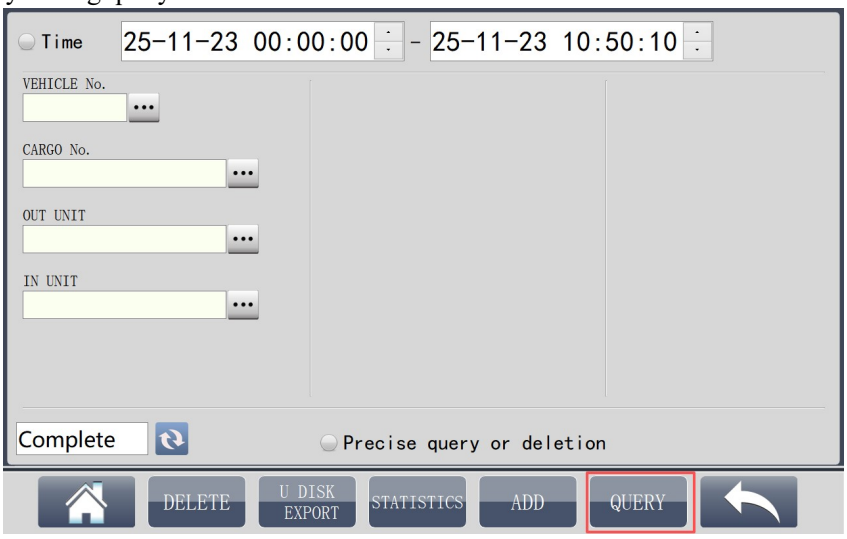
Note the operations marked in the red box above.

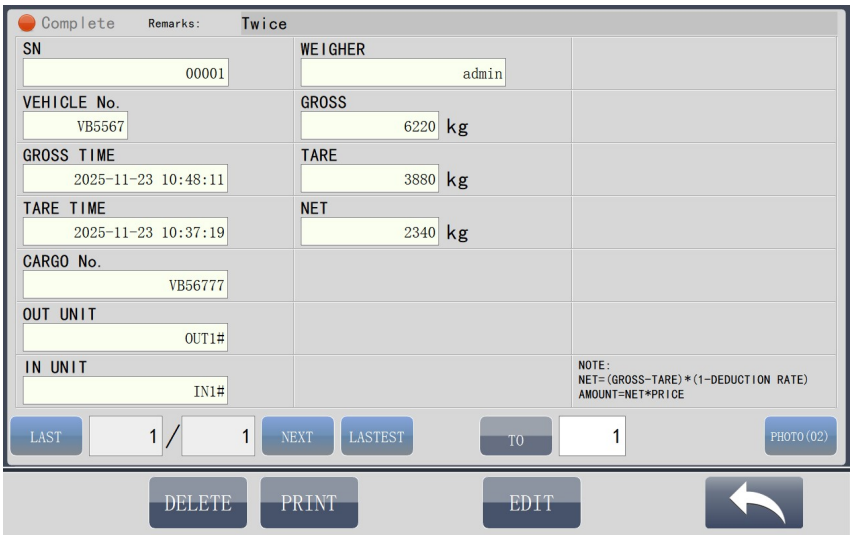
17. Weighing Record Management

17.1 Query

View relevant records by setting query conditions

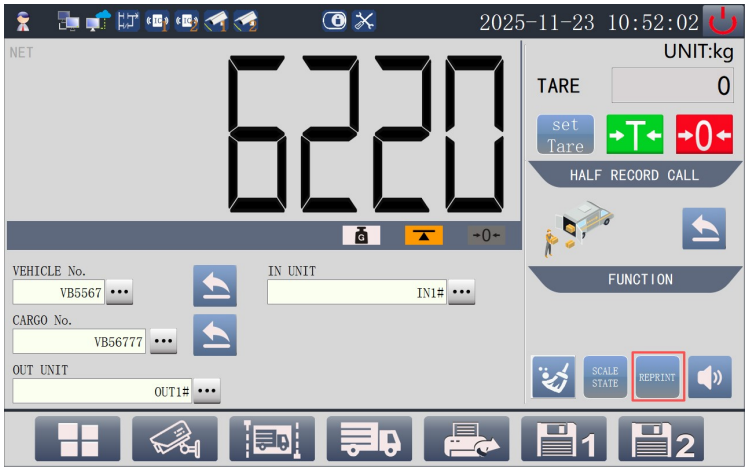
Or



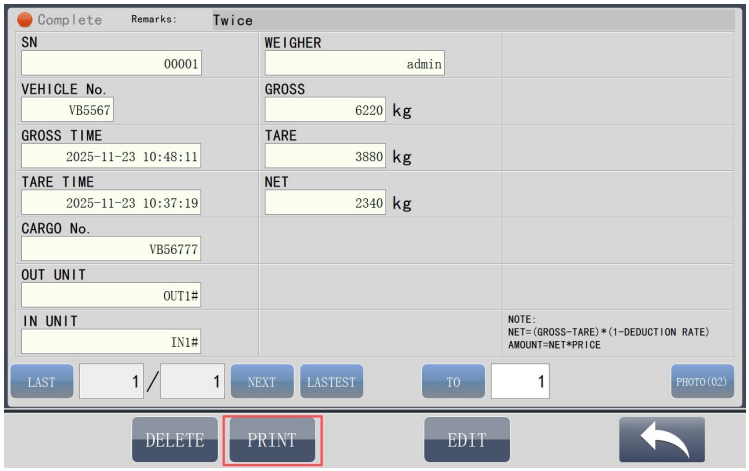


17.2 Re-printing Weighing Records

Print the last stored record

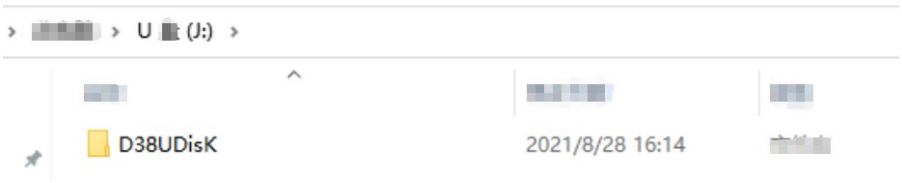


Print previous records: Press on the query interface

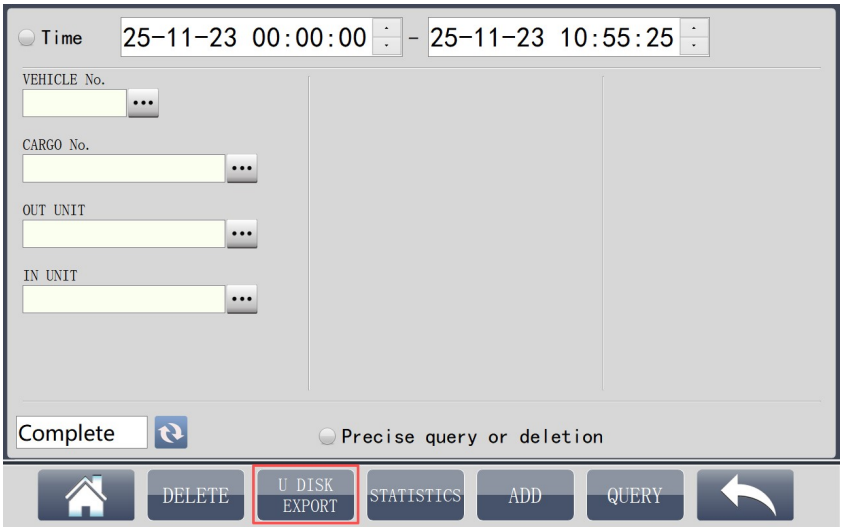


17.3 U Disk Export of Weighing Records

1.Create a folder named "D38UDisk" on the U disk and insert it into the indicator's USB interface

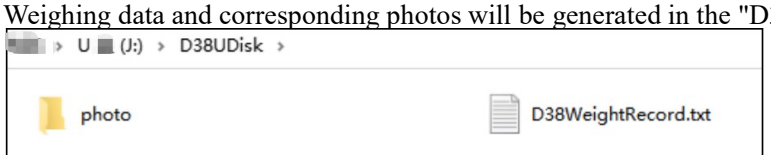


2.Enter the weighing record management interface and set filter conditions

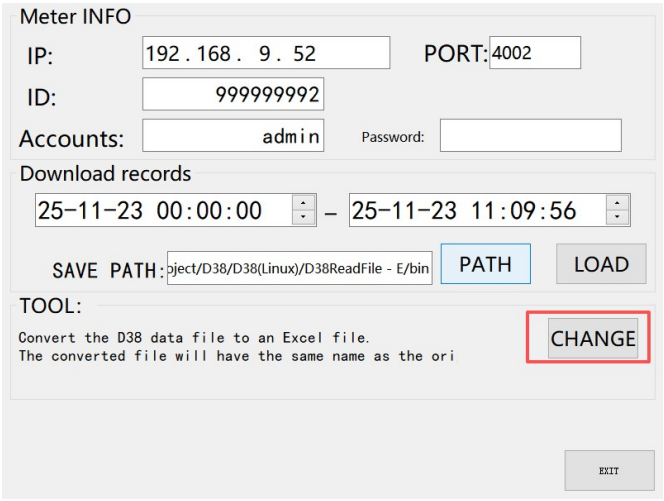


Set filter conditions as needed on the above interface.

Weighing data and corresponding photos will be generated in the "D38UDisk" folder of the U disk.



The file "D38WeightRecord.txt" is suitable for calling record data via user programs. If no dedicated program is developed, use the tool "D38ReadFile" to convert it to Excel format.



For the association method between weighing records and photos, consult the indicator developer or refer to relevant documents.

17.4 Network Download of Weighing Records

Three methods are available:

1.If IoT is enabled, manage weighing records via IoT.

2.Download weighing records from the indicator via specific network protocols and accounts (suitable for users who develop their own software to manage weighing data).

3.For users without self-developed software, use the download tool provided by the indicator manufacturer to implement the second method.

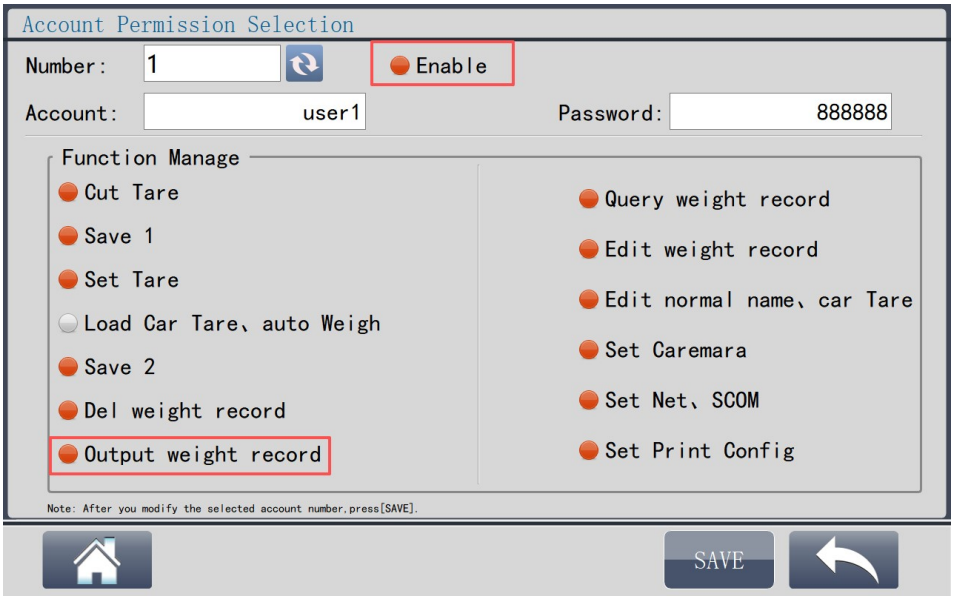
Requirements:

Network Connection: Wired network or WiFi with static IP.

Download Tool:

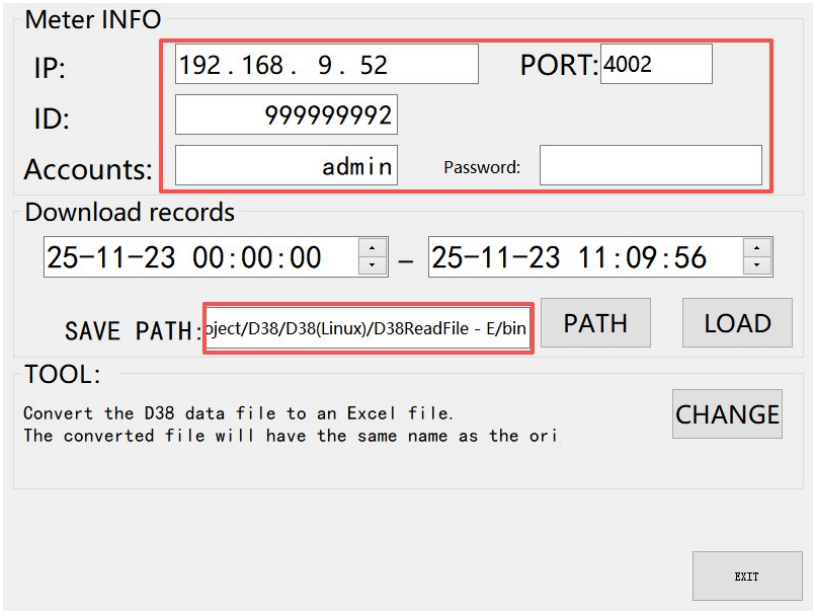
Configure a dedicated account on the indicator

Enable "Output weight record" in the account settings

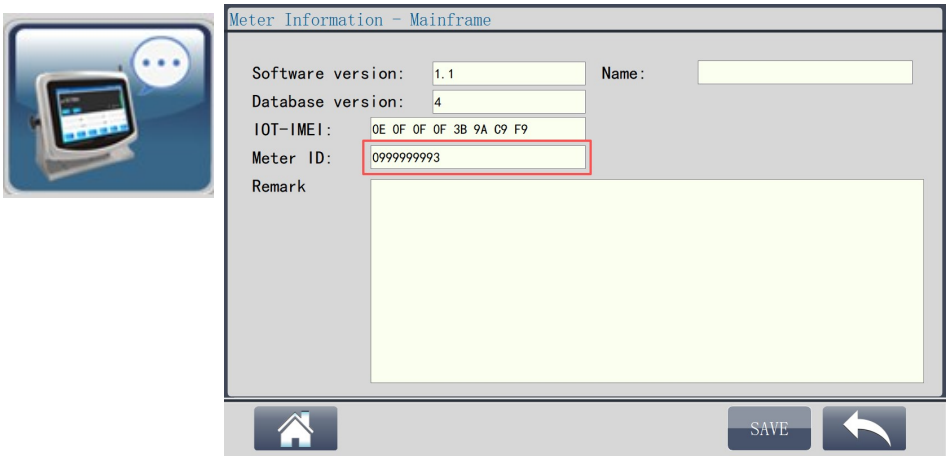


Download Steps:

1.Open the tool



2.Check the device ID via the indicator information



3.The default service port of the indicator is 4002. If the indicator and user are not on the same LAN (e.g., indicator in Ningbo, user in Beijing), ask the on-site network administrator to assign an IP and port.

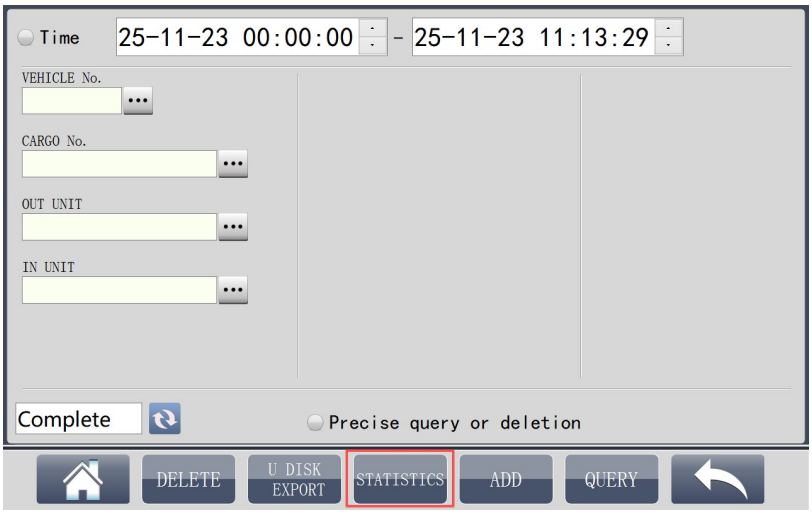
4.Click Download.

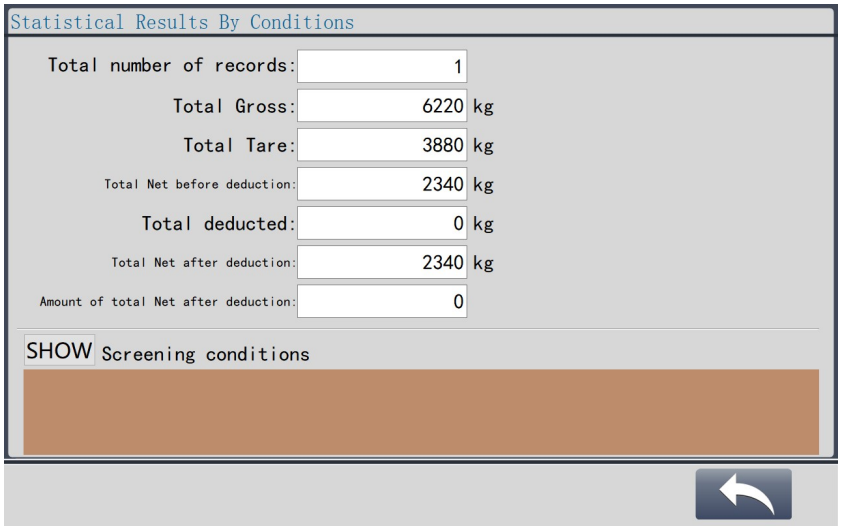
Two files will be generated in the target directory: "D38-3WeightRecord.xlsx" and "D38-WeightRecord.txt" (with the same weighing record content).

18. Weighing Data Statistics

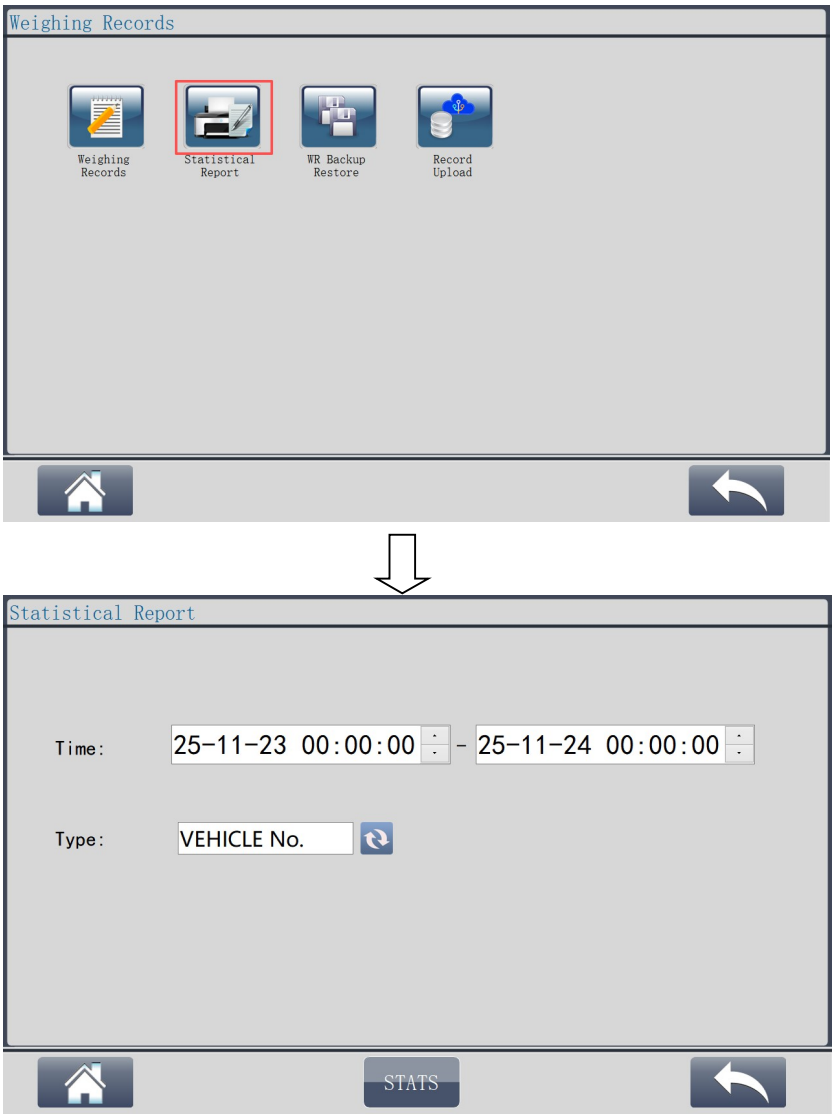
Three methods are available:

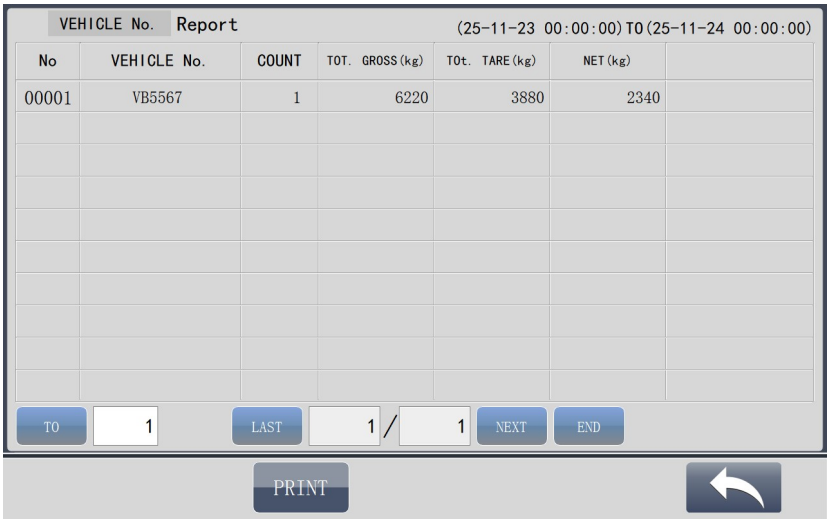
1.On the indicator: Enter conditions to count the total number





2.Print statistical reports





Import Company

Statistical report by(VEHICLE No.)

(25-11-23 00:00:00)TO(25-11-24 00:00:00)

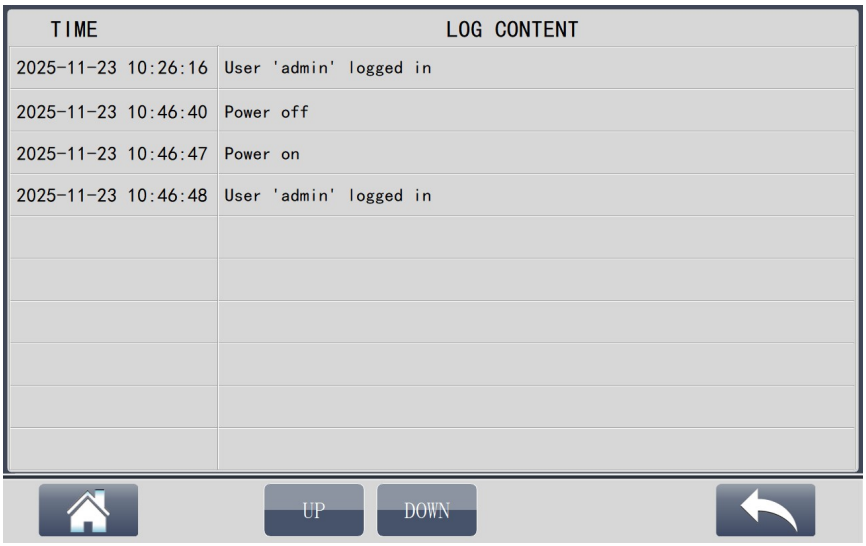
SN	VEHICLE No.	COUNT	TOT. GROSS(kg)	TOt. TARE(kg)	NET(kg)	
00001	VB5567	1	6220	3880	2340	

Note: Printers are slow. For statistical entries exceeding 1,000, it is recommended to export to Excel using the third method.

3.Export weighing data from the indicator via Sections 17.3 and 17.4, then create custom statistical reports on a computer according to user needs.

19. Indicator Log

Function: The indicator records important operation logs. Query method:



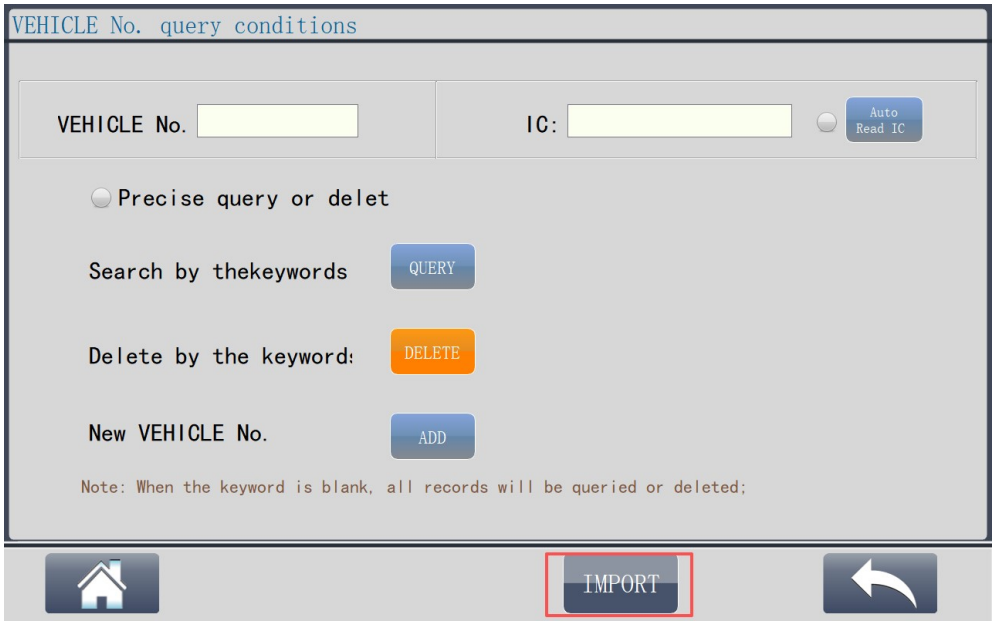
20. Export and Import of Important Configuration Parameters

Function: Mainly used for exporting and importing common names, vehicle information, cargo information, print parameters, storage items, calibration parameters, etc., to avoid massive pre-use configuration for new indicators.

20.1 Export

20.2 Import

Press Import on each operation interface to import corresponding parameter configurations (e.g., import vehicle information):



21. Internet of Things (IOT) Function

Function: The indicator supports IOT functions, enabling real-time query of scale platform status data. It includes anti-cheating measures such as indicator case opening detection, electronic seal detection, sensor AI detection and binding, and supports uploading of weighing records and photos, greatly improving the reliability of weighing data.

21.1 IOT Networking Methods

Wired Ethernet

WiFi (optional)

4G (optional)

21.2 Enabling and Disabling Weighing Record Upload

Only when enabled, the indicator will upload weighing records and photos, and IOT terminals can view the corresponding records and photos.

IoT Terminal View：

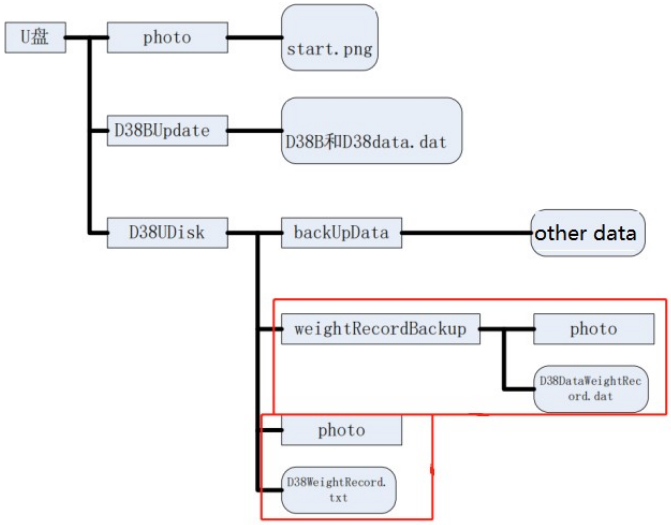
5	0E0F0F0F3B9AC9F8		2022-03-10 16:11:16
6	0E0F0F0F3B9AC9F8		2022-03-10 16:11:52
7	0E0F0F0F3B9AC9F8		2022-03-10 16:22:07
8	0E0F0F0F3B9AC9F8		2022-03-10 16:31:30
9	0E0F0F0F3B9AC9F8		2022-03-10 16:50:35
10	0E0F0F0F3B9AC9F8		2022-03-10 16:59:41
11	0E0F0F0F3B9AC9F8		2022-03-10 17:03:54
12	0E0F0F0F3B9AC9F8		2022-03-10 17:07:34
13	0E0F0F0F3B9AC9F8		2022-03-10 17:50:31

22. U Disk Storage File Structure

Preparation:

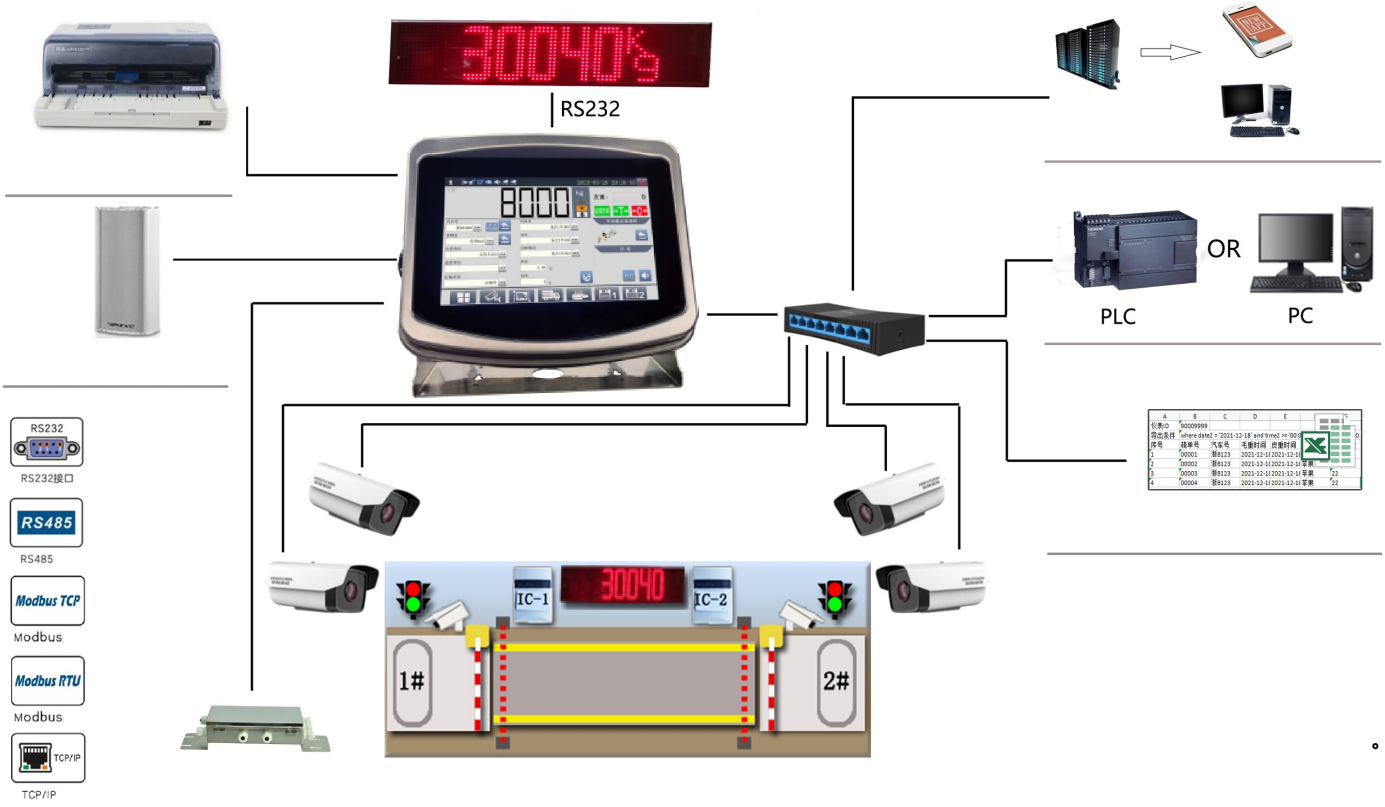
1.U disk support: Up to 32G, formatted as "FAT32".

2.Create a folder named "D38UDisk" before exporting data.

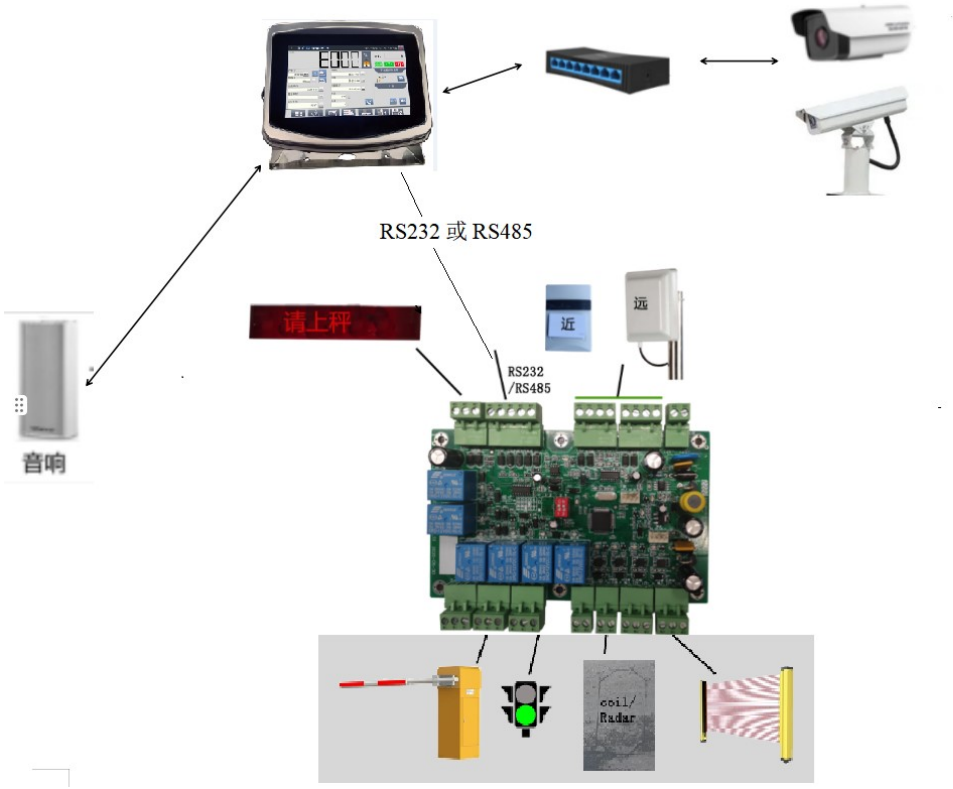


23. Unattended Function

23.1 Overall Diagram of Unattended System

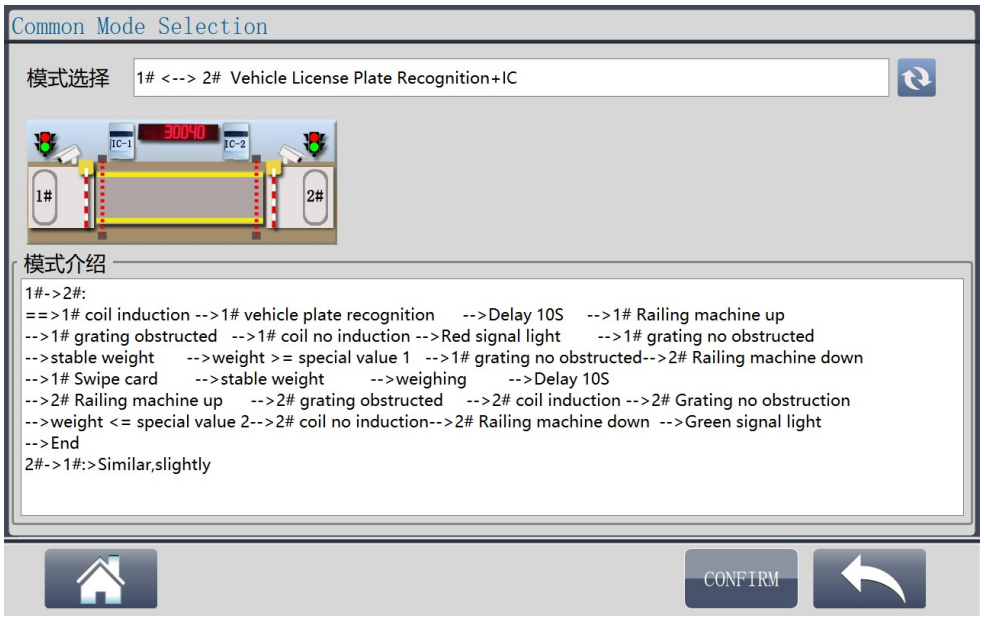


23.2 Simplified Connection Diagram of Unattended System

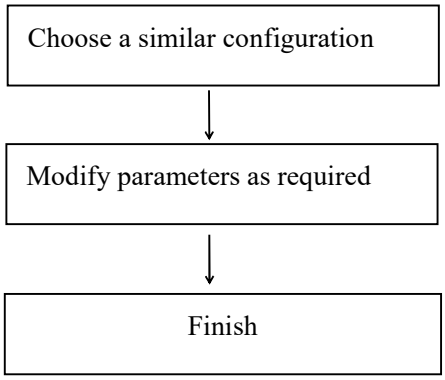


23.3 Unattended Configuration Process

The indicator supports rich configuration functions. To simplify configuration, several common configurations are available as options.

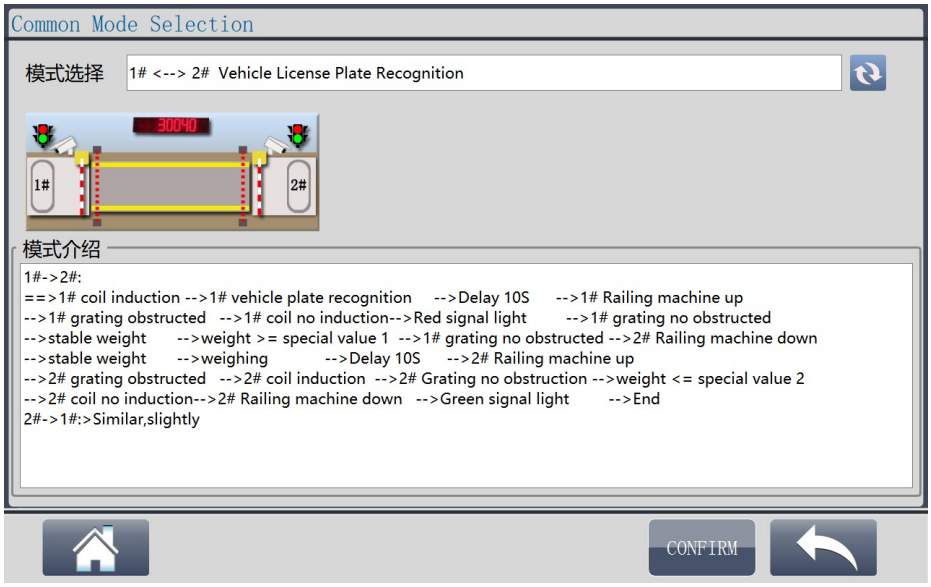


Configuration Steps:

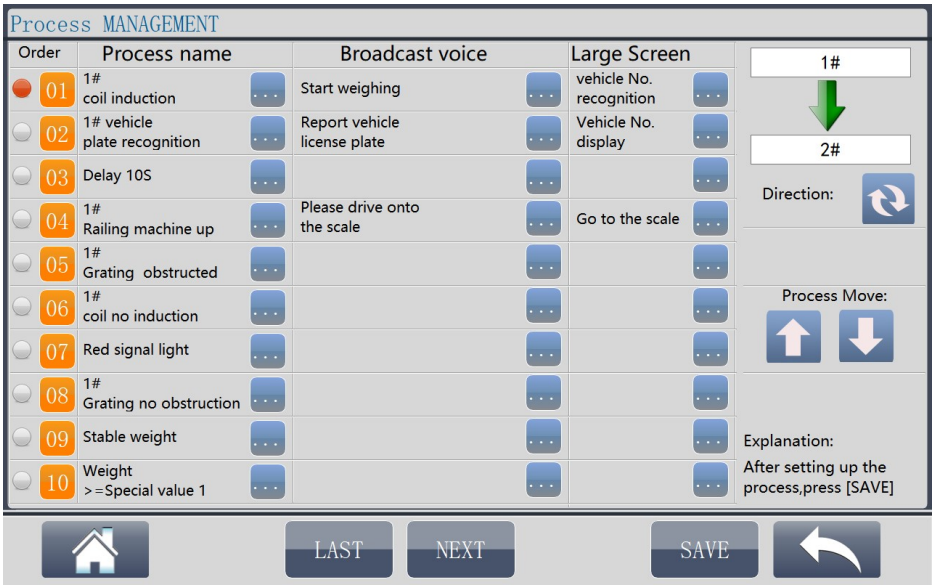


Operation Interface::

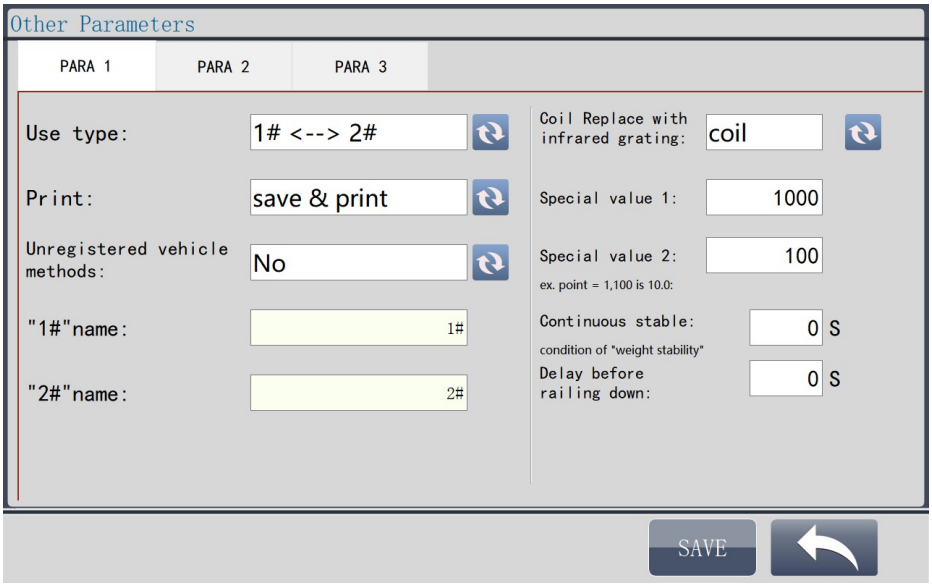
1.Select a similar configuration.



2.Fine-tune the process according to actual needs.

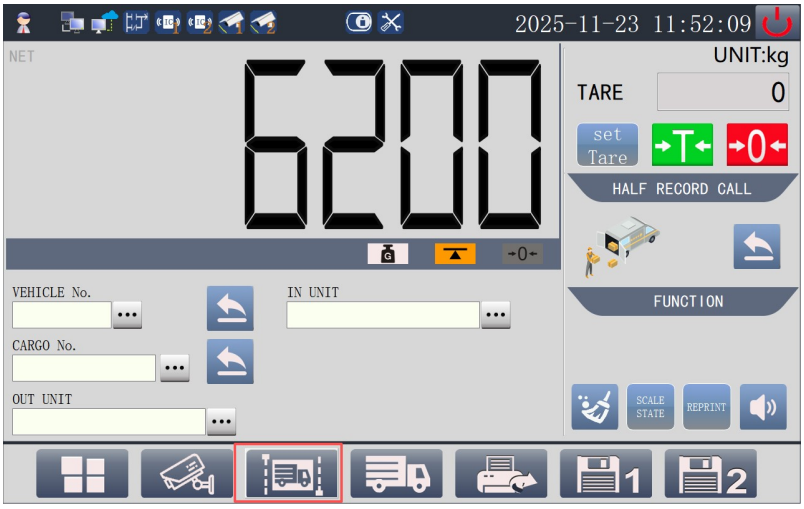


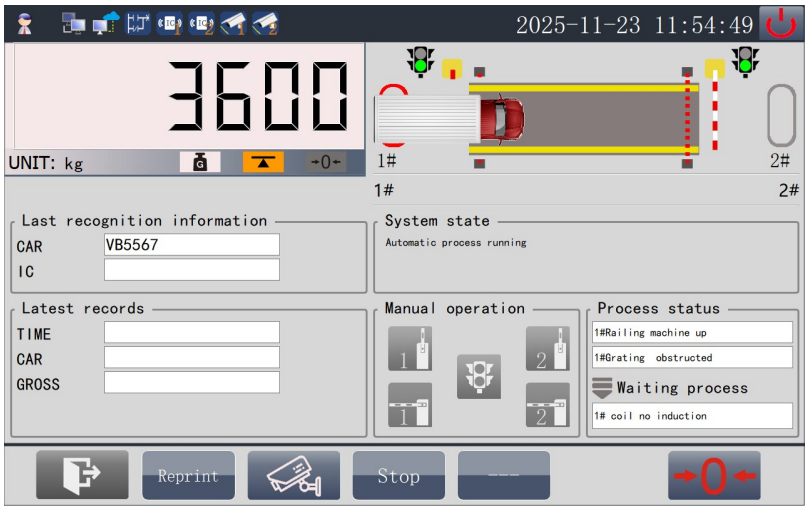
3.Fine-tune control parameters according to actual needs.



Unattended Application

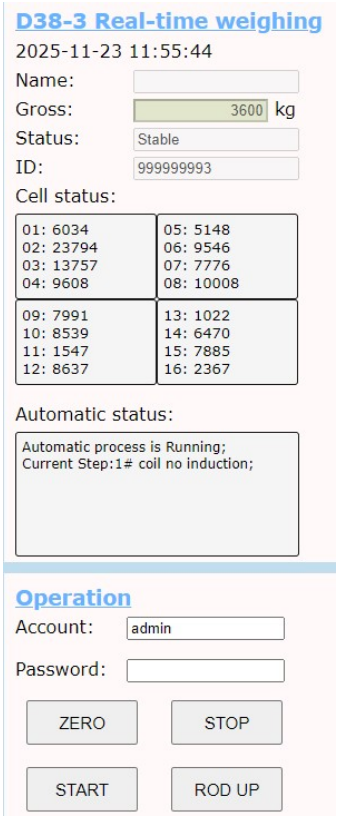
1.Start the indicator and log in with a designated account.





Tips:

1.The indicator can be operated via a web page (e.g., login and exception handling). The web address is the indicator's IP (e.g., 192.168.9.41).Enter http://192.168.9.41 in the web browser.



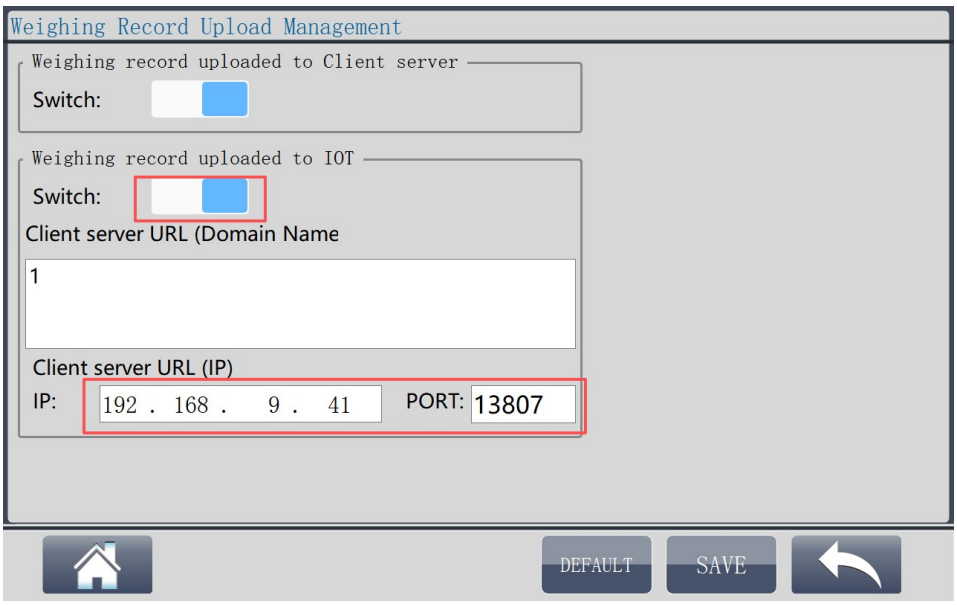
2.Remote monitoring of the site via the "Remote Service Function".

Note: Mobile phones or computers must be able to access the indicator (usually in a LAN). For external network access, the indicator's IP needs to be mapped to the public network (configured by the on-site network administrator).

24. Configuration for Pushing Weighing Records to Customer Server

24.1 Configuration

When enabled, the indicator will upload weighing records to the designated server.



24.2 Protocol Description

24.2.1 Communication Method

Data interface: TCP protocol

Communication content: TCP data packets

Port: Set on the computer and indicator

Encoding: UTF-8

24.2.2 Communication Data Format

Upload Data Command:

Indicator Send:

[STARTRECORD]

[SERIAL]:Send the number

[ID]:ID

[LENGTH]:Content byte length

[ADDCHECK]:verification code

[END]

Server Response:

[STARTRECORDRET]

[SERIAL]:Send the number

[ID]:ID

[GTIME]:2025-3-29 08:52:32

[RESULT]:SUCCESS

[END]

Agreements:

1.Except for [END], each line ends with a newline character "\n".
2.Except for [END], each line ends with a newline character "\n".
[RESULT]:
SUCCESS: Successful reception
BUSY: Server is busy; the indicator will retransmit the record later
FAIL: Reception failed (data format does not match storage requirements; the server will discard the record and the indicator will not retransmit)
3.The server does not need to respond if the verification code is incorrect.
4.When receiving a data packet, the server compares it with the last received packet. If the gross weight time is the same, it still returns "SUCCESS" but does not save the record.

24.2.3 Communication Data Content

Serial No.	Item	Item Name	Example
1	Content byte length	LENGTH	500
2	Send the number	SERIAL	000123 (000000~999999,random)
3	verification code	ADDCHECK	Sum of all data packet bytes, displayed as 8 fixed digits; take the last 8 digits when overflow (e.g., 600058932 → 00058932)
4	ID	DEV	0112354685
5	STATE	STATE	1（must be 1）
6	UNIT	UNIT	kg、t
7	ORDER	ORDER	00005
8	GTIME	GTIME	2023-3-29 08:52:32
9	TTIME	TTIME	2023-3-29 08:40:23
10	GROSS	GROSS	100.12
11	TARE	TARE	10.00
12	NET	NET	90.12
13	CAR	CAR	BR3M00
14	GOODS	GOODS	APPLE
15	OUT	OUT	002
16	IN	IN	001
17	TRANSPORT	TRANSPORT	AAC
18	REMARK1	NOTE1	HONG
19	REMARK2	NOTE2	
20	REMARK3	NOTE3	
21	PRICE	PRICE	1.0
22	TOTALPRICE	TOTALPRICE	90
23	RATE	RATE	0.00
24	WEIGHTYPE	WEIGHTYPE	
25	PHOTONUM	PHOTONUM	0~8
26	WORKER	WORKER	
27	BANGNAME	BANGNAME	

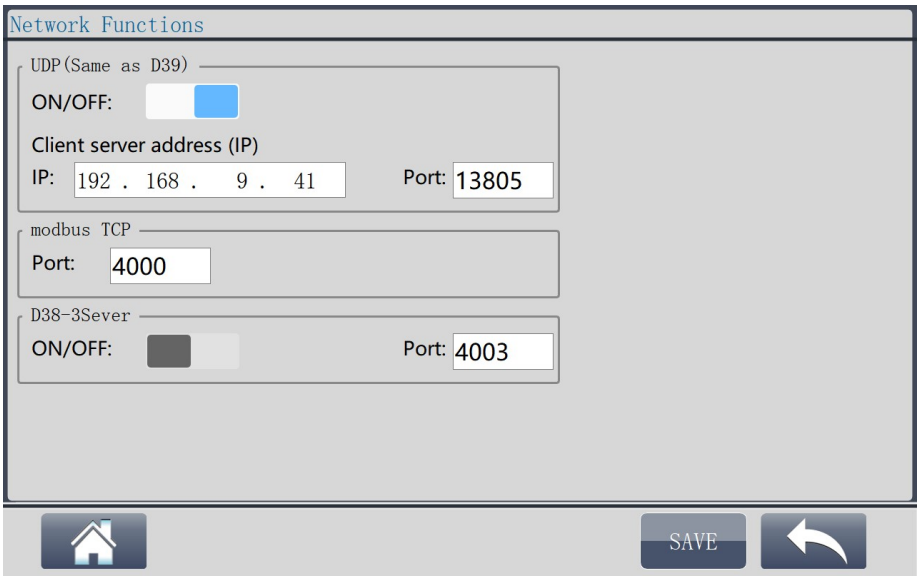
24.2.4 Example
Indicator Push:

```
[STARTRECORD]
[SERIAL]:000041
[ID]:0999999992
[LENGTH]:378
[ADDCHECK]:******
[STATE]:1
[UNIT]:kg
[ORDER]:00001
[GTIME]:2023-05-25 19:13:18
[TTIME]:2023-05-25 19:13:30
[GROSS]:102000
[TARE]:92000
[NET]:10000
[CAR]:BR3M00
[GOODS]:000
[OUT]:000
[IN]:
[TRANSPORT]:
[NOTE1]:000
[NOTE2]:000
[NOTE3]:000
[PRICE]:0.00
[TOTALPRICE]:0
[RATE]:0.00
[WEIGHTYPE]:
[PHOTONUM]:2
[WORKER]:admin
[BANGNAME]:
[END]
```

Server Response (Successful):

```
[STARTRECORDRET]
[SERIAL]:000041
[ID]:0999999992
[GTIME]:2023-05-25 19:13:18
[RESULT]:SUCCESS
[END]
```

25. Network Functions



25.1 UDP Protocol (Same as D39)

1)The indicator actively sends UDP packets to the set server and receives control commands (e.g., zeroing).

2)For multi-byte types (e.g., 4-byte long integer 0x12345678), the transmission order is [0]=0x12, [1]=0x34, [2]=0x56, [3]=0x78.

Byte No.	Content	Content	Description	Byte No.
0		'S'		Can be used as a keyword
1		'T'		
2		'A'		
3		'T'		
4		'E'		
5		':'		
6		' '	' '	Space 0x20
7			'1'	Current date (e.g., 13-12-25)
8			'3'	
9			'-'	
10			'1'	
11			'2'	
12			'-'	
13			'2'	
14			'5'	
15			' '	Space 0x20
16			'1'	Current time (e.g., 15:37:21)
17			'5'	
18			':'	
19			'3'	
20			'7'	
21			':'	
22			'2'	

23			‘1’	
24			0x00	High 8 bits of total bytes (e.g., 142 bytes → 0x008e)
25			0x8e	Low 8 bits of total bytes
26			0x0a	Number of sensors (e.g., 10)
27			0x01	Decimal places (e.g., 1)
28		Reserved		Indicator ID
29				
30				
31				
32		Multi-scale platform overload	Bit 0: Scale 1 overload (1=overload); Bit 1: Scale 2 overload (1=overload); Bit 2: Scale 3 overload (1=overload); Bit 3: Scale 4 overload (1=overload); Bits 4~7: Reserved 0	Valid only in multi-scale mode; 0 in other modes
33		Reserved		
34		Reserved		
35		Reserved		
36		Reserved		
37		Reserved		
38		Reserved		
39		Reserved		

40	**Bit 0**	Power-on zero confirmation	0=confirmed; 1=confirming	Weighing data is invalid if the scale platform power-on zero is not confirmed
	Bit 1	0=normal; 1=overload	0=normal; 1=overload	Return to below 70%F.S for normal status after long-term overload
	Bit 2	0=unstable; 1=stable	0=unstable; 1=stable	
	Bit 3	**Peeled**	**0: Not peeled** **1: Peeled**	
	Bit 4	**Zero Point**	**0: Not in the zero point zone** **1: Zero point zone**	
	Bit 5	**Measurement Data Valid**	**0: Invalid** **1: Valid**	**During calibration or scale assembly, any measurement data output at this time—such as gross weight, tare weight, or net weight—is invalid.**
	Bit 6	**Sensor Error**	**0: Communication normal** **1: Abnormal**	**Possible causes include incorrect password or communication failure. Refer to the status of each individual sensor for details.**
	Bit 7	Reserved	**01100001**	
41		Unit	0:kg 1：t	
42		Reserved		
43		Reserved		
44		Gross Weight Internal Code		**The Float class**
45				
46				
47				
48		Gross Weight Display Value		Signed long
49				

50				
51				
52		**Tare**		**Signed long**
53				
54				
55				
56		**Net**		**Signed long**
57				
58				
59				
60		Cell 1 state	0: Communication failure 1: Password error 2: Normal	
61		Cell 1 ISN		Float 类
62				
63				
64				
65		Cell 2 state	0: Communication failure 1: Password error 2: Normal	
66		Cell 2 ISN		Float 类似
67				
68				
69				
-------	---------	Cell 3~15 -------	---------	---------
135		Cell 16 state	0: Communication failure 1: Password error 2: Normal	
136		Cell 16 ISN		Float 类
137				
138				
139				
140		Checksum1		
141		Checksum2		

Checksum algorithm：

```
Int16u   I_temp = 0;
Int8     I;
For(I = 0;i<total number of bytes-2;i++)    //For example, the current total number of bytes = 142
{
    I_Temp += buff[i];
}
Checksum1 = (I_Temp>>8)&0x00ff;
Checksum2 = I_Temp&0x00ff;
```

Example: The instrument displays 0.0t

Receive data (HEX)

53 54 41 54 45 3A 20 31 39 2D 30 39 2D 32 33 20 32 32 3A 30 37 3A 32 33 00 8E 01 01 00 00 00 00 00 00 00 00 00 00 00 34 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 02 99 D0 1E 47 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 07 C5

The instrument displays 382.2t

Receive data (HEX)

53 54 41 54 45 3A 20 31 39 2D 30 39 2D 32 33 20 32 32 3A 30 38 3A 31 36 00 8E 01 01 00 00 00 00 00 00 00 00 00 00 00 24 00 00 00 3F DC 6E 45 EE 0E 00 00 00 00 00 00 EE 0E 00 00 02 00 B3 E4 47 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 0B 8E

When the mode is multi scale mode: the packet length is 166, adjust the byte content as follows:

140 141 142 143		Full weight		Unsigned long FullWeight For example, a value of 30000 corresponds to 0x00007530 Sending order: 0x30, 0x75, 0x00, 0x00
144		Weighing label on platform 1	0: Invalid 1: Normal 2: Abnormalities,	
145 146 147 148		Weighing value of platform 1		Float Due to accuracy issues, it can only be used for overload judgment with low accuracy, and cannot be used for measurement Example: Value 7016.94971 Corresponding to 0x45DB4799 Sending order: 0x99, 0x47, 0xDB, 0x45
149		Weighing label on platform 2	0: Invalid 1: Normal 2: Abnormalities,	
150 151 152 153		Weighing value of platform 2		
154		Weighing label on platform 3	0: Invalid 1: Normal 2: Abnormalities,	
155 156 157 158		Weighing value of platform 3		

159		Weighing label on platform 4	0: Invalid 1: Normal 2: Abnormalities,	
160		Weighing value of platform 4		
161				
162				
163				
164		Checksum1		
165		Checksum2		

The checksum algorithm remains unchanged.

Instructions:

1. Zero command: "KEYCOMMAND: ZERO"

2. Continuous sending speed set 3 times per second: "SPEEDCOMMAND: 0"; (Default)

2. Continuous sending speed 1 second 10 times setting: "SPEEDCOMMAND: 1";

The manufacturer provides a "demo" testing program.

25.2 Modbus TCP

The indicator acts as a server and supports simultaneous access by multiple clients.

25.2.1 Key Parameters

IP: Indicator's IP address

Port: 4000

Interface: RJ45 wired Ethernet

Device Address: Address in Serial Port 1 parameters

Note: The indicator operates in TCP server mode. If no data is received from the connected device (e.g., PLC) for more than 5 seconds, the indicator will determine the connection invalid and disconnect. The application device must reconnect afterward.

25.2.2 Digital Indicator Registers

Register Address		Description
40000		Status Bit8: Power-on zero confirmation (0=confirmed, 1=confirming) Bit9: Overload (0=normal, 1=overload) Bit10: Stability (0=unstable, 2=stable) Bit11: Tare removal (0=no tare removal, 1=tare state) Bit12: Zero position (0=not in zero zone, 1=zero zone) Bit13: Measuring data validity (0=invalid, 1=valid) Bit14: Sensor error (0=communication normal, 1=abnormal) Bit15: Reserved Bits0~7: Number of sensors
40001		Sensor status (0=normal, 1=abnormal) Bit0: Sensor 1 Bit1: Sensor 2 ... Bit15: Sensor 16
40002-40003		Gross weight: float
40004-40005		Tare weight: float
40006-40007		Net weight: float
40008-40009		Internal code of Sensor 1: float

400010-40011		Internal code of Sensor 2: float
...		...
40038-40039		Internal code of Sensor 16: float
10001		Bit0: Zeroing (1=effective)Bits1~15: Reserved (invalid)

25.2.3 Other Register Functions

Same as "Serial Port Protocol 1".

25.2.4 Data Packet Explanation

Received data: 00 2F 00 00 00 06 01 03 00 02 00 004

00 2F: Communication count (increments by 1 per frame, next frame is 00 30)

00 06: Number of subsequent bytes

01 03 00 02 00 004: Same as RS232 Modbus RTU data packet, without CRC check 验

Examples:

1)Reading weight and internal code

Command: 5F EA 00 00 00 06 01 03 00 00 00 28

Response: 5F EA 00 00 00 53 01 03 50 10 34 00 00 00 00 00 00 00 00 00 00 47 79 C3 0E AA 8D C3 7B 9F D0 C3 24 7B DD C2 D8 1A A3 C2 F6 A0 55 C3 03 E4 8D C3 17 75 D6 C2 6A 17 88 C3 73 8A 5E C2 BF 3B 31 C3 1A 12 6C C3 37 D3 50 C3 5E EA B1 C3 11 B0 65 C2 D0 D0 CD C2 C6 00 00 00 00

2)Zeroing

Command: 90 78 00 00 00 06 01 06 00 01 00 01

Response: 90 78 00 00 00 06 01 06 00 01 00 01

25.3 D38-3Server

1)The indicator acts as a server and supports simultaneous access by multiple clients.

2)Customers can connect to the high-end monitoring indicator via protocols; refer to "Remote Service Function" for details.

26. Remote Service Function

The indicator acts as a server, allowing clients to monitor it via commands. It modularizes the indicator and connected unattended systems, enabling efficient secondary development of application-layer software and enhancing on-site unmanned operations.

26.1 Command Functions

Serial No.	Command Content	Command Code	Remarks
1	Read weighing photos and current n-th camera screen Cmd_ReadPhoto	0x02	Read weighing photos and real-time images
2	Write specified vehicle number information Cmd_WriteOneCarInfo	0x04	
3	Write specified cargo number information Cmd_WriteOneCargoInfo	0x05	
4	Read specified vehicle number information Cmd_ReadOneCarInfo	0x06	

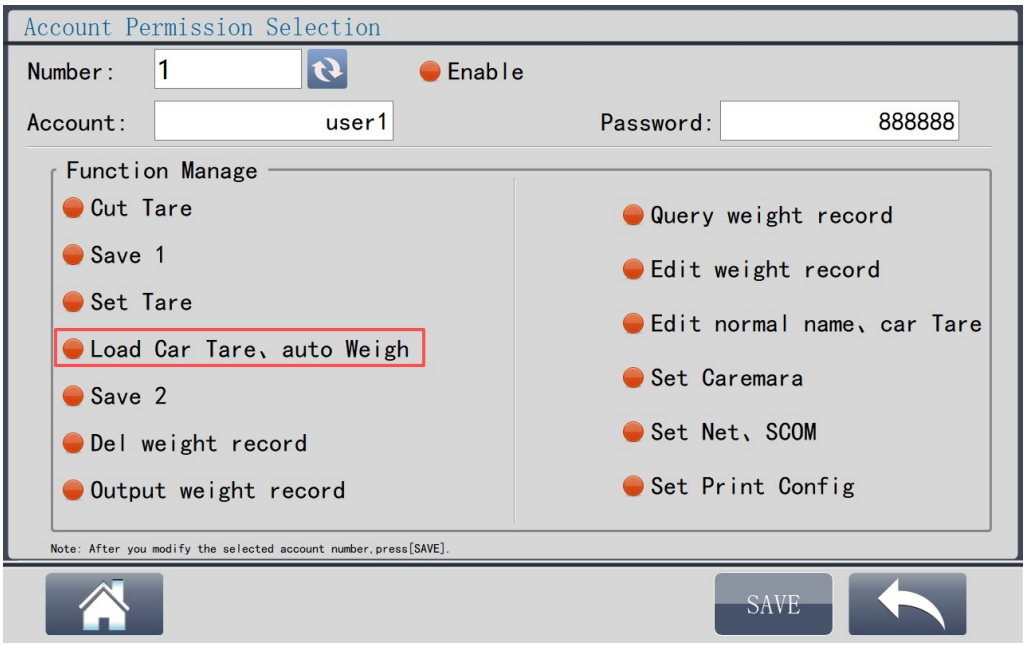
Serial No.	Command Content	Command Code	Remarks
5	Read specified cargo number information Cmd_ReadOneCargoInfo	0x07	
6	Clear specified vehicle number information Cmd_ClearOneCarInfo	0x08	
7	Clear specified cargo number information Cmd_DeleteOneCargoInfo	0x09	
8	Clear all vehicle number information Cmd_DeleteAllCarInfo	0x0a	
9	Clear all cargo number information Cmd_DeleteAllCargoInfo	0x0b	
10	Read all vehicle number information Cmd_ReadAllCarInfo	0x0c	
11	Read all cargo number information Cmd_ReadAllCargoInfo	0x0d	
12	Clear weighing records (by condition) Cmd_DeleteWeightRecord	0x0e	
13	Write and print weighing record content Cmd_PrintWeightRecord	0x10	Execute print task; reprint is available
14	Write one weighing record Cmd_WriteOneWeightRecord	0x11	Only complete records can be written
15	Read weighing record information within a specified time period (only time and completeness) Cmd_ReadWeightRecordInfoWithPeriodTime	0x13	Used for servers to identify new weighing records
16	Read weighing records at specified time Cmd_ReadWeightRecordWithTime	0x14	
17	Read the latest weighing record time Cmd_ReadNewestWeightRecordTime	0x15	Read the latest weighing record time
18	Real-time indicator status Cmd_RealTimeMeterState	0x16	The indicator actively uploads status (150ms interval)Receives

Serial No.	Command Content	Command Code	Remarks
			commands like "zeroing, restart, lift barrier, start" to control digital output and set time
19	Play sound on-site Cmd_PlaceVoice	0x17	After playing ends

Note: 1) The secondary development software for the application terminal can be developed by a third party or the indicator manufacturer.

2)Access Permissions

Requires account password and the permission of "calling vehicle number/tare weight for weighing and unattended operation".



26.2 Cases

Case 1: Weighing, Photographing, and Printing

Process	Action	Design	Remarks
1	Vehicle weighing	The indicator realizes weighing and printing through the unattended process	The indicator uploads weighing data and photos to the user management software and receives print commands from it

Case 2: Empty Vehicle Reservation at Entrance → Empty Vehicle Weighing → Loading→ Full Vehicle Weighing → Checkout at Entrance

Process	Action	Design	Remarks
Empty vehicle reservation at entrance	Create a card on the user management software and send information to the indicator	The card contains vehicle information, 2-time weighing details, etc.	Empty vehicle reservation at entrance
2	Empty vehicle weighing	The indicator realizes weighing through the	The indicator uploads the first weighing data to the

		unattended process	user management software, which can choose to process or ignore it
3	Loading		
4	Full vehicle weighing	The indicator realizes weighing through the unattended process	The indicator uploads complete weighing data to the user management software for storage; weighing photos can be read
5	Checkout at entrance	The user management software sends information to the indicator to cancel the card	

The weighmaster can remotely view the unattended status and on-site video, and conduct voice command to the driver (demo for reference).

Case 3: Empty Vehicle Reservation at Entrance → Empty Vehicle Weighing at Scale A → Loading → Full Vehicle Weighing at Scale B → Checkout at Entrance

Process	Action	Design	Remarks
1	Empty vehicle reservation at entrance	Create a card on the user management software and send information to Scale A's indicator	The card contains vehicle information, 1-time weighing details, etc.
2	Empty vehicle weighing at Scale A	Scale A's indicator realizes weighing through the unattended process	Scale A uploads weighing data and photos to the user management software, which receives and sends card information to Scale B's indicator
3	Loading		
4	Full vehicle weighing at Scale B	Scale B's indicator realizes weighing through the unattended process	Scale B uploads complete weighing data and photos to the user management software, which organizes and saves the data from both weighings
5	Checkout at entrance	The user management software sends information to Scale B's indicator to cancel the card	

26.3 Recommended Secondary Development Process

Step	Content	Remarks
1	Understand the usage of each command through the provided demo	
2	Design weighing application processes (excluding unattended) according to customer needs, such as one-card system	Unattended is implemented by the indicator

3	Verify process feasibility on the demo	
4	Develop user management software	Refer to demo source code

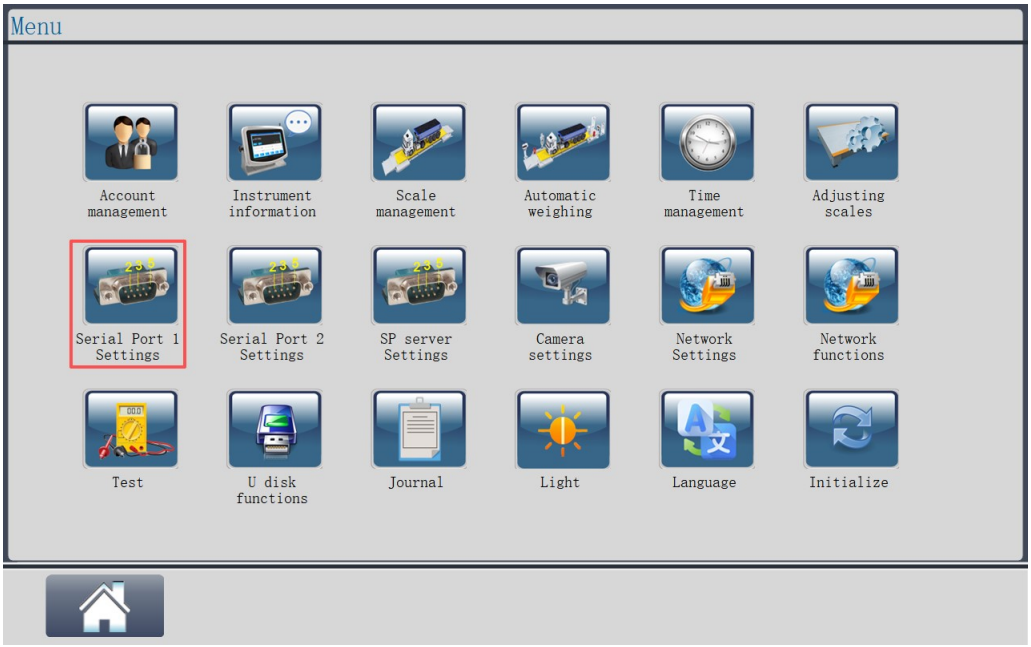
Advantages: Delegate professional tasks to professional companies or personnel to improve reliability and project development speed.

26.4 Exception Handling

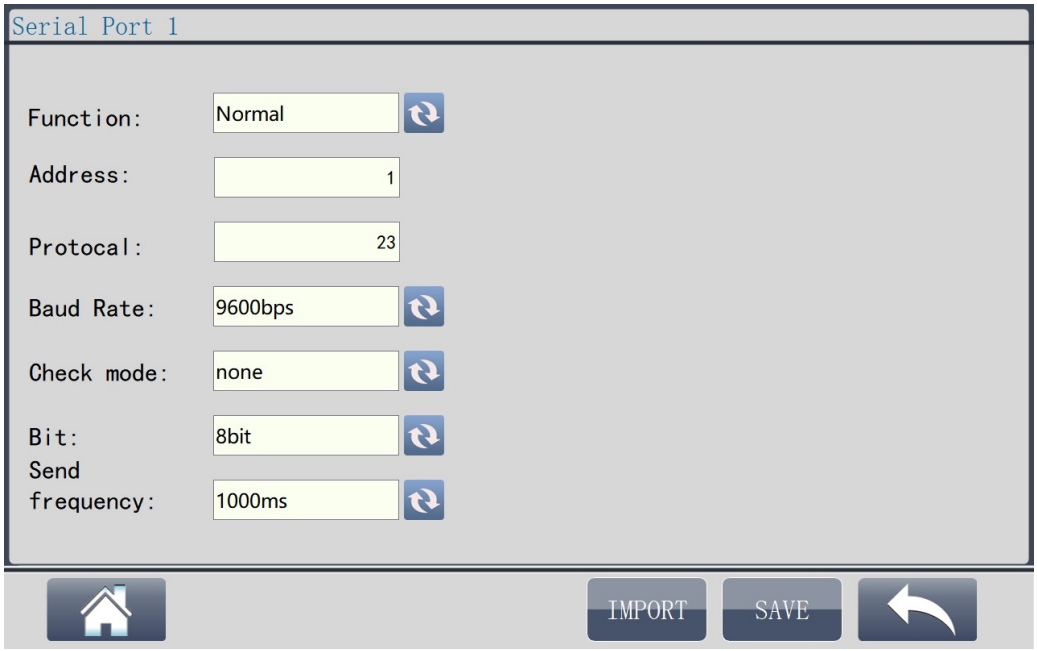
The indicator provides real-time on-site status. When an unattended exception occurs, the driver can be remotely guided via voice, the process can be stopped, and the barrier can be lifted. After the issue is resolved, restart the unattended system to achieve high-level on-site unmanned operations.

27. Serial Port Configuration

27.1 Serial Port 1 Configuration



When connecting to conventional weighing software on-site, use the following configuration:

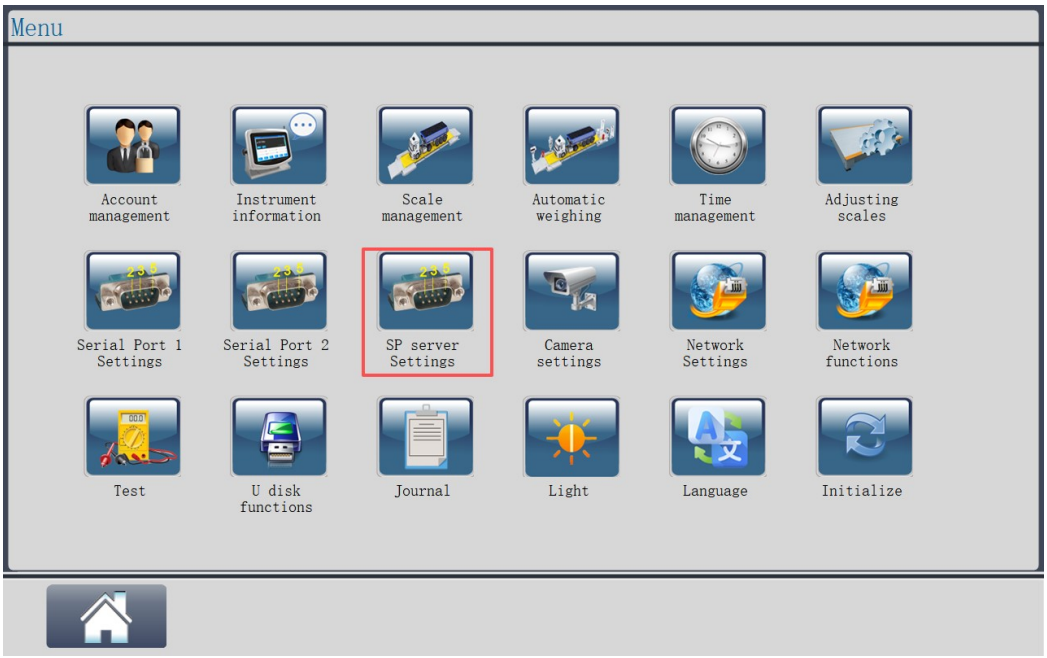


Different formats can be selected according to the protocol of the on-site weighing software.

27.2 Serial Port 2 Configuration

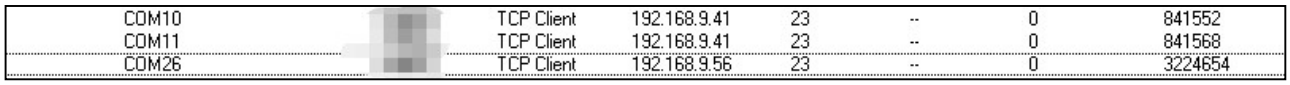
Compared with Serial Port 1, Serial Port 2 does not support the KL-MPLC function; other functions are the same.

27.3 Serial Server Configuration



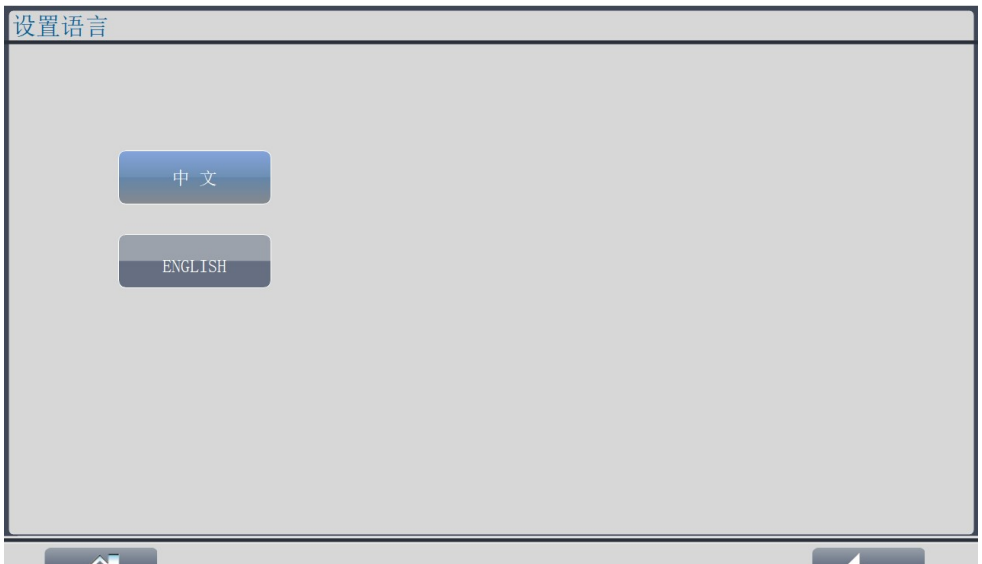
- TCP port: 23
- Output data format: Same as Serial Port 2， Run the serial server software on the computer:

Virtualize serial ports (the indicator supports connecting at least 10 devices), then connect to conventional serial weighing software to realize network communication without modifying the weighing software.



28. Language Selection

The indicator supports two languages: "Chinese" and "English".

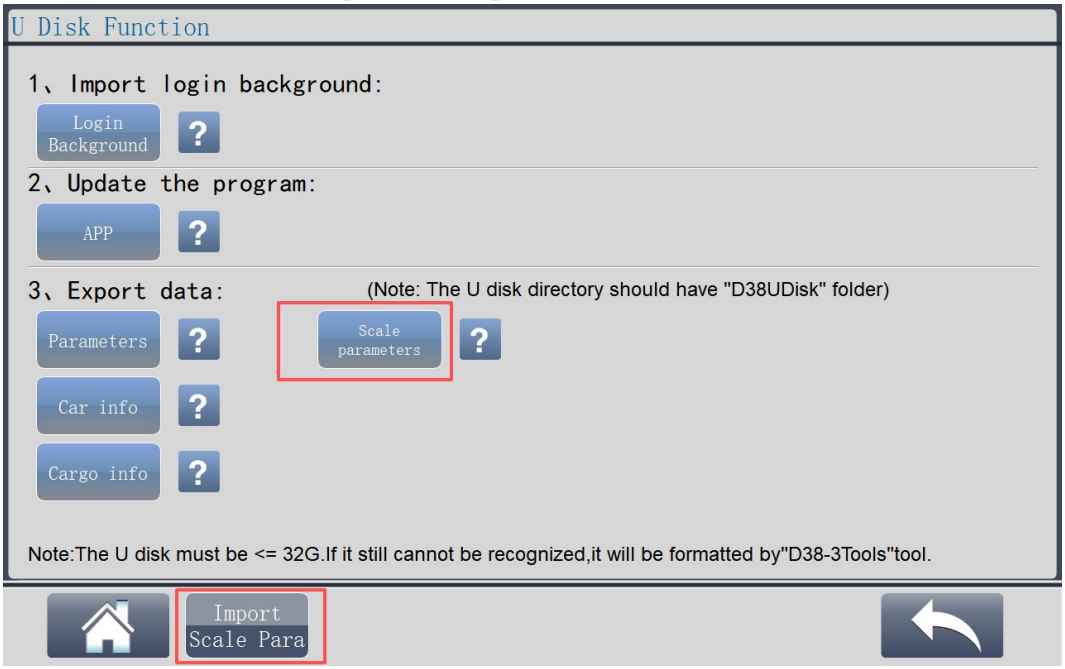


The indicator interface display, print output, and web page display will be executed in the selected language.

29. U Disk Import and Export of Scale Platform Parameters

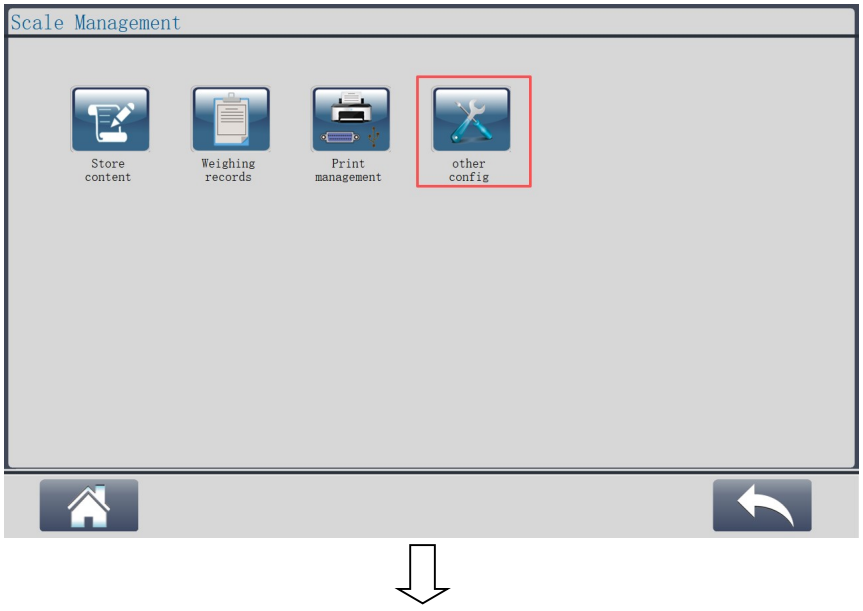
Requires enabling the calibration switch and "admin" permission. The U disk must have the folder: /D38UDisk/

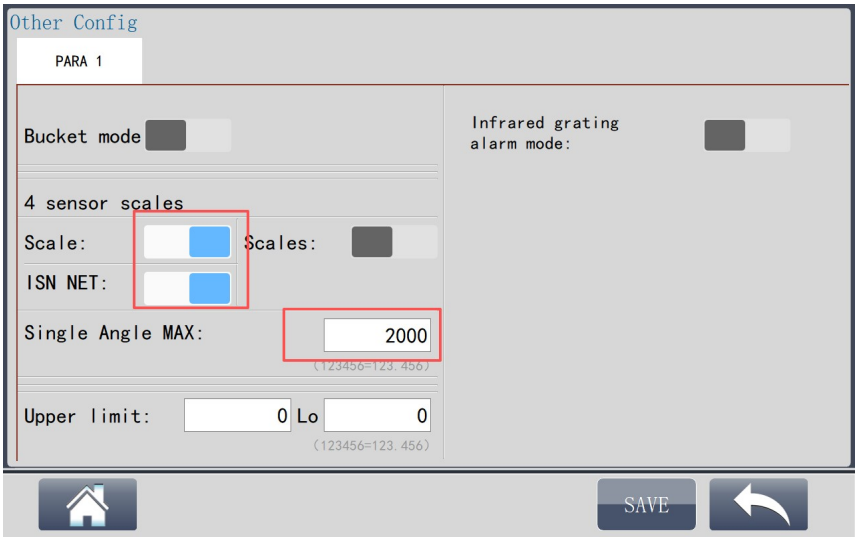
U disk file:/D38UDisk/backUpData/backUpScalePara.txt

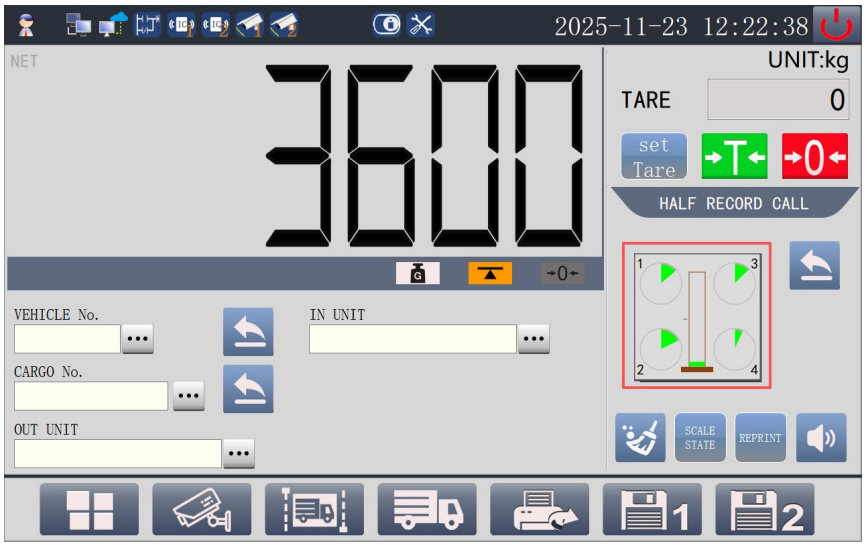


30. Single Scale Platform Corner Load Display

Graphically displays the force-bearing status of each of the 4 sensors on the scale platform.



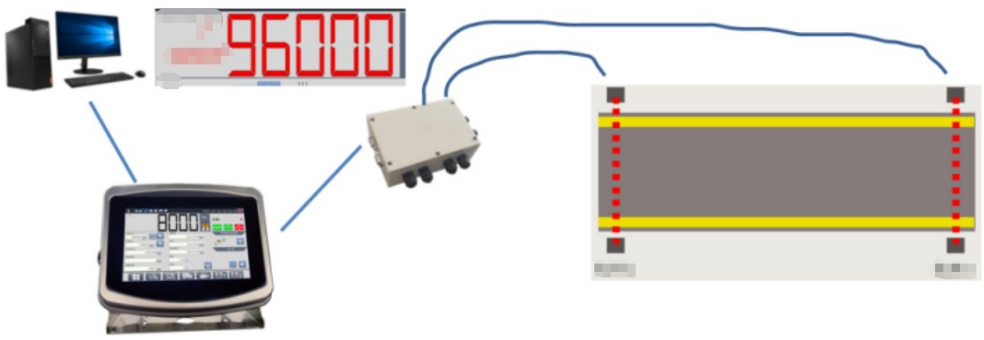




31. Infrared Grating Alarm

When drivers weigh, they may intentionally or unintentionally place vehicle wheels outside the scale platform, resulting in lighter weighing results.

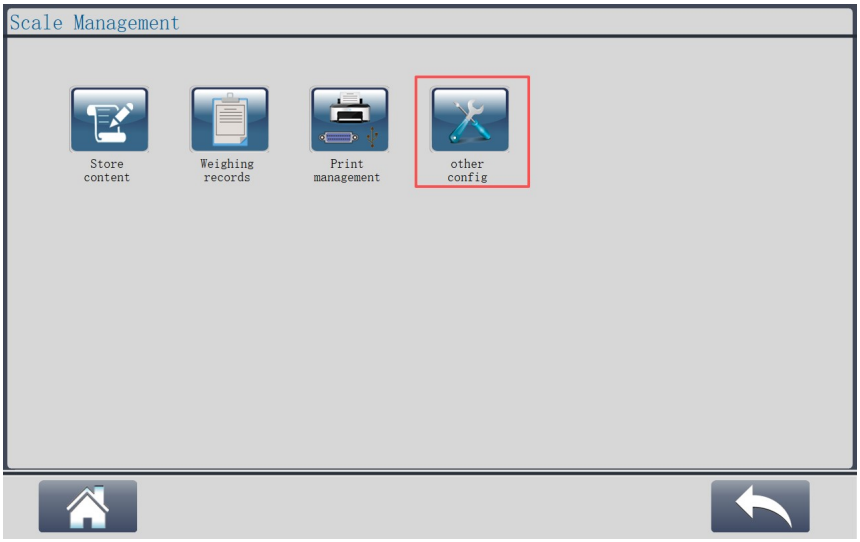
If the customer does not want to configure a control cabinet, this solution can be used to realize indicator abnormal indication and stop sending weight data to the computer when abnormal.

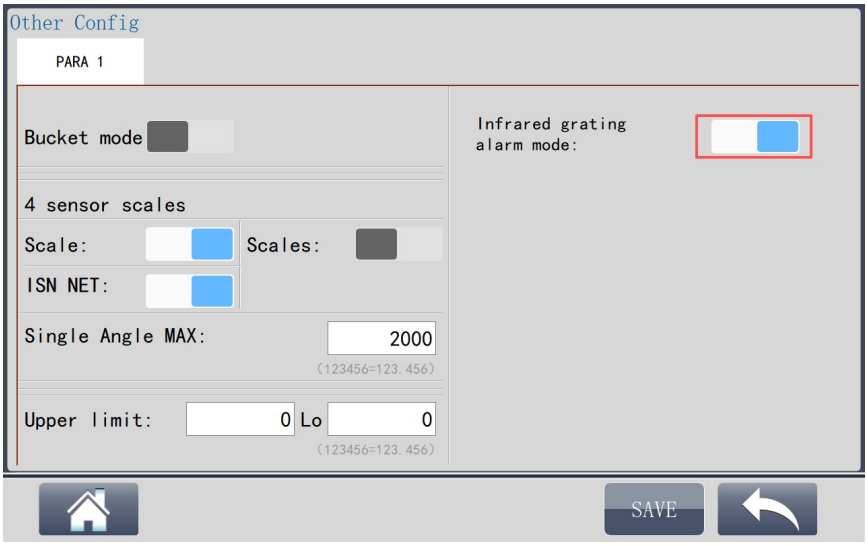


Hardware Configuration

D38-3(BX1) + KL-MPLC(S) + two pairs of gratings

Configuration Method

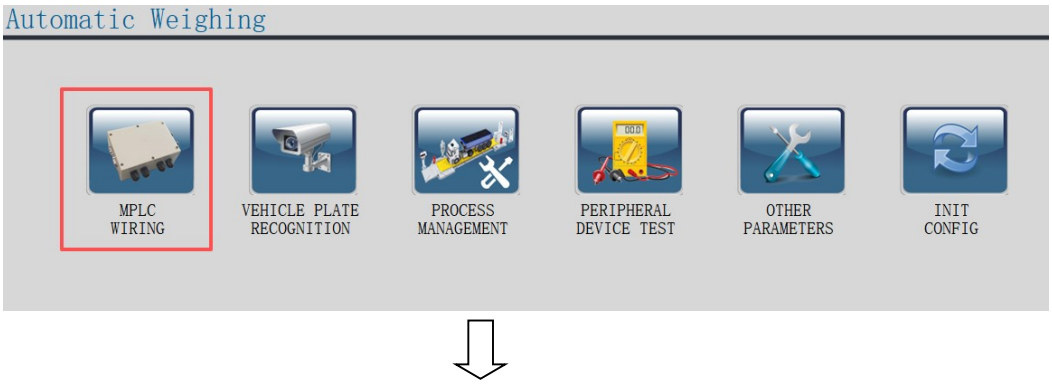


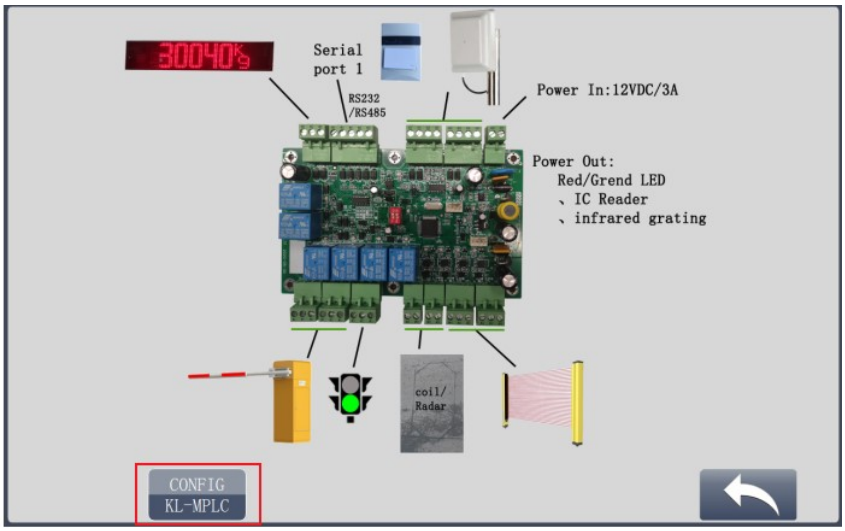


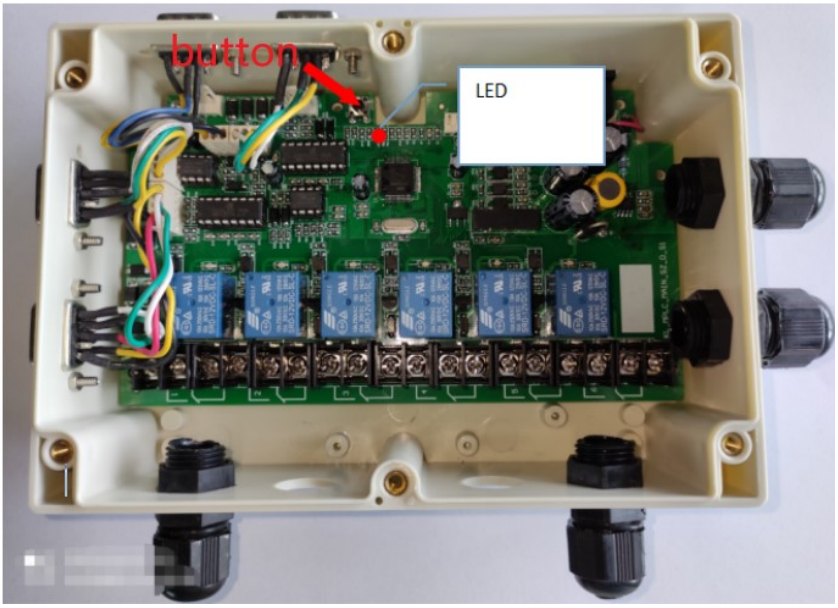
The indicator needs to be restarted after modifying parameters on this interface.

32. Configuring KL-MPLC(S)

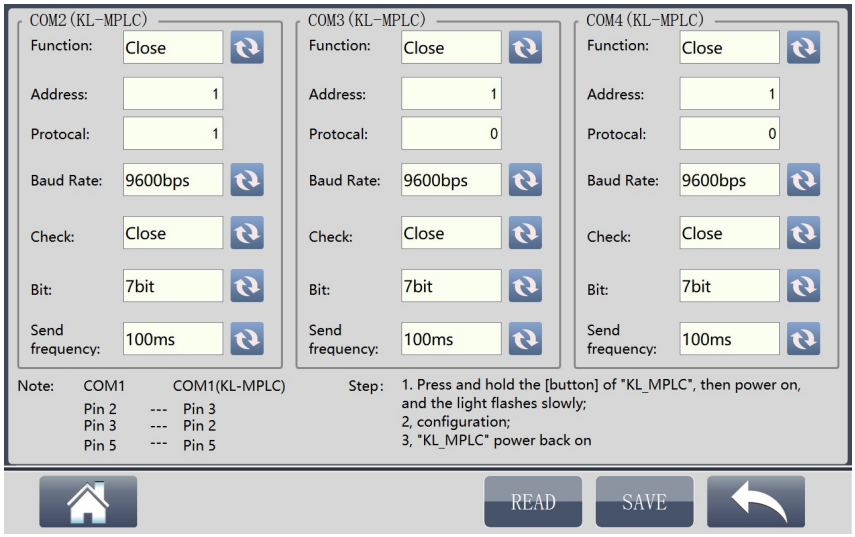
KL-MPLC(S) has multiple working modes. Configuration is required when connecting to D38-3; operation steps are as follows:







Press and hold the [button] of "KL-MPLC", then power on. Release the button when the indicator light flashes slowly (enters configuration mode).



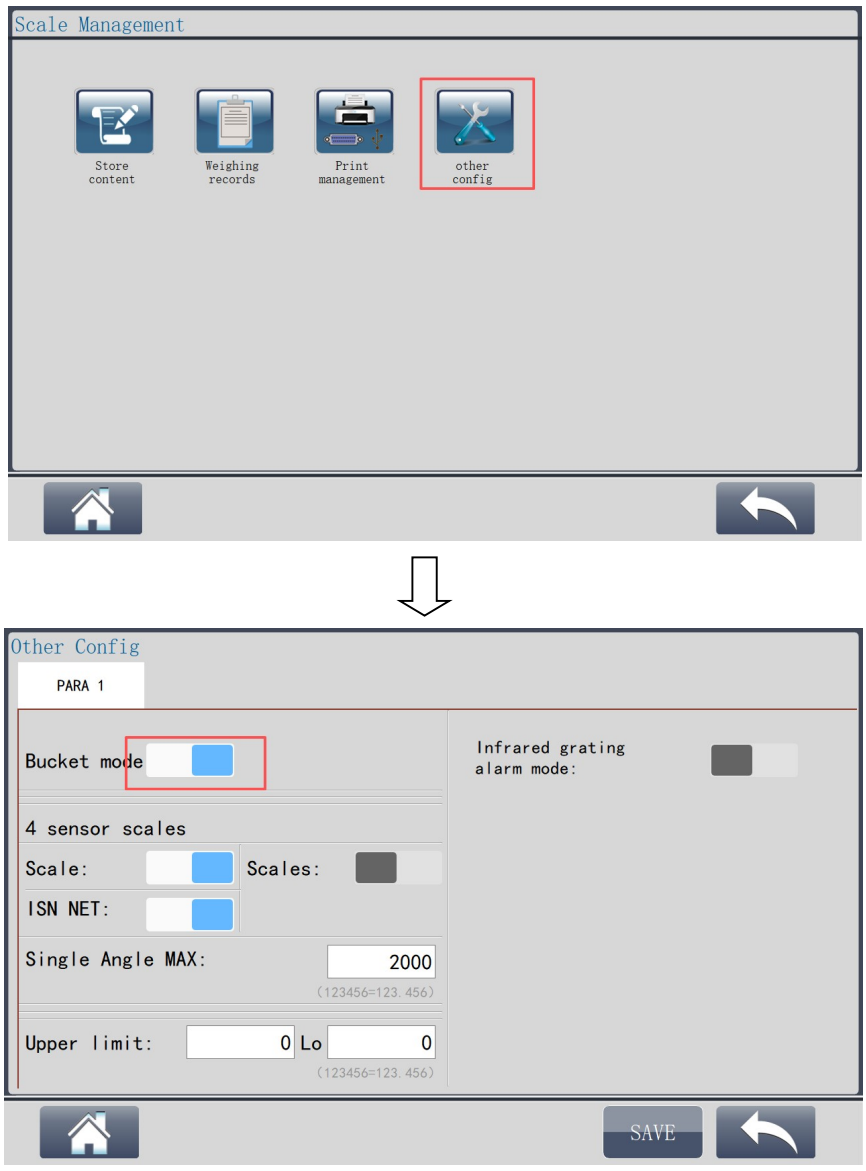
Step 1: [Read]

Step 2: Modify KL-MPLC serial port functions. By default, the above 3 serial ports are closed; enable them if multiple serial port outputs of the indicator are required.

Step 3: [Save] and restart KL-MPLC.

33. Tank Mode

The indicator supports reading parameters and remote calibration via Serial Port 1's "Modbus RTU" and RJ45 Ethernet "Modbus TCP". In tank mode, it supports remote authorization of "calibration switch" and "scale adjustment party" permissions. The "calibration switch" must be enabled when switching to tank mode.



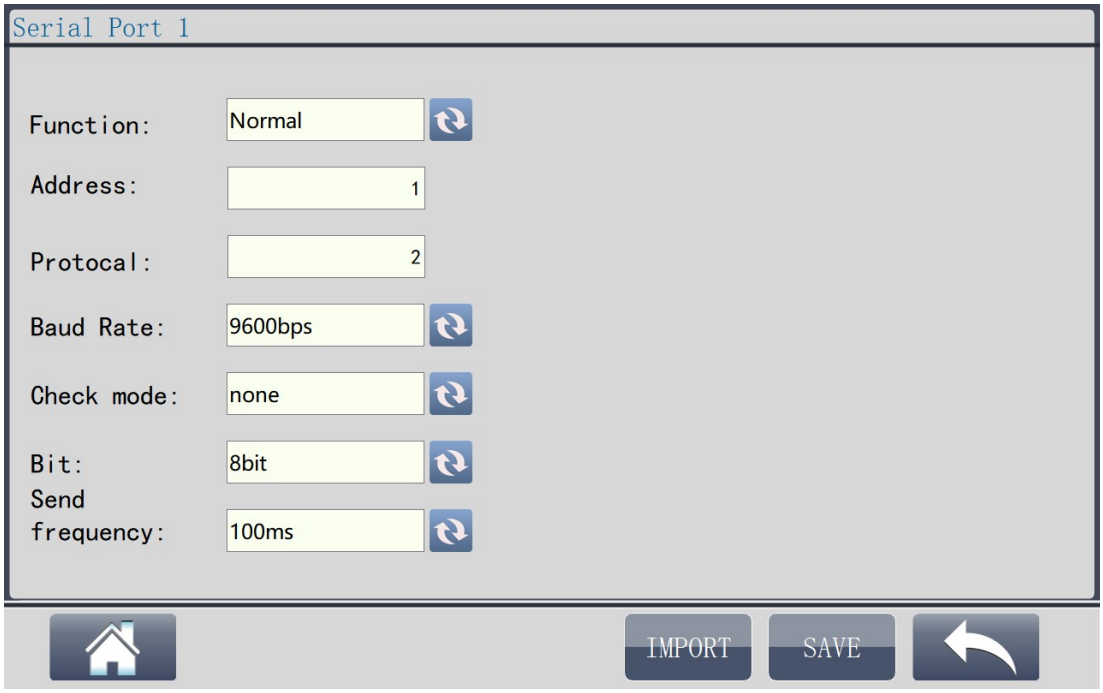
34. Configuring 4~20mA Output

Model: RS232 / 4-20mA converter

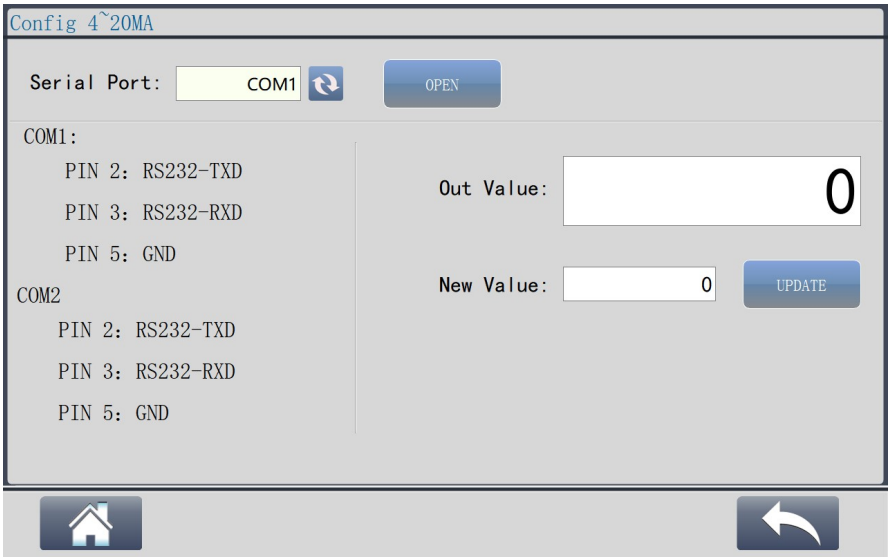
Wiring Method

Serial No.	Interface	RS232 / 4-20mA Converter	Indicator (COM1 or COM2)
1	RS232-RXD	2	2
2	RS232-TXD	3	3
3	GND	5	5

Indicator Protocol Configuration



Configuring Converter Zero and Full Scale



Zero calibration: Set the output value to 0, then press the converter's "Zero" button.

Full-scale calibration: Set the output value to the "full-scale value", then press the converter's "Full" button.

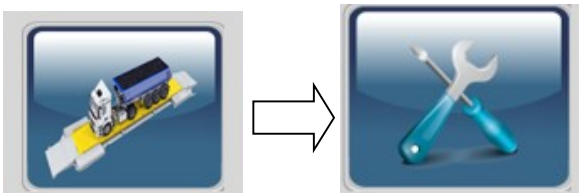
35. Multi-scale Platform Display Mode

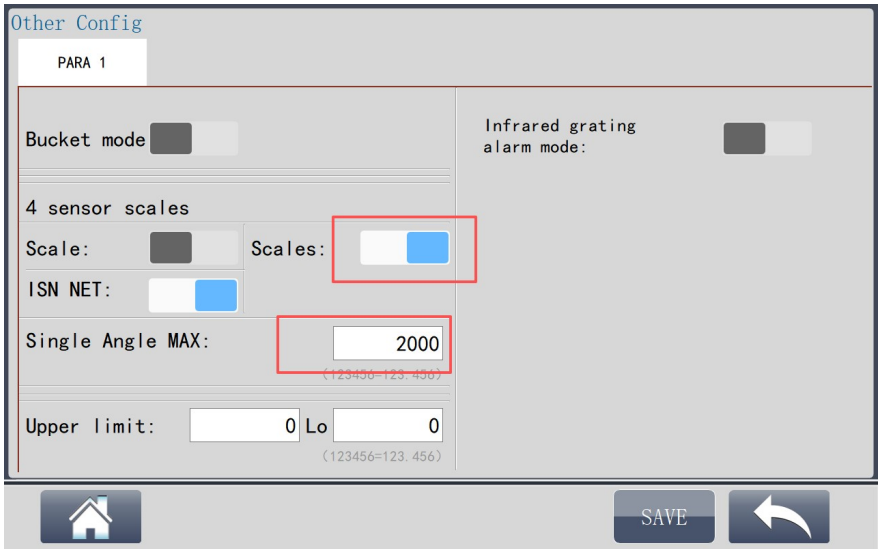
Displays the weight of multiple independent scale platforms for refined overload control and alarm indication. Simultaneously outputs the weight of 4 platforms, as well as the indicator's total weight, tare weight, and net weight. Sensor installation method is as follows:

Application Notes:

The force-bearing weight of each scale platform is mainly used to analyze overload and approximate corner load of each platform; it cannot be used for measurement settlement. Only the total weight can be used for measurement settlement.

Configuration Method:





Takes effect after restart.

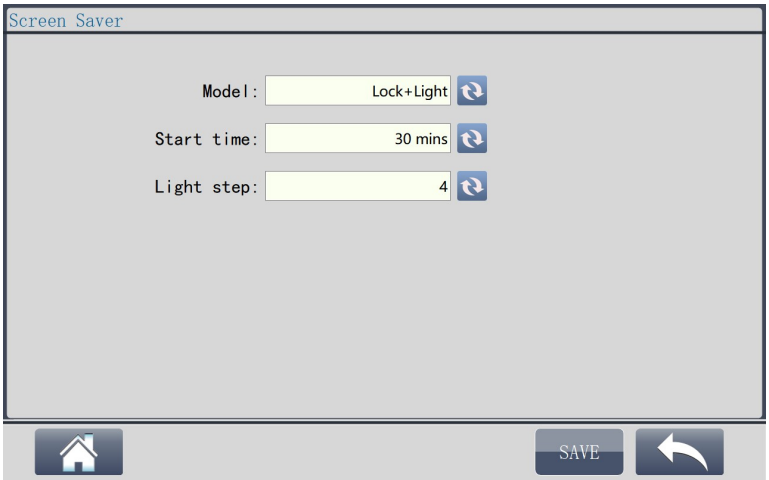
Data Output Format

Refer to "UDP Protocol (Same as D39)" and "Serial Communication Protocol 23" for multi-scale platform data output format.

36. Brightness, Screen Saver and Screen Lock Management

Screensaver: When there is no operation for a long time, the indicator enters screen saver mode and reduces brightness to significantly lower heat generation, suitable for outdoor non-ventilated control cabinets.

Screen Lock: Prevents accidental touch operations



Appendix A: Serial Communication Protocol

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

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

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

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

X or＝2⊕3⊕……8⊕9。

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

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

(2). **Continuous mode (TF=2)**: the transfer of data for instrument display gross weight.

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

All data is ASCII code, each frame data forms 8 bytes (contain decimal point), data transfer from low to high-order position. There is a separator between every frame “＝”, sending data which is weighing value. If weigh data currently display 188.5, continuous send 5.88100=5.88100=……. If weigh data currently display -188.5, continuous send 5.8810-=5.8810-=……. If”address”=99, the frame will send =58810-=.58810-…….

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

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

All data is ASCII code, each frame data forms 9 bytes (contain decimal point), data transfer from low to high-order position. There is a separator between every frame “＝”, sending data which is weighing value. If weigh data currently display 188.5, continuous send 5.881000=5.881000= … … . If weigh data currently display -188.5, continuous send 58810-=.58810-=……. If”address”=99, the frame will send =5.88100-=5.88100-…….

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

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

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

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

Continuous output every frame which is 18 bytes.

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

Among ：

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

Status word A
Bits 0 , 1 , 2

0	1	2	Decimal place
0	0	0	KGKG00
1	0	0	KGKGX0
0	1	0	KGKGKG
1	1	0	KGKGX.X
0	0	1	KGKG.KG
1	0	1	KGX.KGX
0	1	1	KG.KGKG
1	1	1	X.KGKGX

Bits 3 , 4		Division value factor
3	4	
1	0	X1
0	1	X2
1	1	X5

Bit 5	Permanent 1
Bit 6	Permanent 0

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

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

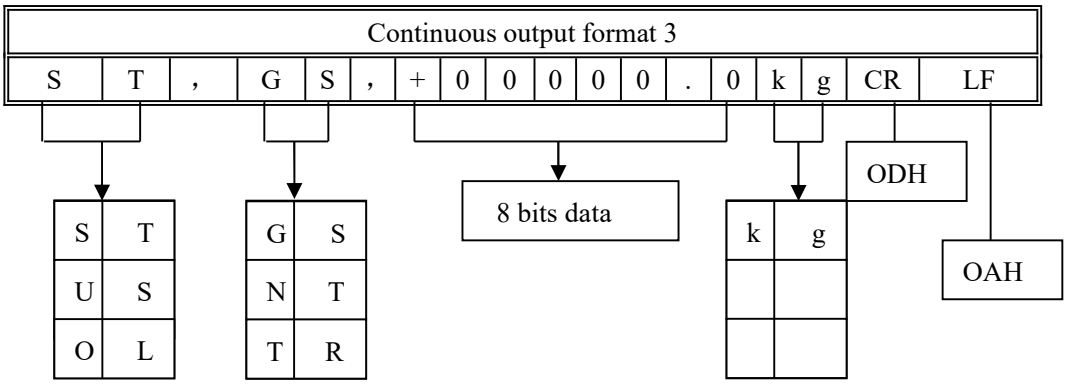
(4). **Continuous mode (TF=6)：**

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

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

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

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



Header1 Header2

Header 1

ST weight（Stable）

US weight（Unsable）

OL （Over Load）

Header 2

GS （Gross data）

NT （Net data）

TR （Tare data）

(6). **continuous mode (TF=8) ：**

1、Data format for serial communication as below:

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

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

Defination as follow：

First byte：start bit（02H）

Second byte：Status word A

Third byte：Status word B

Fourth byte：Status word C

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

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

Eleventh byte：enter（0DH）

Twelveth byte：line feed（0AH）

Status word A

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

Decimal point：

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

Status word B

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

D3 = Static is 0，dynamic is 1。

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

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

Status word C = 20H

(7). **Continuous mode (TF=16)：**

Byte order	Transmitted content	HEX value	Meaning
1,2	ST	53 54	Indicator is stable
	US	55 53	Indicator is unstable
	ZR	5A 52	Indicator is at zero
	OV	4F 56	Overload
3	.	2C	Separator
4,5	NT	4E 54	Net weight (in tare state)
	GS	47 53	Gross weight (not in tare state)
6	.	2C	Separator
7	+	2B	Weight sign bit
	-	2D	
8----14	0---9	30------39	
	小数点	2E	
	空格	20	
16,16	kg	6b 67	Data bits (when there is no decimal point, the 8th bit is a space, and bits 9---14 are data; when there is a decimal point, bits 8-14 are data
	t	20, 74	
17	CR	0D	
18	LF	0A	

（8）.**Protocol 1 (TF=1)**. Modbus RTU

Supports the old D2008 Modbus RTU protocol; details are omitted here.

Register address		Description
40060	UINT16/R	Status Bit8: Power-on zero confirmation (0=confirmed, 1=confirming) Bit9: Overload (0=normal, 1=overload) Bit10: Stability (0=unstable, 2=stable) Bit11: Tare removal (0=no tare removal, 1=tare state) Bit12: Zero position (0=not in zero zone, 1=zero zone) Bit13: Measuring data validity (0=invalid, 1=valid) Bit14: Sensor error (0=communication normal, 1=abnormal) Bit15: Reserved Bits0~7: Number of sensors
40061	UINT16/R	Sensor status (0=normal, 1=abnormal) Bit0: Sensor 1 Bit1: Sensor 2 ... Bit15: Sensor 16
40062-40063	FP32/R	Gross weight: float
40064-40065	FP32/R	Tare weight: float
40066-40067	FP32/R	Net weight: float
40068-40069	FP32/R	Internal code of Sensor 1: float
40070-40071	FP32/R	Internal code of Sensor 2: float
...		...
40098-40099	FP32/R	Internal code of Sensor 16: float

Other Register Functions

Parameter name	Type	Register address	Bit	Parameter range and description
Status	UINT16/R	40201 (0)	Bit0	Power-on zero confirmation (0=confirmed, 1=confirming)
			Bit1	Overload (0=normal, 1=overload)
			Bit2	Stability (0=unstable, 1=stable)
			Bit3	Reserved 0 (refer to tare weight value)
			Bit4	Zero position (0=not in zero zone, 1=zero zone)
			Bit5	Measuring data validity (0=invalid, 1=valid)
			Bit6	Calibration password permission (0=invalid, 1=authorized)
			Bit7	Calibration switch status (0=invalid, 1=triggered)
			Bits8~13	Number of sensors
			Bit14	Measurement board status (0=invalid, 1=valid)When invalid, only the indicator ID data is available; other data is unavailable
			Bit15	Reserved 0
Parameter	UINT16/R	40202 （2）	Bit0~7	Division value: 1, 2, 5, 10, 20, 50, 100
			Bit8~10	Decimal places: 0~3
			Bit11~15	Reserved 0
Parameter	UINT16/R/W	40203 （4）	Bit0~7	Replaced sensor address: 0~16 (0=invalid)
			Bit8~15	Replacing sensor address: 0~16 (0=invalid)
Indicator ID	UINT32/R	40204 （6）		
Total internal code	INT32/R	40206 （10）		Reserved 0
Gross weight	INT32/R	40208 （14）		Independent of decimal places; e.g., if the decimal place is 1, the value 12345 represents 1234.5
Tare weight	INT32/R	40210 （18）		
Net weight	INT32/R	40212 （22）		
Calibration zero internal code	UINT32/RW	40214 （26）		((Value-1000000)/10) (0<=x<=5000000)
Linearity	UINT32/RW	40216 （30）		Linearity 0 (Value/100000000)(Range: 100000<=X<=2000000000) E.g., 1234567890 represents 12.34567890
Sensor 1	UINT16/R	40218 （34）	Bit0	Communication status (0=normal, 1=abnormal)
			Bit1	Internal code status (0=invalid, 1=valid)
			Bit2~3	Housing status (0=invalid, 1=open, 2=closed)
			Bit4	Temperature status (0=invalid, 1=valid)
			Bit5	Humidity status (0=invalid, 1=valid)
			Bit6	Angle status (0=invalid, 1=valid)
			Bit7	Binding status (0=normal, 1=binding error)

			Bit8~15	Reserved 0
Sensor 1 angle difference coefficient	UINT32/R/W	40219（36）		Value/100000 (Range: 50000~150000) 123456 represents 1.23456
Sensor 1 real-time internal code	FP32/R	40221（40）		Real-time internal code
Sensor 1 working zero internal code	FP32/R	40223（44）		Working zero internal code
Sensor 1 temperature	INT16/R	40225（48）		123 represents 12.3 degrees
Sensor 1 humidity	INT16/R	40226（50）		123 represents 12.3
Sensor 1 X angle	INT16/R	40227（52）		123 represents 12.3 degrees
Sensor 1 Y angle	INT16/R	40228（54）		123 represents 12.3 degrees
Sensor 2	UINT16/R	40229（56）	Bit0	Communication status (0=normal, 1=abnormal)
			Bit1	Internal code status (0=invalid, 1=valid)
			Bit2~3	Housing status (0=invalid, 1=open, 2=closed)
			Bit4	Temperature status (0=invalid, 1=valid)
			Bit5	Humidity status (0=invalid, 1=valid)
			Bit6	Angle status (0=invalid, 1=valid)
			Bit7	Binding status (0=normal, 1=binding error)
			Bit8~15	Reserved 0
Sensor 2 angle difference coefficient	UINT32/R/W	40230（58）		Value/100000 (Range: 50000~150000)123456 represents 1.23456
Sensor 2 real-time internal code	FP32/R	40232（62）		Real-time internal code
Sensor 2 working zero internal code	FP32/R	40234（66）		Working zero internal code
Sensor 2 temperature	INT16/R	40236（70）		123 represents 12.3 degrees
Sensor 2 humidity	INT16/R	40237（72）		123 represents 12.3
Sensor 2 X angle	INT16/R	40238（74）		123 represents 12.3 degrees
Sensor 2 Y angle	INT16/R	40239（76）		123 represents 12.3 degrees
Sensor 3	UINT16/R	40240（78）	Bit0	Communication status (0=normal, 1=abnormal)
			Bit1	Internal code status (0=invalid, 1=valid)
			Bit2~3	Housing status (0=invalid, 1=open, 2=closed)
			Bit4	Temperature status (0=invalid, 1=valid)
			Bit5	Humidity status (0=invalid, 1=valid)

			Bit6	Angle status (0=invalid, 1=valid)
			Bit7	Binding status (0=normal, 1=binding error)
			Bit8~15	Reserved 0
Sensor 3 angle difference coefficient	UINT32/R/W	40241（80）		Value/100000 (Range: 50000~150000)123456 represents 1.23456
Sensor 3 real-time internal code	FP32/R	40243（84）		Real-time internal code
Sensor 3 working zero internal code	FP32/R	40245（88）		Working zero internal code
Sensor 3 temperature	INT16/R	40247（92）		123 represents 12.3 degrees
Sensor 3 humidity	INT16/R	40248（94）		123 represents 12.3
Sensor 3 X angle	INT16/R	40249（96）		123 represents 12.3 degrees
Sensor 3 Y angle	INT16/R	40250（98）		123 represents 12.3 degrees
Sensor 4	UINT16/R	40251（100）	Bit0	Communication status (0=normal, 1=abnormal)
			Bit1	Internal code status (0=invalid, 1=valid)
			Bit2~3	Housing status (0=invalid, 1=open, 2=closed)
			Bit4	Temperature status (0=invalid, 1=valid)
			Bit5	Humidity status (0=invalid, 1=valid)
			Bit6	Angle status (0=invalid, 1=valid)
			Bit7	Binding status (0=normal, 1=binding error)
			Bit8~15	Reserved 0
Sensor 4 angle difference coefficient	UINT32/R/W	40252（102）		Value/100000 (Range: 50000~150000)123456 represents 1.23456
Sensor 4 real-time internal code	FP32/R	40254（106）		Real-time internal code
Sensor 4 working zero internal code	FP32/R	40256（110）		Working zero internal code
Sensor 4 temperature	INT16/R	40258（114）		123 represents 12.3 degrees
Sensor 4 humidity	INT16/R	40259（116）		123 represents 12.3
Sensor 4 X angle	INT16/R	40260（118）		123 represents 12.3 degrees
Sensor 4 Y angle	INT16/R	40261（120）		123 represents 12.3 degrees
Sensor 5	UINT16/R	40262（122）	Bit0	Communication status (0=normal, 1=abnormal)
			Bit1	Internal code status (0=invalid, 1=valid)
			Bit2~3	Housing status (0=invalid, 1=open, 2=closed)

			Bit4	Temperature status (0=invalid, 1=valid)
			Bit5	Humidity status (0=invalid, 1=valid)
			Bit6	Angle status (0=invalid, 1=valid)
			Bit7	Binding status (0=normal, 1=binding error)
			Bit8~15	Reserved 0
Sensor 5 angle difference coefficient	UINT32/R/W	40263（124）		Value/100000 (Range: 50000~150000)123456 represents 1.23456
Sensor 5 real-time internal code	FP32/R	40265（128）		Real-time internal code
Sensor 5 working zero internal code	FP32/R	40267（132）		Working zero internal code
Sensor 5 temperature	INT16/R	40269（136）		123 represents 12.3 degrees
Sensor 5 humidity	INT16/R	40270（138）		123 represents 12.3
Sensor 5 X angle	INT16/R	40271（140）		123 represents 12.3 degrees
Sensor 5 Y angle	INT16/R	40272（142）		123 represents 12.3 degrees
Sensor 6	UINT16/R	40273（144）	Bit0	Communication status (0=normal, 1=abnormal)
			Bit1	Internal code status (0=invalid, 1=valid)
			Bit2~3	Housing status (0=invalid, 1=open, 2=closed)
			Bit4	Temperature status (0=invalid, 1=valid)
			Bit5	Humidity status (0=invalid, 1=valid)
			Bit6	Angle status (0=invalid, 1=valid)
			Bit7	Binding status (0=normal, 1=binding error)
			Bit8~15	Reserved 0
Sensor 6 angle difference coefficient	UINT32/R/W	40274（146）		Value/100000 (Range: 50000~150000)123456 represents 1.23456
Sensor 6 real-time internal code	FP32/R	40276（150）		Real-time internal code
Sensor 6 working zero internal code	FP32/R	40278（154）		Working zero internal code
Sensor 6 temperature	INT16/R	40280（158）		123 represents 12.3 degrees
Sensor 6 humidity	INT16/R	40281（160）		123 represents 12.3
Sensor 6 X angle	INT16/R	40282（162）		123 represents 12.3 degrees
Sensor 6 Y angle	INT16/R	40283（164）		123 represents 12.3 degrees
Sensor 7	UINT16/R	40284	Bit0	Communication status (0=normal, 1=abnormal)

		（166）	Bit1	Internal code status (0=invalid, 1=valid)
			Bit2~3	Housing status (0=invalid, 1=open, 2=closed)
			Bit4	Temperature status (0=invalid, 1=valid)
			Bit5	Humidity status (0=invalid, 1=valid)
			Bit6	Angle status (0=invalid, 1=valid)
			Bit7	Binding status (0=normal, 1=binding error)
			Bit8~15	Reserved 0
Sensor 7angle difference coefficient	UINT32/R/W	40285（168）		Value/100000 (Range: 50000~150000)123456 represents 1.23456
Sensor 7 real-time internal code	FP32/R	40287（172）		Real-time internal code
Sensor 7 working zero internal code	FP32/R	40289（176）		Working zero internal code
Sensor 7 temperature	INT16/R	40291（180）		123 represents 12.3 degrees
Sensor 7 humidity	INT16/R	40292（182）		123 represents 12.3
Sensor 7 X angle	INT16/R	40293（184）		123 represents 12.3 degrees
Sensor 7 Y angle	INT16/R	40294（186）		123 represents 12.3 degrees
Sensor 8	UINT16/R	40295（188）	Bit0	Communication status (0=normal, 1=abnormal)
			Bit1	Internal code status (0=invalid, 1=valid)
			Bit2~3	Housing status (0=invalid, 1=open, 2=closed)
			Bit4	Temperature status (0=invalid, 1=valid)
			Bit5	Humidity status (0=invalid, 1=valid)
			Bit6	Angle status (0=invalid, 1=valid)
			Bit7	Binding status (0=normal, 1=binding error)
			Bit8~15	Reserved 0
Sensor 8 angle difference coefficient	UINT32/R/W	40296（190）		Value/100000 (Range: 50000~150000)123456 represents 1.23456
Sensor 8 real-time internal code	FP32/R	40298（194）		Real-time internal code
Sensor 8 working zero internal code	FP32/R	40300（198）		Working zero internal code
Sensor 8 temperature	INT16/R	40302（202）		123 represents 12.3 degrees
Sensor 8 humidity	INT16/R	40303（204）		123 represents 12.3
Sensor 8 X angle	INT16/R	40304（206）		123 represents 12.3 degrees
Sensor 8 Y angle	INT16/R	40305		123 represents 12.3 degrees

		（208）		
Sensor 9	UINT16/R	40306 （210）	Bit0	Communication status (0=normal, 1=abnormal)
			Bit1	Internal code status (0=invalid, 1=valid)
			Bit2~3	Housing status (0=invalid, 1=open, 2=closed)
			Bit4	Temperature status (0=invalid, 1=valid)
			Bit5	Humidity status (0=invalid, 1=valid)
			Bit6	Angle status (0=invalid, 1=valid)
			Bit7	Binding status (0=normal, 1=binding error)
			Bit8~15	Reserved 0
Sensor 9 angle difference coefficient	UINT32/R/W	40307 （212）		Value/100000 (Range: 50000~150000)123456 represents 1.23456
Sensor 9 real-time internal code	FP32/R	40309 （216）		Real-time internal code
Sensor 9 working zero internal code	FP32/R	40311 （220）		Working zero internal code
Sensor 9 temperature	INT16/R	40313 （224）		123 represents 12.3 degrees
Sensor 9 humidity	INT16/R	40314 （226）		123 represents 12.3
Sensor 9 X angle	INT16/R	40315 （228）		123 represents 12.3 degrees
Sensor 9 Y angle	INT16/R	40316 （230）		123 represents 12.3 degrees
Sensor 10	UINT16/R	40317 （232）	Bit0	Communication status (0=normal, 1=abnormal)
			Bit1	Internal code status (0=invalid, 1=valid)
			Bit2~3	Housing status (0=invalid, 1=open, 2=closed)
			Bit4	Temperature status (0=invalid, 1=valid)
			Bit5	Humidity status (0=invalid, 1=valid)
			Bit6	Angle status (0=invalid, 1=valid)
			Bit7	Binding status (0=normal, 1=binding error)
			Bit8~15	Reserved 0
Sensor 10 angle difference coefficient	UINT32/R/W	40318 （234）		Value/100000 (Range: 50000~150000)123456 represents 1.23456
Sensor 10 real-time internal code	FP32/R	40320 （238）		Real-time internal code
Sensor 10 working zero internal code	FP32/R	40322 （242）		Working zero internal code
Sensor 10 temperature	INT16/R	40324 （246）		123 represents 12.3 degrees
Sensor 10 humidity	INT16/R	40325 （248）		123 represents 12.3
Sensor 10 X	INT16/R	40326		123 represents 12.3 degrees

angle		（250）			
Sensor 10 Y angle	INT16/R	40327（252）		123 represents 12.3 degrees	
Calibration Permissions and Calibration Switch Authorization	UINT32/W	40328	Bit0~23	Calibration Password: Operation invalid when password is incorrect	
			Bit24~25	Unlock Switch: 00: Hold 01: On 11: Off	
			bit26~27	Unlock Password Permission: 00: Hold 01: On 11: Off	
Zero Calibration, Zero Reset, and Metering Function Restart	UINT16/W	40330	Bit0	Zero Calibration: 1	Requires “Confidential
			Bit1	Zero Reset: 1	
			Bit2	Restart: 1	Restarts only the measurement function, not the instrument
Linear Calibration Load Point	UINT32/W	40331		linear Calibration Load Point	
Translational Zero Calibration Load Point	UINT32/W	40333		Translational Zero-Point Calibration Load Point, operating on the principle of adjusting the calibration zero point.	
Weight Transfer Angular Error	UINT32/W	40335	Bit0~23	Target Weight	This feature performs zero-point compensation based on the sensor's operational zero point. If the tank has not enabled zero tracking or performed power-on zeroing, do not use the sensor when its zero point is abnormal. If zero calibration has not been performed, or if “zero point calibration with load point shift” has been conducted
			Bit24~31	Sensor Address	
Upper limit	UINT32/R	40337			Independent of decimal places
Lower limit	UINT32/R	40339			Independent of decimal places
Alarm status	UINT16/R	40341		0: No alarm1: Lower limit alarm2: Upper limit alarm	

Writing functions related to measurement require enabling the "calibration switch" and obtaining the "scale adjustment party" permission. Remote authorization is available in tank calibration.

Agreement:

When the scale platform measurement data is invalid: The indicator's net weight is -999999; if the decimal place is 3, it is -999.999.

Zeroing: Write 0x0017 to address 40001.

(9) . **Continuous mode + zeroing command (TF=22)**:

Supported version: 1.5 and above.

Active Weight Upload Data Packet:

Byte block content	<STX>	<SWB>	<SWC>	Weighing data		<CR>
				Sign bit	(Including decimal point;Fill high bits with '0')	

Byte count	1	1	1	1	7	1
Content	0x02	0x30	Stable: 0x53('S')Unstable: 0x4D('M')	Positive: 0x28Negative: 0x2d	E.g., displayed value 123450 Decimal place 0: 0123450 Decimal place 1: 12345.0 Decimal place 2: 1234.50 Decimal place 3: 123.450	0x0d

Note 1: <SWA>, <SWB> bits: Since our indicator only supports a single scale, <SWA> is fixed at 0x31 ('1'), and <SWB> is fixed at 0x30 ('0').

Note 2: When the measurement data is invalid, the weighing data sent by the indicator is fixed as "-9999999" without a decimal point.

Examples:

0.0

Transmission (hex): 02 31 30 53 2B 30 30 30 30 30 2E 30 0D

13555

Transmission (hex): 02 31 30 53 2B 30 30 31 33 35 35 35 0D

109.295

Transmission (hex): 02 31 30 53 2B 31 30 39 2E 32 39 35 0D

-28.725

Transmission (hex): 02 31 30 53 2D 30 32 38 2E 37 32 35 0D

Zeroing command (hex): 02 5A 0D

(10) . **Continuous mode 23 (TF=23)**:

Multi-scale platform serial output data; recommended baud rate: 9600, even parity.

Byte No.	Content	Remark 1	Remark 2
0	0x02		
1	0x5a		
2	0xa5		
3	Total status	Bits0~1: Decimal place Bit2: 0=kg, 1=t Bit3: Weighing validity (1=valid) Bit4: Overload (1=yes) Bit5: Stability (1=yes) Bit6: Tare removal (1=yes) Bit7: Zero position (1=yes)	0
4	Status 1	Bits0~3: Scale 1Bits4~7: Scale 2	0=not displayed 1=normal
5	Status 2	Bits0~3: Scale 3Bits4~7: Scale 4	
6,7,8,9	Total tare weight	Decimal place is bits0~1 of the total statusE.g., value 300.00 corresponds to 30000 (hex 0x00007530)Transmission order: 0x30, 0x75, 0x00, 0x00	Total gross weight = total tare weight + total net weight
10,11,12,13	Total net weight		
14,15,16,17	Scale 1 weight		
18,19,20,21	Scale 2 weight		
22,23,24,25	Scale 3 weight		
26,27,28,29	Scale 4 weight		
30	Checksum		
31	0x03		

Application Case:

Large screen model: DPM-DZ-INT-5-485(JS1362)Set addresses for each large screen (via buttons on the large screen):

Large screen 1: Display total tare weight + total net weight

Large screen 2: Display Scale 1 weight
Large screen 3: Display Scale 2 weight
Large screen 4: Display Scale 3 weight
Large screen 5: Display Scale 4 weight

Examples:

Display zero:02 5A A5 A9 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 AA 03

Display 374.0 (Scale 4 weight):02 5A A5 29 00 10 00 00 00 00 9C 0E 00 00 00 00 00 00 00 00 00 00 00 00 00 00 9C 0E 00 00 8E 03

Sensor 11 communication error:02 5A A5 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 02 03

Tare removal 3470, displayed value 0:02 5A A5 69 00 10 8E 0D 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 8E 0D 00 00 B0 03

Tare removal 347.0, Sensor 11 communication error:02 5A A5 41 00 00 8E 0D 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 DD 03

Displayed value 348.0 (unit: t):02 5A A5 2D 00 10 00 00 00 00 8E 0D 00 00 00 00 00 00 00 00 00 00 00 00 00 00 98 0D 00 00 7E 03

Displayed value 3.470 (unit: t):02 5A A5 2F 00 10 00 00 00 00 98 0D 00 00 00 00 00 00 00 00 00 00 00 00 00 00 98 0D 00 00 8A 03

Applicable Models: D38-3(BX), D38-3(BX1)