Check weigher

&

Sorting Machine

CW-1.2K

User's manual

(Applicable for MCGS+C01 version)

GENERAL MEASURE

531701010033 Ver A2

Contents

Due to the continuous improvement and update of our products, we reserve the right to modify this manual at any time without prior notice. For this purpose, please visit our website frequently for timely information.

The company's Web address http://www.gmweighing.com

1. Summary

CW-1.2K CheckWeigher is a high speed, high precision and small range industrial automatic weighing scale developed by our company to meet the changing technological update. For raw food, bags, bottles, containers and so on. Can be used for sorting 5 to 10 grades of weight.

The touch screen makes the CW-1.2K weighing scale easy to operate, external expansion of IO input and output and external serial port communication to achieve multi-point control, monitoring and remote control of the product.

1.1Product Features

Product parameters:

Model type	CW-1.2K
Power Supply	AC220V±10%, 50/60Hz, 350W
Weighing Range	100 to 1200g
Accuracy of weight Checking	Plus or minus 0.7 g
Weight checking speed	200 pieces/min
Size of object to be measured	Length: 50~300mm Width: 20~220mm Height: 10~220mm
Conveyor belt speed	5 to 50 m/min
Belt size	400mm*250mm
Center distance of drum shaft	400mm
Countertop height	750 (±50mm) (customizable)
Operating temperature	0 to 40ºC
Maximum humidity	90% R.H without dew
Ultimate load	The instantaneous ultimate load shall not exceed 2.4kg

Note: It is strictly prohibited to use the weighing platform beyond the measuring rang.

1.1.1 Mechanical part

1. Electric control box is small and movable, easy to install and operate on site.
2. The servo driver is used as the motor driving device to ensure the speed stability and adjustability in the process of weight checking.
3. Double photoelectric mode more accurately determine the object up and down the weighing platform, improve the accuracy and efficiency of weight detection.
4. The height adjustment range of the weighing platform is larger, which is convenient for customers to choose and use.
5. The mechanical modular design makes transportation and maintenance more convenient, and the application adaptability stronger.

1.1.2 Electrical part

1. Simple wiring, only the power cord needs to be connected externally; pin-type plug terminal blocks of different specifications are used internally, making wiring easy and error-free.
2. The touch screen operation interface is optimized, product parameter settings are simple and the main interface has richer content.
3. The three-color indicator shows Qualified (green), Over(red), Under (yellow), and the working state of the checking weight is clear at a glance. User can define the alarm mode for Buzzer.
4. The new algorithm is adopted in the process of weight checking, and the high precision can be guaranteed in the process of high-speed weighing.
5. Optimize user login and logout function, without tedious operation and effectively prevent others from misoperation.

1.2Usage Notice

1.2.1 Precautions

1. Do not perform mechanical or electrical maintenance while power is on, do not place tools on the scale, and do not perform welding operations on the scale.
2. The installation site must ensure that the ground is flat. After installation, adjust the feet to ensure that the weighing table is level, the inclination does not exceed 0.5 degrees, and it is kept away from the source of vibration.
3. Make sure the equipment is safely grounded and there is no strong current or magnetic field interference nearby.
4. Do a good job of fire prevention, avoid direct sunlight to check the weighing table and relatively strong air flow (outdoor air, fan and air conditioning outlet is directly against the weighing table).
5. Avoid squeezing or stepping on the scale platform. When transporting, the scale platform should be fixed first and the sensor limit should be installed to prevent damage to the sensor. It is prohibited to directly transport the scale platform for movement.

2. Product installation

2.1 Overall appearance

The product appearance is shown in Figure 2-1 below.

Figure 2-1 Overall appearance of the product

Serial number	Name	Introduction
1	Foundation	Prevent the checkweigher from sliding and vibrating, and adjust the level of the weighing table.
2	Conveyor belt	The conveying part of the object on the weighing platform
3	Electric control panel	Control the weight checking process and connect external devices

4	indicator light	Display the checking results more intuitively, allowing the result status to be seen from a distance.
5	touch screen	View display data and set product parameters
6	Photoelectric switch	Determine whether objects go up or down the weighing platform
7	Sorting area belt	The conveying part of the object down the weighing platform
8	Sorting mechanism	Automatic sorting of products in corresponding areas

2.2 Mechanical installation

Place the weighing scale at the installation place and remove the sensor protection device; Adjust the levelness of the weighing scale, and the inclination shall not exceed 0.5 degree; Fix the footing of the weighing scale, the stainless steel footing contacts the ground smoothly, and lock the screws of the footing to ensure the stability of the weighing scale.

Adjust the distance between the check weighing platform and the front and rear end conveying mechanism is 9 ~ 11mm, and the check weighing platform shall not be in contact with other equipment. If the front and back end conveying mechanism is not equal to the height, it is necessary to add the oblique conveying mechanism on one side, and add the horizontal conveying mechanism connection on the side of the oblique mechanism (to leave a gap) to check the weight scale platform, to ensure that the check weight scale platform level and the height of the front and back end conveying mechanism.

The electric control box can be arbitrarily installed on the left and right sides of the weighing scale to facilitate the operation of the production process.

2.3 Electrical installation

The power supply is inserted into the three-hole socket with ground or connected to the power supply equipment such as the electric gas cabinet according to the line mark.

1. Any wiring and disconnecting operation can only be carried out after power off. After the operation is completed, check before power on.
2. The serial port is fixed to RS485 communication, where the 485(A) pair should be connected to 485(A) or 485(+), and the 485(B) pair should be connected to 485(B) or 485(-).
3. The IO module input point is valid at low level (DC0V) and does not allow access to high voltage or alternating current.
4. IO module output point access relay coil for intermediate control, so the other end of the relay can access DC or AC power supply IO module.

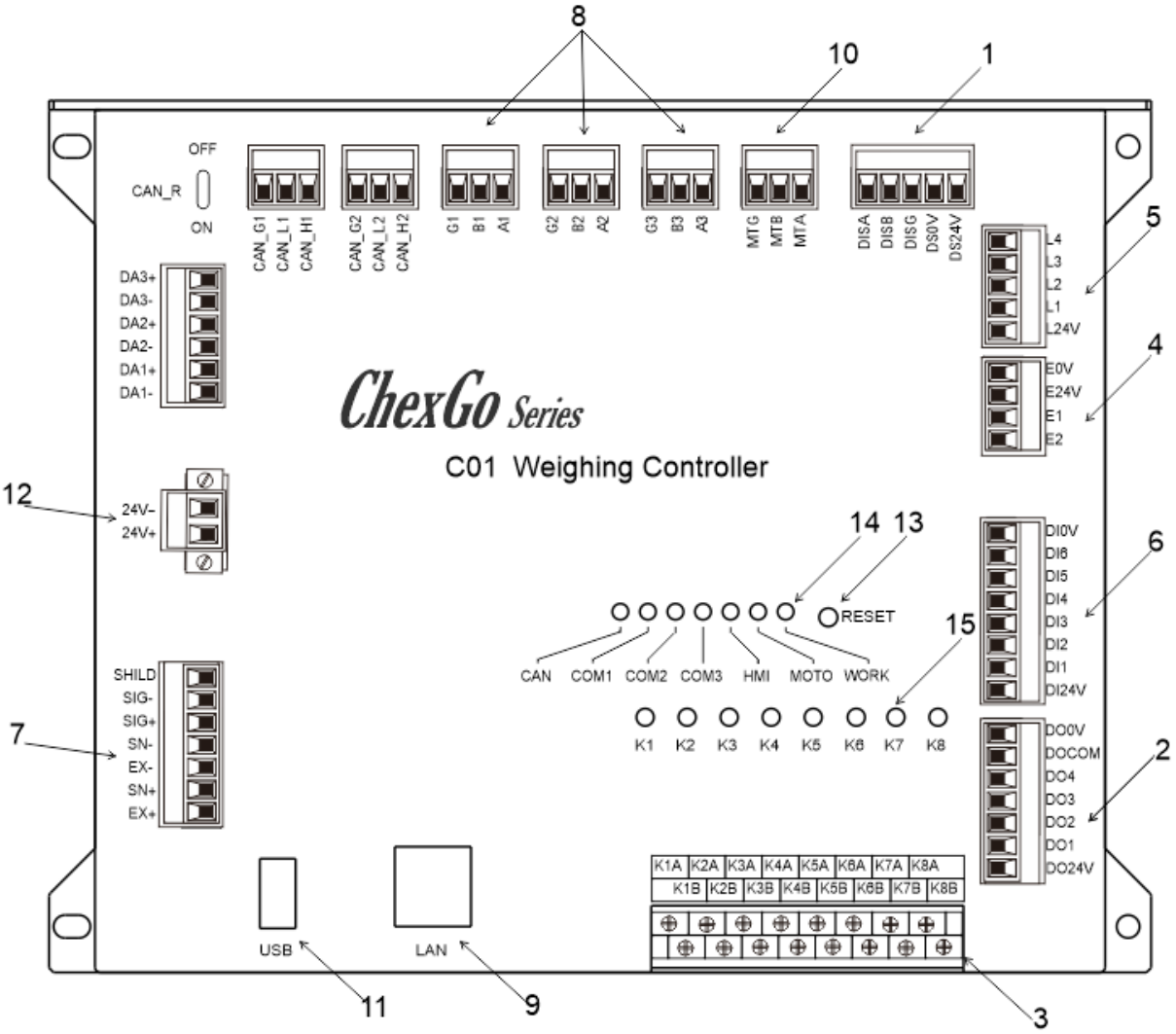


Figure 2-2 Control panel of weighing scale

Serial number	Function
1	Touch screen communication port
2	External custom outlet OUT1-OUT4
3	External custom output relay K1-K8
4	Detect the photoelectric sensor wiring terminals
5	Alarm light wiring terminals
6	Custom input ports 1-6 externally
7	Sensor wiring terminals

8	External RS-485 communication port
9	External TCP/IP communication network port
10	Frequency converter communication socket
11	External USB data interface
12	24V power terminal
13	Reset key
14	Communication status indicator light
15	Output relay status indicator light

2.4 Electrical interface

Photoelectric sensor (already wired at factory) :

E24V: photoelectric sensor DC24V+.

E0V: photoelectric sensor DC24V-.

E1: Signal input of photoelectric sensor for loading of weighing scale.

E2: Check the output photoelectric sensor signal input of the weight balance.

Alarm light (has been connected when leaving the factory):

L24V: Alarm light DC24V+, maximum output power 2VA.

L1: Buzzer.

L2: When the detection result is over, the low output is valid until the next check begins.

L3: When the detection result is qualified, the low output is valid until the next check begins.

L4: When the detection result is under, the low level output is effective until the next check starts.

Input (function can be customized, onsite connection according to actual demand):

DI1: running input. In the stopped state, the input is valid and the system enters the running state.

DI2: Stop input. In the running state, the input is valid and the system enters the stop state.

DI3: clear the alarm. When the system generates an alarm, change the input to be effective and the alarm will be cleared.

DI4: over rejection is completed. When the input is valid, the output of over rejection is invalid.

DI5: under rejection is complete, under rejection output is invalid when this input is valid.

DI6: continuous packet detection. This input signal is given by the photoelectric sensor installed on the front conveyor line of the weighing scale and used in conjunction with the busy stop output to control the start and stop of the front conveyor line of the weighing scale. When there is an object being detected on the weighing platform and the signal is effective, the busy stop output is effective.

DI0V: IO module power supply DC24V-.

DI24V: IO module power supply DC24V+.

4-way transistor output ports (functions can be customized, and can be connected on site according to actual needs):

DO1: undefined.

DO2: undefined.

DO3: undefined.

DO4: undefined.

DO0V: IO module supply power DC24V-.

DO24V: IO module power supply DC24V+.

DOCOM: IO module common end.

Sensor (already connected at factory):

EX+ : Power positive, SN+ : induction positive,

EX- : power negative, SN- : induction negative,

SIG+ : signal positive, SIG- : signal negative.

Motor speed control communication interface (RS485) :

MT A: RS485 communication A.

MT B: RS485 Communications B.

MT G: RS485 Communication (GND).

8-way relay outlet (function can be customized, On-site connection according to actual needs):

K1: defined as run. When the system is in running state, the relay output is closed, and K1A and K1B conduct. Used to control the start and stop of frequency converter.

K2: defined as stop. When the system is in the stopped state, the relay output closes and K2A and K2B conduct. This definition is the factory default setting and can be modified according to the actual demand.

K3: defined as over reject, the product test result is over, and within the range of over reject duration, the relay output is closed,K3A,K3B conduct.

K4: defined as under reject, the product test result is under, and within the range of under reject duration, the output of the relay is closed,K4A,K4B conduct.

K5: defined as alarm. When the system occurs an alarm, the output of the relay is closed, and K5A and K5B conduct. This definition is the factory default setting, and can be modified according to the actual demand.

K6: defined as batch completion, after the completion of the product batch, the relay output is closed,K6A,K6B conduct. This definition is the factory default setting, and can be modified according to the actual demand.

K7: defined as qualified indication, after the product checking is qualified, the relay output is closed,K7A,K7B conduct. This definition is the factory default setting, and can be modified according to the actual demand.

K8: defined as unqualified reject. When unqualified occurs in the test result, the relay output is closed, and K8A and K8B conduct.This definition is the factory default setting, and can be modified according to the actual demand.

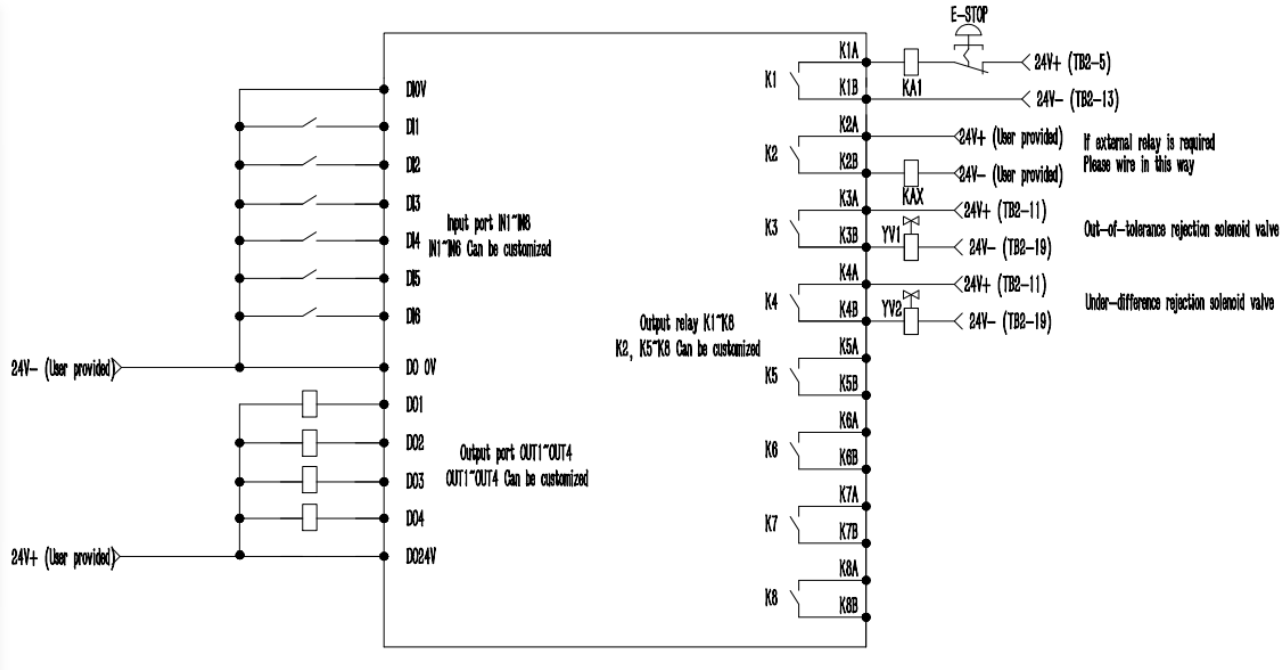


Figure 2-3 Schematic diagram of inlet and outlet connections

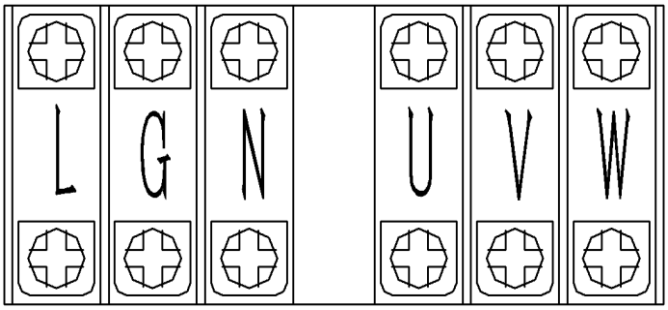


Figure 2-4 Power supply and motor interface diagram

Figure 2-4 shows the power supply and motor interface diagram, defined as follows:

External power supply (already connected at factory) :

L: External AC power live wire.

G: External AC power ground wire.

N: External AC power neutral wire.

Frequency converter output power supply (factory has been connected) :

U: Corresponding to the U terminal connected to the motor.

V: corresponding to the V terminal connected to the motor.

W: corresponding to the W terminal connected the motor.

Note: L, N and G are the external AC power supply, and U, V and W are the output power supply of the inverter to power the motor. These two groups of power supplies have been connected before delivery. If the frequency converter or motor needs to be reconnected in the subsequent use and maintenance process, please be sure to connect correctly according to the instructions, and remember not to connect it backwards, otherwise it will cause damage to the frequency converter.

2.5 Power supply power

AC220V±10%, 50/60Hz, 350W.

3. Operation

3.1 Operation summary

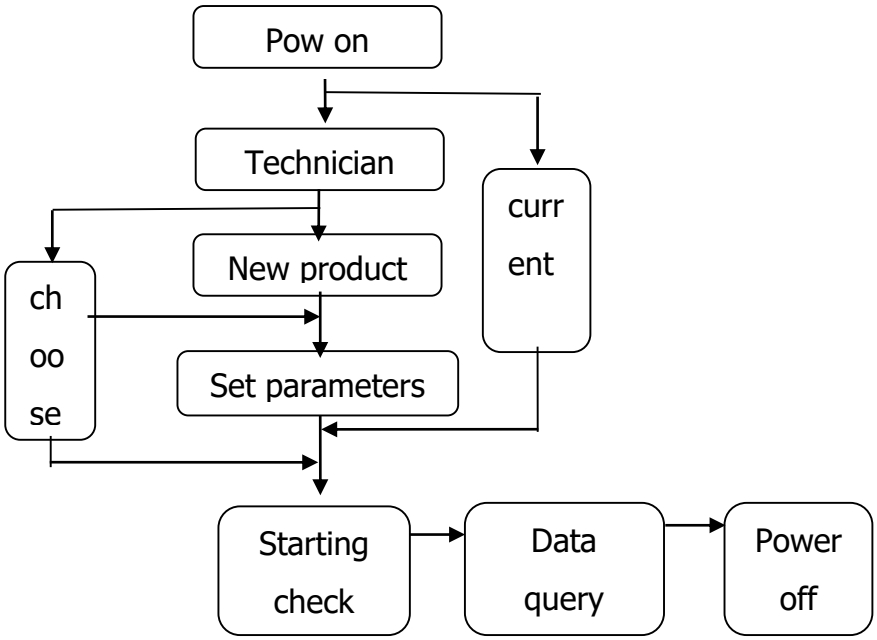


Figure 3-1 Procedure

3.2 Limit removal

Before use, need to install the two limit shaft sleeves from the transportation position to the working position. The position indicated by the arrow in Figure 3-2 is the installation position of the limit shaft sleeve.

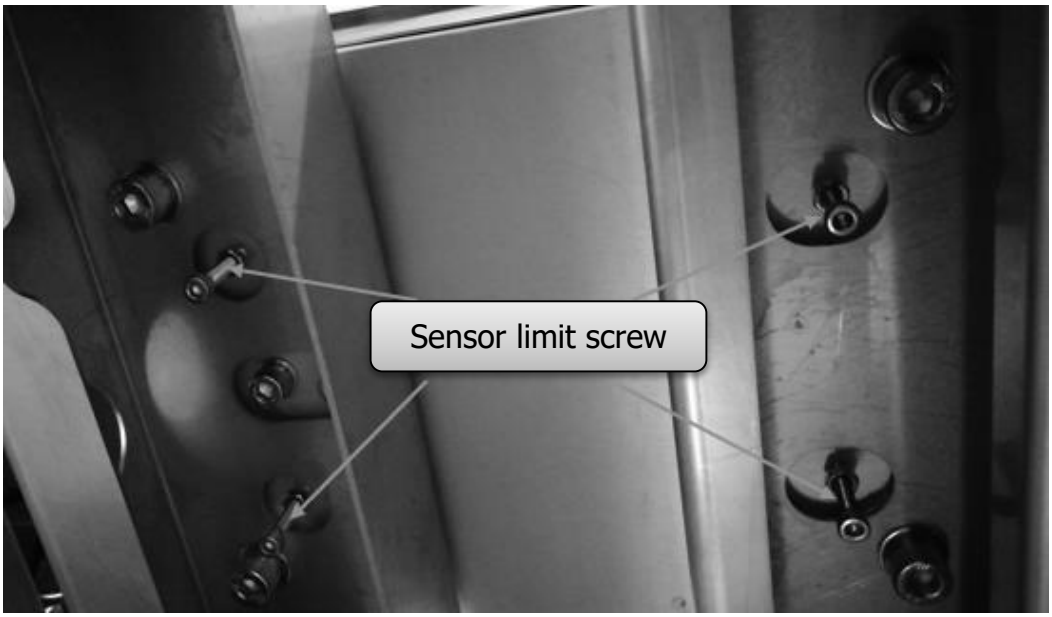


Figure 3-2 limit position

3.3 Basic operation

The main interface is used for daily weight checking production, which is used to start and stop the weight checking belt, enter the relevant parameter interface and display the basic information of the tested product and the weight checking result.

3.3.1 Power-on operation

Turn on the power and turn the knob switch to the "1" position and the boat type switch to the O position. When the electric control box is powered on, the touch screen displays the initialization interface. At the top of the interface are USB insert mark, checkweigher scale model and time display; The black display area is the name of the current production checking product, the weight display area, the weight unit display area and the weight check status display area; In the middle is the current setting of weight checking speed, the current actual weight checking speed and the display statistics of weight checking results;At the bottom are the function keys of the operation of the weight check scale and the parameters related to the weight check.

- Correct time parameters can effectively help users check the production checking results, relevant production parameter changes and alarm information, help to improve the production pass rate and production speed and reduce production consumption.
- The weight display area of the weighing checking displays the real-time weight value in the stopped state, and displays the weight test result in the running state until the next object is effective.

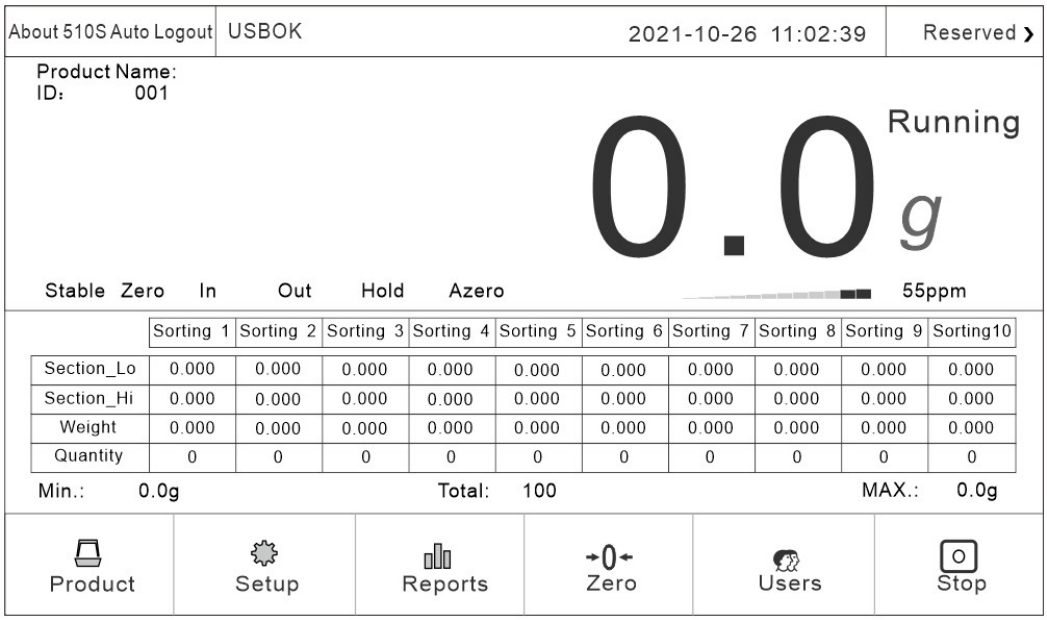


Figure 3-4 Power-on initialization interface

Button and operation frame operation instructions (applicable to all operation interfaces of the device) :

1. 

Click this button to enter the interface of creating products and setting product parameters.

2. 

Click this button to enter the parameter setting interface.

3. 

Click this button to enter the data interface to view the relevant check data.

4. 

Click this button to perform a zero operation.

5. 

Click this button for user management operations.

6. 

Click this button to start and stop the device.

7. 

Click this type of action box to modify the value of this item.

8. 

Click this type of operation box to modify the value.

9. 

Click this type of operation box to select Settings for this definition.

10. 

Click this type of operation box to perform the corresponding operation.

11. 
Click this type of operation box to open and close the corresponding function Settings.

3.3.2 Zero operation

If the touch screen displays the real-time weight value of the weighing checking in the stopped state is not zero (zero mark indicates the off state), click "Zero" to clear the weighing platform, so that the real-time weight value is displayed as zero, and then the zero mark indicates the lit state.(It can be operated only in the stopped state).

If the checkweigher shows that the weight is unchanged, the stable identifier bit is on; otherwise, the stable identifier bit is off (the stable identifier bit is only related to the weight state, and has nothing to do with the operation of the checkweigher and the size of the weight value).

3.3.3 Start up operation

Click "Start" on the touch screen to start the checkweigher, and the weight checking motor drives the weight checking belt to rotate. At this time, the operation label on the touch screen is "Running", then the check-weighing operation can begin.

3.3.4 Stop operation

Click "Stop" on the touch screen to stop the weight checking belt and end the weight checking process. At this time, the operation label on the touch screen is "Stopped".

3.3.5 Power off operation

Turn knob switch to "0" position, touch screen off, disconnect power. The above operations can only be performed when there is no weight product on the weighing scale.

3.4 User login

At the touch screen initial interface, click "Product" or "Settings" to pop up the password login box, select the user to enter the corresponding password and click "Confirm" to log in. The initial passwords of the operator and administrator are written in the user description.

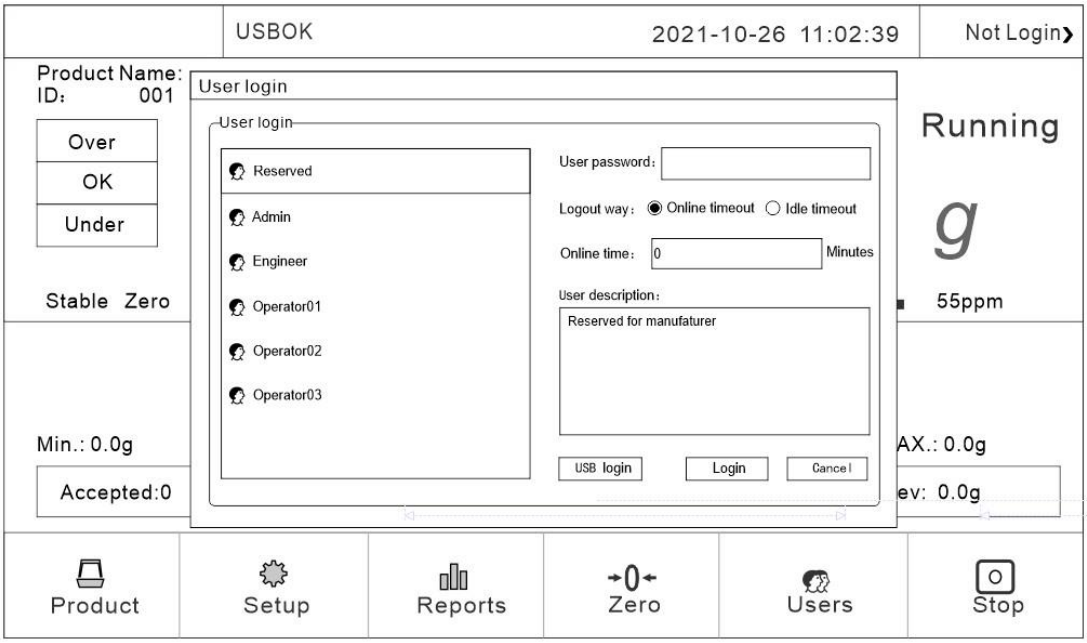


Figure 3-5 Password input box

3.5 Product selection and creation

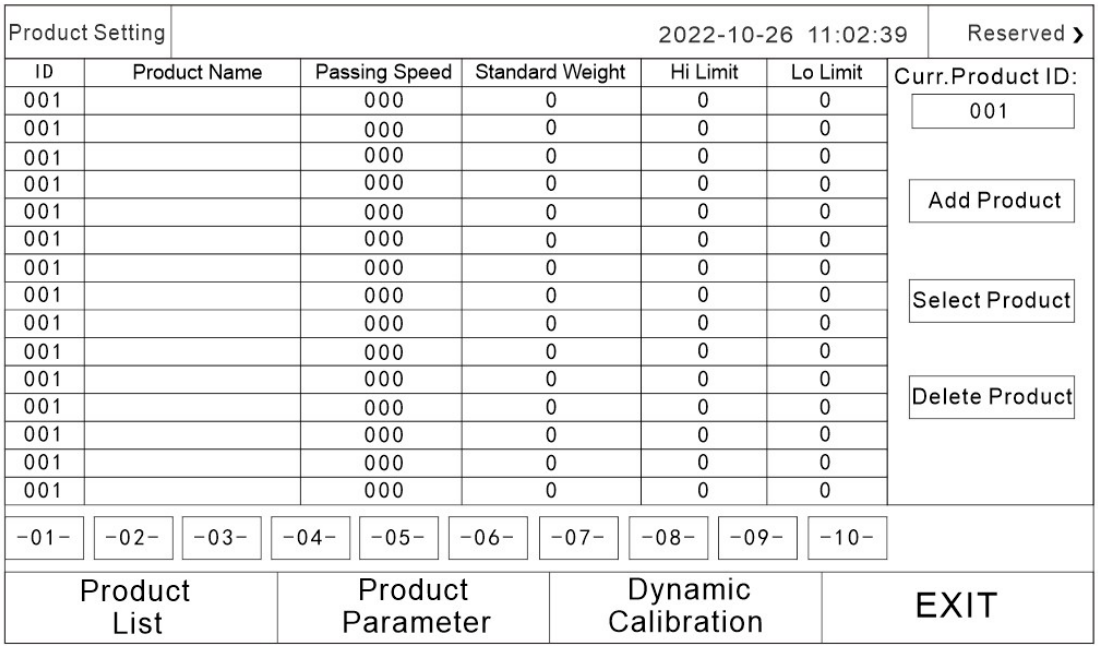


Figure 3-6 Product list

3.5.1 Select product parameters

Click "Product" at the main interface to enter the product list interface. First, click on the required check-weighing product in the product list, then click "Select Product" to select the product, click "Exit" to go to the main interface and click "Start" to start the check-weighing work.

- After the product is successfully selected, the current number will be displayed as the number of the selected product in the upper right corner of the product list page.
- The new product number cannot be selected during the run state of checkweigher; The checkweigher defaults to the product number selected before exiting(stop or power-off).

3.5.2 Create new product parameters

On the product list page, click "Add Product" to jump to the "Product Parameters" interface to add a new product parameter. The new product number will be added to the existing product in sequence. No need to select the product number. For details, refer to " Button and operation box operation instructions" in Section 3.3.2.

★ The new product number cannot be added during the run state of checkweigher; The newly added product parameter values are the default initial values of the system, which need to be set according to the actual product parameters and production requirements.

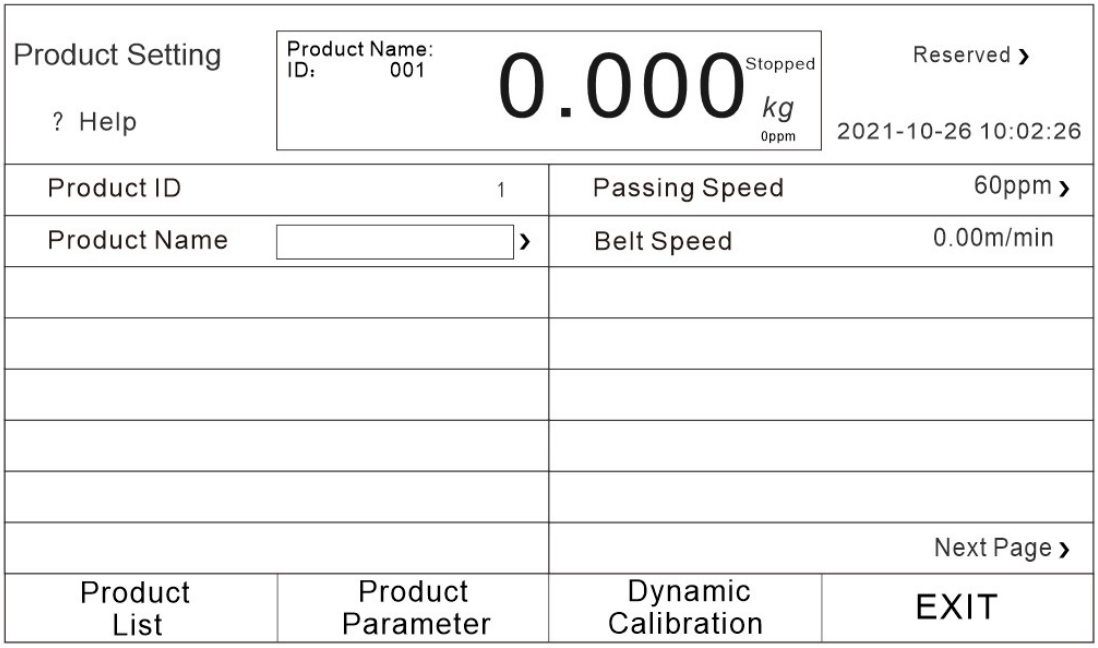


Figure 3-7 Product parameter interface example

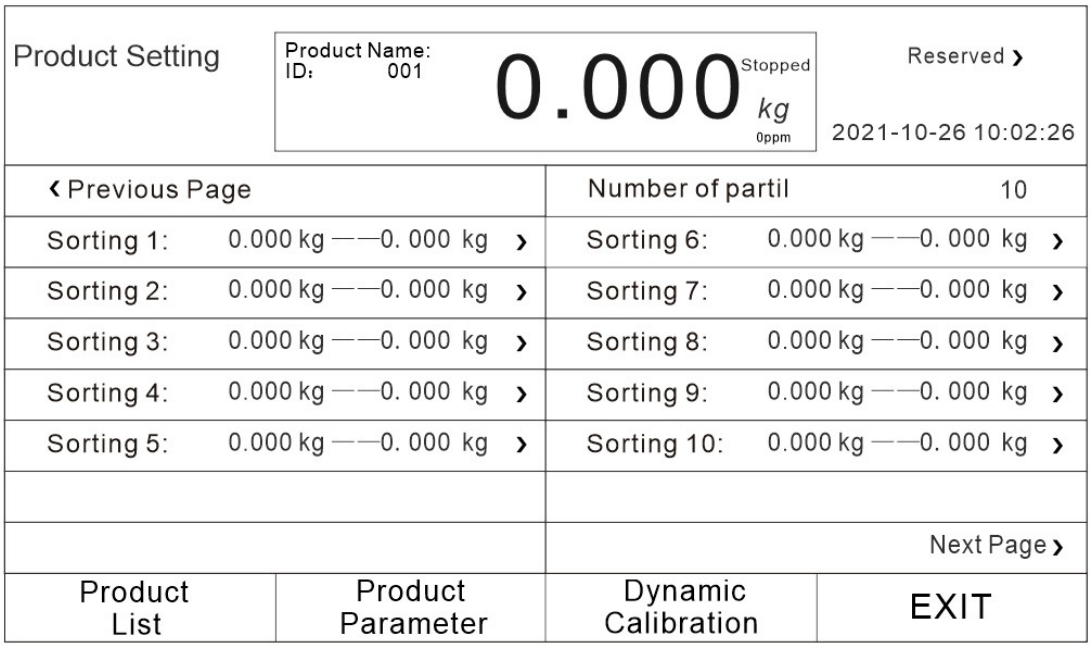


Figure 3-8 Sorting parameters interface Example 1

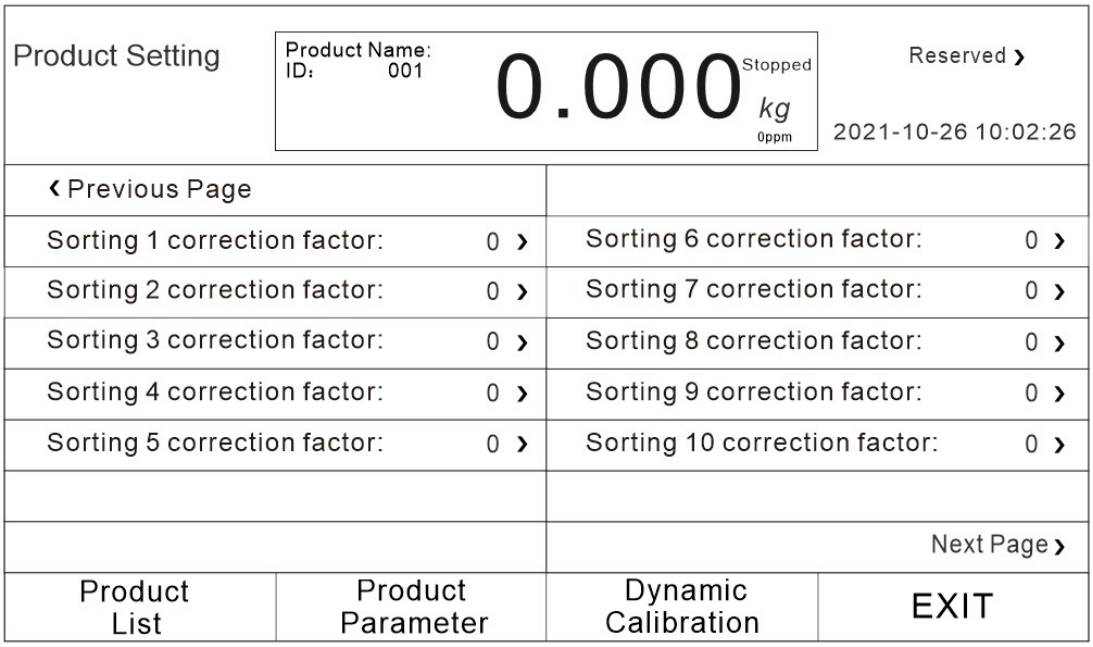


Figure 3-9 Sorting parameters interface Example 2

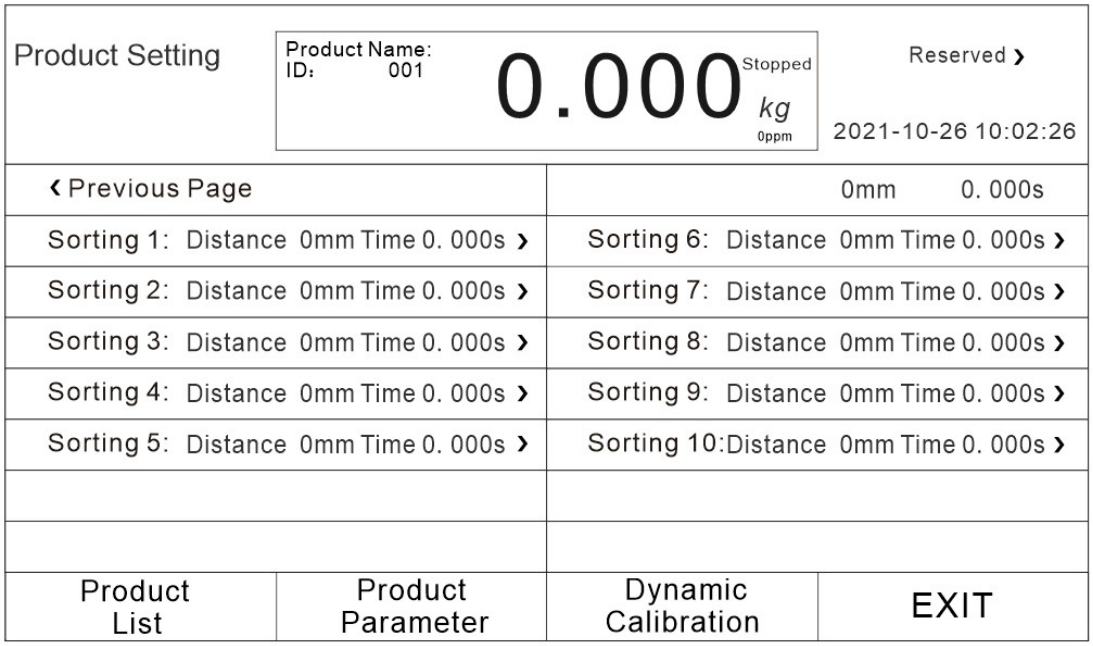


Figure 3-10 Sorting parameters interface Example 3

Description of product parameters:

Name	Instructions
Product ID	Check weighing product number

Passing Speed	Current speed of products which are checking
Product name	Checking product's name
Belt speed	The speed at which the weighing belt is running
Sampling start percentage	The sampling data from the time the object is on the scale to this percentage are discarded.
Sampling usage percentage	The continuous usage percentage data from the sampling start percentage is used to calculate the checkweighing result.
Filter Level for Dynamic ZERO	Filtering parameters in the weighing process
Stable Range for Dynamic ZERO	When the belt is running, within the stability determination time, the weight variation range is judged to be stable within this setting value, and only when it is stable can dynamic zeroing be allowed
Stable Time for Dynamic ZERO	When the belt is running, within this setting value, the range of weight variation is judged as the stability of the scale platform within the range of dynamic zero determination stability. Only when the stability allows the dynamic zero
Cont. ZERO Failure Alarm Threshold	Alarm number of dynamic zero failure
Sample Time	Sample time during weighing
Number of Sorting	Set the required number of partitions
Sorting 1~10	Set the weight range of the corresponding partition
Sorting 1~10 correction factor	Set the compensation coefficient for the corresponding partition
Distance	Set the reject distance for the corresponding partition
Time	Set the removal mechanism action time for the corresponding partition

3.5.3 Modify product parameters

On the Product list page, select the product whose parameters you want to modify from the product list and click "Product Parameters" to enter the product parameters interface to modify the selected product parameters (Jump directly to the product parameter interface to add a new product).

- The standard weight refers to the weight of the product to be checked, and the upper and lower limit is the allowable deviation value of qualified product; If it is not necessary

to calculate the packaging weight of the product, the outer packaging weight of the product can be written into the tare weight column, and the net weight should be filled in the standard weight column.

- The product number is automatically generated by the system; The linear speed of the belt is calculated from the detection speed, and changes with the change of the detection speed. It cannot be filled in (the linear speed of the belt should be consistent with the linear speed of the front and rear end conveying mechanism).
- The compensation weight difference value is calculated by dynamic calibration. Under normal circumstances, manual change is prohibited to prevent deviation between the product weight and the actual weight.
- When filling in the product parameters, attention should be paid to its value range. Generally, if it is lower than the lower limit of the parameter range, the parameter value will remain unchanged; if it is higher than the upper limit of the parameter range, the upper limit of the parameter range will be written by default.
- The definitions of checkweighing speed, belt speed, and correction coefficient are introduced in detail in the product parameter help interface. If necessary, click Help to view it.

3.5.4 Delete product parameters

On the product list page, select the product to be deleted and click "Delete Product" to delete the product. After deleting the product, subsequent product parameters will be moved forward in sequence, and the product number will be moved forward. Products cannot be deleted while the checkweigher is running and checking; in order to prevent product parameters from being deleted by mistake, the product name should be set appropriately when setting product parameters.

3.6 Calibration

In order to ensure the correct weight of the checkweigher and the linearity of the weight change, each checkweigher requires weight calibration and dynamic calibration. For specific operation methods, please refer to Chapter 3.3.2 "Operation Instructions for Buttons and Operation Boxes".

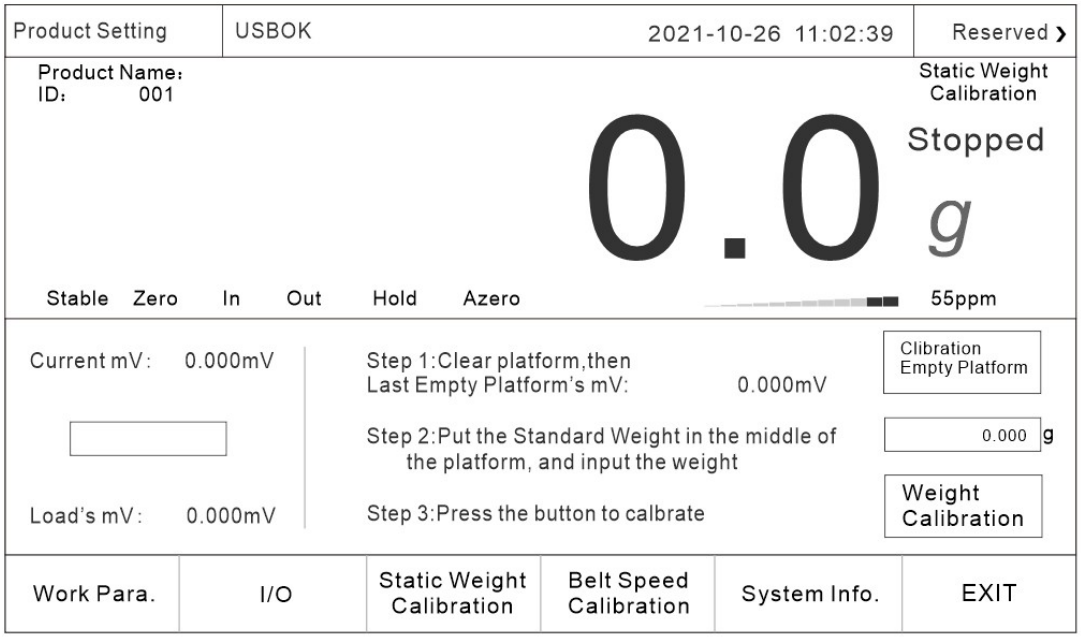


Figure 3-11 Weight calibration interface example

Description of static calibration parameters:

Name	Instructions
Calibration empty scale	Eliminate external interference and when the scale platform is at zero status and stable, click.
Input weight	Enter the weight of the calibration weight
Weight calibration	Put the weight on and after entering the weight of the weight, click
Current voltage value	The current voltage value of the loadcell
Empty scale voltage value	The voltage value of the loadcell when the top of the scale is emptied
Weight voltage value	The voltage value of the loadcell after placing the weight

3.6.1 The weight calibration scale

In the setting page, click "Static calibration" to enter the interface of weight calibration, follow the steps on the touch screen to calibrate the scale, and click "Exit" to return to the main interface after the calibration is completed. For specific operation methods, please refer to " Button and operation box operation instructions " in Section 3.3.2.

- During calibration, ensure that the weighing scale is in the stopped state; otherwise, the interface of the weighing scale cannot be entered; Calibration should ensure that there

is no item on the weighing platform, no vibration on the weighing platform, and no relatively strong air flow around the weighing scale.

- When the weighing platform is empty, ensure that the weighing platform is at zero status and stable. Otherwise, please eliminate interference and click "Calibrate the weighing platform". The second step can only be carried out when the touch screen indicator is 0 and the stability sign is lit.
- When placing the weight, try to avoid the weight hitting the surface of the weighing platform. Input the correct weight into the weight edit box of the weighing platform, otherwise it will lead to inaccurate calibration scale or calibration failure (the weight of the weighing platform should be greater than the product weight and not exceed the maximum range of the weighing scale).
- If the calibration fails, please check whether the scale is stable and whether the loadcell is interfered by the outside world or whether the scale is in contact with other equipment, and re-calibrate after troubleshooting.

3.6.2 Dynamic calibration

On the product page, click "Dynamic Calibration" to enter the dynamic calibration interface. Follow the text prompts to perform dynamic calibration. When completed, the relevant parameters will be automatically calculated and written into the product parameters. After calibration is completed, click "Exit" to return to the main interface. For specific operation methods, please refer to Chapter 3.3.2 "Operation Instructions for Buttons and Operation Boxes".

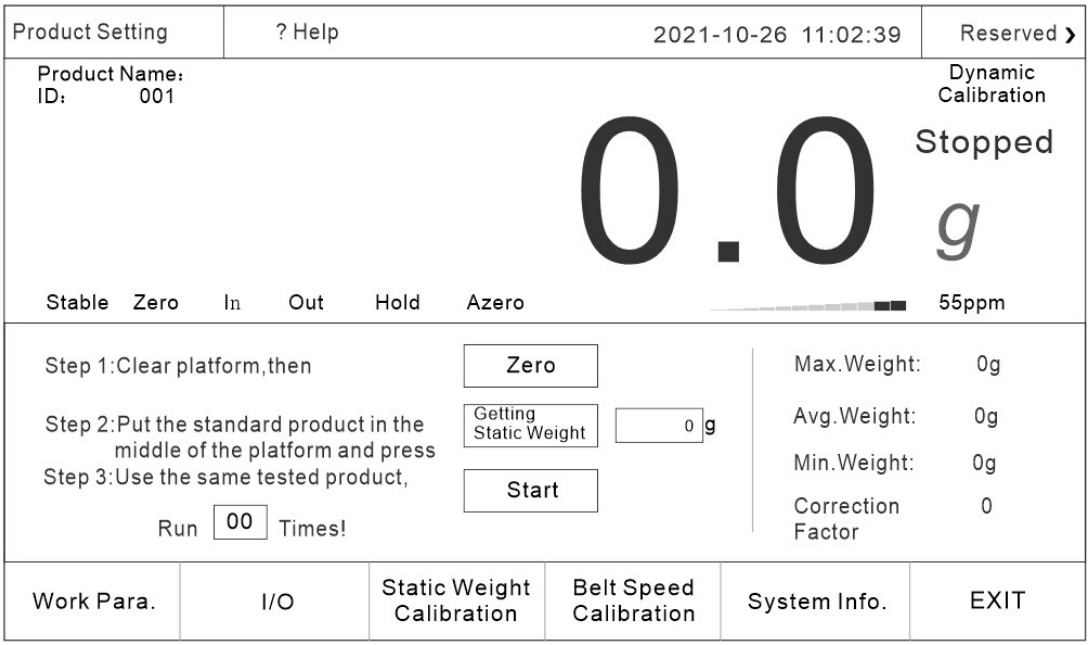


Figure 3-12 Dynamic calibration interface example

Description of dynamic calibration parameters:

Name	Instructions
Zero	Clear the current weight value to zero
Get the weight	Stop the belt running and put the test material on, and the static weight value will be displayed.
Dynamic calibration times	The number of repeated runs of dynamic calibration. The default is ten, and no less than five are recommended.
Start	The belt will run. After the statically weighed object passes, it should be moved back to the front platform. Repeated dynamic operation, the controller will automatically record the dynamic weight. Generally, the dynamic calibration is performed ten times, and the checkweigher will automatically stop when the number of dynamic calibrations reaches the checkweigher.
Maximum weight	The maximum value of the checkweighing result during dynamic calibration
Average weight	During the dynamic calibration process, the average value of each check-weighing result will be updated after the number of dynamic calibrations is completed.
Correction factor	The standard value is 1000. After the number of dynamic calibrations is completed, the controller will automatically calculate this value based on the dynamic results and static weight. If it is not convenient to perform dynamic calibration, you need to input this value manually. It can be set in the product parameter interface. Please refer to the method explained in the dynamic calibration parameter help interface for the size of the value.

- When calibrating, you must ensure that the checkweigher is in a stopped state, otherwise you cannot enter the dynamic calibration interface; when calibrating, you should ensure that there are no objects on the scale, no vibration on the scale, and no relatively strong air flow around the checkweigher.
- When the scale is empty, ensure that the scale is at the zero position and stable. Otherwise, please eliminate external interference and perform a "zero" operation.
- When placing the product, avoid the product hitting the surface of the scale platform. Only when the weight is stable can you click "Get Static Weight"; if the product has a gross weight value, please set the gross weight value first and then perform dynamic calibration.
- The initial value of the number of learning times is 10 by default. If the accuracy of the learning results is poor, the number of learning times can be appropriately increased; if

the production requirements are not high in accuracy, the number of learning times can be appropriately reduced to increase the learning speed; external interference should be avoided during the learning process. After the learning is completed, the system will automatically Save learning results and display.

- The default value of learning times is 10. If the learning result is not accurate, you can increase the learning times appropriately.If the production requirement is not high, the learning times can be appropriately reduced to improve the learning speed;External interference should be avoided in the learning process, and the system will automatically save the learning results and display them after the completion of learning.
- Changes in product checking speed require dynamic recalibration.
- The principle of dynamic calibration, attention to implementation and alternative methods are introduced in detail in the dynamic calibration parameter help interface. If necessary, click Help to view it.

4. Data Viewing

This checkweigher has data storage and query functions, making it convenient for users to check historical checkweighing data and event information. Under the main interface of check-weighing, click "Data" to enter the data viewing interface (no permissions are required for the data interface).

4.1Check the result data

In this interface, you can view the weight check time, weight check result and product code. When the weight check scale stops, insert the USB disk into the touch screen and click "Export data" to export all the weight check data to the USB disk; Click "Delete data" to delete all the current weight data; Click "Next page" or "Previous page" to review the duplicate data (in running state, only the duplicate data can be viewed, and the operation of "Export data" and "delete data" cannot be performed).For specific operation methods, please refer to " Button and operation box operation instructions " in Section 3.3.2.

- After testing a certain number of products, you can insert the USB flash drive to the touch screen to export the existing weight data, otherwise too much weight data will cause inconvenience to data query.
- Changing the production of the product and adding new products will not affect the query of the test result, delete the product, please first check out the test result and clear.

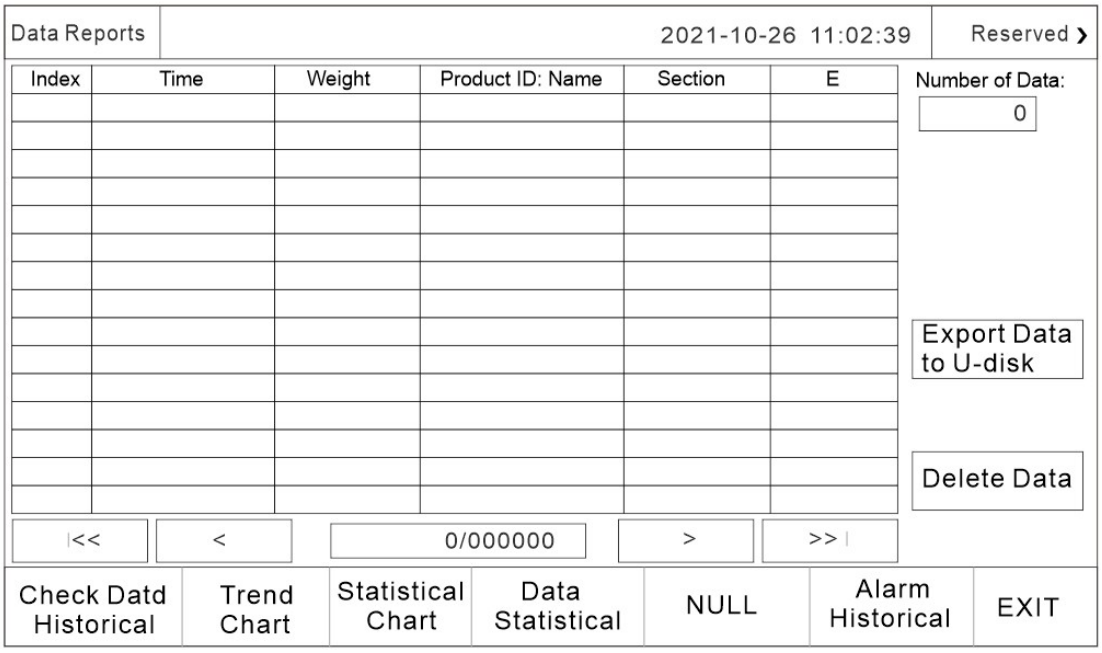


Figure 4-1 Checkweighing data interface example

4.2Statistics

Click "Statistics" to enter the checkweighing data statistics interface, which intuitively displays product distribution. Click "Print Data" to print the statistical information. Click

"Export Data" to export the statistical information to a USB flash drive inserted into the touch screen. Click "Delete Data" to clear statistics. For specific operation methods, please refer to Chapter 3.3.2 "Operation Instructions for Buttons and Operation Boxes".

- Statistical information includes over-tolerance, under-tolerance, cumulative inspection times of qualified products, weight, average value, probability distribution, etc.
- Before detecting a new batch of products, you need to clear the previous statistical information, otherwise the new products will be accumulated on the original statistical information and generate erroneous statistical information.

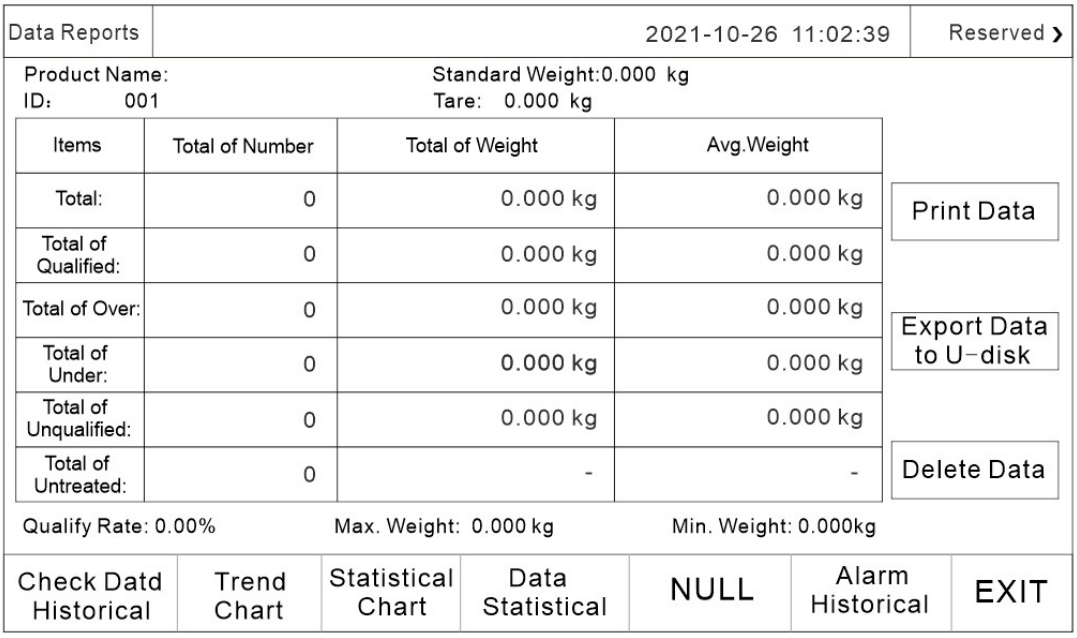


Figure 4-2 Statistics interface example

4.3Alarm information

Click "alarm record" to enter the interface for viewing alarm records, and you can view the alarm information in the process of weight checking, including alarm serial number, alarm time, number and alarm content. For specific operation methods, please refer to " Button and operation box operation instructions" in Section 3.3.2.

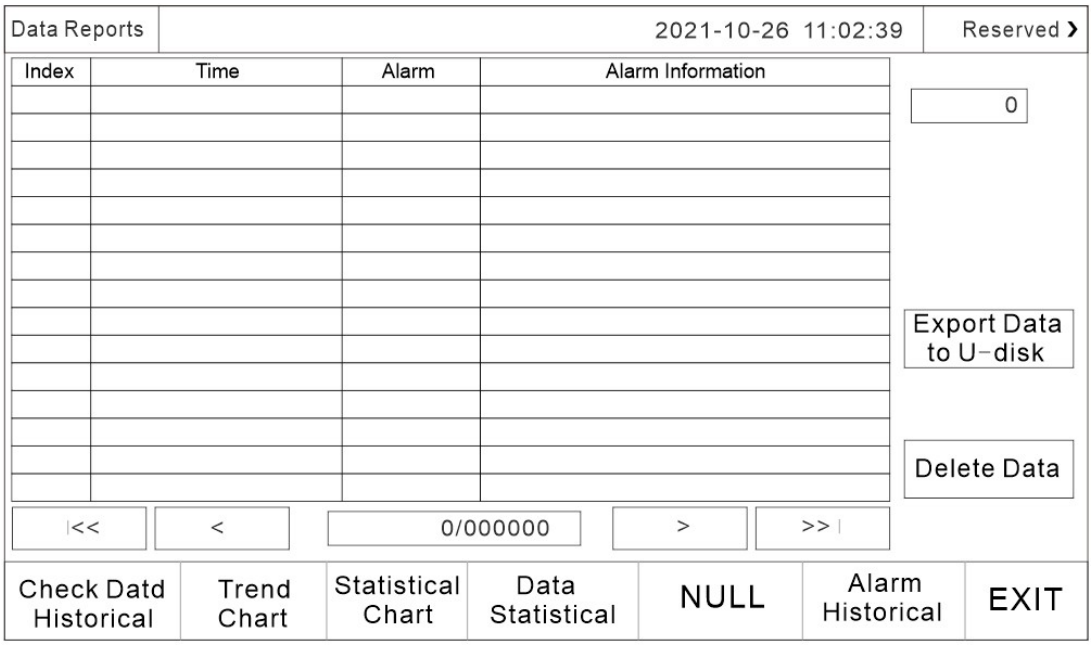


Figure 4-3 Alarm information interface example

4.4Statistical graph

Click "Statistical Chart" to enter the statistical chart interface to visually view the product weight distribution during product inspection.

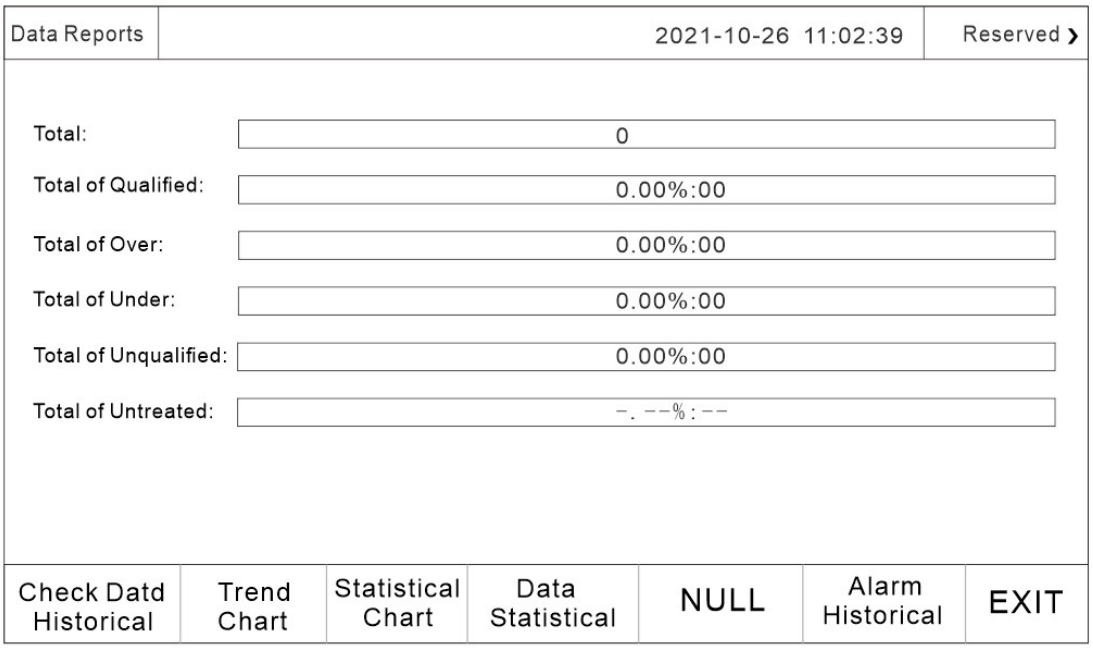


Figure 4-4 Statistical chart interface example

5. IO Module

5.1TEST

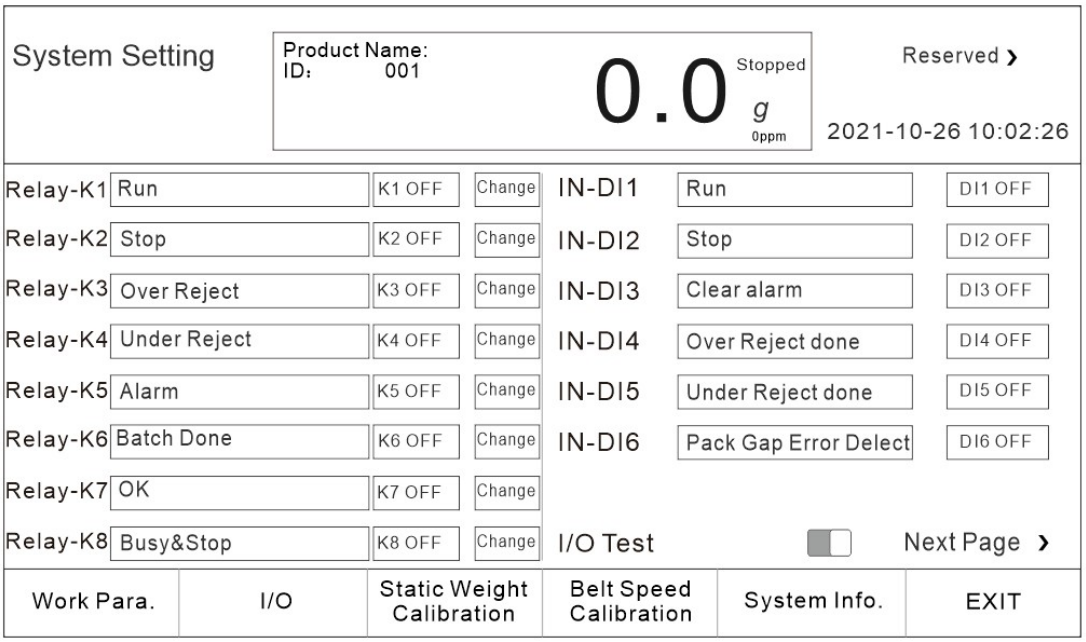


Figure 5-1 I/O parameter interface example 1

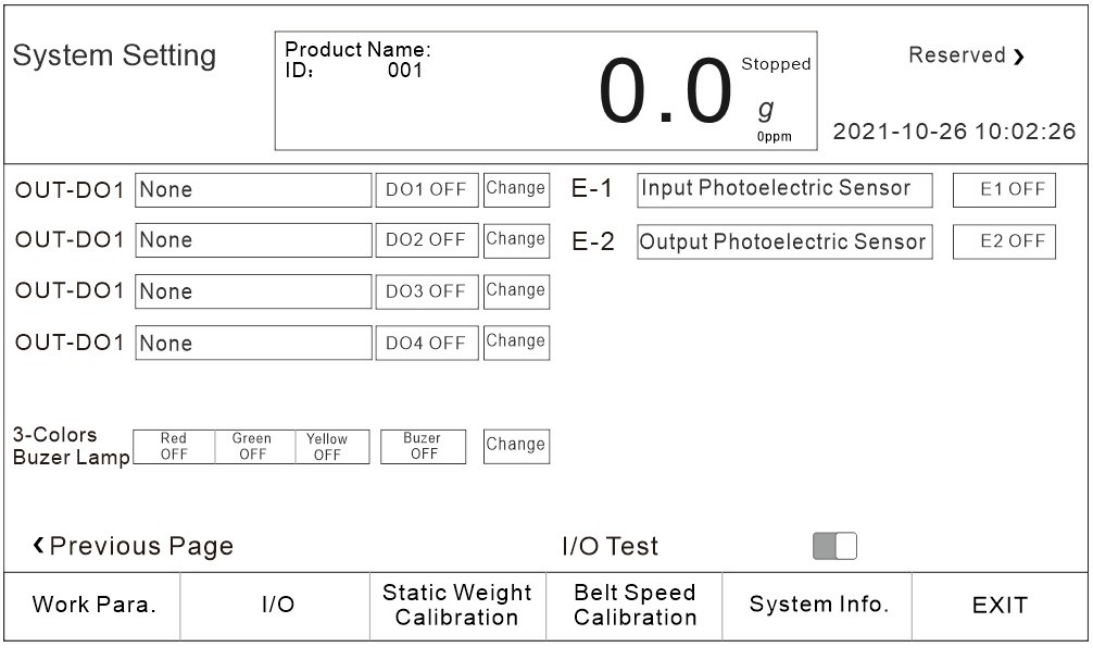


Figure 5-2 I/O parameter interface example 2

Click "I/O" on the setting page to enter the IO test interface. The system provides 6 input terminals and 12 output terminals. Users can decide whether to use them according to

production needs. For specific operation methods, please refer to Chapter 3.3.2 "Operation Instructions for Buttons and Operation Boxes".

The IO test is to test whether the IO port is connected to the external device normally. During the test, click "Switch" behind the output to output 1-8. If the corresponding relay coil is closed (the red indicator light on the relay base is on) and the corresponding device is active, then the connection is normal and the output point of the checkweigher is valid. Otherwise, please check whether the connection between the output point and the device is correct; click "Switch" behind the three-color light. If all three-color indicator lights are on, the wiring is correct.

The input test can be carried out by setting a low-level signal (DC0V) on the input terminal. If the corresponding input port sets a low-level signal and it is valid, the test indicator box behind the corresponding input point on the touch screen will light up and display "ON" (can be used when testing photoelectric input). Block the photoelectric on the main interface, and if the corresponding incoming and outgoing materials light up, the photoelectric input is valid). Input and output signals can be defined by yourself.

The default IO is defined as follows:

Input port number	Definition	Output port number	Definition
DI1	Run	Relay - K1	Run
DI2	Stop	Relay - K2	Stop
DI3	Clear alarm	Relay - K3	Over reject
DI4	Over reject completed	Relay - K4	Under reject
DI5	Under reject completed	Relay - K5	Alarm
DI6	Continuous packet detection	Relay - K6	Batches completed
E1	I1 (incoming photoelectric sensor)	Relay - K7	Qualified indication
E2	I2 (outgoing photoelectric sensor)	Relay - K8	Disqualified indication
		DO 1	Undefined

		DO 2	Undefined
		DO 3	Undefined
		DO 4	Undefined
		L 1	O17 (Buzzer alarm output)
		L 2	O7 (alarm light over-weight indication, no relay)
		L 3	O10 (alarm light qualified indication, no relay)
		L 4	O6 (alarm light under-weight indication, no relay)

Definable I/O list:

Input paras:

Number	Name	Function description
I00	Undefined	No function when this item is selected.
I01	Input photoelectric	When the input is valid, it means that the input photoelectric sensor has sensed the measured object
I02	Output photoelectric	When the input is valid, it means that the output photoelectric sensor has sensed the object under test
I03	Run	When the input is valid, the device will start into the running state
I04	Stop	When the input is valid, the device will stop running
I05	Clear alarm	When the input is valid, the device will clear the current alarm
I06	Over reject completed	When the input is valid, the over rejection have been completed
I07	Under reject completed	When the input is valid, the under rejection has been completed
I08	Continuous Packet detection	When the input is valid, Equipment performs continuous package inspection
I09	Belt speed detection	

I10	Run/stop [level]	Control device run or stop by level signal
I11	Run/stop [edge]	When the equipment is in the stopped state and this signal input is valid, the equipment starts to enter the running state; When the equipment is in running state and this signal input is valid, the equipment stops running.;
I12	Stop (level)	The signal is valid and the touch screen cannot start the device

Output paras:

Number	Name	Function description
O00	Undefined	No function when this item is selected.
O01	Over-weight indication	If the check-weighing result is over, the output is valid and will continue until the next check-weighing is completed.
O02	Over-weight indication	If the weight check result is under, the output is valid and lasts until the next weight check is completed.
O03	Run	In running state, the output is valid.
O04	Stop	In stopped state, the output is valid.
O05	Alarm	Output is valid when alarming.
O06	Over reject	If the check weight result is over, it will be delayed according to the set distance of the over rejector, and then the output will be valid according to the set duration.
O07	Under reject	The weight check result is the under, it will be delayed according to the set distance of the under rejector, and then the output will be valid according to the set duration.
O08	Disqualified Reject	If the check weight result is over or under, it will be delayed according to the set distance of the unqualified rejector, and then the output will be valid according to the set duration.
O09	Batches completed	This output is valid when the set number of batches is reached.
O10	Qualified indicator	If the check-weighing result is insufficient, the output will be valid and will continue until the next check-weighing is completed.

O11	Busy Stop + Communication	When the system is in a busy state, the busy detection is valid, and the output is invalid. When the busy state is invalid and a communication command is received, the output is valid. When the busy detection is invalid, the output is valid.
O12	Busy stop	When the system is in a busy state and busy detection is valid, this output is invalid. When the busy state is invalid, this output is valid. When busy detection is invalid, this output is valid.
O13	Incoming photoelectric output	The output is based on the status of the incoming photoelectric. If the incoming photoelectric is valid, the output is valid..
O14	Outgoing photoelectric output	Output according to the status of the discharging photoelectric. If the discharging photoelectric is valid, the output is valid.
O15	Speed-increasing pulse	Servo feedback function
O16	Deceleration pulse	Servo feedback function
O17	Buzzer alarm output	Output in different ways based on selection
O18	Qualified Reject	
O19	Unpartitioned	
O20	Sorting 1	
O21	Sorting 2	
O22	Sorting 3	
O23	Sorting 4	
O24	Sorting 5	
O25	Sorting 6	
O26	Sorting 7	
O27	Sorting 8	
O28	Sorting 9	
O29	Sorting 10	

6. Working Parameters

6.1Working parameter Settings

Click "Settings" to enter the working parameter interface. The user can decide whether to turn it on according to production needs. After turning it on, if a corresponding alarm occurs, the checkweigher will automatically alarm or shut down. You need to manually click "Clear Alarm" or input an external "Clear Alarm" signal. Then start the checkweighing again (after the alarm is generated and until the alarm is cleared, the checkweigher motor runs but does not perform the judgment operation of the object on or off the scale platform, nor does it perform the weighing operation), and the alarm information is stored in "Data" - "Alarm Information" middle. For specific operation methods, please refer to Chapter 3.3.2 "Operation Instructions for Buttons and Operation Boxes".

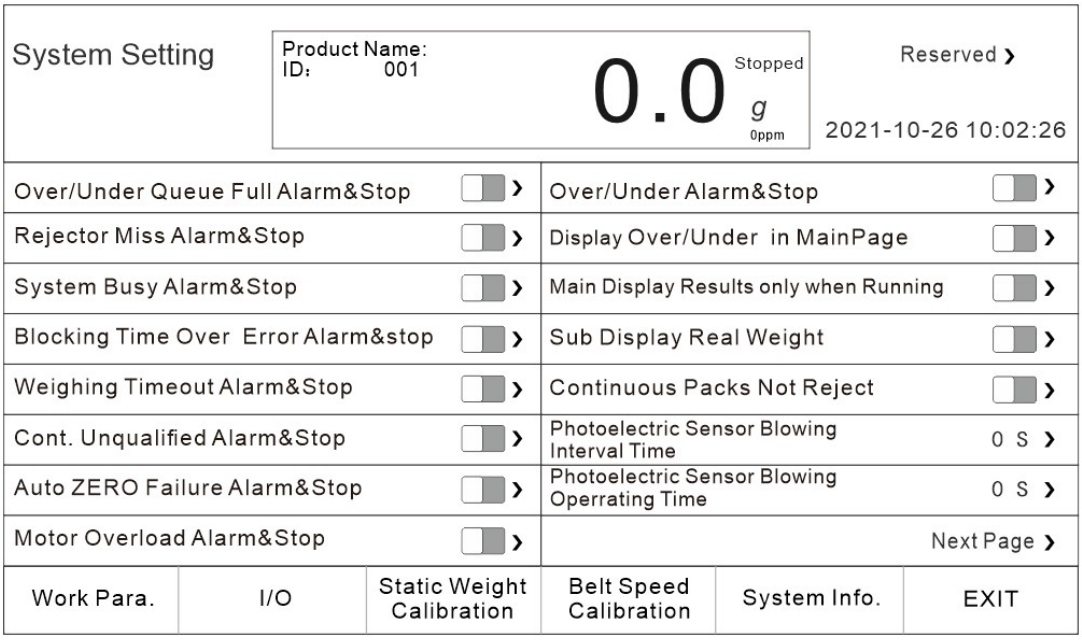


Figure 6-1 Working parameter interface example

Working parameter analysis:

Name	Instructions
Over and under queue full alarm and shutdown	The default number of over-under queues is 20, which means that if the elimination distance is long enough, that is, it takes a long time for the products to be eliminated to reach the elimination mechanism, there can be more than 20 products in the middle. If there are more than or equal to 20 products in this distance, Products that exceed the deviation and need to be eliminated will be alarmed and shut down.

Failure to remove alarm in time and shut down	After the next unqualified product goes through the weighing process and the previous product has not been removed, an alarm will be issued and the machine will shut down.
Busy alarm stop	Before the previous product has flowed out of the check-weighing belt, and the next product enters the check-weighing belt, a busy alarm will be displayed and the machine will shut down. If there is an over-to-under-tolerance rejection mechanism connected to the back end, the default is over-to-tolerance elimination.
Alarm and shutdown when material blocking time is exceeded	Indicates that if the discharging photoelectric sensor continues to sense and exceeds the blocking time set on the system parameter interface, an alarm will occur and the machine will shut down.
Alarm and shutdown when exceeding the maximum time on the weighing platform	There are two situations here; 1. If the maximum time on the weighing platform set on the touch screen is greater than twice the time required for the object to pass through the weighing platform, the maximum alarm time on the weighing platform will be twice the time required for the object to pass through the weighing platform. 2. If the maximum time on the scale set on the touch screen is less than or equal to twice the time required for the object to pass through the scale, the maximum alarm time on the scale will be the maximum time on the scale set on the touch screen.
Number of consecutive failure alarms	The number of continuous failure alarms
Exceed continuous failure times alarm and shutdown	In the product parameter setting interface, you can set the number of consecutive failure alarms. If the set value is not zero and the switch is turned on, when the number of consecutive failures reaches this value, an alarm will occur and the machine will shut down.
Dynamic zeroing failure alarm and shutdown	There is a number of dynamic zero failure alarms on the manufacturer's parameter setting interface. When this setting value is not zero, during the dynamic zeroing process, when the number of dynamic zeroing failures reaches or exceeds the set value, an alarm will occur and the machine will shut down.
Motor load upper limit	The maximum load that the motor can bear

The motor stops when the upper load limit is exceeded	The upper limit of the motor load can be set on the system parameter interface of the product. When the weight of the product or the object to be weighed exceeds the set upper limit, an alarm will be issued and the machine will shut down.
Over and under deviation alarm and shutdown	The main page displays that the result of the product being tested is out of tolerance or under tolerance and the equipment will be shut down. If you need to use this function, you need to move the discharging photoelectric position forward. Please contact our technical department for details.
The main page displays over and under information	The main page displays whether the result of the product tested is over, under or qualified.
The main page only displays the check weight results when running	Only the product inspection results of this inspection are displayed on the main page.
Auxiliary display of real-time weight	Display the real-time weight of the detected product on the main page
Units	g/kg/t Optional
Minimum division	0.001. 0.002. 0.005. 0.010. 0.020. 0.050 Optional
Calibration stability range	When calibrating the scale, if the weight change range is within this setting value, the scale platform is judged to be stable.
Stable range	During the stability judgment time, if the weight change range is within this setting value, the scale platform is judged to be stable.
Zero tracking range	If the weight value is within this range, it will automatically zero.
Zero range	The range of zeroing of the scale platform during weighing

Automatically zero on startup	Perform zero operation once the device is started
Calibration longest judgment time	It is the maximum judgment time of the weight calibration process, which means that the scale platform must be stable and the zero point voltage must be within the limit during the calibration of the empty scale platform and the weight calibration process. If the above conditions are not met and the maximum judgment time is exceeded, it will Alarm and calibration failed
Decimal point	0 0.0 0.00 0.000 0.0000 Optional
Maximum range	1.2kg
Calibration stability time	During calibration, if the weight change range is within the stability range of the calibration scale within this time, the scale platform is judged to be stable.
Stable time	The range of weight variation is judged to be stable within the value
Zero tracking time	During this time, if the drift of the system data does not exceed the zero tracking range, zero tracking will be performed.
PWR-ON auto zero	Zero operation will be performed once power on
Incoming debounce time	No sampling will be done within this time after incoming the object.
Outgoing debounce time	No sampling will be done within this time before outgoing the object.
Length of scale platform	400mm
Maximum time on the scale platform	Maximum time a object is on the scale
Blocking time	Starting from the time when the outgoing photoelectric sensor detects the material, an alarm will be issued if this time is exceeded.

Dynamic zero range	The range of zeroing of the scale platform during the check-weighing process
Digital filtering level	0 to 9 can be set
AD sampling rate	120 times/Second, 240 times/second, 480 times/second
Pre-filter grade	0 to 20 optional
Photoelectric dust removal interval time	When the system runs to the set value, the photoelectric dust removal begins
Photoelectric dust removal duration	Output time of photoelectric dust removal switch
Buzzer alarm type	Four types optional, over/under/unqualified/qualified
Buzzer sounding mode	Three ways optional, long buzzer/off/delay
Buzzer delay time	0.000-10.000s
over/under alarm without pausing	A pop-up window will display an alarm message when over/under happened and not paused.
Over and under deviation alarms are included in the alarm record	The over and under alarm is included in the alarm record

7. Communication

The product has RS485 and optional network port for external communication. The communication protocol is standard Modbus RTU, and the network port communication includes Modbus TCP/IP and HTTP protocol. When the communication mode is set as print, RS485 can be connected to the printer to print. For detailed operation methods, refer to "Button and operation box operation instructions" in section 3.3.2.

7.1Communication parameters

Click "Settings" to enter the working parameter interface, and then click the next page. The user can set the relevant serial port communication method to realize communication between the checkweigher and external control units such as the host computer or connect to a printer.

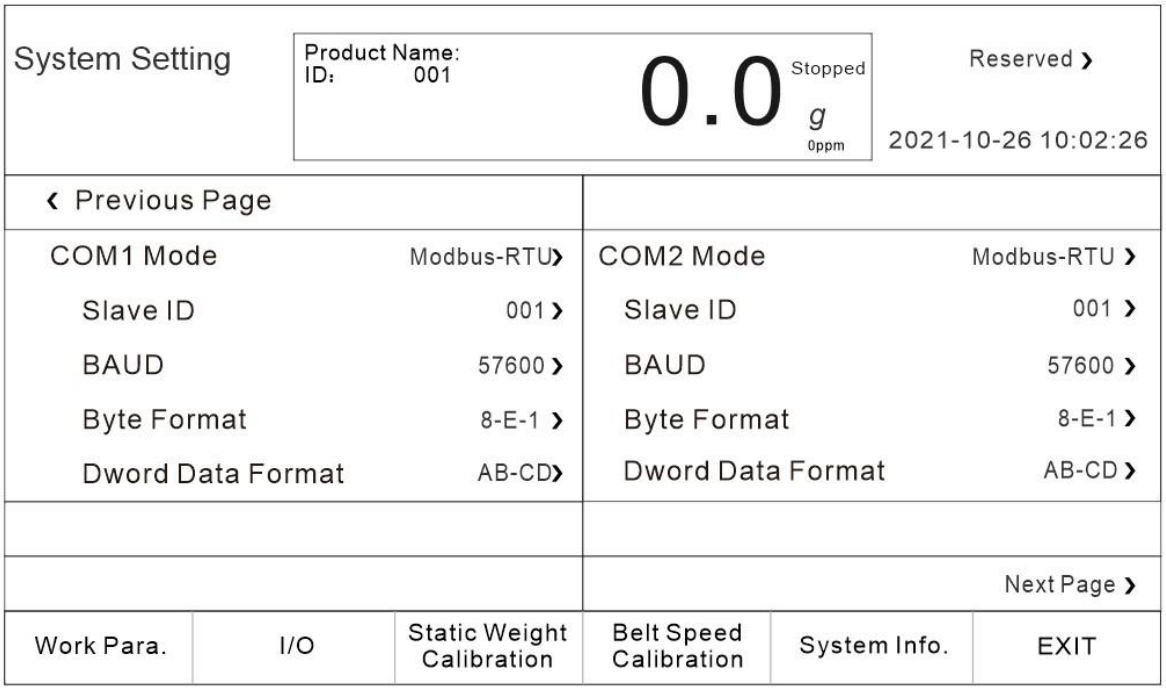


Figure 7-1 Communication parameter interface example 1

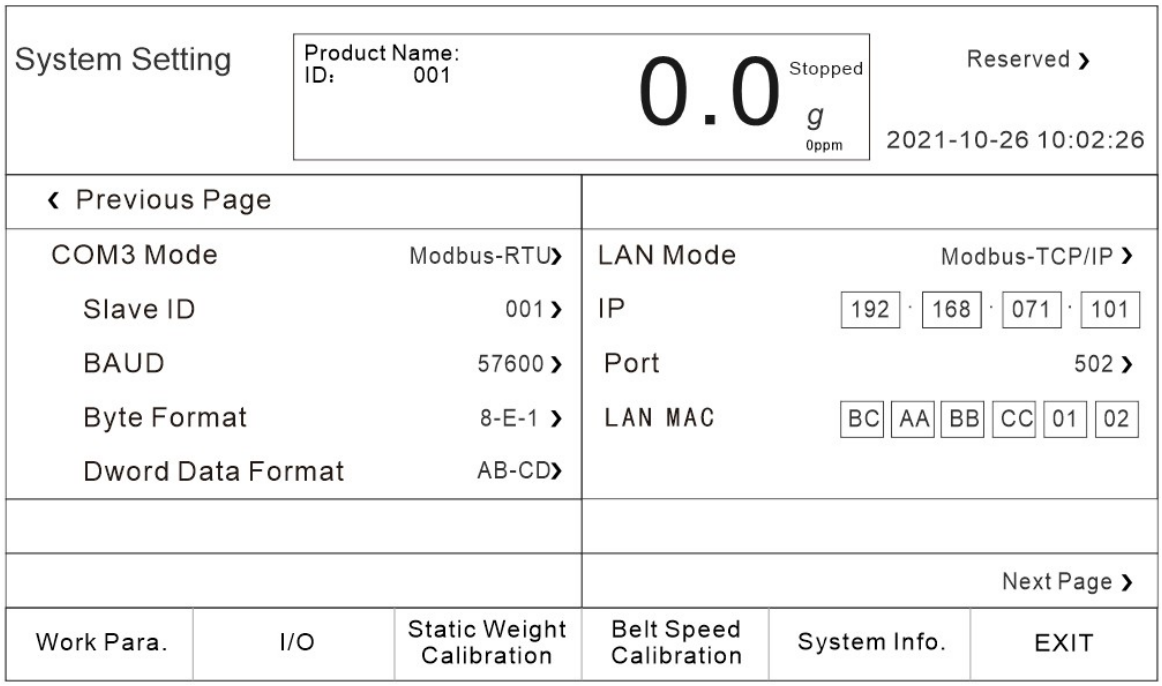


Figure 7-2 Communication parameter interface example 2

Description of communication parameters:

Name	Instructions
Serial communication method	Modbus-RTU
COM address	The address of the current device
Baud rate	Baud rate for current device communication
Byte format	The byte format of the current device communication. Default: 8-E-1
Hi-Lo bytes	Bytes of current device communication. Default: AB-CD
Network port communication mode	Network port communication mode
IP address	IP address for current device communication
Port number	Port number for current device communication

MAC address	MAC address for current device communication

7.1.1 Serial port communication

The checkweigher is equipped with three serial ports, which communicate with the host computer through the RS485 serial port. The optional functions are Modbus-RTU and Printing (serial port three can only be set to print), and the data format 7-E-1 is fixed to print, Modbus-RTU communication cannot be performed.

Serial number	Range	Instructions
COM address	1 to 245	Device slave number
Communication method	Modbus-RTU, print	Communication Modes and functions
Baud rate	9600, 19200, 38400, 57600,115200	Communication data transfer speed
Data format	7-E-1(Print), 8-E-1, 8-N-1.	Communication transmission data Format
High and low bytes	High word first or low word first	Facilitates communication with various host computers

When the host computer communicates with multiple checkweighers at the same time, the equipment codes of each checkweigher cannot be consistent, and the maximum value is 245 (a single host computer can support a maximum of 245 checkweighers connected to it at the same time).

7.1.2 Network port communication

The checkweigher can communicate with the host computer through a 10M/100M adaptive network port. The optional functions are Modbus TCP/IP and HTTP protocols. Parameter setting requirements are as follows:

Serial number	Instructions
IP	The host computer and the mainboard must be in the same network segment and are not same.
Port number	Range 0-65535, usually set to 502 for slave
MAC address	The address of each device cannot be repeated and is set before delivery

HTTP working mode is server-side mode, and the protocol content is as follows:

1 Send: http://IP,
Return: current weigh value (screen display value).
For example:
Send to: http://192.168.61.223
Return: 123.456kg

2 Send:
http://IP/szgmt.html
Return: Current weighing value (screen display value).
For example:
Send: http://192.168.10.15/szgmt.html
Return: 123.456kg

3 Send:
http://IP/cwrf.html
Return: Current weigh value (screen display value), new weigh data identification.
For example:
Send: http://192.168.10.15/cwrf.html
Return: 123.456kg0 (This value changes from 0 to 1 or from 1 to 0 when there is a new check result)

4 Send:
http://IP/crf.html
Return: New weigh data identification.
Example:
Send to: http://192.168.10.15/crf.html
Return: 1 (change the value from 0 to 1 or from 1 to 0 when there is a new check result)

7.1.3 MAC address

The MAC address is the physical address of the checkweigher and cannot be modified. It represents the identification number of the weighing scale.

7.2Modbus register communication address definition

PLC address	Module address	Parameter definition	Remarks	
Home Interface status (Support function code 0x03)				
40001	**0000**	Module current status 1	.0	1: Weight positive overflow
			.1	1: loadcell positive overflow
			.2	1: Weight negative overflow

			.3	1: Loadcell negative overflow
			.4	1: Weight plus or minus identifier bit 0: plus 1: minus
			.5	1: zero point identifier bit
			.6	1: Stabilize identifier bit
			...	Reserve
			.12	1: Static calibration state
			.13	1: Zero calibration is successful
			.14	1: Gain calibration is successful
			.15	Reserve
40002	**0001**	Module current status 2	.0	1: Run 0: Stop
			.1	1: Upper limit (for indication)
			.2	1: Lower limit (for indication)
			.3	1: Qualified (for indication)
			.4	1: Over (for rejection)
			.5	1: under (for rejection)
			.6.	1: Qualified
			.7.	1: Busy (for indication)
			.8.	1: IO test
			.9.	1: Belt calibration
			.10	1: Dynamic calibration
			.11	1: Goods entry
			.12	1: Goods go out
			.13	1: Keep
			.14	1: Return to zero

			...	reserve
40007	**0006**	Weight value	Stop status: real-time weight; Running status: weight check result	
40008	**0007**			
40539	**0538**	Over-weight ratio		
40540	**0539**			
40541	**0540**	Under-weight ratio		
40542	**0541**			
40551	**0550**	Error ID	.0 Over and under queue is full	
			.1 Busy alarm	
			.2 Not reject in time	
			.3 Continuous failure alarm	
			.4 Total batch alarm	
			.5 Qualified batch alarm	
			.6 Exceed blocking time	
			.7 Below minimum sampling time	
			.8 Exceed Maximum time on the weighing platform	
			.9 Motor load limit exceeded	
			.10 Automatic zero failure alarm	
			.11 Zero out-of-range alarm	
			.12 Zero unstable alarm	
40552	**0551**		.13 Over alarm	
			.14 Under alarm	
			.15 Eliminate servo upper limit alarm	
			.16 Eliminate servo lower limit alarm	

			.17 Last correction was not completed and the next correction entered.
			.18 Reserved
40563	**0562**	Actual weight check speed	The number of products that actually pass the weighing scale in one minute during the product checking weight process
40564	**0563**		
Product parameters (Function codes 0x03, 0x10 supported.)			
40101	**0100**	Product ID	Read: Currently selected product ID; Write: select the product ID and update value after writing
40102	**0101**		
40103	**0102**	Product weight	Static weight of the product to be checked
40104	**0103**		
40105	**0104**	Upper limit	Allowable upper deviation for product qualification
40106	**0105**		
40107	**0106**	Lower limit	Allowable lower deviation for product qualification
40108	**0107**		
40109	**0108**	Packing weight	Packing weight that is weighed with the product but does not count towards the result
40110	**0109**		
40215	**0214**	Total Batch	Total target batches; 0 ~ 999999pcs
40216	**0215**		
40217	**0216**	Qualified Batch	Batches of qualified products; 0 ~ 999999pcs
40218	**0217**		
40279	**0279**	Photoelectric dusting cycle	Initial value: 60, range: 60 to 1800
40280	**0280**		
40281	**0281**	Photoelectric dusting time	Initial value: 1, range: 1 to 10
40282	**0282**		
Statistics (Support function code 0x03)			

40501	**0500**	Qualified cumulative count	
40502	**0501**		
40503	**0502**	Qualified cumulative weight	
40504	**0503**		
40505	**0504**	Cumulative number of Over weight	
40506	**0505**		
40507	**0506**	Cumulative weight of over weight	
40508	**0507**		
40509	**0508**	Cumulative number of under weight	
40510	**0509**		
40511	**0510**	Cumulative weight of under weight	
40512	**0511**		
40513	**0512**	Disqualified Cumulative number	
40514	**0513**		
40515	**0514**	Disqualified Cumulative weight	
40516	**0515**		
40517	**0516**	Total cumulative times	
40518	**0817**		
40519	**0518**	Total cumulative weight	
40520	**0519**		
40521	**0520**	Maximum	
40522	**0521**		
40523	**0522**	Minimum	
40524	**0523**		
40527	**0526**	Pass rate	

40528	**0527**		
40529	**0528**	Average weight of qualified products	
40530	**0529**		
40531	**0530**	Average weight of over-weight products	
40532	**0531**		
40533	**0532**	Average weight of under-weight products	
40534	**0533**		
40537	**0536**	Average weight of total cumulative	
40538	**0537**		
40559	**0558**	Check weight result reading identifier (Switch between 0 and 1)	When the read value changes from 0 to 1, or from 1 to 0, Prove that the read value is updated data. (When powering on, the value is fixed to 3, and when stopping and alarming, it is 2. When programming HMI, when collecting data based on the value change, be careful to add a judgment that is not equal to 2 or 3.)
40560	**0559**		
40561	**0560**	Weight check result	The value read is the result of this check-weighing. When there is a new check-weighing result, the value is updated.
40562	**0561**		
Working Parameter(Function code:0x03, 0x10.)			
40051	0050	Unit	Initial value：1 Range：0~3 0:g 1:kg 2:t 3：lb
40052	0051		
40053	0052	Decimal point	Initial value：3 Range：0~4
40054	0053		
40055	0054	Division	Initial value：5 （Range：1、2、5、10、20、50）
40056	0055		

40057	0056	Full scale	Initial value：400000（range：Less than or equal to division*200000）
40058	0057		
The following content is a sorted part of the address Readable and writable bit status（The function code for reading is 0x01,and the function code for writing is 0x06）			
42239	**2238**	Delete partition accumulation	Initial value：1， Range：1~11
42240	**2239**		
42241	**2240**	Save dynamic calibration parameters	Initial value：0， Range：0~1
42242	**2241**		
42243	**2242**	Currently selected partition	Initial value：0， Range：0~9
42244	**2243**		
42245	**2244**	Product ID	Initial value：0， Range：0~19
42246	**2245**		
42247	**2246**	Reset Product	Initial value：0， Range：0~1
42248	**2247**		
42249	**2248**	Current product maximum value	Readable
42250	**2249**		
42251	**2250**	Current product minimum value	Readable
42252	**2251**		
42253	**2252**	Standard deviation	Readable
42254	**2253**		
42255	**2254**	Filter level	Initial value：1， Range：1~9
42256	**2255**		

42257	**2256**	Sample time	Readable/writable，Unit: ms
42258	**2257**		
42259	**2258**	Batch	Readable.
42260	**2259**		
42261	**2260**	Reject action time	Readable/writable，Unit: ms
42262	**2261**		
42263	**2262**	Dynamic zero level	Initial value：0 Range：0~19
42264	**2263**		
42265	**2264**	Sampling start percentage	Initial value：0， Range：0~80
42266	**2265**		
42267	**2266**	Sampling Using percentage	Initial value：20， Range：20~100
42268	**2267**		
42269	**2268**	Check weight result area code	Readable
42270	**2269**		
42271	**2270**	Abnormal area unqualified reject distance	Initial value：0， Range：0~999999
42272	**2271**		
42273	**2272**	Abnormal area unqualified reject time	Initial value：0， Range：0~999999
42274	**2273**		
42275	**2274**	Number of abnormal areas	Readable
42276	**2275**		
42277	**2276**	Dynamically calibrate real-time data	Readable
42278	**2277**		
42279	**2278**	Total times	Readable

42280	**2279**		
42280 **……** **42300**	**2280** **……** **2299**	Reserve	
42301	**2300**	Sorting 1 upper limit	Readable
42302	**2301**		
42303	**2302**	Correction factor	Initial value：0， Range：0~2000
42304	**2303**		
42305	**2304**	Reject distance	Initial value：0， Range：0~999999
42306	**2305**		
42307	**2306**	Reject time	Initial value：0， Range：0~999999
42308	**2307**		
42309	**2308**	Sorting cumulative weight	Readable
42310	**2309**		
42311	**2310**	Lower limit	Initial value：0， Range：0~999999
42312	**2311**		
42313	**2312**	Cumulative weight	Initial value：0， Range：0~999999
42314	**2313**		
42315	**2314**	Average weight	Initial value：0， Range：0~999999
42316	**2315**		
42317 **……** **42320**	**2316** **……** **2319**	Reserve	

42321	**2320**	Sorting 2 upper limit	Readable
42322	**2321**		
42323	**2322**	Correction factor	Initial value：0， Range：0~2000
42324	**2323**		
42325	**2324**	Reject distance	Initial value：0， Range：0~999999
42326	**2325**		
42327	**2326**	Reject time	Initial value：0， Range：0~999999
42328	**2327**		
42329	**2328**	Sorting cumulative weight	Readable
42330	**2329**		
42331	**2330**	Lower limit	Initial value：0， Range：0~999999
42332	**2331**		
42333	**2332**	Cumulative weight	Initial value：0， Range：0~999999
42334	**2333**		
42335	**2334**	Average weight	Initial value：0， Range：0~999999
42336	**2335**		
42337 **……** **42340**	**2336** **……** **2339**	Reserve	
42341	**2340**	Sorting 3 upper limit	Readable
42342	**2341**		
42343	**2342**	Correction factor	Initial value：0，
42344	**2343**		

			Range：0~2000
42345	**2344**	Reject distance	Initial value：0， Range：0~999999
42346	**2345**		
42347	**2346**	Reject time	Initial value：0， Range：0~999999
42348	**2347**		
42349	**2348**	Sorting cumulative weight	Readable
42350	**2349**		
42351	**2350**	Lower Limit	Initial value：0， Range：0~999999
42352	**2351**		
42353	**2352**	Cumulative weight	Initial value：0， Range：0~999999
42354	**2353**		
42355	**2354**	Average weight	Initial value：0， Range：0~999999
42356	**2355**		
42357 **……** **42360**	**2356** **……** **2359**	Reserve	
42361	**2360**	Sorting 4 upper limit	Readable
42362	**2361**		
42363	**2362**	Correction factor	Initial value：0， Range：0~2000
42364	**2363**		
42365	**2364**	Reject distance	Initial value：0， Range：0~999999
42366	**2365**		

42367	**2366**	Reject time	Initial value：0， Range：0~999999
42368	**2367**		
42369	**2368**	Sorting cumulative weight	Readable
42370	**2369**		
42371	**2370**	Lower Limit	Initial value：0， Range：0~999999
42372	**2371**		
42373	**2372**	Cumulative weight	Initial value：0， Range：0~999999
42374	**2373**		
42375	**2374**	Average weight	Initial value：0， Range：0~999999
42376	**2375**		
42377 **……** **42380**	**2376** **……** **2379**	Reserve	
42381	**2380**	Sorting 5 upper limit	Readable
42382	**2381**		
42383	**2382**	Correction factor	Initial value：0， Range：0~2000
42384	**2383**		
42385	**2384**	Reject distance	Initial value：0， Range：0~999999
42386	**2385**		
42387	**2386**	Reject time	Initial value：0， Range：0~999999
42388	**2387**		
42389	**2388**		Readable

42390	**2389**	Sorting cumulative weight	
42391	**2390**	Lower Limit	Initial value：0， Range：0~999999
42392	**2391**		
42393	**2392**	Cumulative weight	Initial value：0， Range：0~999999
42394	**2393**		
42395	**2394**	Average weight	Initial value：0， Range：0~999999
42396	**2395**		
42397 **……** **42400**	**2396** **……** **2399**	Reserve	
42401	**2400**	Sorting 6 upper limit	Readable
42402	**2401**		
42403	**2402**	Correction factor	Initial value：0， Range：0~2000
42404	**2403**		
42405	**2404**	Reject distance	Initial value：0， Range：0~999999
42406	**2405**		
42407	**2406**	Reject time	Initial value：0， Range：0~999999
42408	**2407**		
42409	**2408**	Sorting cumulative weight	Readable
42410	**2409**		
42411	**2410**	Lower Limit	Initial value：0， Range：0~999999
42412	**2411**		

42413	**2412**	Cumulative weight	Initial value：0， Range：0~999999
42414	**2413**		
42415	**2414**	Average weight	Initial value：0， Range：0~999999
42416	**2415**		
42417 **……** **42420**	**2416** **……** **2419**	Reserve	
42421	**2420**	Sorting 7 upper limit	Readable
42422	**2421**		
42423	**2422**	Correction factor	Initial value：0， Range：0~2000
42424	**2423**		
42425	**2424**	Reject distance	Initial value：0， Range：0~999999
42426	**2425**		
42427	**2426**	Reject time	Initial value：0， Range：0~999999
42428	**2427**		
42429	**2428**	Sorting cumulative weight	Readable
42430	**2429**		
42431	**2430**	Lower Limit	Initial value：0， Range：0~999999
42432	**2431**		
42433	**2432**	Cumulative weight	Initial value：0， Range：0~999999
42434	**2433**		
42435	**2434**	Average weight	

42436	**2435**		Initial value：0， Range：0~999999
42437 **……** **42440**	**2436** **……** **2439**	Reserve	
42441	**2440**	Sorting 8 upper limit	Readable
42442	**2441**		
42443	**2442**	Correction factor	Initial value：0， Range：0~2000
42444	**2443**		
42445	**2444**	Reject distance	Initial value：0， Range：0~999999
42446	**2445**		
42447	**2446**	Reject time	Initial value：0， Range：0~999999
42448	**2447**		
42449	**2448**	Sorting cumulative weight	Readable
42450	**2449**		
42451	**2450**	Lower Limit	Initial value：0， Range：0~999999
42452	**2451**		
42453	**2452**	Cumulative weight	Initial value：0， Range：0~999999
42454	**2453**		
42455	**2454**	Average weight	Initial value：0， Range：0~999999
42456	**2455**		

42457 **……** **42460**	**2456** **……** **2459**	Reserve	
42461	**2460**	Sorting 9 upper limit	Readable
42462	**2461**		
42463	**2462**	Correction factor	Initial value：0， Range：0~2000
42464	**2463**		
42465	**2464**	Reject distance	Initial value：0， Range：0~999999
42466	**2465**		
42467	**2466**	Reject time	Initial value：0， Range：0~999999
42468	**2467**		
42469	**2468**	Sorting cumulative weight	Readable
42470	**2469**		
42471	**2470**	Lower Limit	Initial value：0， Range：0~999999
42472	**2471**		
42473	**2472**	Cumulative weight	Initial value：0， Range：0~999999
42474	**2473**		
42475	**2474**	Average weight	Initial value：0， Range：0~999999
42476	**2475**		
42477 **……** **42480**	**2476** **……** **2479**	Reserve	
42481	**2480**		Readable

42482	**2481**	Sorting 10 upper limit	
42483	**2482**	Correction factor	Initial value：0， Range：0~2000
42484	**2483**		
42485	**2484**	Reject distance	Initial value：0， Range：0~999999
42486	**2485**		
42487	**2486**	Reject time	Initial value：0， Range：0~999999
42488	**2487**		
42489	**2488**	Sorting cumulative weight	Readable
42490	**2489**		
42491	**2490**	Lower Limit	Initial value：0， Range：0~999999
42492	**2491**		
42493	**2492**	Cumulative weight	Initial value：0， Range：0~999999
42494	**2493**		
42495	**2494**	Average weight	Initial value：0， Range：0~999999
42496	**2495**		
The following is readable bit status (read function code 0x01, write function code 0x05)			
00001	**0000**	Weight positive overflow	
00003	**0002**	Weight negative overflow	
00005	**0004**	Weight plus and minus mark	
00006	**0005**	Zero mark	
00007	**0006**	Stable mark	
00008	**0007**	Hold mark	

00011	**0010**	Qualified mark
00012	**0011**	Under mark
00013	**0012**	Over mark
00014	**0013**	Busy
00015	**0014**	Alarm
00016	**0015**	Batch completed
00031	**0030**	Run (when writing ON, start running, stop running when writing OFF)
00032	**0031**	Zero (when writing ON, Perform zero action)
00033	**0032**	Clear alarm (When there is an alarm, write ON to clear the alarm..)
00034	**0033**	Print (when writing ON, print out)

7.3Print content

1. When the communication mode is set to print mode, the printer is connected, and the print button is pressed on the "Statistics Data" interface, or a print command is sent through the communication mode, the printout content is as follows:

----------		上分隔横线符
DATE:	2015.10.15	打印日期
TIME:	15:21	打印时间
PRODUCT CODE:	1	产品号
TARE WT:	0.000kg	皮重值
UP LIM:	0.030kg	超差值
REF WT:	8.135kg	目标值
LOW LIM:	0.030kg	欠差值
PASS CT:	1	合格累计次数
PASS WT:	8.140kg	合格累计重量
PASS AVR:	8.140kg	合格平均重量
PASS RATE:	100.00%	合格率
OVER CT:	0	超差累计次数
OVER WT:	0.000kg	超差累计重量
UNDER CT:	0	欠差累计次数
UNDER WT:	0.000kg	欠差累计重量
TOTAL CT:	1	总累计次数
TOTAL WT:	8.140kg	总累计重量
MIN WT:	8.140kg	最小值
MAX WT:	8.140kg	最大值
----------		上分隔横线符

2. When the communication mode is set to result printing, the device will actively send data. After each check, it will actively send the content shown in the following figure through the serial port:

20140503142100 0.0346kg

The format is timestamp + weight. If there is an external printing device, the above content will be printed. The above content is only an example. The specific printed data is subject to the actual test results.

3、The data format of CHRE mode is as follows：

STX	blank space	status	blank space	sign	limit	blank space	Sampling results	unit	CRC	CR	LF

Among：

1. STX —— Start character,(02H).
2. Status ——3 bit，If an alarm occurs, status 1 is "E" (45H), status 2, and status 3 are error identifiers, otherwise the three digits are spaces 20H.
3. sign —— 1 bit. Whenever there is a new sampling mean, the data label is incremented by 1, from 30H to 39H, and then back to 31H. Used to assist in extracting sampling data.
4. Limit —— 1 bit, the limit of the current sampling value. The upper limit of the sampling value is "H" (48H). If the sampling value is qualified, it is "G" (47H). If the lower limit of the sampling value is "L" (4CH).
5. Sampling results —— 7-digit weight data (including 6-digit content, 1 decimal point (2EH), if there is no decimal point, the high digit is a space 20H).
6. If the weight value is 3.75, it is: 30H 30H 30H 33H 2EH 37H 35H
7. Unit - 2 digits, "kg (6BH 67H)" for kilogram and "g (67H 20H)" for gram.
8. CRC - is the checksum, that is, all the previous values are added and converted to decimal, then the last two digits are taken and converted to ASCII code.
9. CR - return flag(0DH).
10. LF -- newline flag(0AH).

7.4Set the parameters of the driver

1. Use a digital operator to set the input motor driver, weight check motor driver, and reject motor driver parameters F5.03 to 1, 2, and 3, respectively.
2. If the motor reverses after operation, use a digital operator to modify parameter F1.01 to 0.

8. Program Upgrade

The device can upgrade the mainboard program and HMI program through the way of pen driver. For details, please refer to "Button and operation box operation instructions" in section 3.3.2.

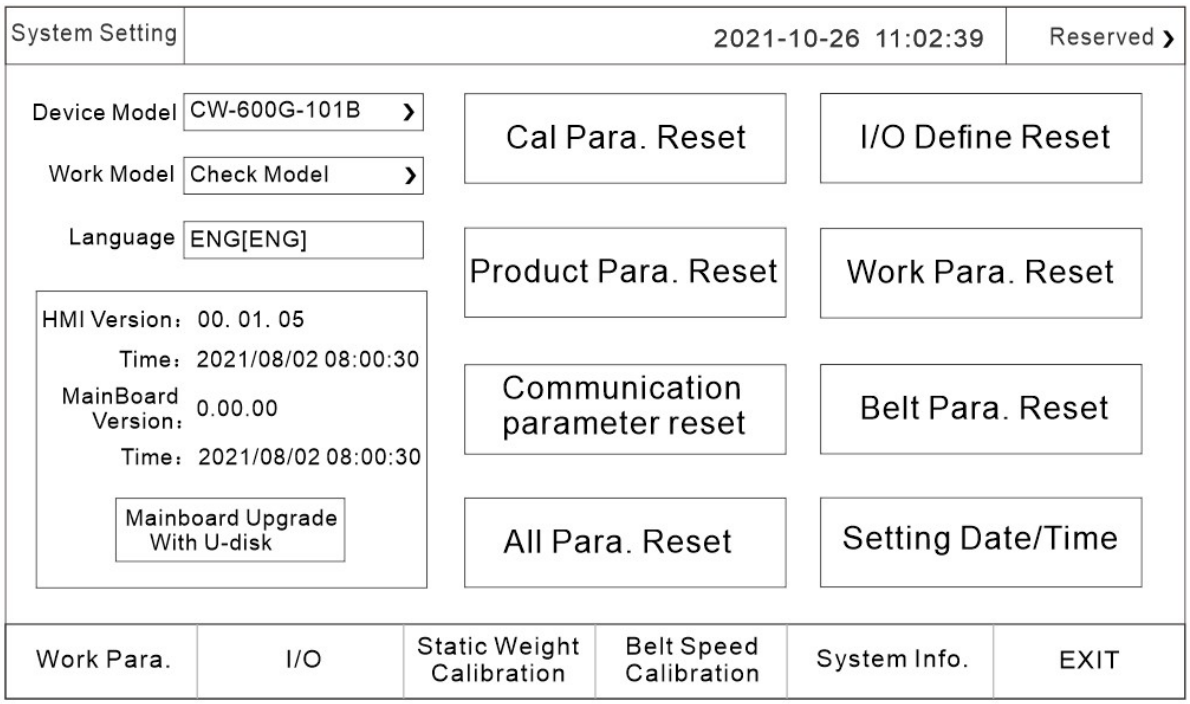


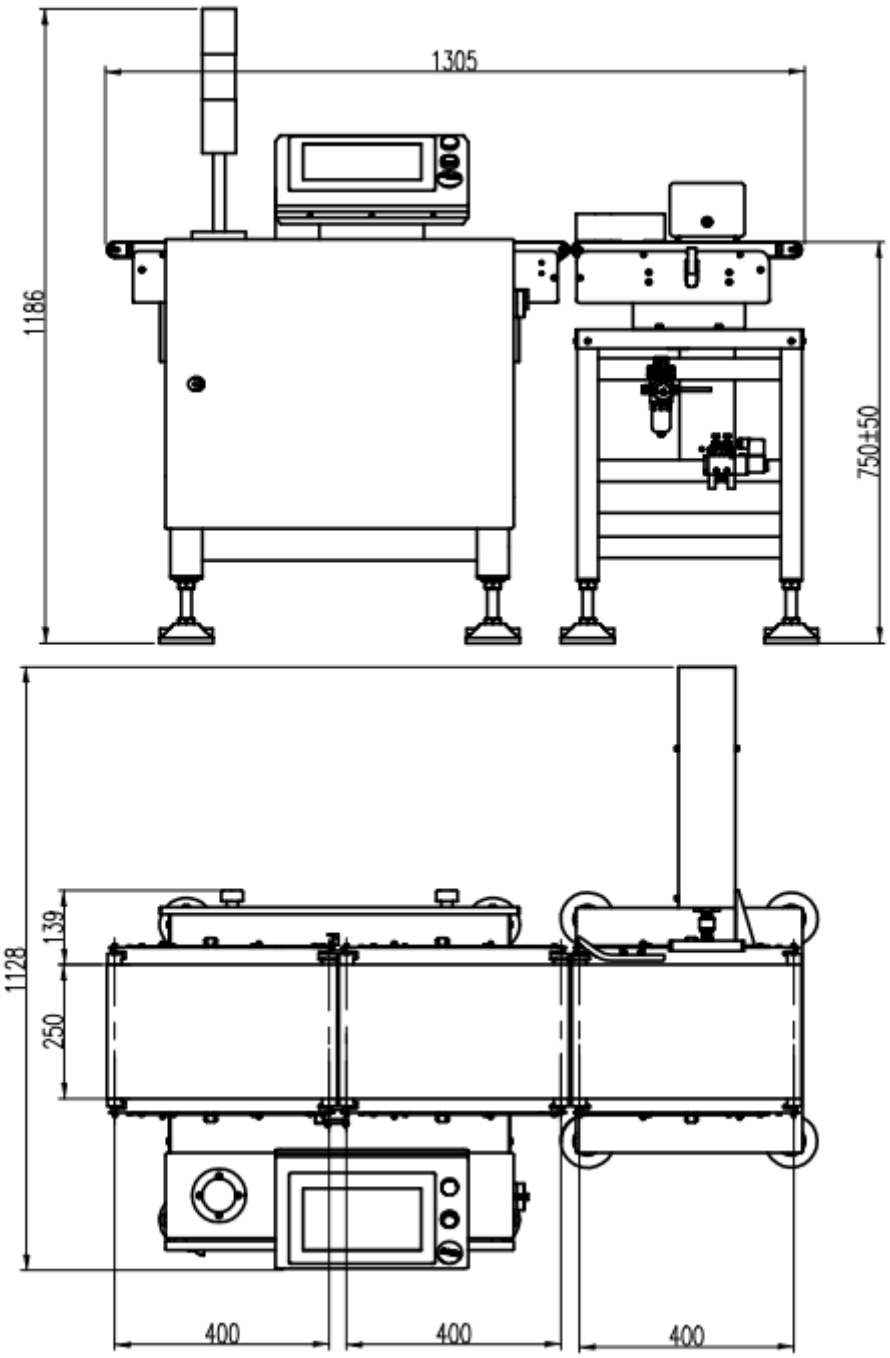
Figure 8-1 System information interface example

After contacting our technical department, confirm that the mainboard or HMI needs to be upgraded before proceeding. First obtain the corresponding program upgrade package. Insert the pen-driver containing the upgrade package, click the "U disk upgrade controller" button to enter the upgrade interface, and follow the interface instructions to perform the corresponding program upgrade. It is recommended to upgrade the equipment program under the guidance of our technical support to avoid equipment failure or damage.

9. Size

When the equipment is installed on site, it is necessary to ensure that there is no contact between the weighing platform and the surroundings to avoid affecting normal weighing. The distance around the weighing platform must be greater than 10mm.

9.1Dimensional drawing (unit: mm)



***** Note: The width, length and height of the scale platform of non-standard customized products may be different from the corresponding dimensions of standard products. For details, please refer to the technical documents or drawings confirmed by the user.

10. Equipment Repair And Maintenance

10.1 Motor maintenance

10.1.1 Routine maintenance

- Keep the motor clean and prevent oil, water and other dirt from entering the motor.
- Check motor terminal bolts and motor base fixing bolts for loosening
- Check the rotation of the motor blades
- Check the bearings at both ends of the motor for oil leakage, etc.
- Pay attention to observe whether there is abnormal noise, vibration and special smell in the operation of the motor.

10.1.2 Regular maintenance

- For motors that are running normally, mechanics and maintenance electricians must perform maintenance once a year.
- Remove dust or debris inside the motor (be careful not to damage the motor windings)
- Check whether the motor rotor is flexible and replace wearing parts (bearings, etc.)
- Check the insulation resistance of the motor winding to ground. When the insulation resistance is lower than 0.5MΩ, the motor must be dried.
- Change grease.
- Check whether the no-load current is within the specified range

10.1.3 Precautions

- During the maintenance process, attention should be paid to the safety of electricity and mechanical transmission, and illegal operations are strictly prohibited.
- When installing the repaired or replaced motor, attention should be paid to the wiring mode, and attention should be paid to whether the motor rotation direction is consistent with the reality.
- After installation, the motor should be clicked, and pay attention to observe whether the motor runs normally.

10.2 Checkweigher failure causes and solutions

10.2.1 No display on touch screen

- Poor power contact

  Solution: Connect the power wire
- The data cable is loose or detached

  Solution: Connect the data cable

10.2.2 Data has large jumps and abnormal fluctuations

- Checkweigher pedestal screws are loose.

  Solution: Tighten the checkweigher pedestal screws.
- The sensor is significantly disturbed, such as air conditioning wind, air flow, etc.

  Solution: Get rid of external interference

- The ground shakes and vibrates, such as interference from nearby machines rotating, cars passing by, etc.
  Solution: Get rid of external interference
- Conveyor belt affected by sticky objects
  Solution: Get rid of external interference
- There is debris accumulated or stuck on the sensor base.
  Solution: Get rid of external interference
- The filter coefficient is set too small
  Solution: Increase the filter coefficient

10.2.3 Display is always zero

- The object is light and its weight falls within the zero range.
  Solution: Should be solved by resetting the "zero range"
- The device is reset to zero.
  Solution: This can be solved by adjusting the "Automatic Zero Tracking" item in the system's calibration options.
- The sensor data cable is loose and caused by poor contact.
  Solution: Connect the sensor data cable

10.2.4 Data display abnormality

- The error is too big.
  Solution: Recalibrate.
- Wrong product number selection.
  Solution: The problem should be solved by clicking "Switch Product" again and selecting the corresponding supporting product number..
- The ambient temperature exceeds the normal operating range of the sensor.
  Solution: Ensure that the ambient temperature is normal
- The sensor components are aging or deformed.
  Solution: Replace loadcell

10.2.5 Busy alarm

- After the object is fed into the material, it does not come out of the weighing platform, and another object is placed on the weighing platform.
  Solution: Adjust the feeding speed, and only allow the next material to go on the scale after the material leaves the scale..

10.2.6 Continuous packet error

- If there are too many unqualified products, they will be removed in time.
  Solution: Remove unqualified products promptly.

10.2.7 Continuous nonconformity alarm

- The number of consecutive failures exceeds the set value.
  Alarm prompt, no need to deal with, the weighing work is carried out normally.

10.2.8 Exceed blocking time

- During operation, the object stays at the inlet or outlet end for too long.
  Solution: Check the reason why the object stays for too long and deal with it in time.

10.2.9 Below the minimum sampling time

- The object leaves the weighing platform too quickly during operation.
  Solution: Adjust the belt speed of the weighing platform within the detectable range.

10.2.10 Over maximum sampling time

- The object during operation has not left the weighing platform for a long time.
  Solution: Check the reason why the object has not left the scale for a long time and deal with it promptly.

10.2.11 Overload motor load limit

- The weight of the object exceeds the maximum range by a certain range (exceeds the maximum weight of the motor).
  Solution: Do not weigh objects beyond the maximum range.

10.2.12 Automatic zeroing failed

- 1. Current weight exceeds zero range.
- 2. The scale is unstable.
  Solution: 1. Clear the scale platform 2. Ensure the stability of the scale