



# Check weigher

**CW-60K**

**User's manual**

(Applicable for MCGS+C01 version)

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531701010031 Ver A1

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

## 1. Summary

CW-60K standard weighing scale is a high speed, high precision and big range industrial automatic weighing scale developed by our company to meet the changing technological update.

The full touch screen makes the CW-60K 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.

### 1.1 Product Features

Product parameters;

|                               |                                                                                              |
|-------------------------------|----------------------------------------------------------------------------------------------|
| Model number                  | CW-60K                                                                                       |
| Power Supply                  | AC220V $\pm$ 10%, 50/60Hz, 1KW                                                               |
| Weighing range                | 5 to 60kg                                                                                    |
| Accuracy of weight inspection | Plus or minus 10 g                                                                           |
| Weight checking speed         | $\leq$ 60 pieces/minute (belt length 1000mm)<br>$\leq$ 50 pieces/minute (belt length 1200mm) |
| Size of object to be measured | Length: 100~800mm Width: 50~600mm Height: 50~600mm                                           |
| Conveyor belt speed           | 10 to 60 m/min                                                                               |
| Belt size                     | 1200mm*600mm/1000mm*600mm                                                                    |
| Center distance of drum shaft | 1200mm/1000mm                                                                                |
| Countertop height             | 400~750 ( $\pm$ 50mm) (customizable)                                                         |
| Operating temperature         | 0 to 40°C                                                                                    |
| Maximum humidity              | 90% R.H non-dew forming                                                                      |
| Ultimate load                 | The instantaneous ultimate load shall not exceed 100kg                                       |

Note; Scale stands are strictly prohibited from being used over the range.

### 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 table 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, external only need to access the power cord;The internal use of different specifications pin plug terminal block, wiring is convenient and will not make mistakes.
- 2.Touch screen operation interface optimization, product parameter setting is simple and the main interface content is richer.
- 3.The three-color indicator shows qualified (green), out-of-tolerance (red), undertolerance (yellow), and the working state of the inspection weight is clear at a glance.Buzzer user can define the alarm mode.
- 4.The new algorithm is adopted in the process of weight inspection, 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.

## 1.2 Usage Notice

### 1.2.1 Precautions

- 1.Do not perform mechanical or electrical maintenance while live, do not place tools on the scale, and do not perform welding operations on the scale.
- 2.The installation site must ensure the ground level, after installation through the foundation adjustment, ensure that the weighing table level, tilt does not exceed 0.5 degrees, away from the vibration source.
- 3.Make sure the equipment is safely grounded and there is no strong electricity 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.Should avoid squeezing, stepping on the scale platform, handling should first fixed scale, installed sensor limit to prevent damage to the sensor, prohibit the direct handling of the scale platform to move.



## 2. Product installation

### 2.1 Overall appearance

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

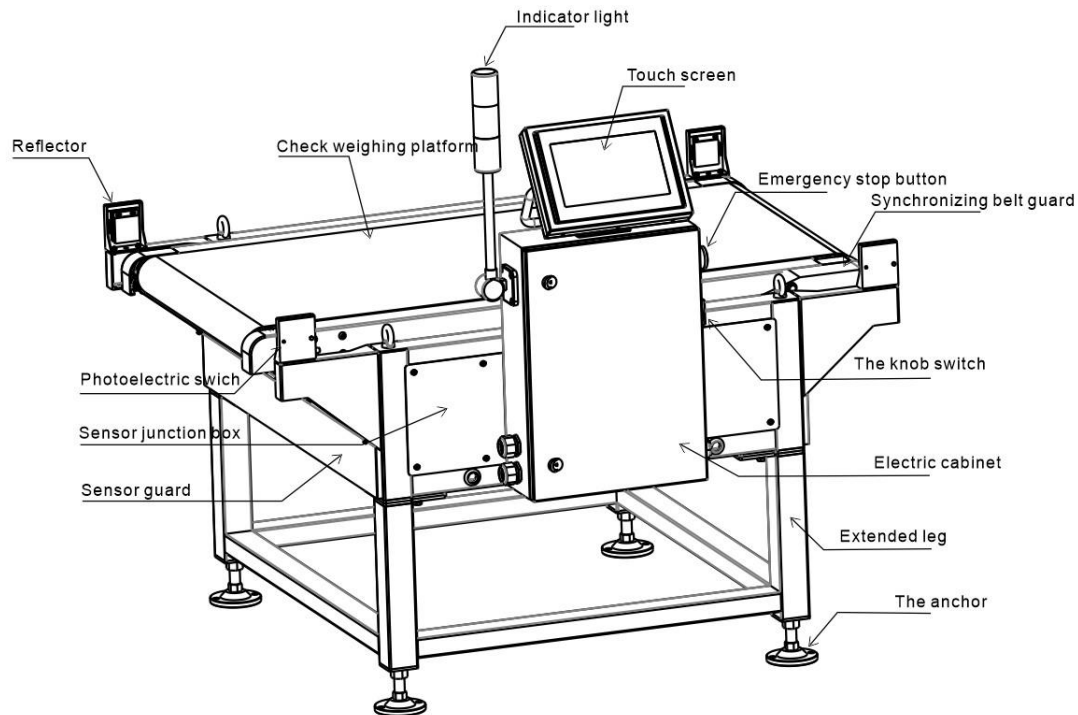


Figure 2-1 Overall appearance of the product

| Serial number | Name                   | Introduction                                                                                                            |
|---------------|------------------------|-------------------------------------------------------------------------------------------------------------------------|
| 1             | indicator light        | More intuitive display of the weight inspection results, allowing the status of the results to be seen from a distance. |
| 2             | touch screen           | View display data and set product parameters                                                                            |
| 3             | Knob switch            | Turn on/off the power supply of the weighing scale for inspection                                                       |
| 4             | Emergency stop button  | Pressing this button in an emergency situation can immediately stop the motor from running                              |
| 5             | Electric control panel | Control the weight inspection process and connect external devices                                                      |

|    |                              |                                                                                                               |
|----|------------------------------|---------------------------------------------------------------------------------------------------------------|
| 6  | Photoelectric sensor         | Judge the weight table of the object up and down                                                              |
| 7  | reflector panel              | Photoelectric sensor beam reflection                                                                          |
| 8  | Weighing platform            | Weighing platform for the measured object                                                                     |
| 9  | Sensor junction box          | Used to connect 4 sensors and connect them to the weighing sensor interface of the motherboard after merging. |
| 10 | Timing belt protective cover | Improving the safety of weighing scales during operation                                                      |
| 11 | Sensor protection plate      | Protect the sensor from external damage                                                                       |
| 12 | Extend Support Legs          | Customized height according to customer requirements                                                          |
| 13 | Peduncle                     | Prevent sliding and vibration of the weighing scale, and adjust the level of the weighing table.              |

## 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 switching quantity input point is valid at low level (DC0V) and does not allow access to high voltage or alternating current.
4. Switching quantity output point access relay coil for intermediate control, so the other end of the relay can access DC or AC power supply switching quantity.

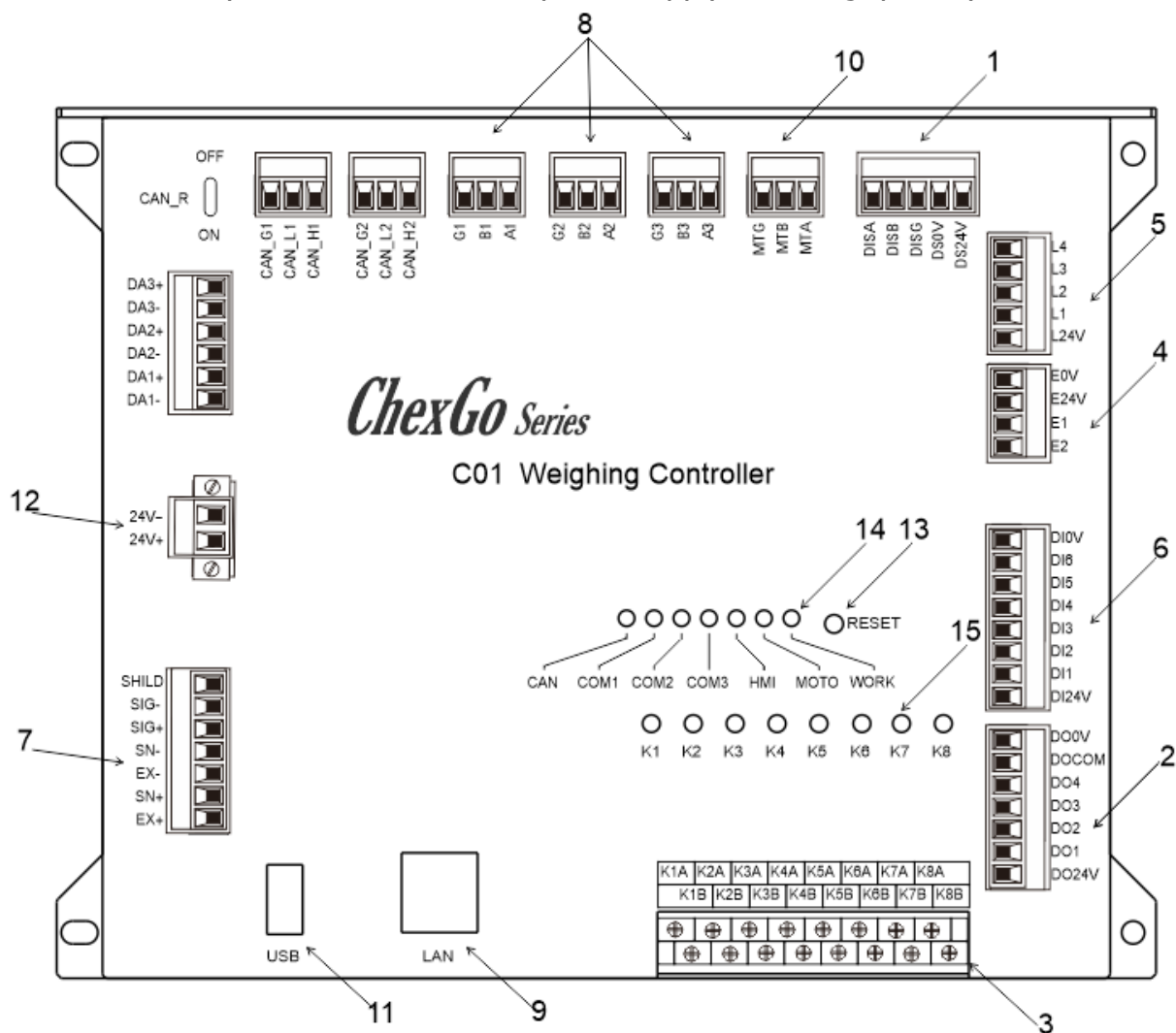


Figure 2-2 Control panel of weighing scale

| Serial number | Function                                         |
|---------------|--------------------------------------------------|
| 1             | Touch screen communication jack                  |
| 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 terminal                                  |
| 8             | External RS-485 communication jack               |
| 9             | External TCP/IP communication network port       |
| 10            | Inverter communication jack                      |
| 11            | External USB data interface                      |
| 12            | 24V power terminal                               |
| 13            | Reset key                                        |
| 14            | Communication status indicator                   |
| 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 out of tolerance, the low output is valid until the next check begins.

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

L4: When the detection result is inferior, 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: out-of-tolerance elimination is completed. When the input is valid, the output of out-of-tolerance elimination is invalid.

DI5: Undererror culling is complete, undererror culling 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: switching quantity power supply DC24V-.

DI24V: Switching quantity power supply DC24V+.

4 transistor outlet (function can be customized, on-site according to the actual demand connection) :

DO1: No definition.

DO2: undefined.

DO3: undefined.

DO4: undefined.

DO0V: switching quantity supply power DC24V-.

DO24V: switch quantity power supply DC24V+.

DOCOM: switch quantity common end.

Sensor (already connected at factory) :

EX+ : Power positive, SN+ : induction positive, EX- : power negative, SN- : induction negative, SG+ : signal positive, SG- : 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 demand) :

K1: defined as operation. When the system is in operation state, the relay output is closed, and K1A and K1B are switched on.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 are switched on.This definition is the factory default setting and can be modified according to the actual needs.

K3: defined as out of tolerance elimination, the product test result is out of tolerance, and within the range of out of tolerance elimination duration, the relay output is closed,K3A,K3B switched on.

K4: defined as undererror elimination, the product test result is undererror, and within the range of undererror elimination duration, the output of the relay is closed,K4A,K4B on.

K5: defined as alarm. When the system gives an alarm, the output of the relay is closed, and K5A and K5B are switched on.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 test batch, the relay output is closed,K6A,K6B on.This definition is the factory default setting, and can be modified according to the actual demand.

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

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

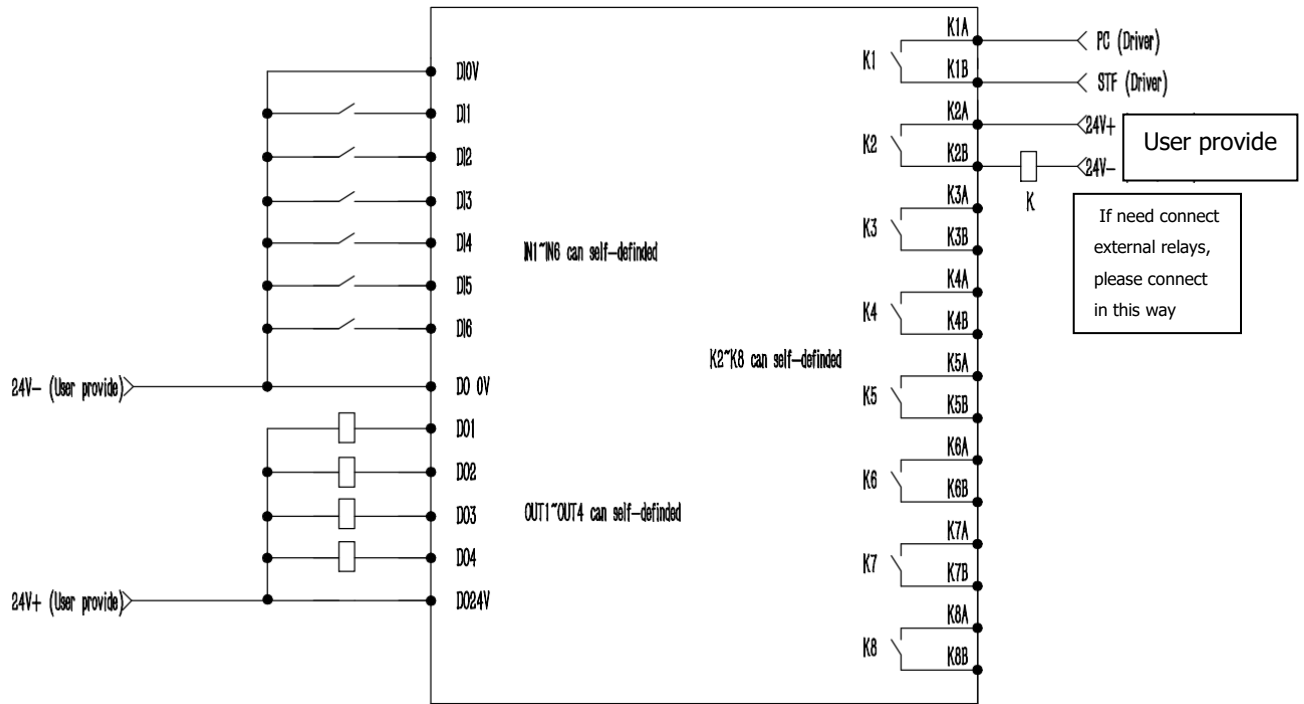


Figure 2-3 Schematic diagram of inlet and outlet connections

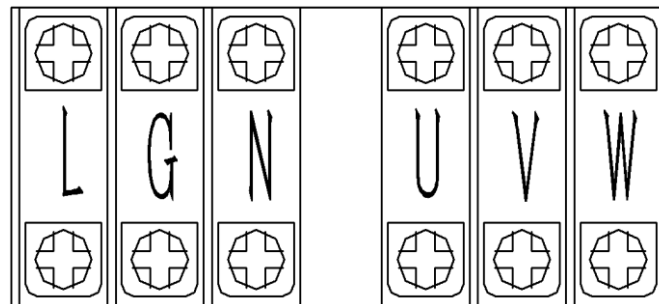


Figure 2-4 Power supply and motor interface diagram

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 cable.

N: neutral wire of external AC power supply.

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

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

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

W: corresponds to connect the motor W terminal.

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 $\pm$ 10%, 50/60Hz, 1KW.



## 3. Operation

### 3.1 Operation summary

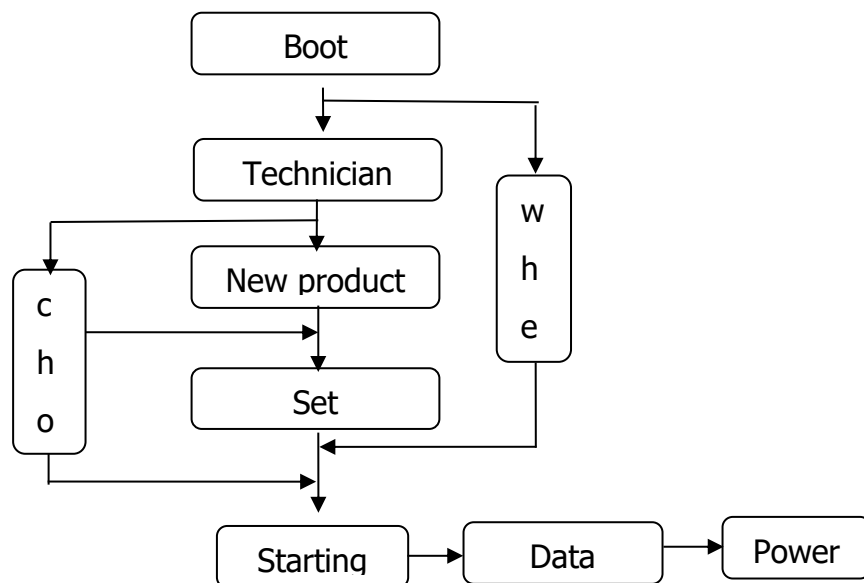


Figure 3-1 Procedure

### 3.2 Limit removal

Before use, it is necessary to remove the four limit protection devices. The position indicated by the arrow in Figure 3-2 is the limit position.

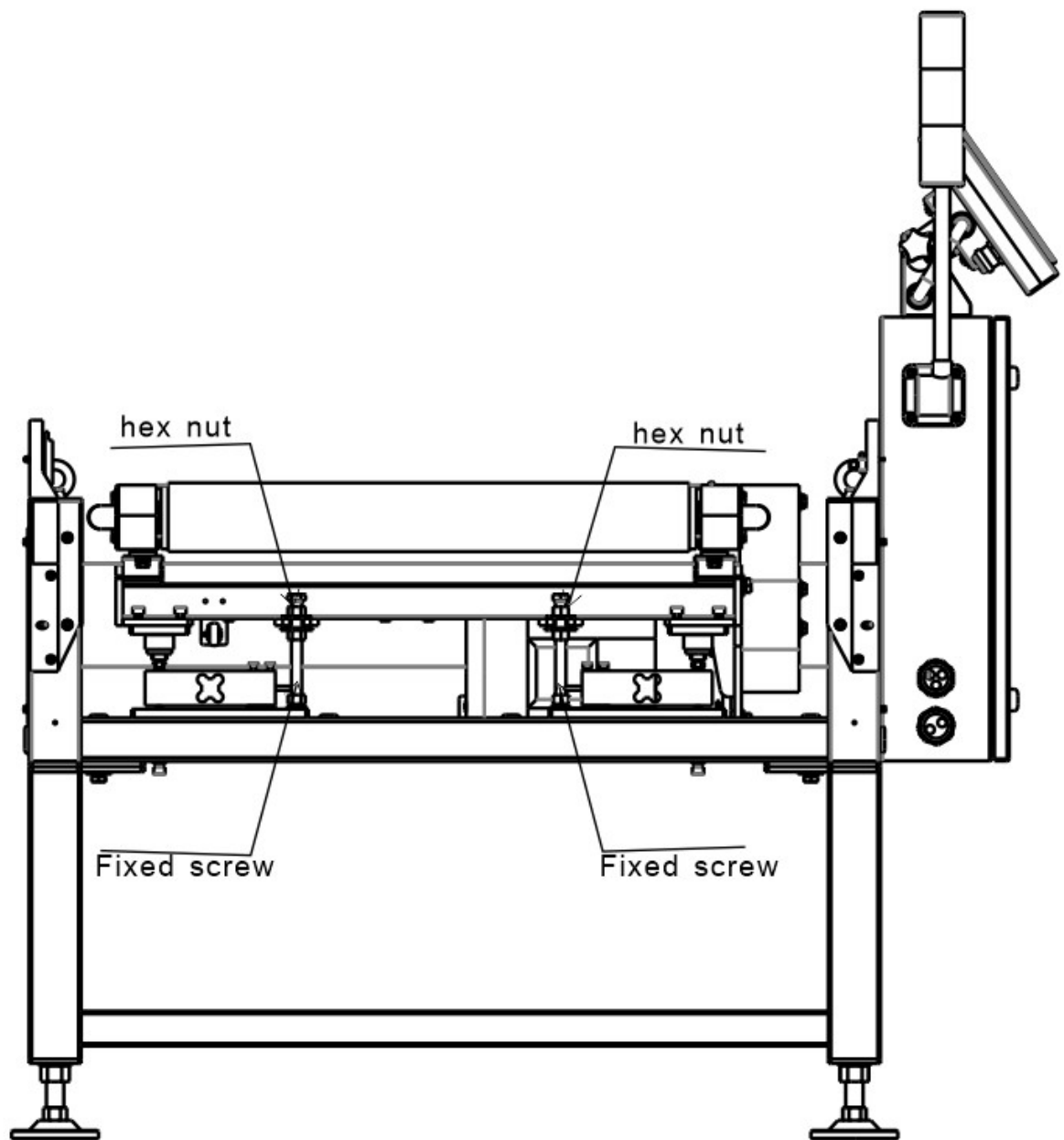


Figure 3-2 limit position

Use a hexagonal open-ended wrench or adjustable wrench to remove the limit plates in Figure 3-2. After removal, keep the screws safe for use during packaging and transportation.

### 3.3 Basic operation

The main interface of weight inspection is used for daily production, which is used to start and stop the weight inspection belt, enter the relevant parameter interface and display the basic information of the tested product and the weight inspection 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. The touch screen on the electric cabinet displays the initialization interface. At the top of the interface are USB insert mark, check scale model and time display; The black display area is the name of the current production inspection product, the weight display area, the weight unit display area and the weight check scale 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 inspection 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 scale 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.

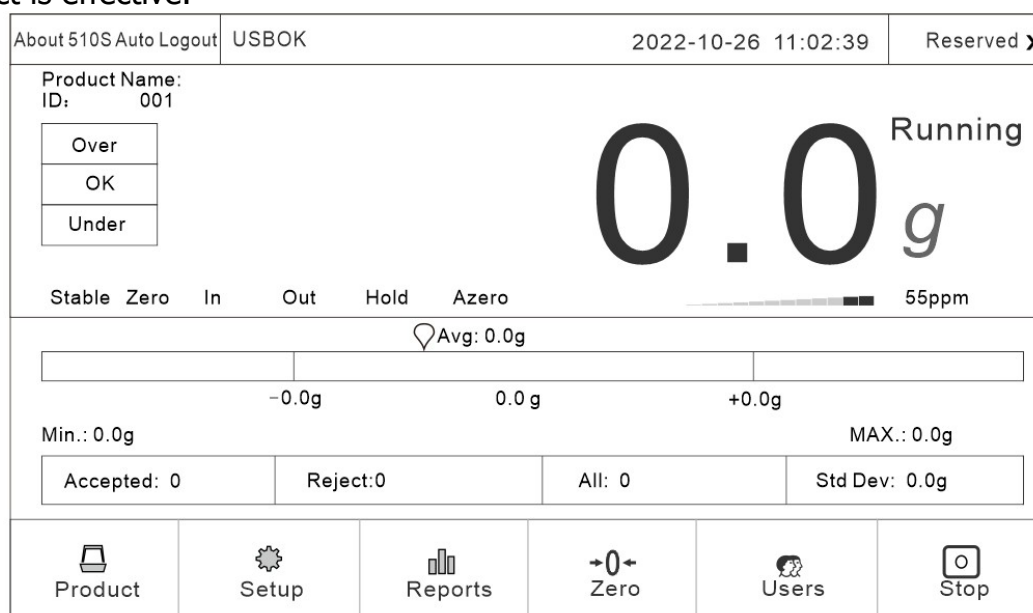


Figure 3-4 Power-on initialization interface

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

1.  **Product** Click this button to enter the interface of creating products and setting product parameters.
2.  **Setup** Click this button to enter the parameter setting interface.

3.  Reports Click this button to enter the data interface to view the relevant check data.
4.  Zero Click this button to clear zero.
5.  Users Click this button for user management operations.
6.  Stop 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 the action box to modify the value of this item.
9.  Click this type of action box to select Settings for this definition.
10.  Click this type of action box to perform the corresponding operation.
11.  Click this type of action box to open and close the corresponding function Settings.

### 3.3.2 Zero clear operation

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

If the weight check scale 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 weighing scale and the size of the weight value).

### 3.3.3 Start up operation

Click "Start" on the touch screen to start the weight checking scale, and the weight checking motor drives the weight checking belt to rotate. At this time, the operation label on the touch screen is "Running", and the weight checking operation can start.

### 3.3.4 Stop operation

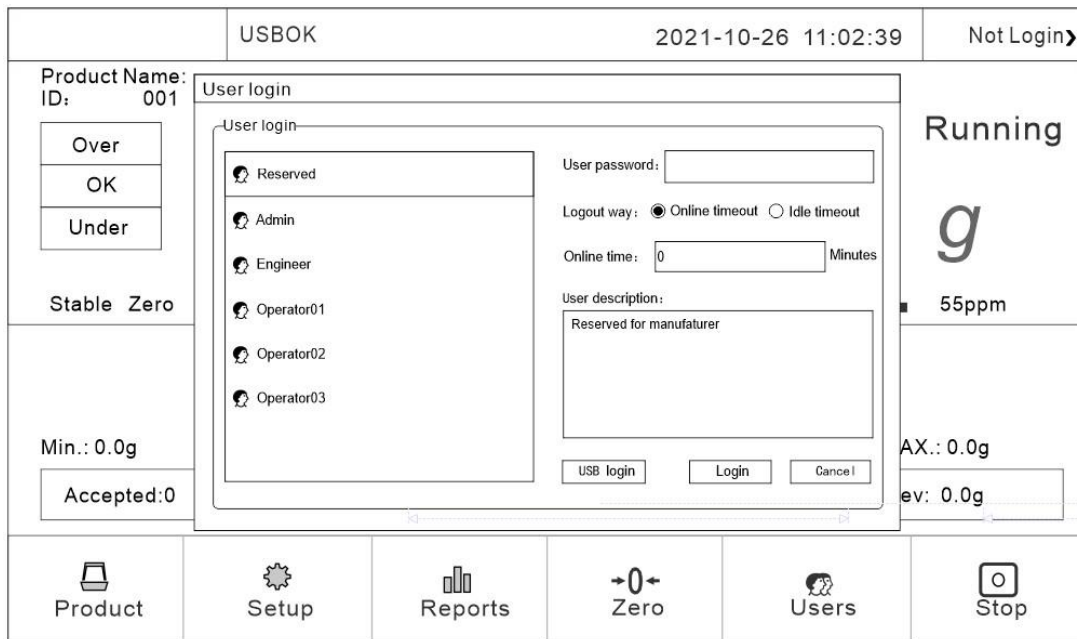
Click "Stop" on the touch screen to stop the weight inspection belt and end the weight inspection process. At this time, the operation label on the touch screen is "Stopped".

### 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

Under 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.



The screenshot displays the CW-60K touch screen interface. At the top, a status bar shows "USBOK", the date and time "2021-10-26 11:02:39", and "Not Login". The main display area is divided into several sections. On the left, there are buttons for "Over", "OK", and "Under", along with "Stable Zero" and "Min.: 0.0g". Below these, it says "Accepted:0". In the center, a "User login" dialog box is open. This dialog box has a list of users: "Reserved", "Admin", "Engineer", "Operator01", "Operator02", and "Operator03". To the right of the list, there is a "User password:" input field, a "Logout way:" section with radio buttons for "Online timeout" (selected) and "Idle timeout", an "Online time:" input field set to "0" minutes, and a "User description:" text area containing "Reserved for manufacturer". At the bottom of the dialog box are buttons for "USB login", "Login", and "Cancel". On the right side of the main screen, it says "Running" with a large "g" symbol, "55ppm", and "AX.: 0.0g". At the bottom of the screen, there is a navigation bar with icons and labels for "Product", "Setup", "Reports", "Zero", "Users", and "Stop".

Figure 3-5 Password input box

## 3.5 Product selection with New

| Product Setting |              | 2022-10-26 11:02:39 |                 |          |          | Reserved ▶       |
|-----------------|--------------|---------------------|-----------------|----------|----------|------------------|
| ID              | Product Name | Passing Speed       | Standard Weight | Hi Limit | Lo Limit | Curr.Product ID: |
| 001             |              | 000                 | 0               | 0        | 0        | 001              |
| 001             |              | 000                 | 0               | 0        | 0        |                  |
| 001             |              | 000                 | 0               | 0        | 0        |                  |
| 001             |              | 000                 | 0               | 0        | 0        |                  |
| 001             |              | 000                 | 0               | 0        | 0        | Add Product      |
| 001             |              | 000                 | 0               | 0        | 0        |                  |
| 001             |              | 000                 | 0               | 0        | 0        |                  |
| 001             |              | 000                 | 0               | 0        | 0        | Select Product   |
| 001             |              | 000                 | 0               | 0        | 0        |                  |
| 001             |              | 000                 | 0               | 0        | 0        |                  |
| 001             |              | 000                 | 0               | 0        | 0        | Delete Product   |
| 001             |              | 000                 | 0               | 0        | 0        |                  |
| 001             |              | 000                 | 0               | 0        | 0        |                  |
| 001             |              | 000                 | 0               | 0        | 0        |                  |
| 001             |              | 000                 | 0               | 0        | 0        |                  |

-01-
-02-
-03-
-04-
-05-
-06-
-07-
-08-
-09-
-10-

|              |                   |                     |      |
|--------------|-------------------|---------------------|------|
| Product List | Product Parameter | Dynamic Calibration | EXIT |
|--------------|-------------------|---------------------|------|

Figure 3-6 Product list

### 3.5.1 Select product parameters

Click "Product" under the main interface to enter the product list interface. First, click the product to be checked in the product list, then click "Select Product" to select the product, click "Exit" to go to the main interface and click "Start" to check the product.

- 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 operation of the weight check scale; By default, the product number selected by the weighing scale before exit (stop operation or the weighing scale power off).

### 3.5.2 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. You do not need to select the product number. For details, refer to "Operation Instructions on Buttons and Operation Frames" in Section 3.3.2.

★ The new product number cannot be added during the operation of the weight check scale; 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.

|                                     |  |                       |  |                                          |  |                     |  |
|-------------------------------------|--|-----------------------|--|------------------------------------------|--|---------------------|--|
| Product Setting                     |  | Product Name: ID: 001 |  | 0.0 <sup>g</sup> <sub>0ppm</sub> Stopped |  | Reserved >          |  |
| ? Help                              |  |                       |  |                                          |  | 2021-10-26 10:02:26 |  |
| Product ID                          |  | 1                     |  | Passing Speed                            |  | 0ppm >              |  |
| Product Name                        |  | <input type="text"/>  |  | Belt Speed                               |  | 0.00m/min           |  |
| Standard Weight                     |  | 0.0g >                |  | Weight Correction Factor                 |  | 1456 >              |  |
| Hi Limit                            |  | 0.0g >                |  | Over Rejector Distance                   |  | 0 mm >              |  |
| Lo Limit                            |  | 0.0g >                |  | Over Rejector Operating Time             |  | 0.000 S >           |  |
| Tare                                |  | 0.0g >                |  | Under Rejector Distance                  |  | 0 mm >              |  |
| Unqualified Rejector Distance       |  | 0 mm >                |  | Under Rejector Operating Time            |  | 0.000 S >           |  |
| Unqualified Rejector Operation Time |  | 0.000 S >             |  |                                          |  | Next Page >         |  |
| Product List                        |  | Product Parameter     |  | Dynamic Calibration                      |  | EXIT                |  |

Figure 3-7 Product parameters screen Example

Description of product parameters:

| Name                       | Instructions                                                                                                                                               |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product number             | Number of the product under inspection                                                                                                                     |
| Speed of weight inspection | The speed at which the current weight checking device detects the product                                                                                  |
| Product name               | Name of the product under inspection                                                                                                                       |
| Belt speed                 | Weigh the speed at which the belt is running                                                                                                               |
| Standard weight            | The standard weight of the product to be checked                                                                                                           |
| Upper limit                | In the process of weight inspection, if the weighing value is greater than the target value + the upper limit value, it will be judged as out of tolerance |
| Lower limit value          | In the process of weight inspection, if the weighing value is less than the target value-lower limit value, it will be judged as undererror                |
| Tare weight                | The weight of the item's outer packaging                                                                                                                   |

|                                            |                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Qualified culling distance                 | The distance traveled by the product from the end of the scale to the start of the qualified culling mechanism                                                                                                                                                                                                                     |
| Duration of qualified culling              | The duration of the qualifying cull mechanism's action                                                                                                                                                                                                                                                                             |
| Out-of-tolerance culling distance          | The distance traveled by the product from the end of the scale to the start of the offset removal mechanism                                                                                                                                                                                                                        |
| Underweight culling distance               | The distance traveled by the product from the end of the scale to the start of the underbalance removal mechanism                                                                                                                                                                                                                  |
| The out-of-tolerance culling action time   | The duration of the kill mechanism's action                                                                                                                                                                                                                                                                                        |
| Undershoot culling action time             | The duration of the underkill operation                                                                                                                                                                                                                                                                                            |
| Unqualified culling distance               | The distance traveled from the end of the scale to the nonconforming product after the start of the removal mechanism                                                                                                                                                                                                              |
| The time of the unqualified culling action | The continuous action time of the rejection mechanism for nonconforming products (including out-of-error + undererror)                                                                                                                                                                                                             |
| Correction factor                          | Standard no correction is 1000. Correction factor = $1000 + (\text{actual weight} - \text{test weight result}) / \text{min indexing}$ . That is, if the weight test result is light, the correction factor is the number greater than 1000, if the weight test result is heavy, the correction factor is the number less than 1000 |
| Total lot                                  | Total number of pieces of heavy product inspected                                                                                                                                                                                                                                                                                  |
| Qualified batches                          | Number of eligible batches of products                                                                                                                                                                                                                                                                                             |
| Sampling starting percentage               | The sampling data to this percentage is discarded after the object is placed on the scale                                                                                                                                                                                                                                          |
| Percentage used for sampling               | Data that is consistently used as a percentage from the start of sampling is used to calculate the weight check result                                                                                                                                                                                                             |
| Dynamic zeroing filter grade               | Filtering parameters in the weighing process                                                                                                                                                                                                                                                                                       |
| Dynamic clearing stability range           | 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                                                                                                                                                                        |
| Dynamic zeroing and stabilizing time        | 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 clearance stability. Only when the stability allows the dynamic zero clearance  |
| Maximum sampling time                       | Maximum sampling time during weighing                                                                                                                                                                                                                |
|                                             |                                                                                                                                                                                                                                                      |
| Average feeding times                       | When servo control is carried out, the average value of the set number of products is compared with the user's set value, and the difference between them is used as the basis of control. When it is 0, there is no need to fill the servo function |
| Servo pulse frequency                       | The pulse frequency value of the servo motor                                                                                                                                                                                                         |
| Number of product delays                    | Equivalent to the number of objects from the charging machine to the photoelectric switch of the weighing scale. Also refers to the number of products passed before the next correction                                                             |
| Servo charging sensitivity                  | This setting is the adjusted weight corresponding to each correction pulse                                                                                                                                                                           |
| Servo target value                          | Equivalent to the target value of package inspection weight                                                                                                                                                                                          |
| Exclusion of servo upper limit              | When the weight is higher than this value, it does not participate in the average calculation and will generate an alarm                                                                                                                             |
| Exclude servo lower limit                   | When the weight is below this value, it does not participate in the average calculation and will generate an alarm                                                                                                                                   |
| Servo dead zone                             | If the absolute weight error is less than this, no correction is made                                                                                                                                                                                |
| Maximum servo modulation                    | Means the maximum allowable modulation correction                                                                                                                                                                                                    |
| Exclude servo upper limit alarm stop        | Exclude the servo upper limit alarm to stop                                                                                                                                                                                                          |
| Exclude the servo lower limit alarm to stop | Exclude the servo lower limit alarm to stop                                                                                                                                                                                                          |

|                                       |                                       |
|---------------------------------------|---------------------------------------|
| Failure to correct alarm stop in time | Failure to correct alarm stop in time |
|---------------------------------------|---------------------------------------|

### 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 (the newly added product directly jumps to the product parameters interface).

- 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 definition of weight checking speed, belt speed and correction coefficient is described in detail on the help interface of product parameters. If necessary, you can click "Help" to view.

### 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, the following product parameters will move forward in order, and the product number will move forward. The product cannot be deleted during the operation of the weight check scale; In order to prevent product parameters from being incorrectly deleted, the product name should be set reasonably when setting product parameters.

## 3.6 Calibration scale

In order to ensure the correct weight of the weighing scale and the linearity of the weight change, each weighing scale needs to carry out weight calibration and dynamic calibration. For specific operation methods, please refer to "Operation Instructions on Buttons and Operation Frames" in section 3.3.2.

|                                                                                                |       |                                       |                        |
|------------------------------------------------------------------------------------------------|-------|---------------------------------------|------------------------|
| Product Setting                                                                                | USBOK | 2021-10-26 11:02:39                   | Reserved >             |
| Product Name:<br>ID: 001                                                                       |       | Static Weight Calibration             |                        |
|                                                                                                |       | 0.0 g                                 |                        |
| Stable Zero In Out Hold Azero                                                                  |       | Stopped                               |                        |
| Current mV: 0.000mV                                                                            |       | 55ppm                                 |                        |
| <div></div>                                                                                    |       | <div>0.000 g</div>                    |                        |
| Load's mV: 0.000mV                                                                             |       | <div>Weight Calibration</div>         |                        |
| <div>Step 1: Clear platform, then Last Empty Platform's mV: 0.000mV</div>                      |       | <div>Calibration Empty Platform</div> |                        |
| <div>Step 2: Put the Standard Weight in the middle of the platform, and input the weight</div> |       | <div>Weight Calibration</div>         |                        |
| <div>Step 3: Press the button to calibrate</div>                                               |       | <div>Weight Calibration</div>         |                        |
| Work Para.                                                                                     | I/O   | Static Weight Calibration             | Belt Speed Calibration |
| System Info.                                                                                   |       | EXIT                                  |                        |

Figure 3-11 shows an example of the weight calibration interface

Description of static calibration parameters:

| Name                            | Instructions                                                                        |
|---------------------------------|-------------------------------------------------------------------------------------|
| Calibrate the empty scale table | Eliminate external interference, the scale table at zero and stable, can be clicked |
| Calibrate the scale weight      | Enter the weight of the calibration weight                                          |
| The weight calibration scale    | Put the weight on and after entering the weight of the weight, click                |
| Current voltage value           | The current voltage value of the sensor                                             |
| Empty scale voltage value       | The voltage value of the sensor when the top of the scale is emptied                |
| Weight voltage value            | The voltage value of the sensor 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 "Operation Instructions on Buttons and Operation Frames" 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 position 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. Enter the correct weight into the weight 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 sensor 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 of scale

On the product page, click "Dynamic calibration" to enter the dynamic calibration interface, and perform dynamic calibration according to the text prompts. When completed, relevant parameters will be automatically calculated and generated and product parameters will be written. Click "Exit" to return to the main interface after completion of calibration. For details, please refer to Section 3.3.2 "Operation Instructions for Buttons and Operation Frames".

|                                                                                                                                                                                                                                 |        |                                                                                                                                                                                                               |                        |                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------------------|
| Product Setting                                                                                                                                                                                                                 | ? Help |                                                                                                                                                                                                               | 2021-10-26 11:02:39    | Reserved >        |
| Product Name:<br>ID: 001                                                                                                                                                                                                        |        | Dynamic Calibration                                                                                                                                                                                           |                        |                   |
| Stable Zero In Out Hold Azero<br>Step 1: Clear platform, then<br>Step 2: Put the standard product in the middle of the platform and press<br>Step 3: Use the same tested product,<br>Run <input type="text" value="00"/> Times! |        | <div style="text-align: center;"> <div style="font-size: 48px; margin: 0;">0.0</div> <div style="font-size: 24px; margin: 0;">g</div> </div> <div style="text-align: right; margin-top: -20px;">Stopped</div> |                        |                   |
|                                                                                                                                                                                                                                 |        | <div style="text-align: right;">55ppm</div>                                                                                                                                                                   |                        |                   |
| <div style="display: flex; justify-content: space-around;"> <div>Zero</div> <div>Getting Static Weight <input type="text" value="0"/> g</div> </div> <div style="text-align: center; margin-top: 10px;">Start</div>             |        | Max.Weight: 0g<br>Avg.Weight: 0g<br>Min.Weight: 0g<br>Correction Factor: 0                                                                                                                                    |                        |                   |
| Work Para.                                                                                                                                                                                                                      | I/O    | Static Weight Calibration                                                                                                                                                                                     | Belt Speed Calibration | System Info. EXIT |

Figure 3-12 Dynamic calibration screen example

Description of dynamic calibration parameters:

| Name                      | Instructions                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Zeroing                   | Clear the current weight value to zero                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Get the weight            | Stop the belt running and put the test material on after the static weight value shown                                                                                                                                                                                                                                                                                                                                                                           |
| Dynamic calibration times | The number of repeated runs of dynamic calibration. The default is ten, and no less than five are recommended                                                                                                                                                                                                                                                                                                                                                    |
| Start up                  | The belt will run, and after the statically weighed object has passed, it should be moved back to the front stage, repeatedly running dynamically, and the controller will automatically record the dynamic weight. General dynamic calibration ten times, the number of dynamic calibration to check the weight scale will automatically stop                                                                                                                   |
| Maximum weight            | The maximum value of the weight check result during dynamic calibration                                                                                                                                                                                                                                                                                                                                                                                          |
| Average weight            | During dynamic calibration, the average weight of each check will be updated after the number of dynamic calibration is completed                                                                                                                                                                                                                                                                                                                                |
| Correction factor         | <p>The standard value is 1000. After the number of dynamic calibration is completed, the controller will automatically calculate this value according to the dynamic result and static weight.</p> <p>If it is not convenient for dynamic calibration, you need to enter this value manually, which can be set in the product parameter interface, and fill in the size of the value refer to the method in the dynamic calibration parameter help interface</p> |

- Calibration must ensure that the check scale in the stopped state, otherwise can not enter the dynamic calibration interface; When calibrating, ensure that there is no item on the scale, no vibration on the scale, and no relatively strong air flow around the scale.
- When the weighing platform is empty, it should be ensured that the weighing platform is at zero position and stable, otherwise, please eliminate external interference and carry out "zero clearing" operation.
- When placing the product, the product should avoid hitting the surface of the weighing platform. Only after the weight is stable can you click "Obtain static weight"; If the product has a gross weight value, please set the gross weight value first before

dynamic calibration.

- 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.
- The change of product detection speed requires dynamic calibration again.
- The principle of dynamic calibration, attention to implementation and alternative methods are introduced in detail in the interface of dynamic calibration parameter help. If necessary, you can click Help to view.



## 4.2 Statistics

Click "Statistics Data" to enter the check weight data statistics interface, which displays product distribution intuitively. Click "Print data" to print statistics information, click "Export data" to export statistics information to the USB disk inserted into the touch screen, click "Delete data" to clear statistics information. For specific operation methods, refer to "Operation Instructions on Buttons and Operation Frames" in Section 3.3.2.

- Statistics include out of tolerance, under tolerance, the cumulative number of inspection times of qualified products, weight, average value and probability distribution, etc.
- Before testing a new batch of product, the previous statistics should be cleared, otherwise the new product will accumulate on the original statistics and generate incorrect statistics.

| Data Reports          | 2021-10-26 11:02:39 |                           |                  |                       | Reserved ▶            |
|-----------------------|---------------------|---------------------------|------------------|-----------------------|-----------------------|
| Product Name:         |                     | Standard Weight: 0.000 kg |                  |                       |                       |
| ID: 001               |                     | Tare: 0.000 kg            |                  |                       |                       |
| Items                 | Total of Number     | Total of Weight           | Avg. Weight      | Print Data            |                       |
| Total:                | 0                   | 0.000 kg                  | 0.000 kg         |                       |                       |
| Total of Qualified:   | 0                   | 0.000 kg                  | 0.000 kg         |                       |                       |
| Total of Over:        | 0                   | 0.000 kg                  | 0.000 kg         | Export Data to U-disk |                       |
| Total of Under:       | 0                   | 0.000 kg                  | 0.000 kg         |                       |                       |
| Total of Unqualified: | 0                   | 0.000 kg                  | 0.000 kg         |                       |                       |
| Total of Untreated:   | 0                   | -                         | -                | Delete Data           |                       |
| Qualify Rate: 0.00%   |                     | Max. Weight: 0.000 kg     |                  | Min. Weight: 0.000kg  |                       |
| Check Datd Historical | Trend Chart         | Statistical Chart         | Data Statistical | NULL                  | Alarm Historical EXIT |

Figure 4-2 An example of the statistics page

## 4.3 Alarm information

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



|                       |             |                     |                   |                       |                       |
|-----------------------|-------------|---------------------|-------------------|-----------------------|-----------------------|
| Data Reports          |             | 2021-10-26 11:02:39 |                   | Reserved ▶            |                       |
| Index                 | Time        | Alarm               | Alarm Information |                       |                       |
|                       |             |                     |                   | 0                     |                       |
|                       |             |                     |                   |                       |                       |
|                       |             |                     |                   |                       |                       |
|                       |             |                     |                   |                       |                       |
|                       |             |                     |                   |                       |                       |
|                       |             |                     |                   |                       |                       |
|                       |             |                     |                   |                       |                       |
|                       |             |                     |                   |                       |                       |
|                       |             |                     |                   | Export Data to U-disk |                       |
|                       |             |                     |                   |                       |                       |
|                       |             |                     |                   |                       |                       |
|                       |             |                     |                   |                       |                       |
|                       |             |                     |                   | Delete Data           |                       |
|                       |             |                     |                   |                       |                       |
| <<                    |             | <                   |                   | 0/000000              |                       |
| >                     |             | >>                  |                   |                       |                       |
| Check Datd Historical | Trend Chart | Statistical Chart   | Data Statistical  | NULL                  | Alarm Historical EXIT |

Figure 4-3 Alarm information screen example

## 4.4 Statistical graph

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

|                                                                                                                                                                                                                                                                                                                                                                       |             |                     |                  |            |                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---------------------|------------------|------------|-----------------------|
| Data Reports                                                                                                                                                                                                                                                                                                                                                          |             | 2021-10-26 11:02:39 |                  | Reserved ▶ |                       |
| <div> <div>Total:</div> <div>0</div> </div> <div> <div>Total of Qualified:</div> <div>0.00%:00</div> </div> <div> <div>Total of Over:</div> <div>0.00%:00</div> </div> <div> <div>Total of Under:</div> <div>0.00%:00</div> </div> <div> <div>Total of Unqualified:</div> <div>0.00%:00</div> </div> <div> <div>Total of Untreated:</div> <div>-. --%:--</div> </div> |             |                     |                  |            |                       |
| Check Datd Historical                                                                                                                                                                                                                                                                                                                                                 | Trend Chart | Statistical Chart   | Data Statistical | NULL       | Alarm Historical EXIT |

Figure 4-4 Example of the statistical chart interface

## 5. Quantity of switches

### 5.1 I/O I/O testing

|                |              |                           |                        |                              |                       |                          |  |             |  |                     |  |
|----------------|--------------|---------------------------|------------------------|------------------------------|-----------------------|--------------------------|--|-------------|--|---------------------|--|
| System Setting |              | Product Name:<br>ID: 001  |                        | 0.0 <small>g</small><br>0ppm |                       | Stopped                  |  | Reserved >  |  | 2021-10-26 10:02:26 |  |
| Relay-K1       | Run          | K1 OFF                    | Change                 | IN-DI1                       | Run                   | DI1 OFF                  |  |             |  |                     |  |
| Relay-K2       | Stop         | K2 OFF                    | Change                 | IN-DI2                       | Stop                  | DI2 OFF                  |  |             |  |                     |  |
| Relay-K3       | Over Reject  | K3 OFF                    | Change                 | IN-DI3                       | Clear alarm           | DI3 OFF                  |  |             |  |                     |  |
| Relay-K4       | Under Reject | K4 OFF                    | Change                 | IN-DI4                       | Over Reject done      | DI4 OFF                  |  |             |  |                     |  |
| Relay-K5       | Alarm        | K5 OFF                    | Change                 | IN-DI5                       | Under Reject done     | DI5 OFF                  |  |             |  |                     |  |
| Relay-K6       | Batch Done   | K6 OFF                    | Change                 | IN-DI6                       | Pack Gap Error Detect | DI6 OFF                  |  |             |  |                     |  |
| Relay-K7       | OK           | K7 OFF                    | Change                 |                              |                       |                          |  |             |  |                     |  |
| Relay-K8       | Busy&Stop    | K8 OFF                    | Change                 |                              |                       |                          |  |             |  |                     |  |
|                |              |                           |                        | I/O Test                     |                       | <input type="checkbox"/> |  | Next Page > |  |                     |  |
| Work Para.     | I/O          | Static Weight Calibration | Belt Speed Calibration | System Info.                 |                       | EXIT                     |  |             |  |                     |  |

Figure 5-1 I/O parameter screen Example 1

|                      |      |                           |                        |                              |                             |                          |  |            |  |                     |  |
|----------------------|------|---------------------------|------------------------|------------------------------|-----------------------------|--------------------------|--|------------|--|---------------------|--|
| System Setting       |      | Product Name:<br>ID: 001  |                        | 0.0 <small>g</small><br>0ppm |                             | Stopped                  |  | Reserved > |  | 2021-10-26 10:02:26 |  |
| OUT-DO1              | None | DO1 OFF                   | Change                 | E-1                          | Input Photoelectric Sensor  | E1 OFF                   |  |            |  |                     |  |
| OUT-DO1              | None | DO2 OFF                   | Change                 | E-2                          | Output Photoelectric Sensor | E2 OFF                   |  |            |  |                     |  |
| OUT-DO1              | None | DO3 OFF                   | Change                 |                              |                             |                          |  |            |  |                     |  |
| OUT-DO1              | None | DO4 OFF                   | Change                 |                              |                             |                          |  |            |  |                     |  |
| 3-Colors Buzzer Lamp |      | Red OFF                   | Green OFF              | Yellow OFF                   | Buzzer OFF                  | Change                   |  |            |  |                     |  |
| < Previous Page      |      |                           |                        | I/O Test                     |                             | <input type="checkbox"/> |  |            |  |                     |  |
| Work Para.           | I/O  | Static Weight Calibration | Belt Speed Calibration | System Info.                 |                             | EXIT                     |  |            |  |                     |  |

Figure 5-2 I/O parameter screen example 2

Click "Switch quantity" on the setting page to enter the IO test interface. The system provides 6 input terminals and 12 output terminals, which users can decide whether to use

according to production requirements. For specific operation methods, please refer to "Operation Instructions on Buttons and Operation Frames" in Section 3.3.2.

IO test is to test whether the IO port is properly connected to the external device. During the test, click "Switch" after the output to output 1-8. If the corresponding relay coil is closed (red indicator light on the relay base) and the corresponding device is in action, the connection is normal and the output point of the weighing scale is valid; otherwise, please check whether the connection between the output point and the device is correct; Click the "switch" behind the three-color light, if the three-color indicator light is on, the connection is correct.

The input test can be carried out by setting the low level signal (DC0V) at the input end. If the low level signal is effective at the corresponding input port, the test indicator box behind the corresponding input point ON the touch screen will light up and display "ON" (The photoelectric input can be blocked on the main interface when testing the photoelectric input, if the corresponding input and discharge marks are lit up, the photoelectric input is effective). The input and output signals can be defined by themselves.

The default switching quantity is defined as follows:

| Enter the port number | Definition                          | Output port number | Definition                  |
|-----------------------|-------------------------------------|--------------------|-----------------------------|
| DI1                   | Run                                 | Relay - K1         | Run                         |
| DI2                   | Stop                                | Relay - K2         | Stop                        |
| DI3                   | Clear alarm                         | Relay - K3         | Out-of-error culling        |
| DI4                   | Aberration culling complete         | Relay - K4         | Undercount culling          |
| DI5                   | Owe culling complete                | Relay - K5         | Alarm                       |
| DI6                   | Packet detection                    | Relay - K6         | Number of batches completed |
| E1                    | I1 (incoming photoelectric sensor)  | Relay - K7         | Qualified indication        |
| E2                    | I2 (discharge photoelectric sensor) | Relay - K8         | Disqualified cull           |

|  |  |      |                                                        |
|--|--|------|--------------------------------------------------------|
|  |  | DO 1 | Undefined                                              |
|  |  | DO 2 | Undefined                                              |
|  |  | DO 3 | Undefined                                              |
|  |  | DO 4 | Undefined                                              |
|  |  | L 1  | O17 (Buzzer alarm output)                              |
|  |  | L 2  | O7 (alarm light out-of-tolerance indication, no relay) |
|  |  | L 3  | O10 (alarm light qualified indication, no relay)       |
|  |  | L 4  | O6 (alarm light undererror indication, no relay)       |

List of definable switching quantities:

Enter switch quantity:

| 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 boot into the running state                                    |
| I04    | Stop                     | The device will stop running when the input is valid                                                    |
| I05    | Clear alarm              | When the input is valid, the device will clear the current alarm                                        |
| I06    | Aberration cull complete | When the input is valid, the offset cull is complete                                                    |
| I07    | Owe culling complete     | When the input is valid, the underbalance culling has been completed                                    |
| I08    | Packet detection         | When the input is valid, the device performs packet connection detection                                |

|     |                      |                                                                                                                                                                                            |
|-----|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| I09 | Belt speed detection |                                                                                                                                                                                            |
| I10 | Run/stop [level]     | Control device operation or stop by level signal                                                                                                                                           |
| I11 | Run/stop [edge]      | When the device is in the stopped state, the signal input is effective, the device starts to enter the running state;<br><br>When the signal input is effective, the device stops running; |
| I12 | Stop (level)         | The signal is valid and the touch screen cannot start the device                                                                                                                           |

Output switching quantity:

| Number     | Name                        | Function description                                                                                                                                                                            |
|------------|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>O00</b> | Undefined                   | No function when this item is selected.                                                                                                                                                         |
| <b>O01</b> | Out-of-tolerance indication | If the weight check result is out of tolerance, the output is valid and continues until the next weight check is completed.                                                                     |
| <b>O02</b> | Owe indication              | If the weight check result is underweight, the output is valid and lasts until the next weight check is completed.                                                                              |
| <b>O03</b> | Run                         | Run status output is valid.                                                                                                                                                                     |
| <b>O04</b> | Stop                        | The stopped state output is valid.                                                                                                                                                              |
| <b>O05</b> | Alarm                       | Output is valid when alarming.                                                                                                                                                                  |
| <b>O06</b> | Out-of-order culling        | The weight check result is out of tolerance, according to the set out of tolerance eliminator distance delay, and then according to the set duration output valid.                              |
| <b>O07</b> | Owe culling                 | The weight check result is the undererror, according to the set offset culler distance delay, and then according to the set duration output valid.                                              |
| <b>O08</b> | Disqualified culling        | The weight inspection result is out of tolerance or undertolerance, according to the set distance delay of the unqualified eliminator, and then according to the set duration output effective. |
| <b>O09</b> | Number of batches completed | This output is valid when the set number of batches is reached.                                                                                                                                 |

|            |                                |                                                                                                                                                                                                                       |
|------------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>O10</b> | Qualifying instructions        | If the weight check result is underweight, the output is valid and continues until the next weight check is completed.                                                                                                |
| <b>O11</b> | Busy Stop + communication      | When the system is in busy state, busy detection is valid, this output is invalid, busy state is invalid and communication command is received, this output is valid, busy detection is invalid, this output is valid |
| <b>O12</b> | Busy stop                      | When the system is in busy state, busy detection is valid and this output is invalid, busy state is invalid, this output is valid, busy detection is invalid, this output is valid                                    |
| <b>O13</b> | Feed photoelectric output      | According to the state of the input photoelectric output, the input photoelectric effective, then the output effective.                                                                                               |
| <b>O14</b> | Discharge photoelectric output | According to the state output of discharge photoelectric, discharge photoelectric is effective, then the output is effective.                                                                                         |
| <b>O15</b> | Speed up pulse                 | Servo feedback function                                                                                                                                                                                               |
| <b>O16</b> | Deceleration pulse             | Servo feedback function                                                                                                                                                                                               |
| <b>O17</b> | Buzzer alarm output            | Output in different ways depending on your choice                                                                                                                                                                     |
| <b>O18</b> | Qualified Cull                 |                                                                                                                                                                                                                       |

## 6. Working parameters

### 6.1 Working parameter Settings

Click "Set" to enter the interface of working parameters, and the user can decide whether to open according to the production needs. If the corresponding alarm is generated after opening, the weight checking scale will automatically alarm or alarm stop. It needs to manually click "clear alarm" or input the signal of "clear alarm" to start the weight checking again (after the alarm is generated and until the clear alarm is completed, The motor of the check weighing scale runs but does not determine whether the object is on or off the weighing platform, nor does it carry out weighing operation), and the alarm information is stored in "Data" - "Alarm information".For specific operation methods, please refer to "Operation Instructions of Button and Operation Frame" in section 3.3.2.

|                                     |     |                           |                          |                                                  |      |            |                            |
|-------------------------------------|-----|---------------------------|--------------------------|--------------------------------------------------|------|------------|----------------------------|
| System Setting                      |     | Product Name:<br>ID: 001  |                          | 0.0 <small>g</small> <small>0ppm</small> Stopped |      | Reserved > |                            |
|                                     |     |                           |                          | 2021-10-26 10:02:26                              |      |            |                            |
| Over/Under Queue Full Alarm&Stop    |     |                           | <input type="checkbox"/> | Over/Under Alarm&Stop                            |      |            | <input type="checkbox"/> > |
| Rejector Miss Alarm&Stop            |     |                           | <input type="checkbox"/> | Display Over/Under in MainPage                   |      |            | <input type="checkbox"/> > |
| System Busy Alarm&Stop              |     |                           | <input type="checkbox"/> | Main Display Results only when Running           |      |            | <input type="checkbox"/> > |
| Blocking Time Over Error Alarm&stop |     |                           | <input type="checkbox"/> | Sub Display Real Weight                          |      |            | <input type="checkbox"/> > |
| Weighing Timeout Alarm&Stop         |     |                           | <input type="checkbox"/> | Continuous Packs Not Reject                      |      |            | <input type="checkbox"/> > |
| Cont. Unqualified Alarm&Stop        |     |                           | <input type="checkbox"/> | Photoelectric Sensor Blowing Interval Time       |      |            | 0 S >                      |
| Auto ZERO Failure Alarm&Stop        |     |                           | <input type="checkbox"/> | Photoelectric Sensor Blowing Opperrating Time    |      |            | 0 S >                      |
| Motor Overload Alarm&Stop           |     |                           | <input type="checkbox"/> | Next Page >                                      |      |            |                            |
| Work Para.                          | I/O | Static Weight Calibration | Belt Speed Calibration   | System Info.                                     | EXIT |            |                            |

Figure 6-1 Working parameters screen example

Analysis of working parameters:

| Name                                   | Instructions                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The alarm stops when the queue is full | The default number of over/under error queue is 20, which means that if the removal distance is long enough, that is, it takes a long time for the products to be removed to arrive at the removal institution, there can be more than 20 products in the middle. If there are more than or equal to 20 over/under error products to be removed in this distance, it will alarm and stop |

|                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| If not eliminated in time, the alarm will be stopped                 | After the next unqualified product has gone through the reinspection process, the last product has not been removed, the alarm will be stopped                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Busy alarm stop                                                      | In the last product has not been out of the inspection belt, the next product into the inspection belt, it will show busy alarm and stop.If the back end is connected with an over and under error elimination mechanism, the default is over error elimination                                                                                                                                                                                                                                                                                                       |
| The time of overplugging will alarm and stop the machine             | Indicates that if the discharge photoelectric induction continues, and exceeds the plugging time set in the system parameter interface, it will alarm and stop                                                                                                                                                                                                                                                                                                                                                                                                        |
| If the maximum time on the scale is exceeded, it will alarm and stop | There are two kinds of action;1. If the maximum time on the scale set on the touch screen is more than 2 times of the time required for the object to pass the scale, the maximum alarm time on the scale is twice of the time required for the object to pass the scale. 2. If the maximum time on the weighing platform set on the touch screen is less than or equal to twice the time required for the object to pass the weighing platform, the maximum alarm time on the weighing platform is the maximum time on the weighing platform set on the touch screen |
| The number of consecutive unqualified alarms                         | The number of consecutive failed alarms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| The number of super continuous disconformance alarm stops            | In the product parameter setting interface, you can set the alarm number of continuous nonconformance. If the set value is not zero and the switch is on, the number of continuous nonconformance will alarm and stop when it reaches this value                                                                                                                                                                                                                                                                                                                      |
| Upper limit of motor load                                            | The maximum load the motor can withstand                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |



|                                                                    |                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Stop above the motor load limit                                    | The upper limit of motor load can be set in the system parameter interface of the product. When the weight of the product or the object to be weighed exceeds the set upper limit, it will alarm and stop                                                                          |
| Overweight or underweight alarm and stop                           | Display on the main page that the result of this test product is out of tolerance or under tolerance and the device will stop.If you need to use this function, you need to move forward the discharge photoelectric position, please contact our technical department for details |
| The main page displays the information of overshoot and undershoot | On the main page, it shows that the result of this test is out of tolerance, under tolerance, or qualified                                                                                                                                                                         |
| The main page will display only the weight test result             | Only the product weight test result of this test is displayed on the main page                                                                                                                                                                                                     |
| Auxiliary display of real-time weight                              | Display the detected real-time product weight on the main page                                                                                                                                                                                                                     |
| Units                                                              | g/kg/t Optional                                                                                                                                                                                                                                                                    |
| Minimum indexing                                                   | 0.001. 0.002. 0.005. 0.010. 0.020. 0.050 Optional                                                                                                                                                                                                                                  |
| Check scale for stability range                                    | When calibrating the scale, the weight variation range is judged to be stable within this setting value                                                                                                                                                                            |
| Judge the range of stability;                                      | During the stabilization time, the range of weight variation is judged to be stable within this setting value                                                                                                                                                                      |
| Zero tracking range                                                | Weight value within this range, automatically clear zero                                                                                                                                                                                                                           |
| Clear range                                                        | The range at which the scale table is zeroed out during weighing                                                                                                                                                                                                                   |

|                                                      |                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Automatic zeroing at startup                         | Perform zero clearing once the scale platform is started                                                                                                                                                                                                                                                                                                                                                  |
| Check the maximum judgment time of the scale         | Is the longest judgment time in the process of weight calibration, indicating that the weighing platform must be stable and the zero voltage must be within the limited range during the calibration of the empty weighing platform and the weight calibration process. If the above conditions are not met and the maximum judgment time is exceeded, the alarm will be given and the weighing will fail |
| Decimal point                                        | 0 0.0 0.00 0.000 0.0000 Optional                                                                                                                                                                                                                                                                                                                                                                          |
| Maximum range                                        | 60kg                                                                                                                                                                                                                                                                                                                                                                                                      |
| Check scale for stability time                       | When checking the scale, the range of weight variation is judged to be stable within the stability range of the scale                                                                                                                                                                                                                                                                                     |
| Stabilizing time                                     | Within this setting, the range of weight variation is judged to be stable within the range of stability                                                                                                                                                                                                                                                                                                   |
| Zero tracking time                                   | During this time, the system data drift does not exceed the zero tracking range                                                                                                                                                                                                                                                                                                                           |
| The system automatically clears zeros after power-on | Zero clearing operation will be performed once on the scale platform                                                                                                                                                                                                                                                                                                                                      |
| Feed to shake time                                   | Do not sample during this time after feeding                                                                                                                                                                                                                                                                                                                                                              |
| Time to remove shaking from material                 | Do not sample during this time before discharging                                                                                                                                                                                                                                                                                                                                                         |
| Length of scale table                                | 1000mm/1200mm                                                                                                                                                                                                                                                                                                                                                                                             |
| Maximum time on the scale table                      | Maximum time an item is on the scale                                                                                                                                                                                                                                                                                                                                                                      |
| Material blocking time                               | From the discharge photoelectric induction to the material time, more than this time alarm                                                                                                                                                                                                                                                                                                                |

|                                                                 |                                                                                                     |
|-----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| Dynamic zero clearance range                                    | Range of zeroing of the weighing platform during the weight checking process                        |
| Digital filtering level                                         | 0 to 9 can be set                                                                                   |
| AD sampling rate                                                | 120 beats per second 240 beats per second 480 beats per second                                      |
| Pre-filter grade                                                | 0 to 20 optional                                                                                    |
| Time between photoelectric dust removal                         | When the system runs to the set value, the photoelectric dust removal begins                        |
| Duration of photoelectric dust removal                          | The output time of the photoelectric dust removal switch                                            |
| Buzzer buzzer type                                              | There are four types to choose from, which are undererror, out-of-error, unqualified, and qualified |
| Buzzer sounding mode                                            | There are three ways to choose from, long buzzer, off, and delay                                    |
| Buzzer delay time                                               | The delay time is 0.000-10.000S                                                                     |
| When the overgap is not suspended, the pop-up window will alarm | When the overgap is not suspended, the pop-up window displays the alarm information                 |
| The over and under alarm is 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. When the communication mode is printed, RS485 can be connected to the printer for printing output. For detailed operation methods, refer to "Operation Instructions on Buttons and Operation Frames" in section 3.3.2.

### 7.1 Communication parameters

Click "Setting" to enter the interface of working parameters, and then click the next page, the user can set the relevant serial port communication mode, to realize the communication between the weighing scale and the host computer and other external control units or connect the printer.

|                   |     |                              |                           |                          |                   |            |  |                     |  |
|-------------------|-----|------------------------------|---------------------------|--------------------------|-------------------|------------|--|---------------------|--|
| System Setting    |     | Product Name:<br>ID: 001     |                           | 0.0 Stopped<br>g<br>0ppm |                   | Reserved > |  | 2021-10-26 10:02:26 |  |
| < Previous Page   |     |                              |                           |                          |                   |            |  |                     |  |
| COM1 Mode         |     |                              | Modbus-RTU >              |                          | COM2 Mode         |            |  | Modbus-RTU >        |  |
| Slave ID          |     |                              | 001 >                     |                          | Slave ID          |            |  | 001 >               |  |
| BAUD              |     |                              | 57600 >                   |                          | BAUD              |            |  | 57600 >             |  |
| Byte Format       |     |                              | 8-E-1 >                   |                          | Byte Format       |            |  | 8-E-1 >             |  |
| Dword Data Format |     |                              | AB-CD >                   |                          | Dword Data Format |            |  | AB-CD >             |  |
|                   |     |                              |                           |                          |                   |            |  |                     |  |
|                   |     |                              |                           |                          | Next Page >       |            |  |                     |  |
| Work Para.        | I/O | Static Weight<br>Calibration | Belt Speed<br>Calibration | System Info.             | EXIT              |            |  |                     |  |

Figure 7-1 Communication parameters interface Example 1

|                   |     |                           |                        |                                                                       |             |            |  |                       |  |
|-------------------|-----|---------------------------|------------------------|-----------------------------------------------------------------------|-------------|------------|--|-----------------------|--|
| System Setting    |     | Product Name:<br>ID: 001  |                        | 0.0 <small>Stopped</small><br><small>g</small><br><small>0ppm</small> |             | Reserved > |  | 2021-10-26 10:02:26   |  |
| < Previous Page   |     |                           |                        |                                                                       |             |            |  |                       |  |
| COM3 Mode         |     |                           | Modbus-RTU >           |                                                                       | LAN Mode    |            |  | Modbus-TCP/IP >       |  |
| Slave ID          |     |                           | 001 >                  |                                                                       | IP          |            |  | 192 · 168 · 071 · 101 |  |
| BAUD              |     |                           | 57600 >                |                                                                       | Port        |            |  | 502 >                 |  |
| Byte Format       |     |                           | 8-E-1 >                |                                                                       | LAN MAC     |            |  | BC AA BB CC 01 02     |  |
| Dword Data Format |     |                           | AB-CD >                |                                                                       |             |            |  |                       |  |
|                   |     |                           |                        |                                                                       | Next Page > |            |  |                       |  |
| Work Para.        | I/O | Static Weight Calibration | Belt Speed Calibration | System Info.                                                          | EXIT        |            |  |                       |  |

Figure 7-2 Communication parameters screen Example 2

Description of communication parameters:

| Name                            | Instructions                                                       |
|---------------------------------|--------------------------------------------------------------------|
| Serial communication method     | Modbus-RTU                                                         |
| Mailing 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 |
| High and low 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 weighing scale is configured with three serial ports, which can communicate with the host computer through RS485 serial ports. The optional functions are Modbus-RTU and print mode (serial port three can only be set as print). The data format 7-E-1 is fixed as print, and Modbus-RTU communication cannot be carried out.

| Serial number        | Range                                    | Instructions                                        |
|----------------------|------------------------------------------|-----------------------------------------------------|
| Mailing address      | 1 to 245                                 | Check the weight scale slave number                 |
| Communication method | Modbus-RTU, print                        | Communication Modes and functions                   |
| Baud rate            | 9,600, 19,200, 38,400, 57600 and 115,200 | 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        | Facilitate communication of various upper computers |

When the host computer communicates with multiple weighing scales at the same time, the code of each weighing scale device cannot be consistent, and the maximum value is 245 (that is, a single PC can be connected to 245 weighing scales at the same time).

### 7.1.2 Network port communication

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

| Serial number | Instructions                                                                             |
|---------------|------------------------------------------------------------------------------------------|
| IP            | The upper computer and the motherboard must be in the same network segment and not equal |
| 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 works in server-side mode, and the protocol 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 weighing scale and cannot be modified. It represents the identification number of the weighing scale.

## 7.2 The Modbus register communication address is defined

| PLC address                                     | Module address | Parameter definition    | Remarks |                              |
|-------------------------------------------------|----------------|-------------------------|---------|------------------------------|
| Home screen status (Support function code 0x03) |                |                         |         |                              |
| 40001                                           | 0000           | Module current status 1 | .0      | 1: Weight positive overflow  |
|                                                 |                |                         | .1      | 1: The sensor is overflowing |

|       |      |                         |     |                                                         |
|-------|------|-------------------------|-----|---------------------------------------------------------|
|       |      |                         | .2  | 1: Weight negative overflow                             |
|       |      |                         | .3  | 1: Negative sensor overflow                             |
|       |      |                         | .4  | 1: Weight plus or minus identifier bit 0: plus 1: minus |
|       |      |                         | .5  | 1: zero point identifier bit                            |
|       |      |                         | .6  | 1: Stabilize the identifier bit                         |
|       |      |                         | ... | reserve                                                 |
|       |      |                         | .12 | 1: Static calibration state                             |
|       |      |                         | .13 | 1: Zero point calibration is successful                 |
|       |      |                         | .14 | 1: Gain calibration is successful                       |
|       |      |                         | .15 | Reservations                                            |
| 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: out of tolerance (for culling)                       |
|       |      |                         | .5  | 1: Underbalance (for culling)                           |
|       |      |                         | .6. | 1: Qualified                                            |
|       |      |                         | .7. | 1: Busy (for indication)                                |
|       |      |                         | .8. | 1: IO test                                              |



|       |      |                           |                                                                     |                        |
|-------|------|---------------------------|---------------------------------------------------------------------|------------------------|
|       |      |                           | . 9.                                                                | 1: Belt calibration    |
|       |      |                           | . 10                                                                | 1: Dynamic calibration |
|       |      |                           | . 11                                                                | 1: Feed                |
|       |      |                           | . 12                                                                | 1: Discharge           |
|       |      |                           | . 13                                                                | 1: Keep                |
|       |      |                           | . 14                                                                | 1: Return to zero      |
|       |      |                           | ...                                                                 | reserve                |
| 40007 | 0006 | Weight value              | Stop status: real-time weight;Running state: weight check result    |                        |
| 40008 | 0007 |                           |                                                                     |                        |
| 40539 | 0538 | Out-of-tolerance ratio    |                                                                     |                        |
| 40540 | 0539 |                           |                                                                     |                        |
| 40541 | 0540 | Underdifference ratio     |                                                                     |                        |
| 40542 | 0541 |                           |                                                                     |                        |
| 40551 | 0550 | Error number              | 1: Busy                                                             |                        |
|       |      |                           | 2: Not removed in time                                              |                        |
|       |      |                           | 3: Continuous disqualification                                      |                        |
|       |      |                           | 4: Total batch completed                                            |                        |
| 40552 | 0551 |                           | 5: Qualified batch completed                                        |                        |
|       |      |                           | 6: Block the material                                               |                        |
|       |      |                           | There is no                                                         |                        |
|       |      |                           | 8: Super maximum sampling time                                      |                        |
|       |      |                           | 9: Super motor load                                                 |                        |
|       |      |                           |                                                                     |                        |
|       |      |                           |                                                                     |                        |
| 40563 | 0562 | Actual weight check speed | The number of products that actually pass the weighing scale in one |                        |
| 40564 | 0563 |                           |                                                                     |                        |

|                                                           |      |                                 |                                                                                                                                 |
|-----------------------------------------------------------|------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
|                                                           |      |                                 | minute during the product weighing process                                                                                      |
| Product parameters (Function codes 0x03, 0x10 supported.) |      |                                 |                                                                                                                                 |
| 40101                                                     | 0100 | Product number                  | Read: Currently selected product number;Write: Write needs to select the product number and update to write 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 of product conformity                                                                                 |
| 40106                                                     | 0105 |                                 |                                                                                                                                 |
| 40107                                                     | 0106 | Lower limit                     | The permissible lower deviation of product conformity                                                                           |
| 40108                                                     | 0107 |                                 |                                                                                                                                 |
| 40109                                                     | 0108 | Pack weight                     | Package weight that is weighed with the product but does not count towards the result                                           |
| 40110                                                     | 0109 |                                 |                                                                                                                                 |
| 40215                                                     | 0214 | Total lot                       | Quantitative production inspection weight total production; <b>0 ~ 999999pcs</b>                                                |
| 40216                                                     | 0215 |                                 |                                                                                                                                 |
| 40217                                                     | 0216 | Qualified lot                   | Quantitative production of qualified products; <b>0 ~ 999999pcs</b>                                                             |
| 40218                                                     | 0217 |                                 |                                                                                                                                 |
| 40279                                                     | 0279 | Photoelectric dusting cycle     | Initial value: 60, range: 60 to 1800                                                                                            |
| 40280                                                     | 0280 |                                 |                                                                                                                                 |
| 40281                                                     | 0281 | Photoelectric dust removal time | Initial value: 1, range: 1 to 10                                                                                                |
| 40282                                                     | 0282 |                                 |                                                                                                                                 |
| Statistics (Support function code 0x03)                   |      |                                 |                                                                                                                                 |
| 40501                                                     | 0500 | Qualifying cumulative count     |                                                                                                                                 |
| 40502                                                     | 0501 |                                 |                                                                                                                                 |

|       |      |                                        |  |
|-------|------|----------------------------------------|--|
| 40503 | 0502 | Qualified cumulative weight            |  |
| 40504 | 0503 |                                        |  |
| 40505 | 0504 | Cumulative number of out-of-bounds     |  |
| 40506 | 0505 |                                        |  |
| 40507 | 0506 | Out of tolerance accumulated weight    |  |
| 40508 | 0507 |                                        |  |
| 40509 | 0508 | Cumulative number of oves              |  |
| 40510 | 0509 |                                        |  |
| 40511 | 0510 | Accumulated weight of underweight      |  |
| 40512 | 0511 |                                        |  |
| 40513 | 0512 | Cumulative number of disqualifications |  |
| 40514 | 0513 |                                        |  |
| 40515 | 0514 | Disqualified accumulated weight        |  |
| 40516 | 0515 |                                        |  |
| 40517 | 0516 | Total cumulative times                 |  |
| 40518 | 0817 |                                        |  |
| 40519 | 0518 | Total accumulated weight               |  |
| 40520 | 0519 |                                        |  |
| 40521 | 0520 | Maximum                                |  |
| 40522 | 0521 |                                        |  |
| 40523 | 0522 | Minimum                                |  |
| 40524 | 0523 |                                        |  |
| 40527 | 0526 | Pass rate                              |  |
| 40528 | 0527 |                                        |  |
| 40529 | 0528 |                                        |  |

|                                                                                          |      |                                                      |                                                                                                                                                                                                                    |
|------------------------------------------------------------------------------------------|------|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 40530                                                                                    | 0529 | All qualified products are heavy                     |                                                                                                                                                                                                                    |
| 40531                                                                                    | 0530 | Average weight of out-of-tolerance products          |                                                                                                                                                                                                                    |
| 40532                                                                                    | 0531 |                                                      |                                                                                                                                                                                                                    |
| 40533                                                                                    | 0532 | Underweight products average weight                  |                                                                                                                                                                                                                    |
| 40534                                                                                    | 0533 |                                                      |                                                                                                                                                                                                                    |
| 40537                                                                                    | 0536 | Total cumulative average weight                      |                                                                                                                                                                                                                    |
| 40538                                                                                    | 0537 |                                                      |                                                                                                                                                                                                                    |
| 40559                                                                                    | 0558 | Check weight result reading identifier (0, 1 change) | When the read value changes from 0 to 1, or from 1 to 0, the proof read value is updated data.                                                                                                                     |
| 40560                                                                                    | 0559 |                                                      | (When power-on, the value is fixed at 3, stop and alarm is 2. When HMI programming, according to the change of value jump collection, attention should be paid to adding the judgment that is not equal to 2 or 3) |
| 40561                                                                                    | 0560 | Weight check result                                  | Read as the result value of this test weight, when there is a new test result, the value will be updated.                                                                                                          |
| 40562                                                                                    | 0561 |                                                      |                                                                                                                                                                                                                    |
| 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 sign                           |                                                                                                                                                                                                                    |
| 00006                                                                                    | 0005 | Zero mark                                            |                                                                                                                                                                                                                    |
| 00007                                                                                    | 0006 | Stable sign                                          |                                                                                                                                                                                                                    |

|       |      |                                                                     |
|-------|------|---------------------------------------------------------------------|
| 00008 | 0007 | Keep signs                                                          |
| 00011 | 0010 | Qualifying mark                                                     |
| 00012 | 0011 | Underage sign                                                       |
| 00013 | 0012 | Out-of-tolerance sign                                               |
| 00014 | 0013 | busy                                                                |
| 00015 | 0014 | Call the police                                                     |
| 00016 | 0015 | Batch times to                                                      |
| 00031 | 0030 | Run (when writing ON, start running, stop running when writing OFF) |
| 00032 | 0031 | Zero clear (when writing ON, zero clear)                            |
| 00033 | 0032 | Clear alarm (Clear alarm when there is an alarm written ON)         |
| 00034 | 0033 | Print (when writing ON, print out)                                  |

### 7.3 Print content

1. When the communication mode is set to print, connect the printer, click the print button on the "Statistics" interface, or send the print command through the communication mode, the output will be 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:

|   |       |        |       |      |       |       |          |      |     |    |    |
|---|-------|--------|-------|------|-------|-------|----------|------|-----|----|----|
| S | leave | status | Leave | sign | limit | leave | Sampling | unit | CRC | CR | LF |
| T | a     |        | a     |      |       | a     | results  |      |     |    |    |
| X | blank |        | blank |      |       | blank |          |      |     |    |    |
|   | space |        | space |      |       | space |          |      |     |    |    |

Among:

(1) STX —— Start character, (02H) .

(2) status ——3 bit, In case of alarm, state 1 is "E" (45H), state 2 and state 3 are error identifications, otherwise all three bits are spaces 20H.

(3) sign —— 1 bit. Each time there is a new sampling mean, the data mark is added by 1, from 30H to 39H, and then back to 31H. Used for auxiliary extraction of sampling data.

(4) limit —— 1 bit is 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-digit decimal point (2EH), if there is no decimal point, the high digit is 20H).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 a checksum, which means that all preceding values are added and converted to decimal, and then the last two digits are taken and converted to ASCII code.

(9) CR - return sign (0DH).

(10) LF -- Line feed sign (0AH).

## 7.4 Frequency converter parameter settings

### 7.4.1 Mitsubishi frequency converter parameter settings

When replacing a new frequency converter or adjusting the parameters incorrectly, resulting in the system not working properly and unable to control the motor speed, the frequency converter can be reset according to the following steps.

FR-D700 frequency converter:

(1) Switch control mode: Use the PU/EXT key to switch to the PU indicator light on.

(2) Reset: Reset before setting parameters

Set PrCL and ALLC to 1 respectively and press the SET key to reset

(3) Mode switching: Switch simple mode to normal mode

Set Pr.160 to normal mode when set to 0

(4) Parameter settings (please set in ascending and descending order, not adjustable order)

P160=0 (must be set first)

p117 = 2

p118 = 96

p119 = 0

p121 = 9999

p122 = 9999

p338 = 1

p339 = 2

p340 = 1

p342 = 1

p549 = 1

P 79=2 (must be set last)

(5) Power on again: After the above parameter settings are completed, the power on parameters will take effect again.

(6) Set Pr.160 to 9999 and switch to simple mode.

(7) Switch control mode: Use the PU/EXT key to switch to the NET indicator light.

If the motor noise is high, P72 parameters can be adjusted

Automatic adaptive adjustment parameter P 9 is set to the rated current of the motor

P71 is set as the corresponding motor (three-phase asynchronous motor is set to 3)

P80 is set as the power of the motor

P96 set to 1

After completion, press the mode key to return to the starting motor

FR-CS80 frequency converter:

(1) Switch control mode: Use the PU/EXT key to switch to the PU indicator light on.

(2) Automatic offline tuning (please set in sequence, not adjustable)

1) 、 PRCL ALLC = 1

2) P9=rated current of the motor, please refer to the motor nameplate for details.

3) 、 P80 =0.75

4) 、 P96 =1

Press run to start until P96 becomes 3.

(3) Parameter settings (please set them in order and cannot adjust the order)

1) 、 P17 = 2

2) 、 P117 = 2

3) 、 P118= 96

4) 、 P119= 0

5) 、 P121=9999

6) 、 P122=9999

7) 、 P179=24

8) 、 P338=1

9) 、 P339=2

10) 、 P340=1



11) 、 P342=1

12) 、 P549=1

13) P79=2 (must be the last setting)

(4) Change the frequency register address of the weighing motor frequency converter on the speed calibration interface of the weighing scale to 14.

(5) Power on again: After the above parameter settings are completed, the power on parameters will take effect again.

The above methods were not successful. Please download the corresponding model frequency converter manual from the Mitsubishi official website or call our technical department.

#### 7.4.2 Schneider frequency converter ATV320U07M2C parameter setting

(1) Restore factory settings for parameters first (CONF-FCS-FCS, - FRY-ALL (confirm)

Exit to FRY-GFS (set to YES and hold for two seconds)

(2) Parameter settings

Rapid parking allocation RDY-CONF-FULL-FUN-STT-FST-L13

Given channel RDY-CONF-FULL-CTL-FR1-NDB

MODBUS address RDY-CONF-FULL-CON-ND1-ADD-2

MODBUS Baud Rate RDY-CONF-FULL-CON-ND1-TBR-9.6

MODBUS format RDY-CONF-FULL-CON-ND1-TF0-8E1

Channel configuration RDY-CONF-FULL-CTL-CHCF-SEP

Command channel 1 RDY-CONF-FULL-CTL-CD1-TER

MODBUS communication fault management RDY-CONF-FULL-FLT-CLL-SLL-NO

(3) Change the frequency register address of the weighing motor frequency converter on the speed calibration interface of the weighing scale to 8502

(4) The DI1 pin of the frequency converter is connected to OUT1, the DI3 pin is connected to the emergency stop button that is normally closed, and the +24V pin is connected to the emergency stop button and OUT1.

(5) Power on again: After the above parameters are set, the power on parameters will take effect again.

be careful; Touch screen speed calibration frequency setting value 5 represents 50 Hz

### 7.4.3 Schneider frequency converter ATV320U07M2C parameter setting

(1) Turn the Dip switch on the communication interface to ON.

(2) Parameter settings

1) 、 3-03 = 163.84

2) 、 8-30 = 2

3) 、 8-32 = 2

4) 、 8-31 = 2

5) 、 5-11 = 6

6) 、 1-62 = 0

(3) Change the frequency register address of the weighing motor frequency converter on the speed calibration interface of the weighing scale to 50009.

(4) Power on again: After the above parameter settings are completed, the power on parameters will take effect again.

## 8. Program upgrade

The device can upgrade the motherboard program and touch screen program through the way of U disk. For details, please refer to "Operation Instructions on Buttons and Operation Frames" in section 3.3.2.

|                                                                                                                                                                                                                                                                                                           |     |                               |                        |                   |      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-------------------------------|------------------------|-------------------|------|
| System Setting                                                                                                                                                                                                                                                                                            |     | 2021-10-26 11:02:39           |                        | Reserved >        |      |
| Device Model: CW-600G-101B ><br>Work Model: Check Model ><br>Language: ENG[ENG]<br><div>           HMI Version: 00.01.05<br/>           Time: 2021/08/02 08:00:30<br/>           MainBoard Version: 0.00.00<br/>           Time: 2021/08/02 08:00:30<br/> <div>Mainboard Upgrade With U-disk</div> </div> |     | Cal Para. Reset               |                        | I/O Define Reset  |      |
|                                                                                                                                                                                                                                                                                                           |     | Product Para. Reset           |                        | Work Para. Reset  |      |
|                                                                                                                                                                                                                                                                                                           |     | Communication parameter reset |                        | Belt Para. Reset  |      |
|                                                                                                                                                                                                                                                                                                           |     | All Para. Reset               |                        | Setting Date/Time |      |
| Work Para.                                                                                                                                                                                                                                                                                                | I/O | Static Weight Calibration     | Belt Speed Calibration | System Info.      | EXIT |

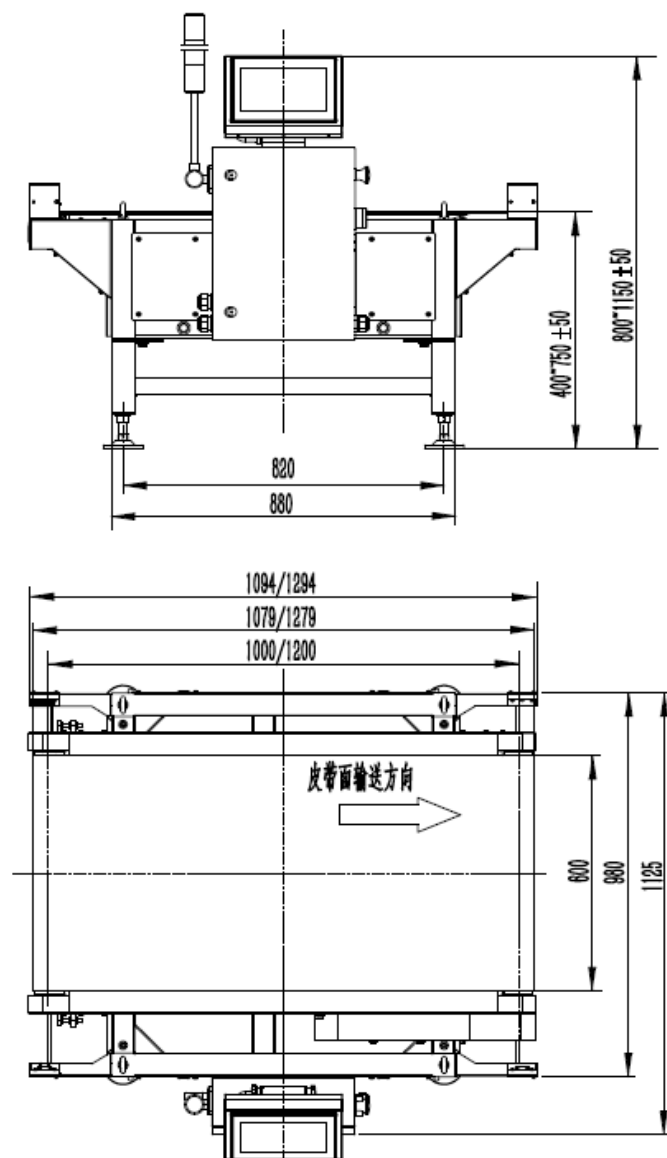
Figure 8-1 System Information screen example

After contacting our technical department, confirm that it is necessary to upgrade the program of the motherboard or touch screen. Obtain the corresponding program upgrade package first. Insert the USB flash drive with the upgrade package, click the "USB flash Drive Upgrade Controller" button to enter the upgrade interface, and perform the corresponding program upgrade according to the interface instructions. It is suggested to upgrade the program of the equipment under the guidance of our technical personnel, so as 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 table and the surrounding area to avoid affecting the normal weighing. The distance between the surrounding area of the weighing table should be greater than 10mm.

### 9.1 Outline size drawing (unit: mm)



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

## 10. Equipment repair and maintenance

### 10.1 Maintenance of motors

#### 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 whether the bearings at both ends of the motor have oil leakage and other phenomena
- 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 normal operation of the motor, the mechanic and maintenance electrician shall carry out the maintenance once a year.
- Remove dust or debris inside the motor (be careful not to damage the winding of the motor)
- Check whether the rotor of the motor is flexible and replace the wearing parts (bearings, etc.)
- Check the insulation resistance of the motor windings to the ground. When the insulation resistance is below  $0.5M\Omega$ , the motor must be dried.
- Replace the grease.
- Check whether the no-load current is within the specified range

#### 10.1.3 Precautions

- In the process of maintenance, attention should be paid to the safety of electricity and mechanical transmission, and illegal operation is 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 Check the failure cause and treatment method of weight scale

#### 10.2.1 No display on the touch screen

- Method of Handling poor Power contact Connect the power cable
- Loose or falling data cable treatment method Connect the data cable

#### 10.2.2 Data pulsation large, abnormal fluctuation

- Handling Method for loose screws of the heavy machine pedestal Tighten the screws of the heavy machine pedestal

- The sensor is obviously disturbed, such as air conditioning, air flow, etc. Disposal method to get rid of external interference
- Ground shaking, vibration, such as nearby machine rotation interference, cars passing by, etc. Treatment methods to get rid of external interference
- The conveyor belt is affected by viscous objects
- Sensor base has debris accumulation or stuck processing method to get rid of external interference
- Filter coefficient set too small processing method to increase the filter coefficient

### 10.2.3 The display is always zero

- The object is light and the weight falls in the zero range. The treatment should be resolved by resetting the "zero range".
- Device trace to zero. The handling method can be solved by adjusting the "automatic zero tracking" item in the calibration option of the system.
- The sensor data cable is loose, and the contact is not good. Solution Connect the sensor data cable properly

### 10.2.4 Abnormal data display

- The error is too large. Handling Method Recalibrate the scale.
- Product number selection error. The handling method should be resolved by clicking "Switch Product" again and selecting the corresponding companion product number.
- The ambient temperature exceeds the normal operating range of the sensor. Ensure that the ambient temperature is normal
- Aging or deformation of sensor components. Solution Replace the sensor

### 10.2.5 Busy alarm

- After the object into the material is not out of the weighing platform, and there are objects on the weighing platform. Handling Method Adjust the feeding speed, the material out of the weighing platform before allowing the next material on the weighing platform.

### 10.2.6 Packaging error

- Remove too many unqualified products in time. Handling method Eliminate unqualified products in time.

### 10.2.7 Continuous nonconformity alarm

- The number of consecutive disqualifications exceeding the set value. Alarm prompt, no need to deal with the weight check work normally.

### 10.2.8 Excess plugging time

- During operation, the object stays too long at the feeding or discharging end. Solution Check the reason for the object staying time is too long and deal with it in time.

### 10.2.9 Below the minimum sampling time

- The object is coming off the scale too quickly in operation. Adjust the speed of the belt of the weighing table within the detectable range.

### 10.2.10 Super maximum sampling time

- Long period of time when the object in operation is not off the scale. Check the reason why the object is not out of the weighing table for a long time and deal with it in time.

### 10.2.11 Overload motor load limit

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

### 10.2.12 Automatic zeroing failed

- 1. The current weight is out of the zero clearance range.
- 2. The scale is unstable. Treatment Method 1 Empty the scale table 2 Make sure the scale is stable