User Manual

PREFACE

Thank you very much for using the TY-1-DP12 Belt Scale

TY - 1 a - DP12 combination type belt scale is designed to quickly and accurately weigh for wet cohesive, fragile, irregular material designed for the automatic weighing equipment, the combination scale application of PLC control system, high speed, high precision, stable performance, high reliability, etc, and can according to the different requirements of users extended functionality.

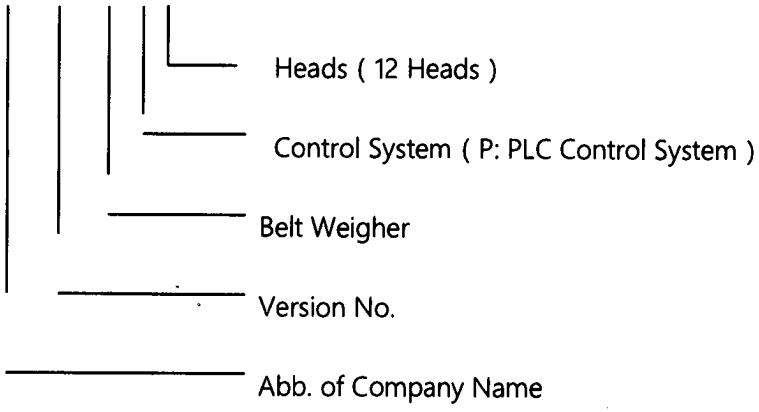
TY – 1A- DP12 combination type belt scale is widely used in food processing enterprises, supermarkets and sold in the market of irregular shape wet sticky, breakable in quantitative packaging bags and boxes, such as fresh or frozen meat, fish and shrimp, seafood, vegetables and fruits and other items of weighing and packaging.

Please read this manual carefully before using the TY-1A DP12 belt scale, to ensure that the device achieves optimal use. Please keep this manual in good condition.

Chapter1 Notice

1.1 Model Instruction

1.2 TY-1A-DP12



1.2 Working Environment

··Temperature: 0°C~40°C;

·Humidity:35%-85%(No dewing);

·Power: AC 220V/110V ± 10%V 50Hz(60Hz);

·Keep away and shield off away from the disturb source;

·Installation place: On rigid, horizontal and no vibration surface;

·Earth line: Make sure the machine is connected to the earth;

·It works under aseptic and non-dust plant when packaging food products;

·Leave enough space around the machine for maintenance.

1.3 Transportation & Storage

·Only professional engineer is allowed to repair the machine when failure happens;

·Turn off the power before cleaning, moving and repairing the machine;

·To avoid body injury, it is prohibited to touch the hopper or pan while machine is running;

·No bumping or strong pressure on weigh hoppers;

·Direct current for the connection signals with other equipments (packing machine, conveyor, etc.) should be no more than 30V, the overloading current no more than 100mA.

1.4 Working Environment

··The machine should be treated carefully while transporting, installation and disassembling. No throwing, bumping or reversing. Prevent from strong vibration and raining.

·The machine should be kept in ventilated room with temperature range of -10°C~50°C, humidity no more than 80% and kept away from corrosion gas.

2. Product structure and technical parameters

2.1Product structure

See Fig 2.1

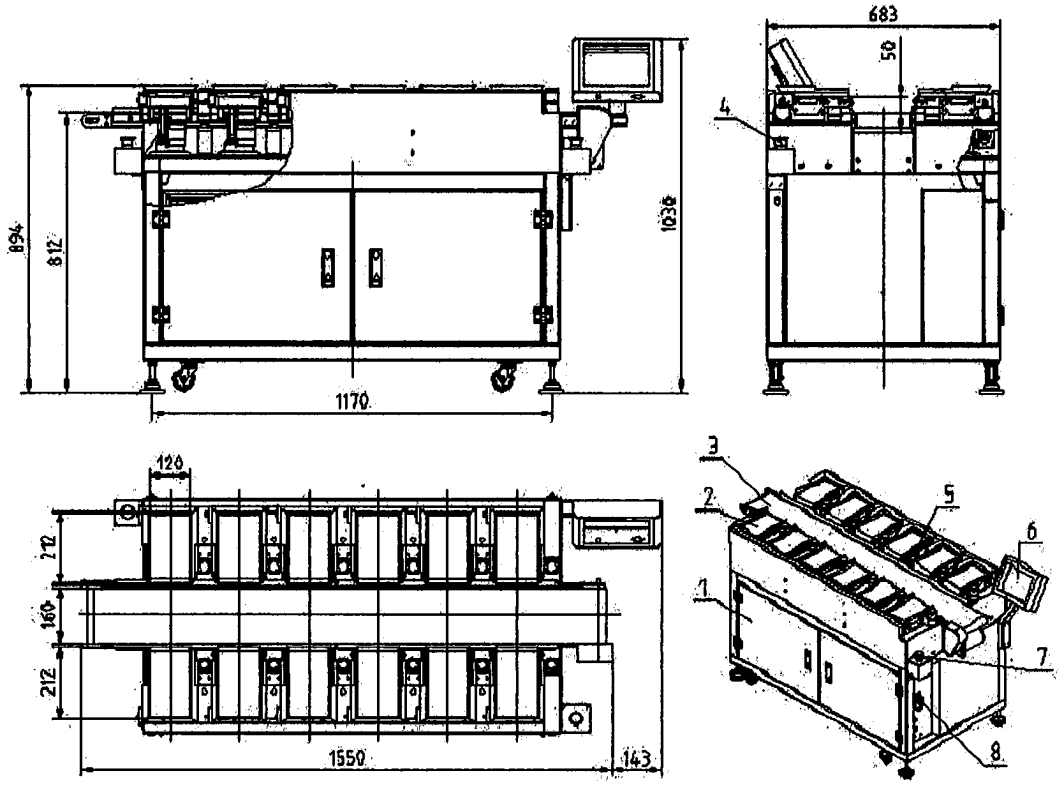


Fig 2.1

1 Cabinet(PLC Inside)2 Belt weighing unit3 aggregate line4 Emergency stop buttons15 Signal light6

Touch Screen 7 Emergency stop buttons28 power switch

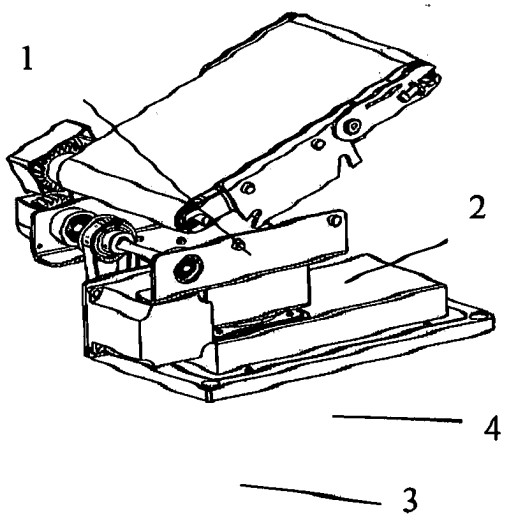
2.2 Specifications

Model	TY-1A-DP12
Range	10~3000g
Accuracy	±0.1g-±5g
Max. Speed	10-30PPM
Control	PLC
Touch Screen	7 Inch
Power	AC220V ±10% 50Hz(60Hz)
Dimensions	1693(L)×683(W)×1030(H)mm
Pan size	211(L)×120(W)mm
G.W.	400KGS

2.3 Installation

1、Install the small belt parts: See Fig 2.2 Insert the part 1 into the part3, and then insert the part2 into part4.

2、Install the guard board of products.Fig 2.3 ,



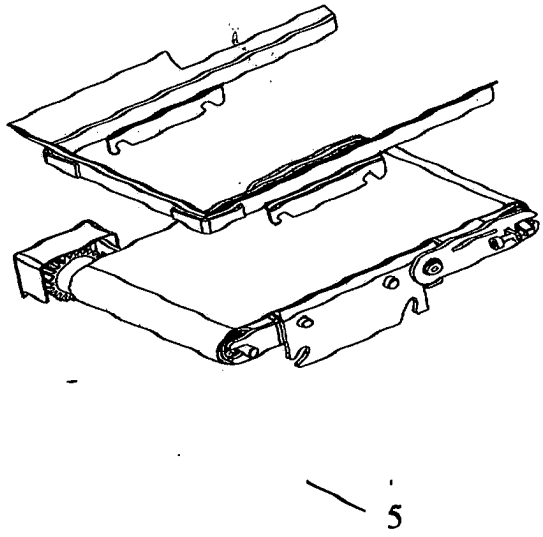


Fig 2.2 Fig 2.3

Chapter 1 Working Principle

TY-1A-DP12 combination type belt weighe's weighing and conveying part is mainly located at the two side12PCS belt weighing unit and the aggregate conveyor in the center. And with a PLC control system in the machine.Each belt weighing unit with the conveyor function and weighing function.When you want to weight it, set a target weight first, use a person or feeding device to feed some products on all the weighing belt and then each belt will weighing it automatic at once, then send the weighing data from loadcell to PLC. PLC will calculation, analysis, combination of the weighit and get a combination that most near the target weight. At the same time, the choose belt will light on the green led to show you that this belt is in the combination. And send out the ready signal at once.When the PLC received the discharge request signal, PLC will send signal to move the combination belt move and drop the products in the center conveyor, and the center conveyor will conveying all products to the following process.

Chapter 1 Operating Instructions

4.1 Power On

Power on, enter into the below menu to choose the language.

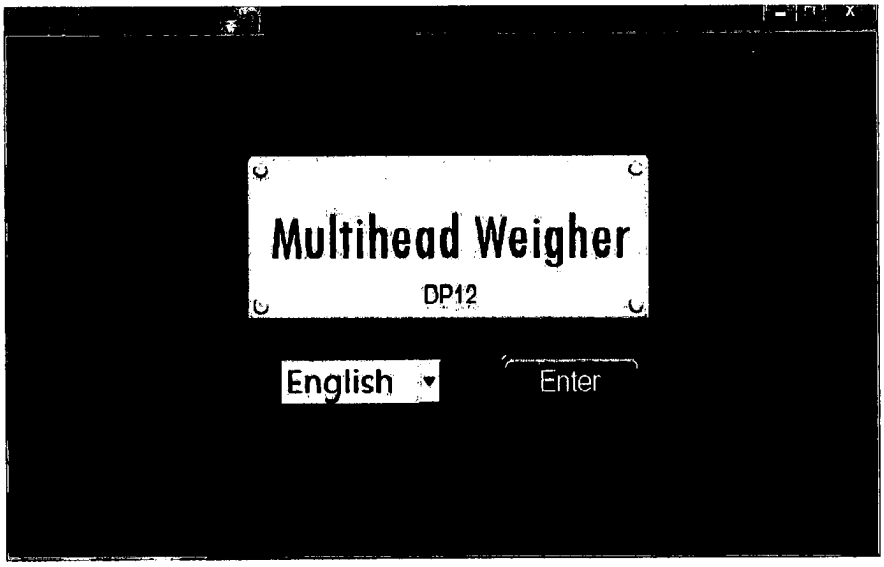


Fig 4-1-1

Touch the arrows to choose the language and enter into the main menu, Fig4-1-2

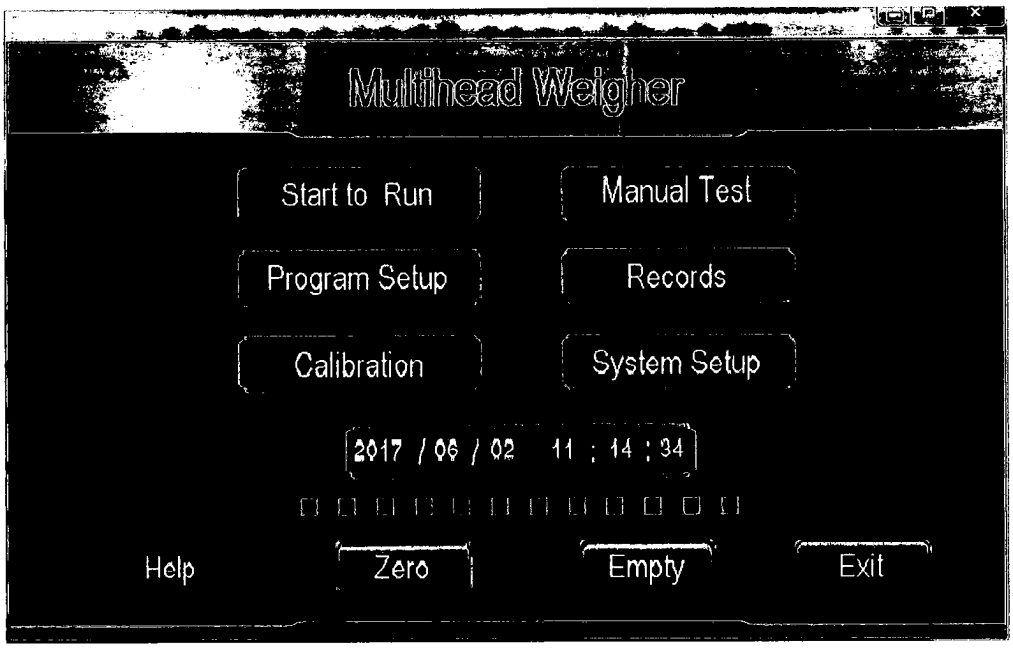


Fig 4-1-2

Zero

Press "Zero" to zero the machine. The center belt will start first, delay till the center belt reach preset speed, start the No 1-6 weighing unit belt and orange light on. Delay 3 second, start the No. 7-12 weighing unit belt and orange light on. After that, zero and stop all the weighing unit belt and center belt. When Zero finished, the 'Zero' button cancel automatic.

Empty:

Press this button, the machine will empty automatically. Start the center belt, delay till the center belt reach the preset speed and then start the No. 1-6 weighing unit belt and organge light on. Delay 3 second, start the No. 7-12 weighing unit belt and orange light on. This function will be keep working till the "Empty" button pressed again.

Exit :

Press this button to exit back to the language login menu.

Note : The time in the middle of the touch screen is the current time, you can change it in 屏幕 the system setup menu. The lights below the time is show the communication status between the PLC and weighing unit. Green light means OK. Red lights means fault. The "Help" button is only use for future.

4.2 Run

Press "Run" button at the main menu enter into the "Run" menu, see Fig 4-2-1

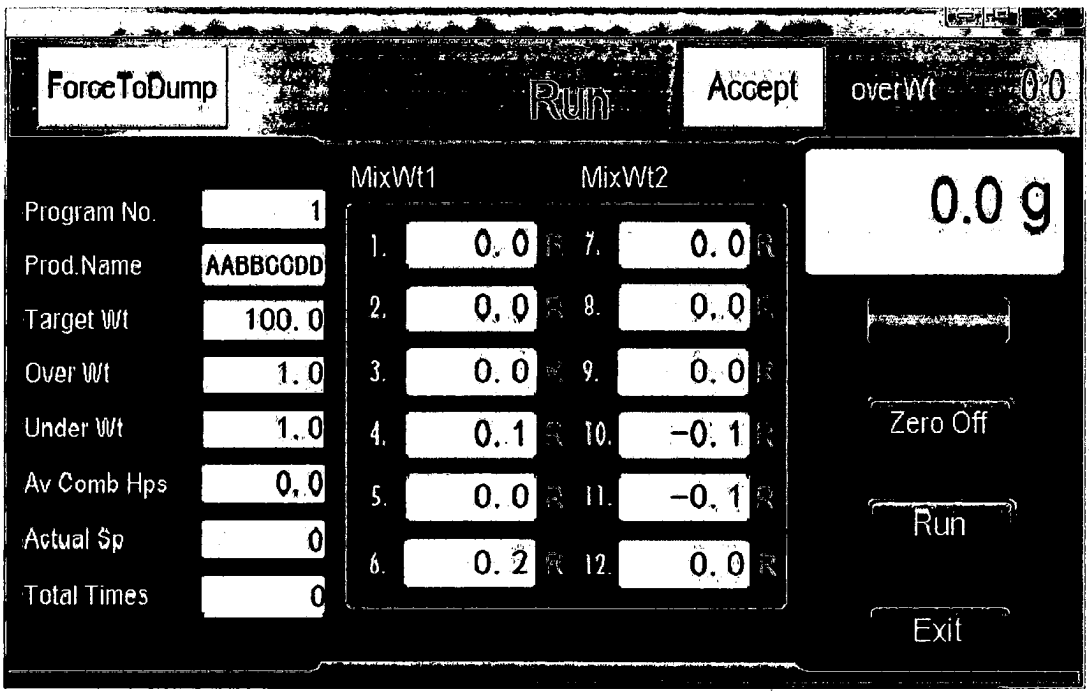


Fig 4-2-1

1. Zero Disable/Enable:

   Manual Zero switch.When the status is Zero Enable, touch the weight of each belt from 1-12, the belt weight will be zero. This function is mainly for user to zero the machine when the belt with products stick on it.

2. Run : Run/Stop button. When the machine is running, if there is any empty belt, please put products on it in time. If all the belt's weight is more than min weight, but can not find a combination in the target weight range, the "Wait for combination" button will show on the touch screen.

3. Dump : When can not find a qualified combination , press this button, the machine will dump the most heavy 4 belt to help the user to exchange the belt that can not find a combination.

4. Mix 1、Mix 2 : When Mix function is enable, this two parameters display the weight of each products. When this function is disabled, this two parameters does not show anything.

5. Accept Over weight/Dump :

   Ifafter calculate, but can not find a qualified combination, here will show the nearest weight that can find. The user can exchange the products base on this smart warning or press "Accept Over Weigh' button to accept this combination or press "Dump" button to dump the most heavy 4 belt. If the combination is qualified, this button can not find on screen.

6. Exit :

   Press this button to return back to main menu. (You must stop the weigher before press this button.)

4.3 Manual Test

When you at main menu, you can press "Manual Test" to goes into manual test menu. The below is the

LED1 menu.Fig 4-3-1

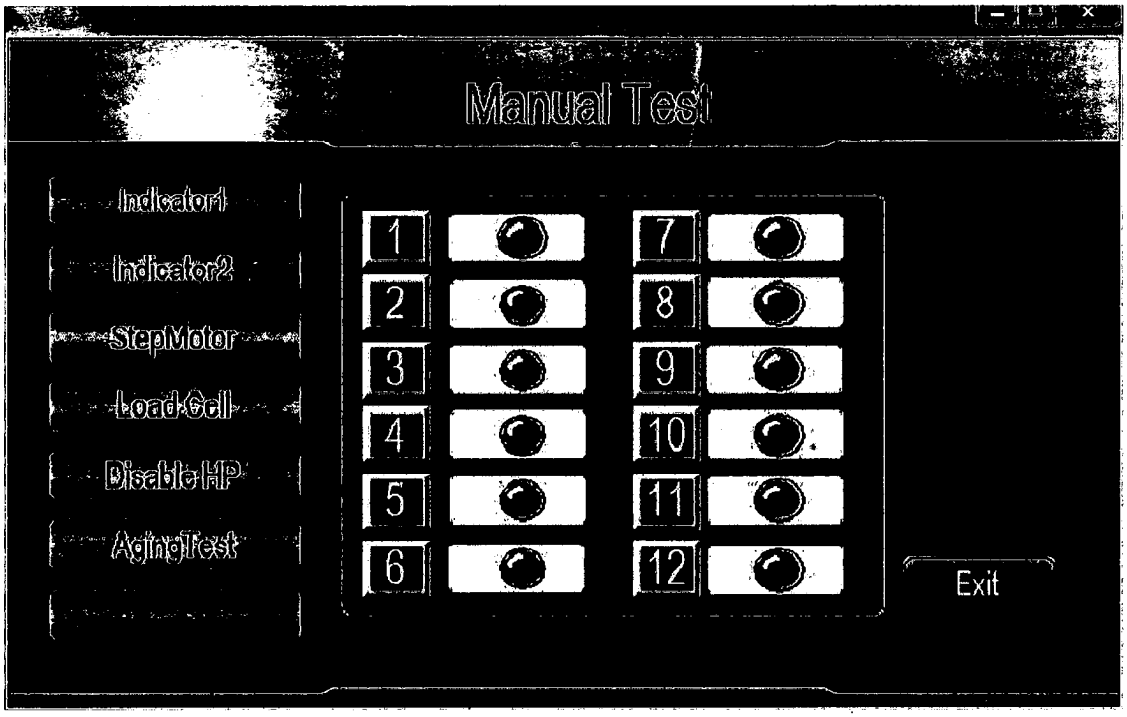
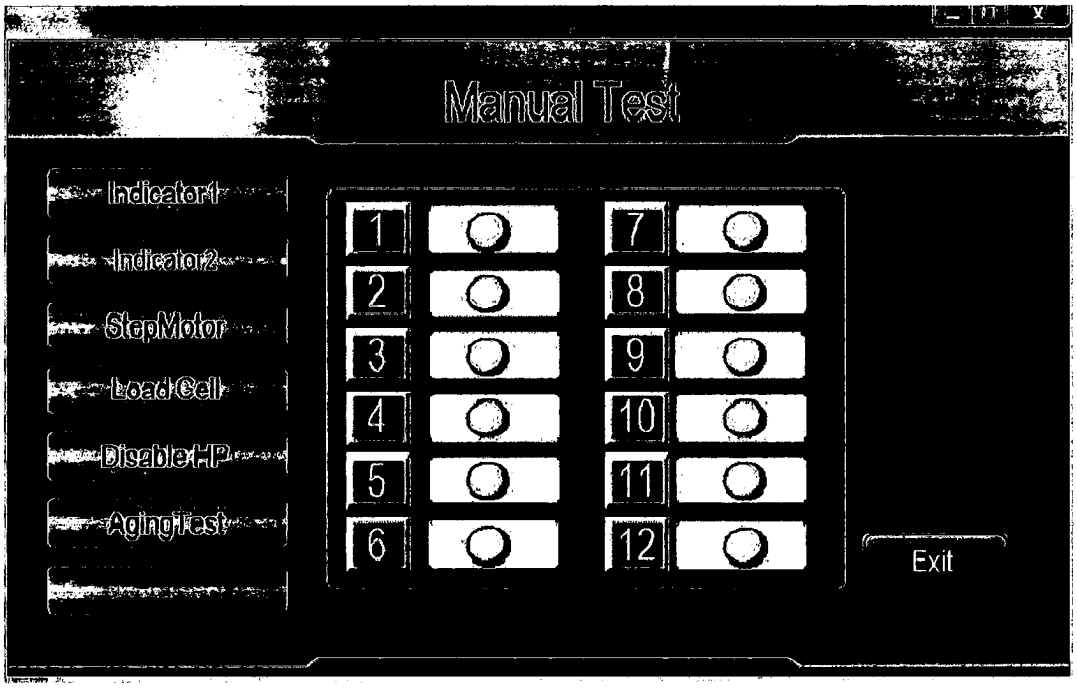


Fig 4-3-1

1. Indicator1:

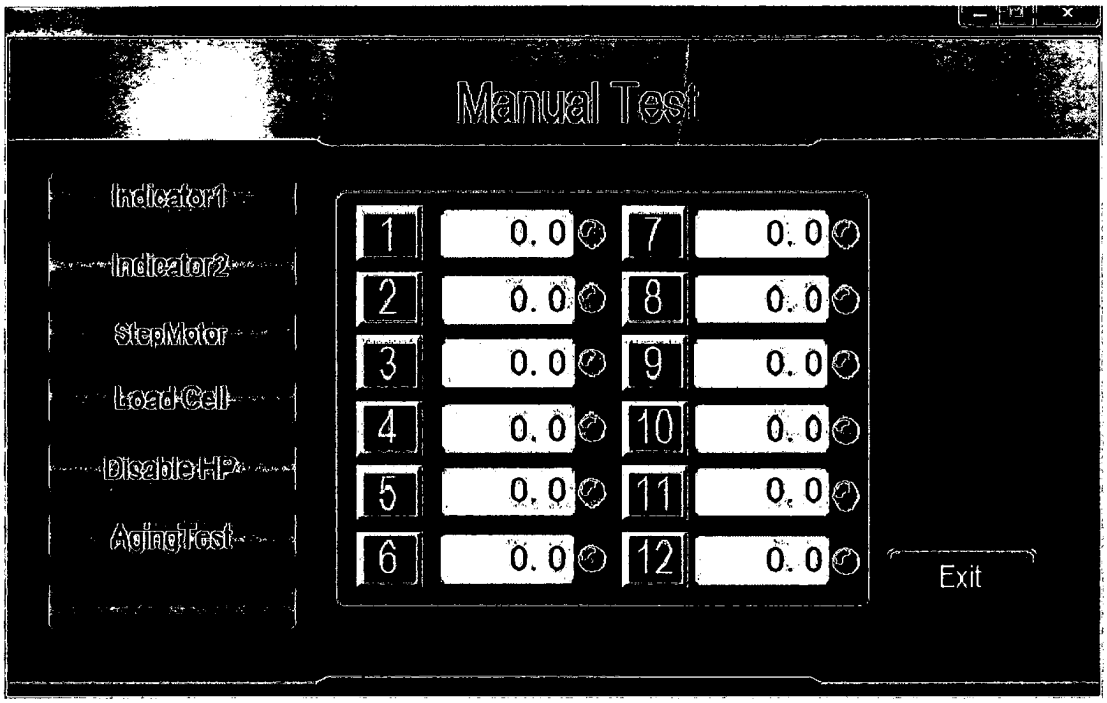
   Press this button to enter intoIndicator1 menu. Press the numbers of each belt to make the corresponding led will be turn on at Green status. Without press it will turn off.



2. Indicator 2 :

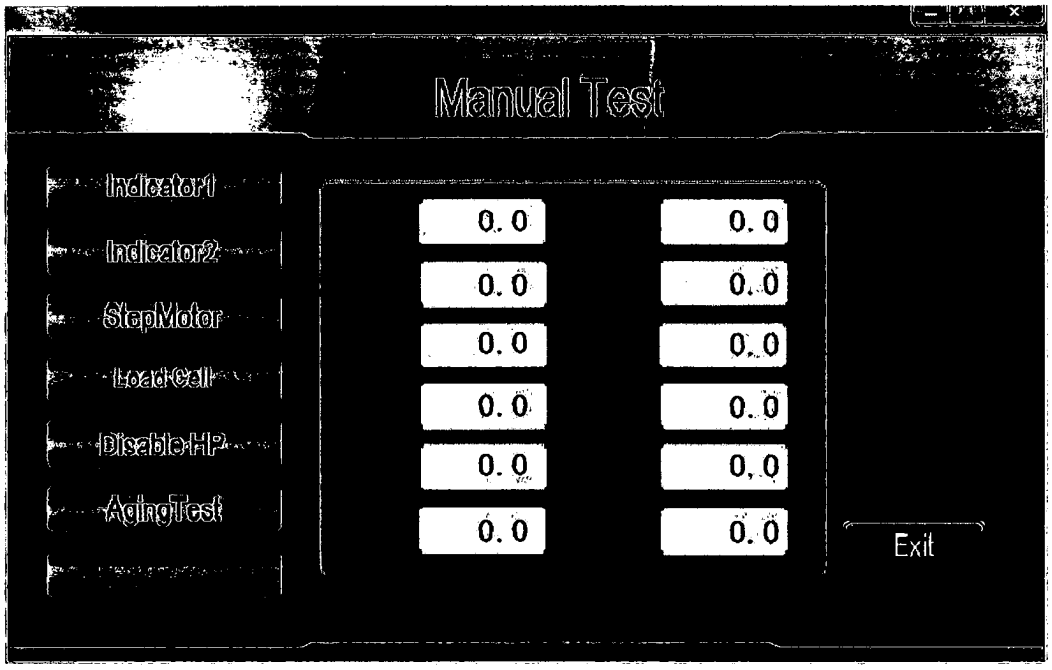
   Press this button to enter intoIndicator2 menu. Press the numbers of each belt to make the corresponding led will be turn on at Orange status. Without press it will turn off.

3. StepMotor :



Press this button to enter into Step Motor menu, press the numbers of each belt, the corresponding step motor will running, without press the step motor will stop.

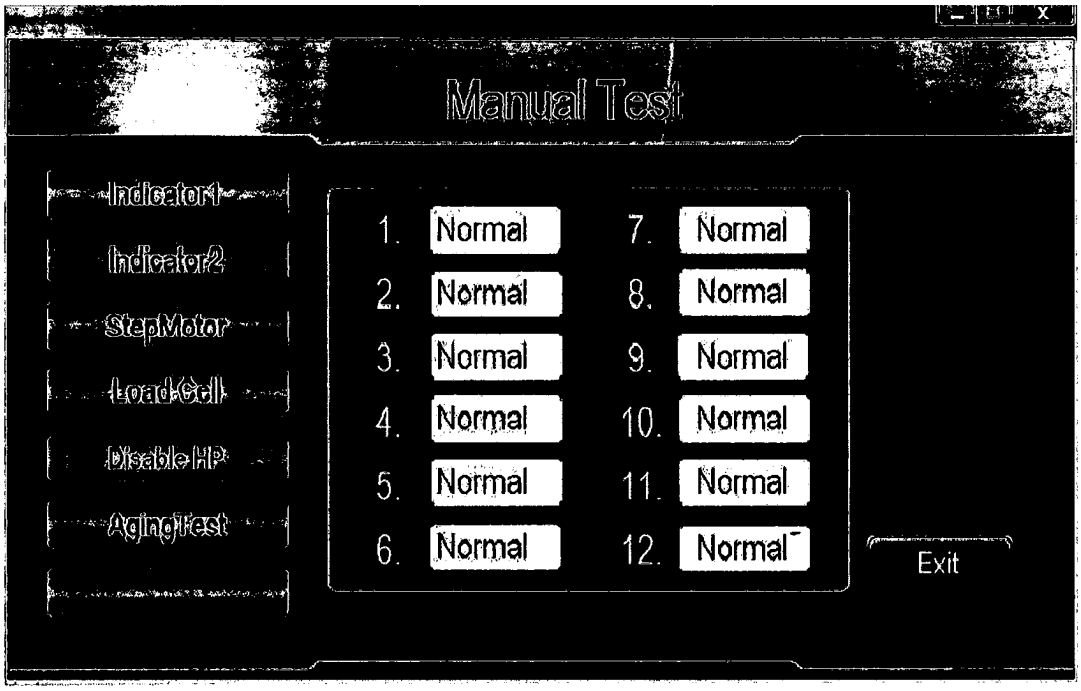
4. Loadcell:



Press this button to enter into Loadcell menu, display each loadcell's status. When communication is good, each blank will display the weight of each belt. When the communication is not good, the corresponding number will blink in red. Press the weights the corresponding belt will zero when the communication is good.

5. Disable HP :

Press this button to enter into "Disable HP" menu. Press the numbers of the belt, the corresponding belt will be disable and stop working. Press the numbers again will enable the belt again.



6. Aging Test :

Press this button to enter into Aging Test menu, the machine will run by itself at the preset settings without products.Fig 4-3-2

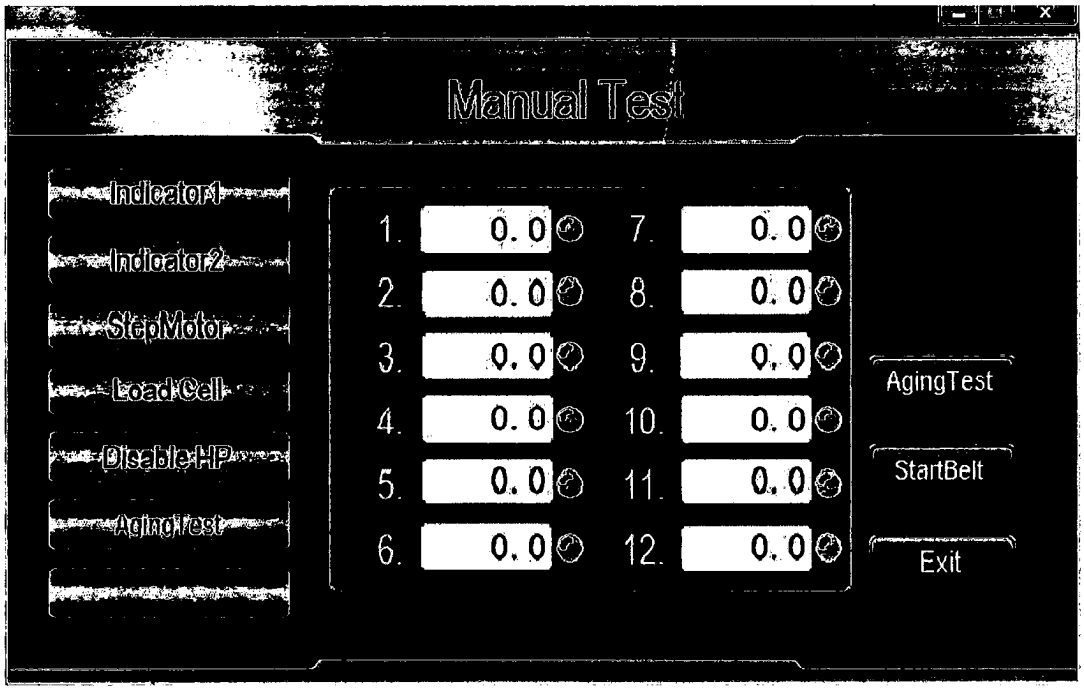


Fig 4-3-2

7. Start Belt:

Press this button the motor of the belt will start or stop.

8. Exit :

Press this button to exit this menu to the main railway station

4.4 Operator Settings

Press the "Program Setup" at the Main menu to go into the below login menu. See Fig4-4-1

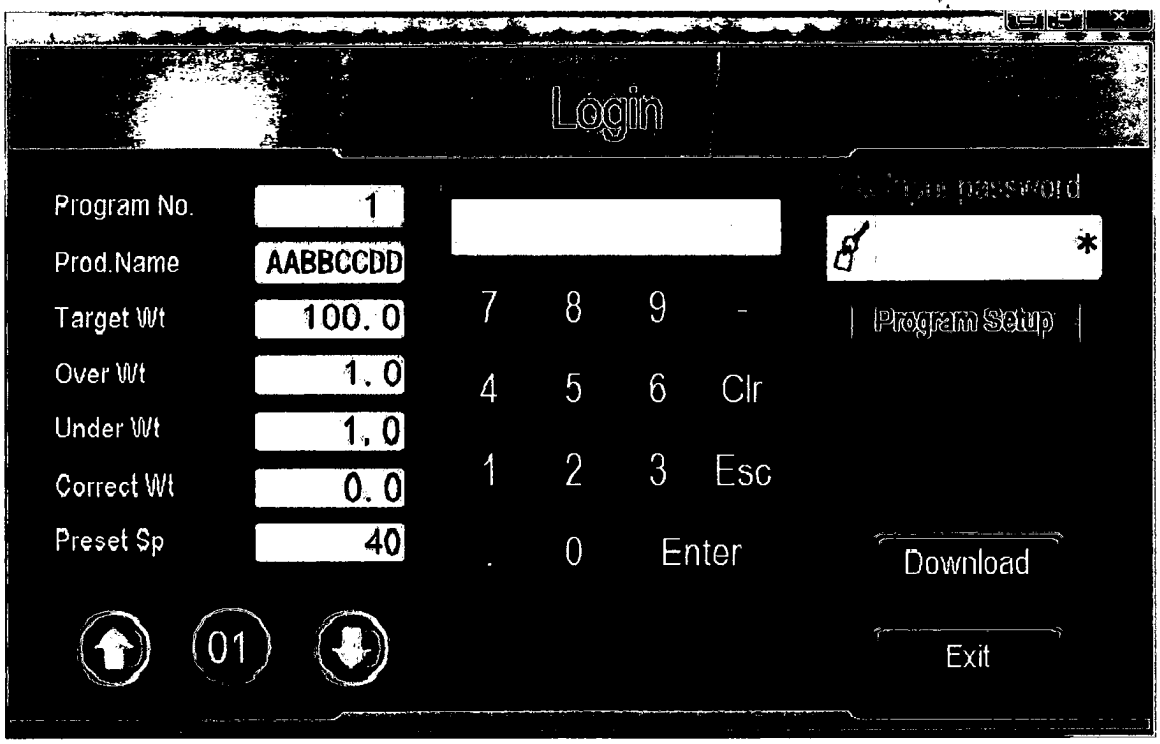


Fig 4-4-1

1. Program No. :

Press the arrow key or press the number key or input number to go to program No. you need .

1. Settings :

Input the password (initial password is 11111111.) below the Pls Input Password blank. Then press Enter, after that you can press the Prgoram Setup button to login.

2. Download :

After you change the parameters in the program setup or change to different "Program No.", you must press "Download" to save the program, until then the revised parameters will work. Because after you change, the new settings only save on touch screen, did not store in PLC. Please press "Download" for at least 1 second until the gauge comes up.

3. Exit:

Press "Exit" to return to main menu.

4.5 Program Setup

"Program Setup 1" & "Program Setup 2" as below

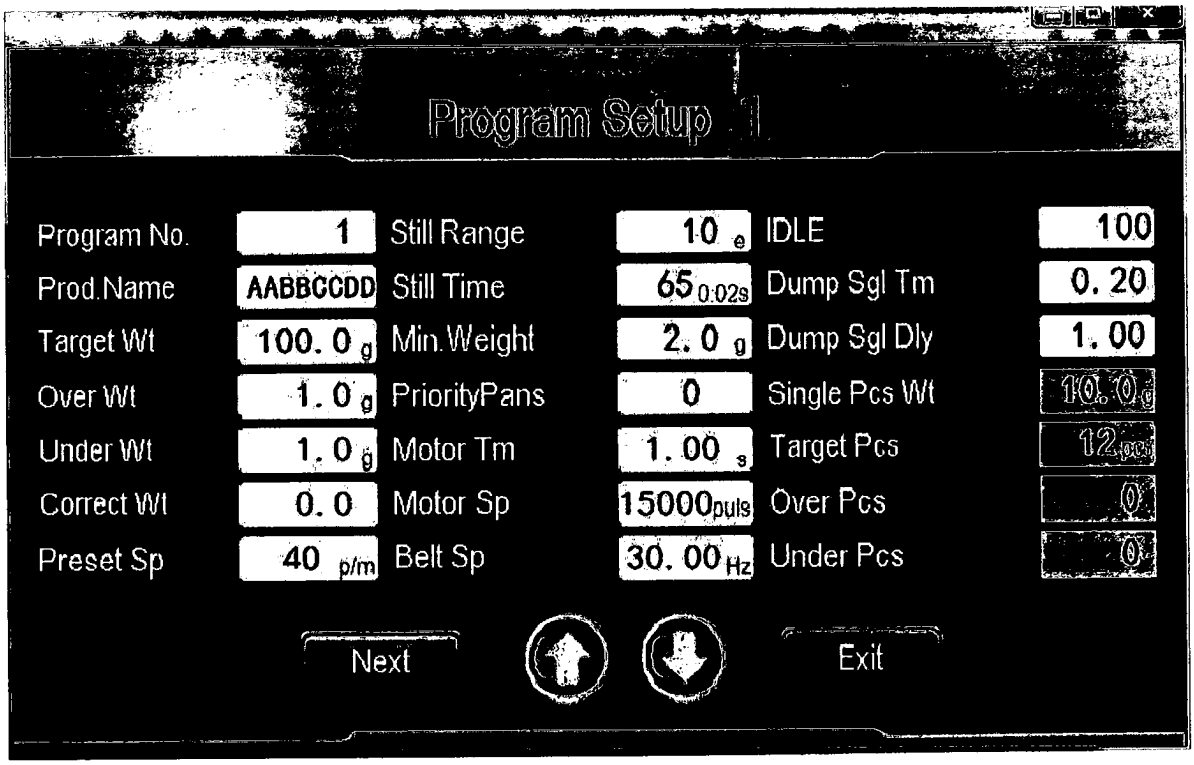


Fig 4-4-2

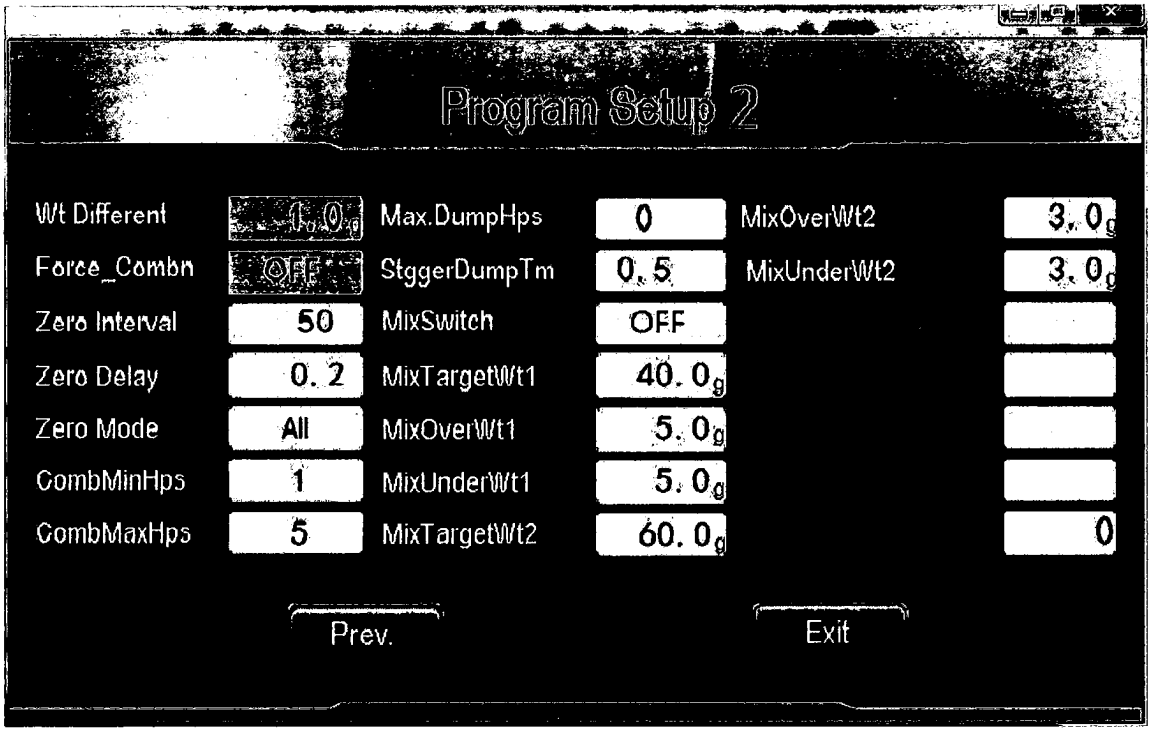


Fig 4-4-3

 Use to display last and next "program No." settings.

1. Program No. :

   Press the arrow key or press the number key or input number to go to program No. you need . Range 1-99.

2. 2. Prod. Name::

   Products Name: Input the products' name. (8 letters Maximum).

3. Target Wt:

   Target Weight: The target weight of the weighed products. Unit is gram. Range:10.0-3000.0g.

4. Over Wt:

   Over Weight:The over weight limit of the weighed products.

5. Under Wt:

speed of the connected packaging machine.

8. Still Range :

Still Range is used to monitor the stable time when the weighing belt is feeding products.If the weight is in a range in the still range time. Then the stable is confirmed. This still range time is use when feed the products. Unit is e(dividing value, which is also the minimum scale)

Still time:

This parameter is used with the pause range. Unit: 0.02s.

Min. Weight

Only weighing units greater than set value will participate in the combination, including the enforced discharge pan.

Priority Pans

Each combination will be forced to combine the input number of the corresponding weighing unit. 0 for prohibiting the use of this function; 1-3 means that from # 1 to enforce which unit to participate in the combination. It must be ensured when use this function that the weight of the weighing unknit is greater than the "minimum weighing" value. When the priority combination belt function is enabled, the system automatically turns off the "no combination" detection function, the mixing function.

Motor time

Each weighing unit Stepping motor rotation time, used to ensure that the stepper motor rotation of the weighing unit on the material all transported out. Range: 0-9.99, unit s. Recommended value 2.00s.

Motor speed:

The speed of each weighing unit stepping motor. The pulse frequency, the greater the value, the faster the speed. Range: 0-32000, the recommended value is 15000.

belt speed:

The speed of the motor in the middle conveyor belt. Here with the frequency of the inverter, the greater the value, the faster the speed. Range: 0-60.00HZ, the recommended value is 30.00HZ.

Idle

No Combination Times: It refers to the times that the hopper not be combined while running. If the times that the hopper uncombined exceeds the preset IDLE times. Setting range :1-9999.That hopper will be combined forcibly. This function can improve the using rate of weigh hoppers. 0-9 means close this function.

Dump Sgl Tm

Dump Signal Time: It refers the duration time the machine send dump signal to packaging machine.Range:1-9*0.01S, recommend:20

Dump SglDly

Dumping Signal Delay :It refers the discharged signal delay. After the machine dumping material to the

packaging machine, there will be a delay time, then it sends discharged signal to packaging machine.

Single PCS WT

The standard weight of single piece for uniform products which is applicable to calculate the combination weight to finish the target pieces. Setting method : take a number of materials and electronic weighing the total weight divided by the total number, the weight is the weight of a single grain.

Target Pieces

The target pieces of the weighing products.

Over Piece:

The allowable up limit of the weighed products

Under Piece:

The allowable down limit of the weighed products

Wt Different:

When guaranteed target piece, the allowable weight deviation value. When the "forced re-combination" is ON, the machine will stop combining and output the combination result only if it is found to meet the "weight difference"; otherwise, the machine will ensure the target particle number, Find the best combination of weight and output the combined result (corresponded to the turned on green light)

This weight value may fall within the "weight difference" and may fall outside the "weight difference".

Force_Combn

Please refer to number 22

Zero Interval

0 : turn off the automatic interval function; otherwise, the system automatically peeled according to the set number of times.

Zero Delay

After the unloading belt stops, how long does the delay begin to perform the taring. Unit: 0.1S.

Zero Mode

Single: the belt after unloading according to the taring setting. Single Taring, at the same time, can only have a belt to perform the taring; all: the belt after unloading according to the taring setting, all will perform taring.

CombMinHps

Combine the smallest and largest hopper, used to limit the number of participating in the combination of the belt.

CombMaxHps

Combine the smallest and largest hopper, used to limit the number of participating in the combination of the belt.

Max Dump Hps

When discharge, the maximum number of belts allowed to discharge; 0 : turn off this function.

Stagger Dump Tm

When discharge , the time between the two discharge , unit: 0.1S.

Mix switch:

Enables / disables the mixing function.

Mix Target Wt1

Set the target weight of product 1 when mixing.

Mix Over Wt1

When mixing, product 1 allowed over weight.

Mix Under Wt 1

When mixing, product 1 allowed under weight.

Mix Target Wt 2

Set the target weight of product 2 when mixing.

Mix Over Wt 2

When mixing, product 2 allowed over weight.

Mix Under Wt 2

When mixing, product 2 allowed under weight.

Save as:

The current parameter will be saved in the "program number". The system default is the original "program number"; if you want to copy to another "program number", directly enter another program number, press the OK button.

Exit

Press Exit, return to Login interface.

Records

In the main interface, press "Records" button to enter to " Records", as shown in Figure 4-6-1. Up to 2000 records can be displayed.

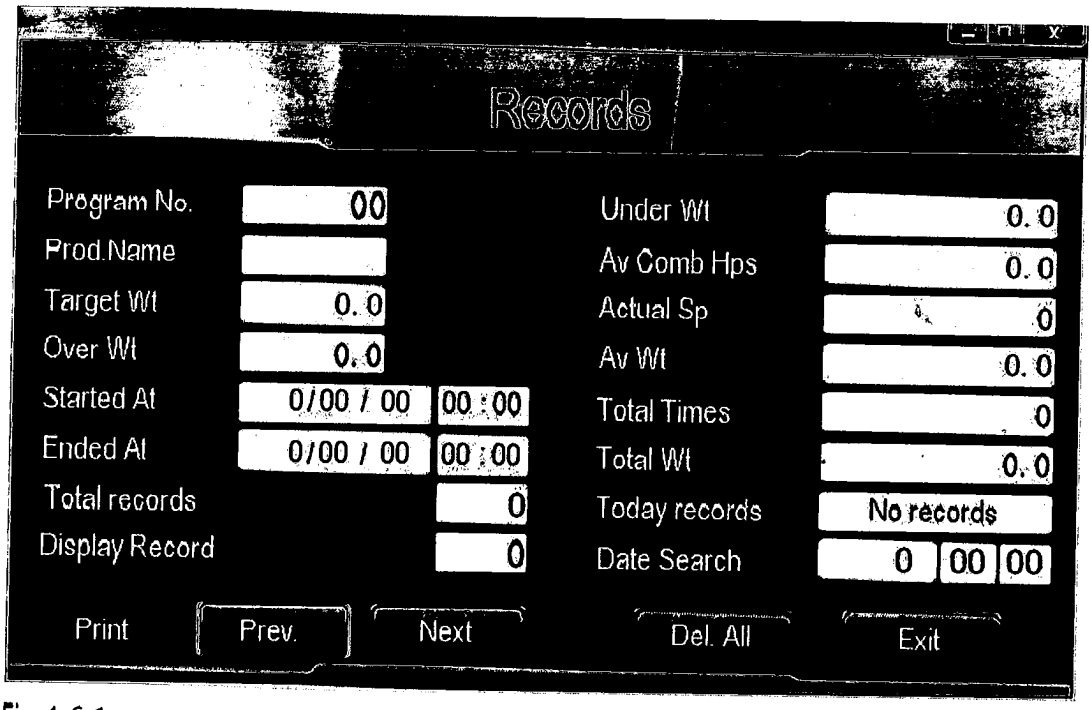


Fig 4-6-1

Previous

Press this button, it shows the previous record.

Next

Press this button, it shows the next record.

Program No.:

Enter the program No. to see the corresponding record.

Print:

Plug USB to a touchscreen, press print, then the current interface output JPG picture format and keep to USB.

Del. All

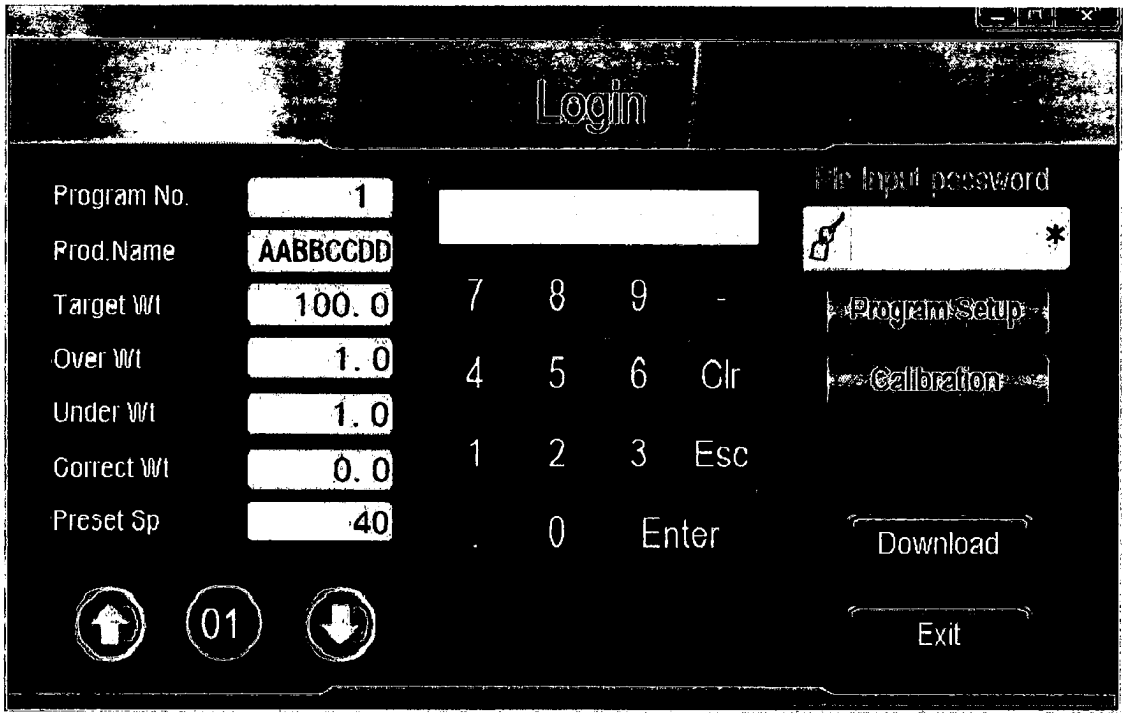
Press it for 1 second, clear all records, please use this function with caution.

Exit

Press Exit, return to main menu.

Calibration

In the main menu, press "calibration", enter to "Login" as shown in Figure 4-7-1.



Enter password under the words "please enter your password", then press "enter", then press calibration enter to "calibration" (press settings ether to settings). The setting function in this interface is same as 4.4 settings.

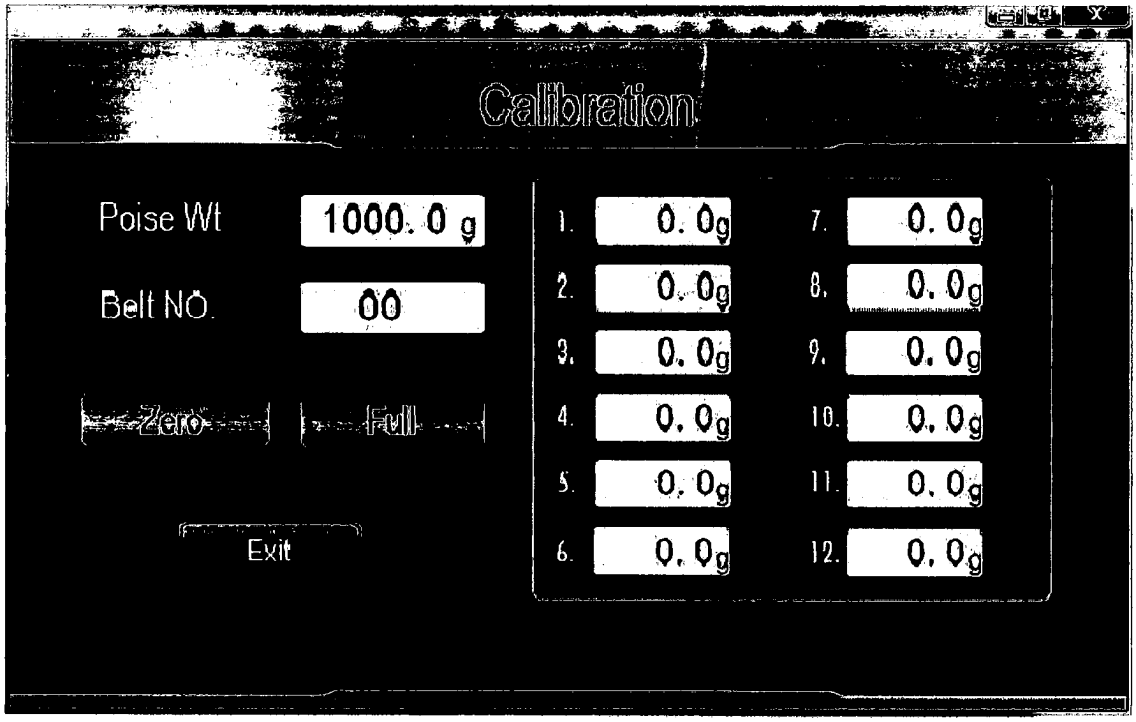


Fig 5-6-1

The calibration interface is shown in Figure 4-7-2.

Calibration procedure:

Input "Posit Wt" the value that you will use to calibration(Suggest to use 1kg stand posit, Must less than 2kg). Then write the corresponding numbers that you want to calibration in the Belt No. blank. Now there is a red

arrow on the corresponding numbers. Press "Zero" after you hear a buzzer sound, the corresponding belt show 0.0(Change within ±0.2 is normal), them the calibration of zero point finish. Them put the poise on corresponding belt, press "Full", the corresponding belt will show the weight same as poise(Change within ± 0.2 is normal). Till now this belt's calibration is finished.

Note: Clear the belt before you calibrate it.

System setting (System administrator setting)

Press "System Setup" at the main menu to go into the login menu.Fig 4-8-1

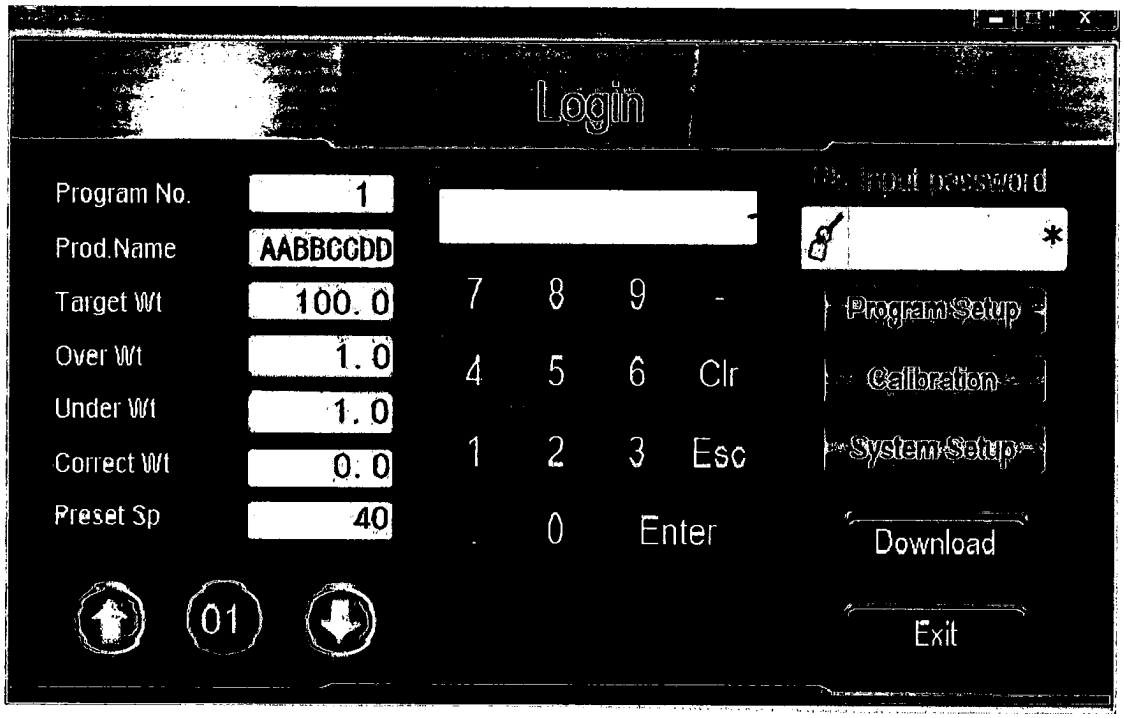


Fig 4-8-1

Please enter the correct password into the window below the "Enter Password" (password 33333333), press "Enter", then press "Settings" button to enter the system settings interface (press the "calibration" to enter the "calibration" interface; press "parameter setting" to enter the "parameter set 1" interface). The different parameter numbers of this interface call and download parameters, which are consistent with the 4.4 logon parameter setting operation.

The system settings interface is shown in figure 4-8-2

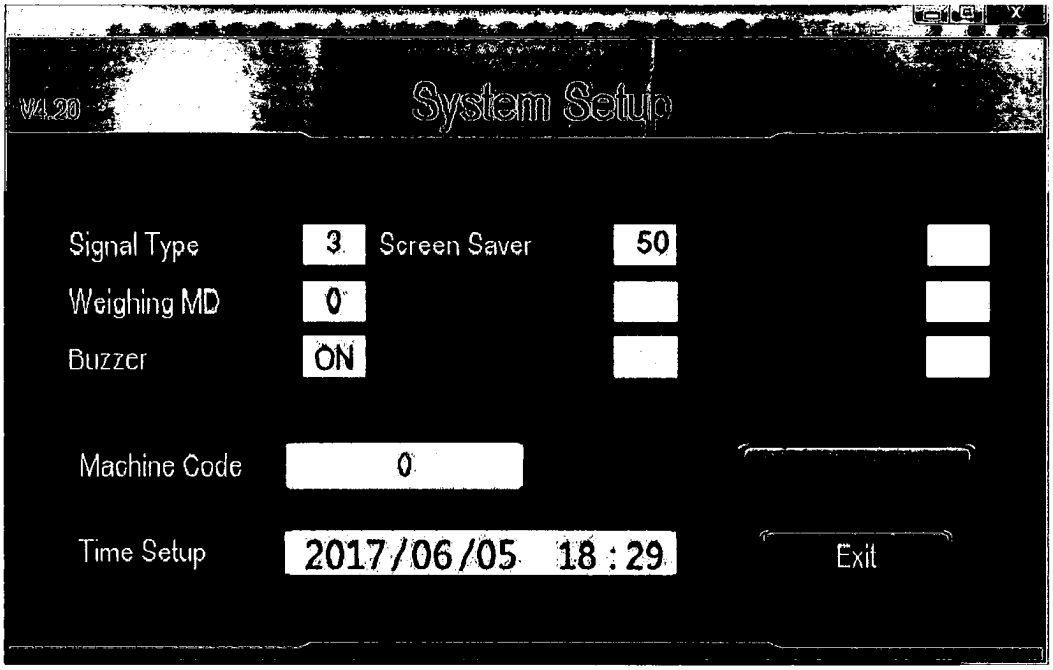


Fig.4-8-2

2. Signal Type:

To preset the models of receiving discharging signal received from the packaging machine. Range:0-3.

- 0: Pulse with memory: If multiheadweigher receive a signal when it is not ready, it will remember the signal and discharge to the packaging machine when it is ready.
- 1: Pulse without memory: If multiheadweigher receive a signal when it is not ready, it will not discharge when it is ready until it receive another request signal.
- 2: Tension with memory: If multiheadweigher receive a signal when it is not ready, it will remember the signal and discharge to the packaging machine when it is ready.
- 3: Tension without memory: If multiheadweigher receive a signal when it is not ready, it will not discharge when it is ready until it receive another request signal.

ATTN : Pulse signal is effective when it connect and break.

Tension signal is effective once it connect.

2. Metering mode

Set to 0, only to set a target of equipment combination weight; set to 1, the number of target equipment combined with particle set as the standard, and in order to meet the goal of grain number, find the best target weight to meet the conditions.

3. Buzzer

Enable / Stop buzzer

4. Screen saver

Set how much time to enter screen saver. Unit: min, max. can be set to 255 minutes

Machine Number

This number has been set up before shipment, in order to facilitate the machine tracking.

4. Time setting

Can set the time and date.

5. Password setting

Touch this button and enter the password settings interface. As shown in figure 4-8-3, the password is up to 8 bits. The client can set the password according to his own needs. The password is valid once entered. Please remember the new password.

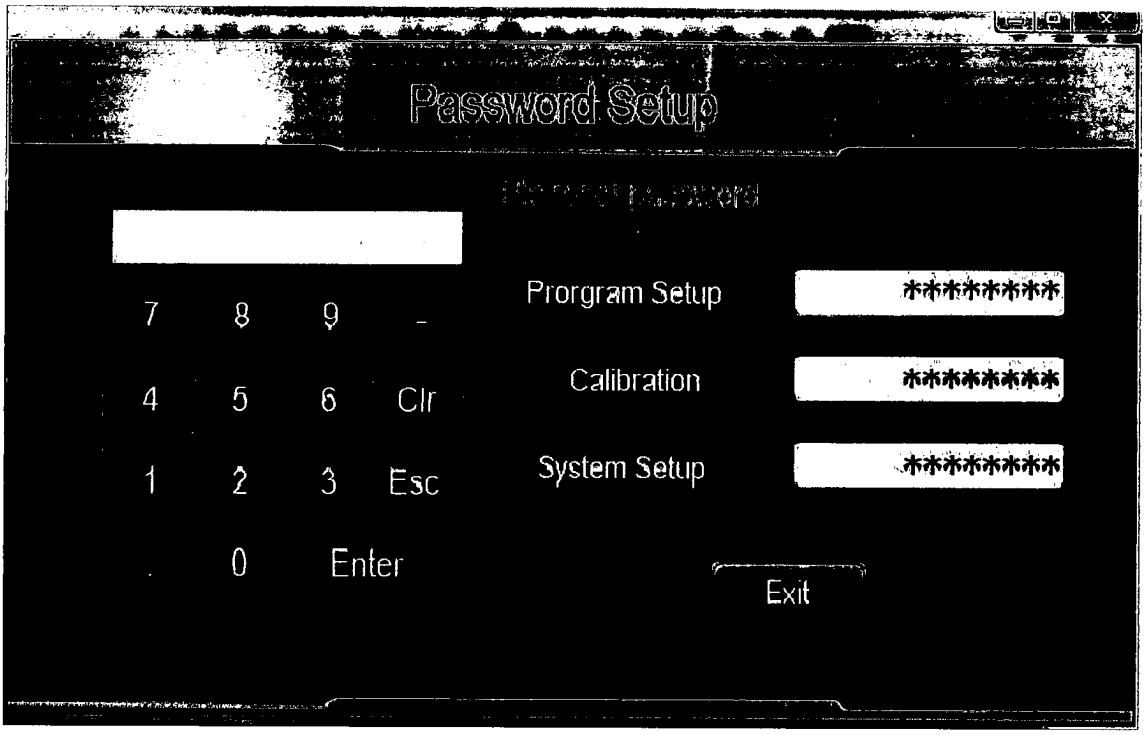


Fig.4-8-3

Chapter 5,Fault self diagnosis and elimination method

Sign or Status	Reason	Inspection and treatment methods
The screen shows "wait for the recombination" No tips on the scale, No feeding	A qualified combination is not found, and the weight of the individual weighing units is less than the minimum weighing value.	In order to find the best combination, please ensure that each weighing unit with product. under normal circumstances, "minimum weighing" is not less than 2.0g
An orange light on	The weight of a single weighing unit is larger than the weight of a single target	Reduce the weight of the product in the orange light weighing unit. A single unit weighing the product is generally best for 20% to 30% of the total weight.
Black (D)	This hopper is disabled	It can be enabled in the manual setting menu.
Big difference between the displaying weight and the actual weight	Zero drift	Check the power supply for reliable grounding Initial calibration
All weighing units have been discharged, but there is an orange light flashing. The combination light (green light) is not on, and the running interface shows "waiting for recombination"	Bad combination, combination not found.	Add product to the weighing unit in orange light, or adjust the weight of the product in certain weighing units to ensure that a combination of the target weight range is found. A single unit weighing the weight of the product is generally best for 20% to 30% of the total weight. When the number indicating force discharge is not equal to 0, the weight of the product in the pan of force discharging is larger than the minimum weight setting value Increasing the pause range and decreasing the stable time can increase the speed of assembly, but too much change will affect the accuracy of the weighing.

Chapter6,KJ1&KJ2 Plugs

KJ1-1/KJ1-2 Discharged Signal

KJ1-3/KJ1-4 Ready Signal

KJ1-5/KJ1-6 Over Weight Signal

KJ1-8/KJ1-9 Discharge Request Signal

Chapter7, Unpacking and Inspection

When opening wooden cases, remove the top cover, and then disassemble the side panels to avoid damaging the surface of the machine

- Check the attached information
  - ① Instruction manual
  - ② Packing list
  - ③ Inspection report
- Check the machine and accessories according to the packing list.

Chapter8, Maintenance and repair

In maintenance or inspection, the power supply of the machine must be cut off and operated by professional maintenance personnel. In order to ensure the normal operation of the machine, extend the service life, and give greater play to its economic value, please do routine maintenance work.

Non maintenance personnel, please do not disassemble this equipment

After use every day, clean the tray, pallet, belt, conveyor belt and other places that have direct contact with the items to be tested.

Before use, make sure there are no foreign objects on the pallet, belt and tray gear. After use, the foreign matter and dust on these parts should be removed.

Clean the dust in the weighing unit at least once every 2 months.